PREFACE

Medical Operations Manual

The Medical Operations Manual (MOM) for Pinellas County is a compilation of many accepted standards of care derived from multiple sources, for out-of-hospital medical treatment and procedures. Among the resources utilized in the revisions of this manual were the American Stroke Association, the American College of Emergency Physicians International Trauma Life Support Course, Lippincott, Williams, Wilkins Nursing Drug Handbook, Mosby’s Prehospital Drug Therapy, Mosby’s Paramedic Textbook Revised Second Edition, the American Heart Association, the American College of Cardiologists, and other current medical research.

The staff of the Pinellas County Office of the Medical Director, in conjunction with the PALS Protocol Committee, have contributed countless hours of review in an effort to assure a careful, accurate, and thorough updating and ongoing review of the Pinellas County Medical Operations Manual. We believe that this document, in combination with real-time consultation capacity, provides comprehensive guidance to the system.

Additionally, the Pinellas County Medical Control Board provides both administrative and medical consensus opinion representing the local medical community. Their perspective uniquely qualifies them to critique system integration into the overall fabric of our community’s healthcare network. The seven physicians and four hospital administrators who constitute the Medical Control Board provide invaluable insight and counsel to the EMS Authority and the system Medical Director.

Approved for use in the Pinellas County EMS System on January 1, 2009.

Laurie A. Romig, MD, FACEP
Medical Director
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Section 1

Introduction to the Medical Operations Manual
1.1 Medical Operations Manual (MOM) – Purpose and Structure

The MOM provides clinical operating guidelines for the many types of clinicians that work in our system -- paramedics, first responders, nurses, emergency medical dispatchers, emergency medical technicians, and physicians.

In all of the treatment protocols, there are certain assumptions made regarding the condition of the patient, time to hospital treatment, expected responses to treatment, the number of problems requiring treatment, and the availability of resources. Obviously, such assumptions are not always true and protocol cannot be written to cover every conceivable situation or medical condition. The care of patients with unusual findings or circumstances should be managed using the clinician’s best judgment, in consultation with On-Line Medical Control (OLMC).

These protocols generally reflect an aggressive treatment strategy. Consultation with OLMC is encouraged when an aggressive treatment plan may be inappropriate or an even more aggressive plan is needed. Cases in which any such protocol deviations are made may be subject to closer review through a quality improvement process termed “Quality Assurance Review” (QAR) used to evaluate such unusual circumstances. In such cases, it is necessary that the documentation describe in detail the circumstances that justified the deviation. The privileges extended in these protocols come with the responsibility for professional accountability through complete and accurate documentation.

The treatment protocols, where necessary, delineate specific treatment for either an adult or pediatric patient, each with three parts:

**Level 1**
- Actions authorized without or prior to OLMC contact

**Level 2**
- Actions to be requested with OLMC contact

**Level 3**
- Actions authorized for special clinical teams or groups of clinicians

These protocols outline care for the most typical cases. In general, as the protocol continues, the assumption is made that the previous steps were ineffective. The protocol for Acute Coronary Syndromes, for example, calls for progression through a logical series of steps prior to the initiation of narcotic analgesic therapy. If the patient happens to progress to cardiac arrest, care would proceed from the appropriate cardiac arrest rhythm protocol. In these or other situations where a switch is made to a different protocol, during the course of care, good clinical judgement must determine where entry into the new protocol sequence is appropriate. It would be impractical to write protocols that specify every possible sequence of events. The common sense and clinical judgement of the clinician must be relied upon to determine which of the authorized procedures are appropriate for a given situation.

**Level 1**

Procedures listed under Level 1 are those that allow the clinician to initiate care promptly while gaining a better understanding of the patient’s condition. These procedures may be performed either without OLMC contact or prior to OLMC contact. These assessment and treatment parameters are those thought to be applicable to the majority of patients who enter the protocol. Protocols, at times, may call for treatments that require OLMC contact after being performed. In these cases, contact is necessary for tracking and quality assurance purposes.
Level 2

Procedures listed under Level 2 are those that, in most cases, require the clinician to make contact with OLMC to obtain authorization to perform. These may be interventions for which there are significant risk/benefit decisions to be made or for which additional level of critical thinking is required. New procedures or medications are often started at Level 2. While Level 2 procedures give guidance for procedures which may be expected to be authorized, clinicians may obtain authorization for or OLMC staff may initiate orders that are not specifically outlined in the protocol. **The OLMC staff member retains full discretion in ordering treatment.**

There may be unusual circumstances in which OLMC contact is not possible or feasible when needed. Examples include radio system failure, radio signal failure (e.g., deep inside some types of buildings) or a situation so emergent (life threatening) that action must be taken immediately to save the life of the patient. In such situations, it may be appropriate to implement Level 2 interventions without prior contact with OLMC.

**These situations should be extremely rare; convenience or expedience of non-lifesaving care is not an acceptable reason for breaching consultation requirements.** Should use of Level 2 interventions be necessary before OLMC contact, the clinician responsible for the decision must notify OLMC of the action post incident, as described in the protocol. The QAR process may be used to evaluate such unusual circumstances.

Level 3

Additional protocol steps are provided, in some cases, for use by specific teams or groups of clinicians and are listed as **Level 3 interventions.** Such groups and teams may include the Hazardous Materials team, Tactical Paramedic teams, and other groups of clinicians specially trained and formally county certified by the Medical Director to provide care in specific circumstances. **All Level 3 interventions are designated to indicate for which individuals or group of individuals the interventions are authorized.** Level 3 interventions require OLMC consultation (or contact with the specified representative of the Medical Director). **Late notification is acceptable for extenuating circumstances; however, proper documentation is necessary and post follow-up with OLMC/MCO will be required.**

Critical Care Transport Team

The Critical Care Transport (CCT) Team has a unique scope of practice and role apart from the rest of the EMS system. CCT operations that differ from or otherwise supercede the system MOM are described in a separate CCT MOM and are not mentioned in great detail within this document. CCT team members are responsible for the content of the system MOM in addition to the CCT MOM. The CCT protocols are not broadly distributed to the rest of the system, but are maintained and available through the Office of the Medical Director and the CCT management team.

OLMC Consultation Criteria

There are a number of additional requirements for OLMC that do not fit into the protocol level structure. These are detailed in OLMC Consultation Criteria Protocol 2.3.

Reference Protocols:

- OLMC Consultation Criteria
Section 2

On-Line Medical Control Operations
2.1 On-Line Medical Control (OLMC) - Purpose

Real-time clinical support is available to field clinicians through OLMC. The OLMC staff members are empowered by the Medical Director to provide clinical consultation and direction, interpretation of system policy, and field response to a scene, at a paramedic's request if clearly indicated.

The OLMC program is intended to serve a variety of functions for the system. Foremost, it is intended to be a real-time resource for field crews to use when they would like to get a clinical consultation about a particular patient situation. Second, it is intended to be a mechanism for real-time quality assurance. Field crews are required to contact OLMC on all cases that exceed a specified level of severity. By reporting the history, physical exam, current field impression and interventions (both made and proposed), OLMC may render a critique and provide instant feedback regarding differential diagnosis, treatment, destination, and any other issues that may need to be assessed. The feedback given to field crews by OLMC will be made in a style and manner of consultation. However, the OLMC staff has final decision-making authority in all matters affecting patient care and carries the full authority of the Medical Director.

The primary OLMC staff consists of a select group of specially designated and certified physicians and paramedics who are equipped to communicate with field crews via radio and telephone for consultation and direction.

The paramedic members of the primary OLMC staff have been given extended clinical privileges as Medical Officers and are thereby authorized to provide OLMC under the Medical Director's license. The Medical Officers are the ranking non-physician medical authority in the Pinellas County EMS System. When a Medical Officer is working an assigned shift for OLMC, they are referred to as a Medical Officer of the Day (MOD). Whenever an MOD is on duty, an EMS physician is available both to the MOD and the system when physician-level consultation is required, however, the MOD will make this decision to involve a physician based on the severity and nature of the consult.
2.2 On-Line Medical Control (OLMC) – Hailing

**OLMC Contact**
- Earliest point in the call
- Prior to transport
- Clinician providing report still with the patient

**Radio Contact**
- Field unit hails on Med “A” (alpha) with Unit Number (wait for acknowledgement).
  - MCO acknowledges. Field unit provides:
    - Field Unit Number
    - Severity of the Patient (Red, Yellow, Green or Black)
    - Chief complaint or reason for consult
    - Hospital destination (if applicable)
    - ETA to destination
  - MCO provides radio channel and OLMC identifier for consult.

Triage of calls occurs on Med “A” based on patient severity. Existing consult may be interrupted to handle higher priority calls.

All orders from OLMC are to be repeated back

Field Unit updates OLMC with results of treatment or change in patient condition.

Crew remains on specified med channel until patient care has been transferred to final destination or disposition determined.

MCO provides patient care report to receiving destination. In the event the MCO cannot make appropriate notification to the receiving destination, the field unit will be advised of the same and provided a direct med channel to make notification.

**Reference Protocols:**
- Patient Severity Code
2.3 On-Line Medical Control (OLMC) Consultation Criteria

In general, the premise of OLMC consultation is that certain situations require increased levels of critical decision making and/or weighing of patient specific risk/benefit considerations, must be tracked for quality assurance purposes, pose a medicolegal risk to the EMS system and providers or may benefit from the unique perspective and knowledge of the OLMC staff. In the case of contact requirements that have the potential to change patient care, such as deviations from protocol or clinical differences of opinion between providers, it is essential that consultation is obtained while the patient care may be affected by the consultation, not afterwards. In instances where a consult cannot be handled in real time due to patient severity, scene safety, etc., a post consult must be done. Post consults are to be completed no later than 30 minutes after an incident and prior to going available. These should be the exception rather than the rule because OLMC staff may be able to offer clinical support and suggestions that might not otherwise be made available to the patient without the consult.

OLMC contact must be established in the following circumstances:

1. Cases where Level 2 interventions are requested.
   • Post consult after performance of Level 2 interventions is acceptable only when undelayed intervention was necessary to provide lifesaving care or for the immediate safety of EMS personnel.
2. Cases where Level 3 interventions are requested.
   • Some Level 3 interventions may require the expertise of a physician specifically designated by the Medical Director, such as tactical medical and HAZMAT consults.
   • Although it is desirable that consultations be obtained prior to the execution of Level 3 orders, it is recognized that some of the specialty team environments (such as tactical situations) may make such contact difficult or impossible. Post consults are acceptable in these situations.
3. When significant differences of opinion regarding patient care occur between on-scene paramedics or between the system and other healthcare facilities, providers or law enforcement officials.
   • In the case of differences between system clinicians, each paramedic will present his/her opinion to OLMC, who will then decide the appropriate course of action. Every effort should be made to give the OLMC staff balanced and complete information on which to make this judgement.
   • In the cases of differences between the system and other parties, OLMC will mediate discussions via the radio and/or telephone.
   • All consultations and other discussions about differences of opinion, must be handled as discreetly, professionally and tactfully as possible, preferably not in the presence of the patient or their family.
4. All cases where there is an attempt (successful or otherwise), without or without the use of medications (to facilitate an intubation) at:
   • Endotracheal intubation or any other approved airway procedures, such as, Combi-tube or cricothyroid airway access.
   • Intraosseous access
   • Needle thoracostomy
   • Resuscitation of a patient in cardiac arrest
5. Cases where a field response by OLMC is requested.
6. Cases in which a deviation from protocol is requested.
   - Intentional deviation from protocol requires consultation prior to the initiation of the deviation, not merely reporting after the fact.

7. Cases where there is a request for discontinuation of CPR in the field, except where the criteria in Protocol 10.8, Section II are met.

8. All cases in which a refusal of evaluation, treatment, transport or recommended destination would, in the clinician's judgment or as otherwise required by protocol, pose a significant risk to the patient, the provider or the EMS system.
   - Refusals for minors who have no complaints and minor mechanism of injury do not require OLMC consult if the field clinician or the MCO speaks directly to the parent or legally appointed guardian. Consult must be performed for such minors if any other adult (such as an older sibling, neighbor or school official) is requesting or being requested to assume responsibility for the child.
   - Refusals of closest facility or otherwise appropriate facility by severity RED patients or of applicable specialty resource hospital destinations for other patients must be handled through OLMC.

9. All cases of refusal of evaluation, treatment and/or transport in which the history or circumstances categorically place the patient's judgment in question.

10. Situations in which a bystander physician or other health care provider wants to participate in patient care.

11. Cases in which a medication, other treatment or transport error has occurred.

12. Cases in which OLMC was not contacted prior to initiating Level 2 or Level 3 interventions.

13. Cases in which a piece of EMS equipment has malfunctioned or is of concern to the paramedic.
   - Consultation is required only if the equipment problem may have affected patient care. Otherwise, malfunctions or concerns are to be reported directly to the MCO via phone.

14. At the specified time in which a research study protocol calls for OLMC contact.

15. Cases in which the clinician desires OLMC consultation as a clinical resource.

16. OLMC authorization is MANDATORY before leaving one Emergency Department or hospital property to go to another, except where formal interfacility transfer arrangements have been made by the transferring physician.

17. All violent or combative patients who may require chemical or physical restraint beyond soft restraints.

18. All cases potentially involving law enforcement transport of a patient to a healthcare facility.

19. All patients who meet STEMI Alert criteria or for whom the clinician feels that PCI referral may be beneficial.

20. All patients not meeting trauma alert or local trauma center transport criteria but for whom the clinician feels neurosurgical services may be necessary.

21. All patients who originally agree to go to the hospital by ambulance, but who later refuse as a result of receiving information about their potential financial obligations.

Reference Protocols:

- Medical Operations Manual (MOM)
- On-Line Medical Control (OLMC)
- On-Line Medical Control (OLMC)
- Acute Coronary Syndromes (ACS)
- Hospital Destination Policy
- Intraosseous Access
- Intubation Techniques
- Cricothyrotomy Airway Access
- Needle Thoracostomy
- Physical Restraint
- Special Situations and Policies
2.4 On-Line Medical Control (OLMC) – Scene Response

**OLMC Scene Response Request**
- Routed through the MCO

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**Radio Contact**
- Field unit hails on Med “A” (alpha) with Unit Number (wait for acknowledgement).
- MCO acknowledges. Field unit provides:
  - Field Unit Number
  - Severity of the Patient (Red, Yellow, Green or Black)
  - Chief complaint or reason for consult
  - Specific situation needing OLMC response
  - Hospital Destination (if applicable)
- MCO provides radio channel and OLMC identifier for consult.

---

**OLMC determines need for field response**

**YES**
- OLMC able to respond.

**NO**
- MCO contacts other OLMC Staff to determine response

---

**Situation handled via radio with OLMC and follow-up by OMD staff as needed.**

---

**No further action**

---

**Yes**
- Situation handled via radio with OLMC and follow-up by OMD staff as needed.
2.5 Patient Severity Codes

The purpose of this protocol is to describe the criteria to be used when categorizing patient severity for verbal reporting, hospital bypass considerations, and multi-casualty incidents.

**Red:** Critical -- The patient has an immediate life-threatening emergency; critical interventions are being provided to save the patient's life. (Examples: cardiac arrest with resuscitation in progress; severe pulmonary edema; shock of traumatic or medical origin)

**Yellow:** Serious -- The patient has a potential risk to life and/or limb, but an immediate life threat does not exist. (Examples: chest pain of suspected cardiac origin but with stable vital signs, moderate asthma requiring multiple treatments and cardiac monitoring, stable trauma alert or trauma center destination criteria patient)

**Green:** Stable -- The patient does not have a significant likelihood of risk to life or limb. An IV with fluids or a reseal does not negate category GREEN triage, unless there are other considerations that give the clinician a basis for concern of potential risk to life or limb. (Examples: Patient with a stable hip fracture receiving pain management, patient with minor difficulty breathing, MVC victim in spinal motion restriction with minor complaints)

**Black:** Unsalvageable or expectant – In most normal circumstances, the patient meets criteria for withholding resuscitative efforts as outlined in Protocol 10.8. In multiple casualty situations with severely restricted resource availability, a patient in cardiac arrest may be considered unsalvageable in favor of treating patients with a higher likelihood of survival. In mass casualty situations, patients who are not in cardiac arrest but who have injuries or illness with an extremely low probability of survival may be categorized as severity Black and receive only expectant comfort care as resources allow. (Example: patient with 75% BSA burns in the setting of an explosion or fire with many victims)

**Reference Protocols:**

- Inclusion and Exclusion Criteria for CPCR – Protocol 10.8
Section 3

Dispatch Operations
3.1 Priority Dispatch & Response Modes

Purpose:

To give clear guidance for the response of units to 911/EMS calls within the Pinellas County EMS System.

3.1a DESCRIPTION:

The Pinellas County EMS System has adopted caller interrogation instructions set forth in the National Academies of Emergency Dispatch’s Medical Priority Dispatch System (MPDS), Version 11 Protocols in their entirety. Within the guidelines of the MPDS, medical direction reserves the right to modify response configurations to meet local needs. From time to time, it may become necessary for the system to amend or modify response configurations because of medical research, local needs, and the evolution of the MPDS.

The Emergency Medical Dispatcher (EMD) plays a key decision-making role in determining EMS response.

The Medical Director is responsible and accountable for the oversight of medical dispatch, practices, and protocols.

3.1b Definitions For Use In This Protocol

“Response Mode” is either an “Emergency Response” (HOT) or a “Downgraded Emergency” (COLD).

“Emergency Response” may be called “HOT” or “Upgraded” and indicates the use of red lights and sirens.

“Downgraded Emergency” may be called “COLD” or “Slowed” and indicates that no red lights or sirens are being used.

“EMD” means Emergency Medical Dispatcher, as defined in the Pinellas County EMS Rules and Regulations.

3.1c Dispatch

Upon receipt of a 9-1-1/EMS call, Pinellas County Emergency Communications (9-1-1) will process the call and dispatch the First Responder unit(s) following the closest unit dispatch policy. Simultaneously, the Ambulance Communications Center will dispatch the closest available, most appropriate ambulance(s) based upon the current System Status Management Plan.

3.1d Response/Pre-Arrival

All EMS Units will initially respond EMERGENCY to an incident.
The 9-1-1 Radio Operator and the Sunstar System Status Controller (SSC) will advise the appropriate responding units of any scene safety information, the primary complaint (chest pain, falls, etc) and response mode (emergency vs. downgraded emergency). Patient’s age, sex, conscious and breathing status may also be relayed as time permits and appropriate.

If the caller is transferred to an EMD, they will conduct a caller interrogation and provide pre-arrival instructions in accordance with the current Pinellas County version of the MPDS protocols. Upon the completion of the interrogation, the EMD will code the response determinant into the “notes” of the call.

Any information provided by the caller indicating infection control measures required by EMS personnel would be typed into the “notes” of the call, indicating airborne or blood borne if known. If the EMD is unable to discern between the two, a note indicating “universal precautions” will be typed into the notes of the call. Specific biosurveillance procedures may require additional questioning and other specific response.

Calls not transferred to an EMD because of law enforcement priority (assaults, staging incidents etc.) will be coded as an emergency response.

All Echo determinants will be dispatched as emergency (HOT). It is encouraged that local EMS agency protocol address specialized assignment(s) by 9-1-1 upon receipt of an Echo situation in their respective EMS response district.

The Central Dispatch Radio Operator and the Sunstar System Status Controller will advise the responding units of the response determinant over the assigned radio tactical channels. Units will alter their response upon receipt of the determinant via radio following the response matrix:

<table>
<thead>
<tr>
<th>Determinant</th>
<th>Fire/Rescue</th>
<th>Sunstar EMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALPHA</td>
<td>Non-emergency</td>
<td>Non-emergency</td>
</tr>
<tr>
<td>BRAVO</td>
<td>Emergency</td>
<td>Emergency</td>
</tr>
<tr>
<td>CHARLIE</td>
<td>Emergency</td>
<td>Emergency</td>
</tr>
<tr>
<td>DELTA</td>
<td>Emergency</td>
<td>Emergency</td>
</tr>
<tr>
<td>ECHO</td>
<td>Emergency</td>
<td>Emergency</td>
</tr>
</tbody>
</table>

3.1e Responding Ambulance Coordination:

Upon receipt of the response information, Ambulance units will inform their controller that they have acknowledged the call. The controller will announce which First Responder unit is responding; the Fire Tactical Channel; and state if the Ambulance being assigned is a “Closer Unit” upon initial dispatch.

The Ambulance crew will immediately switch their portable radio to the Fire Tactical Channel. The unit will monitor this channel until their arrival on the scene or cancellation. The Ambulance will promptly acknowledge upgrades, downgrades, cancellations and requests for locations or ETAs.

If the unit is advised that they are a “Closer Unit,” they will immediately come up on the Fire Tactical Channel using their portable radio and advise the fire/rescue unit that they are a closer unit, their response mode and location/ETA.

If the Ambulance arrives first on scene they will advise on scene, provide a “size up”, as necessary, and advise “At Patient” on the working Fire Tactical Channel.
3.1f Response Considerations:

a. Fire Standby, Ambulance Requested

When responding with the First Responder to a fire incident, Ambulances are to respond non-emergency unless requested emergency by the incident commander or pre-arrival information indicates possible or known patients at the scene.

b. Assaults

When responding to volatile, violent or unsecured incidents requiring staging, First Responder units will respond emergency to the staging location unless their ETA to the staging location is less than five minutes or an Ambulance unit has arrived at the staging location. If the scene is cleared by law enforcement while enroute non-emergency, the unit may then upgrade if necessary.

Ambulance will respond downgraded emergency on all “simple assault”* incidents received from law enforcement with no EMD pre-arrival.

*Simple assault does not include Stab/GSW incidents, which will still follow the designated EMD response and staging protocols.

c. Child Locked in Vehicle (No Apparent Illness or Injury)

When responding to a “child locked in a vehicle”, First Responders are to respond in the downgraded emergency mode unless pre-arrival indicates possible or known injury or illness at the scene. **No Ambulance will be initially assigned.**

9-1-1 will ship the call and caller to Ambulance for EMD processing. If pre-arrival indicates a possible or known injury or illness at the scene, the EMD will upgrade the incident to an emergency and an Ambulance will be assigned. The EMD will then advise 9-1-1 of the change in priority.

Upon arrival at the incident the First Responder unit may request an Ambulance as necessary if not already assigned.

d. Sting Ray

Upon receipt of a sting ray incident at 9-1-1, First Responders are to respond in the downgraded emergency mode unless pre-arrival indicates possible or known injury or illness at the scene. **No Ambulance will be initially assigned.**

9-1-1 will ship the call and caller to Ambulance for EMD processing. If pre-arrival indicates a response recommendation higher than Alpha level, the EMD will upgrade the incident to an emergency and an Ambulance will be assigned. The EMD will then advise 9-1-1 of the change in priority.

Upon arrival at the incident the First Responder unit may request an Ambulance as necessary if not already assigned.
e. Public Assist

When responding to a public assist, “No Complaint” (Omega response non-emergent), an Ambulance will not be assigned to the call with the understanding that information has been presented to the EMD indicating the patient may only need lift assistance, assistance to their car, chair or bed, etc. The calling party or patient has provided no information or indication of illness or injury.

Depending upon the paramedic’s assessment of the patient/scene, he/she may request an Ambulance response, if needed, once they are at the patient’s side.

f. “Information Only”

Requests into 9-1-1 for “medical” information (such as medical advice, treatment of illness or injury, directions to the hospital, etc) shall be generated as a “hold call” incident and transferred with the caller to the Sunstar Communications Center.

Information only for a patient with a medical complaint or medical advice request

The EMD will process the incident with the MPDS. If the patient has an MPDS Priority Complaint (Chest Pain, Breathing Difficulty, Altered LOC or Serious Hemorrhage) the EMD will upgrade the incident to a full system EMS response.

If the caller refuses EMS response, the EMD may advise the caller of other options (ER, immediate care clinic, call their physician, etc). EMD will document all information in CAD.

EMD’s will not give patient care instructions outside of the MPDS protocols, or above a BLS level of care (stingray treatment with hot water, bleeding control, etc. are acceptable, but medication administration is not)

Directions

If a caller is requesting directions to a care facility, the EMD will provide the caller with the option of an EMS response to their vehicle if they will stop. If the caller refuses to stop, EMD may give the requested information to the caller. EMD will document all information in CAD.

If the EMD receives an information only situation where there is a possible or known liability risk to the EMS system, the EMD is encouraged to access OLMC through the MCO.

Poisoning information only situations are addressed in MOM Dispatch Protocol 3.3

Seven digit calls into the Sunstar Communications Center for similar situations shall be handled with the above protocol.

3.1g Unit Altering Response:

First Responders, Ambulance units, and administrative personnel responding to requests for assistance may vary (upgrade or downgrade) from the response determinant if necessary due to staging for law enforcement, scene hazards, heavy traffic or additional patient information which will substantiate their altered response mode.
All altered response modes (refer to the below listing) will be relayed to the appropriate 9-1-1 working tactical radio channel operator and documented in the “notes” of the call. This is a mandatory reporting requirement.

Downgrade due to Staging (ETA less than five minutes to staging location)
Downgrade or upgrade due to Hazard/Weather or other scene conditions
Additional patient information which will substantiate the altered response mode

3.1h Size Up/Downgrade:

Upon notification over the assigned First Responder tactical radio channel of “at patient” of the first ALS, BLS, or agency supervisor, 9-1-1 will advise the Ambulance number assigned to the call. The first arriving unit (Ambulance or First Responder) shall assess and advise within one (1) minute of “At Patient” and advise other responding units to upgrade or downgrade. The first ALS Unit may cancel other responding units as necessary.

A BLS Unit or a law enforcement officer on scene may **downgrade**, but **cannot cancel** the nearest ALS Unit. At least one licensed/permitted ALS Unit (or BLS Unit with a County Certified paramedic) must arrive to evaluate and obtain refusals from any individual(s) who have been involved in the incident. A BLS Unit staffed with a County Certified paramedic that elects to cancel the ALS personnel must insure that the individual(s) do not meet any criteria that would make them a patient. *(Refer to the patient refusal protocol.)*

Sunstar personnel shall not prompt a System Status Controller, Paramedic or EMT’s, First Responders or the 9-1-1 Center to downgrade a response to an Emergency Request.

Ambulance “first on” MVC with refusals

If the Ambulance is the first ALS unit to reach the scene of a motor vehicle crash with all patients refusing EMS evaluation and transport, the Ambulance will downgrade the incoming First Responders and complete the refusal documentation. The Ambulance will not cancel the First Responders. First Responders will continue in non-emergency, await law enforcement, and perform hazard assessment and abatement as necessary. The Ambulance will go available when refusals are completed and scene is turned over to First Responders. If multiple First Responder units are enroute to the scene, First Responders will use their discretion to cancel other incoming First Response units as appropriate, as long as one First Responder unit continues to the scene.

3.1i Upgrade

An **on-scene** BLS unit, ALS unit or agency supervisor may upgrade other responding units as needed due to deteriorating patient condition, weather or other scene conditions.

First Responder and Ambulance Units may not order the upgrade or downgrade of any other responding units until they are physically with the patient.

3.1j On Scene:

On Scene, means the time when BLS, Field supervision, ALS First Responders, and Ambulance units arrive at the scene of a request for service, stopping the vehicle and placing the apparatus in the “park position”.

3.1k Cancellation Enroute:
An ALS Unit, or a BLS Unit with a County Certified paramedic, must continue to the scene of every 911 request for service and determine the need for EMS first hand. Once the 911 system is activated for an EMS call, a County Certified Paramedic must investigate it. **An EMS response shall not be canceled by the general public or law enforcement.** Only one ALS Unit, or BLS Unit with a County Certified Paramedic, should remain assigned to the call and other responding unit(s) should be downgraded or canceled as soon as possible.

3.1l “Unfounded Incident” Cancellation

It is expected that “unfounded “incidents will be investigated with the highest degree of diligence (i.e. thorough search of the reported incident location and perimeter, forced entry consideration, call back attempts to the location by either the Sunstar Communications Center or 9-1-1, confirmation of CAD information, etc.). The first arriving EMS unit at the dispatched scene location will advise 9-1-1 or the Sunstar Communications Center of all efforts made to locate the patient and reason for cancellation of EMS units as applicable.

3.1m Transport modes leaving the scene:

1. The use of lights and sirens during patient transportation must be based on sound patient problem assessment or on objective situational approval. The use of lights and sirens must be restricted to only those situations of dire circumstance in which response time reduction has been proven to improve patient survival.
2. Patients categorized in protocol as severity RED shall be transported from the scene of the emergency with red lights and sirens to the most appropriate hospital.
3. Patients categorized in protocol as severity YELLOW may be transported from the scene of the emergency with red lights and sirens if the patient’s condition is serious, considered unstable, life threatening and warrants timely medical interventions at the hospital, such as thrombolytics for myocardial infarction or stroke management.
4. Objective situational approval may be made during consultation with OLMC.

References:

3.2 Ambulance Communications Center Management of Requests or Assistance Received from a 7-Digit Non-Emergency Telephone Line

3.2a Description

In addition to 9-1-1 calls, the Ambulance communications center staff answers requests for EMS assistance over a seven-digit non-emergency telephone line. Seven-digit requests often come from entities such as: adult living facilities, nursing home facilities, home health care personnel, physician’s offices, and law enforcement. Occasionally the general public will also call in a request over the seven-digit lines.

The requests for EMS service vary in nature, from routine interfacility transfers to critical emergencies. Without policy or formal clarification to such requests, a variety of responses could be anticipated. The protocol is based on both the experiences of Pinellas County’s certified EMD’s, field EMS providers, and the MPDS structured protocol.

The MPDS Version 11 Chief Complaint Card # 33 “Interfacility/Palliative Care” provides for scripted questioning of patients who are currently under the care of medical professionals that require additional care, diagnostics, or re-evaluation at a different medical facility*.

*Note: “Patient transfers” do not fall under a category of “Chief Complaint” and will not be evaluated with the MPDS.

The “33 Card” provides for different levels of response allocation as set forth by local Medical Control. In addition to the traditional response descriptors, there are three acuity levels available for local assignment to the “Alpha” descriptor. These acuity levels within the “33 Card” protocol further allow for greater resource management (response mode and type(s) of unit) with the consideration of the level of care that the patient is currently receiving.

EMD will interrogate callers other than medical professionals utilizing the other appropriate MPDS Chief Complaint Protocols. Medical Assistant, CNA, Unit Secretary or other clerical personnel, are not able to prioritize transport requests. Specialized situations such as MPH Heart and Vascular Pavilion, HealthSouth, Sabal Palms Pediatric and PJAC incidents will continue to be handled outside of this protocol.

3.2b Definitions For Use In This Protocol

Pinellas County Emergency Communications (9-1-1) is the Public Safety Answering Point (PSAP) located in Clearwater, FL. The center is responsible for answering all calls in which a 911 request for assistance has been made and for processing of incidents transferred from the Sunstar Ambulance Communications Center.

They are responsible for dispatching emergency apparatus to Fire and EMS incidents and for the timely transfer to the Ambulance Communications Center of patients experiencing medical illness and injury.
“Sunstar Ambulance Communications Center” is the communications center, located in Largo, FL, responsible for Ambulance dispatch and for the provision of conducting a caller interrogation using certified paramedics trained in Emergency Medical Dispatching (EMD).

“Calling Party” is the person or persons calling the non-emergency telephone line requesting a 911 emergency response, a non-emergency response, or for the scheduled transfer of a patient between health care facilities.

“Patient Transfer” is a request for service where the patient does not have a medical or traumatic chief complaint, but an Ambulance is needed to facilitate transport between hospitals, physicians' offices, and nursing homes. There is no anticipated EMS care intervention other than general assessment for the duration of the call. The MPDS is not utilized for this classification of request.

“Medical Professional” is a licensed health care worker that is with the patient and will remain with the patient until arrival of EMS. This classification includes: LPN, RN, ARNP and Medical Physician.

3.2c Response Definitions For Use In This Protocol

“Priority 1” is an emergency response (full ALS system response).

“Priority 3” is an unscheduled non-emergency response with an estimated time of arrival of one (1) hour or less. This priority includes low-acuity situations such as “patient transfers” (no EMS intervention anticipated) in addition to patients with a low-acuity chief complaint and subsequent MPDS triage by the EMD. Patients in this category will have the proper “Problem/Nature” documented in the CAD, and Sunstar SSC’s will treat the call in a fashion similar to a “downgraded emergency”.

3.2d Medical Professional Seven Digit Non-Emergency Requests for Service,

Patient with a Chief Complaint:

Response level definitions for MPDS Chief Complaint Protocol 33

The #33 Chief Complaint protocol designates response options to various medical and trauma incidents while the patient is under the care of a medical professional. The intent of this section is to further clarify the Pinellas County EMS criteria for “Delta” and “Charlie” EMD dispatch codes.

Protocol 33 “Charlie” and “Delta” level assignments by the Sunstar EMD will be shipped to 9-1-1 for full ALS response. There is no “Bravo” response in the 33 Protocol. “Alpha” response level for this protocol will only be reached after completed interrogation to rule out “Charlie” and “Delta” level responses.

Acuity levels I, II, and III that fall under the “Alpha” level of response will be delineated by the following call origination criteria:

Acuity Level I: Ambulance-only: Unscheduled Non-Emergency Response (Priority 3)

This level will be designated for patients in nursing homes, adult living facilities or residences with a medical professional in attendance of the patient.
Acuity Level II: Ambulance-only: Unscheduled Non-Emergency Response (Priority 3)

This level will be for sub-acute care medical facilities such as physician’s offices and outpatient surgical centers with a medical professional in attendance of the patient.

Acuity Level III:

Reserved for future use.

3.2e General Public Seven Digit Requests, Patient with a Chief Complaint

These requests for service will be handled similarly to 9-1-1 requests by utilizing the MPDS Chief Complaint Protocols 1-32 respectively. Upon interrogation and obtaining the response level descriptor and EMD dispatch code, the Ambulance EMD will generate a full ALS system response and ship the call to 9-1-1.

3.2f Law Enforcement Dispatch Requests For Non-Emergency Response

Requests from Law Enforcement Agencies for non-emergency transport (Baker Act, sick person, "routine transport") with Law Enforcement on scene may be coded as Priority 3 and not shipped to 9-1-1. Sunstar EMD will attempt to gather as much pre-arrival information as possible from the caller prior to coding the incident.

EMD may use discretion to upgrade call to Priority 1 and ship to 9-1-1 due to lack of patient information and/or no confirmation that Law Enforcement will remain with the patient until the arrival of EMS.

References:

3.3 Poison Information Center Consultations

Purpose:

To establish a cooperative agreement with the area’s Poison Information Center (PIC). To provide guidance when consultation may be necessary with the PIC under FS 395.1027.

Description

The Tampa Bay Regional Poison Information Center allows access to specialized instruction and considerations for incidents involving toxic exposures.

This protocol establishes a process for Pinellas County Emergency Communications and the Sunstar Communications Center to coordinate appropriate EMS response with MPDS and PIC guidance.

Definitions For Use In This Protocol

Pinellas County Emergency Communications (9-1-1) is the Public Safety Answering Point (PSAP) located in Clearwater, FL. The center is responsible for answering all calls in which a 911 request for assistance has been made and for processing incidents transferred from the Sunstar Ambulance Communications Center. They are responsible for dispatching emergency apparatus to Fire and EMS incidents and for the timely transfer to the Ambulance Communications Center of patients experiencing medical illness and injury.

“Sunstar Ambulance Communications Center” is the communications center, located in Largo, FL, responsible for Ambulance dispatch and for the provision of conducting a caller interrogation using certified paramedics trained in Emergency Medical Dispatching (EMD).

“Toxic Exposure” is the intentional or unintentional inhalation, ingestion, injection, dermal, or ocular application of a medication, chemical, biologically active substance or bite/sting resulting in immediate or delayed effects.

“Poisoning” is an accidental intake of a potentially harmful substance.

“Poison Information Center” (PIC) is the designated Poison Control Center, located in Tampa, FL, having responsibility for the geographic area in which the licensee(s) operate.

“Telephone Conference Call” is the direct telephone connection between the Calling Party, the Sunstar Communications Center and Poison Information Center when the protocol prompts such action.

“Calling Party” is the person or persons calling 911, either requesting information about a medical problem identified within this protocol or requesting paramedics for an emergency response.

“Omega Response” is a referral to the PIC after screening by the EMD that may not necessitate an EMS response. Home care may be recommended by the PIC.
Upon receipt of a request for information only on a toxic exposure identified within this protocol, 9-1-1 will not generate an EMS response unless requested by the calling party. The calling party will be transferred to the Sunstar Communications Center for caller interrogation and pre-arrival instructions.

Upon receipt of a request for paramedics for a toxic exposure identified within this protocol, 9-1-1 will transfer the calling party to Sunstar while generating an emergency EMS response. The only exception is that if the request for paramedics is for a poisoning, 9-1-1 will transfer the calling party while generating a non-emergency first responder dispatch with no initial Ambulance assignment.

These same protocols shall apply to seven digit callers into the Ambulance Communications Center.

Sunstar Communications Center

The EMD will conduct a caller interrogation and pre-arrival instructions in accordance with the current Pinellas County version of the Medical Priority Dispatch System (MPDS) protocols. Upon completion of the interrogation, the EMD will code the response determinant into the “notes” of the call.

Calling Party Requests “Information Only” For A Toxic Exposure

The Sunstar EMD will interrogate the caller using the appropriate MPDS Protocol card for toxic exposure situations.

Omega Poisoning/Ingestion

If, after the initial EMD interrogation, the patient falls under the MPDS priority of “23-Omega” (Poisoning without priority symptoms) EMD will transfer the caller to the PIC via the ALI/ANI (telephone conference call) and monitor the conversation. If PIC advises either no treatment, no Ambulance needed, or home treatment only, the EMD will instruct the calling party to call back immediately to 911 if any change in patient condition. The incident will be canceled in the Sunstar CAD by the EMD for “referral to poison control”.

Toxic Exposures Exclusive Of Omega

If the recommended MPDS or PIC dispatch level is a response other than “23-Omega”, then the caller will be advised that EMS will be sent to the patient to render further evaluation and treatment. The EMD will upgrade the priority from a “hold call” after documenting the response determinant and ship it to 9-1-1 for full system response. If appropriate and possible, the EMD will transfer the caller to the PIC for specific treatment considerations, which will be documented by the EMD in the notes of the incident. The EMD will remain on the line if possible until the arrival of the first EMS unit to verbally relay the information from the PIC.
Overdose

The EMD will upgrade the incident to a full system and law enforcement response if there is evidence of an intentional act (overdose), which is a “Bravo” response at minimum. PIC will still be contacted as appropriate and possible by the EMD, with potential life threat abatement instructions to the responders, bystanders, or the patient, taking precedence.

Calling Party Requests Paramedics for a Toxic Exposure:

If a caller requests paramedics for a toxic exposure, 9-1-1 will transfer the caller to Sunstar while generating an EMS emergency response. The Sunstar EMD will interrogate the caller using the appropriate MPDS Protocol card for toxic exposure situations. The only exception is that if the request for paramedics is for a poisoning, 9-1-1 will transfer the calling party while generating a non-emergency first responder dispatch with no initial Ambulance assignment.

Omega Poisoning/Ingestion

If, after the initial EMD interrogation, the patient falls under the priority of “23-Omega” (Poisoning without priority symptoms) EMD will transfer the caller to the PIC via the ALI/ANI (telephone conference call) and monitor the conversation. If PIC advises either no treatment, no Ambulance needed, or home treatment only, First Responder will continue downgraded for verification of the incident and to take an EMS refusal as appropriate. EMD will instruct the calling party to call back immediately to 9-1-1 if any change in patient condition. The EMD will remain on the line if possible until the arrival of the EMS unit to verbally relay the information from the PIC.

If PIC recommends EMS treatment and/or transport, EMD will upgrade the incident and assign an Ambulance.

Toxic Exposures Exclusive Of Omega

If the recommended MPDS dispatch level is a response other than “23-Omega”, the incident will be upgraded and an Ambulance will be assigned. If appropriate and possible, the EMD will transfer the caller to the PIC for specific treatment considerations, which will also be documented by the EMD in the notes of the incident. The EMD will remain on the line, if possible, until the arrival of the first EMS unit to verbally relay the information from the PIC. Time permitting, it is recommended that the EMD advise the MCO of the situation as to where to find the information from PIC for that incident.

Special Note:

If applicable, and when the situation allows for such, the calling party will be requested to have the attending paramedic talk on the telephone with the PIC.

Consultation with the PIC may be necessary from the field. This is best accomplished by calling the PIC directly to provide specific patient information. If direct phone contact from the field is not available, the PIC may be accessed through the MCO.

Poison Center Medical Director Signature  (Signature on file at the Office of the Medical Director)

Poison Center Managing Director Signature  (Signature on file at the Office of the Medical Director)
References:

3.4 Obvious and Expected Death

The Pinellas County EMS Medical Control Board and the EMS Authority have determined that it is in the best interest of patient care to clarify the response determinants for Obvious Death and Expected Death protocol in the dispatch environment.

The Pinellas County EMS System has adopted the Advanced Medical Priority Dispatch System (MPDS) protocols in their entirety. It is encouraged by the National Association of Emergency Medical Dispatchers (NAEMD) that local Medical Direction provides guidelines for proper delineation between “obvious death”, “expected death” and “workable cardiac arrest” response modes for EMS.

**Obvious Death Procedure:**

The EMD will conduct a caller interrogation and pre-arrival instructions in accordance with the current Pinellas County version of the MPDS protocols. Upon the completion of the interrogation, the EMD will code the response determinant into the “notes” of the call.

The Medical Director and the Medical Control Board have determined that the following conditions must be identified to clarify Obvious Death (unquestionable) “Bravo” criteria for the MPDS Protocol # 09 (Cardiac or Respiratory Arrest/Death):

- Patient cold and stiff in a warm environment
- Decapitation
- Decomposition
- Explosive GSW to the head (patient not breathing)
- Incineration
- Non-recent death (> 6 hours ago)
- Severe injuries incompatible with life
- Submersion (>6 hours)

This information must be **volunteered** by the caller during interrogation, and may not be solicited by the EMD. All other criteria will be coded as Workable Arrest (Delta) by the EMD. If the EMD has any question as to whether the call is a Bravo vs. Delta, or if the caller is not certain that the patient is “beyond any help” (per MPDS key question 3.a) the EMD will code the call at the Delta tier and proceed with Pre Arrival Instructions as appropriate and possible.

**Expected Death Procedure**

The EMD will conduct a caller interrogation and pre-arrival instructions in accordance with the current Pinellas County version of the MPDS protocols. Upon the completion of the interrogation, the EMD will code the response determinant into the “notes” of the call.

The Medical Director and the Medical Control Board have determined that the following conditions must be identified to clarify Expected Death “Omega” criteria for the MPDS Protocol # 09 (Cardiac/Respiratory Arrest/Death):

- Presence of a valid State of Florida DNR Order with the patient
- Terminal illness condition volunteered by the caller
If the caller advises that the patient has a DNRO, the EMD will clarify with the caller if there is a valid DNRO with the patient during interrogation. If the caller advises that the patient is an expected death due to a terminal illness, the EMD may treat the situation as an “Expected Death”.

In both situations the caller will be asked (as per the MPDS key question 3.b) if they are certain that they should not resuscitate the patient. An answer of “No”, and /or all other criteria will be coded as Workable Arrest (Delta) by the EMD. If the caller is uncertain if the patient should be resuscitated (after MPDS key question 3.b) then the EMD will code the call as a Workable Arrest (Delta) and provide Pre-Arrival Instructions (PAI) to the caller. If the EMD has any question as to whether the call is an Expected Death (Omega) vs. Workable Arrest (Delta), the EMD will code the call at the Delta tier and proceed with Pre Arrival Instructions as appropriate and possible.

**EMS Response Modes:**

Upon determination of an “Expected Death” or “Obvious Death” the First Responder unit will continue emergency to the scene, while the Ambulance will downgrade until the First Responder unit arrives at patient and advises status of the patient. If the patient is a confirmed death, the Ambulance will go available from the call. Any other scenario found by the First Responder will be situational dependant on the Ambulance response mode. Ambulance will immediately upgrade if First Responders are working a code.

If the Ambulance arrives first, the First Responders may continue in and await arrival of law enforcement after Ambulance completion of PCR to free transport unit for other incidents.

**References:**

3.5 Mental Health Interfacility Call Taking Procedure

Purpose:
To give clear guidance to Emergency Medical Dispatch (EMD) personnel in selecting the appropriate response determinant for mental health clients being transported in the Pinellas County EMS System.

Description:
The Pinellas County EMS System has identified a need to provide specialized transportation options to mental health clients who have been placed under the protection of the Baker Act and have been medically cleared for transport to an appropriate receiving facility for further mental health examination and treatment.

Procedure:
The EMD will conduct a caller interrogation in accordance with the current Sunstar Communications Center Standard Operating Procedure (SOP) and this protocol. After determining demographic, pick up and destination information, the EMD will ask the following questions:

1. Does the Client need oxygen or medical attention during transport?
2. Is the Client physically restrained or non-ambulatory?
3. Does the client currently exhibit violent behavior or is he/she likely to exhibit violent behavior during transport?
4. Is the client at high risk for elopement by statements made or behavior exhibited?
5. Will the patient require transport out of county?
6. Is the Client ambulatory without distance restrictions, able to walk from room to van and get in and out of the van without assistance.

If the answer was "yes" to any of the questions, then the Client meets the criteria to be sent in an ALS ambulance. If the answer is yes to questions 3 or 4 the patient will require restraint (chemical or physical) prior to and during ambulance transportation. The incident will be coded as a Problem/Nature of "MHT ALS Ambulance" and an ALS Ambulance will be sent.

If the answer was "no" to all the questions, then the Client may meet criteria to be transported by the Mental Health Transport (MHT) Unit. The incident will be coded a Problem/Nature of "MHT Unit Response" and the MHT Unit will be sent to evaluate the situation.
Section 4

Special Situations and Policies
4.1 Mandatory Reporting Requirements

Purpose:

The purpose of this protocol is to describe the mandatory reporting requirements of the State of Florida Health and Rehabilitative Services, as they pertain to the operations of Pinellas County Emergency Medical Services.

Special Note: The information presented in this protocol is selected information from Florida Statute, Chapter 415. Any additional questions to legal reference(s) made in your management of patient care should be through On-Line Medical Control. Additional information needed about this law should be researched using Florida Statutes or legal counsel.

Description:

1 Suspected child abuse (HRS Program Letter 87-4)
   A) Sections 415.502-415.504(3), Florida Statutes, covers the major requirements for EMT and Paramedic staff in terms of mandatory reports of child abuse or neglect. Section 415.504 Florida Statutes requires that the above staff, as listed professional classes, must report if they believe abuse or neglect has occurred. This report is made to the Central Abuse Hot-Line Registry in Tallahassee at 1-800-96-ABUSE, which is operated on a 24-hour basis.
   B) Each report of known or suspected child abuse or neglect shall be made immediately to the state central abuse Hot-Line on the single statewide toll-free telephone number, and, if the report is of an instance of known or suspected child abuse by a non-caretaker, the call shall be immediately electronically transferred to the appropriate county sheriff's office by the central abuse Hot-Line.
   C) EMS personnel are required to provide their names to the Hot-Line staff. The names of the reporter shall be entered into the record of the report, but shall be held confidential as provided in s. 415.51(9).
   D) For purposes of guiding your decision and actions, the following legal definitions are provided from Section 415.503 Florida Statutes. They are paraphrased as follows with statute reference; essential sections of concern have emphasis added.
      i) "Abused or neglected child" means a child whose physical or mental health or welfare is harmed, or threatened with harm, by the acts or omissions of the parent or other person responsible for the child's welfare or, for purposes of reporting requirements, by any person.
      ii) "Harm" to a child's health or welfare can occur when the parent or other person responsible for the child's welfare:
         1. Inflicts, or allows to be inflicted, upon the child physical or mental injury. Such injury includes, but is not limited to:
            (1) Injury sustained as a result of excessive corporal punishment;
            (2) Physical dependency of a newborn infant upon any drug controlled in schedule I of s. 893.03, upon any drug controlled in schedule II of s. 893.03 with the exception of drugs administered in conjunction with a detoxification program as defined in s. 397.021, or upon drugs administered in conjunction with medically approved treatment procedures; provided that no parent of such newborn infant shall be subject to criminal investigation solely on the basis of such infant's drug dependency;
         2. Commits, or allows to be committed, sexual battery, as defined in chapter 794, against the child or commits, or allows to be committed, sexual abuse of a child;
3. Exploits a child, or allows a child to be exploited, as provided in s. 450.151;
4. Abandons the child;
5. Fails to provide the child with supervision or guardianship by specific acts or
omissions of a serious nature requiring the intervention of the department or the
court;
6. Fails to supply the child with adequate food, clothing, shelter, or health care, although
financially able to do so or although offered financial or other means to do so;
however, a parent or other person responsible for the child’s welfare legitimately
practicing their religious beliefs, who by reason thereof does not provide specified
medical treatment for a child, may not be considered abusive or neglectful for that
person alone.

E) Even though the statutes indicate that mandatory reporting must be accomplished using the
established Abuse Hot-Line, there is nothing to prevent any EMT or Paramedic professional
from reporting a suspected act of child abuse to the law enforcement agency with
jurisdiction "where the alleged abuse occurred." This report is not mandatory, but if
personnel feel an immediate law enforcement action is necessary, they are encouraged to
report the incident to the local law enforcement agency in addition to the required Hot-Line
notification.

F) In all instances of an alleged child abuse or neglect report, a full patient care report
including any supplemental information should be completed.

2 Suspected adult abuse:

A) Sections 415.101-415.103(2) Florida Statutes extend the same mandatory reporting
conditions described for children to aged adults. The same mandatory reporting
requirements for telephone Hot-Line reporting are required.

B) Definitions that pertain to this section that may be useful in guiding our decisions are listed
below with emphasis added for important considerations. These definitions are extracted
from Section 415.102.

i) "Abuse" means the non-accidental infliction of physical or psychological injury or sexual
abuse upon a disabled adult or an elderly person by a relative, caregiver, or household
member, or an action by any of those persons which could reasonably be expected to
result in physical or psychological injury, or sexual abuse of a disabled adult or an elderly
person by any person. “Abuse” also means the active encouragement of any person by
a relative, caregiver, or household member to commit an act that inflicts or could
reasonably be expected to result in physical or psychological injury to a disabled adult or
an elderly person.

ii) "Elderly Person" means a person 60 years of age or older who is suffering from
infirmities of aging as manifested by advanced age or organic brain damage, or other
physical, mental, or emotional dysfunctioning to the extent that the ability of the person
to provide adequately for the person’s own care or protection is impaired.

iii) "Neglect" means the failure or omission on the part of the caregiver to provide the care,
supervision, and services necessary to maintain the physical and mental health of the
disabled adult or elderly person, including, but not limited to, food, clothing, medicine,
shelter, supervision, and medical services, that a prudent person would consider
essential for the well-being of a disabled adult or an elderly person. The term “neglect”
also means the failure of a caregiver to make a reasonable effort to protect a disabled
adult or an elderly person from abuse, neglect, or exploitation by others. “Neglect” is
repeated conduct or a single incident of carelessness that produces, or could reasonably
be expected to result in, serious physical or psychological injury or a substantial risk of
death.
iv) "Exploitation" means a person who:

1. Stands in a position of trust and confidence with a disabled adult or an elderly person and knowingly, by deception or intimidation, obtains or uses, or endeavors to obtain or use, a disabled adult’s or an elderly person’s funds, assets, or property with the intent to temporarily or permanently deprive a disabled adult or an elderly person of the use, benefit, or possession of the funds, assets, or property for the benefit of someone other than the disabled adult or elderly person; or

2. Knows or should know that the disabled adult or elderly person lacks the capacity to consent, and obtains or uses, or endeavors to obtain or use, the disabled adult’s or elderly person’s funds, assets, or property with the intent to temporarily or permanently deprive the disabled adult or elderly person of the use, benefit, or possession of the funds, assets, or property for the benefit of someone other than the disabled adult or elderly person.

3. “Exploitation” may include, but is not limited to:

   (1) Breaches of fiduciary relationships, such as the misuse of power of attorney or the abuse of guardianship duties, resulting in the unauthorized appropriation, sale, or transfer of property;

   (2) Unauthorized taking of personal assets;

   (3) Misappropriation, misuse, or transfer of moneys belonging to a disabled adult or elderly person from a personal or joint account; or

   (4) Intentional or negligent failure to effectively use a disabled adult’s or elderly person’s income and assets for the necessities required for that person’s support and maintenance.

C) Even though the statutes indicate that mandatory reporting must be accomplished using the established Abuse Hot-Line, there is nothing to prevent any EMT or Paramedic professional from reporting a suspected act of child abuse to the law enforcement agency with jurisdiction "where the alleged abuse occurred." This report is not mandatory, but if personnel feel an immediate law enforcement action is necessary, they are encouraged to report the incident to the local law enforcement agency in addition to the required Hot-Line notification.

D) In all instances of an alleged child abuse or neglect report, a full patient care report including any supplemental information should be completed.

3 Domestic and household violence or abuse:

A) If any EMT or Paramedic professional observes conditions in a residential setting that indicate that violence has occurred, they are encouraged to contact the Pinellas County Domestic Violence Intervention Program, or to contact the Medical Communications Officer (MCO) for additional telephone reference numbers. This referral service is available 24 hours a day, seven days a week. The notice of possible violence indicated in the home will activate an early intervention and counseling system. The notification to the MCO does not relinquish the requirements of the EMT or paramedic from notifying the State of Florida Hot Line.

i) Information provided should include the names of those residing in the household, the address, and a brief description of the conditions that indicated the report should be made.

ii) In the case of any referral, an incident report should be completed.

iii) If, in the opinion of the EMT or Paramedic on scene, the situation is of such a nature that violence is likely to escalate or re-occur, EMS personnel are encouraged to contact the law enforcement agency with jurisdiction over the address where the violence has occurred.
4 Burn victims (HRS Program letter 87-14) & FL. Statute 877.155 (1997)

A) Effective October 1, 1987, House Bill 1205 & now Florida Statute 877.155 requires any person who initially treats or is requested to treat a person with burn injuries to immediately report such treatment to the local sheriff’s department, if the following criteria are met:
   i) The victim must have second or third degree burn injuries affecting 10% or more of the body;
   ii) The treating person determines that the burns were caused by a flammable substance; and,
   iii) The treating person suspects the injury is a result of violence or unlawful activity.
B) The report to the sheriff’s department must include the name and address of the injured person and the extent of his injuries.
C) This requirement does not apply to any burn injuries received by a member of the armed forces or a governmental employee, engaged in the performance of his duties.
D) Any person who willfully fails to report a burn-injured person who meets the above criteria is guilty of a misdemeanor of the first degree.
4.2 Baker Act

The Baker Act (Chapter 394 -- Mental Health) relates to the authorization of police, physicians and the courts to dictate certain medical care for persons who pose a threat to themselves or others. The purpose of this protocol is to describe the Act, and how it relates to Pinellas County Emergency Medical Services operations.

Special Note: The information presented in this protocol is selected information from Florida Statute, Chapter 394. Any additional questions to legal reference(s) made in your management of patient care should be through On-Line Medical Control. Additional information needed about this law should be researched using Florida Statutes or legal counsel.

Description:

Chapter 394 -- Mental Health

1 394.461 Facilities; Transfers of patients
   a) Criminally charged or convicted mentally ill persons -- No receiving facility shall be required to accept for examination and treatment any person with pending felony charges involving a crime of violence against another person.

2 394.463 Involuntary examination
   a) Criteria: A person may be taken to a receiving facility for involuntary examination if there is reason to believe he or she is mentally ill and because of his or her mental illness:
      i) The person has refused voluntary examination after conscientious explanation and disclosure of the purpose of the examination; or
      ii) The person is unable to determine for himself or herself whether examination is necessary; AND
      iii) Without care or treatment, the person is likely to suffer from neglect or refuse to care for himself or herself; such neglect or refusal poses a real and present threat of substantial harm to his or her well-being; and it is not apparent that such harm may be avoided through the help of willing family members or friends or the provision of other services; or
      iv) There is a substantial likelihood that without care or treatment the person will cause serious bodily harm to himself or herself or others in the near future, as evidenced by recent behavior.

b) Involuntary examination:
   i) Initiation of involuntary examination -- An involuntary examination may be initiated by any one of the following means:
      a) A court may enter an ex parte order stating that a person appears to meet the criteria for involuntary examination, giving the findings on which that conclusion is based. The ex parte order for involuntary examination must be based on sworn testimony, written or oral. If other less restrictive means are not available, such as voluntary appearance for outpatient evaluation, a law enforcement officer or other designated agent of the court shall take the person into custody and deliver him or her to the nearest receiving facility for involuntary examination. The order of the court shall be made a part of the patient's clinical record. No fee shall be charged for the filing of an order under this subsection. Any receiving facility accepting the patient based on this order must send a copy of the order to the Agency for Health Care Administration on the next working day.
The order shall be valid only until executed or, if not executed, for the period specified in the order itself. If no time limit is specified in the order, the order shall be valid for 7 days after the date the order was signed.

b) A law enforcement officer shall take a person who appears to meet the criteria for involuntary examination into custody and deliver the person or have him or her delivered to the nearest receiving facility for examination. The officer shall execute a written report detailing the circumstances under which the person was taken into custody, and the report shall be made a part of the patient's clinical record. Any receiving facility accepting the patient based on this report must send a copy of the report to the Agency for Health Care Administration on the next working day.

c) A physician, clinical psychologist, psychiatric nurse, or clinical social worker may execute a certificate stating that he or she has examined a person within the preceding 48 hours and finds that the person appears to meet the criteria for involuntary examination and stating the observations upon which that conclusion is based. If other less restrictive means are not available, such as voluntary appearance for outpatient evaluation, a law enforcement officer shall take the person named in the certificate into custody and deliver him or her to the nearest available receiving facility for involuntary examination. The law enforcement officer shall execute a written report detailing the circumstances under which the person was taken into custody. The report and certificate shall be made a part of the patient's clinical record. Any receiving facility accepting the patient based on this certificate must send a copy of the certificate to the Agency for Health Care Administration on the next working day.

3 394.462 Transportation
Transportation to a receiving facility:

a) Transportation for involuntary examination -- Each county shall designate a single law enforcement agency within the county, or portions thereof, to take a person into custody upon the entry of an ex parte order or the execution of a certificate for involuntary examination by an authorized professional and to transport that person to the nearest receiving facility for examination. The designated law enforcement agency may decline to transport the person to a receiving facility only if:

b) The jurisdiction designated by the county has contracted on an annual basis with an emergency medical transport service or private transport company for transportation of persons to receiving facilities pursuant to this section at the sole cost of the county; and

c) The law enforcement agency and the emergency medical transport service or private transport company agree that the continued presence of law enforcement personnel is not necessary for the safety of the person or others.

1) When a law enforcement officer takes custody of a person pursuant to this part, the officer may request assistance from emergency medical personnel if such assistance is needed for the safety of the officer or the person in custody.

2) If the appropriate law enforcement officer believes that a person has an emergency medical condition as defined in s. 394.002, the person may be first transported to a hospital for emergency medical treatment, regardless of whether the hospital is a designated receiving facility.

3) EMS should provide feedback to law enforcement regarding potentially emergent conditions that have been determined time urgent to medical care.

4 Determining the patient’s medical stability when selecting the most appropriate care facility:

A) **Psychiatric Disturbances**
Psychiatric disturbances are emergency medical conditions if the patient poses a danger to self or others as a result of suicidal tendencies, inability to care for self, or aggressive behavior. What psychiatric conditions might be considered emergency medical conditions in a clinical presentation? Such conditions might include:

1. Attempted Suicide
2. Depression with suicidal ideation
3. Violent actions threatened or attempted toward others
4. Altered states of consciousness
5. Dissociative or delusional behavior
6. Self-mutilation
7. Mental impairment that deprives the patient of the ability to tend to his needs or the ability to perceive and protect against danger.

B) Patients with behavioral or psychiatric diseases should be transported to care facilities that deliver stabilizing treatments. However, many of these patients may be determined to warrant emergent out of hospital care and transportation to the closest hospital emergency department.

To assist the field clinician in this area, the following is considered a guideline in determining a patient's stability:

**Stable considerations = Baker Act Receiving Hospitals:**

1. Non-overdose patients presenting with stable vitals signs that have not threatened the safety of EMS providers. The law enforcement agency and the transport service must agree that the continued presence of law enforcement personnel is not expected at the time of consignment to be necessary for the safety of the person or others.
2. Patients experiencing a psychiatric disturbance who appear to be medically stable to EMS. Crews may consult OLMC for assistance in this area as necessary.

**Unstable considerations = Closest Hospital Emergency Department:**

1) **Overdose**: Patients that have taken an intentional or unintentional overdose of medication that has the ability to cause harm to themselves. ALL OVERDOSES, REGARDLESS OF CURRENT STABILITY OR BAKER ACT STATUS, SHALL BE DELIVERED TO THE CLOSEST EMERGENCY DEPARTMENT. SOME OVERDOSES CAN DETERIORATE RAPIDLY. ANY DEVIATIONS FROM THIS POLICY REQUIRE OLMC APPROVAL.
2) **Violent Psychotic Behavior**: All patients that physically threaten to harm, or attempt to harm, the care provider. (Request law enforcement assistance during transport).

5 **Pinellas County Baker Act Receiving Facilities**
The Pinellas County metropolitan area is currently serviced by (4) four Baker Act receiving hospital facilities. They include:

- St. Anthony’s Hospital
- Bay Pines VA Hospital
- Sun Coast Hospital
- Morton Plant Hospital
a) Examination - A patient who is provided an examination at a receiving facility shall be examined by a physician or clinical psychologist without unnecessary delay and may be given emergency treatment pursuant to 394.459(3)(a). The least restrictive form of treatment shall be made available when determined to be necessary by a facility physician or clinical psychologist. Any person for whom involuntary examination has been initiated pursuant to paragraph (a) shall not be released by the receiving facility or its contractor without the documented approval of a person who is qualified under the provisions of this chapter to initiate an involuntary examination. However, a patient may be detained at a receiving facility for involuntary examination no longer than 72 hours.

b) Disposition upon examination -- Within the examination period, one of the following actions shall be taken, based on the individual needs of the patient:

1) The patient shall be released, unless the patient is under criminal charges in which case shall be returned to the custody of a law enforcement officer;
2) The patient shall be released, subject to the provisions of subparagraph 1, for outpatient treatment;
3) The patient shall be asked to give express and informed consent to placement as a voluntary patient; or
4) The facility administrator shall execute a petition for involuntary placement when treatment is deemed necessary; in which case, the least restrictive treatment consistent with the optimum improvement of the patient's condition shall be made available.

c) Notice of release -- Notice of the release shall be given to the patient's guardian or representative, to any person who executed a certificate admitting the patient to the receiving facility, and to any court that ordered the patient's evaluation.
The Marchman Act (Chapter 397) concerns the detention and treatment of persons found incapacitated and impaired in public places. Impaired or substance abuse impaired means a condition involving the use of alcoholic beverages or any psychoactive or mood altering substance in such a manner as to induce mental, emotional, or physical problems and causes socially dysfunctional behavior. The purpose of this protocol is to describe the Act, and how it relates to Pinellas County Emergency Medical Service operations.

Special Note: The information presented in this protocol is selected information from Florida Statutes, Chapter 397. Any additional questions to legal reference(s) made in your management of patient care should be through On-Line Medical Control. Additional information needed about this law should be researched using Florida Statutes, or legal counsel.

Description:

Chapter 397

1 397.675 Criteria for involuntary admissions, including protective custody, emergency admission, and other involuntary assessment, involuntary treatment, and alternative involuntary assessment for minors, for purpose of assessment and stabilization, and for involuntary treatment.

A person meets the criteria for involuntary admission if there is good faith reason to believe the person is substance abuse impaired and because of such impairment:

a) Has lost the power of self-control with respect to substance use; and either:

b) (i) Has inflicted, or threatened or attempted to inflict, or unless admitted is likely to inflict, physical harm on himself or herself or another;

c) (ii) Is in need of substance abuse services and, by reason of substance abuse impairment, his or her judgment has been so impaired that the person is incapable of appreciating his or her need for services and of making a rational decision in regard thereto: however, mere refusal to receive such services does not constitute evidence of lack of judgment with respect to his or her need for such services.

2 397.6759 Parental participation in treatment

A parent, legal guardian, or legal custodian who seeks involuntary admission of a minor pursuant to ss. 397.675-397.6977 is required to participate in all aspects of treatment as determined appropriate by the director of the licensed service provider.

3 397.677 Protective custody, circumstances justifying

A law enforcement officer may implement protective custody as specified in this part when a minor or an adult who appears to meet the involuntary admission criteria in s. 397.675 is:

a) Brought to the attention of law enforcement; or

b) In a public place.

4 397.6771 Protective custody with consent

A person in circumstances which justify protective custody, as described in s. 397.677, may consent to be assisted by a law enforcement officer to his or her home, to a hospital, or licensed detoxification or addictions receiving facility, whichever the officer determines is most appropriate.
5  397.6772  Protective custody without consent
   a) If a person, in circumstances which justify protective custody as described in s. 397.677, fails or refuses to consent to assistance and a law enforcement officer has determined that a hospital or a licensed detoxification or addictions receiving facility is the most appropriate place for the person, the officer may, after giving due consideration to the expressed wishes of the person:

      i) Take the person to a hospital or to a licensed detoxification or addictions receiving facility against the person’s will but without using unreasonable force; or
   ii) In the case of an adult, detain the person for his or her own protection in any municipal or county jail or other appropriate detention facility.

   ii) Such detention is not to be considered an arrest for any purpose, and no entry or other record may be made to indicate that the person has been detained or charged with any crime. The officer in charge of the detention facility must notify the nearest appropriate licensed service provider within the first 8 hours after the person has been detained. It is the duty of the detention facility to arrange, as necessary, for transportation of the person to an appropriate licensed service provider with an available bed. Persons taken into protective custody must be assessed by the attending physician within the 72-hour period and without unnecessary delay to determine the need for further services.

   b) The nearest relative of a minor in protective custody must be notified by the law enforcement officer, as must the nearest relative of an adult, unless the adult requests that there be no notification.

6  397.6774  Department to maintain lists of licensed facilities
   The department shall provide each municipal and county public safety office with a list of licensed hospitals, detoxification facilities, and addictions receiving facilities, including the name, address, and phone number of, and the services offered by, the licensed service provider.

7  397.6775  Immunity from liability
   A law enforcement officer acting in good faith pursuant to this part may not be held criminally or civilly liable for false imprisonment.

8  397.701  Local ordinances affecting impairment and public impairment offenses forbidden
   A county, municipality, or other political subdivision of the state may not, except pursuant to the provisions of s. 397.702, adopt a local law, ordinance, resolution, or regulation having the force of law which provides that impairment in public in and of itself, or being found in enumerated places in an impaired condition, is an offense, a violation, or subject of civil or criminal sanctions or penalties of any kind. This section does not affect offenses involving the operation of motor vehicles, machinery, or other hazardous equipment.
4.4 Refusals of Care

This protocol describes how to help a patient (or patients) make an informed decision for a refusal of care, transport, or evaluation. The protocol also addresses how to assess a patient for competency to make an informed refusal when OLMC consultation is needed to accept refusals.

A separate protocol describes how to implement an involuntary transport (Protocol 4.7), should it be determined that the patient does not meet the criteria to accept their refusal. A separate protocol is also provided to describe how to document refusal cases.

Description:

1 Helping patients make an informed decision for refusal -- When a patient states they do not wish to accept evaluation, treatment, transport or transport to the recommended destination, EMS personnel should advise the patient:
   a) Why EMS feels the item is needed or appropriate
   b) What the potential risks are if the item is not accepted as recommended.
   Review of these potential risks should include the 'worst case' for potential consequences of refusal, such as serious complications or death if applicable.

2 Assessing a Patient for Competency to Make an Informed Refusal -- There are three situations in which it may be necessary to reject a patient's request to refuse care from EMS. Those situations are addressed in the refusal of care algorithm (Protocol 4.6) and are as follows:
   a) Patient is not of legal age to make decisions about their healthcare (step F of algorithm).
   b) Patient has a mechanism of injury, situation or circumstance that categorically places their judgment in serious question (step D of algorithm).
   c) Patient is unable to give adequate responses to questions that attempt to establish reasonable understanding of the potential risks of refusal (step D of algorithm).

3 Establishing competency to refuse treatment:
   a) Unimpaired competence -- No risk factors for possibly impaired competence to refuse, and fully able to understand and repeat back all possible risks of refusal of treatment as well as accurately answer field mental check questions (name, address, date of birth, day, month, year, U.S. president).
      i) Two EMS Personnel or one law enforcement officer and one EMS personnel shall witness the refusal.
   b) Possibly impaired -- If there is a history or current use of mind-altering drug, alcohol, head injury, unresolved diabetic situation, seizures or post-ictal, diagnosis of dementia or Alzheimer's disease or other incapacitating mental disorder:
      i) Question patient and perform field mental check:
         a) name
         b) address
         c) date of birth
         d) day
         e) month
         f) year
         g) current U.S. President
      ii) If failure, determine if health surrogate or power of attorney is available.
         a) No power of attorney or health surrogate:
            (1) begin treatment by implied consent and contact OLMC.
            (2) OLMC must consider current or past medical conditions that may present communication difficulty without affecting competence to refuse. (Hearing, age, language, speech impediment, education, diseases; i.e., cerebral palsy, etc.)
iii) If pass, explain necessity to complete the brief **WRITTEN EMS Cognitive Exam**. This provides hard copy justification for allowing refusal in a patient who, by history, might be impaired.
   a) If the EMS Cognitive Exam is passed (score 23 or higher), fully explain the risks of refusal, have the patient repeat them back to you.
      (1) If successful, patient may sign refusal, witnessed by two EMS personnel or one law enforcement officer and one EMS personnel.
      (2) If unable to repeat back to you, contact OLMC.
   b) If the EMS Cognitive Exam is failed, contact OLMC:
      (1) OLMC must consider current or past medical conditions that may present communication difficulty without affecting competence to refuse. (Hearing, age, language, speech impediment, education, disease...i.e., cerebral palsy etc.)

4 **When to Consult OLMC for Refusals:**
   a) OLMC approval is necessary before accepting a refusal in all cases where any of the following circumstances exist:
      i) When acceptance of a refusal could represent a significant potential risk to the patient or the System, See protocol 10.6 (step G)
      ii) When the patient is not his or her own legal guardian
      iii) When the situation or circumstances categorically place the patient's ability to make an informed refusal in question
      iv) When law enforcement officers will be utilized to assist in the forcible restraint of patients.

   Many times, patients will decide to consent after they hear the consultation with OLMC, in spite of the sincere efforts of field crews. Therefore, take advantage of that fact to help persuade a patient to seek care as appropriate. You may ask OLMC to speak directly with the patient. This has also been helpful in getting the patient to consent. If they still refuse, it puts the patient's own voice on the tape log of the radio system as an additional documentation of the system's sincere efforts to have the patient make an informed decision.

5 Termination of Efforts to Obtain Consent -- There are six situations where efforts to obtain consent from the patient may be discontinued:
   a) Patient decides to consent
   b) Patient's level of consciousness deteriorates to the point that they are no longer able to refuse care -- care may now proceed under implied consent.
   c) Patient continues to refuse and the patient is determined to be capable of making an informed refusal and OLMC consultation was not required
   d) Patient continues to refuse, physical restraint with law enforcement assistance is needed, law enforcement refuses to assist (tape document), and OLMC approves discontinuation of efforts.
   e) Patient has left the scene and efforts to detain the patient would be inappropriate or dangerous.
   f) OLMC otherwise authorizes discontinuation of efforts to obtain consent
4.5 EMS Cognitive Examination

This is an addendum to Protocol 4.4, and demonstrates the form to be used by Pinellas County EMS when documenting the performance of an EMS Cognitive Examination upon a patient who was thought to have partially impaired competency.

### Individual Refusal
- Patient is refusing:
  - To be evaluated
  - Recommended treatment
  - Recommended hospital
  - Ambulance transportation

### High Risk
- Minor (Age < 18) with Authorized Representative not available
- Life threatening Illness or Injury
- Advanced treatment initiated and stopped by the patient or Authorized Representative
- Refusal represents a risk to patient's health, safety, or welfare and/or the Public or EMS System
- High Risk Mechanism of Injury without complaints or with minimal complaints
- Any Alteration in Mental Status (Conduct EMS Cognitive Evaluation)

### Low Risk
- Adult or Authorized Rep.
- Alert, oriented and no alteration in mental status
- No apparent life threatening illness or injury

Accept Refusal If All Criteria Are Met

### On-Line Medical Control Consult Required

### Medical Control Determination
- Refusal Accepted
- Patient Accepted Recommendation
- Involuntary Transport
- Refusal - Against Medical Advice

### Release of Medical Assistance

The undersigned patient, parent or authorized representative of the patient, is apparently a competent adult and certifies that the undersigned has been fully informed and understands that:
- the patient requires emergency medical care and/or;
- the patient should go to a hospital for further emergency care and/or;
- the undersigned's refusal of medical care may impede the patient's health or result in death.

Understanding the above, the undersigned patient, parent or authorized representative of the patient refuses emergency medical care and/or transport to a hospital by ambulance, assumes all risk and consequences of such refusal and releases Pinellas County and the Pinellas County Emergency Medical Services Authority, and each and every officer, agent, subcontractor and employee of Pinellas County and the Pinellas County Emergency Medical Services Authority, from any and all liability, including all claims and causes of action that the undersigned or any person acting on behalf of the undersigned may have or claim to have in the future against Pinellas County or Pinellas County Emergency Medical Services Authority, by reason of any illness, injuries, death or other consequences resulting directly or indirectly from the undersigned's refusal of medical care.

**Patient's Name:**

**Witness Signature:**

**Printed Name or Agency/ID #**

**EMR Cognitive Evaluation (Minimum Passing Score = 23)**

<table>
<thead>
<tr>
<th>Questions/Tasks</th>
<th>Maximum Points</th>
<th>Actual Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What is the Year? <em>( )</em> Season? <em>( )</em> Month? <em>( )</em> Day of Week? <em>( )</em> Their Birthday? <em>( )</em></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>3. The evaluator will name any three objects. Repeat the names of these objects three times. Ask the patient to repeat the names of these objects after three seconds.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4. Begin with the number 100 and ask the patient to count backward by fives to at least five numbers (i.e., 100, 95, 90, 85, 80).</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>5. Ask the patient to repeat the names of the three objects of question three.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>6. Show the patient a pen and a watch. Ask the patient to name them.</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>7. Ask the patient to repeat &quot;no ifs, ands, or buts.&quot;</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8. Ask the patient to follow the three-stage command: &quot;Take this paper in your right hand, fold it and place it on the floor.&quot;</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>9. Ask the patient to read and do the following:</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>&quot;RAISE YOUR RIGHT HAND.&quot;</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>10. Ask the patient to write any complete sentence:</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>11. Ask the patient to copy the design below:</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

**Maximum 29 Points**

**Total Score**

Page 1 of 1  Protocol 4.5
4.6 Refusal of Care Algorithm

Purpose:

The purpose of this protocol is to describe the purpose and directions for use of the refusal algorithm found in the most current version of the Patient Care Report (PCR).

Description:

The refusal of care algorithm is printed along with the Patient Care Report (PCR). The algorithm should be marked in all cases where the proposed treatment, transportation or hospital destination is in opposition to the patient's wishes.

Each step of the algorithm is marked with a capital letter. As you go through the process, circle each step (letter) that has been taken. This will provide excellent documentation of what steps were taken, how the decision was made to accept or reject the refusal and what that decision was. (Note that the steps of the algorithm do not always follow in an alphabetical sequence.)

**Step A 'Describe proposed treatment, mode of transport and destination to the patient or guardian.'** This step attempts to obtain consent from the patient to care for them. Their consent is typically assumed by the fact that the patient called for EMS. However, this is not always the case. It is common and appropriate in an urgent situation to intervene and address this issue only if the patient raises objections to EMS actions.

**Step B 'Agrees?'** Specifically ask the patient or guardian if they agree to the plan for care, & the destination that has been described.

**Step C 'Initiate Care.'** This step is taken if the answer to Step B is "yes." Proceed with initiation of EMS services.

**Step D 'Objective evidence of conditions that put patient's judgment in question?'** This question is asked if the answer to Step B is "no." There are certain situations and conditions that categorically place the patient's higher mental functions and judgment (as needed to make informed decisions about their healthcare) in question. Such situations and conditions may include, but are not limited to: hypoxia, hypoperfusion / hypotension, hypoglycemia, significant hyperglycemia, head trauma, recent disturbance in level of consciousness, ingestion of drugs that potentially alter the level of consciousness (including alcohol), metabolic disorders, renal failure, seizure disorder, hepatic failure or Alzheimer's disease.

**Step E 'Contact On-Line Medical Control (OLMC)’** Contact is made with OLMC if the answer to step D is yes. Once contact is made with OLMC, a variety of different questions, opinions, and details may be requested of the field clinician before a resolution is reached. Such questioning may involve:

1. **Clinicin certain of sufficient severity in compromise of judgment?**’ Before initiating care against the wishes of the patient, it is important to decide if the severity of the condition that places their judgment into question is sufficiently severe to take as drastic a step as involuntary care and possible physical restraint.
2 **Reasonable demonstration of understanding?** Such questioning is necessary in order to evaluate the patient's cognitive competency in terms of their ability to competently understand the options for care, understand the potential consequences of each option and to make value judgments about them. Simple determination of a Glasgow Coma Score or alert and oriented to person place and time is an inadequate measure of cognitive competency for a refusal of care. This test requires the patient to hear an explanation from EMS regarding the options for care and the risks of recommended care. The patient must reasonably repeat the information back to EMS. Successful completion of this process by the patient demonstrates a high level of functionality of the CNS system and a specific understanding of the issues pertaining to an informed refusal of care.

3 **Initiate care under implied consent, FS 401.445, Baker Act or Marchman Act** Patients that have a decreased LOC or a Glasgow Coma Score of 10 or less, have consented to EMS care and transportation by implied consent. If a situation develops where a patient presents with objective evidence of conditions that place their judgment (cognitive competency) in question and that the situation is of sufficient severity that initiation of care against the patient's wishes, to include the use of reasonable restraint if necessary, law enforcement is to be summoned to the incident location for assistance and support. The field clinician may be requested to test the patient’s cognitive abilities by administering the EMS Cognitive Exam.

**Step F ‘Legally responsible?’** This question is asked if the answer to Step D is "no." A legally responsible patient is one who is 18 years of age or older without a court appointed legal guardian or is an emancipated youth. Persons 18 years of age or older with legal guardians or healthcare surrogates are those whose cognitive competence has been deemed insufficient to make their own healthcare decisions. Persons under the age of 18 are not considered legally empowered to make their own healthcare decisions. This responsibility rests with their parents or other designated legal guardians. The only exception to this age rule is a case of an emancipated youth. An emancipated youth is a person age 16 or 17 that has petitioned the court and had the full rights of an 18 year-old vested in them, and is thereby granted the ability to make healthcare and other legal decisions on their own (FL Statute 39.016 -- Disabilities of non-age; removal).

**Step I ‘Contact On-Line Medical Control (OLMC)’** Contact is to be made with OLMC when the answer to step F. is “no.” If the patient is not legally responsible, a decision to refuse care should involve their legal guardian. This is typically the parent or court appointed legal guardian, but in some situations, they may have delegated authority to school officials, youth group leaders or other persons during school functions or for special events. This delegation of authority is typically limited to emergency healthcare decisions. In situations where no parent or legal guardian are present, the field clinician should summon the Medical Communications Officer (MCO) on radio tac channel 4-A and request OLMC consultation. The MCO will assist OLMC and the field crews in obtaining a verbal consent or refusal from either the parent or legal guardian on a “recorded” telephone line. Depending on the parent(s), or the legal guardian(s) telephone consultation, many elect to travel to the scene of the emergency to perform their own evaluation. A County Certified paramedic must remain on the scene until their arrival.

Other factors and questions which may be asked or requested of the field clinician during consultation with OLMC:

1. If so indicated by the field clinician or in situations where it becomes questionable, the guardians themselves may also have an altered sensorium or other factors that question their ability to make an informed refusal of care or transportation for the patient.
In such situations it may be necessary for the legal guardian or parent to be tested cognitively in order to make a healthcare decision for the patient.

2. If the patient is not their own legal guardian, and/or the legal guardian is not available to come to the scene or cannot be reached by telephone, there may be some latitude exercised in low severity situations involving teenagers. They must be sufficiently calm and “rational” that they may clearly express their wishes, and can demonstrate reasonable understanding of the potential risks of refusal. With a low severity situation, which has a low risk of bad outcomes, OLMC can use some discretion in allowing a refusal versus forcibly imposing treatment and transport. OLMC and the field clinician should consider other legally responsible individuals on the scene of the emergency such as law enforcement, a legally responsible friend, neighbor or relative, before such authorization is approved.

3. If there is not a legal guardian available and the situation involves a child less than 13 years of age or is not of low severity, EMS has little choice other than to initiate care under the provisions of implied consent on behalf of the parent or other legal guardian.

Special legal considerations: F.S. 743.064 Emergency medical care or treatment to minors without parental consent. “Emergency medical care or treatment may also be rendered in the prehospital setting by paramedics, emergency medical technicians, and other emergency medical services personnel, provided such care is rendered consistent with the provisions of chapter 401. These persons shall follow the general guidelines and notification provisions of this section.

(2) This section shall apply only when parental consent cannot be immediately obtained for one of the following reasons:
   a) The minor’s condition has rendered him unable to reveal the identity of his parents, guardian, or legal custodian, and such information is unknown to any person who accompanied the minor to the hospital.
   b) The parents, guardian, or legal custodian cannot be immediately located by telephone at their place of residence or business.

(3) Notification shall be accomplished as soon as possible after the emergency medical care or treatment is administered. The hospital records shall reflect the reason such consent was not initially obtained and shall contain a statement by the attending physician that immediate emergency medical care or treatment was necessary for the patient’s health or physical well being. The hospital records shall be open for inspection by the person legally responsible for the minor.

(4) No person as delineated in subsection (1), hospital, or college health service shall incur civil liability by reason of having rendered emergency medical care or treatment pursuant to this section, provided such treatment or care was rendered in accordance with acceptable standards of medical practice”.

Step G 'Does the refusal represent a significant risk to the patient or the EMS System?'

Contact is to be made with OLMC when the answer to Step D, F & G represents a risk to the EMS system. These questions ask for a judgment call by the field crew to determine if an accepted refusal would represent a significant risk to the patient or the EMS system. A significant risk to the patient or the EMS system would include cases where there is a high likelihood of a bad clinical outcome if care or transportation is not provided. It may also come as a result of the patient’s hospital of choice being an inappropriate destination because of bypass conditions or inappropriate resources to continue their in-hospital care.
High Risk Consultations Include:

1. Where EMS has administered advanced medical care including medication, intravenous fluid, cardiac monitoring, and/or a critical intervention(s). The patient, caretaker, guardian, health care surrogate or legal custodian refuses additional care or transportation to a hospital.

2. In all patient care situations where EMS treatment and/or transport would be beneficial in improving the patient’s care, prognosis, survival, or long-term health and quality of life, however is refused.

3. Where law enforcement has taken custody of an injured patient, however refuses to allow EMS access to the patient for evaluation, treatment or transportation.

4. The patient has not agreed to care but appears to be cognitively competent to refuse care.

5. All situations where the patient’s mental cognition is questioned by EMS to not be sufficient to competently understand the options for care, understand the potential consequences of each option and to make value judgments about them.

6. All transportation destinations in which the patient, caretaker, guardian, health care surrogate or legal custodian disagrees with our recommended hospital transportation.

7. In-patient care cases in which a local physician wishes to participate as the primary care giver.

8. All other patient care cases in which the paramedic or a member of the EMS health care team believes the EMS system, patient, and the health care provider are at risk medically or legally.

During consult, OLMC will verbally review with the treating healthcare team the clinical issues and the steps that have been taken to determine the patient’s ability or inability to make an informed refusal. Some additional information may be requested by OLMC. At this point, OLMC will choose to allow or reject the refusal of care. All subsequent steps will be under the direction of OLMC. If OLMC accepts the refusal, go to Step J. If OLMC does not allow the refusal, initiation of involuntary care will be necessary. A COMPLETED EMS COGNITIVE EXAM SHOULD BE ATTEMPTED BEFORE INITIATING INVOLUNTARY CARE/TRANSPORT.

Step J 'Have sign Refusal Form with Witnesses' This step is taken if the answer to Step G is 'no'. Use the Release of Medical Assistance form located in the Patient Care Report. The refusal may be accepted; secure the appropriate signatures and release the patient from EMS care. If the patient, caretaker, guardian, health care surrogate, or legal custodian refuses to sign the Release of Medical Assistance form, note on the EMS report the circumstances & what efforts were made to get the signature and the fact that the signature was not obtained. For more information on the documentation aspects, see Section 7 in the MOM.
4.7 Involuntary Transport Policy

Purpose:

This protocol describes the legal options that are available to EMS for provision of involuntary care, and the issues in safety and resources to utilize in cases of involuntary care.

Description:

Background:

Patients contacted by EMS have the ability to refuse evaluation, treatment and transport if:

1. The person is making their decision with clear knowledge of the potential risks of refusing (evaluation, treatment, transport or our recommended destination) and,
2. The person is mentally competent to do so.

In those cases where a patient cannot meet the above criteria, it will be necessary to provide care for the patient without their consent.

Legal Options for Involuntary Care:

There are three legal provisions for EMS to care for patients against their wishes:

1. Marchman Act
2. Baker Act
3. Chapter 401
   a) The Marchman Act (Ch. 397 [1997]) serves as a legal tool that allows transport of persons to a hospital or appropriate treatment resource who are impaired in a public place and appear to be incapacitated.
   
   b) The Baker Act (Ch. 394.451 [1997]) serves as a mechanism to provide care to persons whose behavior poses a potential threat to themselves or others or are unable to competently make their own healthcare decisions due to mental illnesses. Falling into this category would be cases such as suicide attempts/gestures and severe schizophrenia.
   
   c) Chapter 401 (Ch. 401.445 [1997]) is a mechanism to provide care to persons who are unable to competently make their own healthcare decisions due to situations other than those addressed by the Baker or Marchman Acts. Falling into this category would be situations such as altered levels of mentation from trauma, hypotension, hypoglycemia, CVA, post-ictal seizures, and/or failure of the EMS Cognitive Exam (OLMC Consult).

Safety and Resources for Use in Involuntary Transports

A fundamental principle in EMS is that the safety of field crews comes first. Law enforcement assistance should be summoned for protection of both the crew and the patient.

With their specific training and expertise in restraint techniques, law enforcement is well prepared to deal with such issues. It will be helpful to let them know which legal mechanism appears to
EMS to be most applicable to the particular situation at hand (Marchman Act, Baker Act or Chapter 401). Should it be necessary to involve law enforcement officers in the restraint of patients, contact OLMC. This is needed to provide legal protection to the officers. If an MOD is providing OLMC at the time, it is the responsibility of the MOD and MCO to notify the OLMC physician on consultation of the situation.

Some law enforcement agencies may refuse to assist EMS with 401.455. An OLMC MD consult is mandatory to consult with law enforcement and document reasons for involuntary transport (according to the Florida Attorney General). If law enforcement still refuses assistance with an “at risk” mentally incompetent patient, and EMS is forced to abandon efforts based on physical risk to EMS personnel, the OLMC consult with law enforcement mitigates at least a portion of the EMS medical-legal liability for non-transport.
4.8 Inclusion and Exclusion Criteria for CPCR

I. Inclusion Criteria:

Cardio Pulmonary Cerebral Resuscitation (CPCR) should be initiated in all cases where the patient is found in cardiopulmonary arrest, unless any of the exclusion criteria below apply. If there is any question whether any of these criteria apply, EMS should begin or continue resuscitation and contact OLMC for assistance in determining the appropriate disposition. If adequate CPCR is being provided by non-EMS bystanders, EMS may request those bystanders to continue to assist.

II. Primary Exclusion Criteria:

A. CPCR may be withheld if all of the following criteria are met:
   1. Apnea
   2. Pulselessness
   3. Asystole in at least two ECG leads
   4. No obvious hypothermia AND

B. At least one of the following conditions are met:
   1. Lividity
   2. Rigor mortis
   3. Obviously unsurvivable trauma
   4. Decomposition

III. Additional Criteria for Withholding CPCR:

A. In certain circumstances, it may be appropriate to begin BLS measures while contacting OLMC immediately for an appropriate disposition. These include:
   1. Presence of an apparently valid Prehospital Do Not Resuscitate Order (See 10.9)
   2. Presence of a questionable Prehospital Do Not Resuscitate Order, Living Will or other advance directive, or request by family or physician for no resuscitative efforts.
   3. Question of whether hypothermia may be present.

IV. Mass Casualty/Disaster Situations:

A. When EMS crews are confronted with situations where there are multiple critical trauma casualties and insufficient resources to provide immediate critical interventions to all, choices will have to be made in resource allocation. Due to the very poor prognosis for survival from cardiac arrest secondary to trauma, it may be appropriate to apply available resources to those patients who have higher probability for survival.

V. The following factors, when present alone DO NOT constitute indications for withholding CPCR without OLMC approval:

A. Fixed and dilated pupils (this occurs 15-30 seconds after arrest)
B. Cyanosis (patient may have had cyanosis before they arrested)
C. Advanced age (many long term survivors are quite old)
D. Terminal disease without a valid DNRO order
E. Cold skin (consider the possibility of hypothermia or shock)
F. Asystole (many long term survivors have presented to EMS in asystole)
G. A Living Will presented to EMS by a family member or nursing staff
H. Verbal no-CPCR orders

VI. Documentation:
   A. Fully document the 'at patient' time, and the applicable clinical criteria, along with OLMC contact and factors taken into consideration.

VII. Discontinuation of CPCR in the prehospital setting:
   A. With concurrence of OLMC, resuscitation may be discontinued when the patient appears to be non-resuscitatable, generally following completion of all of the following steps:
      1. Endotracheal intubation
      2. Appropriate ACLS interventions, including at least one round of IV and/or ET medications, defibrillation, and assessment and treatment of possible reversible conditions
      3. Persistent asystole or agonal rhythm following the above interventions

NOTE: OLMC may modify these requirements and take factors such as estimated down-time, underlying medical conditions, and difficult airway situations into consideration.

NOTE: Air medical crews may have independent criteria for field resuscitation discontinuation. If there is any conflict between clinicians, contact OLMC.

NOTE: Any interval of ROSC during the course of resuscitation is a positive prognostic sign, and warrants transportation and aggressive treatment.

NOTE: When discontinuation of resuscitation is being considered in the field, family members, the patient’s healthcare surrogate, and other medical staff present must be in agreement with this decision. If discontinuation is granted through OLMC, the EMS personnel present on the scene should deal sensitively with family and others present. Assistance should be offered to the family in contacting a member of the clergy, hospice, a social worker, or other family member(s). The treating crew should also monitor the patient, using stethoscope & ECG monitor for at least 10 minutes to detect a possible Lazarus phenomenon. Law enforcement should be summoned for assistance with final disposition of the deceased. The circumstances of field discontinuation must be documented thoroughly in the patient’s PCR. Any medical devices, i.e., airway tube(s), defibrillator pads, or other devices placed by the clinician in the treatment of the patient shall be left in place for post mortem examination if it becomes necessary.

1Hypothermia - If a patient has been exposed to a cold environment (examples: cold air, cold pavement, immersion in cold water) a clinically significant hypothermia may exist. The clinical picture of a pulseless patient with hypothermia can mimic lividity and/or rigor. If the patient does not have obviously unsurvivable trauma or decomposition and hypothermia is suspected, resuscitation should be considered until arrival at the ED where the core temperature and clinical status may be evaluated by the receiving emergency department. This situation is particularly important in cases of pediatric drowning.
4.9 Do Not Resuscitate Orders

In situations in which CPCPR is being administered, i.e. nursing home staff, family, and bystanders, EMS should either ask for their continued delivery of care due to the adequacy of the CPCPR being performed, or should request their discontinuance of effort. **EMS personnel are to assume continuation of resuscitation while making decisions on whether the patient meets the criteria of this protocol.**

Do Not Resuscitate Orders -- In addition to the exclusion criteria outlined in the Moms “Inclusion and Exclusion Criteria for Withholding CPCPR”, the presentation of a valid DNRO also constitutes an objective criteria for withholding CPCPR, to include cardiac compressions, endotracheal intubation and other advanced airway management, artificial ventilation, defibrillation and related procedures, in the event of a cardiac or respiratory arrest. DNRO may apply to patients with any type of EKG rhythm, not just those in asystole. The presentation of a valid DNRO does not relieve EMS of the responsibility to provide interventions in the non-arrested patient for comfort care or to alleviate pain. Pain relieving measures may be particularly appropriate in prehospital care of such patients.

**Do not confuse DNRO with Living Wills.** A Living Will serves an entirely different purpose and should not influence the acute application of resuscitation. (Example. A healthy 20-year-old may have a valid Living Will. That does not mean EMS should not provide care if that person is involved in a serious motor vehicle accident or has a cardiac arrest. However, if that person was later determined to be brain dead, the Living Will would direct ventilators, etc. to be disconnected and that the patient be allowed to die naturally, with comfort measures only. A prehospital DNRO may be considered valid by any of the following methods:

1 Method 1-- Florida Prehospital Do Not Resuscitate Order -- This is Florida HRS Form #1896. To be considered valid, Form #1896 must meet the following criteria:

   a) Is on the Florida Prehospital Do Not Resuscitate Order Form #1896, or is a copy of an original form #1896 on yellow paper. This change allows health care providers to generate their own supply on DNROs.
   b) Has signatures from the attending physician and the patient, or if the patient is incompetent, their health care surrogate, proxy or guardian.
   c) The DNR order has not been orally withdrawn by the patient or the patient's health care surrogate, proxy or guardian. Any of these persons has the right to change their mind. Next-of-kin, other family, and friends do not have the right to withdraw a valid DNRO unless they are the patient's health care surrogate, proxy or guardian. **If in doubt, contact On-Line Medical Control while resuscitation is initiated.**
   d) Patient identity is verified with a photo ID (i.e., driver's license), other photo identification or someone on-scene attests to the patient's identity.

2 Method 2 -- DNRO Document from a Licensed Health Care Facility, Hospice provider, or from another State - To be considered valid, EMS recognition of a DNRO form from a licensed healthcare facility, a licensed hospice provider, or from another State must meet the following criteria:

   a) Document clearly states that it is a DNRO and states that the patient is not to be resuscitated in the event of a cardiac or respiratory arrest.
   b) Has an effective date, which predates the date the assistance is requested.
c) Includes the patient’s full legal name, typed or printed
d) Is signed by the patient’s attending physician and includes the physician’s medical license
   number, telephone number and date completed.
e) Is signed and dated by the patient, patient's health care surrogate or proxy, or legal
guardian if one is appointed.
f) Is signed and dated by at least two witnesses

3 When honoring a DNRO by any of the above two methods, the following steps must also be
completed:
a) Determine the identity of the patient with a DNRO through a driver’s license, other photo
   identification, or from a witness in the presence of the patient.
b) Determine that the DNRO form is fully and properly executed in that it has the required
   signatures, has been witnessed, and has an effective date which predates the date the
   assistance is requested
c) Documentation is made of the following items in the narrative portion of the EMS run
report any time a DNRO is honored:
   i) Effective date of the DNRO
   ii) Information pertaining to witness (name, address, telephone number, and relationship to
       patient), if one was used to establish patient identification.
   iii) Name of the attending physician who signed the DNRO
   iv) Name of the patient or other person (surrogate or proxy) who signed the DNRO.
v) Whenever the patient dies at home or during transportation.

Transfer Arrangements

4 When arrangements are being made to transfer a patient with a DNRO between facilities or
from their primary residence to a healthcare institution, the receiving facility shall be contacted
and informed of the patients DNRO. The receiving facility shall agree to accept the patient if;
during transport the patient expires and the DNRO is honored. When possible, coordination of
the proposed transportation should be made on a recorded transmission documenting the
facilities acceptance and the name of the facilities representative agreeing to the above
conditions. During such transport the below guideline should be followed:
a) Ensure that the original or a copy (see below special notes & situations) of the pre-hospital
   DNRO, accompanies the patient. Every attempt should be made to transport, with the
   patient, a copy of the pre-hospital DNRO. The original should remain at the patient’s
   residence or at the nursing facility they reside. Upon arrival at the receiving facility, the EMS
   provider shall relinquish the DNRO form, along with the patient to the receiving facility.
b) If the EMS provider receives a request to transport the patient home or to some other health
   facility for further treatment, the EMS provider shall obtain a valid copy of the DNRO form
   from the sending facility prior to the transport.
c) Before transportation may occur, On-Line Medical Control must be consulted in
   situations where the field clinician finds the family or healthcare facility requesting
   transportation of a patient who has either lost, misplaced, or has verbally requested
   that the patient not be resuscitated, has no valid DNRO, or in which a “copy” of a
   DNRO can not be validated.
d) If the appropriate family members and treating physician are assembled or available to
   initiate an impromptu DNRO, the MCO may assist the field crews and OLMC by sending a
   blank copy of a State of Florida DNRO form via facsimile to the requested facility for
   completion.
Special Notes and Situations:

1. In situations where it is impossible to copy the document it should be taken with the patient and delivered to the receiving facility. In these situations, it may be beneficial to document in the patient care record where the original DNRO was left and who took custody of it.
   a) If the original DNRO is transported with the patient, inform either the receiving facility or the family member of the importance of archiving the original and in making additional copies.

2. A Basic Life Support (BLS) capable unit arriving on the scene before a County Certified paramedic may honor a valid DNRO if the patient has met either method 1 or method 2 outlined within this protocol. The BLS unit may consult with OLMC describing the circumstances and the reason for honoring or discontinuing a resuscitative effort. However, a certified paramedic must arrive at the patient and continue the complete documentation of the facts and circumstances used in making this decision.

Patient Identification Device

The patient identification device is a miniature version of DH Form 1896 and is incorporated by reference as part of the DNRO form. Use of the patient identification device is voluntary and is intended to provide convenient and portable DNRO which travels with the patient. The device is perforated so that it can be separated from the DNRO form. It can also be hole-punched, attached to a chain in some fashion and visibly displayed on the patient. In order to protect this device from hazardous conditions, it shall be laminated after completing it. Failure to laminate the device shall not be grounds for not honoring a patient’s DNRO order, if the device is otherwise properly completed.

In order to not inconvenience patients or waste the current supply of DNRO forms, all previous versions of DH Form 1896 are considered valid.
4.10 EMS Supply Handling: Ambulance Contractor

The purpose of this protocol is to describe the proper inventory, accounting, disposal and record keeping for controlled substances, non-controlled medications, fluids and disposable EMS supplies within the ambulance contractor portion of system operations (Sunstar ambulances, CCT, SWAT and Sunstar warehouse facility).

Description:
I. Sunstar Warehouse Facility
   A. Distribution and Inventory Control of Controlled Substances:
      1. At the beginning and end of each work shift:
         a) A count of all controlled substance boxes and the Valium contained within the Nerve Agent Antidote Kits (NAAKs) located in the narcotic cabinet, as well as those issued to the ambulance units, shall be completed.
         b) The total count shall be entered in the Daily Narcotic Box Inventory Log along with the date, time, and signature of the person completing the count. Any discrepancies must be noted in the daily logbook. Report any discrepancies to the materials supervisor and the service director.
         c) Errors or discrepancies in the Daily Narcotic Box Inventory Log that would present a question of abuse, misuse or integrity shall be reported immediately to the Office of the Medical Director.
         d) Logging procedures shall be conducted by the individual responsible for drug security. The log shall have consecutively and permanently numbered pages.
         e) The written log is to be maintained for at least two (2) years from the date of the last recorded entry. The written log will be maintained in the materials management warehouse. The written log shall be maintained separately from all other records of the provider.
      2. Each controlled substance utilized in day to day operations (ex. pain management) shall be affixed to an EMS CONTROLLED SUBSTANCE CARD as system supply is needed with the following information:
         a) Control Number
         b) Expiration Date
         c) Lot Number
      3. Whenever an item is issued to a Fire Department, the authorized FD representative will sign the materials master controlled substance logbook identifying the items being issued as well as the items being replaced.
      4. An EMS CONTROLLED SUBSTANCE CARD must be completed and returned by the Sunstar or Fire paramedic in all cases of full administration of the medication, partial administration of the medication or when the vial is fully aspirated by the paramedic and no medication is administered resulting in a full wastage.
      5. The materials management supervisor or designee will be responsible for obtaining the appropriate signature and DEA number of the physician who authorized the usage of the controlled substance.
      6. If an EMS CONTROLLED SUBSTANCE CARD is lost, a duplicate will be issued with the original information listed.
      7. All controlled substances will be physically examined for expiration dates on a monthly basis. Inventory will be rotated, on a FIFO (First In First Out) method moving the oldest dated product closest to the end user. Items will be removed and replaced thirty days prior to the expiration date. Items that have an expiration date listed as just the month and year (ex. 02/02) expire the end of the month that is listed.
8. All controlled substances that are removed thirty days prior to the expiration date will be returned to the materials warehouse along with the corresponding EMS CONTROLLED SUBSTANCE CARD for an exchange. The expired item/s will be forwarded to the DEA for destruction. DEA Form 41, Inventory of Drugs Surrendered, will be completed by materials and signed by the Medical Director.

9. A detailed incident report (IR) will be completed in all instances in which a controlled substance is lost, stolen, broken or when the vial is fully aspirated by the paramedic and no medication is administered resulting in a full wastage. The incident report along with the EMS CONTROLLED SUBSTANCE CARD, if available, is to be forwarded to the Office of the Medical Director for review.

10. Lost or stolen items will also be documented on a police report as well as DEA Form 106, Report of Theft or Loss of Controlled Substances. The item will be replaced by materials and the forms forwarded to the Office of the Medical Director and the DEA.

11. All backup inventory of controlled substances will be stored in the materials safe. Only the designated supervisory personnel will have access. Inventory will be conducted monthly on a Narcotics Inventory Summary sheet. This inventory may be audited at random by the Office of the Medical Director.

12. Emergency requests (non-office hours) by fire departments for replacement controlled substances, utilized in day to day operations, will be handled by the on duty ambulance contractor field supervisor at the request of the fire department EMS coordinator. The field supervisor will provide a box containing two morphine and two diazepam to the fire department unit. The paramedic assigned to the fire department unit will sign for the controlled substances. The field supervisor will ensure that the materials supervisor or designee is made aware of the issuance to the fire department. The fire department will use the controlled substances provided to them until the materials department reopens. The EMS CONTROLLED SUBSTANCE CARDS from all controlled substances used from the box provided will stay in the box to be returned to materials. At the time the materials department reopens, the box provided to the fire department is to be returned with all used and unused controlled substances.

13. Every January, the materials supervisor shall supply a list on agency letterhead, to the Office of the Medical Director (OMD), personnel authorized to handle and properly maintain the controlled substance inventory and associated documentation. Changes may be made to the list at any time with written notification from the materials supervisor to the OMD.

B. Fluids, Medications and Disposable EMS Supplies:
   1. All items will be stored in a lockable area. This area will be kept locked when not attended by authorized personnel. The warehouse facility shall be secured against unauthorized entry. All IV fluids and medications shall be stored in an area of the establishment that is secured by a locking mechanism and is temperature controlled.
   2. All items will be inventory controlled by the computer inventory system in place at the warehouse facility.
   3. All items will be physically examined for expiration dates on a monthly basis. Inventory will be rotated on a FIFO method moving the oldest dated product closest to the end user. Items will be removed and replaced thirty days prior to the expiration date. Items that have an expiration date listed as just the month and year (ex. 02/02) expire the end of the month that is listed.
   4. All items deemed "expired or not usable" shall be kept in the original packages, whenever possible, and placed in separate clearly marked containers. The containers shall be located in a separate location, away from active inventory items,
in the lockable supply area. Items identified as “Vendor Credit” shall be independently
inventoried and returned to the vendor for credit.

5. Expired medications that credit cannot be obtained from the vendor, shall be inventoried
and returned to the vendor for appropriate disposal. **EXPIRED MEDICATIONS ARE
NOT TO BE DISPOSED OF BY PLACING IN THE BIOHAZARD CONTAINER.**
Expired non-pharmaceutical items shall be made inoperative, disabled or in a condition
that someone would not be able to be reused and then disposed of in the normal waste
container.

6. Any damaged items removed from inventory that contain "sharps" shall be placed in the
sharps safety container for disposal.

II. Sunstar Units

A. Distribution and Inventory Control of Controlled Substances utilized in day to day
operations (ex. pain management):

1. When issuing controlled substances to Sunstar paramedics:
   a) Open the box and verify the four drug vials (20 mg total of Morphine Sulfate
      and 20 mg total of Diazepam (Valium)) along with their corresponding EMS
      CONTROLLED SUBSTANCE CARDS are present and no damage or
tampering is visible.
   b) Record the box number on the Equipment Receipt Form and obtain the
      paramedic’s signature and county ID number.

2. When receiving controlled substances back from Sunstar paramedics:
   a) Open the box and verify the four drug vials (20 mg total of Morphine Sulfate
      and 20 mg total of Diazepam (Valium)) along with their corresponding EMS
      CONTROLLED SUBSTANCE CARDS are present. Check for usage,
      breakage, and tampering.
   b) If a controlled substance has been used:
      i. Ensure that the EMS CONTROLLED SUBSTANCE CARD for the
         medication used is present and the information filled out completely (See
         II. 3.)
      ii. Place the box on the out of service shelf in the controlled substance
          cabinet designated for this purpose. The used box is not to be reissued
          until items used are replaced.
      iii. The materials supervisor or designee will replenish the box and record the
           usage. After usage is recorded, the box or kit will be placed back into
           available inventory.
   c) Obtain the keys to the box and drug compartment of the ambulance.

3. An EMS CONTROLLED SUBSTANCE CARD must be completed and returned with
the following information recorded by the paramedic on the Sunstar Unit in all cases of
full administration of the medication, partial administration of the medication or when
the vial is fully aspirated by the paramedic and no medication is administered resulting
in a full wastage:
a) Back of Card
   i. Incident
   ii. Date used
   iii. Time first dose administered
   iv. Total dose administered
   v. Total dose wasted
   vi. Reason for administration
   vii. Administered by signature
   viii. Administered by EMS ID number
   ix. Witness of waste (Signature of RN/MD witnessing waste when the fire department paramedic has accompanied the patient to the hospital or the Sunstar paramedic utilizes their controlled substances and the patient has been transported to the hospital. If in the field and the patient is not being transported or care was transferred from the fire unit to the Sunstar unit, with the fire department utilizing their controlled substances, the signature may be one that occurred in the presence of a paramedic from a separate Pinellas County EMS agency or the agency paramedic supervisor).
   x. MD or MOD giving the order (ID of authorizing Physician or Medical Officer ex. MD1 or MOD1)

Note: When controlled substances have been administered to the patient in the field and it is anticipated that pain management will be continued during transport to the hospital, the first responder may elect to ride in if the patient is considered unstable or at the request of the ambulance paramedic. If the first responder paramedic does not ride in with the patient, the remaining substance shall not be passed onto the ambulance provider’s personnel. The substance may be wasted in the field, witnessed in the presence of a paramedic from a separate Pinellas County EMS agency or the agency paramedic supervisor. Ambulance personnel must continue the patients’ treatment with their assigned controlled substances including at hospital wastage requirements.

4. Breakage, loss or theft:
   a) An incident report must be filled out by the crew describing in detail the facts of the incident.
   b) Notify the on-duty field supervisor
   c) The controlled substance box, EMS CONTROLLED SUBSTANCE CARDS and remaining medications, if available, along with the incident report will be held in the controlled substance cabinet for the materials supervisor or designee.
   d) The materials supervisor or designee will complete the replacement accordingly.

5. All controlled substances will be physically examined for expiration dates on a monthly basis. Inventory will be rotated, on a FIFO (First In First Out) method moving the oldest dated product closest to the end user. Items will be removed and replaced thirty days prior to the expiration date. Items that have an expiration date listed as just the month and year (ex. 02/02) expire the end of the month that is listed.

6. A detailed incident report (IR) will be completed in all instances in which a controlled substance vial is fully aspirated by the paramedic and no medication is administered resulting in a full wastage.
7. A representative from the Medical Director’s Office (OMD) or an EMS provider agency may randomly or purposefully meet crews during or following a call for the purpose of obtaining a sample of controlled drug wastage. The wastage sample is subject to drug content testing as an assurance that narcotics are being disposed of appropriately at all times.

8. It is not permitted to switch EMS CONTROLLED SUBSTANCE CARDS or the drugs themselves out of the original box.

9. Controlled substances are to be kept under double lock. Locks are defined as a device that requires a key to open and close or a plastic or metal seal that prevents access without visible disturbance to the seal.

10. Controlled substances shall be in a carrying case that is to be taken to the patient’s side on every incident in which the Sunstar Unit is the first ALS Unit on a scene.

B. Nerve Agent Antidote Kits (NAAKs):

1. Each NAAK contains the following:
   a) Three Mark I autoinjector units
   b) One Valium 10 mg autoinjector unit

2. Use of the Valium within a NAAK requires the completion of an EMS Controlled Substance card post incident.

3. Breakage, loss or theft of a complete NAAK or the Valium within the kit requires the procedure in (II. A. 4. a – d) be completed.

4. The contents of all NAAKs will be visually inspected semi-annually by the materials supervisor or designee. The contents will be inspected for damage, leakage, discoloration and reconfirmation of the expiration date. Each kit will be resealed with an ID tag that has an individual unique number on each tag and does not require any special tools to remove in the event the kit is needed.

5. Each NAAK shall be located on units where it will provide rapid access and will not delay administration of the medication to emergency personnel.

6. Issuance:
   a) Each NAAK shall be presealed with an ID tag that has an individual unique number assigned. The number shall be documented on the Equipment Receipt form upon issuance to the clinician at the start of the clinician’s shift.
   b) Each clinician assigned to a unit will sign for a NAAK.

7. When receiving NAAKs back:
   a) The ID tag number on each NAAK received from the clinician is to be reconfirmed with the one documented on the Equipment Receipt form. The kit is to be inspected for damage, usage or tampering.

C. Fluids, Medications and Disposable EMS Supplies:

1. All items shall be physically examined for expiration dates on a monthly basis. Inventory will be rotated on a FIFO method moving the oldest dated product closest to the end user. Items will be removed and replaced thirty days prior to the expiration date. Items that have an expiration date listed as just the month and year (ex. 02/02) expire the end of the month that is listed.

2. Efforts should be made to leave all items deemed "expired or unusable" in the original packages. Expired or unusable items shall be removed from the vehicle.

3. Any damaged items removed from inventory that contain "sharps" shall be placed in the sharps safety container for disposal.
4.11 EMS Supply Handling: First Response Contractors

The purpose of this protocol is to describe the proper inventory, accounting, disposal and record keeping for controlled substances, non-controlled medications, fluids and disposable EMS supplies within the first response contractor portion of system operations (rescue units, fire apparatus, stations and EMS supply warehousing).

Description:

I. Fire Department Administration:

A. Controlled Substances:
   1. Each licensed first responder agency shall maintain an “Administrative Controlled Substance Log” to be located at their primary place of administrative business. This log will be used to manage, control and provide a permanent record that documents the presence of, responsibility for and the movement and re-supply of a first response agency’s controlled substances.
   2. The Administrative Controlled Substance Log shall be maintained in a written hard copy format. Electronic copies may be used in addition to the hard copy. The written log shall be maintained separately from all other records or journals for at least two (2) years from the date of the last recorded entry. It shall contain, at a minimum, the following data points:
      a) Drug Type
      b) Lot Number
      c) Expiration Date
      d) Issue Date (to the fire unit)
      e) Vehicle Unit Number
      f) Signature and EMS ID number of the county certified agency individual initially receiving the controlled substance (or employee with issuance of the NAAK)
      g) Date drug used, returned to Sunstar Materials (ex. expired drug) or inspected.
      h) Incident Number or new ID tag on a NAAK when the original tag is changed.
      i) Name and EMS ID number of the paramedic who administered (or who was involved in the occurrence ex. lost, stolen, broken, full aspiration with no use) the drug (or employee for the NAAK). This location will also be for the name of the inspector for the NAAK.
      j) ID Tag (applies to the NAAK only)
   3. Errors that would present a question of abuse, misuse or integrity in the Administrative Controlled Substance Log or Station/ALS unit Controlled Substance Log shall be reported immediately to the Office of the Medical Director.
   4. The controlled substance inventory is to be audited at random by the department’s designated controlled substance representative or a member from the Office of the Medical Director.
   5. Every January, the agency EMS Coordinator shall supply a list on agency letterhead, to the Office of the Medical Director (OMD), of all agency personnel authorized to handle and properly maintain the controlled substance inventory and associated documentation. Changes may be made to the list at any time with written notification from the agency EMS Coordinator to OMD
   6. Controlled substances utilized in day to day operations (ex. pain management):
a) A controlled substance and corresponding EMS CONTROLLED SUBSTANCE CARD, received from the Sunstar Materials Warehouse, will be recorded in the Administrative Controlled Substance Log with the information listed in [I. A. 2. a - g].

b) Usage of a controlled substance requires the return of the completed corresponding EMS CONTROLLED SUBSTANCE CARD to Sunstar Materials. In addition, the information listed in [I. A. 2. h - j] shall be documented in the Administrative Controlled Substance Log.

c) A detailed incident report (IR) will be completed in all instances in which a controlled substance is lost, stolen, broken or when the vial is fully aspirated by the paramedic and no medication is administered resulting in a full wastage. The IR will be signed by the EMS Coordinator and along with the EMS CONTROLLED SUBSTANCE CARD, if available, is to be forwarded to the Office of the Medical Director for review via Sunstar Materials. In addition, a recording will be made in the Administrative Controlled Substance Log with the information listed in [I. A. 2. h and j.]

7. Nerve Agent Antidote Kits (NAAKs):
   a) Each NAAK contains the following:
      i. Three Mark I autoinjector units
      ii. One Valium 10mg autoinjector unit
   b) Each Valium contained within a NAAK, received from the Sunstar Materials warehouse, will be documented in the Administrative Controlled Substance Log with the information listed in [I. A. 2. i. a, c – g and k.]
   c) Use of the Valium within a NAAK requires the information listed in [I. A. 2. h - k.] documented in the Administrative Controlled Substance Log.
   d) Use of the Valium within a NAAK requires the completion of an EMS Controlled Substance Card post incident. The card is to be returned to Sunstar Materials.
   e) A detailed incident report (IR) will be completed in all instances in which a complete NAAK or the Valium within the kit is lost, stolen or broken. The IR shall be reviewed and signed by the EMS Coordinator. The IR, along with a completed EMS CONTROLLED SUBSTANCE CARD is to be forwarded to the Office of the Medical Director for review via Sunstar Materials. In addition, a recording will be made in the Administrative Controlled Substance Log with the information listed in [I. A. 2. h, i (if applicable), j and k].
   f) Kits that are suspect of damage will be opened and inspected by an agency supervisor. Damaged items will be replaced and the agency supervisor with a numbered ID tag will reseal the kit. The ID tag shall be a type that has an individual unique number on each tag and does not require any special tools to remove in the event the kit is needed. Damaged Valium is to be returned to Sunstar Materials. The information contained in [I. A. 2. h – j] of the original item is to be completed. A new entry will be made in the Administrative Controlled Substance Log whenever the ID tag is changed containing the information listed in [I. A. 2. a, c – g and k].
   g) Replacement of expired Valium within the NAAK will be accomplished by returning the item to the Sunstar Materials Warehouse. The information listed in [I. A. 2. h and k] is to be documented in the Administrative Controlled Substance Log. Items that have an expiration date listed as just the month and year (ex. 02/02) expire at the end of the month that is listed.
   h) The contents of all NAAKs will be visually inspected semi-annually by an agency supervisor. The contents will be inspected for damage, leakage, discoloration, and reconfirmation of the expiration date. Each kit will be resealed with an ID tag that has an individual unique number on each tag and does not require any special tools to remove in the event the kit is needed.
In addition, a recording will be made in the Administrative Controlled Substance Log with the information listed in [I. A. 2. h and j].

B. Fluids, Medications and Disposable EMS Supplies -- For any fire department that stores items in a central area to be distributed to the various stations, the following applies:
   1. All items will be stored in a lockable area. This area will be kept locked when not attended by authorized personnel. The warehouse facility shall be secured against unauthorized entry.
   2. All IV fluids and medications shall be in an area that is temperature controlled.
   3. All items will be part of an inventory control system as set up by the individual department. Completed supply requisitions from Sunstar Materials will be kept on file for a period of not less than two (2) years.
   4. All items will be physically examined for expiration dates on a monthly basis (See I. A. 6. h. for the procedure on checking the expiration dates on the NAAKs). Normal inventory will be rotated on a FIFO (First In First Out) method moving the oldest dated products closest to the end user. Items will be removed and replaced thirty days (30) prior to the expiration date. Items that have an expiration date listed as just the month and year (ex. 02/02) expire at the end of the month that is listed.
   5. Efforts should be made to leave all items deemed "expired or unusable" in the original packages. Expired or unusable items shall be placed in separate clearly marked containers. The containers shall be located in a separate place, away from active inventory items, in a lockable area.
   6. All expired or unusable items shall be independently inventoried and documented on the Sunstar Expired/Return for Credit Form and returned to the Sunstar Materials Warehouse. **EXPIRED MEDICATIONS ARE NOT TO BE DISPOSED OF BY PLACING IN THE BIOHAZARD CONTAINER.**
   7. Any damaged items removed from inventory that contain "sharps" shall be placed in a proper sharps disposal container for disposal.

II. Fire Department Stations and Vehicles:

   A. CONTROLLED SUBSTANCES
      1. Each individual fire station or ALS unit shall maintain a separate and distinct “Controlled Substance Log” utilizing the following procedures:
         a) The Controlled Substance Log shall be a hardbound journal with consecutively and permanently numbered pages.
         b) Any errors made in the log, or any pages discovered missing, shall be reported immediately to the shift supervisor and EMS Coordinator.
         c) The written Controlled Substance Log shall be maintained separately from all other records or journals for at least two (2) years from the date of the last recorded entry.
         d) Special Note: Fire departments with only one station combined administratively, may consolidate the documentation activities into one “Administrative Controlled Substance Log”.
         e) Controlled substances that are delivered to a paramedic, in which the paramedic did not initially sign for the controlled substances from the EMS Coordinator, are to be documented in the station or ALS unit Controlled Substance Log with the signature of both the paramedic who received the controlled substances and the individual who delivered the controlled substance.
2. Controlled substances utilized in day to day operations shall be stored under double lock with one of the locks being a lockable compartment, that shall be kept in a "locked condition" until the compartment must be accessed for the purposes of inventory or emergency scenes. Only paramedic personnel will have access to the controlled substance item(s) utilized in day-to-day operations.

3. Controlled substances shall be in a carrying case that is to be taken to the patient's side on every incident in which the first responder unit is the first ALS unit on a scene.

4. When an item is used, the corresponding EMS CONTROLLED SUBSTANCE CARD shall be completed with the following information and submitted to the department EMS Coordinator for documentation and replacement:
   a) Back of Card
      i. Incident
      ii. Date used
      iii. Time first dose administered
      iv. Total dose administered
      v. Total dose wasted
      vi. Reason for administration
      vii. Administered by signature
      viii. Administered by EMS ID number
      ix. Witness of waste (Signature of RN/MD witnessing waste when the fire department paramedic accompanies the pt. to the hospital. If in the field and the patient is not being transported or care was transferred from the fire unit to the Sunstar unit, the signature may be one that occurred in the presence of a paramedic from a separate Pinellas County EMS agency or the fire agency paramedic supervisor).
      x. MD or MOD giving the order (ID of the authorizing Physician or Medical Officer ex. MD1 or MOD1)

   **Note:** When controlled substances have been administered to the patient in the field and it is anticipated that pain management will be continued during transport to the hospital, the first responder may elect to ride in if the patient is considered unstable or at the request of the ambulance paramedic. If the first responder paramedic does not ride in with the patient, the remaining substance shall not be passed onto the ambulance provider’s personnel. The substance may be wasted in the field, witnessed in the presence of a paramedic from a separate Pinellas County EMS agency or the agency paramedic supervisor. Ambulance personnel must continue the patients’ treatment with their assigned controlled substances including at hospital wastage requirements.

5. Each rescue and/or pre-assigned emergency apparatus will have a fixed number of controlled substance items for day to day operations assigned to its inventory, as determined by the department EMS Coordinator and the Medical Director. **At the beginning and end of each work shift, a paramedic assigned to the unit, will inventory the item(s) and their corresponding EMS CONTROLLED SUBSTANCE CARDS.** A recording shall be made in the station narcotic log detailing the quantity and type of inventoried items. All discrepancies, damaged items and any irregularities shall be recorded and immediately reported to the EMS Coordinator. Controlled substances with dates due to expire within 30 days shall be removed, recorded, and turned in to the EMS Coordinator for replacement. Items that have an expiration date listed as just the month and year (ex. 02/02) expire at the end of the month that is listed. **The paramedic completing the inventory will sign the narcotic logbook next to the entry.**
6. All lost, damaged, or stolen items shall be reported immediately to the EMS Coordinator and so noted in the log. An incident report along with the corresponding EMS CONTROLLED SUBSTANCE CARD, if available, will be forwarded to the EMS Coordinator.

7. A representative from OMD or an EMS provider agency may randomly or purposely meet crews during or following a call for the purpose of obtaining a sample of controlled drug wastage. That wastage sample is subject to drug content testing as an assurance that narcotics are being disposed of appropriately at all times.

B. Fluids, Medications and Disposable EMS Supplies:

1. Each fire station that has storage of medications and fluids for the purpose of restocking the rescue units will store all items in a lockable area that is temperature controlled. This area will be kept in a locked condition until authorized personnel need access. A posted master inventory list will display total quantities to be kept on hand, as determined by the department EMS Coordinator or designee.

2. No less than every two weeks, each station EMS supply storage area will be inventoried for the purpose of restocking.

3. At the start of each work shift, each first responding vehicle and “carry-in” patient care kit will be inventoried. An approved County/State inventory list will be used to maintain the required quantities and types of each item. No less than monthly, all items will be inventoried for the purpose of replacing expired items. Items will be removed and replaced thirty days prior to the expiration date. Items that have an expiration date listed as just the month and year (ex. 02/02) expire at the end of the month that is listed.

4. Efforts should be made to leave all items deemed "expired or unusable" in the original packages. Items that have an expiration date listed as just the month and year (ex. 02/02) expire at the end of the month that is listed. Expired or unusable items shall be returned to the agencies main warehouse (damaged/opened pharmaceuticals constructed of glass or that contain sharps shall be placed in a proper sharps disposal container). The containers shall be located in a separate place, away from active inventory items, in a lockable area.

5. Under no circumstances are medications or sharps to be disposed of in the trash.

6. Licensed providers shall follow the established inventory and control policies and procedures established by the EMS Authority, EMS Administration and/or as outlined in the then current First Responder contract.

C. Nerve Agent Antidote Kits (NAAKs):

1. Each NAAK shall be located on emergency apparatus where it will provide rapid access and will not delay administration of the medication to emergency personnel.

2. Each emergency vehicle will have a fixed number of NAAKs assigned to its inventory, as determined by the agency EMS Coordinator and the Medical Director.

3. At the beginning of each work shift, the emergency vehicle officer, person in charge on the vehicle or station officer will document the ID tag number of each NAAK and the unit assigned in the Daily Station Log and sign next to the entry. At the end of each shift, the same emergency vehicle officer, person in charge on the vehicle or station officer will re-sign the original entry confirming the ID tag number/s and the unit assigned from the beginning of the shift are still present. Any change in the ID tag during a shift requires a new entry into the Daily Station Log Book.

4. Each NAAK contains the following:
   a) Three Mark I autoinjector units
   b) One Valium 10mg autoinjector unit

5. Each NAAK received from the agency EMS Coordinator will be recorded in the Daily Station Log as follows:
   a) ID Tag
b) Unit NAAK is assigned

6. A detailed incident report (IR) will be completed in all instances in which a complete NAAK or the Valium within the kit is lost, stolen or broken. The IR is to be forwarded to the EMS Coordinator along with any available components of the NAAK.

7. Kits that are suspect of damage will be opened and inspected by an agency supervisor. Damaged items will be replaced and the agency supervisor with a numbered ID tag will reseal the kit. The ID tag shall be a type that has an individual unique number on each tag and does not require any special tools to remove in the event the kit is needed. The new ID Tag is to be recorded in the Daily Station Log.

8. The contents of all NAAKs will be visually inspected semi-annually by an agency supervisor. The contents will be inspected for damage, leakage, discoloration, and reconfirmation of the expiration date. Items that have an expiration date listed as just the month and year (ex. 02/02) expire at the end of the month that is listed. Each kit will be resealed with an ID tag that has an individual unique number on each tag and does not require any special tools to remove in the event the kit is needed. The following will be documented in the Daily Station Log:
   a) Date Inspected
   b) Vehicle Unit Number
   c) Old ID Tag
   d) New ID Tag
   e) Signature of Inspector
4.12 Blood Pressure Screening Form (NON- EMERGENCY REQUEST)

Purpose:

To provide guidance to the EMS system when paramedics and EMTs are requested to provide non-emergency health promotion activities including a blood pressure screening exam.

Requirements for form completion during “on-duty” and “off-duty” activities:

a) Anytime an individual(s) walks into a provider station, or administrative office for blood pressure screening.

b) Any on-duty health promotion activity conducted by the licensed provider, i.e., EMS week activities, mall exhibitions, etc.

c) Any request for a blood pressure screening that is outside the normal parameters of a 911-system request for medical evaluation.

d) The Office of the Medical Director must authorize any activities or requests for blood pressure screening which would involve off-duty clinicians “representing the EMS system”, such as (Public Fairs, Volunteer Situations, etc.)

Any request made by the public, or information provided about a blood pressure screening exam outside the normal parameters of a 911 emergency medical evaluation, should be denied without the approved blood pressure screening form.

NOTE: See Blood Pressure form on next page
Blood pressure is what it takes to move blood out of your heart to all parts of your body and back again. Two numbers are important in measuring blood pressure in the large artery in your upper arm. We will advise you regarding blood pressures above and below the normal range.

The upper number, the **systolic** pressure represents that force of the blood against the artery walls at the moment your heart contracts to pump blood. The lower number, the **diastolic** pressure, is the force against the artery wall as your heart rests between contractions.

The figures are written as **Systolic/Diastolic**. Blood pressure should be maintained in normal ranges, since there is less chance of heart disease, heart attack or stroke.

Any pumping system will weaken if it must operate under higher pressure than it is designed to handle. High blood pressure in the human body can cause the pipelines (the arteries) to become injured so that fatty deposits collect more easily on the artery walls. Eventually, the arteries become blocked and narrowed so that blood must be forced through at even higher pressures. The pump (heart) works harder and harder, becomes enlarged and stretched, and finally cannot supply enough blood.

In the heart itself this can lead to heart attack or heart failure; in the brain, stroke; in the kidneys, kidney disease and kidney failure; in the eyes, impaired vision or blindness.

**When is my blood pressure too high?** This depends on a number of things beside the blood pressure level itself such as age, sex, race and other risk factors for disease, such as diabetes, high blood fat levels and cigarette smoking. For some general guidelines, see the chart at right.

However, if your systolic blood pressure reading taken by EMS is higher than 200 or if the diastolic blood pressure is higher than 115, OR if your systolic blood pressure is below 80 or your diastolic is below 50, we have a duty to offer emergency medical care and treat you as a patient. This will include a medical record and suggesting transport by ambulance to a hospital.

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### IF YOUR BLOOD PRESSURE IS HIGH, YOU COULD HAVE A SIGNIFICANT HEALTH PROBLEM. PLEASE FOLLOW THE CIRCLED INSTRUCTIONS.

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<table>
<thead>
<tr>
<th>SYSTOLIC:</th>
<th>DIASTOLIC:</th>
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<tbody>
<tr>
<td>&lt; 80: Hypotension: EMS CALL.</td>
<td>&lt; 50: Hypotension: EMS CALL.</td>
</tr>
<tr>
<td>&lt; 130: Normal blood pressure. Recheck within 2 years.</td>
<td>&lt; 85: Normal blood pressure. Recheck within 2 years.</td>
</tr>
<tr>
<td>130-139: High normal. Recheck 1 yr</td>
<td>85-89: High normal blood pressure. Recheck within 1 year.</td>
</tr>
<tr>
<td>140-159: Stage 1 Hypertension. Confirm within 2 months.</td>
<td>90-99: Stage 1 Hypertension. Confirm within 2 months.</td>
</tr>
<tr>
<td>160-179: Stage 2 Hypertension. Evaluate or refer promptly to source of care within 1 month</td>
<td>100-109: Stage 2 Hypertension. Evaluate or refer to source of care within 1 month.</td>
</tr>
<tr>
<td>180: Stage 3 Hypertension. Evaluate or refer to source of care immediately or within 1 wk (evaluate clinically).</td>
<td>110: Stage 3 Hypertension. Evaluate or refer immediately to source of care or within 1 wk (evaluate clinically).</td>
</tr>
<tr>
<td>&gt; 200: Stage 4 Hypertension: EMS CALL.</td>
<td>&gt;115: Stage 4 Hypertension. EMS CALL</td>
</tr>
</tbody>
</table>

I acknowledge receipt of my blood pressure screening and instructions:

---

PRINTED NAME _______________________________________

SIGNATURE ___________________ DATE ____________________

YOUR BLOOD PRESSURE:

BP ___________________ CLINICIAN ____________________

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4.13 State of Florida Department of Highway Safety and Motor Vehicle Medical Reporting Form

Note that, due to HIPAA concerns, only Fire Department personnel are permitted to file these Medical Reporting forms.

System personnel frequently encounter patients whose medical condition(s) would potentially place their motor vehicle driving capability in question, either immediately and/or in the future. The State of Florida Department of Highway Safety and Motor Vehicle Medical Reporting Form is a mechanism to refer patients whose motor driving capabilities are in question for review and potential revocation of the individual’s driver license.

Conditions which can affect safe driving ability can include both acute conditions and chronic problems. The following conditions are examples of those for which reporting may be appropriate if there is evidence that they have affected safe driving ability: seizure, hypoglycemia, hyperglycemia, syncope, any other condition causing alterations in mental status or level of consciousness, vision or hearing problems, and injuries or chronic musculoskeletal conditions or neurological deficits that restrict necessary range of motion for physical driving skills.

Alcohol and drug intoxication (prescription or recreational) are also reportable via this mechanism, but this reporting is usually handled by law enforcement officials. If you have concerns about a patient with possible alcohol or drug intoxication related driving impairment, summon law enforcement if not already involved.

If there is any question regarding the appropriateness of or need for reporting in individual cases, consult OLMC.

State Law:

Section 322.126 (2), (3), Florida Statutes, provides that "Any physician, person, or agency having knowledge of any licensed driver’s or applicant’s mental or physical disability to drive...is authorized to report such knowledge to the Department of Highway Safety and Motor Vehicles...The reports authorized by this section shall be confidential... No civil or criminal action may be brought against any physician, person, or agency who provides the information required herein."

Form Completion:

The State of Florida Department of Highway Safety and Motor Vehicle Medical Reporting form can be accessed online at: http://www.hsmv.state.fl.us/forms/72190.html.

The form can either be printed off of the website or completed online and printed off. Either option requires an original signature and mailing to the Department of Motor Vehicles.
4.14 Mutual Aid Medical Care Procedure

Purpose:

The purpose of this protocol is to describe the roles and responsibilities of certified EMTs and paramedics in the event of a mutual aid request for disasters outside of Pinellas County and to address the utilization of their medical skills for the public good under such extraordinary circumstances.

Description:

The Pinellas County EMS System may from time to time be called upon to provide mutual aid coverage. Such requests may include emergency scene requests just outside our jurisdictional borders as well as throughout Florida and other states. Whenever Pinellas County provider agencies supply BLS or ALS medical coverage at such requests, their medical services remain under the auspices of the Pinellas County EMS Authority, the Medical Control Board, and the Medical Director. Therefore, such medical coverage shall conform to the same standards of care and other procedural requirements of the Pinellas County EMS System.

1 Intent and Scope

a) The Medical Operations Manual (MOM) is a document which delineates the standards of care for the EMS System and describes the method and scope of practice for clinicians working in the System, or assigned special duty through a mutual aid request. The MOM contains Administrative Protocols, Treatment Protocols, Drug Summaries, and a Procedure Manual.

i) Any requests made for our services (i.e. disaster assistance or mutual aid) within the State of Florida shall necessitate our medical director contacting the receiving licensed provider’s medical director over the issues of standards of care and medical policy.

   It is our desire that our clinicians work under the Pinellas County medical care protocols and directives. However, the receiving provider’s medical director may request that you function under his/her license. In this case, you must work with a receiving provider’s clinician at the same level of authority. Alternatively, you must receive sufficient training on the receiving licensed provider’s medical operations manual, as well as receive a copy of the procedures for reference in order to work as the clinician-in-charge.

ii) Any requests made for our services (i.e. disaster assistance or mutual aid) outside the State of Florida shall necessitate that the Pinellas County medical director contact the receiving licensed provider’s medical director over the issues of standards of care and medical policy. It is our desire that our clinicians work under the Pinellas County medical care protocols and directives.

   However, if the mutual aid provider’s medical director requests that you function under his/her license, then you must work with another clinician at the same level of authority. Alternatively, you must receive sufficient training on the receiving licensed provider’s medical operations manual, as well as receive a copy of the procedures for reference in order to work as the clinician-in-charge.
iii) Should such a situation arise just outside the jurisdictional boundaries of Pinellas County where a certified Pinellas County clinician is called upon to participate in patient care in conjunction with another licensed service, the on-duty personnel representing the receiving licensed provider shall have the primary responsibility and should assume the role of clinician-in-charge, if they are the first arriving provider.

However, if the clinician representing the mutual aid provider has a lower degree of medical authority (i.e., EMT), then the person with the highest level of clinical authority (Paramedic) is in charge of patient care. This advanced level of care must remain congruent throughout the transportation phase of care.

Should individuals of identical clinical authority be working “side-by-side”, those who are representing the receiving provider shall be considered to assume the role of clinician-in-charge, unless the provider’s medical director determines differently.

2 Use of Controlled Substances

a) Pinellas County Certified Paramedics shall follow the Pinellas County MOM (more notably Section 10.12) for the administration of controlled substances used from Pinellas County. Due to the nature of the circumstances placed upon your delivery of service, OLMC will not be required to approve the administration of controlled substances. **Extremely prudent use of narcotics is authorized. Examples of prudent use of morphine would be severe pain (other than abdominal), chest pain unresponsive to nitroglycerin, pre-sedation for intubation and pacing, and pulmonary edema management. (Remember that re-supply may be difficult).** Proper documentation must be made and a copy of the patient care record must be retained for QA purposes upon your return to Pinellas County.

b) Controlled substances used from the Pinellas County EMS system must be witnessed by at least two clinicians.

c) Controlled substances issued by the receiving provider must follow the protocols in place for that jurisdiction.

3 Patient Care Documentation

a) The clinician with the highest level of clinical authority (Paramedic) is responsible for starting and completing a PCR. He/she is also responsible for initiating and/or completing any other reporting requirements outlined in the Medical Operations Manual, or requested by the receiving medical director. The only exception to this requirement would be the scene environment or the severity of the patient(s) being treated in which the first paramedic in attendance of the patient may delegate the initiation of the PCR and other reporting requirements to an EMT.

b) If patient care is transferred to another unit, **PCR completion** and any other documents, including ECGs, initiated by the clinician with the highest level of clinical authority should be transferred to the clinician continuing patient care during transport. If, based upon the patient’s severity and continued care delivery methods, the first clinician elects not to ride in the ambulance, a complete verbal report must be provided to the transport paramedic. The transport of critically ill or critically injured patient(s) must not be delayed for report completion.
4 Communications

Radio communications provided or used during a mutual aid incident shall allow ambulance and first response crews to talk among themselves, and with in-coming units, dispatchers and medical direction without recurring significant interference from other calls and without impediment to the dispatching of other calls. Frequencies should be available for communications on so-called standard "mutual aid" frequencies that may be needed in the event of incidents involving multi-casualty and disaster operations.

5 Ambulances / ALS Rescues and Engines

All ambulances or ALS rescues and Engines requested for mutual aid from Pinellas County shall carry, at all times and at a minimum, the equipment specified on the most current pertinent inspection lists from the State, the Authority, and the system Medical Director. Any clinical equipment not on these lists shall have specific prior approval from the Medical Director.

If our system is provided sufficient notification and time for ample preparation, a double set of expendable items and pharmaceuticals is authorized because of re-supply problems that may be encountered.

6 Agency Reporting Requirements

Upon the agency’s return to Pinellas County, a report shall be submitted to the EMS Medical Director within 30 days to include the following information:

a) Controlled substances cards and copies of all PCRs in which controlled substances have been utilized.
4.15 Procedure for Management of Newborn Babies Abandoned at Fire Stations

Florida Law (HB 1901) directs that unwanted newborn babies (up to 7 days old) may be abandoned by a parent at hospital Emergency Departments and Fire Stations. Because of potential public confusion, in Pinellas County, all EMS facilities are subject to this protocol which describes procedures for subsequent EMS medical management in Pinellas County.

1 A baby presented to a Fire Station or EMS facility shall immediately result in the generation of a 9-1-1 Medical Call, with ambulance Code 3 response. Paramedics shall evaluate the baby and downgrade the ambulance or first responders, as appropriate, within one minute of patient contact. A Patient Care Report (PCR) should be generated. If necessary and logistically feasible, CCT may be used for transport (incubator aboard).

2 If mother is present, she shall also be evaluated and transported, if willing, unless cognizant to refuse (determined by Paramedic’s evaluation or Folstein Mini-Mental Status Exam). The mother has the right to remain anonymous under the newborn law and there is a presumption of abandonment, surrender of parental rights, and implied consent for EMS treatment if the mother leaves the child. Respect the mother’s decision.

If possible, and without causing delay in treatment, obtain significant history items:
   a) Date/time of birth, complications of pregnancy, condition at birth (APGAR)
   b) Mother’s significant history, family history, diseases and illnesses
   c) Drug history (legal and illegal), frequency
   d) Any other information that you believe may impact on the infant’s future care.

3 If baby is at significant risk, it shall be transported to closest emergency room (Florida Law), or if baby is stable, seek a hospital with a nursery to minimize the risks and hazards of future moves. Call MCO (587-2102) for current appropriate hospitals.

4 Do not delay transport to an appropriate facility. Hospitals should complete reporting and required notifications and involve appropriate local and State agencies.

NOTE: For additional reference, please consult F.S. 383.50
Section 5

Treatment Protocols
5.1 General Supportive Care

- "At patient" notification via radio to Central Dispatch
- Age category definitions
  - Neonate – a patient less than 28 days old
  - Infant – One month to one year of age
  - Pediatric and Adult – The term “pediatric” is used in these protocols as a collective term, including neonates, infants, children and adolescents. Any patient less than 18 years old is considered pediatric (FL Statute definition is the chronological, anatomical and physical characteristic of someone 15 years or age or younger), from a legal standpoint (except emancipated minor, pregnant minor or married minor). The legal standpoint must be considered in decisions about patient rights in regard to treatment, refusal, choice of hospital and other matters.
- Patient assessment specifics
  - Confirm scene safety and wear appropriate personal protective equipment.
  - Bring all equipment you anticipate needing for the type of call you have been requested to. The information provided from the communication centers and other personnel who may be already on the scene may assist in better defining this decision.
  - Appropriate infection control methods are to be initiated per agency specific exposure control plans or current
  - Reference the pediatric length based measurement device/color for equipment sizes/medication dosages.
  - A complete set of patient vital signs includes
    - Pulse rate
    - Respiratory rate
    - Blood pressure – the initial blood pressure on all patients shall be manual.
  - Reassessment of vital signs is to occur:
    - Change in patient condition
    - Post a treatment action (ie. Nitro administration)
  - Pulse Oximetry
  - End-tidal CO2 Monitoring
  - Blood Glucose
  - Cardiac Monitoring
- Vascular Access
  - Risks vs. benefits must be weighed when considering patient vascular access. Vascular access should not be based on the “I think the patient may need to have something administered IV.” Vascular access is to be based on the immediate need for or the extremely high probability of administering a medication or IV fluid. Vascular access has to take into account infection control, the appropriate IV catheter size for the task, placement location and the consideration for intraosseous access.
- IV Fluids and medication administration
  - Medications are only to be administered through a patent IV line with fluids running during administration.
  - The general administration of IV fluids is done through a 10gtt IV set
Volume replacement:

a. Adults: consider fluid replacement to establish or maintain a systolic blood pressure of at least 90 mmHg or until a palpable radial pulse is established. **There is Level 1 authorization for the use of up to 2 liters of approved system IV fluid for fluid resuscitation in patients with hypotension due to hypovolemia.** Use caution to avoid fluid overload if there is no evidence of fluid loss. Age precaution: if over age 65, infuse 250cc bolus aliquots checking vitals and lungs between boluses.

b. Pediatrics: consider fluid replacement to treat hypovolemic shock or to establish or maintain an appropriate systolic pressure. **There is Level 1 authorization for one initial fluid bolus of 20 ml/kg IV over 2-5 min. Further boluses are Level 2.** Use with caution when there is no fluid loss.

- Trendelenburg (shock position) - Use, as an adjunct to fluid resuscitation as needed to establish or maintain a systolic pressure of at least 90 mmHg.
- 60gtt IV sets are reserved for the administration of protocol specific medication drips

Follow-up post incident with the MCO via phone, for any Equipment Failures, Trauma Alerts (ground or air), Air Transports (trauma alerts or non trauma alerts), Cardiac Arrest, Submersion, Intubation Attempts (successful or unsuccessful), STEMI Alert, Neurosurgical consult patients, Needle Decompression, Surgical or Needle Cricothyrotomy.

**NOTE:**

The Critical Care Transport (CCT) station is centrally located within the county. Service is available 24 hours a day, 7 days a week. The staff includes a County Certified Critical Care Nurse, Paramedic and EMT. The Critical Care Unit has medications and equipment that are not carried on standard ALS units and can meet the needs of any size patient including neonates.

If logistically appropriate, and the potential time delay in standard ALS transportation would not harm the patient, the Critical Care Transport Unit can be requested to any scene in which a Sunstar or Fire Department unit specifically requests its service for the following types of patients:

- High Risk OB patients: CCT can be utilized for the transport of high-risk obstetrical patients with an OB complaint or pre-term labor.
- Pediatric Patients: CCT can be utilized for pediatric patients requiring advanced adjuncts and interventions requiring transport to a pediatric tertiary care center.
- Ventilator Patients: CCT can be utilized for patients maintained on ventilators. If the patient is not in cardiac arrest, CCT can be requested to transport the patient while remaining on a ventilator rather than requiring manual bag ventilation for the duration of transport.
5.2 Trauma and Hypovolemic Supportive Care

This protocol presents the basic components of patient "packaging" for trauma patients. Due to the significant differences in priorities and packaging in the prehospital care of medical cases, a separate General Supportive Care protocol has been developed. This Trauma and Hypovolemic Supportive Care Protocol may be the only protocol used in trauma or hypovolemia situations where a specific diagnostic impression and choice of protocol(s) cannot be made. Judgment must be used in determining whether patients require ALS or BLS level care. If there is a question as to whether a patient requires a particular intervention, contact with OLMC is advised. This protocol is frequently referred to by other protocols that may override it in recommending more specific therapy.

Although the following protocol is oriented toward the treatment of the trauma patient, the principles of rapid evaluation, treatment, and transport of patients with hypovolemia secondary to other problems parallel those listed below. Fluid resuscitation may be required in large volumes or in smaller incremental boluses. Careful monitoring for signs of volume overload is essential. OLMC contact is necessary for patients requiring fluid resuscitation.

**Adult Care:**

1. Confirm scene safety, and wear appropriate personal protective equipment. **Bring all equipment you anticipate needing for the type of call you have been requested to.** The information provided from the communication centers and other personnel who may already be on the scene may assist in this decision.
2. "At patient" notification via radio to Central Dispatch.
3. Primary survey
4. Declare a trauma alert, if appropriate, as soon as possible to Central Dispatch via the working incident tac channel or to the MCO via Med "A".
5. Patients requiring spinal motion restriction shall include:
   a. Any patient incurring trauma with obvious neurological deficit such as paralysis, weakness, or parasthesia (numbness or tingling.)
   b. Any patient incurring trauma who complains of pain in the head, neck, or back.
   c. Any patient incurring trauma who may have injury to the spine but in whom evaluation is difficult due to altered mental status (e.g., drugs, alcohol).
   d. Any unconscious patient who may have incurred trauma.
   e. Any patient incurring trauma with facial or head injuries.
   f. Any trauma patient subjected to deceleration forces.
   g. **When in doubt, immobilize the patient.**

   **Note:** Football player injury: “In order to maintain a neutral position and minimize secondary injury to the cervical neural elements, the helmet and shoulder pads should be either both left on or both removed in the emergency setting”.

6. Notification to the area Trauma Centers of incoming patients meeting “Trauma Alert Criteria” will be made through the Pinellas County Central Dispatch Center. **The paramedic shall advise the dispatcher of the estimated time of arrival, and what the “Trauma Alert Criteria” was in determining the patient a “Trauma Alert”. If the treating paramedic is in consultation with OLMC, the facility notification may be made through the Medical Communications Officer (MCO) in the Sunstar Communications Center. Communications to the trauma center hospital will not be allowed to delay transport.**
NOTE: The “trauma alert” notification is not the same notification as an air medical transportation upgrade.
5.3 Abnormal 12 Lead ECG Findings

Purpose:

The purpose of this protocol is to describe, in general terms, appropriate clinician responses to the findings of clinically significant abnormalities on 12 lead ECG.

Description:

Timely acquisition and accurate interpretation of 12 lead ECGs in the field has assumed major emphasis in prehospital care with the evolution of better understanding of acute coronary syndromes and recommendations for potential selective destination determinations for patients with certain types of 12 lead ECG findings. This protocol outlines important clinician reactions to clinically significant abnormal 12 lead ECG findings.

Adult Care:

Level 1

1. Dysrhythmias:
   a. Dysrhythmias discovered on a 12 lead ECG must be assessed and treated according to the appropriate rhythm-specific MOM protocol.
   b. Acquire a new 12 lead ECG following any rhythm conversion.

2. Assess carefully for presence of STEMI imitators such as Left Bundle Branch Block (LBBB) (important to distinguish between Left and Right Bundle Branch Block because of differing interpretation implications), left ventricular hypertrophy, early repolarization, and ventricular paced or other ventricular beats.
   a. The presence of LBBB or other imitators WITHOUT symptoms suggestive of cardiac ischemia is NOT an indication for a STEMI Alert.
   b. STEMI imitators (including LBBB with uncertain onset) WITH symptoms suggestive of cardiac ischemia should trigger an OLMC consult to determine whether or not a STEMI Alert or other PCI triage recommendation is appropriate. DO NOT call the STEMI Alert prior to consult.

3. Early OLMC contact is MANDATORY for destination recommendation purposes for patients meeting the following “STEMI Alert” criteria:
   a. 1 mm or greater ST segment elevation in two or more contiguous ECG leads
   b. Known new onset of Left Bundle Branch Block (LBBB)

   • Note: The OLMC contact requirement for STEMI Alert applies to all patients meeting these criteria, including those being transported to a Percutaneous Coronary Intervention (PCI) facility that also happens to be the closest or patient choice facility. The purpose of this consult and the resulting tracking registry is to monitor for appropriate utilization of scarce PCI resources.
• Whenever possible, the 12 lead adapter cable for the Medtronic LP12 should be left attached to the patient for continued monitoring after the first 12 lead ECG is acquired. The device, with the 12 lead adapter wires left attached will continually reassess the 12 lead internally and if the device notes any acute changes in the 12 lead as compared to the original that was acquired, will automatically printout a strip indicating changes have occurred. The device, to continually reassess the 12 lead ECG, must have had an original 12 lead ECG completed on that specific device.

Level 2 – None

Level 3 – None

**Pediatric Care:**

**Level 1**

1. Dysrhythmias:
   a. Dysrhythmias discovered on a 12 lead ECG must be assessed and treated according to the appropriate rhythm-specific MOM protocol.
   b. Acquire a new 12 lead ECG following any rhythm conversion.

2. Other 12 lead ECG abnormalities should be brought to the attention of OLMC, along with information on past medical history (congenital or other heart disease), family history, evaluation of risk factors and very specific and detailed history of the present illness are extremely important in the evaluation of these patients. Parents of children with chronic problems may be able to tell you of previous ECG abnormalities. Ischemic changes, though rare, can be present, and should be treated with the same urgency as in adults. OLMC will advise if STEMI Alert status is appropriate.

**Level 2** – None

**Level 3** – None

• Whenever possible, the 12 lead adapter cable for the Medtronic LP12 should be left attached to the patient for continued monitoring after the first 12 lead ECG is acquired. The device, with the 12 lead adapter wires left attached will continually reassess the 12 lead internally and if the device notes any acute changes in the 12 lead as compared to the original that was acquired, will automatically printout a strip indicating changes have occurred. The device, to continually reassess the 12 lead ECG, must have had an original 12 lead ECG completed on that specific device.

Level 2 – None

Level 3 – None
References:


Reference Protocols:

- On-line Medical Control (OLMC) Consultation Criteria
- Acute Coronary Syndromes (ACS)
- 12 Lead ECG
5.4 Cardiac Arrest Perfusion Program (CAPP) Foundation

Purpose:

The purpose of this protocol is to establish a coordinated program to optimize the performance of CPR and other resuscitative measures for adult and nonneonatal pediatric cardiac arrest victims, regardless of presenting cardiac rhythm. (Rhythm specific measures are detailed in other protocols.) The 2005 American Heart Association and ACLS Guidelines focus on the establishment of adequate cerebral perfusion in addition to cardiac perfusion in order to optimize functional survivability. Research has shown that the most important initial intervention in most cases of cardiac arrest is optimally performed CPR, independent of the initial presenting rhythm. In order to optimize resuscitation efforts, this protocol creates the Pinellas County Cardiac Arrest Perfusion Program (CAPP). Special emphasis is placed on optimization of Basic Life Support (BLS) aspects of resuscitation via a coordinated team approach, the use of the Impedence Threshold Device (ITD) as a perfusion adjunct, and appropriate transport decisions.

Description:

Five major aspects of the CAPP program are:

1. Team coordination (Scene choreography)
   - The key to coordination of the resuscitation team is to have clear understanding of necessary tasks and task assignments. Optimum structure includes an overall Coordinator or Team Leader and a designated documenter, but documentation may necessarily take a back seat to other tasks, especially during the early part of a resuscitation.
   - The following is a minimum list of critical coordination tasks. These tasks may be assigned to any appropriately qualified member of the resuscitation team.
     - Determine whether 2 minutes of CPR is appropriate prior to rhythm check
     - Assure that proper radio notifications are made to Central Dispatch (first compressions, first shock, ROSC, ROSV, etc)
     - Monitor for appropriate application or discontinuation of ITD
     - Monitor compressions for appropriate rate and depth and coordination switches in compressors accordingly
     - Monitor ventilations for appropriate rate and depth
     - Coordinate timing of rhythm checks and defibrillations
     - Assure that all team members are clear of danger prior to defibrillation
     - Coordinate medication selection and timing of medication administration
     - Monitor to minimize interruptions of compressions
   - It is recognized that this program represents optimum care, but that real-life circumstances may require that some aspects assume a lower priority, especially during the early phases of a call when there may be as few as two clinicians on scene. In these cases, compressions and BLS ventilations with ITD assistance should take precedence over real-time documentation, drug administration and even intubation. Every effort should be made to provide the maximum possible compliance with protocol, given the individual circumstances.
2. Equipment
- ResQPod: This Impedence Threshold Device (ITD) serves as a perfusion adjunct and as a ventilation timing device after intubation for adults and children above the approximate age of puberty. The ITD may also electively be used for timing coordination for other aspects of resuscitation. It is not to be applied to the airway of younger patients, but may be used separately for timing purposes.
- Routine airway and vascular access equipment
- AED and/or monitor defibrillator. Each AED and monitor-defibrillator must be clearly marked as monophasic or biphasic and with its advised adult defibrillation energy (360 J or 200 J).

3. Communication and Documentation
- Communication to Central Dispatch for “first compressions”, “first shock”, “ROSC” and “ROSV”
- If adequate personnel are available, designate a specific clinician to record interventions in real time.

4. Protocols
- CAPP Foundation
- Ventricular Fibrillation/Pulseless Ventricular Tachycardia
- Asystole/PEA
- Increased provisions for discontinuation of resuscitation in the field

5. Quality Management/Training
- Data collection and validation
- Feedback
- Performance recognition
- Research
- Inclusion in OMD Orientation Program
- Remediation as needed

**Entry into Protocol**
This protocol is initiated when it is determined that a patient who meets criteria for resuscitation as outlined in other areas of this manual is found pulseless. The CAPP protocol forms the basis for elements of resuscitation common to all arrest rhythms. Rhythm-specific details are found in corresponding additive protocols 5.5 (Asystole/Pulseless Electrical Activity) and 5.6 (V. Fib/Pulseless V Tach).

**Adult Care (and Pediatric with Apparent Signs of Puberty):**

1. General Supportive Care provisions and other applicable protocols are initiated until the recognition of cardiac arrest, if applicable.
2. Upon recognition of cardiac arrest
   - **For non-EMS witnessed arrests** begin chest compressions (hard and fast) at a rate of approximately 100 compressions per minute with a ratio of 30 compressions to 2 ventilations. (Because of the frequent difficulties in establishing time of onset of cardiac arrest and the adequacy of CPR being provided by non-PCEMS BLS, first aid or CPR providers and because of typical EMS response times, we generally assume that all arrests not witnessed by EMS will fall into the category requiring 2 minutes of CPR prior to rhythm check. However, if it can be reliably established that the time of collapse was less than 4 minutes prior to arrival of a PCEMS provider and adequate CPR has been performed, treat the patient as an EMS witnessed arrest patient.).
   - **Notification of “first compressions” must be made to Central Dispatch via radio.**
• If arrest is witnessed by EMS, begin CPR as above and attach AED or LifePak 12 and determine rhythm as quickly as possible. Do not wait through full 2 minute CPR cycle for rhythm check if ready. Then proceed to appropriate rhythm protocol based on rhythm analysis. (Note: In general, ALS crews should operate the LifePak 12 in manual mode rather than AED mode because of the added time required for software rhythm analysis in AED mode.)

• Simultaneously attempt to determine, if possible, whether a valid State of Florida Prehospital Do Not Resuscitate Order (DNRO) or other advance directives exist. Consult OLMC if there are questions about the validity of a DNRO or there are other requests for discontinuation of resuscitation. (BLS CAPP measures MUST be initiated and continued during this process.)

3. Initiate ventilations via BVM with ITD attached at a rate of 2 one second duration ventilations (to point of chest rise only) after each set of 30 compressions. Compressions should be briefly suspended for these breaths. Attempts at endotracheal intubation should be delayed for at least the first two minutes of compressions.

• Success of the ITD with a BVM is extremely dependent upon good mask seal. Two person BVM technique should be utilized if enough personnel are available.

4. Defibrillator pads should be placed during the first 2 minutes of compressions for non-EMS witnessed arrest patients; placement must not interrupt the compressions.

5. IV placement (or IO if IV is unobtainable and appropriate IO equipment is available) may occur at any time and should assume a treatment priority when adequate personnel are present. Drug delivery via IV or IO is preferred to ET delivery.

• It is recognized that drug administration access may not be available in the first few cycles of CPR. Initiate drug administration sequences outlined in protocol as soon as access is available.

• Consider administration of Naloxone, 2 mg IV/IO, IM or ET as soon as possible in situations in which narcotic or mixed drug overdose is present or suspected. Repeat every 3 to 5 minutes as needed.

6. Check blood glucose as soon as possible. This must be done on every cardiac arrest patient, regardless of whether or not there is a known history of diabetes or hypoglycemia.

7. There should be no interruptions of compressions during the first two minutes of CPR.

8. Monitor effectiveness of compressions and change compressors as indicated. Many compressors begin to fatigue in as little as two minutes.

9. After 2 minutes of CPR (5 cycles of 30:2 compressions and ventilations), analyze the rhythm. Rhythms are NOT checked until the end of each 2 minute CPR cycle. Even if a rhythm change is noticed during the cycle (without interruption of CPR), no action is taken until the end of the cycle.

10. Intubation: Endotracheal intubation is still the most desirable method of airway protection, oxygenation and ventilation. It is, however, secondary in this cardiac arrest environment to appropriate compressions and adequate BLS ventilation.

• Attempts at intubation must minimally interrupt compressions and other therapies. (This can be facilitated by continuing compressions until the intubator is ready to place the laryngoscope blade and resuming compressions once the ET tube is passed through the cords. ET placement verification and securing can be carried out during compressions.)

• The ITD and capnography must be placed in line with the ET tube.
• If the first intubation attempt is unsuccessful, resume CPR and do not attempt again until the next CPR cycle. If two total intubation attempts are unsuccessful, secure the airway with a Combitube and attach capnography and the ITD. If unable to place the Combitube, continue BVM ventilations with the ITD and capnography cannula, with careful attention paid to good mask seal and other BVM technique, including the use of adjunct airways such as an NPA or OPA. (Note: Good mask seal is extremely important to the function of the ITD.)
• Clinicians may opt to proceed directly to Combitube placement only if circumstances obviously will make endotracheal tube placement hazardous or unsuccessful.
• Once intubation with endotracheal tube or Combitube is accomplished, deliver one breath of one second duration to the point of chest rise 10 times per minute, or once for every ITD flash. Do NOT pause compressions to deliver ventilations.

11. In general, subsequent interventions proceed in a sequence of CPR (2 minutes) → rhythm check → CPR (2 minutes) with drug delivery if not shockable or CPR until ready to defibrillate → defibrillate.

12. If patient attains ROSC or ROSV
• Advise Central Dispatch of “ROSC” or “ROSV”
• Remove the ITD but keep it accessible
• Replace the ITD if the patient loses ROSC or otherwise deteriorates after ITD removal. If the patient improves, keep the ITD in place. If no improvement, remove the ITD again.

13. Focus on excellent on-scene care during the initial 20 minutes of resuscitation rather than expedited transport. In general, no transport efforts should be initiated (including placement on a backboard unless utilized while positioning the patient for effective compressions) prior to completion of at least two rounds of drugs, establishment of effective ventilations and 20 minutes of resuscitative efforts. “Effective ventilation” means any system-authorized ventilation method that creates chest rise. However, if all system-authorized airway management methods have failed, transport to the closest facility should be initiated as soon as possible.

**Pediatric Care (Nonneonatal and Without Signs of Puberty)**

1. Follow protocol outlined above with the following exceptions
• AED’s: For ages 1 to 8 years, use pediatric defibrillation pads if available; if not available, use adult pads. Use adult pads for ages > 8 years. There are no recommendations for AED use in patients less than 1 year of age.
• Ventilations via BVM at rate of 15 compressions to 2 one second ventilations to point of chest rise prior to intubation. Pause compressions briefly to deliver breaths. Once intubation with endotracheal tube is accomplished, deliver one breath of one second duration to the point of chest rise 10 times per minute, or once for every ITD flash if used separately for timing. Do NOT pause compressions to deliver ventilations.

2. Airway management:
• Endotracheal intubation is still the optimal method for maintaining airway patency. More than two intubation attempts are permitted if necessary, but they must minimally interrupt compressions and there should only be one attempt per CPR cycle. Do not let intubation attempts delay transport after the transport decision has been made.
• Combitube use is contraindicated.
• Remember that most pediatric airways can be managed with basic maneuvers such as airway adjuncts and BVM ventilations if intubation is unsuccessful.
3. Timing of transport decisions is the same as for adults. No transport efforts should be made prior to completion of at least two rounds of drugs, establishment of effective ventilations, and 20 minutes of resuscitative efforts unless all system-authorized airway management methods have failed.

**BLS to ALS Transition**

1. When PCEMS BLS first responders arrive first on scene of a cardiac arrest, care should begin per the CAPP protocol with AED application and utilization as outlined above. Follow the instructions provided by the AED.

2. When PCEMS ALS responders arrive, transition to the LifePak 12 as soon as possible, but do not delay shock delivery advised by the AED to do so. ALS providers should begin the ALS aspects of the appropriate rhythm specific protocol (i.e. obtaining medication administration access and/or establishment of definitive airway) beginning with a rhythm check at the end of the soonest possible CPR cycle. All BLS interventions prior to ALS arrival must be thoroughly documented on the PCR.

**References:**

- American Heart Association Guidelines 2005 for Cardiopulmonary and Emergency Cardiovascular Care.
- American Heart Association Pediatric Advanced Life Support, published 2006
- [http://www.advancedcirculatory.com/cet/resqproduct.htm](http://www.advancedcirculatory.com/cet/resqproduct.htm)

**Reference Protocols:**

- General Supportive Care
- Endotracheal Drug Administration
- Intubation Techniques
- Endotracheal Tube Confirmation
- Endotracheal Tube Anchoring
- Atropine
- Epinephrine
- Sodium Bicarbonate 8.4%
- Do Not Resuscitate Orders
5.5 Asystole/Pulseless Electrical Activity (PEA)

Purpose:

The purpose of this protocol is to describe the appropriate procedures for nonshockable cardiac arrest rhythms. These rhythms include asystole (no electrical activity) and any semi-organized or organized electrical activity that can be seen on the monitor screen although the patient lacks a palpable radial, brachial or carotid pulse (Pulseless Electrical Activity or PEA). PEA encompasses a number of other named rhythms (such as idioventricular and agonal), but all of these rhythms lack a clinically detectable pulse and are treated in a similar manner. The definition specifically excludes ventricular fibrillation and pulseless ventricular tachycardia.

Description:

Adult Care:

Level 1

1. Initiate CAPP Foundation Protocol
   - If the cardiac arrest has been witnessed by EMS, initiate CAPP immediately and proceed to rhythm check via AED or LifePak 12 as quickly as possible
   - If the cardiac arrest has NOT been witnessed by EMS, initiate CAPP immediately, working a full 2 minute cycle of CPR prior to first rhythm check.
   - Advise Central Dispatch immediately of “first compressions”
   - Prepare for possible drug administration during next round of CPR
   - Consult OLMC if there are questions about the validity of a DNRO or there are other requests for discontinuation of resuscitation. (BLS CAPP measures MUST be initiated and continue during this process.)

2. If initial rhythm check shows asystole or PEA, immediately begin a 2 minute cycle of CPR again, rechecking the rhythm only at the end of the cycle. Continue CAPP interventions.

3. As soon as vascular or endotracheal drug administration access is achieved, begin drug administration. Drugs should be administered as early in each CPR cycle as possible. Administer drugs in the following sequence (assuming that a shockable rhythm is persisting):
   - **First round:**
     - Epinephrine, 1:10,000, 1 mg IV/IO (preferred) or 2 mg ET
     - If asystole or PEA with a rate < 60 bpm, administer Atropine, 1 mg IV/IO (preferred) or 2 mg ET
   - **Second round:**
     - Epinephrine, 1:10,000, 1 mg IV/IO (preferred) or 2 mg ET
     - If asystole or PEA with a rate < 60 bpm, administer Atropine, 1 mg IV/IO (preferred) or 2 mg ET

NOTE: Pressor agent administration should occur every 3 to 5 minutes throughout cardiac arrest. Practically, this is likely to translate to about once every 2 minute CPR cycle if timing is kept accurately.
• **Subsequent rounds:**
  - In addition to repeated doses of Epinephrine as above, repeat Atropine as above to a total of 3 mg for asystole or PEA with rate < 60.
  - Sodium Bicarbonate, 1 meq/kg IV if total duration of arrest (not time working code) is > 20 minutes and the patient is being adequately ventilated. Also consider earlier if patient history is suggestive of preexisting hyperkalemia or metabolic acidosis.

4. Consider and treat other potentially reversible causes (6H’s and 5T’s) throughout duration of resuscitation.

5. Check rhythm only at end of each CPR cycle.
   - If rhythm changes to an organized rhythm, check a pulse for no longer than 10 seconds. If a pulse is palpable, proceed to appropriate protocol. If there is any doubt about presence of a pulse, assume it does not exist and continue CPR.
   - If rhythm is shockable, resume CPR until defibrillator is charged, then defibrillate per Ventricular Fibrillation/Pulseless Ventricular Tachycardia protocol.

6. **Report ROSC and ROSV times to Central Dispatch.**
   - See note in CAPP Protocol regarding ITD use with ROSV

7. Monitor pulse oximetry along with capnography.
   - Capnography should be monitored closely, since an increase in ETCO2 along with an organized rhythm may signify ROSC that is not yet otherwise clinically detectable. An ETCO2 reading of less than 10 with a good waveform almost always signifies an extremely poor prognosis.

8. Perform OLMC consultation at the earliest possible opportunity. Post-consults should occur only in rare circumstances. Cardiac arrest patients ALWAYS require OLMC consultation, not just MCO notification for registry purposes.

9. Provide a complete copy of the “CODE SUMMARY” with the receiving facility.

10. Follow up as soon as possible post-incident with the MCO via phone for any Equipment Failures, Trauma Alerts, Air Transports (even if non-Trauma Alerts) and for completion of Cardiac Arrest, Intubation and other applicable registries.

**Level 2**

1. Consider other possible causes and specific treatments:
   - Tricyclic antidepressant overdose - Sodium Bicarbonate, 1 mEq/kg, IV.
   - Calcium channel blocker overdose - Calcium Chloride, 10%, 1 gm, IV.
   - Hyperkalemia - *(See Protocol 5.36 Renal Dialysis).*

2. Due to difficulties with executing adequate CPR during transport, consult OLMC for probable on-scene discontinuation of resuscitation efforts if **all** of the following apply:
   - Patient remains in asystole or PEA and origin of cardiac arrest appears to be nontraumatic
   - Patient has received adequate ventilation via ET tube, Combitube, BVM or other authorized airway control maneuvers
   - Resuscitation attempts have lasted a minimum of 20 minutes and have included at least two rounds of drug administration
There has never been even transient ROSC

Suspected reversible causes of arrest have been addressed (such as Narcan for possible narcotic overdose and glucose for suspected or known hypoglycemia)

All rescuers on scene agree that further resuscitation efforts are likely to be futile

Rescuers feel capable of dealing with emotional and/or social issues of survivors/caregivers on-scene. If the family/caregivers are adamant about transporting the patient, advise them of the likely futility and proceed with transport.

ETCO2 level is ≤ 10. (Discontinuation will be considered for ETCO2 levels between 10 and 15, but patients with higher levels should probably be transported, especially if an organized rhythm is present.)

3. OLMC consult is mandatory for any other situations in which discontinuation of resuscitation efforts is being requested or considered.

4. If discontinuation is ordered, continue to monitor the patient with the LifePak 12 for a minimum of 10 minutes for possible Lazarus phenomenon.

Level 3 – None

Pediatric Care (Less than apparent age of puberty but not neonatal):

1. Initiate CAPP Foundation Protocol.
   - Note that the compression to ventilation ratio prior to intubation is 15 compressions to 2 ventilations for the healthcare provider. Total compression rate and ventilation rate after intubation is the same as for adults. Note also that the ITD is NOT to be applied to the patient, but should still be used as the timing device for the resuscitation. Utilize the pediatric length-based measurement device where applicable for equipment sizes and drug doses. Maximum drug doses should not exceed adult doses.
   - If the cardiac arrest has been witnessed by EMS, initiate CAPP immediately and proceed to rhythm check via AED or LifePak 12 as quickly as possible
   - If the cardiac arrest has NOT been witnessed by EMS, initiate CAPP immediately, working a full 2 minute (20 ITD flash) cycle of CPR prior to first rhythm check.
   - Advise Central Dispatch immediately of “first compressions”
   - Prepare for possible drug administration during next round of CPR
   - Consult OLMC if there are questions about the validity of a DNRO or there are other requests for discontinuation of resuscitation. (BLS CAPP measures MUST be initiated and continue during this process.)

2. If initial rhythm check shows asystole or PEA, immediately begin a 2 minute cycle of CPR again, rechecking the rhythm only at the end of the cycle. Continue CAPP interventions.

3. As soon as vascular or endotracheal drug administration access is achieved, begin drug administration. Drugs should be administered as early in each CPR cycle as possible. Administer drugs in the following sequence (assuming that a shockable rhythm is persisting):
   - First round:
     - Epinephrine, 1:10,000, 0.01 mg/kg IV/IO (preferred) or 1:1000, 0.1 mg/kg ET

NOTE: Pressor agent administration should occur every 3 to 5 minutes throughout cardiac arrest. Practically, this is likely to translate to about once every 2 minute CPR cycle if timing is kept accurately. It is the PC’s responsibility to assure that the pressor agent administration schedule is maintained.
Subsequent rounds:
- Sodium Bicarbonate, 1 meq/kg IV if total duration of arrest (not time working code) is > 20 minutes and the patient is being adequately ventilated. Also consider earlier if patient history is suggestive of preexisting hyperkalemia or metabolic acidosis.

4. Consider and treat other potentially reversible causes (6H’s and 5T’s) throughout duration of resuscitation.

5. Check rhythm only at end of each CPR cycle.
   - If rhythm changes to an organized rhythm, check a pulse for no longer than 10 seconds. If a pulse is palpable, proceed to appropriate protocol. If there is any doubt about presence of a pulse, assume it does not exist and continue CPR.
   - If rhythm is shockable, resume CPR until defibrillator is charged, then defibrillate per Ventricular Fibrillation/Pulseless Ventricular Tachycardia protocol.

6. Report ROSC and ROSV times to Central Dispatch.

7. Monitor pulse oximetry along with capnography.
   - Capnography should be monitored closely, since an increase in ETCO2 along with an organized rhythm may signify ROSC that is not yet otherwise clinically detectable. An ETCO2 reading of less than 10 with a good waveform almost always signifies an extremely poor prognosis.

8. Perform OLMC consultation at the earliest possible opportunity. Post-consults should occur only in rare circumstances. Cardiac arrest patients ALWAYS require OLMC consultation, not just MCO notification for registry purposes.

9. Provide a complete copy of the “CODE SUMMARY” with the receiving facility.

10. Follow up as soon as possible post-incident with the MCO via phone for any Equipment Failures, Trauma Alerts, Air Transports (even if non-Trauma Alerts) and for completion of Cardiac Arrest, Intubation and other applicable registries.

Level 2

1. Consider other possible causes and specific treatments:
   - Tricyclic antidepressant overdose - Sodium Bicarbonate, 1 mEq/kg, IV.
   - Calcium channel blocker overdose - Calcium Chloride, 10%, 20 mg/kg IV over 5 – 10 minutes.
   - Hyperkalemia - (See Protocol 5.36 Renal Dialysis).

2. Additional fluid bolus, up to a maximum specified by OLMC.

3. Due to difficulties with executing adequate CPR during transport, consult OLMC for probable on-scene discontinuation of resuscitation efforts if all of the following apply:
   - Patient remains in asystole or PEA and origin of cardiac arrest appears to be nontraumatic
   - Patient has received adequate ventilation via ET tube, Combitube, BVM or other authorized airway control maneuvers
   - Resuscitation attempts have lasted a minimum of 20 minutes and have included at least two rounds of drug administration
   - There has never been even transient ROSC
• Suspected reversible causes of arrest have been addressed (such as Narcan for possible narcotic overdose and glucose for suspected or known hypoglycemia)
• All rescuers on scene agree that further resuscitation efforts are likely to be futile
• Rescuers feel capable of dealing with emotional and/or social issues of survivors/caregivers on-scene. If the family/caregivers are adamant about transporting the patient, advise them of the likely futility and proceed with transport.
• ETCO2 level is ≤ 10. (Discontinuation will be considered for ETCO2 levels between 10 and 15, but patients with higher levels should probably be transported, especially if an organized rhythm is present.)

4. OLMC consult is mandatory for any other situations in which discontinuation of resuscitation efforts is being requested or considered.
5. If discontinuation is ordered, continue to monitor the patient with the LifePak 12 for a minimum of 10 minutes for possible Lazarus phenomenon.

Level 3 – None

References:

• American Heart Association Guidelines 2005 for Cardiopulmonary and Emergency Cardiovascular Care
• http://www.advancedcirculatory.com/cet/resqproduct.htm

Reference Protocols:

• General Supportive Care (Medical)
• Cardiac Arrest Perfusion Program Foundation Protocol
• Ventricular Fibrillation/Pulseless Ventricular Tachycardia
• Renal Dialysis Patients in the Out-of-Hospital Setting
• Intubation Techniques
• Endotracheal Tube Confirmation
• Endotracheal Tube Anchoring
• Capnography
• Atropine
• Epinephrine
• Calcium Chloride
• Sodium Bicarbonate 8.4%
• Glucagon
• Do Not Resuscitate Orders
5.6 Ventricular Fibrillation/Pulseless Ventricular Tachycardia

Purpose:

This protocol is intended for use for cardiac arrest patients identified to be in Ventricular Fibrillation or Pulseless Ventricular Tachycardia rhythms. It assumes that Protocol 5.4 (Cardiac Arrest Perfusion Program Foundation Protocol) has also been initiated.

Description:

Adult Care:

Level 1

1. Initiate CAPP Foundation Protocol.
   - **If the cardiac arrest has been witnessed by EMS**, initiate CAPP immediately, performing CPR until an AED or LifePak 12 is applied. **Analyze rhythm as soon as possible**, resuming CPR while defibrillator charges if shock is indicated. Then move to Step 2. (If shock is not indicated, move to Asystole/PEA protocol.)
   - **If the cardiac arrest has NOT been witnessed by EMS**, initiate CAPP, **performing 2 minutes of uninterrupted CPR prior to rhythm analysis**. If shockable rhythm is identified, resume CPR while defibrillator charges. Then move to Step 2. (If shock is not indicated, move to Asystole/PEA protocol.)
   - **Advise Central Dispatch immediately of “first compressions”**
   - Prepare for possible drug administration during next round of CPR
   - Consult OLMC if there are questions about the validity of a DNRO or there are other requests for discontinuation of resuscitation. (BLS CAPP measures MUST be initiated and continue during this process.)
   - **NOTE:** While EMT’s may defibrillate under this protocol, rhythm recognition and the decision to defibrillate is still the final responsibility of the paramedic when present. It is imperative that EMT’s maintain thorough familiarity with the operations of the LifePak 12.

2. When the LifePak 12 defibrillator is charged, the Perfusion Coordinator (PC) and Perfusionist should assure that all rescuers are clear of the patient, with the Perfusionist being the last to clear. Following immediate final clearance by a paramedic, the Perfusionist (EMT or paramedic) should push the defibrillator discharge button if safely within reach; otherwise, the clinician (EMT or paramedic) closest to the defibrillator may do so under the same direction. Defibrillation energy should be 360 J for a monophasic device and 200 J for a biphasic device. (Each device must be clearly labeled as monophasic or biphasic and with its advised adult defibrillation energy.)
   - **Advise Central Dispatch immediately of “first shock”**
   - **NOTE:** This step may be performed with an AED if necessary, utilizing the AED’s rhythm analysis, charging and discharging sequence. Due to the wide variety of AED’s present in the community and the inconsistent ability for them to perform rhythm analysis while compressions are being performed, the LifePak 12 is the defibrillator of choice for EMS use. However, do not delay initial AED rhythm analysis and/or defibrillation to apply a LifePak 12 for an EMS witnessed cardiac arrest when the AED is available first.
3. Immediately resume CPR per CAPP protocol for 2 minutes (20 ITD flashes). (Do not delay for rhythm or pulse checks.)

4. As soon as vascular or endotracheal drug administration access is achieved, begin drug administration. Drugs should be administered as early in each CPR cycle as possible. Administer drugs in the following sequence (assuming that a shockable rhythm is persisting):
   - **First round:**
     - Epinephrine, 1:10,000, 1 mg IV/IO (preferred) or 2 mg ET.
   - **Second round:**
     - Epinephrine, 1:10,000, 1 mg IV/IO (preferred) or 2 mg ET.
     - Amiodarone, 300 mg IV/IO bolus over at least 1 minute if IV/IO established OR Lidocaine, 3 mg/kg ET if no IV/IO available
     - Sodium Bicarbonate, 1 meq/kg IV if total duration of arrest (not time working code) is > 20 minutes and the patient is being adequately ventilated. Also consider earlier if patient history is suggestive of preexisting hyperkalemia or metabolic acidosis.
   - **NOTE:** Pressor agent administration should occur every 3 to 5 minutes throughout cardiac arrest. Practically, this is likely to translate to about once every 2 minute CPR cycle if timing is kept accurately. It is the PC’s responsibility to assure that the pressor agent administration schedule is maintained.
   - **Third round:**
     - Epinephrine, 1:10,000, 1 mg IV/IO (preferred) or 2 mg ET
     - Amiodarone, 150 mg IV/IO if access available (once only) and 300 mg dose already given
     - Repeat Lidocaine, 3 mg/kg ET times one if no IV/IO access available
   - **Fourth round:**
     - Epinephrine, 1:10,000, 1 mg IV/IO (preferred) or 2 mg ET
     - If maximum total dose of Amiodarone has been reached and if ET lidocaine has not been administered, give Lidocaine, 1.5 mg/kg IV/IO
   - **Subsequent rounds:**
     - After Lidocaine 1.5 mg/kg IV/IO, administer Lidocaine, 0.75 mg/kg IV/IO every 5 to 10 minutes up to maximum total of 3 mg/kg (i.e., 2 doses at 0.75 mg/kg)

**Other drug administration notes**
- If initial antiarrhythmic was Lidocaine via ET, switch to Amiodarone when IV/IO access achieved.
- Consider OLMC consult for Magnesium Sulfate administration if shockable rhythm persists through maximum total dose of Amiodarone and one dose of Lidocaine, if Torsade de Pointes is present or if the patient is at high risk for hypomagnesemia (i.e. alcoholic or malnourished patients).
- If ROSC is obtained and antiarrhythmics have not previously been administered, administer Amiodarone, 150 mg in 100 cc D5W over a minimum of 10 minutes (maximum rate of 25 gtt per 15 seconds via 10 gtt macro tubing set).

5. Consider and treat other potentially reversible causes throughout duration of resuscitation

6. Check rhythm only at end of each CPR cycle.
• If rhythm changes to a **nonshockable** rhythm and there is organized electrical activity, check a pulse. Proceed to appropriate protocol.
• If rhythm is **shockable**, resume CPR until defibrillator is charged, then defibrillate as outlined in #2.

7. Establish pulse oximetry along with capnography. **Report ROSC and ROSV times to Central Dispatch.**
   • See note in CAPP regarding ITD use with ROSV

8. Perform OLMC consultation at the earliest possible opportunity. Post-consults should occur only in rare circumstances. Cardiac arrest patients ALWAYS require OLMC consultation, not just MCO notification for registry purposes.

9. Provide a complete copy of the “CODE SUMMARY” with the receiving facility.

10. Follow up as soon as possible post-incident with the MCO via phone for any Equipment Failures, Trauma Alerts, Air Transports (even if non-Trauma Alerts) and for completion of Cardiac Arrest, Intubation and other applicable registries.

**Level 2**

1. Magnesium sulfate, 2 gm IV/IO over 2 minutes if Torsade de Pointes, persistent shockable rhythm through 2 doses of Amiodarone and 1 dose of Lidocaine, or if the patient is at high risk for hypomagnesemia (ie. alcoholic or malnourished patients).
2. Additional doses of Sodium Bicarbonate.

**Pediatric Care (Less than apparent age of puberty but not neonatal):**

**Level 1**

1. Initiate CAPP Foundation Protocol
   • **Note that the compression to ventilation ratio prior to intubation is 15 compressions to 2 ventilations for the healthcare provider.** Total compression rate and ventilation rate after intubation is the same as for adults. Note also that the ITD is **NOT to be applied to the patient**, but should still be used as the timing device for the resuscitation. Utilize the pediatric length-based measurement device where applicable for equipment sizes and drug doses. Maximum drug doses should not exceed adult doses.
   • **If the cardiac arrest has been witnessed by EMS**, initiate CAPP immediately, performing CPR until and AED or LifePak 12 is applied. (Use a pediatric attenuating system for ages 1 to 8 and regular adult pads for older patients. AED’s are not indicated for patients less than 1 year of age.) **Analyze rhythm as soon as possible**, resuming CPR while defibrillator charges if shock is indicated. Then move to Step 2. (If shock is not indicated, move to Asystole/PEA protocol.)
   • **If the cardiac arrest has NOT been witnessed by EMS**, initiate CAPP, performing **2 minutes of uninterrupted CPR prior to rhythm analysis.** Use a pediatric attenuating system for ages 1 to 8 and regular adult pads for older patients. AED’s are not indicated for patients less than 1 year of age.) If shockable rhythm is identified, resume CPR while defibrillator charges. Then move to Step 2. (If shock is not indicated, move to Asystole/PEA protocol.)
   • **Advise Central Dispatch immediately of “first compressions”**
   • Prepare for possible drug administration during next round of CPR

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**Protocol 5.6**
• Consult OLMC if there are questions about the validity of a DNRO or there are other requests for discontinuation of resuscitation. (BLS CAPP measures MUST be initiated and continue during this process.)

• **NOTE:** While EMT’s may defibrillate under this protocol, **rhythm recognition and the decision to defibrillate is still the final responsibility of the paramedic when present.** It is imperative that EMT’s maintain thorough familiarity with the operations of the LifePak 12.

2. When the LifePak 12 defibrillator is charged, the Perfusion Coordinator (PC) and Perfusionist should assure that all rescuers are clear of the patient, with the Perfusionist being the last to clear. Following immediate final clearance by a paramedic, the Perfusionist (EMT or paramedic) should push the defibrillator discharge button if safely within reach; otherwise, the clinician (EMT or paramedic) closest to the defibrillator may do so under the same direction. Defibrillation energy should be **2 J/kg** for both monophasic and biphasic devices. (Each device must be clearly labeled as monophasic or biphasic and with its advised adult defibrillation energy.)

• **Advise Central Dispatch immediately of “first shock”**

**NOTE:** This step may be performed with an AED if necessary, utilizing the AED’s rhythm analysis, charging and discharging sequence. Due to the wide variety of AED’s present in the community and the inconsistent ability for them to perform rhythm analysis while compressions are being performed, the LifePak 12 is the defibrillator of choice for EMS use. However, do not delay initial AED rhythm analysis and/or defibrillation to apply a LifePak 12 for an EMS witnessed cardiac arrest when the AED is available first.

3. Immediately resume CPR per CAPP protocol for 2 minutes (20 ITD flashes). (Do not delay for rhythm or pulse checks.)

4. As soon as vascular or endotracheal drug administration access is achieved, begin drug administration. Drugs should be administered as early in each CPR cycle as possible. Administer drugs in the following sequence (assuming that a shockable rhythm is persisting):

• **First round:**
  - Epinephrine, 1:10,000, 0.01 mg/kg IV/IO (preferred) or 1:1000, 0.1 mg/kg ET

• **Second round:**
  - Epinephrine, 1:10,000, 0.01 mg/kg IV/IO (preferred) or 1:1000, 0.1 mg/kg ET
  - Amiodarone, 5 mg/kg IV/IO bolus over at least 1 minute if IV/IO established **OR** Lidocaine, 2 mg/kg ET if no IV/IO available (maximum single dose 100 mg)
  - Sodium Bicarbonate, 1 meq/kg IV if total duration of arrest (not time working code) is > 20 minutes and the patient is being adequately ventilated. Also consider earlier if patient history is suggestive of preexisting hyperkalemia or metabolic acidosis.

**NOTE:** Pressor agent administration should occur every 3 to 5 minutes throughout cardiac arrest. Practically, this is likely to translate to about once every 2 minute CPR cycle if timing is kept accurately. It is the PC’s responsibility to assure that the pressor agent administration schedule is maintained.

• **Third round:**
  - Epinephrine, 1:10,000, 0.01 mg/kg IV/IO (preferred) or 1:1000, 0.1 mg/kg ET
  - Amiodarone, 5 mg/kg IV/IO if access available (once only) and first 5 mg/kg dose already given.
- Repeat Lidocaine, 2 mg/kg ET times one if no IV/IO access available (maximum single dose 100 mg).

**Fourth round:**
- Epinephrine, 1:10,000, 0.01 mg/kg IV/IO (preferred) or 1:1000, 0.1 mg/kg ET
- If maximum total dose of Amiodarone has been reached and if ET lidocaine has not been administered, give Lidocaine, 1.0 mg/kg IV/IO

**Subsequent rounds:**
- After Lidocaine 1.0 mg/kg IV/IO, administer Lidocaine, 0.5 mg/kg IV/IO every 5 to 10 minutes up to maximum total of 3 mg/kg (i.e., 4 doses at 0.5 mg/kg)

**Other drug administration notes**
- If initial antiarrhythmic was Lidocaine via ET, switch to Amiodarone when IV/IO access achieved.
- Consider OLMC consult for Magnesium Sulfate administration if shockable rhythm persists through maximum total dose of Amiodarone and one dose of Lidocaine, if Torsade de Pointes is present or if the patient is at high risk for hypomagnesemia (ie. alcoholic or malnourished patients).

5. Consider and treat other potentially reversible causes (6H’s and 5T’s) throughout duration of resuscitation.

6. Check rhythm only at end of each CPR cycle.
   - If rhythm changes to a **nonshockable** rhythm and there is organized electrical activity, check a pulse. Proceed to appropriate protocol.
   - If rhythm is **shockable**, resume CPR until defibrillator is charged, then defibrillate at 4 J/kg, and as otherwise outlined in #2.

7. Establish pulse oximetry along with capnography. **Report ROSC and ROSV times to Central Dispatch.**

8. Perform OLMC consultation at the earliest possible opportunity. Post-consults should occur only in rare circumstances. Cardiac arrest patients ALWAYS require OLMC consultation, not just MCO notification for registry purposes.

9. Provide a complete copy of the “CODE SUMMARY” with the receiving facility.

10. Follow up as soon as possible post-incident with the MCO via phone for any Equipment Failures, Trauma Alerts, Air Transports (even if non-Trauma Alerts) and for completion of Cardiac Arrest, Intubation and other applicable registries.

**Level 2**

1. If ROSC is obtained and antiarrhythmics have not previously been administered, administer Amiodarone, 5mg/kg over 20 to 60 minutes.
2. Magnesium sulfate, 25 to 50 mg/kg (up to 2 gm) IV/IO over 2 minutes if Torsade de Pointes, persistent shockable rhythm through 2 doses of Amiodarone and 1 dose of Lidocaine, or if the patient is at high risk for hypomagnesemia (ie. alcoholic or malnourished patients).
3. Additional doses of Sodium Bicarbonate.
References:

- American Heart Association Guidelines 2005 for Cardiopulmonary and Emergency Cardiovascular Care
- [http://www.advancedcirculatory.com/cet/resqproduct.htm](http://www.advancedcirculatory.com/cet/resqproduct.htm)

Reference Protocols:

- General Supportive Care (Medical)
- Cardiac Arrest Perfusion Program Foundation Protocol
- Asystole/Pulseless Electrical Activity
- Endotracheal Drug Administration
- Intraosseous Access
- Pulse Oximetry
- Intubation Techniques
- Endotracheal Tube Confirmation
- Endotracheal Tube Anchoring
- Hands Free Electrode Procedure (LP12 Quik-Combo Pads Only)
- Capnography
- Amiodarone HCL
- Epinephrine
- Lidocaine
- Sodium Bicarbonate 8.4%
- Magnesium Sulfate
- Do Not Resuscitate Orders
5.7 Acute Coronary Syndromes (ACS)

Purpose:
The purpose of this protocol is to describe authorized interventions in cases where chest pain may be resulting from acute myocardial infarction, unstable angina, or other ischemic syndromes of coronary heart disease.

Description:
The term Acute Coronary Syndrome (ACS) encompasses a broad spectrum of clinical patient presentations, but all have in common the presence of acute ischemic cardiac disease. The ischemic changes may present as unstable angina, ST elevation MI (STEMI) or Non ST elevation MI (NSTEMI). Although chest pain or discomfort is the most frequent presenting symptom, others can include but are not limited to syncope, near-syncope, dizziness, weakness, general malaise, shortness of breath, palpitations and altered mental status. These potential “anginal equivalent” conditions are NOT called ACS or treated as ACS unless there are ischemic changes on the 12 lead ECG. However, patients with chest pain/discomfort that is suspected to be of cardiac origin, even without ECG changes, should be treated according to this protocol.

Adult Care:

Level 1

1. General Supportive Care with early 12 lead ECG analysis. Right ventricular ECG leads must also be performed if ST elevations are present in the inferior leads. It is helpful to leave the 12 lead electrodes in place during transport to facilitate the performance of serial 12 lead ECGs to monitor response to care or evolution of findings.

   • Whenever possible, the 12 lead adapter cable for the Medtronic LP12 should be left attached to the patient for continued monitoring after the first 12 lead ECG is acquired. The device, with the 12 lead adapter wires left attached will continually reassess the 12 lead internally and if the device notes any acute changes in the 12 lead as compared to the original that was acquired, will automatically printout a strip indicating changes have occurred. The device, to continually reassess the 12 lead ECG, must have had an original 12 lead ECG completed on that specific device.

2. ALWAYS contact OLMC for destination recommendation as early as possible for patients meeting the following “STEMI Alert” criteria:
   a. 1 mm or greater ST segment elevation in two or more contiguous ECG leads
   b. Known new onset of Left Bundle Branch Block (LBBB)

3. Contact OLMC for destination recommendation for ACS patients with LBBB of unknown onset, if other STEMI imitators make 12 Lead interpretation difficult, or if the clinician feels that a PCI capable facility may be the most appropriate for the patient. There is NO evidence to support the transport of ALL ACS patients to PCI capable facilities. The majority of such non STEMI patients can be safely and effectively treated at the patient’s closest or choice facility.
4. Establish whether the patient has taken phosphodiesterase inhibitors (erectile dysfunction treatment) such as Sildenafil Citrate (Viagra), Vardenafil HCL (Levitra), or Tadalafil (Cialis) within the previous 48 hours. Use of nitrates in patients who have consumed Sildenafil or Vardenafil within the previous 24 hours or Tadalafil within the previous 48 hours may cause precipitous drops in blood pressure. **Administration of nitrates for these patients is a Level 2 order.**

5. Document the patient’s pre treatment pain score using the “10” scale. If the patient is unable to provide a numerical score, utilize the FACES pediatric pain scale outlined in Protocol 5.29 Pain Management.

6. If systolic blood pressure is greater than 90 mmHg and the patient has no contraindications (phosphodiesterase inhibitors taken as listed in #4 or presence of Right Ventricular Infarct findings on 12 lead ECG), give Nitroglycerin 0.4 mg SL q 3-5 min. Record a post-treatment pain score after each dose and recheck for systolic BP >90 mmHg before each dose. **Close adherence to q 3-5 minute administration increases the chance of achieving maximum coronary artery dilation; it may be helpful to appoint one clinician as timekeeper.**

   a. **NOTE:** There are no published guidelines for or against the use of nitroglycerin for ACS patients without chest pain or discomfort. If vital signs and history permit and the patient is symptomatic, it is reasonable to administer 0.4 mg of Nitroglycerin SL and monitor for improvement of symptoms. If symptoms do respond to this treatment, continue with Nitroglycerin administration per the guidelines listed above.

7. If **ANY** suspicion of myocardial infarction, regardless of any electrocardiogram changes (or lack thereof), and there is no known allergy to aspirin, give aspirin, 324 mg, PO and instruct the patient to chew, then swallow them. **There are no other contraindications to aspirin administration for ACS patients (including patient’s who are taking Coumadin).** If the patient has already taken at least 324 mg of aspirin within the last 12 hours, do not administer more, but clearly document the last dose and time taken on the patient care report. (Note: Patients may confuse Tylenol with aspirin, so question closely about aspirin use before EMS arrived.)

8. Administer a fluid bolus of at least 200-250 cc of approved system IV fluid if systolic BP is less than 110 mmHg systolic and patient is or remains symptomatic.

9. Every attempt should be made to avoid further patient exertion, which may increase myocardial oxygen demand and ischemia. Therefore, where safe and feasible for the patient and crew, patients should be lifted or carried from the point of contact to the transport stretcher rather than walked or assisted to it.

10. Use good judgement in determining the appropriate transport mode. **Severity Red patients must be transported with lights and sirens; otherwise, if “hot” transport mode will not shorten transport time by five minutes or more, the patient may best benefit from the calmer atmosphere of a non-lights and siren transport.**

11. Upon arrival at the treatment facility, document the patient’s final post treatment pain score.

12. Provide the receiving facility with copies of all ECG strips.

**Level 2**

1. Administration of Nitroglycerin 0.4 mg SL q 3-5 minutes PRN for patients who have consumed phosphodiesterase inhibitors or who have signs of Right Ventricular Infarct on 12 lead ECG.

2. Morphine 2 – 4 mg IV q 3 -5 minutes or Fentanyl 1 – 2 mcg/kg IV q 3-5 minutes (if patient is allergic to Morphine or is hemodynamically unstable) or as otherwise specified by OLMC for continued pain and/or anxiety following three doses of Nitroglycerin or where Nitroglycerin is contraindicated.
**Pediatric Care:**

**Level 1**

**Note:** While very rare, ischemic heart disease is not unheard of in the pediatric age group. Past medical history, family history, evaluation of risk factors and very specific and detailed history of the present illness are extremely important in the evaluation of these patients.

1. General Supportive Care with early 12 lead ECG analysis. Right ventricular ECG leads must be performed if ST elevations are present in the inferior leads. It is helpful to leave the 12 lead electrodes in place during transport to facilitate the performance of serial 12 lead ECGs to monitor response to care or evolution of findings. *(Pediatric length based measurement device – refer to color for appropriate equipment sizes/medication dosages)*

2. Obtain a detailed patient history to establish a presence of known cardiac disease or severe risk factors and/or known family history of cardiac disease or severe risk factors in young family members. Evaluate carefully for other, non-cardiac sources of chest pain.

3. Document the patient’s pre-treatment pain or discomfort score using the “10” scale. If the patient is unable to provide a numerical score, utilize the FACES pediatric pain scale outlined in Protocol 5.29 Pain Management.

4. Upon arrival at the treatment facility, document the patient’s final post treatment pain (if any) pain score.

5. Provide the receiving facility with copies of all ECG strips.

**Level 2**

1. Consult OLMC early if any suspicion of ischemia as source of chest pain or if any abnormal 12 lead ECG findings are present for recommended treatment and transport destination recommendations.

**Level 3 -- None**

**References:**


Reference Protocols:

- General Supportive Care (Medical)
- Abnormal 12 Lead ECG Findings
- Pain Management
- 12 Lead ECG
- Nitroglycerin
- Aspirin
- Morphine
- Fentanyl
5.8 Narrow Complex Tachycardia

- General Supportive Care
- 12 Lead ECG
- Monitor rhythm in V1
- Check if pt. is taking digitalis
- If pulse rate < 150, evaluate for underlying cause (i.e. pain, fever, shock)

**Adult Level 1**
- Premedicate:
  - Diazepam
  - Morphine
  - Fentanyl
- Synchronized Cardioversion – 100J, 200J, 300J, 360J

**Successful Conversion**
- Reassess pt. and repeat 12 lead ECG
- Dopamine begin 5 mcg/kg/min for inotroppic support.

**Adult Level 2**
- OLMC contact for patient with possible digitalis toxicity.

**Adult Level 1**
- Vagal Maneuvers
- If vagal maneuvers unsuccessful:
  - Adenosine 6 mg rapid IV push
- If after 2 minutes – no change:
  - Adenosine 12 mg rapid IV push
- If after 2 minutes – no change:
  - Adenosine 12 mg rapid IV push

If patient condition deteriorates, move to “Unstable”

**Successful conversion –** Reassess pt. and repeat 12 lead ECG

**Adult Level 2**
- Diltiazem 0.25 mg/kg Slow IV push

**General Supportive Care**
- 12 Lead ECG
- Monitor rhythm in V1
- Check if pt. is taking digitalis
- If pulse rate < 150, evaluate for underlying cause (i.e. pain, fever, shock)
- General Supportive Care
- 12 Lead ECG
- Monitor rhythm in V1
- Pediatric length based measurement device
- If pulse rate < 220 in infants or < 180 in children, evaluate for underlying cause (i.e. pain, fever, shock)

UNSTABLE/Pulse > 150

UNSTABLE/Pulse > 150

Synchronous Cardioversion – 0.5J/kg, 1 J/kg, 2 J/kg, 4 J/kg

Pediatric Level 1
- Premedicate:
  - Diazepam
  - Morphine
  - Fentanyl
- Successful Conversion
  - Reassess pt. and repeat 12 lead ECG

STABLE

STABLE

Pediatric Level 1
- Vagal Maneuvers
- If vagal maneuvers unsuccessful:
  - Adenosine 0.1 mg/kg (max 6 mg dose) rapid IV push
- If after 2 minutes – no change:
  - Adenosine 0.2 mg/kg (max 12 mg dose) rapid IV push
- If after 2 minutes – no change:
  - Adenosine 0.2 mg/kg (max 12 mg dose) rapid IV push

If patient condition deteriorates, move to “Unstable”

Successful conversion – Reassess pt. and repeat 12 lead ECG
PEARLS:

• Signs and symptoms of an unstable patient: decreased level of consciousness
  o confusion
  o pale or cyanotic skin color
  o poor tissue perfusion
  o weak or absent peripheral pulses
  o cool or clammy skin
  o chest pain
  o dyspnea or increased work of breathing
  o pulmonary congestion
  o Capillary refill >3 secs. (peds)

PEARLS (cont)

• ECG Characteristics by age group:
  o Adult: QRS < 0.12 secs. Rate > 120
  o Infants (1 month to 1 yr.): QRS ≤ 0.08 secs. Rate > 220
  o Child (1 to 8 yrs.): QRS ≤ 0.08 secs. Rate > 180

• Digitalis Toxicity:
  o Cardioversion can precipitate fatal ventricular arrhythmias
  o If cardioversion needed, use lowest possible energy

• Diltiazem:
  o DO NOT exceed 25 mg total dose
  o Make it clear to the hospital staff that Diltiazem was administered to the pt.

• The printer on the monitor is to be run continuously during the administration of Adenosine through conversion or no conversion, to document the pre-rhythm, the conversion and the post rhythm.

References:

• American Heart Association; Guidelines 2000 for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care; 2000:117 - 120
• American Heart Association; Advanced Cardiac Life Support; 1997-99; Ch. 8 Pages 7 – 8; Chapter 11 Pages 11 – 14.
• American Heart Association; Pediatric Advanced Life Support; 2002; Chapter 8 Pages 194-195

Reference Protocols:

• General Supportive Care (Medical)
• 12 Lead ECG
• Vagal Maneuvers
• Dopamine
• Adenosine
• Diltiazem
• Morphine Sulfate
• Fentanyl
• Diazepam
5.9 Wide Complex Tachycardia

- General Supportive Care
- 12 Lead ECG
- Monitor rhythm in V1

**UNSTABLE**

**Adult Level 1**
- Premedicate:
  - Diazepam
  - Morphine
  - Fentanyl
- Synchronized Cardioversion – 100J, 200J, 300J, 360J
- remove impaled objects – stabilize in place

**STABLE**

**Adult Level 1**
- Amiodarone 150 mg over a min. of 10 mins.

**Adult Level 2**
- Torsades de Pointe suspected – Magnesium Sulfate 2 grams over a min. of 2 mins.

If patient condition deteriorates, move to “Unstable”

**Adult Level 2**
- Amiodarone 150 mg over a min. of 10 mins.
  - successful conversion
  - Pt. remains in ventricular tachycardia with a pulse after four cardioversion attempts

- Reassess pt. and repeat 12 lead ECG
- Dopamine begin 5 mcg/kg/min for inotropic support.

**Successful conversion**

**YES**

**NO**
Pediatric Level 1
- Premedicate:
  o Diazepam
  o Morphine
  o Fentanyl
- Synchronized Cardioversion – 0.5J/kg, 1J/kg, 2J/kg, 4J/kg
- remove impaled objects – stabilize in place

UNSTABLE

Pediatric Level 1
- Successful conversion

YES
- Reassess pt. and repeat 12 lead ECG

NO
- Pediatric Level 2
  - None

STABLE

Pediatric Level 1
- Lidocaine 1 mg/kg over 2 – 4 mins.
- Lidocaine 0.5 mg/kg q. 15 mins. as a maintenance dose 15 mins. after loading dose.
- DO NOT exceed total Lidocaine dose of 3 mg/kg.

Pediatric Level 2
- Torsades de Pointe suspected – Magnesium Sulfate 25 mg/kg (max. 2 grams) over 10 – 20 mins.

If patient condition deteriorates, move to “Unstable”
PEARLS:

- Signs and symptoms of an unstable patient:
  - decreased level of consciousness
  - confusion
  - pale or cyanotic skin color
  - poor tissue perfusion
  - weak or absent peripheral pulses
  - cool or clammy skin
  - chest pain
  - dyspnea or increased work of breathing
  - pulmonary congestion
  - Capillary refill >3 secs. (peds)

- Amiodarone technique of administration:
  1. Draw up one vial of Amiodarone 150 mg/3 cc
  2. Inject Amiodarone 150 mg into the 100 cc D5W bag via the injection port on the IV bag.
  3. Ensure that the medication is mixed into the 100cc D5W by gently turning the 100 cc D5W bag back and forth.
  5. Administer the Amiodarone at a maximum rate of 25 gtts per 15 seconds or 100 gtts per minute. The Amiodarone must be administered over a minimum of 10 mins. Rapid infusion of Amiodarone causes hypotension and bradycardia.

- Magnesium Sulfate (Adult Dose) technique of administration:
  1. Draw up two vials of Magnesium 1 gram/2 cc for a total of 2 grams/4 cc.
  2. Inject the 4 cc of Magnesium 2 grams into the 100 cc D5W bag via the injection port on the IV bag.
  3. Ensure that the medication is mixed into the 100 cc D5W by gently turning the 100 cc D5W bag back and forth.
  5. Administer the Magnesium over a minimum of 2 minutes by running the micro drip set wide open.

- Magnesium Sulfate (Pediatric Dose) technique of administration:
  1. Calculate the appropriate Magnesium Sulfate dosage based on the patient’s weight in kilograms.
  2. Draw up the appropriate Magnesium Sulfate dosage.
  3. Inject the appropriate Magnesium Sulfate dosage into the 100cc D5W bag via the injection port on the IV bag.
  4. Ensure that the medication is mixed into the 100cc D5W by gently turning the 100cc D5W bag back and forth.
  5. Connect a MACRO TUBING (10gtt set). Prime the IV tubing.
  6. Administer the Magnesium Sulfate at a maximum rate of 25gtts per 15 seconds or 100 gtts per minute.

References:

- Wagner, GS. Marriott’s Practical Electrocardiography. Williams & Wilkins; 1994;17:311-315
Reference Protocols:

- General Supportive Care (Medical)
- 12 Lead ECG
- Amiodarone HCL
- Dopamine
- Lidocaine
- Morphine Sulfate
- Diazepam
- Magnesium Sulfate
- D5W IV Fluid
5.10 Bradycardia and Atrioventricular Block

Purpose:

The purpose of this protocol is to describe authorized interventions in cases where there are significant symptoms or significant hemodynamic compromise as a result of a slow rhythm.

Description:

**Adult Care:**

**Level 1**

1. General Supportive Care.
2. Assess ECG rhythm. Complete a 12 lead ECG.
   - For stable symptomatic Sinus Bradycardia, First Degree A-V Block or Second Degree A-V Block Type I (Mobitz I), Atropine 0.5 mg IV every 3 to 5 minutes to total dose of 0.04 mg/kg.
     - If patient has chest pain greater than 2 on a 0 – 10 scale or ischemic ECG changes, **DO NOT** give a second dose of Atropine. If Atropine is ineffective, initiate transcutaneous pacing. Premedicate with Valium 2.5 – 5 mg slow IV push PRN (Use caution and lower doses for hypotensive patients)
   - For unstable symptomatic Sinus Bradycardia, First Degree A-V Block or Second Degree A-V Block Type I (Mobitz I) (ie. significant hemodynamic compromise and/or blood pressure dropping) initiate transcutaneous pacing. Premedicate with Valium 2.5 – 5 mg slow IV push PRN.
   - For Second Degree A-V Block Type II (Mobitz II) or Complete A-V Block (QRS > 0.12 sec.), initiate transcutaneous pacing. Premedicate with Valium 2.5 – 5 mg slow IV push PRN (Use caution and lower doses for hypotensive patients).

   **Note – transcutaneous pacing may be utilized as first line treatment of choice for any symptomatic bradycardic rhythm noted in this protocol.**

3. Dopamine 5 mcg/kg/min, gradually increasing to 10 mcg/kg/min., IV for BP < 90 in symptomatic bradycardia. Monitor BP closely and titrate to 90/ systolic.
4. Provide the receiving facility with copies of all ECG strips.

**Level 2**

1. Continuation of pain management with Valium greater than 5.0 mg dosages as premedication for transcutaneous pacing.
2. Dopamine > than 10 mcg/kg/min

**Level 3 - None**
Pediatric Care:

Level 1

1. General Supportive Care. *(Pediatric Length Based Measurement Device - refer to color for appropriate equipment sizes/ medication dosages)*
2. Prioritize airway, ventilation, and oxygenation.
3. Treatment is reserved for SYMPTOMATIC bradycardia.

- Normal heart rate ranges:

  - Newborn to 3 months: 85 - 205 bpm
  - 3 months to 2 years: 100 - 190 bpm
  - 2 to 10 years: 60 - 140 bpm
  - >10 years: 60 - 100 bpm

4. Epinephrine 0.01 mg/kg 1:10000 IV/IO. If IV access is unavailable 0.1 mg/kg 1:1000 ET.
5. Atropine, 0.02 mg/kg (minimum dose 0.1 mg; maximum single dose for children 0.5 mg; maximum single dose for adolescents 1 mg. Repeat once in 5 minutes to a maximum dose of 1 mg. in a child and 2 mg. in an adolescent.
6. Confirm with the receiving facility whether they want copies of the ECG strips.

Level 2 - None

Level 3 - None

References:

- American Heart Association Guidelines 2000 for Cardiopulmonary and Emergency Cardiovascular Care pg. 312-313.

Reference Protocols:

- General Supportive Care (Medical)
- 12 Lead ECG
- Cardiac Pacing
- Atropine
- Epinephrine
- Dopamine
- Diazepam
5.11 Ventricular Ectopy

The purpose of this protocol is to describe the appropriate procedures to be followed for the suppression of undesired ventricular ectopic beats in cases including, but not limited to: multifocal premature ventricular contractions (PVC), greater than six ectopic beats per minutes, or symptomatic ectopic beats. Use caution to avoid inappropriate suppression of ventricular ectopic beats that manifest as beneficial ventricular escape beats in the face of bradycardia or A-V block. Ruleout pacemaker initiated escape beats.

Adult and Pediatric Care:

Level 1

1. General Supportive Care (Pediatric length based measurement device – refer to color for appropriate equipment sizes/medication dosages)
2. Oxygen, 10 L/min. or higher via non-rebreather mask to maintain reservoir bag inflated.
3. Complete a 12 lead ECG.
4. Lidocaine, 1 mg/kg, IV, loading dose. Reduce all loading and maintenance doses of lidocaine by half if patient’s age > 70 yrs., or if there is liver disease or hypoperfusion (i.e. heart failure or shock).
5. Lidocaine, 0.5 mg/kg, IV, q 5 min., to a maximum of 3 mg/kg total dose as additional loading doses, to control ventricular ectopy.
6. Lidocaine, 0.5 mg/kg, IV, q 10 min., as a maintenance dose to begin 10 minutes after conversion, not to exceed total lidocaine dose of 3 mg/kg.
7. Provide the receiving facility with copies of all ECG strips.

Level 2 – None

Level 3 – None

Reference Protocols:

- General Supportive Care (Medical)
- 12 Lead ECG
- Lidocaine
5.12 Congestive Heart Failure/ Pulmonary Edema/Cardiogenic Shock

Purpose:
The purpose of this protocol is to describe authorized interventions for patients who display signs and symptoms of congestive heart failure and/or other types of pulmonary edema. Submersion injuries with signs of pulmonary edema are included. It does not address potential specific treatment of underlying causes of neurogenic or chemical/toxic pulmonary edema. This protocol also does not apply to adult respiratory distress syndrome (ARDS) (although this is a difficult field diagnosis to differentiate), patients with primary bronchospastic disease or primary lung infections.

Description:
Care for patients with pulmonary edema of varying etiologies has long been entrenched in tradition. In the past few years, research has challenged these old assumptions. This protocol reflects this recent research and provides guidance for implementation of Continuous Positive Airway Pressure (CPAP) technology new to the system.

Adult Care:

Level 1

1. General Supportive Care with rapid 12 lead ECG and determination of “STEMI Alert” status.
2. High Fowler's position with legs dependent if normo or hypertensive
3. Oxygen, 10 l/min. or higher via non-rebreather mask to maintain reservoir bag inflated if CPAP is not indicated or before initiation of CPAP.
4. High priority consideration should be given to implementation of CPAP where appropriate as a primary intervention, even before or while vascular access is being obtained and while evaluation and treatment for underlying causes is underway. CPAP is most effective when applied as early as possible.
5. Indications for CPAP:
   a. Conscious and alert patient with any TWO of the following:
      • Retractions of accessory muscles
      • Respiratory rate of 25/min or more
      • Pulse ox of < 94% on room air or their normal home oxygen flow rates
   b. AND nasal cannula capnography readings reflecting NO signs of bronchospasm (shark-fin waveform)
   c. CPAP MAY be used for DNRO patients because it is noninvasive and improves comfort for the patient as long as it is well tolerated.
6. Contraindications to CPAP:
   a. Patient who is unable to maintain their own airway or is in respiratory arrest.
   b. Patient who is not alert enough to follow instructions.
   c. Systolic BP< 90 mm Hg with other signs of poor perfusion.
   d. Major trauma (including especially unstable facial injuries and head injury with possible increased intracranial pressure) or signs of pneumothorax.
   e. Vomiting
   f. Obvious signs and symptoms of pulmonary infection
g. Suspected primary asthma or COPD etiology or signs of bronchospasm on capnography.

h. Tracheostomy

7. Document pretreatment vitals, including blood pressure, heart rate, SpO2, capnography waveform and CO2 level, and a Respiratory Distress Score (RDS) of 1 to 10. (Document in the same place and the same way as the Pain Scale.)

8. Administration of CPAP
   a. Inform the patient of what to expect and coach them through the CPAP procedure. EMT’s may assist with this procedure under paramedic supervision, but the decision to apply CPAP must be made by a paramedic.
   b. Begin treatment at 15 LPM (5 cm of pressure). Monitor for 3 to 5 minutes for signs of improvement and tolerability. **Repeat vital signs noted above every 5 minutes and document. Be alert for signs of developing barotrauma and discontinue CPAP if present.** If patient is tolerating the treatment and is not showing signs of improvement after 3 to 5 minutes, increase the liter flow to 25 LPM (10 cm of pressure).
   c. If patient does not tolerate 25 LPM flow rate or worsens, decrease flow rate to 20 LPM (7.5 cm of pressure). If patient does not improve after 2 to 3 minutes, consider decreasing back to 15 LPM (5 cm of water) or beginning bag-valve-mask ventilations with intubation if the patient is worsening (decreasing level of consciousness, increasing CO2 levels or BP < 90 mm Hg with other signs of poor perfusion). Document reason for discontinuation or decreasing pressure levels.
   d. **If the patient tolerates CPAP well and improves, do not remove the CPAP except for nitroglycerine administration or suctioning, due to the potential for flash exacerbation of pulmonary edema. This includes the time during transfer of the patient from the scene to the ambulance or from the ambulance to the ED.**

9. Consider primary underlying etiologies and treat as indicated by appropriate protocols or OLMC consult. (Examples: dysrhythmias, acute MI, toxin or chemical exposure, neurogenic, submersion.)

10. **Establish whether the patient has taken any phosphodiesterase inhibitors (erectile dysfunction treatment) such as Sildenafil Citrate (Viagra), Vardenfil HCL (Levitra) or Tadalafil (Cialis) within the previous 48 hours.** Use of nitrates in patients who have consumed Sildenafil or Vardenafil within the previous 24 hours or Tadalafil within the previous 48 hours may cause precipitous drops in the blood pressure. **Administration of nitrates for these patients is a Level 2 order.**

11. If CPAP therapy is contraindicated and the patient is in severe distress or has failed CPAP therapy, consider bag-valve-mask ventilations followed by endotracheal intubation, utilizing facilitated intubation procedure if needed.

12. Administer Nitroglycerine per the following dosage schedule:
   a. Initial dose:
      i. Systolic BP > 130 mm Hg: 0.8 mg SL
      ii. Systolic BP 90 -130 mm Hg **without** signs of poor perfusion (pale, cool, diaphoretic, delayed capillary refill): 0.4 mg SL
      iii. If systolic BP is < 130 mm Hg **with** signs of poor perfusion or < 90 mm Hg **without** signs of poor perfusion, consult OLMC re: Nitroglycerine administration
   b. Subsequent doses (repeat vital signs prior to each administration):
      i. Systolic BP > 130 mm Hg: 1.2 mg SL
      ii. Systolic BP 90 – 130 mm Hg **without** signs of poor perfusion: 0.8 mg SL
      iii. If systolic BP is < 130 mm Hg **with** signs of poor perfusion or < 90 mm Hg **without** signs of poor perfusion, consult OLMC re: Nitroglycerine administration
   c. Administer doses of Nitroglycerine as indicated above q 3 to 5 minutes.
d. Initial dose of Nitroglycerine as outlined above may be administered prior to IV access if patient is supine and systolic BP is > 150 mm Hg

13. For patients with systolic blood pressure of 90 mm Hg or less with other signs of poor perfusion
   a. First, decrease CPAP flow rate or discontinue CPAP as outlined above if being used.
   b. Administer one fluid bolus of 250 ml of approved system IV fluid, monitoring for positive response and/or worsening of pulmonary edema.
   c. If patient history or physical findings are consistent with volume depletion, administer second 250 ml fluid bolus if systolic BP has not increased to greater than 90 mm Hg and if pulmonary status has not worsened due to fluid administration.
   d. If one (for patients without signs of volume depletion) or two (for patients with signs of volume depletion) fluid boluses do not result in systolic BP of greater than 90 mm Hg with good signs of perfusion, administer Dopamine, beginning at 5 mcg/kg/min, titrating up to 10 mcg/kg/min if needed to maintain the same goal.
   e. CPAP administration following resolution of hypotension is Level 2.

14. All uses of CPAP must result in an OLMC Consult, preferably prior to arrival at the receiving facility. Report should include indications for use, results, and any complications experienced.

15. Provide the receiving facility with copies of all pertinent ECG strips and 12 lead ECG’s. Document vital signs q 5 minutes and upon arrival at the ED, including Respiratory Distress Scores, capnography and oxygen saturation.

Level 2

1. Administration of Nitroglycerin for patients who have consumed phosphodiesterase inhibitors.
2. Administration of Nitroglycerine for patients with systolic BP < 130 mm Hg with signs of poor perfusion or < 90 mm Hg without signs of poor perfusion.
3. Administration of single Nitroglycerine doses greater than 1.2 mg SL.
4. Administration of CPAP following resolution of hypotension or under any circumstances not outlined above or in other protocols.
5. Administration of Lasix. (Rarely indicated prehospital; request only if the patient has severe peripheral edema and is not responsive to other therapies.)
6. Fluid boluses beyond a total of 500 ml for persistent hypoperfusion with signs of volume depletion.
7. Dopamine > 10 mcg / kg / min for persistent hypoperfusion.
8. Albuterol aerosol, 2.5 mg nebulized, for patients with history of bronchospastic disease if there is a question about the underlying cause of respiratory distress and there are signs of bronchospasm on capnography.
9. Administration of Valium, 1 to 2.5 mg increments IV for anxiety or Fentanyl, 0.5 mcg/kg increments IV for anxiety or chest pain of suspected cardiac etiology unrelieved by Nitroglycerine.

Level 3 – None

Note: Patients experiencing difficulty breathing should not be exposed to additional stress or movement. The patient should be moved/carried from the “at patient” location to the ambulance stretcher. Unusual circumstances such as the patient’s weight, means of egress, or anticipated clinician injury should be used as a guide in determining other alternatives in moving the patient. The goal is to have the patient move as little as possible.
Pediatric Care:

Level 1

1. General Supportive Care. (*Pediatric length based measurement device – refer to color for appropriate equipment sizes/medication dosages*).
2. High Fowler's position with legs dependent if normotensive or hypertensive.
3. Oxygen, 10 l/min. or higher via non-rebreather mask to maintain reservoir bag inflated.
4. Consider primary underlying etiologies and treat as indicated by appropriate protocols or OLMC consult. (Examples: dysrhythmias, acute MI, toxin or chemical exposure, neurogenic, submersion.)
5. If unconscious, or if patient is appearing to fatigue from work of breathing or otherwise has inadequate air exchange, consider bag valve mask-assisted ventilation followed by endotracheal intubation (consider the need for facilitated intubation).
6. Provide the receiving facility with copies of all pertinent ECG strips and 12 lead ECG's.

Level 2

1. Furosemide, 1 mg/kg, IV

Level 3 – None

Reference Protocols:

- General Supportive Care (Medical)
- Intubation Techniques
- Endotracheal Tube Confirmation
- Endotracheal Tube Anchoring
- 12 Lead ECG
- Capnography
- Facilitated Intubation
- Furosemide
- Dopamine
- Nitroglycerin
- Fentanyl
- Valium

References:

- Marchetta, M, Sheldon, R, Resanovich, M, unpublished abstract
5.13 Bites and Stings

- **Snakebites**
  - Remove all jewelry/constricting items from affected limb
  - If snake dead/destroyed, bring to ED in closed container.
  - MCO contact for appropriate destination
  - Mark area of envenomation to track progression
  - Maintain extremity level with heart
  - DO NOT apply tourniquets or use cold packs
  - Splint affected area in neutral position.

- **Insect Stings**
  - Remove stinger if visible (use tape for removal)
  - Ice packs (10 min on 10 min. off prn for pain)
  - If avail. Apply paste of baking soda and water to site.
  - Submerse the injured part in hot water (as hot as the pt. can tolerate)
  - May add soap or ammonia.

- **Jellyfish/Man-o-war**
  - Remove visible tentacle fragments with forceps
  - AVOID SELF-CONTAMINATION
  - Rinse with saltwater
  - Apply copious amounts of rubbing alcohol
  - Apply paste of baking soda or flour with water
  - Rinse with normal saline then scrape to remove remaining tentacles

- **Stingray**
  - Submerse the injured part in hot water (as hot as the pt. can tolerate)
  - May add soap or ammonia.

- **General Supportive Care**
  - IV access obtained with fluids TKO
  - Maintain systolic BP > 90
  - Contact with Poison Control (as needed)
  - Document pre-treatment and post treatment pain scale
  - Consider need for pain management
References:


Reference Protocols:

- General Supportive Care (Medical)
- Anaphylaxis and Allergic Reactions
- Pain Management
5.14 Burns

Level 1

1. Care of the burn wound itself is low priority. Burn patients should be managed routinely as trauma patients and perform a BTLS Primary Survey immediately upon arrival in a safe area.

2. Critical problems in burn patients that require immediate intervention include airway compromise, altered level of consciousness or the presence of major injuries in addition to the burn.

3. Trauma & Hypovolemic Supportive Care. (Oximetry - caution - Carbon monoxide yields inaccurate readings and may indicate normal O2 values).

4. Obtain information regarding the possibility of smoke or other toxic fume inhalation.
   a) A hoarse voice suggests involvement of deeper airway structures.
   b) Wheezing or rales should alert you to the presence of lower airway injury from inhalation.

5. Oxygen, via a non-rebreather mask at a flow rate sufficient to prevent reservoir bag collapse.

6. Consider ET intubation for significant facial burn, especially of the lips, neck, or oropharynx, and significant smoke inhalation injury, significant carbon monoxide toxicity (to truly deliver 100% O2), and massive body burns, especially those with circumferential chest burns. Consult facilitated intubation protocol.

7. Approved system IV fluid, TKO, titrate to maintain appropriate systolic blood pressure:
   - Adult > 90 mmHg
   - Pediatrics – Calculation of min. acceptable systolic BP:
     - SBP min. = 70 + 2 x age in years


9. In cases of thermal burns:
   a) Remove burned clothing
   b) Apply appropriate burn dressing for size of burn
      i. Small burns – cool, moist dressings.
      ii. Large surface area burns –
         - Cooling should be done with trauma dressings soaked with Sterile Water, NS or LR.
         - Cooling is to be done for a maximum of one minute. Cooling for longer periods of time is actually detrimental to patients because it will induce hypothermia and subsequent shock.
         - Following the brief period of cooling, manage the burn by the use of clean, dry sheets or burn sheets and blankets to keep the patient warm and to prevent hypothermia (it is not necessary to have dry sterile sheets).
         - Patients should never be transported on wet sheets, wet towels, or wet clothing.
         - Ice is absolutely contraindicated. Ice will positively worsen the injury because it causes vasoconstriction and thus reduces the blood supply to already damaged tissue.
   c) Calculate extent of second and/or third degree burns (“Rule of Nines” or “Palm of Patient’s Hand = 1%”). (NOTE: First degree burn area is not included in this calculation because it generally does not contribute significantly to the physiological effect of the burn injury).
• Adults:
  o Total Body Surface Area (TBSA) with 2\textsuperscript{nd} or 3\textsuperscript{rd} degree burns meeting Trauma Alert Criteria of \(> 15\%\) and the burn is an isolated injury, transport to the Burn Center at Tampa General Hospital.
  o Total Body Surface Area (TBSA) meeting Trauma Alert Criteria of \(> 15\%\) with multisystem trauma, transport to the closest trauma center unless the Burn Center at Tampa General Hospital is relatively equidistant by ground or air.
  o 2\textsuperscript{nd} and/or 3\textsuperscript{rd} degree burns to high risk areas, such as the face/airway, hands, feet, perineum or circumferential burns to the chest or extremities, transport to the Burn Center at Tampa General Hospital.
  o Contact OLMC for exceptions.

• Pediatrics:
  o Total Body Surface Area (TBSA) with 2\textsuperscript{nd} or 3\textsuperscript{rd} degree burns meeting Trauma Alert Criteria of \(> 10\%\) and the burn is an isolated injury, transport to the Burn Center at Tampa General Hospital.
  o Total Body Surface Area (TBSA) meeting Trauma Alert Criteria of \(> 10\%\) with multisystem trauma, transport to the closest trauma center unless the Burn Center at Tampa General Hospital is relatively equidistant by ground or air.
  o 2\textsuperscript{nd} and/or 3\textsuperscript{rd} degree burns to high risk areas, such as the face/airway, hands, feet, perineum or circumferential burns to the chest or extremities, transport to the Burn Center at Tampa General Hospital.
  o Contact OLMC for exceptions.

  d) If the involved body surface area for 2\textsuperscript{nd} or 3\textsuperscript{rd} degree burns is greater than 20\% (“Rule of Nines” or “Palm of Patient’s Hand = 1\%”):
    • Adults:
      o Infuse approved system IV fluid, 1000 ml, IV bolus
    • Pediatrics:
      o Infuse approved system IV fluid, 20 cc/kg, IV bolus

10. In cases of chemical burns:
  a) Evaluation, treatment and transport shall be completed with OLMC and HAZMAT team consultation.

11. In cases of electrical burn: Place on cardiac monitor, and evaluate for arrhythmia.

Level 2 - None

References:

Reference Protocols:
• Trauma and Hypovolemic Supportive Care
• Pain Management
• Pulse Oximetry
• Intubation Techniques
• Endotracheal Tube Confirmation
• Endotracheal Tube Anchoring
• Facilitated Intubation
5.15 Traumatic Cardiac Arrest

Purpose:

The purpose of this protocol is to describe treatment and transport considerations for patients with cardiac arrest secondary to trauma, regardless of presenting cardiac rhythm.

Description:

**Adult Care:**

**Level 1**

1. Trauma & Hypovolemic Supportive Care with primary emphasis on airway and rapid transport, deferring all care other than that which is absolutely necessary. **Due to the inherently low survival rate from traumatic cardiac arrest, helicopter evacuation to a trauma center should not be routinely utilized.** Most cases of unsurvivable trauma with significant cardiorespiratory manifestations should be transported to the closest hospital emergency department.

2. Treat cardiac dysrhythmias per other specific protocols. Drug administration and defibrillation therapy should be performed immediately. Spinal motion restriction should parallel this process contingent upon mechanism of injury.

3. Consider and evaluate for the possibility of potentially reversible etiology.

4. In cases of tension pneumothorax, perform needle thoracostomy.

5. Follow-up post incident with the MCO via phone for any Equipment Failures, Trauma Alerts (ground or air), Air Transports (trauma alerts or non trauma alerts), Cardiac Arrest, Submersion, and/or Intubation journal information.

**Level 2**

1. If the patient is unresponsive to airway management, fluid resuscitation and treatment of other potentially reversible lethal conditions, contact OLMC for consideration of discontinuance of resuscitation efforts on scene.

2. Contact OLMC if there are scene conflicts between air medical and ground crews regarding mode of transport and/or discontinuation on scene.

**Level 3 - None**

**Pediatric Care:**

**Level 1**

1. Trauma & Hypovolemic Supportive Care with primary emphasis on airway and rapid transport, deferring all care other than that which is absolutely necessary. **(Pediatric length based measurement device – refer to color for appropriate equipment sizes/medication dosages). Due to the inherently low survival rate from traumatic cardiac arrest, helicopter evacuation to a trauma center should not be routinely utilized.** Most cases of unsurvivable trauma with cardiac manifestations should be transported to the closest hospital emergency department.
2. Treat cardiac dysrhythmias per other specific protocols. Drug administration and defibrillation therapy should be performed immediately. Spinal motion restriction should parallel this process contingent upon mechanism of injury.
3. Consider and evaluate for the possibility of potentially reversible etiology.
4. In cases of tension pneumothorax, perform needle thoracostomy.
5. Follow-up post incident with the MCO via phone for any Equipment Failures, Trauma Alerts (ground or air), Air Transports (trauma alerts or non trauma alerts), Cardiac Arrest, Submersion, and/or Intubation journal information.

Level 2

1. If the patient is unresponsive to airway management, fluid resuscitation and treatment of other potentially reversible lethal conditions, contact OLMC for consideration of discontinuance of resuscitation efforts on scene.
2. Contact OLMC if there are scene conflicts between air medical and ground crews regarding mode of transport and/or discontinuation on scene.

Level 3 – None

Reference Protocols:

- Trauma and Hypovolemic Supportive Care
- On-Line Medical Control (OLMC) Consultation Criteria
- Needle Thoracostomy
- Inclusion and Exclusion Criteria for CPCR
5.16 Immersion Incidents and Barotrauma

- General Supportive Care
- Trauma and Hypovolemic Supportive Care
  - Neck injuries often go unrecognized
  - Immobilization prior to removal from water
- Monitor and treat hypothermia
- Drowning or near drowning ONLY does not meet trauma alert criteria
- Consider placement of OG/NG

Suspected Decompression Illness Documentation
- Number of dives over last two days
- Air travel within the last day
- Max. depth of each dive (dive computer, buddy)
- Total time underwater (dive computer, buddy)
- Mix of compressed gases used
- Bring dive computer/buddy with pt. if possible

Destination Selection Considerations
- Hyperbaric Therapy – Coordinate with MCO
- MCO, in coordination with the Diver Alert Network (DAN), can assist with destination of active hyperbaric chamber.
- Trauma Alert status

Transport Considerations
- Air Transport vs. ground transport (Consult OLMC if required)
- Consider CCT in the event that air transport cannot be used
- Transport on long spine board:
  - Head down
  - Feet up
  - Slightly (L) side

Reference Protocols:
- General Supportive Care (Medical)
- Trauma and Hypovolemic Supportive Care
5.17 Isolated Trauma

- Trauma and Hypovolemic Supportive Care
- General Supportive Care
- Document pre-treatment and post treatment pain scale
- Consider need for pain management
- Trauma alert status

### Chest Trauma
- Stabilize flail segments
- Cover open chest wounds with occlusive dressing on three sides
- DO NOT remove impaled objects – stabilize in place
- Perform needle decompression for tension pneumo

### Head and Spinal Injury
- Prevent hypotension and hypoxia
- GCS < 8 attempt to intubate maintaining inline stabilization
- Transport with head of long spine board slightly elevated
- Maintain systolic BP of 100 – 110

### Signs of Increased ICP
- Hypertension and bradycardia
- Blown pupil
- Rapid deterioration
- Posturing

### Abdominal and Pelvic Trauma
- Cover eviscerated tissue with moist saline dressings
- DO NOT replace eviscerated tissues
- DO NOT remove impaled objects – stabilize in place.

- **NO**
- Maintain normal SaO2 and ETCO2.

- **YES**
- Hyperventilate
- Maintain ETCO2 of 30 – 35.

Continued on Page 2 of 2.
Ocular Trauma

- If no suspicion of globe perforation, gently irrigate with continuous Normal Saline, LR, sterile water or tap water. **DO NOT** remove foreign bodies by other means.
- Obvious laceration or perforation of the globe:
  - **DO NOT** place any pressure on the affected eye/eyes.
  - Place shields over both eyes – **DO NOT** contact any impaled objects.
- Hyphema (blood in anterior chamber of eye in front of iris)
  - **DO NOT** place any pressure on the affected eye/eyes.
  - Place shields over both eyes – **DO NOT** contact any impaled objects.
  - Transport in seated position or with head elevated unless immobilized.

References:

Reference Protocols:
5.18 Asthma/Bronchospasm

Adult Care:

Level 1

1. General Supportive Care
   a. Early IV access is important in severe asthma due to the potential for peripheral vein collapse.

2. Continually assess pulse oximetry, observe for posturing, change in skin color, and degree of dyspnea. Consider the use of a capnography cannula if the patient is in moderate to severe distress and/or if there is some question as to the etiology of symptoms.

3. Aerosol therapy
   a. If no aerosol treatments have been taken by the patient and the patient does not use Ipratropium, administer Albuterol 2.5 mg, nebulized. If symptoms do not resolve satisfactorily, proceed to Albuterol/Ipratropium mix as outlined in #3. b.
   b. If the patient has already had at least one Albuterol aerosol treatment OR if the patient uses Ipratropium via inhaler or aerosol, administer Albuterol, 2.5 mg mixed with Ipratropium 0.5 mg (1 vial) nebulized q 20 minutes as needed.

4. If intubated and in-line aerosolization equipment is unavailable, consider administration of aerosol solutions (Albuterol and Ipratropium, as above) via direct instillation into the ET tube with drug dispersal via bagging.

5. Consider steroid administration if the patient uses steroids or is not responding to aerosol treatments. Administer Methylprednisolone Sodium Succinate (SoluMedrol) 125 mg SLOW IV push (over several minutes).

6. If the patient does not improve with the previous interventions, consider Epinephrine 0.3 mg 1:1000 SQ or IM if the patient is not known to have coronary artery disease. IM administration provides for faster drug absorption than the SQ route.

Level 2

1. Repeated doses of Epinephrine 1:1000 SQ or IM.
2. Epinephrine 0.3 mg 1:10,000 IV or 0.6 mg 1:1000 ET if patient in extremis and all of the actions in Level One are unsuccessful.

Pediatric Care:

Level 1

1. General Supportive Care (Pediatric length based measurement device – refer to color for appropriate equipment sizes/medication dosages).
   a. IV access is generally only necessary in moderate to severe respiratory distress

2. Assess and document pulse oximetry results and note LOC, degree of dyspnea, and use of accessory muscles. Consider use of the capnography cannula if the patient is in moderate to severe distress and/or if there is some question as to the etiology of symptoms.

3. Aerosol therapy:
   a. If no aerosol treatments have been taken by the patient and the patient does not use Ipratropium, administer nebulized Albuterol at doses specified below. If symptoms do not resolve satisfactorily, proceed to Albuterol/Ipratropium mix as outlined below.
b. If the patient has already had at least one Albuterol aerosol treatment OR if the patient uses Ipratropium via inhaler or aerosol, administer nebulized Albuterol mixed with Ipratropium q 20 minutes as needed at doses specified below.

c. Dosages

i. **Age < 2 months**
   - Albuterol 1.25 mg (1/2 unit dose) by aerosol mask; 2.5 mg (one unit dose) if by blowby.
   - Ipratropium 0.25 mg (1/2 unit dose) by aerosol mask; 0.5 mg (1 unit dose) if by blowby.

ii. **Age > 2 months but weight < 20 kg by length based measurement tape or accurate weight estimate**
   - Albuterol 2.5 mg (1 unit dose) by aerosol mask or mouthpiece; 5 mg (2 unit doses) if by blowby.
   - Ipratropium 0.5 mg (1 unit dose) by mask or mouthpiece; same dose if by blowby.

iii. **Weight 20 to 40 kgs. By length based measurement tape or accurate weight estimate**
   - Albuterol 5 mg (2 unit doses) by aerosol mask or mouthpiece.
   - Ipratropium 0.5 mg (1 unit dose) by aerosol mask or mouthpiece.

iv. **Weight > 40 kgs. Use adult dosing.**

4. If intubated and in-line aerosolization equipment is unavailable, consider administration of aerosol solutions (Albuterol and Ipratropium, as above) via direct instillation into the ET tube with drug dispersal via bagging.

5. Consider steroid administration if the patient uses steroids or is not responding to aerosol treatments. Administer Methylprednisolone Sodium Succinate (SoluMedrol), 2 mg/kg SLOW IV push (over several minutes) or IM. Maximum single dose is not to exceed 125 mg.

6. If the patient does not improve with the previous interventions, consider Epinephrine 1:1000, 0.01 mg/kg SQ or IM not to exceed 0.3 mg total single dose if the patient is not known to have coronary artery disease. IM administration provides for faster drug absorption than the SQ route.

**Level 2**

1. Repeated doses of Epinephrine, 1:1000, 0.01 mg/kg, SQ or IM not to exceed 0.3 mg total single dose.

2. Epinephrine 1:10000, 0.01 mg/kg IV or IO not to exceed 0.3 mg per single dose, or Epinephrine 1:1000, 0.1 mg/kg ET not to exceed 1 mg per single dose if the patient is in extremis and all of the actions in Level One are unsuccessful.

**Level 3 – None**

**References:**

- Phanareth, P; Christensen, LK; Laursen, LC; Hansen, LS; A proposal for a practical treatment guideline designed for the initial two-hours of the management of patients with acute severe asthma and COPD using principles of evidence-based medicine. Respiratory Medicine. September 2002; 90(9):659-71
- Rodrigo, GJ; Rodrigo, C; Hall, JB; Acute Asthma in Adults: A Review. Chest. March 2004; 125(3): 1081-102
- Rodrigo, GJ; Castro-Rodriguez, JA; Anticholinergics in the treatment of children and adults with acute asthma; a systematic review with meta-analysis. Thorax. September 2005; 60(9): 740-6
Reference Protocols:

- General Supportive Care (Medical)
- Nebulized Drug Administration
- Pulse Oximetry
- Capnography
- Epinephrine
- Albuterol Sulfate
- Ipratropium Bromide
- Methylprednisolone Sodium Succinate
5.19 Upper Airway Stridor/Croup

Purpose:

The purpose of this protocol is to provide both guidance and effective therapy for the management of life-threatening obstruction primarily involving the pediatric airway. This obstruction may be caused by croup, epiglottitis, foreign body, and many other circumstances. It is important that all three of these most common problems be carefully considered, because improper assessment can result in delay in treatment, or worsening of symptoms due to inappropriate therapy. TABLE 1, “Differential Assessment” will help with this important evaluation.

Description:

Adult Care:

Level 1

1. General Supportive Care
2. Most stridor in adults is due to foreign body obstruction, including cancer. If other causes can be immediately ruled out, TREAT ACCORDING TO THE AIRWAY OBSTRUCTION PROTOCOL, IF APPROPRIATE.

Pediatric Care:

Level 1

1. General Supportive Care (Pediatric length based measurement device – refer to color for appropriate equipment sizes/medication dosages)
   a. Rapid assessment is critical, especially for foreign body obstruction. Because patients with epiglottitis may experience complete airway obstruction if further agitated by IV starts or forceful assessment and treatment, IV’s should be deferred, and the child should be minimally stimulated if maintaining adequate oxygenation and ventilation spontaneously. Avoid blind finger sweeps or manipulation of the oropharynx. However, always be prepared for rapid deterioration and potential advanced airway interventions. Have appropriate sized equipment ready, including ET tubes one-half size smaller than the recommended size and cricothyrotomy equipment. Croup patients may also experience worsening respiratory distress if forcefully treated, but are much less likely to experience complete airway obstruction. Contact OLMC early for assistance in determining necessary treatment if needed.

2. Examine and transport in position of comfort. This may include being upright in the mother’s arms, or any necessary accommodation to calm the patient.
3. Transport the patient as calmly as possible, avoiding prolonged scene times.
4. Make early contact with the receiving facility, especially if the patient is suspected to have epiglottitis or if the patient is in severe respiratory distress.
5. Preservative Free 0.9% Sodium Chloride may be given by nebulizer. Stop if child becomes agitated.
6. If wheezing is a dominant symptom, consider use of nebulized Albuterol:
   a. Dosages
i. **Age < 2 months**
   - Albuterol 1.25 mg (1/2 unit dose) by aerosol mask; 2.5 mg (one unit dose) if by blowby.

ii. **Age > 2 months but weight < 20 kg by length based measurement tape or accurate weight estimate**
   - Albuterol 2.5 mg (1 unit dose) by aerosol mask or mouthpiece; 5 mg (2 unit doses) if by blowby.

iii. **Weight 20 to 40 kgs. By length based measurement tape or accurate weight estimate**
   - Albuterol 5 mg (2 unit doses) by aerosol mask or mouthpiece.

iv. **Weight > 40 kgs. Use adult dosing.**

**Level 2**

1. OLMC should confirm assessment where time and patient condition permit.

### TABLE 1: DIFFERENTIAL ASSESSMENT

<table>
<thead>
<tr>
<th></th>
<th>CROUP</th>
<th>EPIGLOTTITIS</th>
<th>FOREIGN BODY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>USUAL AGE:</strong></td>
<td>½ - 2 years</td>
<td>2 - 6 years</td>
<td>½ - 4 years</td>
</tr>
<tr>
<td><strong>ONSET OF SYMPTOMS:</strong></td>
<td>Gradual, often follows URI</td>
<td>4-12 hours</td>
<td>Sudden</td>
</tr>
<tr>
<td><strong>CLINICAL PICTURE:</strong></td>
<td>Stridor on inspiration, “barky” cough, hoarse *</td>
<td>Drooling, toxic appearance, flushed, stridor on inspiration, dysphagia, muffled voice *</td>
<td>+/- cough +/- stridor +/- drooling *</td>
</tr>
<tr>
<td><strong>FEVER:</strong></td>
<td>None/minimal</td>
<td>High</td>
<td>None</td>
</tr>
<tr>
<td><strong>PRINCIPLE OBSTRUCTION:</strong></td>
<td>Subglottic</td>
<td>Supraglottic</td>
<td>Varies</td>
</tr>
</tbody>
</table>

* Further deterioration of all of these disorders may include nasal flaring, retractions, cyanosis, and altered mental status

**References:**
- Emergency Medicine, Vol II, 1983, Peter Rosen, Mosby

**Reference Protocols:**
- General Supportive Care (Medical)
- Airway Obstruction
- Nebulized Drug Administration
- Cricothyrotomy Airway Access
- Albuterol Sulfate
5.20 Chronic Obstructive Pulmonary Disease (COPD)

**Adult Care:**

**Level 1**

1. **General Supportive Care**
   a. Begin COPD patients on 2 L/min oxygen by nasal cannula and adjust upward if needed to ensure adequate oxygenation. It is not necessary to maintain pulse oximetry readings of 98-100% in these patients; 95-96% may be adequate if clinical signs are good.
   b. Early IV access is important in severe COPD due to the potential for peripheral vein collapse.

2. Continually assess pulse oximetry, observe for posturing, change in skin color and degree of dyspnea. Consider the use of capnography cannula if the patient is in moderate to severe distress and/or if there is some question as to the etiology of symptoms.

3. **Aerosol therapy:**
   a. If no aerosol treatments have been taken by the patient and the patient does not use Ipratropium, administer Albuterol 2.5 mg, nebulized. If symptoms do not resolve satisfactorily, proceed to Albuterol/Ipratropium mix as outlined in #3. b.
   b. If the patient has already had at least one Albuterol aerosol treatment OR if the patient uses Ipratropium via inhaler or aerosol, administer Albuterol 2.5 mg mixed with Ipratropium 0.5 mg (1 vial) nebulized q 20 minutes as needed.

4. If the patient is intubated and in-line aerosolization equipment is unavailable, consider administration of aerosol solutions (Albuterol and Ipratropium, as above) via direct instillation into the ET tube with drug dispersal via bagging.

5. Consider steroid administration if the patient uses steroids or is not responding to aerosol treatments. Administer Methylprednisolone Sodium Succinate (Solumedrol) 125 mg SLOW IV push (over several minutes).

6. If the patient does not improve with the previous interventions, consider Epinephrine 0.3 mg 1:1000 SQ or IM if the patient is not known to have coronary artery disease. IM administration provides for faster drug absorption than the SQ route.

**Level 2**

1. Repeated doses of Epinephrine 1:1000 SQ or IM
2. Epinephrine 0.3 mg 1:10,000, IV or 0.6 mg 1:1000 ET if patient in extremsis and all of the actions in Level One are unsuccessful.

**Pediatric Care:** None

**Reference Protocols:**

- General Supportive Care (Medical)
- Nebulized Drug Administration
- Oxygen Tolerance in Emphysema (COPD)
- Capnography
- Epinephrine
- Albuterol Sulfate
- Ipratropium Bromide
- Methylprednisolone Sodium Succinate
5.21 Anaphylaxis and Allergic Reactions

Purpose:

The purpose of this protocol is to describe authorized interventions in cases where there is evidence of an acute allergic reaction or anaphylactic shock.

Description:

Allergic reactions generally consist of symptoms including hives, itching, wheezing, and occasionally oral or facial swelling. Anaphylactic shock is present when these symptoms progress to include respiratory failure and/or hemodynamic instability.

Adult Care:

Level 1

1. General Supportive Care.
2. Diphenhydramine 50 mg, IV or IM.
3. If wheezing or chest tightness are present, Albuterol 2.5 mg nebulized. This may be repeated X 1 if wheezing or chest tightness does not resolve.
4. Epinephrine 0.3 mg 1:1000 SQ or IM, if patient is not known to have coronary artery disease and symptoms are not improving. IM administration should be considered in moderate to severe allergic reactions/anaphylaxis due to faster absorption than that achieved by the SQ route.
5. If respiratory symptoms do not improve, administer Albuterol, 2.5 mg mixed with Ipratropium 0.5 mg (1 unit dose) nebulized q 20 minutes as needed.
6. If intubated and in-line aerosolization equipment is unavailable, consider administration of aerosol solutions (Albuterol and Ipratropium, as above) via direct instillation into the ET tube with drug dispersal via bagging.
7. If in anaphylactic shock, administer fluid bolus 250 cc to 1000 cc IV with approved system IV fluid in 250 cc increments, reassessing patient status after each 250 cc increment.
8. If in anaphylactic shock, Methylprednisolone Sodium Succinate (SoluMedrol) 125 mg SLOW IV push over several minutes.
9. If continuing in refractory anaphylactic shock, Epinephrine 0.3 to 0.5 mg of 1:10000 solution IV or ET, pushed over several minutes while continually monitoring ECG and other clinical parameters. Use with extreme caution in patients with known coronary artery disease.

Level 2

1. If not in anaphylactic shock, consider:
   a. Administration of Methylprednisolone sodium succinate (SoluMedrol) 125 mg SLOW IV push (over several minutes).
2. For patients taking beta blockers, administer glucagon, 1 mg IV over several minutes if not responding to other treatment. Slow administration helps to prevent nausea and vomiting, but be prepared to protect the airway, especially in patients with altered mental status.
3. Repeated doses of Epinephrine 1:1000 SQ or Epinephrine 1:10000 IV or ET.
4. Contact OLMC for other advice as needed, and as time and patient condition allow.
Pediatric Care:

Level 1

1. General Supportive Care (Pediatric length based measurement device – refer to color for appropriate equipment sizes/medication dosages).
2. Diphenhydramine, 1 mg/kg, (up to 50 mg) IM or IV.
3. If wheezing or chest tightness are present, Albuterol nebulized:
   a. Dosages
      i. **Age < 2 months**
         • Albuterol 1.25 mg (1/2 unit dose) by aerosol mask; 2.5 mg (one unit dose) if by blowby.
      ii. **Age > 2 months but weight < 20 kg by length based measurement tape or accurate weight estimate**
         • Albuterol 2.5 mg (1 unit dose) by aerosol mask or mouthpiece; 5 mg (2 unit doses) if by blowby.
      iii. **Weight 20 to 40 kgs. By length based measurement tape or accurate weight estimate**
         • Albuterol 5 mg (2 unit doses) by aerosol mask or mouthpiece.
      iv. **Weight > 40 kgs. Use adult dosing.**
4. May repeat Albuterol x 1 if continued wheezing or chest tightness.
5. If continuing significant symptoms, Epinephrine, 1:1000, 0.01 mg/kg SQ or IM, not to exceed 0.3 mg per dose, if patient is not known to have coronary artery disease and symptoms are not improving. IM administration should be considered in moderate to severe allergic reactions/anaphylaxis due to faster absorption than that achieved by the SQ route.
6. If respiratory symptoms do not improve, administer Albuterol plus Ipratropium nebulized q 20 minutes as needed at doses specified below:
   a. Dosages
      v. **Age < 2 months**
         • Albuterol 1.25 mg (1/2 unit dose) by aerosol mask; 2.5 mg (one unit dose) if by blowby.
         • Ipratropium 0.25 mg (1/2 unit dose) by aerosol mask; 0.5 mg (1 unit dose) if by blowby.
      vi. **Age > 2 months but weight < 20 kg by length based measurement tape or accurate weight estimate**
         • Albuterol 2.5 mg (1 unit dose) by aerosol mask or mouthpiece; 5 mg (2 unit doses) if by blowby.
         • Ipratropium 0.5 mg (1 unit dose) by mask or mouthpiece; same dose if by blowby).
      vii. **Weight 20 to 40 kgs. By length based measurement tape or accurate weight estimate**
         • Albuterol 5 mg (2 unit doses) by aerosol mask or mouthpiece.
         • Ipratropium 0.5 mg (1 unit dose) by aerosol mask or mouthpiece.
      viii. **Weight > 40 kgs. Use adult dosing.**
7. If in anaphylactic shock, fluid bolus with approved system IV fluid, 20 cc/kg IV or IO boluses. Reassess patient status after each fluid bolus.
8. If in anaphylactic shock, Methylprednisolone sodium succinate (SoluMedrol) 2 mg/kg loading dose, slow IV push over several minutes or IM.
9. If continuing in refractory anaphylactic shock, Epinephrine 0.1 mg/kg 1:1000 via ET, or 0.01 mg/kg 1:10000 IV or IO (not to exceed 0.3 mg dose). Administer IV medication over several minutes while continually monitoring ECG and other clinical parameters. Use with extreme caution in patients with known coronary artery disease.

Level 2

1. If not in anaphylactic shock, consider
   a. Administration of Methylprednisolone Sodium Succinate (Solumedrol), 2 mg/kg SLOW IV push (over several minutes) or IM. Maximum single dose is not to exceed 125 mg.
   2. Repeated doses of Epinephrine, 1:1000, 0.01 mg/kg, SQ. not to exceed 0.3 mg per dose or Epinephrine 1:10,000, 0.01mg/kg ET, IV or IO, not to exceed 0.3 mg per dose.
   3. Contact OLMC for other advice as needed, and as time and patient condition allow.

References:

- Kemp, S: Current concepts in pathophysiology, diagnosis, and management of anaphylaxis. Immunology and Allergy Clinics of North America 21 (4), Nov. 2001

Reference Protocols:

- General Supportive Care (Medical)
- Nebulized Drug Administration
- Epinephrine
- Albuterol
- Ipratropium Bromide
- Methylprednisolone Sodium Succinate
- Diphenhydramine
5.22 Behavioral Disorders

Purpose:

The purpose of this protocol is to describe authorized interventions in cases where the patient is exhibiting abnormal, psychotic, or violent behavior and poses a threat to themselves or other persons.

Description:

Adult Care:

Level 1

1. General Supportive Care.
2. A patient who has been Baker-Acted, or who is likely to meet Baker Act criteria must be evaluated carefully for known or suspected associated medical or traumatic conditions, such as overdose, other drug intoxication, or self-induced injury. (See NOTE reference overdoses.) If any such condition is determined to be present, the patient should generally be transported to the closest appropriate medical facility, regardless of that facility’s psychiatric capabilities. However, if clinically stable, non-overdose patients may be taken directly to the closest Baker Act receiving facility. **Patients who are or may become unstable and all overdose patients require OLMC approval to bypass the closest appropriate medical facility to reach a Baker Act facility (see list in Level 1 #3)**

3. The patient who has been Baker-Acted, or who is likely to meet Baker Act criteria and has no known or suspected associated medical or traumatic conditions, should be transported to the closest of the listed Baker Act receiving facilities:
   a. Morton Plant Hospital
   b. Sun Coast Hospital
   c. St. Anthony’s Hospital
   d. VA Medical Center, Bay Pines (Veterans only)

   • **NOTE:** All overdoses are to be considered unstable and taken to the nearest emergency department, regardless of their current signs and symptoms. Deterioration may take place suddenly and early intervention may be essential. Transfer to an appropriate Baker Act facility can be accomplished after stabilization. **Any deviations from this policy must be cleared by OLMC on an individual basis.**

   • **NOTE:** Exercise caution in assuming that Baker Acted (or assumed eligible) patients without a history of psychiatric illness have no underlying acute medical or traumatic conditions. Acute delirium can be a symptom of a number of acute medical conditions rather than being purely psychiatric in origin. **If there is any question regarding most appropriate destination, consult OLMC.**

4. Summon law enforcement to the scene if needed for Baker Act, involuntary transportation under FL Statutes 401.445, or for assistance in patient restraint. OLMC should be notified immediately if law enforcement declines to assist EMS, for direct OLMC/Law enforcement consultation.
5. Any patient refusing ambulance transportation to the hospital with an altered level of consciousness, should be administered the EMS Cognitive Examination.

6. Law enforcement is to be summoned to the scene anytime a patient has driven a motor vehicle to the incident location and then insists on driving the vehicle pre or post medical treatment.

7. Any situation in which driver impairment is suspected, a Florida Department of Motor Vehicles Emergency Medical Services Driver Impairment Investigation Medical Reporting Form is to be completed unless already reported by law enforcement.

**Special Note:** Based on the growing amount of literature on *positional restraint asphyxia*, patients may be subject to a “crash” resulting from a combination of “cocaine psychosis” or “excited delirium” when the patient is restrained improperly. Positional or restraint asphyxiation results when the position of the body interferes with respiration, resulting in asphyxia. Such deaths usually take place after the patient has demonstrated bizarre and/or violent behavior and has been restrained. The deaths appear similar to sudden infant death in infants.

8. The following should be conveyed to law enforcement, if they are assisting in patient restraint:
   a. Immediately sit the patient upright once they have controlled him/her
   b. Relieve the patient of any heavy weight meant to keep them controlled
   c. Remove the patient from the prone position as soon as possible
   d. Continuously monitor the patient to include verbal responses to questions
   e. Provide for immediate medical attention

9. Finally, with all of these considerations, it is imperative that the Patient Care Report (PCR) correctly documents what reasonable steps were taken to control the person and to protect the patient from injuring him or herself. Refer to Physical Restraint Protocol for documentation requirements.

**Level 2**

1. Haloperidol, 5 mg, IM or IV, may repeat X 1. - **Dose to be halved in-patients older than 65 years. Note: Patients with a seizure history should receive Valium. Haldol may precipitate seizures.**

2. Valium, 5 mg, IV q 5 - 10 min. to a maximum determined by OLMC staff.

3. **Benadryl 50 mg IV or IM PRN if necessary for extra-pyramidal Parkinson type side effects of Haldol or for additional sedation.**

**Level 3 -- None**

**Pediatric Care:**

**Level 1**

1. General Supportive Care (**Pediatric length based measurement device – refer to the color for appropriate equipment sizes/medication dosages**)

2. A patient who has been Baker-Acted, or who is likely to meet Baker Act criteria must be evaluated carefully for known or suspected associated medical or traumatic conditions, such as overdose, other drug intoxication, or self-induced injury. (See NOTE reference overdoses.)
If any such condition is determined to be present, the patient should generally be transported to the closest appropriate medical facility, regardless of that facility’s psychiatric capabilities. However, if clinically stable, non-overdose patients may be taken directly to the closest Baker Act (pediatric capable) receiving facility. **Patients who are or may become unstable and all overdose patients require OLMC approval to bypass the closest appropriate medical facility to reach a Baker Act facility (see list in Level 1 #3)**

3. The patient who has been Baker-Acted, or who is likely to meet Baker Act criteria and has no known or suspected associated medical or traumatic conditions, should be transported to the closest of the listed Baker Act receiving facilities:
   a. Morton Plant
   b. Pinellas County Emergency Mental Health Services (PEMHS) **NOTE:** PEMHS is acceptable ONLY if prior arrangements have been made for the patient’s acceptance there through a physician or law enforcement official and the MCO verifies these arrangements. Patients who require ANY medical evaluation and/or treatment may NOT be transported to PEMHS.

   - **NOTE:** All overdoses are to be considered unstable and taken to the nearest emergency department, regardless of their current vital signs and symptoms. Deterioration may take place suddenly and early intervention may be essential. Transfer to an appropriate Baker Act facility can be accomplished after stabilization. **Any deviations from this policy must be cleared by OLMC on an individual basis.**
   - **NOTE:** Exercise caution in assuming that Baker Acted (or assumed eligible) patients without a history of psychiatric illness have no underlying acute medical or traumatic conditions. Acute delirium can be a symptom of a number of acute medical conditions rather than being purely psychiatric in origin. **If there is any question regarding most appropriate destination, consult OLMC.**

4. Summon law enforcement to the scene if needed for Baker Act, involuntary transportation under FL Statutes 401.445, or for assistance in patient restraint. OLMC should be notified immediately if law enforcement declines to assist EMS, for direct OLMC/Law enforcement consultation.

5. Any patient refusing ambulance transportation to the hospital with an altered level of consciousness, should be administered the EMS Cognitive Examination.

6. Law enforcement is to be summoned to the scene anytime a patient has driven a motor vehicle to the incident location and then insists on driving the vehicle pre or post medical treatment.

7. Any situation in which driver impairment is suspected, a Florida Department of Motor Vehicles Emergency Medical Services Driver Impairment Investigation Medical Reporting Form is to be completed unless already reported by law enforcement.

**Special Note:** Based on the growing amount of literature on positional restraint asphyxia, patients may be subject to a “crash” resulting from a combination of “cocaine psychosis” or “excited delirium” when the patient is restrained improperly. Positional or restraint asphyxiation results when the position of the body interferes with respiration, resulting in asphyxia. Such deaths usually take place after the patient has demonstrated bizarre and/or violent behavior and has been restrained. The deaths appear similar to sudden infant death in infants.
8. The following should be conveyed to law enforcement, if they are assisting in patient restraint:
   a. Immediately sit the patient upright once they have controlled him/her
   b. Relieve the patient of any heavy weight meant to keep them controlled
   c. Remove the patient from the prone position as soon as possible
   d. Continuously monitor the patient to include verbal responses to questions
   e. Provide for immediate medical attention

9. Finally, with all of these considerations, it is imperative that the Patient Care Report (PCR) correctly documents what reasonable steps were taken to control the person and to protect the patient from injuring him or herself. Refer to Physical Restraint Protocol for documentation requirements.

Level 2

1. Valium 0.1 - 0.2 mg/kg IV or IM. **Maximum Single Dose 5.0 mg.**
2. Consider Haloperidol 5.0 mg IM or IV (IF OVER 15 YRS). **Note: Patients with a seizure history should receive Valium. Haldol may precipitate seizures.**
3. Benadryl 1 mg/kg (up to 50 mg) IV or IM PRN if necessary for extra-pyramidal Parkinson type side effects of Haldol or for additional sedation.

Level 3 -- None

References:

- Transportation Exception Plan for Children in Pinellas County as permitted in Florida Chapter 394.462(3)(The Baker Act) Effective January 9, 2003

Reference Protocols:

- General Suppovtive Care (Medical)
- Physical Restraint
- Diazepam
- Diphenhydramine
- Haloperidol
- Baker Act
- EMS Cognitive Examination
- State of Florida Dept. of Highway Safety and Motor Vehicles (DMV) EMS Driver Impairment Investigation Medical Screening Form
5.23 Altered Mental Status

Purpose:

The purpose of this protocol is to describe authorized interventions for patients with mental status considered to be altered from their normal level of function. Relevant past medical history, present medical history of illness and comparison with the best known, most recent, highest level of neurological function is extremely important. Please note that this is a “getaway” protocol that may feed in to other, more specific protocols as information and response to treatment becomes available.

Description:

Adult Care:

Level 1

1. General Supportive Care.
2. Consider the need for cervical spinal motion restriction based upon the scene survey.
3. Use appropriate discretion regarding immediate intubation of patients who may quickly regain consciousness after treatment with D50W or Naloxone.
4. Confirm blood glucose level prior to administration of dextrose solutions. Obtain blood sample from finger stick, earlobe stick or IV catheter.
   a. If hypoglycemic or borderline (< 80 mg/dl):
      i. Dextrose 50% in water (D50W), 12.5 - 25 gm (25 cc - 50 cc), IV push.
      ii. If IV access not available, Glucagon, 1 mg, IM or SQ.
      iii. Reassess GCS and blood glucose after ten minutes (the repeat blood glucose sample is to be obtained in the opposite extremity from where D50 was administered IV).
      iv. If blood glucose remains < 80 mg/dl, give an additional dose of D50W, 12.5 - 25 gm (25 cc – 50 cc), IV push.
   b. If hypoglycemic or borderline (< 80 mg/dl) with full consciousness, has a gag reflex, and can self-administer food or drink without any risk of aspiration:
      i. In a controlled environment, i.e., the patient’s home, or similar environment where food or drink is readily available, give oral fluids (preferably non-diet) with one to two teaspoons of sugar, sugar cubes, honey or candy to increase their carbohydrate level.
      ii. In an uncontrolled environment, i.e., outside, or in environments where food or drink is unavailable, may give the Dextrose 50% in water (D50W) solution orally.
      iii. Reassess GCS and blood glucose after ten minutes (the repeat blood glucose sample is to be obtained in the opposite extremity from where D50 was administered IV).
   c. If significantly hyperglycemic (> 300 mg/dl):
      i. If showing signs of poor perfusion or hypotension, normal saline, wide open IV, to end point of systolic blood pressure > 110 mmHg (Caution: fluid overload).
      ii. Hyperventilate if assisting ventilations.
5. **Only if** the patient’s level of consciousness is diminished significantly enough that spontaneous ventilations do not maintain a room air SpO2 greater than 96%, titrate Naloxone, in 0.4 – 0.8 mg doses IV, ET, SQ, IM or 1 mg IN in each nostril (total 2 mg dose) to achieve spontaneous ventilations with adequate oxygenation. May repeat every 3 – 5 minutes as needed to maintain adequate ventilations. NOTE: Some patients initially receiving IN Naloxone may require IV medication if no response is observed within about 5 minutes.

6. **DO NOT** administer Naloxone to patients who are already intubated unless the patient is hemodynamically unstable and known or suspected to be suffering from a narcotic overdose.

7. Complete a 12 lead ECG to rule out cardiac dysrhythmias.

8. Any patient with an altered level of consciousness, who wishes to refuse ambulance transportation to the hospital, should be administered the EMS Cognitive Examination and requires OLMC contact for a high risk refusal.

9. Law enforcement is to be summoned to the scene anytime a patient has driven a motor vehicle to the incident location and then insists on driving the vehicle pre or post medical treatment.

10. Any situation in which driver impairment is suspected, a Florida Department of Motor Vehicles Emergency Medical Services Driver Impairment Investigation Medical Reporting Form is to be completed unless already reported by law enforcement.

11. **Mandatory consult with OLMC is required for any patient experiencing syncope or unconsciousness of unknown origin refusing additional treatment or transportation to a hospital. Consideration of follow-up observation by family/friend, in the event of expected relapse.**

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**Level 2**

1. If persistently hypoglycemic, repeat doses of D50W, 12.5 - 25 gm, IV push.
2. If suspected ketoacidosis and in shock, consider Sodium Bicarbonate, 1 mEq/kg, IV.
3. Repeat doses of Naloxone, 0.4 – 2 mg, via IV, ET, SQ, IM or 1 mg IN in each nostril for patients with transient response to initial doses.

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**Level 3 -- None**

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**Pediatric Care:**

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**Level 1**

1. General Supportive Care (**Pediatric length based measurement device – refer to the color for appropriate equipment sizes/medication dosages**).
2. Consider the need for cervical spinal motion restriction based upon the scene survey.
3. Use appropriate discretion regarding immediate intubation of patients who may quickly regain consciousness after treatment with D50W or Naloxone.
4. Confirm blood glucose level prior to administration of dextrose solutions. Obtain blood sample from finger stick, heel stick (age < 1 year only), earlobe stick or IV catheter:
   - a. If age < 1 year and if hypoglycemic or borderline (< 40 mg/dl):
         - i. D12.5W or D10W, 0.2 to 0.25 gm/kg IV per dose (volume dependent upon how the solution is mixed).
         - ii. Reassess GCS and blood glucose after ten minutes (the repeat blood glucose sample is to be obtained in the opposite extremity from where D50 was administered IV)
iii. If blood glucose remains < 40 mg/dl, repeat D12.5W or D10W, 0.2 to 0.25 gm/kg IV per dose.

b. If age <12 and > 1 year and if hypoglycemic or borderline (< 60 mg/dl):
   i. D25W, 0.5 to 1 gm/kg (2 to 4 ml/kg), not to exceed 25 gm IV per dose.
   ii. Reassess GCS and blood glucose after ten minutes (the repeat blood glucose sample is to be obtained in the opposite extremity from where D50 was administered IV).
   iii. If blood glucose remains < 60 mg/dl, repeat D25W, 0.5 to 1 gm/kg (2 to 4 ml/kg), not to exceed 25 gm IV per dose. Repeat step #4. b. ii.

c. If age > 12 and if hypoglycemic or borderline (< 80 mg/dl), treat the patient under the Adult procedures noted above.

d. If significantly hyperglycemic (> 300 mg/dl):
   i. If showing signs of decreased perfusion, Normal Saline, 20 cc/kg increments IV, to end point of improved perfusion. **NOTE: Cerebral edema and brain stem herniation associated with too rapid fluid re-hydration.**
   ii. Hyperventilate if assisting ventilations.

5. Initiate transport as soon as possible.

6. **Only if** the patient's level of consciousness is diminished significantly enough that spontaneous ventilations do not maintain a room air SpO2 of greater than 96%, titrate Naloxone, in 0.1 mg/kg doses IV, ET, SQ, IM, IO or 1 mg IN (max. IN single dose of 2 mg, 1 mg in each nostril) up to adult doses to achieve spontaneous ventilations with adequate oxygenation. May repeat every 3 to 5 minutes as needed to maintain adequate ventilations. **NOTE: Some patients initially receiving IN Naloxone may require IV medication if no response is observed within about 5 minutes. DO NOT administer Naloxone to patients who are already intubated unless the patient is hemodynamically unstable and known or suspected to be suffering from a narcotic overdose.**

7. Complete a 12 lead ECG to rule out cardiac dysrhythmias.

8. Any older teen or emancipated minor with an altered level of consciousness, who wishes to refuse ambulance transportation to the hospital, should be administered the EMS Cognitive Examination and requires OLMC contact for a high risk refusal.

9. Law enforcement is to be summoned to the scene anytime a teen has driven a motor vehicle to the incident location and then insists on driving the vehicle pre or post medical treatment.

10. Any situation in which driver impairment is suspected, a Florida Department of Motor Vehicles Emergency Medical Services Driver Impairment Investigation Medical Reporting Form is to be completed unless already reported by law enforcement.

11. **Mandatory consult with OLMC is required for any pt. experiencing syncope/or unconsciousness of unknown origin refusing additional treatment or transportation to a hospital. Consideration of follow-up observation by family/friend, in the event of expected relapse.**

**Level 2 —**

1. If persistently hypoglycemic, repeat doses of dextrose, D50W, D25W, D12.5W or D10W according to age.

2. If IV access unavailable, 0.5 mg Glucagon IM or SQ for pts. weighing less than 25 kg or < 6 years old. Over 25 kg or > 6 years old, 1 mg Glucagon IM or SQ.

3. If hypoglycemic and unable to obtain IV consider IO access.

4. If suspected ketoacidosis and in shock, consider Sodium Bicarbonate, 1 mEq/kg, IV.

5. Repeat doses of Naloxone, 0.1 mg/kg via IV, ET, SQ, IM, IO or 1 mg IN in each nostril, up to adult doses for patients with transient response to initial doses.
Level 3 – None

References:


Reference Protocols:

- General Supportive Care (Medical)
- Stroke and Transient Ischemic Attack (TIA)
- 12 Lead ECG
- Mucosal Atomization Device (MAD) Utilization
- Sodium Bicarbonate 8.4%
- Glucagon
- Dextrose
- Naloxone
- Sodium Chloride
- EMS Cognitive Examination
- State of Florida Dept. of Highway Safety and Motor Vehicles (DMV) EMS Driver Impairment Investigation Medical Screening Form
5.24 Diabetic Emergencies

Purpose:

The purpose of this protocol is to describe authorized interventions in cases where the serum blood sugar is abnormally elevated or depressed in the setting of known or suspected new onset diabetes.

Description:

Adult Care:

Level 1

1. General Supportive Care.
2. Initiate transport as soon as possible if altered sensorium.
3. Document and time each GCS and blood glucose assessment along with other interventions.
4. Confirm blood glucose level prior to administration of dextrose solutions. Obtain blood sample from finger stick, earlobe stick or IV catheter.
   a. If hypoglycemic or borderline (< 80 mg/dl):
      i. Dextrose 50% in water (D50W), 12.5 - 25 gm (25 cc - 50 cc), IV push.
      ii. If IV access not available, Glucagon, 1 mg, IM or SQ.
      iii. Reassess GCS and blood glucose after ten minutes (the repeat blood glucose sample is to be obtained in the opposite extremity from where D50 was administered IV).
      iv. If blood glucose remains < 80 mg/dl, give an additional dose of D50W, 12.5 - 25 gm (25 cc – 50 cc), IV push.
   b. If hypoglycemic or borderline (< 80 mg/dl) with full consciousness, has a gag reflex, and can self-administer food or drink without any risk of aspiration:
      i. In a controlled environment, i.e., the patient’s home, or similar environment where food or drink is readily available, give oral orange juice with one to two teaspoons of sugar, sugar cubes, honey or candy to increase their carbohydrate level.
      ii. In an uncontrolled environment, i.e., outside, or in environments where food or drink is unavailable, may give the Dextrose 50% in water (D50W) solution orally.
      iii. Reassess GCS and blood glucose after ten minutes (the repeat blood glucose sample is to be obtained in the opposite extremity from where D50 was administered IV).
   c. If significantly hyperglycemic (> 300 mg/dl):
      i. If showing signs of poor perfusion or hypotension, normal saline, wide open IV, to end point of systolic blood pressure > 110 mmHg (Caution: fluid overload).
      ii. Hyperventilate if assisting ventilations.
5. Any patient refusing ambulance transportation to the hospital with an altered level of consciousness, should be administered the EMS Cognitive Examination.
6. Law enforcement is to be summoned to the scene anytime a patient has driven a motor vehicle to the incident location and then insists on driving the vehicle pre or post medical treatment.
7. Any situation in which driver impairment is suspected, a Florida Department of Motor Vehicles Emergency Medical Services Driver Impairment Investigation Medical Reporting Form is to be completed unless already reported by law enforcement.
8. Consult with OLMC for any diabetics refusing additional treatment or transportation to a hospital. Consideration of follow-up observation by family/friend, in the event of expected relapse. These are high-risk refusals and should be thoroughly documented.

Level 2

1. If persistently hypoglycemic, repeat doses of D50W, 12.5 - 25 gm, IV push.
2. If suspected ketoacidosis and in shock, consider Sodium Bicarbonate, 1 mEq/kg, IV.

Level 3 – None

Pediatric Care:

Level 1

1. General Supportive Care (Pediatric based measurement device – refer to color for appropriate equipment sizes/medication dosages)
2. Initiate transport as soon as possible, if altered sensorium.
3. Confirm blood glucose level prior to administration of dextrose solutions. Obtain blood sample from finger stick, heel stick (age < 1 year only), earlobe stick or IV catheter:
   a. If age < 1 year and if hypoglycemic or borderline (< 40 mg/dl):
      i. D12.5W or D10W, 0.2 to 0.25 gm/kg IV per dose (volume dependent upon how the solution is mixed).
      ii. Reassess GCS and blood glucose after ten minutes (the repeat blood glucose sample is to be obtained in the opposite extremity from where D50 was administered IV).
      iii. If blood glucose remains < 40 mg/dl, repeat D12.5W or D10W, 0.2 to 0.25 gm/kg IV per dose.
   b. If age < 12 and > 1 year and if hypoglycemic or borderline (< 60 mg/dl):
      i. D25W, 0.5 to 1 gm/kg (2 to 4 ml/kg), not to exceed 25 gm IV per dose.
      ii. Reassess GCS and blood glucose after ten minutes (the repeat blood glucose sample is to be obtained in the opposite extremity from where D50 was administered IV)
      iii. If blood glucose remains <60 mg/dl, repeat D25W, 0.5 to 1 gm/kg (2 to 4 ml/kg), not to exceed 25 gm IV per dose.
   c. If age > 12 and if hypoglycemic or borderline (< 80 mg/dl) treat the patient under the adult procedures noted above.
   d. If significantly hyperglycemic (> 300 mg/dl):
      i. If showing signs of decreased perfusion, Normal Saline, 20 cc/kg increments IV, to end point of improved perfusion. **NOTE: Cerebral edema and brain stem herniation associated with too rapid fluid re-hydration.**
      ii. Hyperventilate if assisting ventilations.
4. Any older teen or emancipated minor refusing ambulance transportation to the hospital with an altered level of conciousness should be administered the EMS Cognitive Examination.
5. Law enforcement is to be summoned to the scene anytime a teen has driven a motor vehicle to the incident location and then insists on driving the vehicle pre or post medical treatment.
6. Any situation in which driver impairment is suspected, a Florida Department of Motor Vehicles Emergency Medical Services Driver Impairment Investigation Medical Reporting Form is to be completed unless already reported by law enforcement.
7. Mandatory consult with OLMC is required for any pt. experiencing syncope/or unconsciousness of unknown origin refusing additional treatment or transportation to a hospital. Consideration of follow-up observation by family/friend, in the event of expected relapse.

Level 2

1. If persistently hypoglycemic, repeat doses of dextrose, D50W, D25W, D12.5W or D10W according to age.
2. If IV access unavailable, 0.5 mg Glucagon IM or SQ for pts. weighing less than 25 kg or < 6 years old. Over 25 kg or > 6 years old, 1 mg Glucagon IM or SQ.
3. If hypoglycemic and unable to obtain IV consider IO access.
4. If suspected ketoacidosis and in shock, consider Sodium Bicarbonate, 1 mEq/kg, IV.

Level 3 -- None

Reference Protocols:

- General Supportive Care (Medical)
- Sodium Bicarbonate  8.4%
- Glucagon
- Dextrose
- EMS Cognitive Examination
- State of Florida Dept. of Highway Safety and Motor Vehicles (DMV) EMS Driver Impairment Investigation Medical Screening Form
5.25 Poisonings and Overdoses

Purpose:

The purpose of this protocol is to describe authorized interventions in cases of ingestion, intentional or not, of a medication or other biologically active substance in amounts greater than usually prescribed, and which is currently, or may potentially, cause harm to the patient. Always consider HAZMAT consultation or response, if appropriate, for intentional or unintentional environmental toxic exposures affecting patients.

Description:

Adult Care:

Level 1

1. General Supportive Care. Consider early involvement of the HAZMAT Team if appropriate for significant or unknown situation. Establish safe perimeter, don personal protective gear PRN.
2. Special attention should be directed at airway protection with consideration given to placement in coma position (lateral recumbent position) and/or to early intubation.
3. Inhaled toxins should be treated with oxygen, 100% via a non-rebreather mask at a flow rate sufficient to prevent reservoir bag collapse, unless specifically contraindicated.
4. If cutaneous exposure, remove patient from environment and decontaminate with copious amounts of water if substance is not water reactive.
5. All clothes should be removed and care should be taken not to contaminate rescuers.
6. If suspected narcotic involvement and patient’s level of consciousness is diminished significantly enough that spontaneous ventilations do not maintain a room air SpO2 of greater than 96%, titrate Naloxone, 0.4 – 0.8 mg doses IV, SQ, ET, IM or 1 mg IN in each nostril (total of 2 mg dose) to achieve spontaneous ventilations with adequate oxygenation. May repeat every 3 to 5 min. DO NOT administer Naloxone to patients who are already intubated unless the patient is hemodynamically unstable and known or suspected to be suffering from a narcotic overdose.
7. Confirm blood glucose level prior to administration of dextrose solutions. Obtain blood sample from finger stick, earlobe stick or IV catheter.
   a. If hypoglycemic or borderline (< 80 mg/dl):
      i. Dextrose 50% in water (D50W), 12.5 - 25 gm (25 cc - 50 cc), IV push.
      ii. If IV access not available, Glucagon, 1 mg, IM or SQ.
      iii. Reassess GCS and blood glucose after ten minutes (the repeat blood glucose sample is to be obtained in the opposite extremity from where D50 was administered IV).
      iv. If blood glucose remains < 80 mg/dl, give an additional dose of D50W, 12.5 - 25 gm (25 cc – 50 cc), IV push.
   b. If hypoglycemic or borderline (< 80 mg/dl) with full consciousness, has a gag reflex, and can self-administer food or drink without any risk of aspiration:
      i. In a controlled environment, i.e., the patient’s home, or similar environment where food or drink is readily available, give oral orange juice with one to two teaspoons of sugar, sugar cubes, honey or candy to increase their carbohydrate level.
      ii. In an uncontrolled environment, i.e., outside, or in environments where food or drink is unavailable, may give the Dextrose 50% in water (D50W) solution orally.
iii. Reassess GCS and blood glucose after ten minutes (the repeat blood glucose sample is to be obtained in the opposite extremity from where D50 was administered IV)

8. Contact OLMC for information on the suspected poison(s) or drugs if needed. Consultation with the Poison Information Center (PIC) may be necessary from the field. This is best accomplished by calling the PIC directly, to provide specific patient information. If direct phone contact from the field is not available, the PIC may be accessed through the MCO.

9. Save any spontaneous emesis if possible.

10. Contact Medical Control and/or law enforcement if needed for assistance in restraining possibly suicidal patients.

11. Gather all medications, over-the-counter drugs, or other possible toxins accessible to the patient and transport with the patient to the nearest appropriate emergency department.

12. All overdoses shall be considered unstable and taken to the nearest emergency department, regardless of their current signs and symptoms. Deterioration may take place suddenly and early intervention may be essential. Transfer to an appropriate Baker Act facility can be accomplished after stabilization. Any deviations from this policy must be cleared by OLMC on an individual basis.

13. Any patient refusing ambulance transportation to the hospital with an altered level of consciousness, should be administered the EMS Cognitive Examination.

14. Law enforcement is to be summoned to the scene anytime a patient has driven a motor vehicle to the incident location and then insists on driving the vehicle pre or post medical treatment.

15. Any situation in which driver impairment is suspected, a Florida Department of Motor Vehicles Emergency Medical Services Driver Impairment Investigation Medical Reporting Form is to be completed unless already reported by law enforcement.

16. EMS Providers, and individual clinicians participating in the Federal Government’s “Public Safety Officer’s Benefit Program” may draw a blood sample on the participating EMS/Fire provider. However, the provider must consent to the test. The blood sample should be taken using a “purple top” collection tube (in PEP Kit). The Federal Government will not process any claim as a result of heart attack/stroke/pulmonary disease without a carbon monoxide level test or other toxicology report.

**Level 2**

1. Repeat doses of Naloxone, 0.4 – 2 mg, via IV, ET, SQ, IN, IM or 1 mg IN in each nostril for patients with transient response to initial doses.

2. Medical Control will give instructions regarding antidotes specific to suspected toxins and drugs, if indicated by clinical circumstances.
   a. Some specific poisons and their antidotes are:
      i. **Narcotic** = Naloxone, airway maintenance
      ii. **Cocaine overdose** = Diazepam
      iii. **Calcium Channel Blockers** = Calcium, saline, Epinephrine, Glucagon
      iv. **Organophosphates** = Atropine
      v. **Carbon Monoxide** = High flow 02
      vi. **Benzodiazepine** = airway maintenance
      vii. **Tricyclic antidepressants** = Sodium bicarbonate, saline
      viii. **Beta-blockers** = saline, Epinephrine, Glucagon.

**Level 3** -- HAZMAT
Pediatrics:

Level 1

1. General Supportive Care *(Pediatric length based measurement device – refer to color for equipment sizes/medication dosages).* Consider early involvement of the HAZMAT Team if appropriate for a significant or unknown situation. Establish safe perimeter, personal protective gear PRN.

2. Special attention should be directed at airway protection with consideration given to placement in coma position and/or to early intubation.

3. Inhaled toxins should be treated with oxygen, 100% via a non-rebreather mask at a flow rate sufficient to prevent reservoir bag collapse, unless specifically contraindicated.

4. If cutaneous exposure remove patient from environment and decontaminate with copious amounts of water if substance is not water reactive.

5. All clothes should be removed and care should be taken not to contaminate rescuers.

6. If suspect narcotic involvement and the patient’s level of consciousness is diminished significantly enough so that spontaneous ventilations do not maintain a room air SpO2 of greater than 96%, titrate Naloxone, in 0.1 mg/kg doses IV, SQ, ET, IM, IO or 1 mg IN (max. IN single dose of 2 mg, 1 mg in each nostril) up to adult doses to achieve spontaneous ventilations with adequate oxygenation. May repeat every 3 to 5 min. as needed to maintain adequate ventilations. NOTE: Some patients initially receiving IN Naloxone may require IV medication if no response is observed within about 5 minutes. DO NOT administer Naloxone to patients who are already intubated unless the patient is hemodynamically unstable and known or suspected to be suffering from a narcotic overdose.

7. Confirm blood glucose level prior to administration of dextrose solutions. Obtain blood sample from finger stick, heel stick (age < 1 year old), earlobe stick or IV catheter:
   a. If age < 1 year and if hypoglycemic or borderline (< 40 mg/dl):
      i. D12.5W or D10W, 0.2 to 0.25 gm/kg IV per dose (volume dependent upon how the solution is mixed).
      ii. Reassess GCS and blood glucose after ten minutes (the repeat blood glucose sample is to be obtained in the opposite extremity from where D50 was administered IV).
      iii. If blood glucose remains < 40 mg/dl, repeat D12.5W or D10W, 0.2 to 0.25 gm/kg IV per dose.
   b. If age < 12 and > 1 year and if hypoglycemic or borderline (< 60 mg/dl):
      i. D25W, 4 ml/kg, not to exceed 25 gm, IV per dose.
      ii. Reassess GCS and blood glucose after ten minutes (the repeat blood glucose sample is to be obtained in the opposite extremity from where D50 was administered IV).
      iii. If blood glucose remains < 60 mg/dl, repeat D25W, 4 ml/kg, not to exceed 25 gm, IV per dose.
   c. If age > 12 and if hypoglycemic or borderline (< 80 mg/dl), treat the patient under the Adult procedures noted above.

8. Contact OLMC for information on the suspected poison(s) or drugs if needed. Consultation with the Poison Information Center (PIC) may be necessary from the field. This is best accomplished by calling the PIC directly, to provide specific patient information. If direct phone contact from the field is not available, the PIC may be accessed through the MCO.

9. Save any spontaneous emesis if possible.

10. Gather all medications, over-the-counter and/or prescription, or other possible toxins accessible to the patient and transport with the patient to the nearest appropriate emergency department.
11. Any older teen or emancipated minor refusing ambulance transportation to the hospital with an altered level of consciousness should be administered the EMS Cognitive Examination.
12. Law enforcement is to be summoned to the scene anytime a teen has driven a motor vehicle to the incident location and then insists on driving the vehicle pre or post medical treatment.
13. Any situation in which driver impairment is suspected, a Florida Department of Motor Vehicles Emergency Medical Services Driver Impairment Investigation Medical Reporting Form is to be completed unless already reported by law enforcement.

Level 2

1. If persistently hypoglycemic, repeat doses of Dextrose, D50W, D25W, D12.5W or D10W according to age.
2. If IV access unavailable, 0.5 mg Glucagon IM or SQ for pts. weighing less than 25 kg or < 6 years old. Over 25 kg or >6 years old, 1 mg Glucagon IM or SQ.
3. If hypoglycemic and unable to obtain IV consider IO access.
4. Repeat doses of Naloxone, 0.1 mg/kg via IV, ET, SQ, IM, IO or 1 mg IN in each nostril, up to adult doses, for patients with transient response to initial doses.
5. Medical Control will give instructions regarding antidotes specific to suspected toxins.

Level 3 – HAZMAT

Reference:


Reference Protocols:

- General Supportive Care (Medical)
- Mucosal Atomization Device (MAD) Utilization
- Atropine
- Epinephrine
- Calcium Chloride
- Sodium Bicarbonate 8.4%
- Glucagon
- Diazepam
- Dextrose
- Naloxone
- 0.9% Sodium Chloride
- EMS Cognitive Examination
- State of Florida Dept. of Highway Safety and Motor Vehicles (DMV) EMS Driver Impairment Investigation Medical Screening Form
5.26 Pain Management

Purpose:

Numerous research studies have found that most patients in both the prehospital and hospital environments are undertreated for their pain. Other studies have shown that previous beliefs about analgesia negatively affecting the physician’s ability to perform an adequate physical examination are inaccurate, and that analgesia can actually facilitate better examinations. However, these findings are not universally accepted. Thus, the purpose of this protocol is to provide guidance for providing somewhat conservative analgesia that best serves the interests of the patient and subsequent medical caregivers. The goal is to make the patient as comfortable as possible without diminishing mental status beyond the level of rousable to verbal stimulus. (Note: Be alert for signs of pain in patients with known injury who are not alert and oriented. Examples include patients with chronically altered mental status or multiple trauma patients with head injuries. These patients should also be treated, with the goal of diminishing pain without further altering their mental status.) The Numeric Pain Intensity Scale is an important tool for monitoring initial discomfort levels and response to therapy. Research has shown that healthcare providers perform poorly in assessing pain status by observation of the patient, so the patient’s statements are to be given priority in assessing pain. The patient’s response to the numeric pain intensity scale is to be documented as a relevant vital sign along with serial Glasgow Coma Scores (GCS). Utilize the FACES pain score outlined in the pediatric section of the protocol, for pediatric patients unable to give a 1 – 10 rating. Level 1 interventions are intended to facilitate humane treatment. Level 2 interventions serve to contribute additional therapy and ensure appropriate monitoring for associated complications.

Description:

Adult Care:

Level 1

1. General Supportive Care and/or Trauma and Hypovolemic Supportive Care.
2. Assess the patient for potential need to provide informed consent, refusal for transport, assessment and/or treatment decisions; the legality of obtaining such decisions after the administration of narcotic medications can be considered questionable. Therefore, any such decisions should be identified and made early, with OLMC contact as required per other protocols. Any decisions made following narcotic administration must be considered high risk decisions requiring consult with OLMC.
3. Evaluate and request the patient’s pain intensity score using the “10” scale, (“10” = extreme, “0” = pain-free) If the patient is unable to render a numerical score, it is permissible to attempt the FACES pediatric pain scale score outlined in the pediatric section of this protocol. (Keep in mind that not all patients interpret their discomfort in terms of “pain”, so “discomfort” or other descriptors may be used as well.) Document the pre-treatment pain severity score on the PCR. If the patient is unable to give an intensity score, document whatever quantity or severity descriptor is available.
4. For musculoskeletal system pain, flank pain with known history of kidney stones (same type of pain) and other non-abdominal types of pain, excluding chest pain of suspected cardiac etiology, administer one of the following:
• Fentanyl (At no time shall a total IV dose of greater than 1 mcg/kg be given under Level 1; maximum total intranasal Level 1 dose is 200 mcg.):
  o Fentanyl, 1 mcg/kg IV, up to 200 mcg, over at least 30 to 60 seconds.
    OR
  o In hypotensive or frail elderly patients, administer 0.5 mcg/kg IV, up to 100 mcg, over at least 30 to 60 seconds. If tolerated well, this dose may be repeated once under Level 1.
    OR
  o Fentanyl, 1.5 mcg/kg intranasally (IN) up to 100 mcg per dose with a maximum of 1 cc of medication in each nostril (no dose adjustment necessary for the elderly). Onset of action may be up to 10 to 15 minutes. If tolerated well, this dose may be repeated once under Level 1 at a minimum of 10 minutes after the initial dose.

• Morphine, 2 to 4 mg IV initial dose over at least 30 to 60 seconds. If vital signs remain stable, titrate in further 2 mg IV doses (each over at least 30 to 60 seconds) every 3 to 5 minutes up to a total of 8 mg over not less than 10 minutes. Use smaller doses in the elderly and use with extreme caution in hypotensive patients.
• If IV and IN routes not available, consult OLMC for Level 2 orders.

5. For abdominal pain not related to known kidney stones, consult OLMC for Level 2 orders.
6. If needed, address adverse effects of narcotic administration as follows:
   • For muscle rigidity compromising the ability to ventilate, administer Naloxone 0.4 – 0.8 mg IV, IO, ET, IM, or SQ and consult OLMC for level 2 orders.
   • For nonintubated patients with drug induced respiratory suppression, titrate Naloxone in 0.4 mg increments IV, IM, SQ or 1 mg IN in each nostril to the point of restoring spontaneous ventilations.

7. Document post treatment pain intensity score, GCS and vital signs on the PCR after each dose.
8. If pain continues to be refractory, consult OLMC for Level 2 orders.
9. OLMC consult is mandatory for Level 1 interventions only if there are adverse effects of drug administration, including sedation beyond arousable to verbal stimulus or depression beyond level of initial level of consciousness in those patients who were not alert and oriented originally, hypotension, respiratory depression, development of muscle rigidity or allergic reaction.
10. Immediately prior to transfer of the patient to the ED or other medical facility staff, document a final pain intensity score on the PCR and the Controlled Substance card. Report to the receiving facility staff the total dose of medication used, route of administration, pre and post treatment pain intensity scores, GCS and any adverse affects.

Level 2

1. Fentanyl, additional 1 – 2 mcg/kg increments IV or 100 mcg/dose IN to a maximum total specified by OLMC and dependent upon maintenance of vital signs, airway and level of consciousness.
2. Morphine, 2 – 4 mg IV additional increments to a maximum total specified by OLMC and dependent upon maintenance of vital signs, airway and level of consciousness.
3. Additional doses of Naloxone up to 0.4 – 2 mg doses IV, ET, SQ or IM for muscle rigidity related to Fentanyl administration. Consider diversion to the closest facility or rendezvous with CCT or air medical transport for paralytic use if muscle rigidity does not respond to Naloxone administration and ventilations remain compromised.
4. Diazepam, 2.5 mg increments IV for adjunctive therapy, usually in patients with
musculoskeletal pain, or for assistance with overcoming muscle rigidity related to Fentanyl
administration.
5. Immediately prior to transfer of the patient to the ED or other medical facility staff, document
a final pain intensity score on the PCR and the Controlled Substance card. Report to the
receiving facility staff, the dose of medication used, route of administration, pre and post
treatment pain intensity scores, GCS and any adverse affects.

**Level 3 – None**

**Pediatric Care:**

**Level 1**

1. General Supportive Care or Trauma and Hypovolemic Supportive Care. *(Pediatric based
measurement device – refer to color for appropriate equipment sizes/medication
dosages).*
2. Although most pediatric patients will not be in a position to make legal decisions for
themselves, assess the patient for the potential need to provide informed consent or refusal
for transport, assessment and/or treatment decisions; the legality of obtaining such decisions
after the administration of narcotic medications can be questionable. Therefore, any such
decisions should be identified and made early with OLMC contact for consent to treat if a
 guardian cannot be reached. Transport/refusal decisions for pediatric patients already
medicated must be carried out via OLMC as High Risk decisions.
3. Evaluate and request the patient’s pain intensity score using the “10” scale (“10” = extreme,
“0” = pain-free) or the numerical equivalent score from the FACES pediatric pain scale.
(Keep in mind that not all patients interpret their discomfort in terms of “pain”, so “hurt” or
other descriptors may be used as well). If possible, **document the pre-treatment** pain
intensity score on the PCR and Controlled Substance card. Also record pre-treatment GCS
on the PCR. If the patient is unable to give an intensity score, document whatever quantity or
severity descriptor is possible. (Pain may be reflected as restlessness, crying, tachypnea,
tachycardia or inconsolability in the preverbal child.)

See Page 4 of 6 for the
Faces Pediatric Pain Scale
Wong-Baker FACES Pain Rating Scale

**Brief instructions:** Point to each face using the words to describe the pain intensity. Ask the child to choose face that best describes own pain and record the appropriate number.

4. For musculoskeletal system pain, flank pain with known history of kidney stones (same type of pain) and other non-abdominal types of pain, **excluding chest pain of suspected cardiac etiology**, administer one of the following:

- **Fentanyl** *(At no time shall a total dose of greater than 1 mcg/kg be given under Level 1; maximum total intranasal Level 1 dose is 200 mcg.):*
  - Fentanyl, 1 mcg/kg IV, up to 200 mcg, over at least 30 to 60 seconds.
  - OR
  - In hypotensive patients, administer 0.5 mcg/kg IV, up to 100 mcg, over at least 30 to 60 seconds. If tolerated well, this dose may be repeated once under Level 1.
  - OR
  - Fentanyl, 1.5 mcg/kg intranasally (IN) up to 100 mcg per dose with a maximum of 1 cc of fluid in each nostril. Onset of action may be up to 10 – 15 minutes. If tolerated well, this dose may be repeated once under Level 1 at a minimum of 10 minutes after the initial dose.

- **Morphine**, 0.1 mg/kg, with a maximum single dose of 2 mg, IV or IO as an initial dose over at least 30 to 60 seconds. If vital signs remain stable, titrate in 0.5 – 2 mg doses (each over at least 30 to 60 seconds) **up to a total of 8.0 mg over not less than 10 minutes**. Use with extreme caution in hypotensive patients.

- If IV, IO and IN routes are not available, consult OLMC for Level 2 orders.

5. For abdominal pain not related to known kidney stones, consult OLMC for Level 2 orders.

6. If needed, address adverse effects of narcotic administration as follows:

- For muscle rigidity compromising the ability to ventilate, administer Naloxone, 0.1 – 0.2 mg/kg up to adult doses IV, ET, IM, IO or SQ and consult OLMC for Level 2 orders.
- For nonintubated patients with drug induced respiratory suppression, titrate Naloxone in 0.1 mg/kg increments up to adult doses IV, IM, IO, SQ or 1 mg IN in each nostril to the point of restoring adequate spontaneous ventilations.

7. Document post treatment pain intensity score, GCS and vital signs on the PCR after each dose.

8. If pain continues to be refractory, consult OLMC for Level 2 orders.

9. **If a consult for Level 2 orders is not required by completion of the transport, contact with OLMC is necessary to report narcotic usage, including the total dose of medication used, route(s) of administration, pre and post treatment pain intensity scores, GCS and any adverse affects.**

10. Immediately prior to transfer of the patient to the ED or other medical facility staff, document a final pain intensity score on the PCR and the Controlled Substance card. Report to the receiving facility staff the total dose of medication used, route of administration, pre and post treatment pain intensity scores, GCS and any adverse affects.

**Level 2**

1. Fentanyl, additional 1 – 2 mcg/kg increments IV or up to 100 mcg/dose IN to a maximum total specified by OLMC and dependent upon maintenance of vital signs, airway and level of consciousness.

2. Morphine, additional 0.5 – 2 mg increments IV or IO to a maximum specified by OLMC and dependent upon maintenance of vital signs, airway and level of consciousness.
3. Additional doses of Naloxone 0.1 mg/kg up to adult doses IV, IO, ET, SQ or IM for muscle rigidity related to Fentanyl administration. Consider diversion to the closest facility or rendezvous with CCT or air medical transport for paralytic use if muscle rigidity does not respond to Naloxone administration and ventilations remain compromised.

4. Diazepam, 0.1 – 0.2 mg/kg increments (up to 5 mg maximum single dose) IV for adjunctive therapy, usually in patients with musculoskeletal pain, or for assistance with overcoming muscle rigidity related to Fentanyl administration.

5. Immediately prior to transfer of the patient to the ED or other medical facility staff, document a final pain intensity score on the PCR and the Controlled Substance card. Report to the receiving facility staff, the dose of medication used, route of administration, pre and post treatment pain intensity scores, GCS and any adverse affects.

**Level 3 – None**

**Reference:**

- Jacobs, I; Oxer, H; and Ford, D; “A Pilot Study of Prehospital Intranasal Fentanyl”, abstract published in Prehospital Emergency Care, 2002 Jan – Mar.; 6(7); 157-158.

**Reference Protocols:**

- General Supportive Care (Medical)
- Trauma and Hypovolemic Supportive Care
- Mucosal Atomization Device (MAD) Utilization
- Promethazine Hydrochloride
- Morphine Sulfate
- Fentanyl
- Diazepam
- Naloxone
5.27 Obstetrical Emergencies

Purpose:

The purpose of this protocol is to describe authorized procedures for treating a pregnant patient, and to describe the authorized interventions in the immediate peripartum period.

Description:

Adult Care:

Level 1

1. General Supportive Care
2. Preferred transport position to avoid pressure on the inferior vena cava, for the patient with advanced pregnancy is the Left Lateral Recumbent position on a stretcher (or spine board if needed). The Right Lateral Recumbent position is acceptable if the Left is not feasible. AVOID THE SUPINE POSITION DUE TO DECREASED UTERINE BLOOD FLOW LEADING TO FETAL AND MATERNAL DISTRESS, AND AVOID SEMI-FOWLER'S POSITION DUE TO PREMATURE DILATION OF CERVIX AND PREMATURE RUPTURE OF MEMBRANES.
3. Begin transport and establish On-line Medical Control contact early in patient management. The Medical Communications Officer (MCO) may assist OLMC and the field units in determining the most appropriate hospital with OB/GYN resources available. The field crews may be advised to bypass Emergency Department evaluation with a recommendation to go “directly” to the hospital’s OB Unit.
4. Transport to closest “appropriate” hospital if crowning is present. CONSIDER CCT TRANSPORT IF NECESSARY AND IF LOGISTICALLY FEASIBLE.
5. If a prolapsed umbilical cord is noted:
   a. Elevate the hips as much as possible. The Trendelenburg or knee-chest position may relieve pressure on the cord.
   b. Have the mother “pant” with each contraction to prevent bearing down.
   c. If assistance is available, apply moist sterile dressings to the exposed cord to minimize temperature changes that may cause umbilical artery spasm.
   d. With a gloved hand, elevate the presenting part to relieve pressure on the cord. The cord may spontaneously retract, but DO NOT attempt to reposition the cord.
   e. Maintain this hand position and expedite transport.
7. If the presenting part of the infant is not the head (breech presentation):
   a. Place the patient in the knee-chest position
   b. Expedite transport to the closest appropriate hospital.
8. If the infant presents at the perineum with the umbilical cord wrapped around its neck:
   a. Try to slip the cord gently over the baby’s head.
   b. If unable to do so, place two clamps about 2 inches apart on the cord and cut between them.

Level 2

1. Other manipulations or medications must be performed under the guidance of OLMC.
Pediatric Care:

Level 1

1. A pregnant minor who is about to give birth is to be treated medically as an adult.

Level 2

1. Manipulations of child must be performed under the guidance of OLMC

References:


Reference Protocols:

- General Supportive Care (Medical)
- Neonatal Resuscitation and Supportive Care
5.28 Seizures

- General Supportive Care
- Consider Etiology (i.e. epilepsy, heat injury, trauma, OD, etc.)

**Pt. actively seizing**

- Adult – Diazepam up to 5.0 mg slow IV/IO push (No IV access 5 mg rectally)
- Pediatric – 0.2 mg/kg (max single dose 5 mg) slow IV push (no IV access 5 mg rectally)

**YES**

- Pt. still actively seizing after 2 – 3 mins.

- Adult – Diazepam 2.5 mg increments, IV/IO/PR up till a total dose of 10 mg has been given
- Pediatric – Diazepam 0.2 mg/kg increments IV/IO/PR up till a total dose of 10 mg has been given.

**YES**

- Pt. still actively seizing after 2 – 3 mins.

**Level 2**
- Adult – Diazepam 2.5 mg – 5 mg increments IV/IO/PR
- Pediatric – Diazepam 0.2 mg/kg increments (up to 5 mg per dose) IV/IO/PR

**NO**

Consider etiology
Reassess pt.
PEARLS

- The EMS Cognitive Exam should be administered to any patient refusing ambulance transport to the hospital with an altered level of consciousness.
- Law Enforcement is to be summoned to the scene anytime a patient has driven a motor vehicle and insists on driving the vehicle pre or post medical treatment.
- Consult OLMC for any patient(s) refusing additional treatment or transportation to the hospital.
- A State of Florida Department of Highway Safety and Motor Vehicles Driver Impairment Investigation Medical Reporting form is to be completed and filed for any patient is impaired and driving a motor vehicle.
- If seizure activity is associated with neurological deficits, consider the possibility of Todd’s paralysis. Assess the patient history carefully.

Reference Protocols:

- General Supportive Care (Medical) – Protocol 5.1
- Diazepam – Protocol 9.24
- EMS Cognitive Examination – Protocol 10.5
- State of Florida Dept. of Highway Safety and Motor Vehicles (DMV) EMS Driver Impairment Investigation Medical Screening Form – Protocol 10.13
5.29 Airway Obstruction

The purpose of this protocol is to describe authorized interventions in cases where there is obstruction to the airway due to intrinsic or extrinsic causes.

**Adult Care:**

**Level 1**

1. General Supportive Care
2. Rule out cardiac etiology (similar pressure/pain).
3. If air exchange is adequate:
   a. Monitor the patient closely, but do not provide specific treatment.
4. If air exchange is inadequate and there is a reasonable suspicion of foreign body obstruction:
   a. Apply abdominal thrusts until obstruction is cleared.
   b. Visualize with laryngoscope and extract foreign body with Magill forceps.

**Level 2**

1. Consider use of sips of water.
2. If bolus not cleared and drooling is present, consider the use of Glucagon (contraindication - hypertension related to pheochromocytoma):
   - Glucagon, 0.5 mg (0.5 units) IV. This acts in one minute and lasts about 10 minutes.
   - OR
   - Glucagon 1 mg (1 unit) IM or SQ. This acts in ten minutes and lasts about 30 minutes.
     Higher doses may induce vomiting.
3. If edema, obstruction or uncontrollable bleeding cause life threatening ventilatory impairment, despite previous efforts of other procedures, contact OLMC, time permitting, otherwise proceed with cricothyrotomy airway access with post report to MCO and OLMC.

**Pediatric Care:**

**Level 1**

1. General Supportive Care *(Pediatric length based measurement device – refer to color for appropriate equipment sizes/medication dosages)*
2. If air exchange is adequate:
   a. Monitor the patient closely, but do not provide specific treatment.
3. If air exchange is inadequate and there is a reasonable suspicion of foreign body obstruction:
   a. Apply abdominal thrusts until obstruction is cleared.
   b. Visualize with laryngoscope and extract foreign body with Magill forceps.
   c. If the infant is less than 1 year of age:
      i. chest thrusts
      ii. back blows with the body held in a downward tilt, using gravity to assist in removal of the obstruction
      iii. Laryngoscopic visualization with Magill forceps extraction may also be used.

**Level 2** - None

**Level 3** – None
Reference Protocols:

- General Supportive Care (Medical)
- Cricothyrotomy Airway Access
- Glucagon
5.30 Heat Emergencies

The purpose of this protocol is to describe authorized interventions for the treatment of heat exhaustion, heat cramps and heat stroke.

Adult and Pediatric Care:

Level 1

1. General Supportive Care  *(Pediatric length based measurement device – refer to color for appropriate equipment sizes/medication dosages)* (care directed at IV hydration in heat exhaustion and heat cramps ONLY)
2. Move patient to an area away from heat. Cool the patient.
3. If heat stroke (eg: DRY SKIN, ALTERED SENSORIUM), apply insulated ice packs: Axilla, behind knees, groin, etc. **DO NOT let cooling in the field delay rapid transport, especially with heat stroke.**
4. If seizures occur, refer to Protocol 5.31 Seizures

Level 2 – None

Level 3 -- None

Reference Protocols:

- General Supportive Care (Medical)
- Seizures
5.31 Stroke and Transient Ischemic Attack (TIA)

**History:** Effective: 07/01/05, 08/01/04, 06/01/99; Revised: 10/01/06, 10/01/05, 04/01/05, 11/02/04, 04/19/04, 11/21/02, 11/01/01; MCB Approved: 04/27/05

**Purpose:**

The purpose of this protocol is to describe the required elements of evaluation and interventions for patients thought to be experiencing a stroke or a TIA. Early and precise communication of complaints and physical findings can have an important influence on patient transport destination; it is also a key factor in assuring that eligible patients receive fibrinolytics or other appropriate interventions expeditiously. Not all patients with neurological findings will qualify for “Brain Attack Alert” status and/or triage to facilities with the most comprehensive services available.

**Description:**

**Adult Care:**

**Level 1**

1. Utilizing the Brain Attack Alert Form, quickly evaluate the patient via the FAST-G format (Cincinnati Prehospital Stroke Scale plus blood glucose), simultaneously completing the additional information on the form.
   a. FACE (facial droop on either side)
   b. ARM (arm drift on either side)
   c. SPEECH (unable to clearly repeat “You can’t teach an old dog new tricks” but NOT due to only altered mental status)
   d. TIME (time last seen or known normal for that patient)
   e. GLUCOSE if known diabetic (may be deferred until later if no suspected reason for hypoglycemia, but still a priority)

2. Implement critical elements of General Supportive Care as indicated by patient severity, but give priority to initial evaluation and destination decision over non-critical interventions (i.e., IV insertion)
   a. Administer sufficient oxygen to maintain an SpO2 of 95%. (No benefit to maintaining a higher SpO2)
   b. Keep head straight and elevate head of stretcher to 30 degrees or maintain in left lateral decubitus if vomiting
   c. Maintain systolic BP at 90 mmHg or greater. DO NOT treat hypertension unless authorized by OLMC.
   d. Cardiac monitor with rhythm strip.

3. Treatment criteria for stroke-like symptoms with hypoglycemia:
   a. If blood glucose level is < 80 mg/dl and the patient takes oral hypoglycemics or insulin or has another suspected reason to be hypoglycemic, treat per Protocol 5.27 Diabetic Emergencies. Reevaluate neurological findings and blood glucose afterwards.
   b. If the patient has no suspected reason to be hypoglycemic, treat per Protocol 5.27 Diabetic Emergencies, ONLY IF BLOOD GLUCOSE IS < 50 mg/dl. Reevaluate neurological findings and blood glucose afterwards.

4. If any of the above neurological deficits are still present and known or suspected to be new in origin, use the following criteria to determine transport destination:
a. If signs and symptoms of possible hemorrhagic stroke, declare a BRAIN ATTACK ALERT to Central Dispatch and CONTACT OLMC for destination decision. There is no last time known normal limit for declaring Brain Attack Alert status for these patients. If in doubt regarding the possibility of hemorrhagic stroke, consult OLMC prior to declaring the Alert.
b. Transport to the CLOSEST facility or patient’s FACILITY OF CHOICE if any of the following criteria are met:
   i. Last time seen or known normal for that patient is > 4 hours
   ii. Signs or symptoms totally resolved prior to (not during) transport
   iii. Prehospital DNR order (unless otherwise requested by patient or cleared by OLMC)
   iv. Unstable vital signs not rapidly corrected by EMS (to CLOSEST facility).
c. For all other patients
   i. Declare a BRAIN ATTACK ALERT to Central Dispatch
   ii. Minimize on-scene time
   iii. Transport to the CLOSEST designated STROKE CENTER (whether comprehensive or primary).
   iv. Notify the receiving facility as soon as possible.
   v. CONTACT MEDICAL CONTROL IF THE PATIENT DOES NOT WISH TRANSPORT TO THE CLOSEST STROKE CENTER.

5. Perform the Miami Emergency Neurologic Deficit (MEND) examination enroute. (FAST elements are repeated as part.)
a. MENTAL STATUS
   i. Level of consciousness (AVPU)
   ii. Speech (Repeat same phrase as above)
   iii. State age and month
   iv. Response to simple commands (such as open and close eyes)
b. CRANIAL NERVES
   i. Facial droop
   ii. Visual fields in four quadrants
   iii. Horizontal gaze
c. LIMBS
   i. Arm drift both sides
   ii. Leg lift both sides
   iii. Sensory upper and lower, both sides
   iv. Coordination (finger to nose and heel to shin both sides)

6. Assess and document which stroke syndrome (left hemisphere, right hemisphere, brainstem, cerebellar or possible hemorrhagic) is present and include in patient care transfer report along with Brain Attack Alert form and other pertinent information.

Level 2

1. Contact OLMC if, for any reason, the resources of a Comprehensive Stroke Facility are being requested by the treating clinician(s) or if there is any question as to most appropriate destination facility.

Level 3 -- None
Pediatric Care:

Level 1

1. Utilizing the Brain Attack Alert Form, quickly evaluate the patient via the FAST-G format (Cincinnati Prehospital Stroke Scale plus blood glucose), simultaneously completing the additional information on the form.
   a. FACE (facial droop on either side)
   b. ARM (arm drift on either side)
   c. SPEECH (unable to clearly repeat “You can't teach an old dog new tricks” but NOT due to only altered mental status)
   d. TIME (time last seen or known normal for that patient)
   e. GLUCOSE if known diabetic (may be deferred until later if no suspected reason for hypoglycemia, but still a priority)

2. Implement critical elements of General Supportive Care as indicated by patient severity, but give priority to initial evaluation and destination decision over noncritical interventions (i.e., IV insertion)
   a. Administer sufficient oxygen to maintain an SpO$_2$ of 95%. (No benefit to maintaining a higher SpO$_2$)
   b. Keep head straight and elevate head of stretcher to 30 degrees or maintain in left lateral decubitus if vomiting
   c. Maintain systolic BP at normal for age. DO NOT treat hypertension unless authorized by OLMC
   d. Cardiac monitoring with rhythm strip.

3. Treatment criteria for stroke-like symptoms with hypoglycemia:
   a. If the patient takes oral hypoglycemics or insulin or has another suspected reason to be hypoglycemic, define and treat hypoglycemia per Protocol 5.27 Diabetic Emergencies. Reevaluate neurological findings and blood glucose afterwards.
   b. If the patient has no suspected reason to be hypoglycemic, treat per Protocol 5.27 ONLY IF BLOOD GLUCOSE IS < 50 mg/dl (40 mg/dl for neonates). Reevaluate neurological findings and blood glucose afterwards.

4. If seizure activity is associated with neurological deficits, consider possibility of Todd’s paralysis. Assess patient history carefully.

5. If any of the above neurological deficits are still present and known or suspected to be new in origin, declare a BRAIN ATTACK ALERT to Central Dispatch and TRANSPORT THE PATIENT TO ALL CHILDREN’S HOSPITAL unless another facility is advised with OLMC contact. Notify the receiving facility as soon as possible. Note that time last known normal limits for Brain Attack Alert do not apply to pediatric patients as long as deficits are not known to be chronic.

6. Perform the MEND examination enroute. (FAST elements are repeated as part.)
   a. MENTAL STATUS
      i. Level of consciousness (AVPU)
      ii. Speech (Repeat same phrase as above)
      iii. State age and month
      iv. Response to simple commands (such as open and close eyes)
   b. CRANIAL NERVES
      i. Facial droop
      ii. Visual fields in four quadrants
      iii. Horizontal gaze
   c. LIMBS
      i. Arm drift both sides
ii. Leg lift both sides
iii. Sensory upper and lower, both sides
iv. Coordination (finger to nose and heel to shin both sides)

7. Asses and document which stroke syndrome (left hemisphere, right hemisphere, brainstem, cerebellar or possible hemorrhagic) is present and include in patient care transfer report along with Brain Attack Alert form and other pertinent information.

Level 2 -- None

Level 3 – None

References:

- American Heart Association 2000 Handbook of Emergency Cardiovascular Care for Healthcare Providers, Revised 4/01, Page 104
- David Gordon, MD, Director, Medical Training and Simulation Lab, University of Miami
- West Central Florida Acute Stroke Advisory Committee

Reference Protocols:

- General Supportive Care (Medical) – Protocol 5.1
- Diabetic Emergencies – Protocol 5.27
# Pinellas County EMS Brain Attack Form

**Revision 07/01/2005**

## Patient Information
- **Last Name:** [ ]
- **First Name:** [ ]
- **Age:** [ ]
- **Sex:** [Male], [Female]
- **Address:** [ ]
- **Home Phone:** [ ]
- **Mobile Phone:** [ ]
- **Witness Name:** [ ]
- **Witness Phone Number:** [ ]
- **Witness/Relative:** [ ]
- **Witness/Relative Address:** [ ]
- **Witness/Relative Phone:** [ ]

## Medical History
- **Past Medical History:** [ ]
- **Diabetes:** [ ]
- **Seizures:** [ ]
- **Current Pregnancy:** [ ]
- **Sickle Cell Disease:** [ ]
- **Non-Traumatic Cerebral Bleed:** [ ]
- **Stroke or TIA:** [ ]
- **DNR:** [ ]

## Present Illness
- **History of Present Illness:** [ ]
- **Ecstasy:** [ ]
- **Cocaine:** [ ]
- **Addiction:** [ ]
- **General Weakness:** [ ]
- **Exertion:** [ ]
- **Vision Changes:** [ ]
- **Dizziness:** [ ]
- **Headache:** [ ]
- **Nausea:** [ ]
- **Vomiting:** [ ]
- **Syncope:** [ ]
- **Ataxia:** [ ]
- **Seizures:** [ ]
- **Other:** [ ]

## Vital Signs
- **Blood Pressure:** [ ]
- **HR:** [ ]
- **Resp:** [ ]
- **ECG Rhythm:** [ ]
- **SpO2:** [ ]
- **Room Air or Ox?** [ ]

## FAST-G Exam
- **Facial Droop:** [Yes], [No]
- **Arm Drift:** [Yes], [No]
- **Speech Abnormal:** [Yes], [No]
- **Time Last Seen or Known Normal:** [ ]

## Fibrinolytic Screening
- **Head Trauma at Onset:** [ ]
- **Seizure at Onset:** [ ]
- **Previous Hemorrhagic Stroke:** [ ]
- **Signs of Cerebral Bleed:** [ ]
- **Neck Pain/Stiffness, Nausea, or Vomiting:** [ ]

## Early Notification Reminder
- **Notify 9-1-1 Dispatch and the Hospital:** [ ]

## MEND Exam
- **Level of Consciousness:** [Alert], [Unrespongse]
- **Speech Evaluation:** [ ]
- **Follows Commands:** [ ]
- **Abnormal Visual Field:** [ ]
- **Abnormal Horizontical Gaze:** [ ]

## Suspected Stroke Syndrome
- **Right Hemisphere:** [ ]
- **Left Hemisphere:** [ ]
- **Cerebellar:** [ ]
- **Brainstem:** [ ]
- **Hemorrhagic:** [ ]

## Destination Notes
- **Face:** [ ]
- **Right Arm:** [ ]
- **Left Arm:** [ ]
- **Right Leg:** [ ]
- **Left Leg:** [ ]

---

**Prepared By:** [ ]
**EMS ID:** [ ]
5.32 Hypertensive Urgency

Purpose:

The purpose of this protocol is to outline the management of patients whose systolic blood pressure is abnormally and dangerously elevated, and there are no findings of neurologic impairment. In the presence of focal neurologic findings, pre-hospital treatment of hypertension may be contraindicated because a rapid or precipitous drop in BP may compromise cerebral blood flow and create further CNS injury.

Description:

Adult Care:

Level 1

1. General Supportive Care
2. **Establish whether the patient has taken phosphodiesterase inhibitors (erectile dysfunction treatment) such as Sildenafil Citrate (Viagra), Vardenafil HCL (Levitra), or Tadalafil (Cialis) within the previous 48 hours.** Use of nitrates in patients who have consumed Sildenafil or Vardenafil within the previous 24 hours or Tadalafil within the previous 48 hours may cause precipitous drops in blood pressure. **Administration of nitrates for these patients is a Level 2 order.**
3. Give 0.4 to 0.8 mg Nitroglycerin sublingual if:
   a. Diastolic pressure > 130 mmHg or if systolic pressure > 220 mmHg without any accompanying symptoms.

Level 2

1. Nitroglycerin 0.4 to 0.8 mg for diastolic pressure > 120 mm Hg or systolic pressure over 200, if chest pain, shortness of breath or very minimal CVA neuro/motor signs or symptoms present.

Level 3 - None

Pediatric Care:

Level 1

1. General Supportive Care. **(Pediatric length based measurement device – refer to color for appropriate equipment sizes/medication dosages)**

Level 2 - None

Level 3 – None

Reference Protocols:

- General Supportive Care (Medical)
- Nitroglycerin
5.33 Renal Dialysis Patients in the Out-of-Hospital Setting

Purpose:

This SPECIAL protocol addresses issues in the out-of-hospital management of renal dialysis patients that may not have been covered in the standard paramedic curriculum and texts. It is not intended to be an exhaustive study, and consultation with OLMC should be obtained for clarification. *A dialysis patient in cardiac/respiratory arrest shall be transported to the nearest emergency department for resuscitation, then once stabilized can be transferred for definitive dialysis care, if appropriate. A severity Yellow dialysis patient in CHF or Pulmonary Edema may be taken to a hospital capable of acute dialysis at the discretion of OLMC (Level II) unless the additional distance is likely to cause patient deterioration. Check with the MCO for the most current dialysis capable hospitals.*

Description:

1. Assessment:
   a) The following additional points of history should be incorporated into the assessment of a patient with suspected or confirmed chronic renal failure.
      i. Has there been nocturnal urination, weakness, or constant nausea?
      ii. Does the patient urinate?
      iii. Length of time on dialysis.
      iv. Frequency of dialysis treatment sessions.
      v. Method of dialysis:
         a) hemodialysis (HD)
         b) continuous ambulatory peritoneal dialysis (CAPD).
      vi. Time since last dialysis treatment.
      vii. Have any dialysis treatment sessions been missed?
      viii. Where is the usual place that dialysis is performed?
      ix. What is the name of the patient’s nephrologist?
      x. Has there been any recent change in diet or amount of liquid ingested?
      xi. Have there been any changes in weight?
      xii. Is there any chest pain or shortness of breath?
      xiii. Has there been any fever?
   b) The following are physical findings frequently encountered when examining patients with chronic renal failure.
      i. Cardiovascular - pericardial rub, volume overload, hypertension.
      ii. Pulmonary - pulmonary edema.
      iii. Neurologic - altered mental status, seizures, hiccups, twitching, dementia.
      iv. Gastrointestinal - nausea, emesis.
      v. Dermatologic - yellowish tinge to skin, "uremic frost"
      vi. Musculoskeletal - joint pain, fractures, bone pain, vascular access site (an active site will have a palpable thrill and loud bruit heard through stethoscope).

2. Life-Threatening Complications:
a) Hyperkalemia: This will almost always be asymptomatic up until the patient experiences a life-threatening arrhythmia. A normal EKG does not rule out the presence of hyperkalemia, though characteristic changes consistent with hyperkalemia (wide bizarre complex or widened QRS, high peaked “T” wave, possible bradycardia) should be treated prior to laboratory confirmation. A renal dialysis patient in cardiac arrest should be considered to have hyperkalemia until proven otherwise. Hyperkalemia can be treated in the out-of-hospital setting with medications currently available in the system. Most of these are Level 2 interventions that are to be used after consultation with On-Line Medical Control.

**LEVEL I**

i. Normal Saline (0.9%) is IV fluid of choice.

**LEVEL II**

i. Sodium Bicarbonate - 1 mEq/kg slow IV push - onset in about 10 minutes; duration of action 1 to 2 hours; avoid in cases of volume overload; may precipitate seizures in patients with concomitant low serum calcium.

ii. Albuterol (PRN) - 10 to 20 mg via nebulizer - onset in about 30 minutes; duration of action 2 hours.

iii. Calcium chloride (10%) - 10 cc IV slow q 5 to 10 min. - onset 1 to 5 minutes; duration of action of about 1 hour; do not mix with bicarbonate; antagonizes the cardiac effects of hyperkalemia. To be used in cases of life-threatening hyperkalemia.

b) Pulmonary Edema: This is the most common emergent complaint of renal failure patients. Often the lung exam seems less impressive than the degree of symptoms would suggest. A renal failure patient in pulmonary edema needs to have immediate hemodialysis performed. Transport decisions should take that into account. Other treatments, listed below, are temporary measures. These are all Level 2 interventions that are to be used after consultation with OLMC.

**LEVEL I** - None

**LEVEL II**

i. High flow oxygen and position of comfort.

ii. Nitroglycerin spray 0.4 to 0.8 mg q 5 min.

iii. Furosemide 80 - 100 mg slow IV push (rapid push has been associated with permanent deafness in renal failure patients). Effective even if patient is anuric because of the effect it has on the pulmonary venous bed.

iv. Morphine if patient may need intubation. Note: MAX Dose 4 mg.

3 Special Considerations:

a) Vascular access sites should be treated with care as they are truly the patient’s lifeline. Blood pressure readings and venipuncture should be performed on the opposite arm. A tourniquet should never be applied to an arm with an access site. Some patients will have a special subclavian catheter in place for dialysis (blue end is venous). Patients who perform CAPD will have a catheter in their abdomen. Both of these should be handled in an aseptic manner.
b) Shunts may be used if no other site is available. A BP cuff on IV bag may be necessary to maintain flow due to higher pressures. Consult OLMC on this.

c) Bleeding from a site should be controlled with gentle pressure for at least 10 minutes. Document the presence of a thrill before applying compression and upon transferring care to the receiving facility. Never apply a tourniquet to an access site.

d) Loss of the thrill in an access site is an emergency since the success rate in reestablishing flow is inversely related to the time since thrombosis occurred.

e) Hypotension is commonly seen after hemodialysis. It may respond to a small 250 cc bolus of saline. You should always consider the following pathologic processes in your differential diagnosis when assessing a hypotensive renal failure patient.
   i. Hypovolemic shock - post-hemodialysis, GI bleed
   ii. Septic shock - urinary tract, cellulitis, infected access site
   iii. Cardiogenic shock - myocardial infarction, silent pulmonary edema, air embolism, pericardial tamponade.
   iv. Anaphylactic shock - to dialysate used in hemodialysis
   v. Electrolyte instability - potassium, calcium

Reference Protocols:

- Furosemide
- Nitroglycerin
- Calcium Chloride
- Albuterol Sulfate
- Sodium Bicarbonate 8.4%
- Morphine Sulfate
- Normal Saline
5.34 Nausea and Vomiting

Active nausea or vomiting

ASSESSMENT
- Assess for underlying causes (see Pearls)
- History of recent head trauma, abdominal surgeries, liver dysfunction, Torsades?
- Currently pregnant?
- Meds and allergies important (see Pearls)
- 12 lead ECG if cardiac history and for all patients > 35 years old

TREATMENT
- General Supportive Care with cardiac monitor
- Treat underlying problems per appropriate protocol

LEVEL 2 ONLY
- **Adults and peds > 40 kg**: 4 mg Ondansetron slow IV push over 2 to 5 minutes
- **Peds > 1 month age and ≤ 40 kg**: 0.1 mg/kg (up to max of 4 mg) Ondansetron slow IV push over 2 to 5 minutes
- **Adults and peds > 40 kg**: 4 mg Ondansetron IM
- No IM dosing for smaller peds
- No repeat dosing
Clinical Pearls:

- Potential underlying causes include acute MI, dysrhythmias, head trauma, bowel obstruction, pregnancy, gastroenteritis, vertigo, kidney stone, diabetic ketoacidosis, overdose, other types of infectious processes, drug side effects.
- Meds that may cause prolonged QT segments include antiarrhythmics such as procainamide and quinidine, tricyclic antidepressants, major tranquilizers such as haldol and thorazine, promethazine, erythromycin, fluoroquinolone antibiotics such as cipro and floxin. Ondansetron is not contraindicated if these drugs are being taken, but patients should be closely monitored for the development of prolonged QT segments and Torsades.
- Other possible side effects include headache, fever, hiccups, blurred vision/sudden blindness (temporary), and dystonic reactions. Anaphylaxis has also been reported. Vision changes and some other side effects may be related to rapid drug administration, so follow administration guidelines carefully.
- Pregnant patients may receive ondansetron, but only if absolutely necessary (ie, to control nausea vomiting in a patient who requires spinal motion restriction).
- Ondansetron does not work well for motion sickness or true vertigo.
- Caution should be used with possible bowel obstruction, as ondansetron may mask symptoms.
- Onset of action when administered IV is approximately 5 minutes.
- Duration of action is 6 to 8 hours, but may be significantly prolonged for patients with liver dysfunction.

References:

- Warden, CR, “Prospective evaluation of ondansetron for undifferentiated nausea and vomiting in the prehospital setting”, Prehosp Emerg Care 01-Jan-2008; 12(1): 87 -91
5.35 Neonatal Resuscitation and Supportive Care

Description:

The most important and effective action in neonatal resuscitation is to ventilate the baby’s lungs with oxygen. The ABC’s of resuscitation are the same for newborns as for adults, with additional emphasis on maintaining body temperature and assuring adequate blood glucose levels.

I. Supportive Care:

A. When the baby is fully delivered, lay it along your arm and grasp it like a football, with one arm and shoulder between your fingers.

B. Keep the baby’s head down to aid drainage.

C. REMEMBER: Newborn babies are slippery! Use of a clean towel, drape or Chux-type pad may assist in keeping a secure grasp.

D. Wipe away any blood and mucus from the nose and mouth with a sterile gauze.

E. Utilize a bulb syringe to suction the mouth first then both nostrils. The mouth is suctioned before the nose to ensure there is nothing for the newborn to aspirate if he or she should gasp when the nose is suctioned.

F. The following questions must be answered within seconds of the newborn’s delivery:
   1. Is the newborn clear of meconium?
      a. If meconium is present in the amniotic fluid or on the baby’s skin and the baby is not vigorous, the baby has to be intubated and the trachea cleared of the meconium before performing other resuscitation steps. This determination has to be made in a few seconds.
   2. Is the newborn breathing or coughing?
      a. Breathing will be evident by watching the baby’s chest. A vigorous cry also indicates breathing. Don’t be misled by a baby who is gasping. Gasping is demonstrated by a series of deep single or stacked inspirations that occurs in the presence of hypoxia and/or ischemia. It is an indication of severe neurologic and respiratory depression.
   3. Does the newborn have good muscle tone?
      a. Healthy term babies should have flexed extremities and be active.
   4. Is the newborn pink in color?
      a. A baby’s skin color, changing from blue to pink in the first several seconds following delivery can provide the most rapid and visible indicator of adequate breathing and circulation. The baby’s skin color is best determined by looking at the central part of the body. “Acrocyanosis” to the hands and feet without central cyanosis does not generally indicate that the baby’s blood oxygen level is low. Only central cyanosis requires intervention.
   5. Is the newborn at or near term gestation?

G. You should continue to the initial steps of further evaluation and resuscitation if any answer is “NO”.

H. If all questions are answered “YES” provide the following routine care:
   1. 90% of newborns are vigorous term babies with no risk factors and clear amniotic fluid. They do not need to be separated from their mothers after birth in order to receive the initial steps of resuscitation.
   2. Thermoregulation can be provided by putting the baby directly on the mother’s chest, drying and covering with dry linen.
   3. Warmth is maintained by direct skin to skin contact with the mother.
4. Clearing of the upper airway can be provided as necessary by wiping the baby's nose and mouth.
5. Ongoing observation must be carried out to determine the need for additional intervention.

II. Resuscitation (usually performed away from the mother)
A. During the first 30 seconds:
1. Provide warmth
   a. During resuscitation, the baby should be placed on a bed of hot packs wrapped in a blanket, sheet or large trauma dressings. Hot packs should be changed out as necessary to ensure continued heat. **CAUTION: DO NOT apply hot packs directly to the newborn's skin as this could cause burns.**
   b. The baby should not be covered with blankets or towels until the initial exam is complete, then wrap in blankets or other materials provided.
   c. Premature babies are particularly vulnerable to heat stress, so particular attention should be paid to temperature maintenance throughout the course of patient care.
2. Position the baby’s head to open the airway
   a. The baby should be positioned on the back with the neck slightly extended in the "sniffing" position.
      i. Care should be taken to prevent hyperextension or flexion of the neck, causing airway restriction
      ii. The use of a rolled blanket or towel under the baby’s shoulders can help maintain the correct position.
3. Clear the airway
   a. If meconium was present in the amniotic fluid, the person delivering the baby should have suctioned the oropharynx and nares with a catheter or bulb syringe before delivering the shoulders.
   b. If meconium is present and the baby is not vigorous and has depressed respirations, depressed muscle tone and/or a heart rate less than 100, direct suctioning of the trachea before any respirations have occurred is indicated via the following method
      i. Administer free-flow O2 throughout the suctioning procedure.
      ii. Insert a laryngoscope and use a 12F or 14F suction catheter to clear the mouth and posterior pharynx so that you can visualize the glottis.
      iii. Insert an endotracheal tube into the trachea.
      iv. Attach the endotracheal tube to a suction source via the meconium aspirator.
      v. Apply suction as the tube is slowly withdrawn (DO NOT apply suction to the ET tube for longer than 3 – 5 seconds as the ET tube is withdrawn.)
      vi. If no meconium is recovered, don’t repeat the procedure; proceed with resuscitation.
      viii. If you recover meconium with the first suctioning, check the heart rate. If the baby has a heart rate > 60, reintubate and suction again. If the HR is less than 60, you may decide to administer positive pressure without repeating the procedure.
   c. If meconium is present and the baby is vigorous, with normal respiratory effort, normal muscle tone and a heart rate greater than 100, use a bulb syringe or large-bore suction catheter (12F or 14F) to clear secretions and any meconium from the mouth and nose.
i. When using suction from the wall or from a pump, the suction pressure should be set so that when the suction tubing is blocked, the negative pressure (vacuum) reads approximately 100 mmHg.

ii. When suctioning, particularly with a catheter, be careful not to suction vigorously or deeply. Stimulation of the posterior pharynx during the first few minutes after birth can produce a vagal response causing severe bradycardia or apnea.

iii. If bradycardia occurs during suctioning, stop suctioning and ventilate for 30 seconds and reevaluate the heart rate.

4. **Dry and stimulate the baby to breath** and reposition the baby’s head to open the airway.
   a. Drying will also provide stimulation. Drying the body and head will also help to prevent heat loss.
   b. While drying the baby, and thereafter, be sure to keep the head in the “sniffing” position to maintain a good airway.
   c. Overly vigorous stimulation is not helpful and can cause serious injury. **DO NOT SHAKE** the baby. Safe and appropriate methods of providing additional stimulation:
      i. Flicking the soles of the feet.
      ii. Gently rubbing the newborn’s trunk, back or extremities.
   d. Continued use of tactile stimulation in a newborn who is not breathing wastes valuable time. For persistent apnea, give positive-pressure ventilation.

5. **Give oxygen as necessary**.

6. Assess newborns **blood glucose level** by performing a heel stick.

B. **After initial 30 seconds, if the newborn is not breathing (apneic) or has a heart rate < 100**, you must assist the baby’s breathing by providing positive-pressure ventilation with a BVM and mask for about 30 seconds.
   1. The easiest and quickest method of determining the heart rate is to feel for a pulse at the base of the umbilical cord. However, sometimes the umbilical vessels are constricted so that the pulse is not palpable. If you cannot feel a pulse, you should listen for the heartbeat over the left side of the chest using a stethoscope.
   2. **BVM Ventilation**
      a. Although you should ventilate with the lowest pressure required to move the chest adequately, initial breaths may require pressures of more than 30 cm H2O. Subsequent breaths may require less. This is especially true for premature babies, who may also have ventilation volumes as small as 5 – 10 ml.
      b. **BVM ventilations should take place at a rate of 40 to 60 breaths/minute**

C. **After 30 seconds of ventilation**, reevaluate. If the heart rate is below 60, begin chest compressions and continue with bag ventilation at a rate of 90 compressions to 30 ventilations per minute.

D. **After 30 seconds of chest compressions**, reevaluate. If the heart rate is still below 60, administer **epinephrine 0.01 to 0.03mg/kg (0.1 to 0.3 ml/kg) of 1:10,000 IV, IO, ETT** and continue bag ventilations and chest compressions. **Repeat the epinephrine dose q 3-5 minutes** if heart rate stays below 60. (Atropine is contraindicated in newborns.)

E. **Continue chest compressions and epinephrine until heart rate rises above 60 BPM**.

F. **Continue positive pressure ventilations until heart rate rises above 100 BPM** and the patient is adequately spontaneously ventilating with supplemental oxygen.

G. Narcan use in the depressed newborn should be used with **extreme caution** and under **Level 2 orders only**.
III. Post Resuscitation Care
A. Any infant requiring resuscitation or who has perinatal risk factors such as meconium staining are at risk for development of further perinatal complications; therefore, close monitoring and reevaluation are extremely important. Infants experiencing positive pressure ventilations are at especially increased risk of barotraumas.
B. Temperature regulation is probably the most neglected aspect of neonatal post resuscitation care in the prehospital arena.

IV. Points to Remember
A. Two heart rates to remember:
   1. **60**: In general, if the heart rate is below 60, additional resuscitation is required.
   2. **100**: A heart rate of > 100 usually indicates that resuscitative procedures other than supplemental oxygen can be stopped.
B. The primary actions in neonatal resuscitation are aimed at getting O2 into the baby’s lungs. Once this has been accomplished, HR, BP and pulmonary blood flow will usually improve spontaneously. However, if blood and tissue oxygen levels have become extremely low, cardiac output may have to be assisted by chest compressions and epinephrine in order for blood to reach the lungs to pick up oxygen.

V. APGAR Score
A. The APGAR score is an objective method of quantifying the newborn’s condition; it is useful for conveying information about the newborn’s overall status and response to resuscitation but is **NOT** used to determine the need for resuscitation, what resuscitation steps are necessary or when to use them.
B. When needed, resuscitation must be initiated before formal APGAR score performance.
C. Otherwise, APGAR scores should be assigned at 1 and 5 minutes after birth.
D. When the 5 minute score is < 7, additional scores should be assigned every 5 minutes for up to 20 minutes.
E. All scores should be documented in the patient care record, along with detailed description of all resuscitation and evaluation procedures performed and their timing.

**APGAR SCORE FOR NEWBORNS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>0</th>
<th>+1</th>
<th>+2</th>
</tr>
</thead>
<tbody>
<tr>
<td>heart rate</td>
<td>absent</td>
<td>&lt; 100 per minute</td>
<td>=&gt; 100 per minute</td>
</tr>
<tr>
<td>Respirations</td>
<td>absent</td>
<td>slow, irregular</td>
<td>good, crying</td>
</tr>
<tr>
<td>muscle tone</td>
<td>limp</td>
<td>some flexion</td>
<td>active motion</td>
</tr>
<tr>
<td>reflex irritability</td>
<td>no response</td>
<td>Grimace</td>
<td>cough or sneeze</td>
</tr>
<tr>
<td>Color</td>
<td>blue or pale</td>
<td>pink body with blue extremities</td>
<td>completely pink</td>
</tr>
</tbody>
</table>

References:
- American Heart Association 2000 Handbook of Emergency Cardiovascular Care for Healthcare Providers Revised 4/01 Pages 80 – 82
5.36 Cyanide Poisoning – Smoke Inhalation

**Assessment/Initial Treatment**
- Soot in nose/ mouth/ oropharynx
- Evidence of Trauma/Burns
- Suspected Cyanide Poisoning (non-smoke inhalation) – **Level 2 – Consult required**
- General Supportive Care
- Collect blood sample with all blood tubes from one PEP kit (prior to the administration of any medications)

**Mild to Moderate**
- Faintness
- Anxiety
- Diaphoresis
- Headache
- Tachypnea
- Tachycardia
- Flushing
- Excitement
- Vertigo
- Drowsiness
- Dyspnea

**Moderate to Severe**
- Altered Mental Status
- Tremors
- Cardiac Arrhythmia
- Seizures
- Paralysis
- Respiratory Depression/Arrest
- Cardiac Arrest
- Hypotension

**Adult:** Hydroxocobalamin 5 g IV or IO over 15 mins. (see PEARLS for medication mixing and administration specifics.

**Pediatrics:** Hydroxocobalamin (70 mg/kg) up to adult dose (see chart below for dosing) IV or IO

<table>
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<tr>
<th>Broselow Color</th>
<th>PINK</th>
<th>RED/PURPLE</th>
<th>YELLOW/WHITE</th>
<th>BLUE</th>
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<tr>
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<td>Dose 70 mg/kg</td>
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<td>1750 mg</td>
<td>2500 mg</td>
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<td>28cc</td>
<td>42cc</td>
<td>56cc</td>
<td>70cc</td>
<td>100 cc (1 bottle)</td>
</tr>
</tbody>
</table>

Continue General Supportive Care w/high flow O2
If patient develops moderate to severe signs and symptoms, treat as outlined.
PEARLS:

- Scene safety is top priority
- Cyanokit contains hydroxocobalamin, a precursor to vitamin B-12, which binds to cyanide and neutralizes it so that it is no longer toxic and can be eliminated harmlessly from the body through urination.
- Cyanide poisoning should be suspected in any person exposed to smoke in a closed-space at the scene of a fire, regardless of whether burns have been sustained.
- Soot in the mouth and around the nose, combined with altered level of consciousness, also suggests a high probability of cyanide toxicity.
- Consult with Poison Control as needed 1-800-222-1222.
- Cyanokit administration:
  1. Determine the need for either one or two vials (ie., dose required).
  2. Per vial, reconstitute: Add 100 ml of 0.9% Sodium Chloride injection (Lactated Ringers or 5% Dextrose (D5W) have also been found to be compatible) to vial using transfer spike. Fill to line. Holding vial in upright position:
  3. Mix: Rock or rotate vial for 30 seconds to mix solution. **DO NOT SHAKE!!!!!!**
  4. Inspect mixed vial for particulate matter and color prior to administration. If the reconstituted solution is not dark red or if particulate matter is seen after the solution has been appropriately mixed, the solution should be discarded.
  5. Infusion: Use vented IV tubing to hang and infuse over 7.5 minutes (per vial).
  6. PEDS (calculated dose 70 mg/kg up to adult dose of 5 grams): After mixing, draw off the unneeded amount (see dose chart).
  7. Cyanokit is to be administered through a dedicated line. No other medications are to be administered through the same line.
- Parallel administration of ACLS medications and the Cyanokit should occur for patients in cardiac arrest. The Cyanokit is to be administered via a dedicated IV line.
- Adverse side effects include signs of allergic reaction/anaphylaxis, increased blood pressure, tachycardia, nausea/vomiting, headache and/or rash. Discontinue infusion if moderate or severe signs of allergic reaction are present.

References:

- [www.cyanokit.com](http://www.cyanokit.com)
- [www.dey.com](http://www.dey.com)
- [www.cyanidepoisoning.org](http://www.cyanidepoisoning.org)

Reference Protocols:

- General Supportive Care
- Burns
These protocols are designed to be a guideline for effective prehospital medical treatment of patients exposed to chemical agents. Whether naturally occurring, an industrial accident or a weapon of mass destruction, these protocols provide a straightforward guideline to the current state-of-the-art in field emergency medicine.
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<td>Sarin</td>
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<td>Acids</td>
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<td>Soman</td>
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<td>VX Gas</td>
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<td>Tabun</td>
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H.1 – Acids and Acid Mists, Alkaline Compounds, Ammonia (liquid or gas), Blister Agents (H, HD, HS), Chlorine (liquid or gas), Ethyl Isocyanate, Methylene Biphenyl Isocyanate, Methylene Dilsocyanate (MDI) or Lewisite, Phosgene Gas (CG).

History: Effective: 10/01/02; Revised; MCB Approved: 02/21/02; Original: 10/01/02

Purpose:

The purpose of this protocol is to describe the authorized interventions for exposure to the following:

**ACIDS & ACID MISTS**

Acids are colorless to yellow liquids with strong irritating odors. Acids act as direct irritants and corrosive agents to moist membranes and to intact skin to a lesser extent. See Protocol H-6 for Hydrofluoric Acid.

Note: Some acids may be FLAMMABLE.

**ALKALINE COMPOUNDS**

Most alkaline compounds are solids. Alkalis will impart a soapy texture to aqueous solutions. Alkalis act as direct irritants and corrosive agents to moist membranes and to intact skin to a lesser extent. The extent of tissue penetration and severity of injury is usually greater with alkalis than with acids.

**AMMONIA (LIQUID OR GAS)**

Ammonia is a colorless gas having an extremely pungent odor, which may be in an aqueous solution or gaseous state. It is a direct irritant and, in higher concentrations, an alkaline corrosive agent to moist mucous membranes and, to a lesser extent, to intact skin.

Liquefied compressed gas may produce a cryogenic (freezing) hazard as it is released.

Common household ammonia contains 5-10% ammonia. Chloramine gas can be liberated when household ammonia is mixed with a hypochlorite solution (bleach), which may injury the airway.

**CHLORINE GAS AND PHOSGENE (CG)**

Chlorine can be found in the form of a colorless to amber-colored liquid. Aqueous chlorine is usually in the form of hypochlorite bleach in variable concentrations. Liquid hypochlorite solutions are very unstable and react with acids to release chlorine gas (e.g. Bleach mixed with vinegar or toilet bowl cleaner containing Hydrochloric Acid). As a gas it can be found as a greenish-yellow gas (anhydrous) with a characteristic odor.

Phosgene Gas (CG) is a chemical warfare agent. Phosgene gas can be liberated when freon or chlorinated compounds (ex. Bleach mixed with ammonia) are heated. Phosgene has similar effects on the body as chlorine; however, symptoms may be delayed for several hours.
METHYLENE BIPHENYL ISOCYANATE, ETHYL ISOCYANATE AND METHYLENE DILSOYANATE (MDI)

MDI is found as a solid in white to yellow flakes or various liquid solutions. There is no odor to the solid or liquid solutions. MDI is used for various industrial processes to produce polyurethane foams, lacquers, and sealants, as well as, in the production of insecticides and laminating materials. The vapor is approximately eight times heavier than air.

MUSTARD GAS, SULFUR MUSTARD, LEWISITE GAS, AND BLISTER AGENTS (H, HD, HS)

Mustard is a “blister agent” that causes DNA damage and cell destruction. Mustard penetrates skin and mucous membranes very quickly. Cellular damage begins within minutes.

It is a colorless to light yellow to dark brown oily liquid with the odor of garlic, onion, or mustard. A variety of military munitions are filled with mustard, including projectiles, mortars, and bombs.

It does not evaporate readily, but may pose a vapor hazard in warm weather. Its vapor is five times heavier than air.

A. Signs and Symptoms:

1. Low Concentration:
   a. Eye, nose and throat irritation/burns
   b. First and second degree chemical burns
   c. Headache or dizziness
2. Higher Concentrations (or low concentration of Ammonia):
   a. Dyspnea or tachypnea
   b. Cough, stridor, wheezing, choking sensation, rhinorrhea (runny nose)
   c. Chemical pneumonia (acute or delayed)
   d. Non-cardiogenic pulmonary edema
   e. Ventricular dysrhythmias
   f. Respiratory failure
   g. Cardiovascular collapse
   h. Second and third degree chemical burns
   i. Altered mental status
   j. Nausea/vomiting
3. Ingestion:
   a. Suspect upper airway, esophagus and stomach injury or burns
4. Mustard Gas Specific:
   a. Itching, burning and red eyes (corneal damage can occur)
   b. Erythema with itching and burning and/or blisters
   c. Epistaxis or sinus pain
   d. Mustard Gas may have a clinical onset delay of 2 to 24 hours

Description:

Adult Care:

Level 1

A. General:
1. Use appropriate Personal Protective Equipment (PPE) to remove patient from hazardous area. If risk of exposure is high, call the HAZMAT team for additional assistance. The risk of secondary contamination is very high.
2. Decontaminate the patient with warm water and soap.
3. General Supportive Care.
4. If hypotensive, initiate Trauma and Hypovolemic Supportive Care
5. **Under no circumstances are contaminated patients to be transported to a Hospital.**
6. **DO NOT administer Furosemide or Morphine.**
7. **If the patient is symptomatic, respond a Hazmat Paramedic to initiate Level 3 treatment either at the scene or at the hospital depending upon ETA.**
8. **DO NOT induce vomiting.**
9. **Ipecac and oral airways are contraindicated.**

B. Eye Injury:

1. Provide ocular irrigation with lactated ringers. Lactated ringers (LR) is preferred as the pH of LR is very similar to tears. Sterile water, water or normal saline may also be utilized.
2. Use Morgan Lens per manufacturers instructions, if available (Hazmat Paramedic Only), unless perforation or laceration of the globe is suspected.
3. **DO NOT** attempt to neutralize with another solution.
4. For additional orders, contact OLMC.

C. Bronchospasm:

1. Continually assess pulse oximetry, observe for posturing, skin color, and degree of dyspnea.
2. Albuterol, 2.5 mg, nebulized. May be repeated.
3. Albuterol, 2.5 mg mixed with Atrovent (Ipratropium), 500 mcg, nebulized.
4. For additional orders, contact OLMC.

D. Burns:

1. After decontamination, cover with a dry sheet or an appropriate burn dressing.

E. Cardiogenic Shock:

1. Ventilation with 100% O2.
2. Deep suctioning
3. Dopamine 5 – 10 mcg/kg/min if BP < 90 mmHg, gradually titrate to maintain a BP > 90 mmHg.
4. For additional orders, contact OLMC.

F. Dysrhythmias:

1. Refer to Protocols 5.4 through 5.12 for specific dysrhythmias.
G. Pulmonary Edema:
1. Ventilation with 100% O2.
2. Deep suctioning.
3. *Nitroglycerine, Furosemide and Morphine are contraindicated.*

H. Seizures:

A. Diazepam (Valium), 5 – 10 mg slow IV push. Administer up to 5 mg initially IV, then 2.5 mg increments, q 2 – 3 minutes until seizure activity has ceased or a total of 10 mg has been administered.

B. For additional orders, refer to Protocol 5.31 Seizures/Status Epilepticus.

Level 2

A. Burns:
1. Morphine 2 – 10 mg, IV, usually 2 mg increments, every 2 – 3 minutes, for pain control. Maximum dose to be specified by OLMC. Higher doses may cause respiratory depression and/or vomiting.

B. Pulmonary Edema:
1. Dopamine, 2.5 – 5 mcg/kg/min IV.
2. For additional orders, contact OLMC.

Level 3

A. Eye Injury
1. Tetracaine Hydrochloride Ophthalmic Solution 5% for pain and/or discomfort. Instill one to two drops in each affected eye. Repeat every five to ten minutes for one to three instillations to relieve pain.

Pediatric Care:

Level 1

A. General:
1. Use appropriate Personal Protective Equipment (PPE) to remove patient from hazardous area. If risk of exposure is high, call the HAZMAT team for additional assistance. The risk of secondary contamination is very high.
2. Decontaminate the patient with warm water and soap.
3. General Supportive Care.
4. If hypotensive, initiate Trauma and Hypovolemic Supportive Care.
5. *(Under no circumstances are contaminated patients to be transported to a Hospital.)*
6. **DO NOT administer Furosemide or Morphine.**
7. **If the patient is symptomatic, respond a Hazmat Paramedic to initiate Level 3 treatment either at the scene or at the hospital depending upon ETA.**
8. **DO NOT induce vomiting.**
9. **Ipecac and oral airways are contraindicated.**

2. **Bronchospasm:**
   1. Refer to Protocol 5.21 Asthma/Bronchospasm.

3. **Pulmonary Edema:**
   1. Ventilation with 100% O2.
   2. For additional orders, contact OLMC.

4. **Seizures:**
   1. Refer to Protocol 5.31 Seizures/Status Epilepticus.

**Level 2 – None**

**Level 3 – None**

**References:**

- Bausch + Lomb Pharmaceuticals, Inc. Tetracaine Hydrochloride Ophthalmic Solution USP, 0.5% Package Insert Rev 12/96 - 6L

**Reference Protocols:**

- General Supportive Care (Medical)
- Trauma and Hypovolemic Supportive Care
- Dopamine
- Albuterol Sulfate
- Ipratropium Bromide
- Morphine Sulfate
- Diazepam (Valium)
- Tetracaine Hydrochloride Ophthalmic Solution 5%
H.2 – Aromatic Hydrocarbons (benzene, toluene and xylene), Arsenic compounds or heavy metals, Carbon Monoxide poisoning, Chlorinated Hydrocarbons (methylene chloride)

History: Effective: 10/01/02; Revised; MCB Approved: 02/21/02; Original: 10/01/02

Purpose:

The purpose of this protocol is to describe the authorized interventions for exposure to the following:

AROMATIC HYDROCARBONS - BENZENE, TOLUENE, XYLENE

Aromatic hydrocarbons may be found as colorless liquids or in a solid form with an ether-like or pleasant odor. These compounds may be highly FLAMMABLE.

ARSENIC COMPOUNDS OR HEAVY METALS

Arsenic compounds may be found as white, transparent, or colorless crystals, colorless liquids, or colorless gas (ex. Ant poison). They are either odorless or have a garlic-like odor.

Some are FLAMMABLE.

Exposure can be fatal or cause severe injury at concentrations too low to detect. Arsine gas is made from arsenic and causes renal failure and destruction of red blood cells.

Lewisite is a blistering agent made from arsenic - Refer to Protocol H-1.

CARBON MONOXIDE POISONING

Carbon Monoxide poisoning should be suspected when the patient has been exposed to the products of combustion (e.g. smoke, automobile exhaust, exhaust fumes from fuel powered machinery, etc.) and are experiencing symptoms. These symptoms may vary with the level of carbon monoxide exposure.

CHLORINATED HYDROCARBONS - METHYLENE CHLORIDE

Methylene Chloride is a volatile liquid that yields heavy vapors. Exposure can occur through skin absorption, eye contact, inhalation, and ingestion. Methylene Chloride is converted inside the body to carbon monoxide.

A. Signs and Symptoms:

1. Mild:
   a. Cough, hoarseness, excessive salivation
   b. Headache, dizziness
   c. Poor concentration, agitation, anxiety, transient euphoria, drowsiness
   d. General weakness, tremors
   e. Vision and hearing disturbances
   f. Nausea, vomiting, abdominal pain, diarrhea
   g. First degree/second degree chemical burns (Chlorinated hydrocarbons)
2. Moderate to Severe:
   a. Altered mental status
   b. Dyspnea or tachypnea
   c. Pale or cyanotic skin (rarely cherry skin with carbon monoxide)
   d. Chest pain
   e. Tachy-dysrhythmias
   f. Ventricular dysrhythmias including fibrillation
   g. Respiratory failure
   h. Cardiovascular collapse
   i. Chemical pneumonia (acute or delayed)
   j. Non-cardiogenic pulmonary edema
   k. Seizures or paralysis
   l. Delayed carcinogenic effects

3. Arsenic Exposure:
   a. Burning abdominal pain and muscle spasms
   b. Watery or bloody diarrhea
   c. Severe gastrointestinal fluid loss
   d. Rapid onset of acute renal failure (bronze colored urine)
   e. Seizures
   f. Tachycardia or ventricular dysrhythmias
   g. Respiratory failure
   h. Cardiovascular collapse

Description:

Adult Care:

Level 1

A. General:

1. Use appropriate Personal Protective Equipment (PPE) to remove patient from hazardous area. If risk of exposure is high, call the HAZMAT team for additional assistance. The risk of secondary contamination is very high.
2. Decontaminate the patient with warm water and soap, as needed.
3. General Supportive Care.
4. Administer high-flow 100% O2.
5. Document duration of exposure to CO and the time O2 therapy was started.
6. If hypotensive, initiate Trauma and Hypovolemic Supportive Care
7. If the patient is symptomatic, respond a Hazmat Paramedic to initiate Level 3 treatment either at the scene or at the hospital depending upon ETA.
8. Under no circumstances are contaminated patients to be transported to a Hospital.
9. DO NOT administer Furosemide or Morphine.
10. DO NOT induce vomiting.
11. Ipecac and oral airways are contraindicated.

Note: Activated charcoal and NG tubes are level 3 considerations (Hazmat Paramedics ONLY).
B. Eye Injury:

1. Provide ocular irrigation with lactated ringers. Lactated ringers (LR) is preferred as the pH of LR is very similar to tears. Sterile water, water or normal saline may also be utilized.
2. Use Morgan Lens per manufacturers instructions, if available (Hazmat Paramedic Only), unless perforation or laceration of the globe is suspected.
3. **DO NOT** attempt to neutralize with another solution.
4. For additional orders, contact OLMC.

C. Burns:

1. After decontamination, cover with a dry sheet or an appropriate burn dressing.

D. Cardiogenic Shock:

1. Ventilation with 100% O2
2. Deep suctioning
3. Dopamine 5 – 10 mcg/kg/min if BP < 90 mmHg, gradually titrate to maintain a BP > 90 mmHg.
4. For additional orders, refer to Protocol 5.6 Cardiogenic Shock/Pulmonary Edema.

E. Dysrhythmias:

1. Refer to Protocols 5.4 through 5.12 for specific dysrhythmias.

F. Seizures:

1. Diazepam (Valium), 5 – 10 mg slow IV push. Administer up to 5 mg initially IV, then 2.5 mg increments, q 2 – 3 minutes until seizure activity has ceased or a total of 10 mg has been administered.
2. For additional orders, refer to Protocol 5.31 Seizures/Status Epilepticus.

Level 2

A. Burns:

1. Morphine 2 – 10 mg, IV, usually 2 mg increments, every 2 – 3 minutes, for pain control. Maximum dose to be specified by OLMC. Higher doses may cause respiratory depression and/or vomiting.

Level 3 - None

**Pediatric Care:**

Level 1

A. General:

1. Use appropriate Personal Protective Equipment (PPE) to remove patient from hazardous area. If risk of exposure is high, call the HAZMAT team for additional assistance. The risk of secondary contamination is very high.
2. Decontaminate the patient with warm water and soap, as needed.
3. General Supportive Care.
4. Administer high flow 100% O2
5. Document duration of exposure to CO and the time O2 therapy was started.
6. If hypotensive, initiate Trauma and Hypovolemic Supportive Care
7. If the patient is symptomatic, respond a Hazmat Paramedic to initiate Level 3 treatment either at the scene or at the hospital depending upon ETA.
8. Under no circumstances are contaminated patients to be transported to a Hospital.
9. DO NOT administer Furosemide or Morphine.
10. DO NOT induce vomiting.
11. Ipecac and oral airways are contraindicated.

Note: Activated charcoal and NG tubes are level 3 considerations (Hazmat Paramedics ONLY).

B. Seizures:

1. Refer to Protocol 5.31 Seizures/Status Epilepticus.

Level 2 – None

Level 3 – None

References:

- Bausch + Lomb Pharmaceuticals, Inc. Tetracaine Hydrochloride Ophthalmic Solution USP, 0.5% Package Insert Rev 12/96 - 6L

Reference Protocols:

- General Supportive Care (Medical)
- Trauma and Hypovolemic Supportive Care
- Morphine Sulfate
- Diazepam (Valium)
- Tetracaine Hydrochloride Ophthalmic Solution 5%
- Activated Charcoal Suspension
H.3 Green/Yellow – Carbamate (insecticides, herbicides), Organophosphates (insecticides, fertilizers), Nerve Agents (GA, GB, GD, GF, VX)

History: Effective: 10/01/02; Revised; MCB Approved: 02/21/02; Original: 10/01/02

Purpose:

The purpose of this protocol is to describe the authorized interventions for exposure to the following:

CARBAMATE - INSECTICIDE/HERBICIDES

Carbamates may be found in a solid, powder, or liquid form with a white or gray color and a weak odor. It is a reversible acetylcholinesterase inhibitor found in insecticides, herbicides, and some medicinal products. Many carbamates are well absorbed through intact skin and thus pose a serious exposure risk to rescuers.

Carbamates may be in a FLAMMABLE base.

ORGANOPHOSPHATE - INSECTICIDE POISONING AND NERVE AGENTS (GA, GB, GD, GF, VX)

Organophosphate compounds are used as insecticides in residential and commercial agriculture. They are found as liquids, dusts, wettable powders, concentrates, and aerosols.

Chemical nerve agents include: Tabun (GA), Sarin (GB), Soman (GD), GF and VX.

Organophosphates and Nerve Agents are well absorbed through intact skin, and thus pose a serious exposure risk to rescuers.

Organophosphates may be in a FLAMMABLE base.

A. Signs and Symptoms:

1. SLUDGEM:
   a. Salivation (excessive)
   b. Lacrimation (excessive tears)
   c. Urination
   d. Diarrhea
   e. Gastrointestinal distress
   f. Emesis
   g. Miosis
2. Dyspnea or tachypnea
3. Respiratory paralysis or failure (typical cause of death)
4. Bronchospasm or bronchorrhea
5. Bradycardia or Tachycardia (stimulation of nicotinic receptors)
6. Hypertension
7. Constricted pupils (miosis may last up to two months)
8. Cardiovascular collapse
9. Muscle tremor or weakness
10. Agitation, seizures or coma

Note: Carbamates and organophosphates affect both the parasympathetic (muscarinic effects) and the sympathetic (nicotinic effects) nervous systems. Although the muscarinic effects may be reversed with Atropine, the nicotinic effects may cause respiratory paralysis and require intubation and aggressive ventilatory support.

Description:

Adult Care:

Level 1

A. General:

1. Use appropriate Personal Protective Equipment (PPE) to remove patient from hazardous area. If risk of exposure is high, call the HAZMAT team for additional assistance. The risk of secondary contamination is very high.
2. Avoid exposure to the patient’s sweat, vomit, stool, and vapor emitting from soaked clothes.
3. Decontaminate the patient with warm water and soap, as needed.
4. General Supportive Care.
5. Administer high-flow 100% O2.
6. If hypotensive, initiate Trauma and Hypovolemic Supportive Care.
7. If the patient is symptomatic, respond a Hazmat Paramedic to initiate Level 3 treatment either at the scene or at the hospital depending upon ETA.
8. Under no circumstances are contaminated patients to be transported to a Hospital.
9. DO NOT administer Furosemide or Morphine.
10. DO NOT induce vomiting.
11. Ipecac and oral airways are contraindicated.

Note: Activated charcoal and NG tubes are level 3 considerations (Hazmat Paramedics ONLY).

B. Public Safety Personnel Exposure/Self-Treatment

1. Police/Fire/EMS Personnel that have been issued Nerve Agent Antidote Kits (NAAKs) (containing three Mark I autoinjector kits and one Valium autoinjector) may self-administer up to three Mark I autoinjector kits and one Valium autoinjector.
2. If exposed to nerve agent vapors or nerve agent liquid on the skin, discontinue operations, advise the nearest Company Officer or Sector Officer. Move immediately to the Triage/Treatment area or report to the Hazmat Medical Sector Officer.

a. Vapor Exposure – Mild Symptoms
   i. Eyes
      • Small pupils (miosis)
      • Dim vision
      • Headache
   ii. Nose
      • Runny nose (rhinorrhea)
iv. Mouth
   • Salivation
v. Tightness in the chest
vi. Time of onset – Seconds to minutes after exposure
vii. **Self – Aid:** One Mark One (One atropine autoinjector and one 2-PAM autoinjector)
viii. **Buddy-aid:** Stand by

b. Vapor Exposure – Severe
   i. All of the mild symptoms of a vapor exposure plus,
      • Severe breathing difficulty or cessation of respiration
      • Generalized muscular twitching, weakness or paralysis
      • Convulsions
      • Loss of consciousness
      • Loss of bladder, bowel control
   ii. Time of onset – seconds to minutes after exposure
   iii. **Self – Aid:** None; personnel will be unable to help themselves
   iv. **Buddy-aid:** Three Mark I Autoinjector Kits and diazepam **immediately**

c. Liquid on skin – Mild/Moderate
   • Muscle twitching at site of the exposure
   • Sweating at site of the exposure
   • Nausea, vomiting
   • Feeling of weakness
   i. Time of Onset – 10 minutes to 18 hours after exposure
   ii. **Self-Aid:** 1 – 2 Mark I Autoinjector Kits depending on severity of symptoms
   iii. **Buddy-Aid:** Stand-by

d. Liquid on skin – Severe
   • All of the mild/moderate symptoms of liquid on the skin exposure plus,
   • Breathing difficulty or cessation of breathing
   • Generalized muscular twitching, weakness, or paralysis
   • Convulsions
   • Loss of consciousness
   • Loss of bladder and bowel control
   i. Time of Onset – minutes to an hour after exposure
   ii. **Self-Aid:** None; personnel will be unable to help themselves
   iii. **Buddy-Aid:** Three Mark I Autoinjector Kits and diazepam **immediately**

*The most important care the exposed receives is the care provided within the first several minutes after exposure (self-aid, buddy-aid)*

3. Seek care by a Hazmat Paramedic immediately for advanced stabilization.

C. Eye Injury:

1. Provide ocular irrigation with lactated ringers. Lactated ringers (LR) is preferred as the pH of LR is very similar to tears. Sterile water, water or normal saline may also be utilized.
2. Use Morgan Lens per manufacturers instructions, if available (Hazmat Paramedic Only), unless perforation or laceration of the globe is suspected.
3. **DO NOT** attempt to neutralize with another solution.
4. For additional orders, contact OLMC.
D. Cardiogenic Shock:

1. Ventilation with 100% O2.
2. Deep suctioning
3. Dopamine 5 – 10 mcg/kg/min if BP < 90 mmHg, gradually titrate to maintain a BP > 90 mmHg.
4. For additional orders, contact OLMC.

E. Dysrhythmias:

1. Refer to Protocols 5.4 through 5.12 for specific dysrhythmias.

F. Seizures:

1. Diazepam (Valium), 5 – 10 mg slow IV push. Administer up to 5 mg initially IV, then 2 mg increments, q 2 – 3 minutes until seizure activity has ceased or a total of 10 mg has been administered.
2. For additional orders, refer to Protocol 5.31 Seizures/Status Epilepticus.

Level 2

A. General

1. Give Atropine 1 mg IV. If pupils dilate and tachycardia ensues the patient is not considered to be organophosphate toxic.
2. If SLUDGEM symptoms continue after the initial Atropine dose, the patient is considered organophosphate toxic. Repeat Atropine 2 mg IV every 5 minutes until symptoms and secretions diminish. Stop when the mouth appears dry.

B. Mass Casualty Situations

1. The preferred treatment for organophosphate or nerve agent exposures is to utilize the level 2 and 3 orders. Administering Atropine and 2-PAM intravenously is superior to using Mark I autoinjectors due to the varied absorption rate of IM administration.
2. In mass casualty situations, declared by the Hazmat Medical Sector Officer or the Incident Commander, all paramedics under the supervision of a Hazmat Paramedic may administer Mark I autoinjectors kits in lieu of Hazmat Paramedics administering Atropine/2-PAM IV. A Mark I autoinjector kit is two auto-injectors that contain Atropine 2 mg and 2-PAM 600mg.
3. Follow signs, symptoms and treatment regimens found in Level I Public Safety Personnel Exposure/Self-Treatment.
4. For severe respiratory distress, coma or seizures, administer three Mark I kits.
5. Transfer care of the patient to a Hazmat Paramedic as soon as possible for advanced stabilization.
Level 3

A. General

1. In significant exposures with severe symptoms, administer Atropine 0.03 mg/kg IV (2 mg/70 kg). Repeat every 5 minutes until secretions are inhibited. Alternate doses of Atropine may be doubled to 0.06 mg/kg IV if the patient doesn’t improve.
2. Draw a blood sample using heparinized collection tube for cholinesterase analysis before administering 2-PAM.
3. If significant exposure with severe symptoms, infuse Pralidoxime (Protopam, 2-PAM), 1 – 2 g IV (depending on severity). Mix 2-PAM dose in 250 ml NS and infuse slowly at no more than 0.2 g/min. over 30 mins.
4. In respiratory paralysis or fasciculation of large muscle groups, 2-PAM may be given IV at a maximum rate of 200 mg/minute or 1 g/5 mins. May be necessary in high exposure to Carbamates. Aggressively manage the airway and ventilatory support and observe the patient for hypertension.
5. In respiratory paralysis or fasciculation of large muscle groups, administer diazepam (Valium) 5 – 10 mg slow IV push. Administer up to 5 mg initially, then 2 mg increments, q 2 – 3 minutes until paralysis or twitching has ceased or 10 mg has been given.
6. For ingestion consider NG tube insertion and aspiration of stomach contents following the appropriate procedure. Instill activated charcoal 1 g/kg via NG tube.

Note: Atropine and 2-PAM are synergistic and should be used together.

Pediatric Care:

Level 1

A. General:

1. Use appropriate Personal Protective Equipment (PPE) to remove patient from hazardous area. If risk of exposure is high, call the HAZMAT team for additional assistance. The risk of secondary contamination is very high.
2. Avoid exposure to the patient’s sweat, vomit, stool, and vapor emitting from soaked clothes.
3. Decontaminate the patient with warm water and soap, as needed.
4. General Supportive Care.
5. Administer high-flow 100% O2.
6. If hypotensive, follow the Trauma and Hypovolemic Supportive Care Protocol
7. If the patient is symptomatic, respond a Hazmat Paramedic to initiate Level 3 treatment either at the scene or at the hospital depending upon ETA.
8. Under no circumstances are contaminated patients to be transported to a Hospital.
9. DO NOT administer Furosemide or Morphine.
10. DO NOT induce vomiting.
11. Ipecac and oral airways are contraindicated.

Note: Activated charcoal and NG tubes are level 3 considerations (Hazmat Paramedics ONLY).

B. Seizures:

1. Refer to Protocol 5.31 Seizures/Status Epilepticus.
Level 2 – None

Level 3 – None

References:

- Bausch + Lomb Pharmaceuticals, Inc. Tetracaine Hydrochloride Ophthalmic Solution USP, 0.5% Package Insert Rev 12/96 - 6L

Reference Protocols:

- General Supportive Care (Medical) – Protocol 5.1
- Trauma and Hypovolemic Supportive Care – Protocol 5.2
- Dopamine – Protocol 9.8
- Diazepam (Valium) – Protocol 9.24
- Atropine Sulfate – Protocol 9.37
- Pralidoxime – Protocol 9.38
- Tetracaine Hydrochloride Ophthalmic Solution 5% - Protocol 9.45
- Activated Charcoal Suspension – Protocol 9.35
H.4 Red – Cyanide, Hydrogen Cyanide, Hydrocyanic Acid (AC), Cyanogen Chloride (CK), Hydrogen Sulfide, Sulfides, Mercaptans

History: Effective: 10/01/02; Revised; MCB Approved: 02/21/02; Original: 10/01/02

Purpose:

The purpose of this protocol is to describe the authorized interventions for exposure to the following:

**CYANIDE, HYDROGEN CYANIDE, HYDROCYANIC ACID (AC), AND CYANOGON CHLORIDE (CK)**

Cyanide can be found in a liquid (solutions of cyanide salts), solid (cyanide salts), or gaseous (hydrogen cyanide) form. In solid form, it is white with a faint almond odor. 20% of the population is genetically unable to detect the odor.

Hydrogen cyanide gas may be formed when acid is added to cyanide salt or a nitrite or when plastics burn.

Cyanide material on the victim’s clothing or skin is significant risk of exposure to rescuers.

**HYDROGEN SULFIDE, SULFIDES & MERCAPTANS**

This class of gases is colorless with a strong offensive odor, like rotten eggs or sewer gas. They may be found in a liquid form at low temperatures or high pressures.

Sulfides or Mercaptans on the victim’s clothing or skin is significant risk of exposure to rescuers.

A. Signs and Symptoms:

1. Initial
   a. Pulse decreases and blood pressure rises
   b. Tachypnea, dyspnea, cough
   c. Headache, weakness, confusion
   d. Pale, cyanotic or reddish skin color
   e. Nausea, vomiting
   f. Excessive salivation
   g. Garlic taste in the mouth
   h. Dermatitis
   i. In high concentrations, respiratory arrest or coma

2. Later stages
   a. Tachycardia, dysrhythmias or palpitations
   b. Chest pain or tightness
   c. Respiratory failure
   d. Respiratory paralysis (in hydrogen sulfide exposure)
   e. Cardiovascular collapse
   f. Chemical pneumonia
g. Non-cardiogenic pulmonary edema
h. Seizures

**Adult Care:**

**Level 1**

**A. General:**

1. Use appropriate Personal Protective Equipment (PPE) to remove patient from hazardous area. If risk of exposure is high, call the HAZMAT team for additional assistance. The risk of secondary contamination is very high.
2. Avoid exposure to vapors emitting from soaked clothes.
3. Decontaminate the patient with warm water and soap, as needed.
4. General Supportive Care.
5. Administer high-flow 100% O2.
6. If hypotensive, initiate Trauma and Hypovolemic Supportive Care.
7. If the patient is symptomatic, respond a Hazmat Paramedic to initiate Level 3 treatment either at the scene or at the hospital depending upon ETA.
8. Under no circumstances are contaminated patients to be transported to a Hospital.
9. DO NOT induce vomiting.
10. Ipecac and oral airways are contraindicated.

Note: Activated charcoal and NG tubes are level 3 considerations (Hazmat Paramedic Only).

**B. Dysrhythmias:**

1. Refer to Protocols 5.4 through 5.12 for specific dysrhythmias.

**C. Seizures:**

1. Diazepam (Valium), 5 – 10 mg slow IV push. Administer up to 5 mg initially IV, then mg increments, q 2 – 3 minutes until seizure activity has ceased or a total of 10 mg has been administered.
2. For additional orders, contact OLMC.

**Level 2 - None**

**Level 3**

**A. General**

1. Mild Symptoms:
   a. If symptoms are mild or if the diagnosis is uncertain, administer Sodium Thiosulfate 25% 12.5 g (50 ml) IV.
2. Moderate or Severe Symptoms:
   a. In the presence of severe respiratory distress, respiratory arrest, shock, seizures or coma, administer Cyanide Antidote Kit as follows to induce methemoglobinemia.
   b. Amyl Nitrite (break pearls into gauze sponge and hold under patient’s nose or BVM intake valve) for 15 – 30 seconds of each minute, until the sodium nitrite solution is ready.
   c. Sodium Nitrite 3% (300 mg/10 ml) 10 ml (or 0.35 ml/kg) at 2.5 to 5 ml/min. IV.
   d. Sodium Thiosulfate 25% 12.5 gm (50 ml) IV.
   e. If symptoms persist after 20 minutes, repeat Cyanide Antidote Kit at one half the initial dosages listed in #2,#3 and #4.
   f. If the patient becomes cyanotic after the administration of the Cyanide Antidote Kit, aggressively manage the airway and ventilatory support. Administer Sodium Bicarbonate 1 mEq/kg IV.

   Note: Sodium Thiosulfate is contraindicated in Hydrogen Sulfide exposure.

B. Ingestion:
   a. For ingestion, consider NG tube insertion and aspiration of stomach contents following the appropriate procedure.
   b. Instill Activated Charcoal 1 g/kg via NG tube.

Pediatric Care:

Level 1

A. General:

1. Use appropriate Personal Protective Equipment (PPE) to remove patient from hazardous area. If risk of exposure is high, call the HAZMAT team for additional assistance. The risk of secondary contamination is very high.
2. Avoid exposure to vapor emitting from soaked clothes.
3. Decontaminate the patient with warm water and soap, as needed.
4. General Supportive Care.
5. Administer high-flow 100% O2.
6. If hypotensive, follow the Trauma and Hypovolemic Supportive Care Protocol
7. If the patient is symptomatic, respond a Hazmat Paramedic to initiate Level 3 treatment either at the scene or at the hospital depending upon ETA.
8. Under no circumstances are contaminated patients to be transported to a Hospital.
9. DO NOT induce vomiting.
10. Ipecac and oral airways are contraindicated.

   Note: Activated charcoal and NG tubes are level 3 considerations (Hazmat Paramedic ONLY).

A. Seizures:

1. Refer to Protocol 5.31 Seizures/Status Epilepticus.
Level 2 – None

Level 3 – None

References:


Reference Protocols:

- General Supportive Care (Medical) – Protocol 5.1
- Trauma and Hypovolemic Supportive Care – Protocol 5.2
- Sodium Bicarbonate 8.4% - Protocol 9.15
- Diazepam (Valium) – Protocol 9.24
- Sodium Thiosulfate – Protocol 9.39
- Amyl Nitrite – Protocol 9.40
- Sodium Nitrite – Protocol 9.41
- Activated Charcoal Suspension – Protocol 9.35
H.5 Grey – Dinitrobenzene (DNB), Nitrogen products and other products causing Methemoglobinemia

History: Effective: 10/01/02; Revised; MCB Approved: 02/21/02; Original: 10/01/02

Purpose:

The purpose of this protocol is to describe the authorized interventions for exposure to the following:

DINITROBENZENE (DNB)

DNB is found as a colorless, oily liquid with a characteristic and peculiar sweet odor. It can also be found as a solid. DNB causes Methemoglobinemia, resulting in a state of relative hypoxia due to the inability of Red Blood Cells to carry Oxygen.

DNB is EXPLOSIVE, and may be detonated by heat or shock.

NITROGEN PRODUCTS & OTHER PRODUCTS CAUSING METHEMOGLOBINEMIA

These products can be found in a gas, liquid, or solid form.

Most gases are warfare and protection agents, propellant fuels, and agricultural fumigants.

Others are used in laboratory research solvents, bleaching agents, and refrigerants. They are released from the combustion or decomposition of substances that contain nitrogen. Toxic exposure can result from working on or in grain silos (silo filler’s disease).

Depending on the individual compound, these agents may pose a significant health hazard for rescuers. Many are well absorbed through intact skin. Simple water washing may be sufficient to remove oil compounds.

These products cause Methemoglobinemia. Normal iron in the blood is altered from Fe\(_2\) (ferrous) to Fe\(_3\) (ferric), which inhibits oxygen from binding to hemoglobin.

A. Signs and Symptoms:

1. Initial
   a. Mild, transient cough and tachypnea is usually the only symptom at the time of exposure.
   b. Symptoms may be immediate or may be delayed for 5 to 72 hours.

2. Delayed
   a. Dyspnea or tachypnea
   b. Violent coughing, stridor and wheezing
   c. Glottic spasm or edema, choking sensation
   d. Chemical pneumonia (acute or delayed)
   e. Non-cardiogenic pulmonary edema
   f. Ventricular dysrhythmias
   g. Respiratory failure
   h. Cardiovascular collapse
   i. Second/Third degree chemical burns
j. Altered mental status  
k. Nausea/vomiting and abdominal pain  
l. Headache or dizziness  
m. Vertigo, fatigue, restlessness  
n. Burning sensations of mucous membranes  
o. Pallor and cyanosis  
p. Chemical conjunctivitis  

3. Methemoglobinemia:  
a. Chocolate brown colored blood  
b. Ataxia (loss of the ability to coordinate muscular movement)  
c. Tinnitus (ringing in the ears)  
d. Heart Blocks  

Description:  

Adult Care:  

Level 1  

A. General:  

1. Use appropriate Personal Protective Equipment (PPE) to remove patient from hazardous area. If risk of exposure is high, call the HAZMAT team for additional assistance. The risk of secondary contamination is very high.  
2. Decontaminate the patient with warm water and soap, as needed.  
3. General Supportive Care.  
4. If hypotensive, initiate Trauma and Hypovolemic Supportive Care.  
5. Under no circumstances are contaminated patients to be transported to a Hospital.  
6. If the patient is symptomatic, respond a Hazmat Paramedic to initiate level 3 treatment either at the scene or at the hospital depending on ETA.  
7. Hyperbaric therapy may be indicated – Discuss with OLMC  
8. DO NOT induce vomiting.  
9. Ipecac and oral airways are contraindicated.  

B. Dysrhythmias:  

1. Refer to Protocols 5.4 through 5.12 for specific dysrhythmias.  

C. Seizures:  

1. Diazepam (Valium), 5 – 10 mg slow IV push. Administer up to 5 mg initially IV, then 2 mg increments, q 2 – 3 minutes until seizure activity has ceased or a total of 10 mg has been administered.  
2. For additional orders, contact OLMC.  

Level 2 - None  

Level 3  

A. General
1. If the patient has respiratory distress, is cyanotic and has chocolate brown colored blood, administer Methylene Blue (1%) 1 – 2 mg/kg slow IV push over 5 minutes, followed by 30 ml of NS to decrease pain at the site.
2. If cyanosis persists, administer a second dose of Methylene Blue (1%) 1 – 2 mg/kg slow IV push over 5 minutes, followed by 30 ml of NS to decrease pain at the site.

B. Ingestion:

1. For ingestion, consider NG tube insertion and aspiration of stomach contents following the appropriate procedure.
2. Instill Activated Charcoal 1 g/kg via NG tube.

Pediatric Care:

Level 1

A. General:

1. Use appropriate Personal Protective Equipment (PPE) to remove patient from hazardous area. If risk of exposure is high, call the HAZMAT team for additional assistance. The risk of secondary contamination is very high.
2. Decontaminate the patient with warm water and soap, as needed.
3. General Supportive Care.
4. If hypotensive, initiate Trauma and Hypovolemic Supportive Care
5. Under no circumstances are contaminated patients to be transported to a Hospital.
6. If the patient is symptomatic, respond a Hazmat Paramedic to initiate level 3 treatment either at the scene or at the hospital depending upon ETA.
7. Hyperbaric therapy may be indicated – Discuss with OLMC.
8. DO NOT induce vomiting.
9. Ipecac and oral airways are contraindicated.

Note: Activated charcoal and NG tubes are level 3 considerations (Hazmat Paramedics ONLY).

B. Seizures:

1. Refer to Protocol 5.31 Seizures/Status Epilepticus.

Level 2 – None

Level 3 – None

References:

Reference Protocols:

- General Supportive Care (Medical)
- Trauma and Hypovolemic Supportive Care
- Diazepam
- Methylene Blue 1%
- Activated Charcoal Suspension
H.6 Blue – Hydrofluoric Acid (HF)

History: Effective: 10/01/02; Revised; MCB Approved: 02/21/02; Original 10/01/02

Purpose:

The purpose of this protocol is to describe the authorized interventions for exposure to the following:

**HYDROFLUORIC ACID (HF)**

Hydrofluoric acid is a colorless to yellow liquid with a strong, irritating odor. Since the boiling point of HF is 67º F, when exposed to air, HF will readily change to a gaseous state.

When HF comes in contact with metals, it forms hydrogen gas, which is extremely FLAMMABLE.

Once HF is absorbed into the tissues, it binds to calcium and magnesium. This form of fluoride poisoning can be fatal, even if exposure is due to a dilute solution (<3%). As little as 7 ml of 100% solution can cause death.

A. Signs and Symptoms:

1. Asphyxia, upper airway obstruction, stridor
2. Vision disturbances or blindness
3. Tachypnea, dyspnea, cough
4. Hypovolemic shock
5. Cardiovascular collapse
6. Tachycardia, ventricular dysrhythmias
7. Acute non-cardiogenic pulmonary edema
8. Chemical pneumonia (acute or delayed)
9. Respiratory failure
10. Cardiovascular collapse
11. Altered mental status
12. Chemical burns (no visible signs, severe pain and tissue damage)
13. Gastrointestinal bleeding, nausea, vomiting, diarrhea

Description:

**Adult Care:**

Level 1

A. General:

1. Use appropriate Personal Protective Equipment (PPE) to remove patient from hazardous area. If risk of exposure is high, call the HAZMAT team for additional assistance. The risk of secondary contamination is very high.
2. Decontaminate the patient with warm water and soap, as needed.
3. General Supportive Care.
4. Immediately and aggressively manage the airway and provide ventilatory support.
5. If hypotensive, initiate Trauma and Hypovolemic Supportive Care.
6. **Under no circumstances are contaminated patients to be transported to a Hospital.**
7. **If the patient is symptomatic, respond a Hazmat Paramedic to initiate level 3 treatment either at the scene or at the hospital depending on ETA.**
8. **DO NOT induce vomiting.**
9. **DO NOT give Furosemide or Morphine**
10. **Ipecac and oral airways are contraindicated.**

**B. Dysrhythmias:**

1. Refer to Protocols 5.4 through 5.12 for specific dysrhythmias.

**C. Pulmonary Edema:**

1. Ventilation with 100% O2 and PEEP (4 – 6 cm/H2O), deep suctioning.
2. **Nitroglycerine, furosemide and morphine are contraindicated.**

**Level 2:**

A. Burns – Morphine 2 – 10 mg, IV, usually 2 mg increments, every 2 – 3 minutes, for pain control. Maximum dose to be specified by OLMC. Higher doses may cause respiratory depression and/or vomiting.
B. Pulmonary Edema – Dopamine 2.5 – 5 mcg/kg/min IV drip.
   1. For additional orders, contact OLMC.

**Level 3:**

A. **General:**
   1. Calcium Gluconate (10%) 1 – 2 g slow IV push over 5 minutes. May be repeated if systemic symptoms persist.

B. **Burns:**
   1. Immediately flush with water.
   2. Prepare a 2.5% Calcium Gluconate Gel by mixing Calcium Gluconate 10% 50 ml with 10 oz. of water soluble gel (ex. K-Y jelly). Apply Calcium Gluconate 2.5% gel to the burned areas liberally.
   3. After decontamination, cover with a dry sheet or an appropriate burn dressing.

C. **Eye Injury:**
   1. Provide ocular irrigation with lactated ringers. Lactated ringers (LR) is preferred as the pH of LR is very similar to tears. Sterile water, water or normal saline may also be utilized.
   2. Prepare an eye wash solution of Calcium Gluconate (10%) 50 ml in 500cc NS. Provide ocular irrigation with the solution.
   3. Use Morgan Lens per manufacturers instructions, if available (Hazmat Paramedic Only), unless perforation or laceration of the globe is suspected.
   4. For additional orders, contact OLMC.
Pediatric Care:

Level 1:

A. General:

1. Use appropriate Personal Protective Equipment (PPE) to remove patient from hazardous area. If risk of exposure is high, call the HAZMAT team for additional assistance. The risk of secondary contamination is very high.
2. Decontaminate the patient with warm water and soap, as needed.
3. General Supportive Care.
4. Immediately and aggressively manage the airway and provide ventilatory support.
5. If hypotensive, initiate Trauma and Hypovolemic Supportive Care.
6. Under no circumstances are contaminated patients to be transported to a Hospital.
7. If the patient is symptomatic, respond a Hazmat Paramedic to initiate level 3 treatment either at the scene or at the hospital depending upon ETA.
8. DO NOT induce vomiting.
9. DO NOT give Furosemide or Morphine.
10. Ipecac and oral airways are contraindicated.

Level 2 – None

Level 3 – None

References:

- Bausch + Lomb Pharmaceuticals, Inc. Tetracaine Hydrochloride Ophthalmic Solution USP, 0.5% Package Insert Rev 12/96 - 6L

Reference Protocols:

- General Supportive Care (Medical)
- Trauma and Hypovolemic Supportive Care
- Morphine Sulfate
- Diazepam
- Calcium Gluconate 10%
- Tetracaine Hydrochloride 5%
- Activated Charcoal Suspension
H.7 – Ketones, Phosphine

History: Effective: 10/01/02; Revised; MCB Approved: 02/21/02; Original: 10/01/02

Purpose:

The purpose of this protocol is to describe the authorized interventions for exposure to the following:

KETONES

Ketones are organic compounds derived from secondary alcohols by oxidation. They generally have low viscosity, low to moderate boiling points, moderate vapor pressures, and high evaporation rates. Most Ketones are chemically stable liquids.

PHOSPHINE

Phosphine can be found in a gas, liquid, or solid form. Most gases are colorless to brown with a sharp odor. It is used as a chemical warfare and protection agent, propellant fuels, and agricultural fumigants. Others are used in laboratory research, solvents, and pesticides. They are released from the combustion or decomposition of substances that contain nitrogen.

A toxic exposure can result from working on or in grain silos. Very small amounts of Phosphine can be trapped in a victim’s clothing after an overwhelming exposure, posing a risk to rescuers.

A. Signs and Symptoms:

1. Ketones
   a. Chemical conjunctivitis
   b. Skin irritation, dermatitis, cyanosis of extremities
   c. Tachycardia
   d. Upper respiratory tract irritation, burning sensation
   e. Dyspnea, tachypnea
   f. Non-cardiogenic pulmonary edema
   g. Cardiac dysrhythmias
   h. Cardiovascular collapse
      i. Altered mental status, coma, seizures
   j. Disorientation, headache, drowsiness, weakness and tinnitus
   k. Abdominal pain, nausea, vomiting, diarrhea

2. Phosphine
   a. Symptoms may be immediate or may be delayed for 5 to 72 hours.
   b. Mild and transient cough is the only symptom at the time of exposure to most agents.
   c. Delayed onset of dyspnea, violent coughing and acute pulmonary edema follows
   d. Cardiovascular collapse
   e. Reflex bradycardia
   f. Upper airway obstruction, spasms/edema of the glottis
   g. Temporary reflex respiratory arrest
   h. Fatigue, restlessness, decreased level of consciousness
   i. Burning sensation of mucous membranes, pallor, cyanosis
   j. Nausea, vomiting, abdominal pain
k. Chemical conjunctivitis

Description:

Adult Care:

Level 1

A. General:

1. Use appropriate Personal Protective Equipment (PPE) to remove patient from hazardous area. If risk of exposure from fumes is high, call the HAZMAT team for additional assistance. The risk of secondary contamination is very high.
2. Remove clothing, brush off as much material as possible. DO NOT use water initially, water will react with Phosphine. Decontaminate the patient with warm water and soap, as needed.
3. General Supportive Care.
4. Immediately and aggressively manage the airway and provide ventilatory support.
5. If hypotensive, initiate Trauma and Hypovolemic Supportive Care.
6. If the patient is symptomatic, respond a Hazmat Paramedic to initiate Level 3 treatment either at the scene or at the hospital depending upon ETA.
7. Under no circumstances are contaminated patients to be transported to a Hospital.
8. DO NOT induce vomiting.
9. DO NOT give Furosemide or Morphine
10. Ipecac and oral airways are contraindicated.

B. Eye Injury

1. Provide ocular irrigation with lactated ringers. Lactated ringers (LR) is preferred as the pH of LR is very similar to tears. Sterile water, water or normal saline may also be utilized.
2. Use Morgan Lens per manufacturers instructions, if available (Hazmat Paramedic Only), unless perforation or laceration of the globe is suspected.
3. DO NOT attempt to neutralize with another solution.
4. For additional orders, contact OLMC.

C. Dysrhythmias:

1. Refer to Protocols 5.4 through 5.12 for specific dysrhythmias.

D. Pulmonary Edema:

1. Ventilation with 100% O2.
2. Deep suctioning.
3. Nitroglycerine, furosemide and morphine are contraindicated.

E. Cardiogenic Shock

1. Ventilation with 100% O2.
2. Deep suctioning
3. Dopamine 5 – 10 mcg/kg/min if BP < 90 mmHg, gradually titrate to maintain BP > 90 mmHg.
4. For additional orders, contact OLMC.

F. Seizures

1. Diazepam (Valium), 5 – 10 mg slow IV push. Administer up to 5 mg initially, then 2 mg increments, q 2 – 3 minutes until seizure activity has ceased or 10 mg has been given.
2. For additional orders, refer to Protocol 5.31 Seizures/Status Epilepticus.

Level 2 – None

Level 3:

A. Ingestion:

1. For ingestion, consider NG tube insertion and aspiration of stomach contents following the appropriate procedure.
2. Instill Activated Charcoal 1 g/kg via NG tube.

Pediatric Care:

Level 1:

A. General:

1. Use appropriate Personal Protective Equipment (PPE) to remove patient from hazardous area. If risk of exposure from fumes is high, call the HAZMAT team for additional assistance. The risk of secondary contamination is very high.
2. Remove clothing, brush off as much material as possible. DO NOT use water initially. Water will react with Phosphine.
3. Decontaminate the patient with warm water and soap, as needed.
4. General Supportive Care.
5. Immediately and aggressively manage the airway and provide ventilatory support.
6. If hypotensive, initiate Trauma and Hypovolemic Supportive Care
7. If the patient is symptomatic, respond a Hazmat Paramedic to initiate Level 3 treatment either at the scene or at the hospital depending upon ETA.
8. Under no circumstances are contaminated patients to be transported to a Hospital.
9. DO NOT induce vomiting.
10. DO NOT give Furosemide or Morphine.
11. Ipecac and oral airways are contraindicated.

Level 2 – None

Level 3 – None
References:

- Bausch + Lomb Pharmaceuticals, Inc. Tetracaine Hydrochloride Ophthalmic Solution USP, 0.5% Package Insert Rev 12/96 - 6L

Reference Protocols:

- General Supportive Care (Medical)
- Trauma and Hypovolemic Supportive Care
- Dopamine
- Diazepam (Valium)
- Tetracaine Hydrochloride 5%
- Activated Charcoal Suspension
H.8 Black – Ethylene Glycol, Methanol

History: Effective: 10/01/02; Revised; MCB Approved: 02/21/02; Original: 10/01/02

Purpose:

The purpose of this protocol is to describe the authorized interventions for exposure to the following:

**ETHYLENE GLYCOL**

| Ethylene Glycol is an odorless, colorless, syrupy liquid found in antifreeze, brake fluid, and other industrial products. It is often used in suicide attempts or by alcoholics. Ingestion is the typical route of exposure. The potential lethal dose is reported to be 100 ml (1.0 to 1.5 ml/kg) in adults. |

**METHANOL**

| Methanol is found as a highly volatile clear liquid and in mixtures. It is used in solvents, additives, and emulsifiers. It is a frequent ingredient in windshield washer fluid. |

Methanol has CNS depressant properties that are highly toxic upon aspiration and can cause respiratory failure and cardiac dysrhythmias. The metabolites, formaldehyde and formic acid, that are formed following the metabolism of methanol can cause a severe delayed toxicity.

A. Signs and Symptoms:

1. Methanol
   a. Chemical conjunctivitis
   b. Respiratory failure or arrest
   c. Acute non-cardiogenic pulmonary edema
   d. Chemical pneumonia, bronchitis
   e. Cardiac dysrhythmias, hypotension
   f. CNS depression, weakness, headache, coma, seizures
   g. Gastrointestinal bleeding, nausea, vomiting, diarrhea
   h. First degree/second degree/third degree chemical burns

2. Ethylene Glycol
   a. Metabolites, not the parent compound, are responsible for the toxic effects.
   b. With concurrently ingested ethanol, Ethylene Glycol toxicity symptoms may be delayed.
   c. Ethylene glycol poisoning can be fatal and quick diagnosis and intervention is imperative to prevent the damaging effects of the metabolites.

3. Phase 1
   a. 30 minutes to 12 hours after exposure
   b. Ethanol-like inebriation
   c. Tetany
   d. QT interval prolongation
   e. Metabolic acidosis, irreversible kidney damage
   f. Seizures, coma
4. Phase 2
   a. 12 to 36 hours after exposure
   b. Tachypnea
   c. Tachycardia, hypertension
   d. Acute non-cardiogenic pulmonary edema

5. Phase 3
   a. 36 to 48 hours after exposure
   b. Crystalluria, oliguria, acute tubular necrosis, renal failure

Description:

Adult Care:

Level 1

A. General:
   1. Use appropriate Personal Protective Equipment (PPE) to remove patient from hazardous area. If risk of exposure is high, call the HAZMAT team for additional assistance. The risk of secondary contamination is very high.
   2. Decontaminate the patient with warm water and soap, as needed.
   3. General Supportive Care.
   4. If hypotensive, initiate Trauma and Hypovolemic Supportive Care.
   5. Under no circumstances are contaminated patients to be transported to a Hospital.
   6. If the patient is symptomatic, respond a Hazmat Paramedic to initiate level 3 treatment either at the scene or at the hospital depending upon ETA.
   7. DO NOT induce vomiting.
   8. DO NOT give Furosemide or Morphine
   9. Ipecac and oral airways are contraindicated.

B. Dysrhythmias:
   1. Refer to Protocols 5.4 through 5.12 for specific dysrhythmias.

C. Seizures
   1. Diazepam (Valium), 5.0 – 10 mg slow IV push. Administer up to 5.0 mg initially, then 2.5 mg increments, q 2 – 3 minutes until seizure activity has ceased or 10 mg has been given.
   2. For additional orders, contact OLMC

Level 2 - None

Level 3

A. General:
   1. Consider activated charcoal and NG tubes.
2. If lungs are clear, administer NS 100 cc/hr IV.
3. If respiratory rate is twice the normal rate, administer Sodium Bicarbonate 1 – 2 mEq/kg IV.
4. Administer Thiamine 100 mg IV.
5. Administer Pyridoxine 1 mg/kg IV.

**Pediatric Care:**

**Level 1**

**A. General:**

1. Use appropriate Personal Protective Equipment (PPE) to remove patient from hazardous area. If risk of exposure is high, call the HAZMAT team for additional assistance. The risk of secondary contamination is very high.
2. Decontaminate the patient with warm water and soap, as needed.
3. General Supportive Care.
4. If hypotensive, initiate Trauma and Hypovolemic Supportive Care.
5. **Under no circumstances are contaminated patients to be transported to a Hospital.**
6. **If the patient is symptomatic, respond a Hazmat Paramedic to initiate Level 3 treatment either at the scene or at the hospital depending upon ETA.**
7. **DO NOT induce vomiting.**
8. **DO NOT give Furosemide or Morphine.**
9. *Ipecac and oral airways are contraindicated.*

**B. Seizures**

1. For pediatric care, refer to Protocol 5.31 Seizures/Status Epilepticus.

**Level 2 – None**

**Level 3 – None**

**References:**


**Reference Protocols:**

- General Supportive Care (Medical)
- Trauma and Hypovolemic Supportive Care
- Sodium Bicarbonate 8.4%
- Diazepam (Valium)
- Pyridoxine Hydrochloride
- Thiamine
- Activated Charcoal Suspension
H.9 – Phenol

History: Effective: 10/01/02; Revised; MCB Approved: 02/21/02; Original 10/01/02

Purpose:

The purpose of this protocol is to describe the authorized interventions for exposure to the following:

PHENOL

Phenol (Carbolic Acid), at room temperature, is a translucent, colorless, crystalline mass, white powder, or thick, syrupy liquid. The crystals turn pink to red in air. Phenol has a sweet, tar-like odor that is readily detected at low concentrations. Phenol is soluble in alcohol, glycerol, petrolatum and, to a lesser extent, water. Phenol is absorbed rapidly by all routes, however, the inhalation hazard is limited. Phenol is mainly used in the manufacture of phenolic resins and plastics. It is also used as a disinfectant and for medicinal purposes (eg. Campho-Phenique).

In dilute concentrations (1% to 2%), Phenol may cause severe burns. Systemic toxicity can rapidly lead to death.

A. Signs and Symptoms:

1. Inflammation of the respiratory tract
2. Headache, dizziness, ringing in the ears
3. Respiratory depression
4. Seizures, coma, shock, death
5. First degree, second degree, third degree chemical burns (white, red, brown appearance).
6. Nausea, vomiting, diarrhea
7. Excessive sweating

Description:

Adult Care:

Level 1

A. General:

1. Use appropriate Personal Protective Equipment (PPE) to remove patient from hazardous area. If risk of exposure is high, call the HAZMAT team for additional assistance. The risk of secondary contamination is very high.
2. Decontaminate the patient with copious amounts of water.
3. After thoroughly rinsing the skin, apply vegetable oil to exposed areas. Isopropyl alcohol may be used for very small skin burns only!!
4. General Supportive Care.
5. If hypotensive, initiate Trauma and Hypovolemic Supportive Care
6. Under no circumstances are contaminated patients to be transported to a Hospital.
7. *If the patient is symptomatic, respond a Hazmat Paramedic to initiate level 3 treatment either at the scene or at the hospital depending upon ETA.*

Note: Failure to decontaminate the skin may allow the Phenol to absorb into the system and result in death.

B. Dysrhythmias:

1. Refer to Protocols 5.4 through 5.12 for specific dysrhythmias.

C. Seizures

1. Diazepam (Valium), 5.0 – 10 mg slow IV push. Administer up to 5.0 mg initially, then 2.5 mg increments, q 2 – 3 minutes until seizure activity has ceased or 10 mg has been given.
2. For additional orders, contact OLMC.

D. Eye Injury

1. Provide ocular irrigation with lactated ringers. Lactated Ringers (LR) is preferred as the pH of LR is very similar to tears. Sterile water, water or normal saline may also be utilized.
2. Use Morgan Lens per manufacturers instructions, if available (Hazmat Paramedic Only), unless perforation or laceration of the globe is suspected.
3. DO NOT attempt to neutralize with another solution.
4. For additional orders, contact OLMC.

Level 2 - None

Level 3 - None

**Pediatric Care:**

Level 1

A. General:

1. Use appropriate Personal Protective Equipment (PPE) to remove patient from hazardous area. If risk of exposure is high, call the HAZMAT team for additional assistance. The risk of secondary contamination is very high.
2. Decontaminate the patient with copious amounts of water.
3. After thoroughly rinsing the skin, apply vegetable oil to exposed areas. Isopropyl alcohol may be used for very small skin burns only!!
4. General Supportive Care.
5. If hypotensive, initiate Trauma and Hypovolemic Supportive Care.
6. *Under no circumstances are contaminated patients to be transported to a Hospital.*
7. *If the patient is symptomatic, respond a Hazmat Paramedic to initiate Level 3 treatment either at the scene or at the hospital depending upon ETA.*
B. Seizures:

1. For pediatric care, refer to Protocol 5.31 Seizures/Status Epilepticus.

Level 2 – None

Level 3 – None

References:

- Bausch + Lomb Pharmaceuticals, Inc. Tetracaine Hydrochloride Ophthalmic Solution USP, 0.5% Package Insert Rev 12/96 - 6L

Reference Protocols:

- General Supportive Care (Medical)
- Trauma and Hypovolemic Supportive Care
- Diazepam (Valium)
- Tetracaine Hydrochloride 5%
Pinellas County EMS

SWAT / TAC PROTOCOLS
Section 6

Transport Protocols
6.1 Hospital Destination Policy

History: Effective: 06/01/99; Revised: 10/01/06, 11/21/02, 11/01/01

Purpose:

The purpose of this protocol is to describe the authorized procedures to be followed when choosing a hospital destination. In general, patients shall be transported to the “most appropriate” hospital, except in situations where transport to the closest hospital or a Trauma Center is more appropriate.

NOTE:

Endeavoring to transport to the correct facility the first time is cost effective and usually improves patient outcomes. Understanding the patient’s healthcare needs, coupled with the specialized medical need(s) of the patient and the facilities’ internal capabilities, will direct the medically “stable” patient to the most appropriate hospital/emergency department destination.

Furthermore: Florida Administrative Code, (F.A.C.), 64E-2.004. (4) (b), states: “The medical director shall issue standing orders and protocols to the provider to ensure that the provider transports each of its patients to facilities that offer a type and level of care appropriate to the patient’s medical condition if available within the service region.”

The issue of which facility is the “most appropriate” is a question only as good as the information the system has available at the time the decision becomes necessary. The Medical Communications Officer (MCO) may assist the field crews in determining the “most appropriate” facility by maintaining an “active and current” database of hospitals which have either requested to be or have been placed on selective divert for the specialized services they may offer. The MCO may also assist in providing the most up to date information about hospitals which have either elected to be or have been placed on a “bypass status”, to include their current “open, bypass, or closed” conditions.

As patients are transported from the incident location to local hospitals, the attendant caring for the patient(s) is responsible for the administration of this protocol.

Description:

I. Guidelines for Transport to the “Most Appropriate” Hospital/Emergency Department:

A. The term "most appropriate" hospital/emergency department is defined as the authorized hospital having the necessary facilities for the anticipated care of the patient’s illness or injury (Protocol 6.3). Due to the medical sophistication of diagnostic equipment and the in-hospital specialties, coupled with the personnel necessary to operate and/or deliver expedient prognostic decisions, many hospitals may be placed, or request to be placed, on a “selective diversion”. Depending on the type of selective diversion initiated (i.e., pediatrics, CT, MRI, specialized surgical, cardiac, trauma, burns, reimplantation, neonatal, OB, spinal cord, neurosurgery, psychiatry, etc.), the requested or intended facility may not be the “most appropriate” facility for the patient’s short and/or long term care.
B. Timely access to hospital/emergency department care is essential. At certain times the “most appropriate” facility may face problems of hospital/emergency department (ED) overcrowding. The issues of overcrowding must be taken into consideration when making the decision of determining the most “appropriate hospital”. Some hospitals participating in the EMS system are occasionally so overcrowded with patients that beds are not available in the ED or critical care units, making the requested or intended facility an inappropriate hospital destination.

C. **Determine the Most Appropriate Hospital/Emergency Department Destination for Stable ALS and BLS Patients using the “Most Appropriate Ambulance Transportation Algorithm” (MAATA).**

Before a patient is transported by the EMS system to the “most appropriate” hospital, a consideration of many variables must be made. These include:

i. **Patient’s hospital of choice.** Many of our patients, including the patient’s family members, already have an idea where they want to be transported. Most often times the choice of a hospital destination is based upon many reasons:

   a. The patient’s insurance and/or the long-term relationship is established between the physician and a certain hospital.
   b. The patient and/or the family’s comfort in past healthcare decisions made at a local hospital.
   c. The recommendation from other respected persons who have had care provided by the institution.
   d. The patient’s past medical records and continuing treatment are being provided by the hospital.
   e. The patient’s employer has a relationship with a certain hospital when an employee suffers an injury covered under Workers Compensation.
   f. The recommendation of the EMS system when no other variable is encountered.

Many patients will become quite passionate in regards to going to their hospital of choice. As much so, they may demand to be transported to their requested hospital regardless of their condition, the status of the hospital and its resources. We need to remember **patients who present alert and orientated, regardless of the severity of their problem, have the legal right to go to the hospital of their choice.** However, it is our obligation to notify the patient(s) or the family member(s) who elect to participate in the healthcare decision making process anytime their decision is contrary to standard medical practice or EMS protocol. We must present these concerns and the rationale supporting them. If the “high risk” or “unstable” patient remains insistent on going to their hospital of choice and that choice is to bypass other hospitals or hospitals on selective divert, the patient should be informed of:

- **Their medical stability.** Critical patients need to know about their options and the rationale for our concern. The patient’s selected hospital of choice may not be the closest nor determined to be the “most appropriate” destination.
• **Time urgency for immediate care.** The patient may be experiencing a type of problem or injury that needs immediate intervention at the hospital. The patient may not understand that time urgency means a difference, not only in saving their life, but also in the quality of life after treatment. As an example, medical cases such as myocardial or cerebral infarct/ischemia may result in further organ damage by not going to the closest hospital.

• **Questionable cases in which the patient has altered mental status.** The patient who presents with altered or questionable mental status (cognition) will be considered a very “high risk” for making their own informed decisions. OLMC must be called when such a patient is refusing the transportation recommendation of EMS. Patients who have either lost consciousness or have appeared to be severely neurologically impaired are considered to have given EMS decision-making authority through “implied consent”. *SPECIAL NOTE:* Many terminally ill and neurologically impaired patients have a Court Appointed Guardian, Power of Attorney or a Healthcare Surrogate who is legally the patient’s medical advisor and medical decision maker. In these situations, EMS must confirm the legal authority and present the information to OLMC.

• **The need for authorization from OLMC.** If authorized by OLMC, the “high risk” or unstable patient may be transported to their hospital of choice. Patients who demand such transport must sign a release “against medical advice” (AMA) stating that they understand the significance of their choice, and the potential impact it may have upon the care they receive.

ii. **The hospital’s “selective diversion” status.** This information will assist in determining the hospital’s “internal resource capability” matched to the patient’s forecasted in-hospital medical needs (i.e., CT scan for CVA/stroke, dialysis equipment for kidney failure, surgical specialties for complicated injuries, psychiatric services for a mental health problem, etc.).

iii. **The patient’s medical stability and incident location.** Compare the closest facilities travel distance and estimated arrival time to the most appropriate facilities travel distance and estimated time of arrival. The time estimate may vary and should remain flexible as to the area road construction, road closures, time of day and any natural obstacles the crew may be informed of.

iv. **The hospitals’ “bypass” status.** To provide for the expedient evaluation, treatment and transport of medical and trauma patients to the “most appropriate” hospital/emergency departments in Pinellas County, and in turn to optimize hospital system resource utilization.

v. **NOTE:** Even though many of our local hospitals share corporate affiliations, ie. HCA, Baycare, etc., it is inappropriate for EMS to assume a patient’s physician(s) will have practice privileges at another corporate “sister” hospital even tough it may seem logical. If this information is critical for patient/family reassurance, seek additional guidance from the MCO/OLMC. NEVER MAKE THIS ASSUMPTION WITHOUT PROPER INFORMATION!

II. **The Transportation of Basic Life Support (BLS) patients:**
A. The field crew has been provided independent discretion in determining the “most appropriate” hospital destination for patient(s) receiving “Basic Life Support” (BLS) care. However, during such hospital bypass, the paramedic may stop at a closer facility if the paramedic determines that the patient's condition is deteriorating, and the best interests of the patient would be served by diversion to a closer facility. If such diversion to a closer facility is considered, the paramedic should notify communications center staff about the diversion and the issues of family notification.

B. Before consideration is given to multi-loading BLS patients injured in a motor vehicle crash, it is to be determined what the medical needs are of each injured patient and the application of the MAATA algorithm. Other circumstances may arise where multiple patients have been in an altercation or in a traffic incident in which they want to continue their hostilities. The transport sector or ambulance paramedic has sole discretion in determining the number of transport units necessary for their personal safety enroute to the hospital.

C. If a patient is unable to furnish any medical information to aid EMS in determining hospital destination, they may be transported to the closest “most appropriate” hospital.

D. If a patient is visiting the Pinellas County area and expresses “no choice” or preference, the clinician must confirm that the closest hospital has the necessary resources to appropriately care for the patient.

III. The Transportation of Advanced Life Support (ALS) Patients Considered Stable:
A. Patients receiving advanced pre-hospital (ALS) care determined to be “stable” using the guidelines established by the Medical Control Board and EMS Medical Director through both protocol and the MAATA algorithm may bypass a closer facility in favor of transport to a more “appropriate facility”. The treating paramedic(s)' opinion with concurrent consultation with OLMC may be used as needed to better clarify a clinical destination. However, during such authorized bypass transport, the paramedic may stop at a closer facility if the paramedic determines that the patient's condition is deteriorating, and the best interests of the patient would be served by diversion to a closer facility. If such diversion to a closer facility is considered, the paramedic should notify the communications center staff about the diversion, hospital notification, and the issues of family notification.

B. The following is considered a guideline in determining a stable ALS patient:

1. Patients presenting with coronary syndrome who are currently pain free. A 12 lead ECG has been performed presenting no signs of ischemia, infarction, or unstable cardiac rhythms.
2. Patients presenting with stable ECG rhythms (e.g. simple ectopy, controlled/tolerated A-fib). Treatment may include the use of lidocaine.
3. Patients with asymptomatic bradycardia, not requiring pharmacological intervention nor external pacemaker.
4. Patients with stable respiratory status with \( O_2 \) saturation > 90% on room air or on supplemental \( O_2 \), where intubation or manual airway assistance (BVM) is not a consideration.
5. Patients who have responded well to altered mental status protocols (e.g., diabetic, syncope & improving post-ictal seizure w/o re-occurrence). Atraumatic related.
7. Patients presenting with psychiatric disturbance with stable vitals who has not threatened the safety of EMS personnel.
8. Patients who meet above stable criteria who are receiving maintenance IV fluids.
9. Other patient care cases that may be considered stable by the field clinician, but are not listed in the MAATA algorithm. Concurrence with OLMC as necessary.

IV. Transportation Guidelines for the Closest Hospital:

A. The closest hospital is that which is estimated by the on-scene paramedic to have the shortest travel time from the scene of the emergency, taking into account road construction, the time of day and other variables that affect the travel time.

B. Patients will be transported to the closest hospital Emergency Department under any of the following circumstances:

1. The patient is in respiratory or cardiac arrest.
2. The patient is in respiratory distress, possibly requiring intubation. The patient has not responded well to EMS treatments (unstable airway).
3. The patient has chest pain suggestive of ischemia, infarction, or unstable cardiac rhythms.
4. The patient is in cardiovascular, hemorrhagic or hypovolemic shock and remains unstable.
5. The patient is unresponsive, altered mental status, or seizure.
6. CVA/TIA within window of thrombolytics and other treatments.
7. Any patient that requires the use of red lights and sirens.
8. The stable patient that expresses no choice or has no preference concerning the hospital to which they are transported. However, before such a decision is considered, the following should be investigated:
   • The closest hospital emergency department is the most appropriate for the continued in-hospital/ ED treatment of the patient.
9. All overdoses or poisonings, unless exception is granted by OLMC.
10. A patient with violent psychotic behavior
11. The patient’s condition is deteriorating and OLMC approves.
12. The patient is “stable” but is receiving advanced pre-hospital care. Their hospital of choice is located outside the Pinellas County area and is over 30 minutes away by ground without traveling with lights or sirens. Transport to the closest hospital Emergency Department in this situation will allow evaluation of the patient’s condition by a physician regarding the safety of further transport to the preferred facility. Consultation with OLMC will be obtained if the patient is not agreeable to this policy.

V. Transport to Trauma Centers:

SEE PROTOCOL 6.6 TRAUMA TRANSPORT PROTOCOLS (TTPs) SECTION IV A-K.
**MOST APPROPRIATE AMBULANCE TRANSPORT (MAATA) ALGORITHM**

**AMBULANCE TRANSPORTATION REQUIRED?**

- **YES**
  - **Patient stable?**
    - **YES**
      - OLMC for Level ll orders or any algorithm questions PRN.
        - Coronary syndrome pain-free & has no signs of ischemia, infarction, or unstable cardiac rhythms after a 12 lead ECG has been completed.
        - Stable rhythms (simple ectopy, controlled / tolerated A-Fib). Treatment may include Lidocaine.
        - Asymptomatic bradycardia, not requiring pharmacological intervention nor external pacemaker.
        - Stable respiratory status w/ O$_2$ saturation > 90% on room air or on supplemental O$_2$ where intubation or manual airway assistance (BVM) is not considered.
        - Good response to altered mental status protocols (diabetic, syncope, improving post-ictal seizure w/o reoccurrence) Atraumatic related.
        - Non-overdose pts. presenting w/ stable vital signs.
        - Psychiatric disturbance w/ stable vitals that have not threatened safety of EMS personnel.
        - Meets above stable criteria and is receiving maintenance IV fluids.
        - Other pts. considered stable by field clinician w/ concurrence of OLMC.
    - **NO**
      - **ALS**
      - **BLS**

- **NO**
  - Respiratory or cardiac arrest.
  - Respiratory distress, possibly requiring intubation and/or manual assistance (BVM).
  - Chest pain suggestive of ischemia, infarction, or unstable cardiac rhythms.
  - Cardiovascular, hemorrhagic or hypovolemic shock & remains unstable.
  - Unresponsive, altered mental status, or seizure.
  - CVA/TIA within window of thrombolytics and other treatments.
  - Any pt. requiring red lights & sirens.
  - All overdoses or poisonings, unless exception granted by OLMC.
  - Violent Psychotic Behavior.
  - Patient’s condition deteriorating and OLMC approves.

- **When an alert & orientated pt. demands transport to preferred hospital, hospital on bypass, or hospital on selective divert as a condition for any treatment. In such circumstances, OLMC is to be consulted. If authorized by OLMC, the pt. will be transported to their requested hospital. Patients who demand such transport must sign a release stating that they understand the significance of their choice, and the potential impact it may have upon the care they receive.**

- **DIVERT** if the paramedic determines that the patient’s condition has changed / deteriorated and the best interests of the patient would be served by diverting to a closer facility. Notify MCO when divert occurs for family notification. Seek OLMC consultation for level ll orders, risk management issues or perceived problems.
6.2 Re-Transfer

History: Effective: 06/01/99; Revised: 10/01/06, 11/01/01

Purpose:

The purpose of this protocol is to describe the policy for occasions when a patient or hospital requests a transfer to another hospital/ emergency department because of a delay in making a bed available, or because the health services of the hospital at any given point may not be as advanced as the services the patient may require.

Description:

Patient’s Request for EMS transfer due to delay:

1. Utilize the Refusal of Care Algorithm to determine if the patient understands the risks of transfer and is capable of making an informed refusal of the recommended Emergency Department destination. If the patient is competent and still wants to go to the alternate facility, advise the patient of the process that must be followed to make such a transfer. If the patient wishes to transfer, proceed to item 2.

2. Find out what hospital the patient would like to go to and advise the Emergency Department charge nurse of the patient’s wishes to go to that facility due to the delay. Advise the patient that the facility they are requesting may or may not accept their transfer. Advise the patient that Federal law requires that they be seen by the Emergency Department physician before any such transfer may take place.

3. The Emergency Department physician will make an examination of the patient (to determine if the patient is sufficiently stable for the trip to the secondary facility), advise the patient of the risks of transfer, and complete a transfer form. The Emergency Department physician will also contact the receiving facility’s Emergency Department physician to verify acceptance of the transferred patient.

4. Federal EMTALA regulations mandate that a transfer form be completed for any patient leaving one Emergency Department for another. The crew is responsible for obtaining a copy of the completed form and any other patient records from the charge nurse prior to departure for the alternate facility.

5. Request the MCO check on the bed status and any delay factors at the alternate facility.

6. Make contact with OLMC for consult of the results and recommendations of the Emergency Department physician regarding the transfer. OLMC authorization is MANDATORY before leaving one Emergency Department to go to another in ANY circumstance.

7. If OLMC approves, advise the ambulance dispatch center. Do not forget to have someone notify the family. Carefully document completion of each of these steps on the run report. The crew should complete an EMS Incident Report describing the situation and the steps that were taken to accomplish the transfer.
Inter-Hospital Requested Transfer:

1. A local hospital may from time to time call the Sunstar Communications Center and request ambulance transfer to another local hospital. Such a request may be made when the sending hospital’s internal services do not provide appropriate diagnostic testing or services necessary for the continued care of the patient.

2. When such a call is received in the Sunstar Communications Center, EMS communications staff shall obtain the reasons for the transfer and document such in the notes of the call. If the transferring facility (sending hospital) is transferring their patient to another hospital for a clinical resource they have already documented having in their own facility, the Medical Communications Officer (MCO) is to be informed immediately of the circumstances for telephone follow-up for possible selective diversion.

3. Before any interfacility patient transfer is performed, a receiving bed number must be obtained. In more emergent transfers, an acceptance from the receiving facility to the appropriate area is sufficient (ie. Cath lab, Labor and Delivery, O.R., etc.).

4. Before any hospital patient is transported by the EMS system, they must have followed the established guidelines already discussed in this protocol.
6.3 Hospital Bypass and Selective Diversion Policy

History: Effective: 12/01/02, 11/1/99; Original: 06/01/99; Revised: 10/01/06, 11/12/99, 9/16/99; MCB Approved: 04/18/02, 09/18/01, 9/16/99

Purpose:

The purpose of this protocol is to provide for the expedient evaluation, treatment and transport of medical and trauma patients to the "most appropriate" hospital/emergency departments in Pinellas County, and in turn to optimize hospital system resource utilization. Secondly, the provision of timely transfer of the EMS patient to the emergency department staff will increase the availability of EMS resources (vehicle and personnel) thus, providing appropriate response times to other emergent system requests.

Description:

HOSPITAL BYPASS AND RESOURCE DIVERT STATUS CONDITIONS:

OPEN:  No Hospital Patient Restrictions – Emergency Department and inpatient services are available.

BYPASS:  GREEN BYPASS:  No Severity GREEN Patients --- This bypass is intended for any patient the field clinician has triaged as stable (Basic Life Support, BLS) not normally subjected to in-hospital advanced care. All available areas of the emergency department for this patient population are being utilized. The hospital would still receive Severity RED and YELLOW patients.

YELLOW BYPASS: No Severity YELLOW patients --- This bypass is intended for any patient the field clinician has triaged as serious. Most often times, this patient population will require advanced medical care (ALS) including ECG monitor, IV or IV reseal. The hospital would still receive Severity GREEN and RED patients.

CLOSED: No Hospital Patient Access – An internal hospital disaster, or a high demand for Emergency Department/Internal hospital resources have overwhelmed the facility to the extent that safe patient care cannot be provided to additional system patients. When a bed transfer delay of 60 minutes or longer is experienced, or when multiple EMS units (3 or more) are delayed with no indication of bed transfer, thus decreasing the availability of EMS resources (vehicle and personnel), the hospital will be placed on closed status. NOTE: In most situations, the hospital will have been placed on a diversionary condition before the hospital would transition to a closed status.
RESOURCES DIVERT:

This diversion is intended to provide specific resource information to the EMS system for a disruption of hospital diagnostic equipment, or for various in-hospital service delivery programs a hospital might specialize in. Depending on the type of selective divert (i.e., pediatrics, CT, MRI, ECG monitors, specialized surgical, major trauma, burns, neonatal, OB, neurosurgery, psychiatry, etc.), the nearest facility or the patient’s requested or intended facility may not be the “most appropriate” facility for his/her short or long term care at the time of the illness or injury and diversion to a more appropriate facility may be indicated. (See resource divert types.)

RESOURCES DIVERT TYPES

Neuro Divert:

i) This diversion is intended for any patient the field clinician suspects is experiencing an acute neurological event such as a CVA, TIA, seizure or any other unexplained altered level of consciousness and the nearest hospital or the patient’s hospital of preference has diagnostic or therapeutic equipment that has been reported as nonfunctional, e.g., CAT scanner, etc.

ii) The hospital has no neurologist on staff or the on-call neurologist is unavailable, has a prolonged response to the hospital and there is no back up coverage.

Neuro Surgical Divert:

i) This diversion is intended for any patient the field clinician suspects has undergone a neurological event that may necessitate neurosurgical intervention including altered level of consciousness due to trauma with neurovascular involvement, spinal cord compressions where the nearest hospital or the patient’s hospital of preference has diagnostic or therapeutic equipment that has been reported as nonfunctional, e.g, MRI.

ii) The hospital has no neurosurgeon on staff or the on-call neurosurgeon is in surgery or will be in surgery for greater than two (2) hours and has no back up coverage.

ECG/Cardiac Divert:

i) This diversion is intended for any patient the field clinician suspects will need cardiac monitoring or CCU admission and where the nearest hospital or the hospital of the patient’s choice is currently unable to accommodate patients requiring these services because they have no available monitored beds or nurses available to deliver support services to these patients. This diversion will only apply to severity YELLOW patients requiring cardiac monitoring. The hospital shall continue to receive Severity RED patients (ECG monitored) for initial stabilization including all other patient severities that do not require ECG.
Psychiatric Divert:

i) This diversion is intended for any patient the field clinician suspects is having a psychiatric emergency and/or has been placed under the Baker Act law necessitating the delivery of psychiatric services and the nearest hospital or the patient’s hospital of preference is currently unable to accommodate patients requiring these services because they have no beds or nurses available to deliver these services.

ii) The hospital currently has no psychiatric staff or beds available.

Obstetric (OB) Divert:

i) This diversion is intended for any patient the field clinician suspects has an impending or expected childbirth and the nearest hospital or hospital of the patient’s preference has diagnostic or therapeutic equipment necessary for this patient population that has been reported as nonfunctional.

ii) The hospital currently has no beds or nurses available for the delivery of these services.

iii) The hospital currently has no obstetrician on staff or the on-call obstetrician is in surgery or will be in surgery for greater than (2) hours and has no backup coverage.

Pediatric/Neonatal Divert:

i) This diversion is intended for any patient the field clinician is suspect of needing specialized Pediatric/Neonatal services.

ii) The hospital currently has no beds or nurses available for the delivery of these services.

iii) The hospital currently has no Neonatologist or Pediatric specialist on staff or the on-call specialist will be unavailable for greater than (2) hours and has no backup coverage.

Burn Care Divert:

i) This diversion is intended for any patient the field clinician is suspect of needing specialized burn care treatment and the nearest hospital or hospital of the patient’s preference has no burn treatment specialists on staff.

ii) The hospital currently has no beds or nurses available for the delivery of these services.

iii) The on-call burn specialist will be in surgery or unavailable for greater than (2) hours and has no back up coverage.
Specialized Surgical Divert:

i) This diversion is intended for any patient that the field clinician is suspect of needing specialized surgery. This may include extremity re-implantation, pediatric surgery, neurovascular, wound care and/or other specialized surgical procedures where the nearest hospital or hospital of the patient’s preference currently does not have the specialized surgical capabilities available.

ii) The pediatric surgeon on staff or the on-call surgeon for these subspecialties is in surgery and will be in surgery for greater than (2) hours and has no backup coverage.

Major Trauma Divert:

i) This diversion is intended for any patient the field clinician has determined having met the Florida Trauma Alert (TA) Criteria or feels the patient is in need of major surgical intervention and the nearest hospital or the hospital of patient’s preference is not a designated Trauma Center.

ii) The closest designated Trauma Center is unable to provide the service due to multiple surgical trauma patients in the emergency department in the acute phase of care.

iii) The hospital is unable to provide immediate general surgical intervention because the primary trauma surgeon(s) and/or the backup trauma surgeon(s) are in the operating room or without backup coverage.

iv) The hospital's surgical team (anesthesiologists, OR nurses, OR technicians are unavailable for greater than one hour due to previous incidents).

PROCEDURES:

1. The hospital administrator will periodically register the name(s) and individual hospital position(s) authorized to modify the hospital Bypass conditions with the Office of the Medical Director (OMD).

2. When the authorized hospital representative or the ED Nurse Manager cannot be contacted or reached within a reasonable amount of time, The Medical Communications Officer (MCO) working along side the On-Line Medical Control (OLMC) staff is authorized to change a hospital’s Bypass condition without concurrence using the guidelines so noted in the hospital Bypass and Resource Divert Status Conditions. On-Line Medical Control and the Medical Communications Officer represents the clinical management team outside the hospital, therefore, only these representatives can change the hospital's Bypass/Diversion status.

3. The care of all system patients will be transferred to receiving facility personnel within 20 minutes of ambulance arrival. Over twenty minutes, a delay in finding an open bed will further decrease the availability of EMS resources (vehicle and personnel) thus lengthening response times to other emergent system requests. When such a delay is encountered, the OLMC or MCO staff member shall contact a hospital representative (most often, the ED Charge Nurse) to discuss the availability of Emergency Department resources and the estimated time it will
take to transfer the patient(s) to a facility bed and to provide a transfer of patient information. During this conversation, the hospital representative shall be briefed concerning the active requests for emergency service in their region and the potential hospital resources that may soon be necessary to accommodate these patients.

4. If a delay in finding an open bed extends past 30 minutes from the arrival of the ambulance that has prompted the bed delay, the hospital will be placed on a bypass condition that meets the needs of the EMS system.

5. If a continuing delay is substantiated through field communication and hospital staff, that is now 60 minutes in duration from the initial ambulance that prompted the review, or when multiple EMS units (3 or more) are delayed for with no indication when bed transfer will occur, thus decreasing the availability of EMS resources (vehicle and personnel), the hospital will be placed on Closed Status. NOTE: If the hospital is not experiencing an internal disaster, they should first be placed on a Bypass condition before the hospital transitions to a closed status. If EMS resources are still unavailable for system response 60 minutes after their arrival, the MCO shall notify the executive staff of the hospital via telephone/pager for assistance in resolving the delay.

6. If the hospital electively requests to be placed on a Bypass or a Closed status through the protocol process or self initiation, the name of the hospital representative and the circumstances necessitating the condition change will be documented in the hospital Bypass journal maintained by the Office of the Medical Director.

7. When a hospital has been officially placed on a Bypass status in Procedure #4, 5, and/or 6 of this section, it will remain the responsibility of the hospital to notify the MCO when their status is to be officially changed back to pre-Bypass/normal status. The MCO may elect to reconfirm or update the hospital status during the hospital's official Bypass time period, however, this will remain a courtesy consultation.

8. When a patient demands transportation to a hospital on Bypass, Closed or on a Diversionary status, the patient will be transported to their requested hospital. Patients who demand transport to a hospital on Bypass, Closed or on a Diversionary status must sign a release stating that they understand the significance of their choice, and the potential impact it may have upon the care they receive.

9. The hospital has no legal authority to redirect ambulances (soft divert) to other facilities over the med-radio or upon their arrival at the hospital due to lack of available beds, staff or resources. Based upon EMTALA regulations, the hospital "may" divert an ambulance by med-radio only when the hospital is officially in diversionary status.

10. Hospitals will be notified when only two hospitals in a region of the county are receiving patients. Every effort will be made to maintain at least two hospitals per region open to receive patients.

11. The Medical Director, working in conjunction with the EMS Authority, may deny a hospital’s request for a status change or may override a hospital’s status when the entire system or a specific region of the community is overloaded. A consideration will be made to open all hospitals currently on Bypass or Closed status.
Delayed Patient Consolidated Care Procedure

1. This procedure addresses acute and severe EMS system and service delivery challenges resulting from hospital ED bed delays.

2. This procedure provides for limited consolidation of care of multiple EMS patient’s under one EMS care team while they are waiting for placement into ED beds and transfer of care to ED clinical staff.

3. Threshold for implementation:
   a. Two or more Sunstar Units with eligible patients waiting for placement in a given ED, each for more than 15 minutes.
   b. Sunstar administration will be responsible for determining when and if the procedure will be implemented.

4. Care criteria:
   a. One Sunstar care team, consisting of one paramedic (or RN) and one EMT or two paramedics may perform Consolidated Care for up to three EMS patients.
   b. Only one of the three patients involved in Consolidated Care may be ALS.
   c. Severity Red and complex severity Yellow (such as chest pain or shortness of breath requiring frequent reevaluation and ongoing therapy) patients are not eligible for inclusion in Consolidated Care.

5. Implementation procedure:
   a. When two units, with eligible patients, have been waiting at an ED for at least 15 minutes, a medic on-scene will request a Sunstar Supervisor.
   b. The Supervisor, will verify the bed status with the ED Charge Nurse, and advise them when the procedure will be implemented. The Supervisor must also notify the MCO that the Consolidated Care procedure has been initiated, so that it can be recorded in the OMD’s hospital status database.
   c. The Supervisor will also determine which crews will be released and which will stay with the Consolidated Care patients.
   d. Full report must be given to the on-going care crew and a copy of the initial written PCR must be provided.
   e. Hospital staff must be notified at the time of arrival of each new patient.
   f. All continuing care must be documented on the patient PCR. In addition, all care being provided to patient’s prior to initiation of the procedure (such as administration of oxygen and cardiac monitoring) must be continued.
   g. It will be the responsibility of Sunstar to provide for stretcher alternatives for Consolidated Care patients and adequate medical equipment to continue their care.
   h. Both members of the Consolidated Care team must remain in close physical contact with all of their assigned patients, unless the Supervisor provides for them to be released. At no time, will an ALS patient be left without paramedic or RN supervision, even temporarily.

6. On-going interventions:
   a. Sunstar Consolidated Care teams are authorized to continue clinical care (beyond monitoring) of their patients under OLMC without obligation to request permission from the ED staff; however, ED staff must be advised of any significant changes in patient condition or any new interventions needed, in case the condition change may result in making patient care transfer possible.
   b. Critical, emergent interventions may be performed when needed prior to OLMC consultation as usual, but OLMC consultation must be made either after critical interventions are performed or prior to Level 1 or Level 2 non-critical interventions, such as pain management administration of Promethazine, etc.
   c. All risk management issues, such as patients who decide to refuse further care and evaluation, will require OLMC contact, as well as contact with the ED staff.
d. OLMC will assist in mediation of conflicts between EMS and ED staff.

7. Hospital administration notification:
   a. A Sunstar Administrator will contact the hospital CEO of the specific hospital immediately when the Consolidated Care procedure is enacted. It will not be the responsibility of the OMD to make such contact or to otherwise administer the non-clinical aspects of this procedure.
   b. The Sunstar Administrator will notify the MCO of the contact made with the hospital CEO so that it can be recorded in the OMD’s hospital status database.

8. Quality management:
   a. All conflicts regarding patient care and transfer of care require a consult with OLMC.
   b. QARs will be initiated at the request of OMD, Sunstar supervisory personnel, or appropriate hospital staff.
   c. The effectiveness of the Consolidated Care procedure will be monitored at the Sunstar Quality Council meetings.
TO: All Pinellas County Emergency Department Nurse Managers & Physician Medical Directors  
FROM: Jeff Barnard, Executive Director for the Office of the Medical Director  
DATE: __________________, 2002  
RE: Implementation of the updated Hospital Bypass Policy

Starting ________________, the EMS system will begin implementation of our revised Hospital Bypass Policy (see attached). These new changes continue to be reflective of system feedback from the out-of-hospital environment, our emergency department managers and the Pinellas County Medical Control Board (MCB) which has representation from four hospital administrators and seven emergency department physicians. The MCB unanimously approved the revised policy at their __________ meeting.

Please review the policy in its entirety. If you have any questions, please don’t hesitate to call me directly at 582-2036. As always, we encourage your feedback.

On another note, I am requesting that all of you continue to report any disruptions of critical diagnostic equipment and/or any specialized service disruptions to our Medical Communications Officer (MCO) at 582-2532. As an example: your CT scanner becomes inoperative due to maintenance issues or staff limitations. It is imperative that this information be shared with EMS, as it will directly effect the continuation of the patient’s care and long-term prognosis.

Secondly, if any of your specialized services become disrupted and considered unavailable to the community we strongly encourage you to report these to our MCO. These services may include OB, psychiatric care, neurosurgical or specialized surgical care offerings. Once again, having this type of information available in real-time patient care situations will assist EMS in determining the most appropriate facility.

We appreciate all of the hospitals currently providing us such information. Keep up the good work!

cc: EMS & Fire Administration  
    Sunstar Operations  
    EMS Coordinators  
    OLMC staff  
    MCO
EMERGENCY DEPARTMENT DELAYS PROTOCOL

At hospital within 5 mins. Bed delay??

YES

Notify Sunstar Communication Supervisor

Immediately Notify MCO

ASAP MCO contacts hospital at 20 min.

Trigger Point

30 min and waiting?

NO

Delay resolved

YES

*Hospital placed on Bypass Status by MCO

Trigger Point

60 min. or 3 or more units delayed

*Hospital “closed” by MCO

NO

Non-event

Trigger Points are: 30 min. and waiting = Bypass, 60 minutes = Closed.

Sunstar Field Supervisor role – move from “police” to support of crews and patients during facility delays.

*Hospital will return to “Open” status 30 min. after last patient (unit) waiting is given a bed.
6.4 Use of Ground Transport Resources

To give clear guidance in the selection of which Ground Transport resources shall be utilized in the Pinellas County EMS System. To continually balance the transportation activities of the system with adequate and time efficient first response coverage.

DESCRIPTION:

All patients in the Pinellas County EMS System shall be transported by a Sunstar EMS Ambulance. The following exceptions allow for the use of Fire Department Transport Capable Units or Mutual Aid Ambulances in specific circumstances:

Level I

A. VOLATILE SCENE. A paramedic may institute transport from a volatile scene when, in the judgment of the paramedic, remaining on the scene may harm the EMS Crew or the patient. The paramedic must complete a post consult with OLMC prior to returning to service after the transport has occurred.

B. TRAUMA ALERT. A paramedic may institute transport of a patient that meets the Trauma Alert Criteria. All questionable cases of injury that do not meet the Trauma Alert Criteria, but in the opinion of the paramedic should be transported to a Trauma Center must seek Medical Control approval (See Level II.A.) The paramedic must complete a post consult with OLMC prior to returning to service after the transport has occurred.

C. PATIENT SEVERITY. A paramedic may institute transport of a severity “RED” patient(s) meeting classification definition outlined in the Medical Operations Manual. The decision to transport should be based upon the location and estimated ambulance response, additional resources needed to augment patient care, as well as a load and go situation. The paramedic must complete a post consult with OLMC prior to returning to service after the transport has occurred.

D. SYSTEM OVERLOAD. State of operations in which Central Dispatch has changed their operational condition to condition five due to extreme call volume, severe weather, or a mass casualty situation. This is a precursor to a declared disaster allowing field personnel the ability to quickly react to man-made or natural disasters.

E. MAJOR CATASTROPHIES AND DISASTER SITUATIONS. A state of emergency or an EMS emergency declared by the Pinellas County EMS Authority, having NO field communications intact to offer guidance through OLMC. Transportation of the sick and injured may be accomplished using a variety of different sources. However, such would be considered a vehicle rendering services as an ambulance during a major catastrophe or emergency when ambulances with permits based in the locality of the catastrophe or emergency are incapacitated or insufficient in number to render the services needed. As communications are restored (randomly), Level 2 consultation will be required for transportation. Personnel assigned to such vehicle(s) must be at a level of clinical participation commensurate to the needs of the patient.
Level II

A. REQUEST FOR TRANSPORT. **OLMC must be contacted prior to loading the patient on the fire department stretcher except in rare and unusual circumstances.** The On-Line Medical Control staff, once consulted about a Level II transport, shall work in conjunction with the MCO to quickly evaluate objective data regarding the chief complaint of the patient, the patient’s severity, the location and ETA of the responding Ambulance Unit, and the status of the system (Fire and Ambulance resources). If the data indicates that the best interest of the patient and/or of the system would be served by transport, the On-Line Medical Control staff shall advise that “Transport has been authorized.” If the data is unclear or unavailable, then On-Line Medical Control shall make the final decision for the patient's transportation. Transfer between FD and Sunstar stretchers is authorized where patient care and safety is not compromised.

1. **MULTIPLE VICTIM INCIDENT.** Medical Control must be contacted prior to the initiation of transport. The On-Scene Medical Sector Officer responsible for transport shall come up on med channel “A” or request the MCO to the working tactical channel through Central Dispatch. If necessary, the sector officer will be assigned med channel “C” as the working medical control tac channel.

   The OLMC staff, once consulted, shall work in conjunction with the MCO to quickly evaluate objective data regarding the number of patients, the patients’ severity, the location and ETA of the responding Ambulance Units, and the status of the system (Fire and Ambulance resources). If the data indicates that in the best interest of the patient(s) and/or of the system would be best served by transport, the MCO shall advise that “Transport has been authorized.” If the data is unclear or unavailable, OLMC shall make the final decision for the patients’ transportation.

   The MCO will assist in relaying patient reports, relay data regarding the current bed status of the hospitals, and assist in patient dispersal.

2. **MAJOR CATASTROPHIES AND DISASTER SITUATIONS.** As centralized communications are restored for the provision of guiding the transportation of the sick and injured, OLMC may approve a variety of different transportation sources. However, such sources would be considered a vehicle rendering services as an ambulance during a major catastrophe or emergency when ambulances with permits based in the locality of the catastrophe or emergency are incapacitated or insufficient in number to render the services needed. Personnel assigned to such vehicle(s) must be at a level of clinical participation commensurate to the needs of the patient.

3. **SEvere WEATHER/REMOVAL FROM ENVIRONMENT.** A paramedic may move a patient to a transport unit in circumstances where severe weather is hindering patient care or removal from the environment is the definitive care for the presenting problem (Examples: pedestrian struck during a severe storm; heat stroke or exhaustion on a hot day).
6.5 Staging

**Purpose:**

The purpose of this protocol is to ensure protection of all emergency services personnel responding to a violent, or possibly violent, incident.

**Description:**

1. **Responding to Possible Violence:**
   a. While en route to a call where violence exists or is a possibility, check with Central Dispatch to see whether law enforcement agencies are also enroute to the scene. You may be advised by Central Dispatch to consider staging.
   b. In situations where law enforcement agencies have indicated the need for other responding public safety agency units to stage:
      i. The information will be forwarded to Central Dispatch and the Sunstar Communications Center.
      ii. The first arriving unit shall coordinate the staging location.
      iii. Upon making the decision to stage, they will immediately notify appropriate dispatch centers of:
         - staging decision
         - location
         - recommended route of access
   iv. While still a few blocks away from the area, all responding units shall:
      - stop the siren.
      - turn off the emergency lights.
      - advise Central Dispatch of a safe approach to the area for all other incoming emergency responders.
      - upon notification of a staging situation, all units shall downgrade to non-emergency response unless notified differently.
   v. Routinely park out of sight of the scene location or safely outside the Danger Zone (an area about 120 degrees in front of the scene that is normally partially exposed).
   vi. A request will be made for clearance from the law enforcement agency before entering the scene. Once law enforcement agencies have stabilized the area, emergency units may enter the scene with caution. **DO NOT ENTER A VIOLENT INCIDENT AREA WITHOUT FIRST HAVING RECEIVED THE GO-AHEAD BY THE LAW ENFORCEMENT AGENCY SECURING THE AREA.**
   c. If the decision to stage has been made and law enforcement agencies are not on the scene:
      i. Request a law enforcement agency ETA from Central Dispatch.
      ii. Consider Central Dispatch updates. You may use your discretion to determine whether to enter the scene before the law enforcement agencies arrive.

2. **Encountering Scene Violence:**
   a. Upon the arrival at the scene of a medical emergency, the clinician(s) should assess the condition of and promptly treat any sick or injured person unless the health or safety of the clinician(s) is jeopardized.
b. If you find an unanticipated violent situation, advise Central Dispatch of your location address. Also advise Central Dispatch of safe approach to the area for all other incoming emergency responders.

c. If you find a violent situation and law enforcement agencies have not been called, advise Central Dispatch of your need for law enforcement’s assistance and request the law enforcement agency’s ETA and frequent updates from Central Dispatch before taking further action. Utilize the appropriate help procedures as identified by the different agencies.

d. Once law enforcement agencies have stabilized the area, emergency units may enter the scene with caution. **DO NOT ENTER A VIOLENT INCIDENT AREA WITHOUT FIRST HAVING RECEIVED THE GO-AHEAD BY THE LAW ENFORCEMENT AGENCY SECURING THE AREA.**
6.6 Trauma Transport Protocols

History: Effective: 06/01/05, 09/01/99; Revised: 03/05/05, 11/01/01; MCB Approved: 04/27/05

Purpose:
The purpose of this protocol is to describe the EMS Trauma Transport Protocols currently in effect in Pinellas County.

Description:

I. DISPATCH PROCEDURES

A. REQUIRED INFORMATION

The Pinellas County 9-1-1 Central Dispatch Center:

The Pinellas County 9-1-1 Central Dispatch Center (CD) is located in the Civil & Emergency Services Building in downtown Clearwater, FL. The center receives all Police, Fire and Medical Emergency 9-1-1 requests for assistance. The 9-1-1 operator ascertains the nature of the emergency, address, and all other pertinent information available, such as call back number, difficult access or other routing, extent and severity of emergency, number of victims, etc. The calltaker must obtain the phone number, nature and location of the incident as quickly as possible and enter it into the Computer Aided Dispatch (CAD) system to permit immediate dispatch. Additional information can be obtained after the call has been relayed to the dispatcher.

In serious traumatic injury cases, the EMS system is critical of itself when it comes to managing the patient’s “Golden Hour”. Because of this concern, the 9-1-1 Dispatch Center provides a verbal radio time notification to all field units assigned to incidents that may or may not involve traumatic injury. Thus, the “ten minute notification”, as it is called, is provided on the clinician’s field radio, prompting the crew for time urgent trauma care decisions. The ten-minute timer is started upon the initial call received into the 9-1-1 Center.

When the field crew has determined that the quickest mode of transportation may be by air medical transport, a request for an “air transport upgrade” is made through the 9-1-1 channel operator. In turn, the 9-1-1 operator notifies the Bayflite Communications Center of the scene request.

The Sunstar Communications Center:

The Sunstar Communications Center is located in Largo, FL, and is responsible for dispatching the ambulance service for both emergency and non-emergency responses. Center personnel also assume the direct responsibility for conducting Emergency Medical Dispatching (EMD) for all calling parties transferred from the 9-1-1 Dispatcher.
When information is received at the 9-1-1 Dispatch Center about a motor vehicle crash, the operator determines if the calling party is a “First Party Caller” (caller is the patient) or a “Second Party Caller” (caller is with the patient). If the operator can determine that the calling party is a “first” or “second” party caller, they will be transferred to the Sunstar Communications Center for EMD. EMD personnel will conduct a caller interrogation and pre-arrival instructions in accordance with the current Pinellas County version of the Advanced Medical Priority Dispatch System (AMPDS) protocols. Upon completion of the interrogation, the EMD will code the response determinant into the “notes” of the call and simultaneously forward the information to the 9-1-1 operator. The 9-1-1 operator will then notify the responding providers of additional call information and any pre-arrival instructions/interventions that may have been provided by the EMD. The 9-1-1 operator will notify the appropriate Law Enforcement Agency via telephone ringdown.

If the caller is not transferred to an EMD, the Sunstar radio operator (paramedic/EMD) shall review the pertinent call information available and apply the current Pinellas County version of the AMPDS protocols. At the completion of reviewing the notes of the call, the Sunstar EMD will code the response determinant into the “notes” of the call.

Bayflite Communications Center & Operations

The Bayflite Communications Center is located at Bayfront Medical Center in St. Petersburg, FL. The communications center is currently responsible for the coordinated dispatch of all rotary wing air services permitted to operate in the Pinellas County EMS system (see air medical service providers). Upon the receipt of an “air transport upgrade” from the 9-1-1 Dispatch Center, the Bayflite Communications Specialist shall evaluate the availability or non-availability of all air services. The operator shall recommend the closest air service provider with the best-estimated time of arrival (ETA) to the incident location. The ETA and origination location of the aircraft is to be provided to the 9-1-1 operator, who in turn provides the information to the field incident commander and/or paramedic. The field personnel will then affirm or rescind the request for air transportation service, based upon the information provided.

Additionally, the Bayflite Communications Center reports to the Office of the Medical Director (OMD) the following information for each air transport upgrade:

- The location of the assigned aircraft at the time of the dispatch (base location or other physical location, such as “in air over Hillsborough County”).
- When the Bayflite Communications Center received the response request.
- When the air service goes “enroute”.
- When the air service arrives “on the scene”.
- When the air service arrives “at patient”.
- When the air service “departs the scene”.
- Which Trauma Center the patient has been transported to.
- When the air service “arrives at the Trauma Center”.

The Bayflite Communications Center, air service providers and local Trauma Center personnel assigned to Quality Improvement (QI) activities shall assist in providing the EMS Medical Director or designee QI information necessary to confirm the quality of the services provided.
B. VEHICLE ASSIGNMENTS

When a request for help is received in the 9-1-1 Dispatch Center, the CAD immediately assigns the appropriate emergency service provider that is nearest to the call location. Alarm assignments to specific response grids and locations are preassigned in the CAD, up to seven potential units deep, in the event the closest unit is unavailable.

The 9-1-1 & Sunstar dispatchers activate the proper “alert” encodes and provide the following information to the emergency responders:

1. Units assigned by apparatus number, including both First Responders and Ambulance
2. The incident location (including address, apt, lot, or suite number if applicable)
3. Nature of call & any preliminary information
4. Response grid
5. Operational radio channel
6. Pre-arrival EMD information if the caller has been interrogated

The original dispatch will be given twice, unless there are multiple calls waiting.

C. MUTUAL AID

Within Pinellas County, there are 18 separate licensed ALS providers and 24 municipalities. All units are dispatched by one Enhanced 9-1-1 Dispatch Center. All calls received are dispatched to the closest appropriate EMS provider regardless of location of the caller, the responding units, and/or municipality geographic boundaries. Mutual aid for fire, EMS or law enforcement is requested by the 9-1-1 Dispatch Center based on the nature of call received, as defined in their protocols. First arriving units can request that additional EMS or law enforcement units be dispatched to the call by notifying the county 9-1-1 Dispatch center using the mobile or portable radio system. The 9-1-1 Dispatch Center will then notify the appropriate agency.

II. PREHOSPITAL PROCEDURES

A. TRAUMA SCORECARD METHODOLOGY: (Florida Administrative Code (FAC) 64E-2.017(Adult) & 64E-2.0175(Pediatric)

Upon the arrival of the emergency responders to a patient suffering a traumatic injury, the first EMTs or paramedics to assess the patient shall evaluate the patient’s status using the trauma scoring criteria outlined in the Florida Administrative Code FAC and this protocol. The scorecard methodology outlined in both the FAC and this protocol shall be used to determine the transport destination for adult and pediatric trauma

B. PATIENT CARE REPORTING REQUIREMENTS FAC (64E-2.013)

All trauma patients transported will require the completion of the trauma section of the most current version of the Pinellas County Patient Care Report (PCR). The transporting vehicle personnel shall deliver the PCR with the trauma patient to the
State Approved Trauma Center (SATC), or the State Approved Pediatric Trauma Referral Center (SAPTRC).

The first arriving paramedic is responsible for collecting all the necessary trauma information using the most current version of the Pinellas County Patient Care Report. The first arriving paramedic is also responsible for providing a verbal and hard copy report of the critical assessment and treatment information to the transporting unit at the time that the responsibility for the patient's care is transferred to the transporting unit if such transfer of care occurs. In the event that multiple patients are encountered, a specific paramedic shall be designated by the Incident Commander, Medical Sector Officer, or first arriving paramedic as being responsible for these procedures for each patient. The transporting unit is required to include in its Patient Care Report a list of all known critical assessment and treatment procedures administered or attempted during the entire course of patient care prior to arrival at the hospital.

The provider issuing the Trauma Alert shall also provide the Trauma Center or receiving hospital with the following information:

a. Time of injury if different from the time of the call;
b. Date of injury if different from the day of call;
c. County of injury;
d. County of residence of patient;
e. Cause of injury;
f. Injury site/type;
g. Trauma Alert criteria if met as defined in Rule 64E-2.017 or 64E-2.0175, F.A.C.,
h. Protective devices if motor vehicle, bicycle or marine crash.

This information shall be documented on the Patient Care Report of the transporting unit that delivered the patient to the Trauma Center or hospital.

Air medical transport services shall complete a separate transport Patient Care Report as established in FAC 64E-2.013. As necessary, the PCR filled out by the flight crew may be requested by the EMS medical director or designee following the quality assurance activities established by the EMS medical director in F.S. 401.425.

The non-transporting EMS agency must communicate to the transport crew their identification number(s) so it may be documented on the transport agency’s Pinellas County Patient Care Report.

Sunstar will be responsible for the appropriate trauma registry reporting requirements defined in the Florida Trauma Registry Manual, February 2002.

C. CRITERIA FOR AIR AND GROUND TRANSPORT TO A TRAUMA CENTER

1. Transportation decisions made in the field should be made within the first five minutes of the treatment team’s “at patient” notification. Typically in Pinellas County, approximately 32-36 minutes elapses from the time of air transport request to patient arrival at the Trauma Center; therefore, the earlier the decision is made, the more quickly this clock starts. **It is permissible to cancel an air transport request after dispatch if the patient situation**
changes. Calling air medical resources in or continuing them in for a patient who does not truly need them makes those resources unavailable for patients who are more likely to benefit. Remember also that, although air medical transport programs make every effort to operate safely at all times, there is some inherent risk involved with every flight.

2. **Patients in need of, or potentially in need of, advanced medical evaluation or interventions not available to ground medical crews should be considered for air medical transport.** By the very nature of these services, most of these patients will meet Trauma Alert criteria. If there is any question regarding possible need for these services, contact On-Line Medical Control (OLMC).

3. Trauma Alert patients who are likely to reach the Trauma Center earlier by air than by ground should be considered for air transport. Trauma Alert patients without significant complaints or physical findings should be strongly considered as candidates for ground transport even if Trauma Center arrival times may be slightly delayed.

4. Non-Trauma Alert patients who do not meet any of the above criteria (such as patients meeting only Trauma Center Transport Criteria based on mechanism of injury) may be considered for air transport; however, the following factors must be taken into consideration prior to the decision:
   a. Trauma Center Transport Criteria patients without significant complaints or physical examination findings can almost always go to the Trauma Center by ground. **Contact with OLMC is mandatory prior to air transport upgrade for these patients.** These patients should also not be flown for convenience as second patients in an aircraft unless the air crew is in agreement.
   b. **Isolated extremity injury patients not meeting Trauma Alert Criteria must also receive OLMC approval for air transport upgrade.**
   c. **Total time from decision to arrival at Trauma Center by air vs ground.** Not only incident location, but time of day, traffic and geographic barriers must be taken into account. In some cases, ground transportation may be most appropriate at less traffic-congested times, but air transport may be necessary at other times of day. The Medical Communications Officer (MCO) has historical data available by grid and time of day that will assist in making this decision.
   d. **Local effects of mobilizing the additional resources needed for air transport upgrade.** Taking these additional resources out of service may needlessly delay responses to other emergencies.

5. Patients requiring on-scene surgical response may be candidates for air transport upgrade for purposes of picking up the surgeon. Coordinate these arrangements through the Medical Communications Officer (MCO), who will coordinate with Bayfront Medical Center.

6. **On-Line Medical Control (OLMC) must be contacted for any potentially competent trauma patient who refuses properly indicated or approved air medical transport.**

7. Other Ground Transportation considerations:
   If, for some reason, the air medical services used to support the Pinellas County EMS system are unavailable, the incident commander or scene paramedic may request the assistance of the Sunstar Critical Care Transport Unit (CCT) through Central Dispatch or the Sunstar Communications Center.
The CCT unit should be considered when it has been determined that the unit can have a time efficient response and the advanced airway adjuncts and equipment carried on the unit are considered beneficial in the continued treatment of the patient.

If the CCT unit has been determined not to have a time efficient response to the incident location, ground ALS units should transport the patient taking into consideration the possibility of a coordinated intercept with the CCT unit at a mutually agreed upon location. This should only be attempted if the specific resources of the Critical Care Team are required; otherwise the risk of prolongation of the transport process may outweigh the potential benefits.

The paramedic on the scene may request additional ground transport units by notifying Central Dispatch.

D. AIR MEDICAL TRAUMA TRANSPORT DESTINATIONS

BAYFLITE

Both adult and pediatric patients transported by Bayflite shall be taken to Bayfront Medical Center for continuing treatment and stabilization, unless the patient meets Burn Center criteria referenced in Section IV: Trauma Alert (L) or Extremity Reimplantation/Hand Surgery criteria as approved by OLMC. Bayflite patients may be transported to St. Joseph’s Hospital or Tampa General Hospital if Bayfront Medical Center is on Closed status for trauma or if the trauma surgeon on-call at Bayfront requests the diversion. Should this occur, the Bayflite crew or Bayflite Dispatch is requested to notify the requesting ground units of the alteration in expected destination.

AEROMED

Both adult and pediatric patients transported by Aeromed shall be taken to Bayfront Medical Center for continuing treatment and stabilization, unless the patient meets Burn Center criteria referenced in Section IV: Trauma Alert (L) or Extremity Reimplantation/Hand Surgery criteria as approved by OLMC. Aeromed patients may be transported to St. Joseph’s Hospital or Tampa General Hospital if Bayfront Medical Center is on Closed status for trauma or if the trauma surgeon on-call at Bayfront requests the diversion. Should this occur, the Aeromed crew, Bayflite or Aeromed Dispatch is requested to notify the requesting ground units of the alteration in expected destination.

It is Pinellas County Emergency Medical Service’s expectation that all air medical transport services providing care in Pinellas County will abide by these Trauma Transport Protocols.

III. UNUSUAL GROUND TRANSPORTATION SITUATIONS

Because our county is peninsular in shape, and our only Trauma Center is located in the southern section of the county, EMS personnel shall take the following into consideration when making trauma destination decisions:
A. Non-air transport Trauma Alert or Trauma Center Transport Criteria patients on any of the inter-county bridges (Gandy, Howard Franklin or Courtney Campbell) should be transported to the closest Trauma Center regardless of the destination’s County unless they meet Burn Center or Extremity Reimplanation/Hand Surgery criteria as approved by OLMC.

B. Ground transport units transporting outside Pinellas County to other authorized Trauma Centers in Hillsborough County, are to provide patient report to the MCO via Med 10 or Med “A”. The MCO will then forward report to the appropriate Trauma Center (St. Joseph’s Hospital or Tampa General Hospital).

IV. TRAUMA ALERT CRITERIA

The following criteria shall be used in determining a Trauma Alert patient(s):

A) **Adult Trauma Triage Decision Matrix:**

The paramedic will assess the condition of those injured persons with anatomical and physiological characteristics of a person 16 years of age or older for the presence of at least one of the following four criteria to determine whether to declare a Trauma Alert. These four criteria are to be applied in the order listed, and once any one criterion is met that identifies the patient as a Trauma Alert, no further assessment is required to determine the transport destination.

**CRITERIA:**

1. Meets color-coded triage system (see next page). Any one (1) “RED” or any two (2) “BLUE” = Trauma Alert
2. GCS =< 12 (Patient must be evaluated via GCS if not identified as a Trauma Alert after application of Criterion #1)
3. Patient does not meet any of the trauma criteria listed above but, in the judgment of the EMT or paramedic, should be transported as a Trauma Alert (document specific reasoning).
<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>AIRWAY</th>
<th>CIRCULATION</th>
<th>BEST MOTOR RESPONSE</th>
<th>CUTANEOUS</th>
<th>LONGBONE FRACTURE</th>
<th>AGE</th>
<th>MECHANISM OF INJURY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>□ SUSTAINED RR ≥ 30</td>
<td>□ SUSTAINED HR ≥ 120</td>
<td>□ BMR = 5</td>
<td>□ TISSUE LOSS³ OR GSW TO EXTREMITIES</td>
<td>□ SINGLE LONG BONE FX SITE DUE TO MVC OR FALL ≥ 10</td>
<td>□ ≥55</td>
<td>□ EJECTION FROM A MOTOR VEHICLE* OR DEFORMED STEERING WHEEL⁶</td>
</tr>
<tr>
<td></td>
<td>□ Blue</td>
<td>□ Blue</td>
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<td>□ Red</td>
<td>□ Red</td>
</tr>
</tbody>
</table>

- □ Red = any 1 – Declare a Trauma Alert
- □ Blue = any 2 – Declare a Trauma Alert

1. Airway evaluation is designed to reflect the intervention required for effective care
2. Beyond the administration of oxygen
3. Degloving injuries or a major flap avulsion (> 5 in.)
4. Amputations proximal to the wrist or ankle
5. Excluding superficial wounds in which the depth of the wound can be determined
6. Only applies to the driver of the vehicle
* Excluding any motorcycle, moped, all terrain vehicle, bicycle, or open body of a pick-up truck
The Adult Trauma Triage Decision Matrix is a consolidation of the methodology outlined in the Florida Administrative Code 64E-2.017. The following is a complete format presented for study and additional confirmation of any questions that may be associated with the Decision Matrix.

1. **If any ONE of the following “RED” conditions is identified; the adult patient shall be declared a Trauma Alert:**
   
   a) **Airway:** The patient receives active airway assistance beyond the administration of oxygen.
   
   b) **Circulation:** The patient lacks a radial pulse with a sustained heart rate greater than 120 beats per minute or has a blood pressure of less than 90mmHg.
   
   c) **Best Motor Response (BMR):** The patient exhibits a score of four or less on the “motor assessment” component of the Glasgow Coma Scale, or exhibits the presence of paralysis or there is the suspicion of a spinal cord injury or loss of sensation.
   
   d) **Cutaneous:** The patient has 2nd or 3rd degree burns to 15% percent or more of the total body surface area, or amputation proximal to the wrist or ankle, or any penetrating injury to the head, neck, or torso (excluding superficial wounds where the depth of the wound can be determined).
   
   e) **Longbone Fracture:** The patient reveals signs or symptoms of two or more long bone fractures sites (humerus, radius/ulna), femur, (tibia/fibula).

   **Note:** Should the patient not be identified as a Trauma Alert using the “RED” criteria listed above, the trauma patient shall be further assessed using the criteria listed:

2. **If any TWO of the following “BLUE” conditions are identified, the patient shall be considered a Trauma Alert:**
   
   a) **Airway:** The patient has a respiratory rate of 30 or greater.
   
   b) **Circulation:** The patient has a sustained heart rate of 120 beats per minute or greater with a radial pulse.
   
   c) **Best Motor Response (BMR):** The patient has a BMR of 5 on a motor component of the Glasgow Coma Scale.
   
   d) **Cutaneous:** The patient has a soft tissue loss from either a major degloving injury, or a major flap avulsion greater than 5 inches, or has sustained a gun shot wound to the extremities of the body.
   
   e) **Longbone Fracture:** The patient reveals signs or symptoms of a single long bone fracture site resulting from a motor vehicle collision or fall from an elevation of 10 feet or greater.
   
   f) **Age:** The patient is 55 years of age or older.
   
   g) **Mechanism of injury:** The patient has been ejected from a motor vehicle (excluding any motorcycle, moped, all terrain vehicle, bicycle or the open body of a pick-up truck) or the driver of the motor vehicle has impacted with the steering wheel causing steering wheel deformity.
Note: If the patient is not identified as a Trauma Alert patient after evaluating the patient using both the “RED” or “BLUE” criteria, the trauma patient will be evaluated using all elements of the Glasgow Coma Scale. If the patient’s score is 12 or less, the patient shall be considered a Trauma Alert patient. If the patient’s normal GCS is 12 or less, a decline in GCS of 2 points or more shall be considered grounds for designating the patient as a Trauma Alert patient.

B) Pediatric Trauma Triage Decision Matrix

The paramedic will assess the condition of those injured individuals with anatomical and physiological characteristics of a person 15 years of age or younger for the presence of one or more of the following three criteria to determine the transport destination:

CRITERIA:
1. Pediatric Trauma Triage Checklist: The individual is assessed based on each of the six physiologic components listed on the next page (left column). The single, most appropriate criterion for each component is selected (along the row to the right). Refer to the color-coding of each criteria and legend below to determine the transport destination.
2. Patient does not meet any of the trauma criteria listed in criterion #1 but, in the judgment of the EMT or paramedic, should be transported as a Trauma Alert (document specific reasoning).
<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>SIZE</th>
<th>AIRWAY</th>
<th>CONSCIOUSNESS</th>
<th>CIRCULATION</th>
<th>LONGBONE FRACTURE</th>
<th>CUTANEOUS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ORANGE OR GREEN; &gt; 20 Kg (44+ lbs.)</td>
<td>NORMAL</td>
<td>AWAKE</td>
<td>GOOD PERIPHERAL PULSES; SBP &gt; 90 mmHg</td>
<td>NONE SEEN OR SUSPECTED</td>
<td>NO VISIBLE INJURY</td>
</tr>
<tr>
<td></td>
<td>□ Green</td>
<td>□ Green</td>
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<td>□ Blue</td>
<td>□ Red</td>
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<td>□ Red</td>
</tr>
<tr>
<td></td>
<td>YELLOW, WHITE OR BLUE; 10-20 Kg (22-43 lbs.)</td>
<td>SUPPLEMENTED O₂</td>
<td>AMNESIA OR ANY RELIABLE HISTORY OF LOST CONSCIOUSNESS</td>
<td>CAROTID OR FEMORAL PULSES PALPABLE; RADIAL OR PEDAL PULSE NOT PALPABLE OR SBP &lt; 90 mmHg</td>
<td>SINGLE CLOSED LONG BONE FRACTURE SITE ANYWHERE</td>
<td>CONTUSION OR ABRASION</td>
</tr>
<tr>
<td></td>
<td>□ Green</td>
<td>□ Green</td>
<td>□ Blue</td>
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<tr>
<td></td>
<td>RED OR PURPLE; ≤11 Kg</td>
<td>ASSISTED OR INTUBATED</td>
<td>ALTERED MENTAL STATUS OR PARALYSIS OR SUSPECTED SPINAL CORD INJURY</td>
<td>FAINT OR NONPALPABLE CAROTID OR FEMORAL PULSE OR SBP &lt; 50 mmHg</td>
<td>ANY OPEN LONG BONE FRACTURE SITE OR MULTIPLE FRACTURE SITES OR DISLOCATIONS</td>
<td>MAJOR TISSUE DISRUPTION OR AMPUTATION OR 2ND OR 3RD DEGREE BURNS TO &gt; 10% TBSA OR ANY PENETRATING INJURY TO HEAD, NECK, OR TORSO</td>
</tr>
<tr>
<td></td>
<td>□ Red</td>
<td>□ Blue</td>
<td>□ Red</td>
<td>□ Red</td>
<td>□ Red</td>
<td>□ Red</td>
</tr>
</tbody>
</table>

- Red = any 1 - Declare as a Trauma Alert  
- Blue = any 2- Declare as a Trauma Alert  
- Green = follow local protocols

1 Use of manual jaw thrust, continuous suctioning or the use of other airway adjuncts  
2 Includes humerus, radius/ulna, femur, tibia/fibula  
3 Excluding isolated wrist or ankle fractures or dislocations  
4 Degloving injuries or major flap avulsions  
5 At or above the wrist or ankle  
6 Excluding superficial wounds in which the depth of the wound can be easily determined
7Includes drowsiness, lethargy, the inability to follow commands, unresponsiveness to voice, totally unresponsive or is in a coma

The Pediatric Trauma Triage Decision Matrix is a consolidation of the methodology outlined in the Florida Administrative Code 64E-2.0175. The following is a complete format presented for study and additional confirmation of any questions, which may be associated with the Decision Matrix.

1. **If any ONE of the following “RED” conditions is identified; the pediatric patient shall be declared a Trauma Alert:**
   a) **Airway:** In order to maintain optimal ventilation, the patient is intubated, or the patient’s breathing is maintained through such measures as manual jaw thrust, continuous suctioning or through the use of other adjuncts to assist ventilatory efforts.
   b) **Consciousness:** The patient exhibits an altered mental status that includes: drowsiness, lethargy, the inability to follow commands, unresponsiveness to voice, totally unresponsiveness, or is in a coma or there is the presence of paralysis; or the suspicion of a spinal cord injury; or loss of sensation.
   c) **Circulation:** The patient has a faint or nonpalpable carotid or femoral pulse or the patient has a systolic blood pressure of less than 50mmHg.
   d) **Fracture:** There is evidence of an open long bone (humerus, radius/ulna, femur, tibia/fibula) fracture or there are multiple fracture sites or multiple dislocations (except for isolated wrist or ankle fractures or dislocations).
   e) **Cutaneous:** The patient has a major soft tissue disruption, including major degloving injury, or major flap avulsions or 2nd or 3rd Degree burns to 10% percent or more of the total body surface area, or amputation at or above the wrist or ankle, or any penetrating injury to the head, neck or torso (excluding superficial wounds where the depth of the wound can be determined).

   **Note:** Should the pediatric patient not be identified as a Trauma Alert using the “RED” criteria listed above, the pediatric trauma patient shall be further assessed using the following criteria listed:

2. **If any TWO of the following “BLUE” conditions are identified, the pediatric patient shall be considered a Trauma Alert:**
   a) **Consciousness:** The patient exhibits symptoms of amnesia or there is loss of consciousness.
   b) **Circulation:** The carotid or femoral pulse is palpable, but the radial or pedal pulses are not palpable or the systolic blood pressure is less than 90mm Hg.
   c) **Fracture:** The patient reveals signs or symptoms of a single closed long bone fracture. Long bone fractures do not include isolated wrist or ankle fractures.
d) **Size:** Pediatric trauma patients weighing 11 kilograms or less, or body length is equivalent to this weight on a pediatric length and weight emergency tape (the equivalent of 33 inches in measurement or less).

C. Paramedics will transport a patient (adult & pediatric) to a Trauma Center if the patient's condition meets the Trauma Triage Criteria & Methodology for Trauma Center transport. Any variation based on the judgment of the paramedic must be supported by contact with OLMC and be documented on the Patient Care Report, unless the Trauma Center is the nearest appropriate facility.

D. Any patient (adult or pediatric) who does not meet the Trauma Triage Criteria & Methodology, but who, in the judgment of the field paramedic, does need Trauma Center care, may be declared a Trauma Alert. In these cases, the Trauma Alert and reasoning for the designation must be recording in the Patient Care Report.

E. Injured adult or pediatric patients who do not meet the Trauma Triage Criteria & Methodology (Trauma Alert), but do, however, meet the following mechanisms of injury will be transported to a Trauma Center:
   1) Rapid deceleration in which there is heavy vehicular damage.
   2) MVC where there is moderate to heavy vehicular damage, especially with no indication of personal restraint device use (seatbelt)
   3) MVC with excessive patient extrication time
   4) Passenger space invasion greater than 1 foot
   5) Death of another passenger in the same vehicle from trauma
   6) Child under 16 years of age struck by vehicle
   7) Major blunt trauma to head, neck, trunk or pelvis
   8) Ejection from a motor vehicle
   9) Falls greater than 15 feet (Pediatric: greater than twice their height)

   **Any variation from the above criteria must be approved by OLMC** and the reasoning must be documented on the Patient Care Report.

F. Notification to the area Trauma Centers of incoming patients meeting “Trauma Alert Criteria” will be made through Central Dispatch. The paramedic shall advise Central Dispatch operator at their earliest opportunity of the need to alert the Trauma Center(s) of a “Trauma Alert” patient coming to their facility. The words “Trauma Alert” must be used to notify the receiving facility if the patient meets the Trauma Scorecard Methodology.

   The field paramedic shall either provide information to other crewmembers or declare the “Trauma Alert” themselves (the paramedic is responsible for making the decision for calling a Trauma Alert). When the Trauma Alert is declared, the criteria for calling the alert shall be provided to the dispatcher along with the ETA if transport is via ground. The information provided must include the specific criteria met, such as “GCS less than 12” or “age 55 or greater plus long bone fractures from an MVC” rather than simply stating “one Red” or “two Blue”. Such information should be provided at the paramedic’s earliest opportunity, allowing for the Trauma Center’s preparatory plans and appropriate staff alerts. Communications with the radio operator should not delay transport.
If the treating paramedic is in consultation with OLMC, the facility notification may be
made through the Medical Communications Officer (MCO) on Med “A” in the
Sunstar Communications Center.

**Note:** The “Trauma Alert” notification is not the same notification as an “air medical
transportation upgrade”.

**G.** The medical director of the EMS provider issuing the Trauma Alert, and the
physician at the receiving Trauma Center or hospital, are the only people authorized
to change the Trauma Alert status.

**H.** *Pregnant Trauma Alert patients* will be taken to a State Approved Trauma Center
(SATC) with Regional Prenatal Intensive Care capabilities (Bayfront Medical Center
and/or St. Joseph’s Hospital).

**Special Note:** Pregnant patient(s) over twenty (20) weeks not meeting Trauma
Center criteria should be taken to an emergency facility having obstetrical care.

**I.** *Patients requiring spinal immobilization shall include:*
1. Any patient incurring trauma with obvious neurological deficit such as
   paralysis, weakness, or paraesthesia (numbness or tingling)
2. Any patient incurring trauma who complains of pain in the head, neck, or
   back
3. Any patient incurring trauma who is unconscious
4. Any patient incurring trauma who may have injury to the spine but in whom
   evaluation is difficult due to altered mental status (e.g., drugs, alcohol)
5. Any unconscious patient who may have incurred a trauma
6. Any patient incurring trauma with facial or head injuries
7. Any trauma patient subjected to deceleration forces
8. When in doubt, immobilize the patient

**Note:** Football player injury: In order to maintain a neutral position and minimize
secondary injury to the cervical neural elements, the helmet and shoulder pads
should be either both left on or both removed in the emergency setting.

**J.** In the event that Bayfront Medical Center, Tampa General Hospital, or St. Joseph’s
Hospital cannot receive a trauma patient or transport cannot be accomplished to one
of these Trauma Centers in a timely manner, the patient should be transported to an
initial receiving facility closest to the scene of the incident for evaluation and
stabilization by the receiving physician.

**K.** In the event that the paramedic on scene recognizes one of the following conditions,
the Trauma Alert patient will be transported to the initial receiving facility located
closest to the scene of the incident:
a. Uncontrolled airway
b. Cardiac arrest due to trauma if resuscitation is not discontinued at the scene via
   Medical Control consult or air medical transport personnel
c. Mass casualty incident in which it is determined that usual trauma victim
distribution policies are not applicable (for example, where Trauma Center
resources are overwhelmed).
L. A patient meeting Trauma Alert Criteria for burns should be transported to Tampa General Hospital’s Burn Center rather than Bayfront Medical Center or St. Joseph’s Hospital unless multiple trauma requiring transport to the closest Trauma Center is present.

V. INTER-HOSPITAL TRANSFER

Pinellas County EMS will respond to requests for interfacility transport of trauma patients in accordance with Medical Operations Manual procedures (Protocol 3.2) for all interfacility transports. Transports may be classified at the transferring physician’s discretion as emergency or nonemergency in nature. Depending upon the medical complexity of the patient, he/she may be transferred by a Sunstar System Ambulance alone or with a hospital RN or physician or by a Sunstar Critical Care Transport team. On-Line Medical Control (OLMC) is available for consultation for any questions regarding the required level of care for the transport.

VI. INTERFACILITY AEROMEDICAL TRANSPORT

A. In the event a patient is to be airlifted between hospitals, the hospital requesting the transport shall contact Bayfront Medical Center’s aeromedical dispatch center @ 727-893-6010. The dispatch center will coordinate the process between the attending physicians and arrange for and facilitate the dispatch of the helicopter. The dispatch center shall also coordinate landing zone information, as well as the radio frequency(s) to be used between air services and the transferring hospital.

VII. LIST OF RECEIVING HOSPITALS

A. The following is a list of the Trauma Centers, initial receiving hospitals, and other hospitals to which Pinellas County EMS will transport trauma patients.

TRAUMA CENTERS:

• Bayfront Medical Center - LEVEL 2. Also Regional Perinatal Intensive Care Center & State-Approved Pediatric Trauma Referral Center
• Bayfront Medical Center/All Children’s Hospital – State Approved Pediatric Trauma Referral Center
• Tampa General Hospital - LEVEL 1. Also Regional Burn Center & State-Approved Pediatric Trauma Referral Center
• St. Joseph’s Hospital - LEVEL 2. Also Regional Perinatal Intensive Care Center, Level 3 Neonatal Intensive Care Center & State-Approved Pediatric Trauma Referral Center

B. INITIAL RECEIVING HOSPITALS (alphabetical order)

• Edward White Hospital
• Helen Ellis Memorial Hospital
• Largo Medical Center
• Mease Hospital Countryside
• Mease Hospital Dunedin
• Morton Plant Hospital
• Northside Hospital
• Palms of Pasadena Hospital
• St. Anthony’s Hospital
• St. Petersburg General Hospital
• Sun Coast Hospital

VIII. TRAUMA TRANSPORT PROTOCOL DISTRIBUTION:

A. To Hospitals

• The Medical Operations Manual (MOM) is the name given to our EMS protocols, which includes the Trauma Transport Protocols. The Medical Operations Manual is distributed to the Emergency Department medical director of each participating hospital.

B. To Air Medical Providers

  o A copy of the current Pinellas County Trauma Transport Protocols is provided to the following air medical services:
    • Bayflite
    • Aeromed

IX. HOSPITAL REQUIREMENTS

A. Each Hospital administrator must review and sign a statement referencing each hospital’s capabilities for receiving trauma patients and attesting to their compliance with Florida Administrative Code Sections 64E-2.015(3)(a)1.-5. and 64E -2.015(3)(c).

X. DEVIATIONS

A. Any deviations from these protocols will be documented and justified in writing on the most current version of the Pinellas County Patient Care Record (PCR). Copies of the report must also be forwarded for review to the Office of the Medical Director, Pinellas County EMS.

References:

• Florida Department of Health Bureau of Emergency Medical Services Chapter 64E-2, Florida Administrative Code
• Basic Trauma Life Support
HOSPITAL CERTIFICATION
(not needed for Trauma Centers)

I, ________________________________________________________________, certify to
Chief Executive Officer Name (printed)

Pinellas County Emergency Medical Services, Office of the Medical Director

that __________________________________________________________________
Hospital Name (printed)

does / does not (circle one) meet the following pre-hospital Trauma Alert hospital transport
requirements specified in subsection 64E-2.015(3)(a), Florida Administrative Code:

1. Is staffed 24 hours a day with a physician and other personnel who are qualified in
   emergency:
   a.) airway management
   b.) ventilatory support
   c.) control of life-threatening circulatory problems which shall include, but not be
      limited to, placement of:
      1.) endotracheal tubes
      2.) establishment of central intravenous lines
      3.) insertion of chest tubes

2. Has equipment and staff in-hospital and available to conduct chest and cervical spine
   x-rays.

3. Has laboratory facilities, equipment, and staff in-hospital and available to analyze and
   report laboratory results.

4. Has equipment and staff on-call and available to initiate definitive care required by a
   Trauma Alert patient within 30 minutes of that patient’s arrival at the hospital, or can
   initiate procedures within 30 minutes of the patient’s arrival to transfer the Trauma
   Alert patient to a State-Approved Trauma Center (SATC) or a State-Approved
   Pediatric Trauma Referral Center (SAPTRC); and

5. Has a written transfer agreement with at least one SATC or SAPTRC. The transfer
   agreement provides specific procedures to ensure the timely transfer of the Trauma
   Alert patient to the SATC or SAPTRC.

____________________________________________________         __________________
Signature of Chief Executive Officer                                                           Date
Dear «FirstName» «LastName»:

We have updated the Pinellas County EMS Trauma Transport Protocols on file with the State HRS/EMS office.

Enclosed you will find your hospital’s copy of the current Trauma Transport Protocols for Pinellas County.

Please review the enclosed protocols, signing where indicated. A stamped, self-addressed envelope is provided for your convenience in returning the statement to us. It is imperative that we receive the signed statement in our office no later than 5 p.m. on _________, 20__.

If I do not receive a written response from you, or if you provide information indicating that your hospital does not comply with the outlined criteria, the Pinellas County EMS system shall not deliver a Trauma Alert patient to your facility.

Should your facility's compliance with these requirements change at anytime, your prompt notification with my office is necessary.

Thank you for your prompt attention to this very important matter. Your cooperation is greatly appreciated.

Sincerely,

Jeff R. Barnard
Executive Director
Office of the Medical Director
Pinellas County EMS
727-582-2035

Enclosure

__________________________________________________         ______________ __
Signature: Chief Executive Officer                                                        Date

I, «FirstName» «LastName», hereby certify that «Company» has received a copy of the criteria that Pinellas County EMS will utilize to determine trauma patient transport destinations.
6.7 Wheelchair Transport Protocol

History: Original: 06/01/99; Revised: 10/01/06, 10/01/05, 11/01/01, 01/13/00; MCB Approved: 10/12/00

Purpose:

The purpose of this protocol is to describe the circumstances where Wheelchair Transport (WCT) Providers may be used to transport clients and to define when a client becomes a patient. The foremost concern in all circumstances is the welfare of the client, which is best served by the involvement of EMS whenever the criteria of being a “patient” are met.

Description:

1. Clients may be transported by Wheelchair Transport Providers under the following conditions:
   a. Any transport with the destination being the client’s residence. The residence may be a private home, an Adult Congregate Living Facility or a Nursing Home.
   b. Any transport with a non-medical destination (social or recreational activities, etc.).
   c. Any transport with the destination being a doctor’s office, a clinic, dialysis center or outpatient treatment center, provided the client does not meet any criteria that causes them to be classified as a patient.
   d. Any transport with the destination being a hospital unit or ward excluding the Emergency Department, Critical Care or Telemetry Units. It is presumed that the client is a patient if they are being transported to an Emergency Department or a unit that provides critical care services. However, clients may be transported to an Emergency Department for non-emergency treatment such as suture removal, foley catheter checks, peg tube checks, shunt checks, etc.
   e. Any positive or colonized MRSA (Methicillin Resistant Staphylococcus Aureus) infection of the blood, urine, feces, and simple wounds. However, the transportation provider must have infection control procedures in place that meet state and federal guidelines.
   f. Medical Oxygen use by a Client during transport:
      i. The WCT Provider shall confirm, either in writing or via a recorded telephone call, that all of the following criteria are met:
         • A doctor has prescribed the oxygen;
         • A doctor has determined that the client is able to be transported safely by Wheelchair Transport unit and transportation by Ambulance is unnecessary;
         • The client knows the appropriate liter flow and device prescribed;
         • The client has been instructed, by a nurse or physician, in the use of the regulator to be used during transport;
         • The client is able to self administer the oxygen and does so independently;
         • Oxygen is available at the client’s destination;
         • If the client is being discharged from the hospital, the client must have been oxygen dependent and self-administering oxygen at their residence prior to the current hospital admission.
Note: WCT Providers are not licensed to administer oxygen or regulate oxygen flow or dosage pursuant to Chapter 401.23 (7), F.S. and Chapter 499, F.S. Therefore, WCT Providers are strictly prohibited from starting, stopping or adjusting the dosage or method of oxygen delivery.

2. A Client becomes a Patient in any of the following circumstances:

   a. Absence or Difficulty Breathing
   b. Absence of a Pulse
   c. Any alteration in the client's normal Level of Consciousness
   d. Any recent trauma (within six hours)
   e. Any signs of shock (pale, cool or moist skin)
   f. Needs or is likely to need medical attention during transport.
   g. Client requires continuous oxygen and does not own their own self-administered oxygen. Wheelchair transport providers are not licensed to administer oxygen nor regulate oxygen flow or dosage pursuant to F.S. 401.23 (7) and Chapter 499 F.S.
   h. A request made by the sending agency that additional medical support personnel attend the client's medical needs during transport, i.e. facility nurse, respiratory tech, etc.
   i. Any positive MRSA (Methicillin Resistant Staphylococcus Aureus) infection of the respiratory system
   j. Any individual being transported for involuntary or voluntary examination or placement in accordance with the Florida Mental Health Act (Baker Act). Patients meeting these criteria or those experiencing mental health problems may not be transported by a wheelchair transport provider.

Special Note: If questionable issues arise in the determination of a client becoming a patient, each WCT provider should have immediate access to the EMS Medical Communications Officer (MCO) @ 727-587-2102. The MCO is an employee of the Office of the Medical Director (OMD) and represents the organization's clinical operations 24 hours per day within the Sunstar Communications Center. The MCO may link the provider directly to the On-Line Medical Control Staff, or other office personnel, which may assist in the transport decision. If necessary, OMD staff may request a conference with the sending agency personnel, either confirming or denying the requested transport.

3. Clients may be transported using reclining wheelchairs with the following provisions:

   a. An EMT must perform a client assessment prior to transport.
   b. A Pinellas County Certified EMT must be aboard at all times. The EMT does not have to be in attendance with the client, and could double as the driver.
   c. The reclining wheelchair must be raised to an incline of 30 degrees or more.

4. Medical emergencies encountered during transport:

   a. Given the above criteria, if a client becomes a patient during transport the driver/attendant will drive the patient to the nearest hospital emergency department if it is within two to three minutes or two to three miles away. If the distance is greater, the driver will summon 9-1-1/EMS via their dispatch center or telephone. The driver/attendant will safely stop the vehicle and render first aid and/or CPR while EMS is responding.
5. Pertinent Client Assessment Forms.

a. Constituent WCT providers, working side by side with the EMS Medical Director, have developed a variety of management information forms. The forms represent a system approach to understanding the services delivered by each provider. The “Client Assessment” form is to serve as a job aid in assisting the attendant to determine the client’s stability prior to WC transportation. Each licensed WCT provider must use these forms during their daily operations:

i. Telephone Assessment Form, when applicable.
ii. Reclining Wheelchair Assessment Form, when applicable
iii. Driver Transport Data Form
iv. Client Assessment Form
v. Medical Incident Report**
vi. Monthly Activity Report

** All Medical Incident Reports are to be submitted to the Office of the Medical Director within 72 hours from the date of an occurrence or clinical problem. At the request of the OMD one, if not all, of these forms may be requested from the provider during an informal or formal investigation.

6. Administrative Regulation.

a. While operating wheelchair transport vehicles, individuals certified as Emergency Medical Technicians and Paramedics are not permitted to wear any insignia that identifies them as an EMT/Paramedic, as they are not working for a licensed EMS provider, FS. 401.27 (13) or on a state permitted ambulance.
6.8 Mental Health Transport (MHT) Unit

**History:** Effective: 03/01/02, 07/01/01; Revised:; MCB Approved: 02/21/02, 03/19/01; Original: 3/19/01

**Purpose:**

The purpose of this protocol is to describe the circumstances where Mental Health Transport (MHT) unit(s) may be used for the secondary (interfacility) transport of clients; define when a client becomes a patient and define specific requirements and procedures.

**Description:**

1. **A Client may be transported by Mental Health Transport (MHT) if all of the following conditions are met:**
   a. Client has a Mental Illness, as defined in Chapter 394, F.S.;
   b. Client is voluntarily requesting transport or is involuntarily being transported for an examination under the Baker Act (Chapter 394, F.S.);
   c. Transport is from a Hospital to a Mental Health Receiving Facility for examination or admission or is from one Mental Health Receiving Facility to another Mental Health Receiving Facility for examination or admission;
   d. Client has been evaluated by a Physician, medically cleared for transport, and the physician has signed the required transfer form (a verbal order documented and signed by a Registered Nurse is sufficient). It is understood that the Client may have underlying medical condition(s) or be medicated through the use of prescribed medications prior to transport;
   e. Physician has determined that the Client is not expected to require physical restraints during transport;
   f. Only one Client may be transported at a time;
   g. MHT Driver has conducted an initial assessment and determined that the Client meets all of the criteria to be considered a Client and does not meet any of the criteria that would classify the Client as a Patient.

2. **A Client may not be transported by Mental Health Transport (MHT), if any of the following conditions are met:**
   a. The Medical Director and the EMS Authority, through its Medical Control Board, have determined that in certain circumstances Clients may be classified as a Patient and require transportation by Ambulance when any of the following criteria are met:
      i. Client is physically restrained;
ii. Client has a decrease in their Level of Consciousness witnessed by the MHT Driver;

iii. Does the client currently exhibit signs of violent behavior or has he/she exhibited such behavior during the current emergency department evaluation: or

iv. Is the client at high-risk for elopement by statements made or behavior exhibited; or

v. Client needs or is likely to need medical attention during transport (§ 401.252, F.S.);

vi. Client requires oxygen;

vii. Client is non-ambulatory; or

viii. Will require transport out of county

ix. MHT driver has determined, through their initial assessment, that the Client should be physically restrained during transport to ensure the continued safety of the Client. In such cases, consultation with Online Medical Control is required, following the procedure in section 4.

3. Safety Precautions Prior To Transport

a. Ensure the client is not in possession of weapons or contraband (Example: lighters or matches).

b. Secure all personal belongings in the cab of the MHT Unit.

c. Obtain the assistance of an attendant (security guard, nurse, etc.) from the sending facility to ensure the safety of the client and staff during the transfer from the facility to the MHT Unit.

d. In the event that in the process of transferring the client to the MHT unit the driver deems that the client has become high-risk for elopement and/or violent behavior, the driver shall assist other hospital staff in moving the client back into the sending facility. The driver shall discuss these new events as outlined in Section 4. The driver shall notify the communications center and request ALS transport for client protection.

e. Obtain the assistance of an attendant(s) from the receiving facility to ensure the safety of the client and staff during the transfer from the MHT Unit to the facility. Coordinate this assistance through dispatch.

4. Consultation with Medical Control:

a. MHT Driver shall request Medical Control on med -Alpha and provide a verbal report on med-Bravo or other recorded radio channel as assigned by the MCO. A telephone consult may be used only if it is a recorded conference call that includes the MCO.

b. If the MHT Driver perceives the client to be high-risk as per (3.d), the MHT driver shall present the background information and pertinent circumstances of the case. Online Medical Control (OLMC) will determine if the individual should be transported by MHT Unit, transported by Ambulance, or stabilized further prior to transportation by any means.
OLMC will consult with the sending physician prior to determining the mode of transport. If the sending physician is unavailable, OLMC will contact the nurse caring for the individual.

5. Emergencies encountered during transport:
   a. An emergency encountered during transport is identified as any of the following:
      i. Client attempts to escape;
      ii. Client threatens to or causes harm to himself or others;
      iii. Client experiences an injury or a medical emergency.
   b. In the event a Client experiences a mental health emergency, a medical emergency or an injury during transport the Emergency Actions described in Section 6 should be taken by the MHT Driver:

6. Requesting Assistance
   a. MHT Driver will summon an EMS Response via the 9-1-1 Center. The MHT Driver will advise the following information via radio on 1-Alpha:
      i. If there is imminent danger, Depress "Emergency" Button on Radio. **Note:** Appropriate assistance cannot be dispatched until the MHT Driver advises the exact Location and the Nature of the emergency.
      ii. Advise your Unit Id
      iii. Advise Emergency Traffic or Code "H"
      iv. Provide your exact Location
      v. Advise the Nature/Problem
         - Baker Act Client Fleeing
         - Violent Psychiatric
         - Medical Emergency
   b. Request a 9-1-1 Response and/or Emergency Law Enforcement Response

**Medical Example:**

FT1: Facility Transport 1 to Dispatch, Emergency Traffic
Central Dispatch: Facility Transport 1
FT1: Facility Transport 1, US 19 and Ulmerton Road, Medical Emergency, Requesting a 9-1-1 Response.
Central Dispatch: (Dispatch Tones) On 1-Echo Engine 38 respond to assist Facility Transport 1 with a Medical Emergency, US 19 and Ulmerton Road, Grid 392A.
FT1: Facility Transport 1 switching to 1-Echo
Psychiatric Example:

FT1: Depress the "Emergency" Button on the mobile or portable radio on 1-Alpha.
FT1: Facility Transport 1 to Dispatch, Code H
Central Dispatch: Facility Transport 1

Central Dispatch: (Dispatch Tones) On 1-Echo Engine 38 respond to assist Facility Transport 1 with a Psychiatric Emergency, US 19 and Ulmerton Road, Grid 392A.
FT1: Facility Transport 1 switching to 1-Echo
Central Dispatch: Contacts Law Enforcement Agency requesting an Emergency Response

7. Other Emergency Actions

a. MHT Driver will safely stop and park the vehicle and activate the strobe warning light.

b. MHT Driver will switch to the working Tactical channel and advise the incoming EMS units of their exact location, vehicle description and any further information available.

c. MHT Drivers may not cancel an EMS Response regardless of their level of training or certification. Responding units may elect to upgrade or downgrade according to pre-arrival information given.

d. For Violent Psychiatric Clients, MHT Driver will remain in the cab of the vehicle and utilize verbal de-escalation techniques, unless the MHT driver determines that physical restraint is warranted and is safe to be performed by one person. (Ex. pediatric patients and/or the frail elderly).

e. If a Client escapes, the MHT Driver will follow the Client at a safe distance and not attempt physical confrontation without assistance, unless the MHT driver determines that physical restraint is warranted and is safe to be performed by one person. (Ex. pediatric patients and/or the frail elderly).

f. MHT Driver will render first aid and/or CPR until EMS arrives on scene, if the MHT Driver determines that it is safe to do so.

8. Certification Requirements for MHT Drivers

a. MHT Drivers shall attain and maintain County Certification prior to being permitted to transport clients.

b. The following constitute the requirements for MHT Driver certification:

i. 12 Hour Mental Health Training and annual refresher training (such training shall include, but not be limited to, legal requirements, verbal de-escalation and physical restraint techniques as determined by the Medical Director);
ii. Current CPR certification (American Heart Association, American Red Cross or equivalent);

iii. Current certification in First Aid (American Red Cross or equivalent) or current Pinellas County EMT or Paramedic certification;

iv. Submission of a request to obtain County MHT Driver certification;

v. Submission by employer of a satisfactory "Affidavit as to Background";

vi. Submission of an affidavit attesting to the successful completion of an orientation program, presented by the employer, that meets the requirements set forth by the EMS Authority, Medical Director and approved by the Pinellas County Medical Control Board.

9. Completion of the Mental Health Transport Report

a. MHT Drivers shall complete a Mental Health Transport Report for all Clients transported or document all cases in which a Client was evaluated but not transported by a MHT Unit.
6.9 Freestanding Emergency Department Destination Policy

History: Effective: 01/01/08; Revised:; MCB Approved: 11/08/07; Original: 10/01/07

Purpose:

The purpose of this protocol is to describe the authorized procedures to be followed when selecting to transport to a Freestanding Emergency Department (FSED). As always, the system’s goal is to transport patients to the “most appropriate” Emergency Department. This protocol describes how to determine if a FSED is the “most appropriate” destination.

Background

A Freestanding Emergency Department is a facility licensed under but physically separate from a general hospital; it may use in its title or advertising the words “emergency”, “urgent care”, or parts of those words or language which imply or indicate to the public that immediate medical treatment is available to individuals suffering from a life threatening medical condition. Freestanding ED’s must meet the same construction, staffing, and equipment criteria as general hospital Emergency Departments. With the exception of serious trauma, they must offer the same services as traditional ED’s, are open 24 hours a day, and are accompanied by ancillary services; however, patients requiring hospitalization must be transferred out to a local hospital. These facilities may make ED services available without the protracted wait times we see in today’s crowded traditional ED’s.

Transport Guidelines

Transport Exceptions: The following types of patients are NOT candidates for transport to a FSED unless necessary in a disaster situation or otherwise rarely as authorized by OLMC:

1. Severity “Red” patients, indicating unstable vital signs or other life-threatening conditions UNLESS the patient’s airway is not maintainable with EMS advanced or basic airway management techniques and the FSED is the closest ED.
2. Traumatic or Medical Cardiac Arrest patients, UNLESS the patient’s airway is not maintainable as above.
3. Patients meeting Trauma Alert or Trauma Center Destination Criteria as defined in Protocol 6.6
4. STEMI Alert patients
5. Brain Attack Alert patients
6. Other potential Neurosurgical candidate patients as determined by OLMC
7. Pregnant women at greater than 20 weeks gestation with abdominal, chest or back pain or obviously in labor
8. Patients with symptoms of an ischemic extremity (pain, pallor, pulselessness)
9. Patients with angulated longbone fractures
10. Patients with suspected open longbone fractures or dislocations
11. Patients requiring hard restraints or chemical sedation
Level 1

1. Severity “Green” patients who are experiencing minor injury or illness may be transported to a Freestanding Emergency Department without OLMC contact. Examples include:
   
   - Minor, uncomplicated medical symptoms such as flu-like symptoms, sore throats, respiratory infections, rashes, fever, urinary symptoms, and uncomplicated nosebleeds (Note that abdominal pain is EXCLUDED)
   - Minor, uncomplicated musculoskeletal injuries, including bruises, lacerations, sprains, back pain and nondisplaced, closed suspected fractures or dislocations with intact neurovascular status
   - Psychological or emotional complaint patients
   - Baker Acted patients with no indications for transport to a closer Emergency Department for medical evaluation or stabilization related to a known or potential overdose
   - Spinal motion restricted patients who are triaged as Severity “Green” by EMS and who do not meet Trauma Alert or Trauma Center Destination Criteria

Level 2

1. OLMC MUST be contacted prior to beginning transport to a FSED for:
   - All Severity “Yellow” patients
   - Severity “Green” patients who do not meet criteria listed under Level 1, including, for example, abdominal pain patients with normal vital signs and Baker Acted patients with indications for transport to a closer Emergency Department for medical evaluation or stabilization related to a known or potential overdose
   - All patients who meet FSED Transport Exception Criteria, including all Severity “Red” patients
   - All patients for whom there is any question of appropriateness for transport to a FSED

2. All other transport destination criteria, such as Bypass or Closure Status at the FSED, will be treated identically to other Emergency Departments. Contact OLMC for high risk refusal if the patient insists on transport to the facility against EMS protocol.
Section 7

Documentation
Protocols
7.1 Pinellas County EMS Report Instructions

The purpose of this protocol is to understand the rational for completing a Patient Care Report (PCR). The PCR ultimately represents the care and the collective medical decisions you and the health care team have made in treating the patient. It is a legal document that requires the utmost attention when describing critical interventions, risk management situations, and your compliance or variation from our established standards of care. It must be presented in a professional and legible condition; it should be your ally and not your foe! Remember, it can be said, “if it is not documented, it must not have been done”. The PCR represents you!

Collectively, the PCR is structured to provide a framework to better understand and measure the care we individually and collectively deliver as an EMS system. Without comprehensive and standardized data collection, the medical benefits of out of hospital care cannot be compared or evaluated. The MOM reflects only clinical reporting guidance and does not specifically detail form process and/or the production methods to accomplish archiving and electronic data entry. These areas will be published from time to time in the Pinellas County Patient Care Reporting Manual.

Description:

I. **When to fill out a Patient Care Report:**

   1. A Pinellas County Patient Care Report (PCR) must be completed in each instance in which a patient was assessed, medical care was rendered, a patient was transported, patient was pronounced dead at the scene, patient was transferred from one medical facility to another and for instances when the person or persons for whom EMS was dispatched refused treatment, transport or both. The only exception for Sunstar is when a unit is canceled for a “closer unit” or a “higher priority call”. For fire departments, when a unit is canceled within the same jurisdiction, the new unit assigned is then responsible for the PCR. If a unit from one city is canceled, and a unit from another city is dispatched, the unit from the first city must complete a PCR indicating “canceled enroute”. The unit from the second city is responsible for the fully completed PCR.

   2. When emergency medical services have been requested or summoned, each person injured and/or involved, sick or ill must be offered a medical evaluation. Each patient(s) allowing an EMS evaluation must have a **completed** PCR. Individuals refusing evaluation, treatment, and/or transport must also be documented as a refusal of care. (See applicable protocol on managing field refusal).

   3. The first County Certified paramedic on the scene is responsible for starting and completing a PCR. Any subsequent provider that arrives on scene and assists shall complete a PCR documenting all patient assessment, interventions and/or care completed by any of the subsequent provider’s clinician’s.
4. He/she is also responsible for initiating and/or completing any other reporting
requirements outlined in the Medical Operations Manual, Pinellas County Rules and
Regulations, State of Florida HRS/EMS and/or any other regulatory agencies. The only
exception to this requirement would be the scene environment or the severity of the
patient(s) being treated in which the first County Certified paramedic may relegate the
initiation of the PCR and other reporting requirements to an emergency medical
technician (EMT).

5. If patient care is transferred to another unit, PCR completion and any other documents
including ECGs and any other pertinent information initiated by the first responder shall
be transferred to the paramedic continuing patient care during transport. If based upon
the patient’s severity and continued care delivery methods, the first responder elects not
to ride in the ambulance, a complete verbal report must be provided to the transport
paramedic. The transport of critically ill or critically injured patient(s) must not be
delayed for report completion.

6. The Pinellas County EMS supplemental form shall be used if patient care reports
require more space for narrative or treatment flow information, (i.e. cardiac arrest, any
intubated patient, trauma alert patients, or any complicated cardiac dysrhythmia). A
copy of the supplemental form should be attached to the patient care report and also
provided to the transport paramedic.

7. Every PCR completed by fire/rescue must have data entry completed in a computer
system approved by the authority and medical director following the patient care data
entry reference manual. When the data entry program is developed for the ambulance
provider, they too will meet data entry requirements.

8. Fire/rescue services must submit a completed paper report to the EMS Authority for all
fire department transports.

9. If and when applicable, each EMS provider shall comply with the current State of
Florida Trauma reporting requirements by completing the PCR including applicable
elements of trauma information. Such information shall be sent to the State following
the current guidelines.

10. Certain medical equipment used in the management of patient care has the capability to
electronically log and store pre-determined treatment information, (i.e., LifePak 12®
and AED devices). Such information may include medical interventions with times, ECG
strips, drug administration routes, etc. Patient care information shall be stored within
the device(s) for retrieval and completion of the PCR.

11. The Medtronic LifePak 12 has three different “CODE SUMMARY” format options for
patient care documentation. The “Medium Format”, at a minimum, is the format to be
used within the EMS System.
   a. At the Hospital: A copy of the entire “CODE SUMMARY” is to be provided to the
      ED staff.
   b. Archive: A copy of the “CODE SUMMARY” is to be attached to the first
      responder’s PCR, should they be the first unit to arrive on scene. This is in
      addition to the Sunstar PCR.
   c. Each provider is to determine what method they will utilize to store (ie. Rolled,
      taped to paper, etc.) the “CODE SUMMARY.”
II. The Forms Process:

1. **The White** copy of the EMS report is the “archive copy” and shall be retained by the local EMS licensed provider agency. This copy is considered the legal record and is certifiable with an original signature and EMS identification number of the paramedic in charge on the form. Original ECG tracings, or copies of original ECG tracings must be attached to the provider copy for storage. Each original ECG tracing or copy of will have documented the patient’s first name, last name and incident number. Any supplemental forms including the supplemental EMS form, blood sampling, etc., documenting patient care must also be attached to the archive copy. All documents must be maintained following State and Federal guidelines.

2. **The Pink** copy of the Ambulance EMS report is utilized by the ambulance contractor for quality assurance and data collection.

3. **The Yellow** copy is the “hospital copy” and must be left at the hospital when the care of the patient is transferred from EMS to the hospital. Florida law requires hospitals to include a copy of the EMS patient care record in the hospital medical record of the patient.

4. The pink and yellow copies of the Fire Rescue EMS report are to be transferred to Sunstar at time of transport or at transfer of patient care to the hospital in the case of Fire Rescue riding in with the patient.

5. **Special Note:** Because the original patient care report is not provided to the hospital, the copy presented must be legible and in a condition to offer pertinent patient information conducive to continued treatment by the hospital. If the “Yellow” hospital copy is not legible, the field crew may make a photocopy at the hospital of their original PCR, or re-highlight the “Yellow” copy to a satisfactory condition.

6. If it is not feasible to complete the entire patient care report at the hospital, an “abbreviated” report must be left at the hospital when the patient care is transferred from EMS to the hospital. If the provider elects to provide the abbreviated run report before departure, the hospital copy of the run report shall be signed with an original signature of the lead crewmember.

   a. The minimum information and form completion requirements for an “abbreviated” patient care report will be established by the Medical Director, the Emergency Department providers, and system personnel using the current minimum data set established by the State, Federal Authorities, or the system.

   b. If an EMS provider elects to provide the receiving facility with an abbreviated run report at the time responsibility of the patient is transferred to the receiving facility, the EMS provider shall have the complete and accurate run report, as required in F.A.C., available within 24 hours of the time the vehicle was originally dispatched in response to the request for medical assistance.
7. Only the transporting service is responsible for providing a copy of the run report to the hospital when care of the patient is transferred. A service that has provided the care, but does not transport the patient, is not required to deliver a copy of the patient care report to the hospital. The hospital may request a copy of your run report, but non-transporting services are not required to deliver copies on a “routine” basis.

8. In addition to delivering the patient care record to the hospital, copies of additional information used by EMS in assisting care and for continued patient treatment must be provided. Additional information may include: Supplemental treatment form(s), original ECG tracings or copies, copy of the Refusal of Care form and/or any patient related paperwork from nursing facilities.

   a. The complete patient care report must be fully completed within 24 hours from the time the call was dispatched and signed by the treating paramedic.

   b. Provisional paramedics filling out a PCR must have their assigned paramedic preceptor review and also sign the PCR.

III. Patient Medication Documentation:

All medications, prescription and/or non-prescription, are an integral component of a patient’s continuum of care. Therefore, it is extremely important that all information related to the medications a patient is taking, including the name of the medications, the frequency the patient takes the medications and the dosage, be available to the emergency department (ED) healthcare staff. There are three methods available to ensure this information is provided to the ED staff; accurately and legibly documenting the required medication information on the patient’s patient care record (PCR), utilization of a patient medication bag (This is to be the first method utilized for patient’s being transferred from home) or a formal medication record (ie. MARS), such as is maintained for a patient by a skilled nursing facility or ALF. The patient medication documentation should not delay transport or patient care of a critical patient.

A. Documentation of medications for patient’s transported from a nursing or ALF type facility.
   1. Obtain a hard copy listing of the patient’s medications, that includes the medication name, dosage and frequency from nursing staff.
   2. The copy of the medications supplied to EMS is to be transferred with the patient care record to hospital staff upon arrival at the ED.
   3. Document on the PCR, in the medication section, that a medication listing was transferred with the patient to ED staff.
   4. In the event that the staff cannot or will not provide a hard copy listing, proceed to Section III. B.

B. Documentation of medications for patient’s transported from all other locations.
   1. Obtain all medications, prescription and non-prescription from the patient or patient’s representative.
   2. Place all medication in a Pinellas County EMS Patient Medication bag.
      a. The patient medication bag is a clear uniquely identified, security style bag to secure a patient’s medications.
b. Place all pertinent medications (prescription and non-prescription) in the patient medication bag. When all of the patient’s medications are placed in the bag, check to ensure the bag will close securely. There must be enough room in the bag for the medication packages to freely move around, as once the bag is sealed, the bag will not be reopened. In the event that all of the patient’s medications will not fit in one bag, utilize as many additional patient medication bags, as necessary, to secure the balance of the medications.

c. Remove the protective strip from the adhesive at the top of the bag. Securely seal the top of the bag.

d. Remove the uniquely numbered strip from the top of the bag. The strip is serrated and can be removed without damage to the bag. The numbered strip, acts as a receipt for the patient. Give the numbered strip to either the patient or other responsible party. If the strip is to be given to the patient or the patient is not in a condition to control the strip and there is not a responsible party, it is recommended that the strip be left at the patient’s private residence in a readily visible location, taped to a Pinellas County EMS Supplemental form.

e. Document the following information on the outside of the patient medication bag in the designated areas:
   i. Date
   ii. Patient’s Name
   iii. Incident Number (FD or Sunstar)
   iv. Quantity of medications placed in the specific bag. If more than one bag is utilized, the quantity of medications in each specific bag is to be documented, not the total number of medications in all bags.

f. Document each unique ID number from each medication bag in the medication section of the PCR.

g. Upon arrival at the ER, turn over all patient medication bag(s) to the ED staff. The individual taking custody of the patient medication bags is to initial and print their name in the medication section of the PCR after ensuring the unique ID numbers form the bags and the one documented on the PCR match.

3. When a patient’s medication bottles are not readily available, such as when the patient is transported from a scene away from their private residence, documentation of the patient’s medications including name, dosage and frequency is to be documented in the medication section of the PCR.
Section 8

Special Equipment and Procedures
8.1 EMS Equipment References

The following is a list of available manufacturer websites for EMS equipment carried in the system. These website references provide the most current and comprehensive detail for each piece of equipment reference care and use. In the event our current protocols conflict with a manufacturer’s guidance for the use of a piece of medical equipment, the exception is noted. Use of a system medical device, outside the manufacturer’s specified guidelines, should be directed to On-line Medical Control or the Office of the Medical Director for clarification.

- AMBU Perfit Adult and Pediatric Cervical Immobilization Devices – [www.ambu.com](http://www.ambu.com)
- AMBU Spur II Disposable BVM Resuscitator – [www.ambu.com](http://www.ambu.com)
- Sager Splint – [www.sagersplints.com](http://www.sagersplints.com)
- ResQPod – [www.advancedcirculatory.com](http://www.advancedcirculatory.com)
- Boussignac CPAP System – [www.vitaid.com](http://www.vitaid.com)
  - IO infusion should only be used when other methods of vascular access are not available within a reasonable time period or number of IV attempts in an arrested or critically ill patient in need of intravenous fluids or medications. (ie. cardiac arrest patients in whom one peripheral (or external jugular) IV attempt has been unsuccessful OR in whom no potential IV sites are obvious on initial examination. Peripheral IV insertion attempts should not exceed 90 seconds from initiation of the attempts. Note that IV and/or IO insertion should NOT interrupt or delay the performance of compressions. Also included are other severity Red patients in whom two peripheral (or external jugular) IV attempts have been unsuccessful AND who require the urgent administration of IV fluids or IV medications.
  - Consider infusing 2% Lidocaine I/O for patients experiencing pain related to the administration of fluids via I/O
    - Adults 30 mg SLOW I/O
    - Pediatrics 0.5 mg/kg (up to adult dose) SLOW I/O
- ETCO2 Cannulas and Filterlines – [www.oridion.com](http://www.oridion.com)
  - Once capnography has been started, it is to remain in place until the patient is on the ED bed.
  - Throughout an incident using ETCO2, documentation on the “Code Summary” only occurs when the print button is pressed. ETCO2 is to be documented for all significant events (ie. Change in patient status, immediately after placement of a ET tube or Combitube, after any patient movement, before transfer to the ED stretcher, etc.) and periodically throughout the call.
- CombiTube – [www.nellcor.com](http://www.nellcor.com)
- AeroEclipse Breath Actuated Nebulizer (BAN) – [www.monaghanmed.com](http://www.monaghanmed.com)
  - Proper technique in the administration of nebulized bronchodilators is crucial to the successful delivery into the lower airways.
  - If during the course of management by nebulizer, significant changes in heart rate or dysrhythmias are noted, the treatment should be stopped and OLMC contacted for direction.
  - The use of an aerosol mask with the nebulizer handset should be extremely limited. All efforts should be made to utilize the AeroEclipse BAN as designed.
- Ascensia Contour Glucometer – [www.bayerdiabetes.com](http://www.bayerdiabetes.com)
- Mucosal Atomization Device (MAD) – [www.wolfetory.com](http://www.wolfetory.com)
  - Administer no more than 1 cc of fluid in one nostril per dose
  - Use with Fentanyl and Naloxone
- Vanishpoint Safety Syringes – [www.vanishpoint.com](http://www.vanishpoint.com)
- Thomas Adult and Pediatric ET Tube Holders – [www.laerdal.com](http://www.laerdal.com)
- Pedi-Mate – [www.ferno.com](http://www.ferno.com)
- Sta-Blok Head Immobilizer – [www.laerdal.com](http://www.laerdal.com)
- SAM Splint – [www.sammedical.com](http://www.sammedical.com)
- JumpSTART Triage – [www.jumpstarttriage.com](http://www.jumpstarttriage.com)
- Lifepak 12, Pediatric and Adult Quik Combo Pads – [www.medtronic-ers.com](http://www.medtronic-ers.com)
8.2 Intubation Specifics

Endotracheal intubation is indicated:

- When the rescuer is unable to ventilate an unconscious patient with conventional methods (i.e. BVM).
- Whenever a patient is unable to guard their own airway because of impaired or absent gag reflexes.
- It is also indicated for those who may have gag reflexes, but require the aggressive ventilatory assistance facilitated by placement of a cuffed endotracheal tube.
- The above criteria include, but are not limited to, coma, cardiac arrest and severe acute pulmonary edema.

Definition of an Intubation Attempt:

1. Oral Tube Attempt (Tactile/Digital, Orotracheal or Lighted) – An intubation attempt where the tip of the endotracheal tube passes the oropharynx.
2. Nasal Tube Attempt – An intubation attempt where the balloon of the endotracheal tube is inside the nare.

Definition of a “Placed Tube”:

1. “Placed Tube” – An endotracheal tube or combitube that has been prepared for confirmation.
8.3 Endotracheal Tube Confirmation

To describe the methods to be used for confirming correct placement of an endotracheal tube after:

- initial insertion
- securing the tube
- moving the patient or moving their head or neck
- whenever the patient’s condition deteriorates
- each defibrillation in which noticeable patient movement occurs
- during transport when any of the following occurs: noticeable hard braking or turns, severe dips, or vehicle swerving.
- with each recheck of vital signs or at least every five minutes
- upon arrival at the ED ramp when the patient is unloaded from the ambulance
- prior to the patient being moved to the hospital or aeromedical stretcher while the patient is still on the ambulance stretcher. Confirmation must be completed by a representative (MD, RN, RT) in the hospital ED or the aeromedical service. Final pulse oximetry, if applicable, along with the ETCO2 reading with waveform and the name of the person confirming ET tube placement is to be documented on the PCR.

Description:

1. The patient is to be placed on a long backboard and immobilized using various means of equipment available to the clinician. Exception may include a patient that deteriorates during transport leaving the clinician without the proper equipment or a patient that would not tolerate lying flat.

2. The use of a cervical collar is highly suggested in an unconscious patient but remains optional. Tubes can be dislodged due to flexion of the neck during movement or transfer. The collar may add extra support to assist in maintaining the tube. Exception may include a patient that deteriorates during transport leaving the clinician without proper equipment, a patient that would not tolerate the collar, or a situation which could necessitate the monitoring of the patient's neck area, i.e. jugular vein distention, external jugular IV, and/or a tension pneumothorax, etc.

3. This protocol assumes most intubations will be done using the direct laryngoscopic technique. Use of other intubation techniques will require some modification of this procedure, but the basic steps and principles are still applicable.

4. Apply the capnography adapter to the endotracheal tube. Initial readings during sudden cardiac arrest (SCA) will be near “0”, however, as effective CPR continues, these readings should gradually rise to a range between 10 – 20, indicating proper tube placement. A sudden drop to “0” indicates the tube is suspicious and probably no longer in the trachea. The endotracheal tube placement should be reevaluated and extubated if determined to be misplaced. Pay particular attention to the waveform during any patient movement or condition change listed within this protocol. Confirm final tube placement prior to the patient being transferred from the ambulance stretcher to the hospital or aeromedical stretcher. Obtain and document the name of the hospital representative (witness) that assisted EMS in determining the confirmation. Print a code summary for archive purposes and submit with the patient care report. Review MOM protocol for capnography procedures and appropriate application.
5. Auscultation -- listen in the following sites:
   a. Left axilla
   b. Right axilla
   c. Right anterior chest (in the area of the 2nd or 3rd intercostal space)
   d. Left anterior chest (in the area of the 2nd or 3rd intercostal space)
   e. Epigastrium (Listen for gurgling as an indication of esophageal intubation. However, some transmitted breath sounds may be heard from this location with proper insertion)
   f. Sternal notch

6. Indications of tracheal placement:
   a. Visualization of tube passage between the vocal cords during insertion (best method)
   b. Anterior displacement of the laryngeal prominence.
   c. Coughing through the tube.
   d. Chest Wall Movement -- During auscultation, look for symmetrical expansion of the chest wall during inspiration. Some lesser degree of abdominal movement may occur with proper insertion as the inflating lungs push down on the diaphragm.
   e. Loss of Phonation -- During the auscultation checks (if the patient is awake or capable of making vocal noises) listen to assure that the patient cannot talk or make any vocal sounds. If they can, it is an essentially absolute sign that the tube is NOT in the trachea.
   f. Cuff Inflation -- When the initial placement checks have confirmed tracheal insertion to an appropriate depth, inflate the cuff with sufficient air to prevent escape of air around the tube. Be particularly careful to use enough air volume when using a high volume / low pressure cuff. Avoid arbitrary use of a set amount of air to prevent this error. It is helpful to note how much air was required to inflate the cuff in the preparation stages when also checking for cuff leaks. Refer to capnography procedure for guidance in determining the presence of an "inadequate cuff seal."
   g. Fogging of the Tube -- Fogging of the tube during exhalation is a good indication, but not a totally reliable sign of tracheal insertion.
   h. Lung Compliance -- With tracheal placement, the lungs usually have an elastic “feel” during inflation with a bag-valve device. A lack of resistance with bagging suggests esophageal intubation.
   i. Cuff Compliance -- With tracheal placement, inflation of the tube cuff should encounter some resistance as the cuff fills in the space between the outside of the tube and the inside of the trachea. If the tube is in the esophagus, such resistance is usually not felt because the esophageal wall is so soft.
   j. Pilot Balloon Compliance - With tracheal placement, squeezing the pilot balloon will distend the cuff and that may be palpable on the neck. This sign is a sure indication of tracheal placement. However, absence of the sign is not a sure indication of esophageal placement.
   k. Vomit from Tube -- While there may be some vomit in the airway, continued filling of the tube with vomit after suctioning is highly suggestive that the esophagus has been intubated.

7. Anchoring -- Secure the tube in correct position as described in the Endotracheal Tube Anchoring protocol

8. Recheck of Placement - Repeat steps 5 - 9 to reconfirm correct placement
   a. After the tube is secured
   b. After moving the patient or moving their head or neck
   c. Whenever patient condition deteriorates
   d. Each defibrillation in which noticeable patient movement occurs
e. During transport when any of the following occurs: noticeable hard braking or turns, severe dips, or vehicle swerving.

f. With each recheck of vital signs or at least every five minutes

g. Upon arrival at the ED ramp when the patient is unloaded from the ambulance

h. Prior to the patient being moved to the hospital or aeromedical stretcher while the patient is still on the ambulance stretcher. **Confirmation must be completed by a representative (MD, RN, RT) in the hospital ED or the aeromedical service. Final pulse oximetry, if applicable, and ETCO2 readings, in addition to the name of the person confirming ET tube placement is to be documented on the PCR.**

9. Documentation - For each attempt, regardless of success, note:

a. time

b. person performing the procedure

c. the size of the tube

d. technique of insertion

e. depth of insertion (measured at the front teeth or gums)

f. method(s) used to confirm tube position

g. success of attempt (y/n).

**References:**

**Reference Protocols:**

- Intubation Techniques
- Endotracheal Tube Anchoring
- Capnography
8.4 Endotracheal Tube Anchoring

The purpose of this protocol is to describe the preferred techniques for securing an endotracheal tube or Combitube in place after it has been confirmed to be in the correct location.

Description:

1. Every intubated patient is to have the endotracheal tube or Combitube secured.
2. Use a commercial device for securing an endotracheal tube or Combitube, in compliance with the manufacturer's instructions. Only use such devices supplied from the Sunstar Materials warehouse. Use of devices that have not been authorized by the Medical Director is prohibited.
3. On those occasions where such a device is not available or does not fit the patient properly or the circumstances, should the tube then be well secured with tape.
   a. The tape should wrap around the tube as close to the mouth as possible.
   b. Then wrap completely around the back of the neck (if possible without disturbing the cervical spine in cases where this is a concern).
4. Use of a bite block device (e.g., oropharyngeal airway) is recommended to prevent the patient from biting and thereby occluding the tube, unless the commercial device has such features built in.
5. Use of head pillows and a cervical collar is recommended in conjunction with endotracheal tubes to reduce head movement and thereby reduce the potential for dislodging the tube.
6. Document what methods and device were used to secure the endotracheal tube.
8.5 Cricothyrotomy Airway Access

Cricothyrotomy is a Level 1 emergency procedure that allows for rapid access to the airway through the cricothyroid membrane by surgical technique for adults or needle technique for pediatrics. These techniques should not require manipulation of the cervical spine. This protocol outlines the authorized methods for performing these techniques. These techniques should only be used after other airway procedure attempts have proven unsuccessful due to patient condition. Medical Control contact must be made as soon as possible post completion or attempt of the procedure, successful or unsuccessful.

Description:

1. Indications:
   a. Relief of life threatening upper airway obstruction in situations in which manual maneuvers to establish an airway (head tilt, triple airway maneuver, chin lift, mandible thrust) have failed.
   b. Inability to secure an airway by endotracheal intubation in patients with:
      i. Severe maxillofacial trauma
      ii. Trauma to the upper airway with associated bleeding
      iii. Oropharyngeal obstruction due to:
         • Edema
         • Infection (epiglottitis), Ludwig’s angina
         • Caustic ingestion
         • Anaphylaxis
         • Inhalation injuries
         • Thermal injuries
         • Foreign bodies
   c. Failed oral/naso intubation where you cannot ventilate the patient by bag-valve-mask or any other means.
   d. Penetrating injuries with hemorrhage in the upper and mid cervical areas of the neck.

2. Contraindications (surgical technique):
   a. The surgical technique should not be performed on children under the age of ten because the anatomy of the cricoid membrane and the larynx of young children cannot support passage of a tube of sufficient caliber to support life without destruction of the membrane and possibly the cricothyroid cartilage.

3. Warnings and precautions (surgical technique):
   a. This procedure is not without considerable hazards.
   b. Complications include:
      i. Hemorrhage
      ii. Inappropriate or unsuccessful tube placement
      iii. Anoxia secondary to prolonged attempt to perform the procedure
      iv. Fracture of the cricoid cartilage
      v. Traumatic separation of the cricoid and thyroid cartilages
   c. Most bleeding can be avoided if a vertical instead of a transverse skin incision is done.
   d. Avoid making a blind stab in the area.
   e. Ensure the location of the landmarks and visualize them before cutting.
f. NEVER direct the knife toward the head (the vocal cords lie just superior to the cricoid membrane and can be easily damaged).

g. A lower incision in the cricoid membrane will avoid the cricothyroid arteries which are located high in the cricoid membrane.

h. Transverse incisions have more complications in positioning than vertical ones. If the desired anatomy is not found with the vertical incision, extend the incision in the appropriate direction.

i. Inappropriate tube placement can cause:
   i. Laceration to arteries
   ii. Laceration to veins
   iii. Esophageal perforation
   iv. Vocal cord injuries
   v. Laryngeal fractures
   vi. Pneumothorax
   vii. Pneumomediastinum
   viii. Creation of false passages in the neck along with subcutaneous emphysema

j. Obstruction, plugging, kinking of the tracheostomy tube.

k. Asphyxia, dysrhythmias, and cardiac arrest may occur with an inaccurately performed procedure or delayed attempt.

l. Cricothyrotomy should be performed successfully in less than three minutes.

Surgical Technique (patients 10 years and older):

4. Equipment needed:
   a. Personal protective equipment
   b. Safety scalpel
   c. 6.0 Endotracheal Tube without stylette
   d. Alcohol preps or providone swabs
   e. Oxygen
   f. Suction with suction catheter and yankauer available
   g. Bag-valve-mask
   h. 10cc Syringe
   i. Hemostats
   j. Water soluble lubricant

5. Technique:
   a. Assemble all equipment necessary for the procedure.
   b. Test all equipment:
      i. Inflate the cuff on the endotracheal tube to the manufacturers recommended volume. Observe for deflation. Deflate the cuff prior to insertion. **CAUTION: To ease insertion and to guard against cuff perforation from sharp edges of cartilage, the cuff should be tapered back. This can be accomplished by first inflating the cuff, then gently move the cuff away from the distal tip of the outer cannula towards the swivel neck plate as the residual air is removed by deflation.**
      ii. Ensure the 15 mm adapter is seated securely in the top of the endotracheal tube
   c. Place the patient in the supine position.
   d. If there is no contraindication to neck extension, place a rolled towel or similar item under the patient’s shoulders.
e. Time permitting, prep the entire neck area with alcohol preps or providone swabs.
f. Orient yourself thoroughly with the anatomical landmarks by grasping the larynx with your thumb and middle finger.
g. Using your index finger, locate the laryngeal prominence (point of the Adam's apple).
h. Slide your finger toward the patient's feet to the cricothyroid membrane (the "V" notch just above the cricoid cartilage). You will make an incision just above the cricothyroid membrane.
i. Stabilize the thyroid cartilage with your non-dominant hand. If you lose midline, the anatomy will distort and you may cut muscles and/or blood vessels on either side of the trachea.
j. Using the scalpel, make a 2 – 3 cm vertical incision from the superior border of the thyroid cartilage to an area just above the sternal notch. A vertical incision promotes dissection in the midline and rapid identification of the structures.
k. Try to cut through the skin and subcutaneous tissues with one clean stroke. There will be bleeding. Sponge if necessary, but do not waste time trying to stop the bleeding.
l. Locate and feel the cricothyroid membrane with your index finger.
m. Carefully make a transverse (horizontal) incision through the cricothyroid membrane the width of the cricothyroid space. **If the patient breathes spontaneously,secretions, blood and air will spray out of the opening.**
n. Insert the cap from an IV catheter into the incised cricothyroid membrane prior to removing the scalpel.
o. Replace the cap from the IV catheter with your finger then dilate the cricothyroid membrane to accommodate the 6.0 ET tube.
p. Insert the ET tube in front of or behind your finger tip to just past the balloon.
  i. inflate the cuff by injecting air into the luer valve of the inflation line using a syringe.
q. Confirm tube placement, with applicable methods per protocol.
r. Secure the endotracheal tube to the patient.

**Needle Technique (patients less than 10 years old)**

1. Equipment needed:
   a. Personal protective equipment
   b. ET Tube with the tube cut down to 1 inch from the 15mm adapter.
   c. Alcohol preps or providone swabs
   d. Oxygen
   e. Bag-valve-mask
   f. 14g 1 ¼ IV catheter
   g. 3cc or 10 cc Syringe

2. Technique:
   a. Identify the cricothyroid membrane, located anteriorly, between the thyroid cartilage and the cricoid cartilage
   b. Clean the area with alcohol preps or providone swabs.
   c. Remove the flash chamber from a 14g 1 ¼ IV catheter.
   d. Attach a 10 cc syringe to the IV catheter where the flash chamber was removed from.
   e. Insert the IV catheter with syringe attached through the skin and cricothyroid membrane into the trachea.
   f. Direct the IV catheter with syringe at a 45 degree angle caudal (towards the feet).
g. Aspirate with the syringe attached to the IV catheter while advancing the needle.
h. When air is easily returned, the IV catheter is in the trachea.
i. Withdraw the needle part of the IV catheter while gently advancing the catheter downward into the trachea until the hub of the catheter makes contact with the skin.
j. Attach the 3.0 ET tube (that was cut down) to the IV catheter hub by inserting the tube portion of the ET tube into the IV catheter hub with a gentle twisting motion. Ensure that the ET tube is secure within the IV catheter hub prior to securing the IV catheter and ET tub to the patient. **Use CAUTION to not kink or dislodge the IV catheter hub from the trachea.**
k. Oxygenate the patient with 100% oxygen through the ET tube adapter.
l. Confirm placement, with applicable methods, per protocol.
m. Secure the IV catheter hub and 3.0 ET tube to the patient’s neck.
n. Adequate oxygenation can be maintained for 30 – 45 minutes through the catheter. Ventilation, however, cannot be adequately maintained. **DO NOT DELAY TRANSPORT.**
o. Follow-up post incident with the MCO via phone for registry information.

References:

- Journal of Emergency Medical Services March 2001 Vol. 26 No. 3 Pages 58 – 79

Reference Protocols:

- Endotracheal Tube Confirmation – Protocol 8.8
- Endotracheal Tube Anchoring – Protocol 8.9
8.6 Facilitated Intubation

**History:** Effective: 08/01/04; Original: 04/19/04; Revised: 10/01/06, 10/01/05; MCB Approved: 10/13/05, 04/22/04

**Purpose:**

The purpose of this protocol is to describe the procedure for utilizing drug-facilitated intubation for those patients requiring it.

**Description:**

1. **Indications**
   a. Need for intubation in patients for whom a non-facilitated intubation procedure is likely to be unsuccessful or potentially detrimental, including the following example:
      i. Awake patients who will not tolerate airway manipulation
      ii. Head injury patients at risk of experiencing increased intracranial pressure due to the intubation procedure
      iii. Patients who are unable to maintain their own airway but who are or may become difficult to BVM ventilate

2. **Contraindications**
   a. Hypersensitivity to involved medications
   b. Patients who are or may be difficult to BVM ventilate who are able to maintain their own airway

**Adult Care:**

**Level 1:**

1. Establish and maintain General Supportive Care and Trauma Supportive Care as appropriate.
2. Assure that all airway management equipment is prepared and immediately accessible.
1. Administer Fentanyl, 2 mcg/kg IV over 30 to 60 seconds, then Etomidate, 0.3 mg/kg IV over 20 to 30 seconds approximately 30 to 60 seconds prior to intubation attempt.
   a. For frail elderly patients or patients with borderline or compromised hemodynamic status, utilize a Fentanyl dose of 1 mcg/kg IV.
   b. If the patient is allergic to Etomidate, consult OLMC.
   c. If the patient is allergic to Fentanyl, administer Morphine, 8 mg IV for most patients or 4 mg IV titrated slowly for frail elderly or hemodynamically borderline or compromised patients instead.
2. If needed, Etomidate, 0.3 mg/kg may be repeated once if intubation is not accomplished with the first dose.
3. If needed following intubation, sedation may be maintained with Diazepam (Valium), 2.5 to 5 mg slow IV push increments every 7 to 10 minutes or Fentanyl, 1 mcg/kg to maximum 200 mcg single dose IV every 3 to 5 minutes PRN. Etomidate is not to be used for maintenance of sedation.
4. Maintain airway and ET tube monitoring as specified in Intubation Confirmation Procedure.
5. OLMC consultation must be obtained following all instances of use of this protocol, whether successfully or unsuccessfully.
Level 2:
1. Contact OLMC if no IV access available or if larger doses than specified above are requested.
2. If patient is allergic to Etomidate, administer Fentanyl as described in Level 1 and Diazepam (Valium), 2.5 mg to 5 mg slow IV push.

**Pediatric Care:**

**Level 1:**
1. Establish and maintain General Supportive Care and Trauma Supportive Care as appropriate.
2. Assure that all airway management equipment is prepared and immediately accessible.

**Level 2*:**
1. Administer Fentanyl, 2 mcg/kg IV over 30 to 60 seconds, then Etomidate, 0.3 mg/kg IV over 20 to 30 seconds approximately 30 to 60 seconds prior to intubation attempt.
   a. For patients with borderline or compromised hemodynamic status, utilize a Fentanyl dose of 1 mcg/kg IV.
   b. If the patient is allergic to Etomidate, administer Fentanyl as described in #1. a. and Diazepam (Valium), 0.2 mg/kg to maximum 5 mg single dose slow IV push.
   c. If the patient is allergic to Fentanyl, administer Morphine, 0.1 mg/kg IV to a maximum single dose of 8 mg for most patients or 4 mg for hemodynamically borderline or compromised patients instead.
2. If needed, Etomidate, 0.3 mg/kg may be repeated once if intubation is not accomplished with the first dose.
3. If needed following intubation, sedation may be maintained with Diazepam (Valium), 0.2 mg/kg to maximum 5 mg single dose slow IV push increments every 7 to 10 minutes or Fentanyl, 1 mcg/kg to IV every 3 to 5 minutes PRN. Etomidate is not to be used for maintenance of sedation.
4. Maintain airway and ET tube monitoring as specified in Intubation Confirmation Procedure.
5. Contact OLMC if no IV access available or if larger doses than specified above are requested.

* Note: As always, Level 2 orders should ideally be carried out only after authorization by OLMC. However, because of the primary importance of airway management, it is possible that the delay created by OLMC contact could at times compromise patient care. In these cases, OLMC contact should still be made during EMS involvement with the patient, and not delayed until after the call.
References

- **Etomidate (Amidate®, Hypnomidate)**
  - Bozeman WP; Lamsens SD; Young S; “Efficacy of etomidate as a sole agent for emergency endotracheal intubation in the out-of-hospital aeromedical setting”; abstract in *Annals of Emergency Medicine*, 2000 October; 36(4)
  - Kociszewski C; Thomas SH; Harrison T; Wedel K; “Etomidate versus Succinylcholine for intubation in an air medical setting”; *American Journal of Emergency Medicine*, 2000 November; 18(7) 757-63
  - Smith DC; Bergen JM; Smithline H; Kirschner R; “A trial of etomidate for rapid sequence intubation in the emergency department”; *Journal of Emergency Medicine*, January; 18(1):13-6
  - Sokolove PE; Price DD; Okada P; “The safety of etomidate for emergency rapid sequence intubation of pediatric patients”; *Pediatric Emergency Care*, 2000 February; 16(1): 18-21
  - Stringham LC; Sahni R; Ausband S; Vore S; “Pretreatment with lidocaine does not protect against increased ICP when using etomidate”; abstract in *Academic Emergency Medicine*, 2002: 9(5) 496
  - Swanson E; Fosnocht D; Neff RJ; “The use of etomidate for rapid-sequence intubation in the air medical setting”; *Prehospital Emergency Care*, 2001 April-June; 5(2): 142-46
  - Reed DB; Snyder G; Hogue TD; “Regional EMS experience with etomidate for facilitated intubation”; *Prehospital Emergency Care*, 2002 Jan.-Mar.; 6(1): 50-3
  - Vinson DR; Bradbury DR; “Etomidate for procedural sedation in emergency medicine”; *Annals of Emergency Medicine*, 2002 June; 38(6): 592-8

- **Fentanyl (Sublimaze®)**
8.7 12 Lead ECG

Evidence suggests that the performance of electrocardiography in the out-of-hospital environment speeds the care of patients with Acute Myocardial Infarction (AMI). The US National Heart Alert Program recommends EMS systems provide 12-lead ECGs to facilitate early identification of AMI. Even though the median time from onset of infraction to arrival at the hospital was longer among patients in the out-of-hospital group, the median time to initiation of fibrinolysis or primary angioplasty was significantly shorter. It is our desire that the EMS clinician becomes proficient in acquiring a 12-Lead ECG and learns to identify an AMI. **12-Lead ECG is the only acceptable method to be used when assessing a patient's cardiovascular syndromes in Pinellas County.**

**Acquisition goals**: CLEAR, ACCURATE and within 10 minutes from the reported "at patient" time.

**Procedure:**

1. In order to acquire these goals, we must take the following important steps to reduce the amount of artifact produced during the ECG acquisition.
   a. Immediately upon contact with the patient, remove all clothing above the waist. (Remember modesty especially with female patients.) Note: This is probably the single most important factor to reduce time and effort.
   b. Remove excess hair from males. While removing hair, be aware of any skin cuts for potential bleeds in a patient who may receive fibrinolytics. Both steps #a and #b will allow for the electrode gel to penetrate the skin in order to get a stronger and possibly artifact free ECG tracing.
   c. Good skin prep (especially underneath females). Simply rub the skin with an alcohol prep in order to reduce skin oils. Utilize benzoin swabs to enhance adherence of the electrodes to the skin.
   d. Patient dignity and privacy is an important consideration when obtaining ECGs on females. In females, consider obtaining ECGs in a private rather than public area. Encourage the patients to lift their own breasts if possible, otherwise lift the patients breasts with a towel or the back of a gloved hand in order to place the leads correctly. Having your partner present (if at all possible) when placing leads on a female or having a female clinician from your agency or Sunstar complete the 12 lead ECG (if this does not delay care) is highly recommended to help prevent accusations of impropriety.
2. Place patient in position of comfort (supine preferred). This reduces muscle tension.
3. Have the patient rest his arms/hands on his torso rather than firmly grasping the stretcher rail.
4. Assure patient is warm and free of shivering.
5. Cables should have enough “slack” to avoid tugging on the electrodes. There is a clip on the cord that can be attached to the patient’s clothing or sheet, also, if you have to do an ECG while transporting, take advantage of the time spent at traffic lights while the ambulance is stationary.
7. Accuracy of the ECG depends on the correct placement of the electrodes.
a. Limb leads should be placed on the lateral Deltoid area of each arm and the lateral lower legs. Hint: "P" wave in Lead I is always positive. The "P" wave and "QRS" in AVR are always negative. If either of these results is different, check limb leads for misplacement.

b. For Chest Lead placement, always remember the following key landmarks:
   i. Angle of Louis
   ii. Intercostal Space (ICS)
   iii. Mid Clavicular Line (MCL)
   iv. Anterior Axillary Line (AAL)
   v. Mid-Axillary Line (MAL)

c. Proper placement is as follows:
   i. $V_1 = 4^{th}$ ICS, right (patient’s) of the sternum. Find the Angle of Louis, which is in line with the 2$^{nd}$ rib. Below that is the 2$^{nd}$ ICS. Counting down from that, find the 4$^{th}$ ICS.
   ii. $V_2 = 4^{th}$ ICS, left (patient’s) of the sternum.
   iii. $V_4 = 5^{th}$ ICS in Mid-Clavicular Line (Place it before $V_3$).
   iv. $V_3 = \text{Place between } V_2 \text{ and } V_4$.
   v. $V_5 = 5^{th}$ ICS in Anterior Axillary Line.
   vi. $V_6 = 5^{th}$ ICS in Mid-Axillary Line.
   vii. Note: $V_4$, $V_5$, $V_6$ MUST BE LEVEL with each other in a straight line, NOT CURVED.

8. System Setup and Calibration
   a. Proper calibration is also important. Calibration standard is 1.0 mV = 10 mm. (Two big squares on the ECG Paper). Hint: The ECG strip has the calibration printed on the bottom side. It’s printed as x 1.0.
   b. Paper speed is another item that plays a role in the correct acquisition of the ECG. The standard speed is 25 mm/sec. This is also shown on the bottom of the ECG strip.

   a. Rate and Rhythm.
      i. Treat life threatening arrhythmias
   b. Infarction
      i. Presence of indicative changes?
      ii. Localize
      iii. Coronary artery involved
   c. Miscellaneous Conditions
      i. Left Bundle Branch Block (LBBB)
      ii. Ventricular rhythms
      iii. Left Ventricular Hypertrophy (LVH)
      iv. Pericarditis
      v. Early repolarization
   d. Clinical Presentation
   e. Acute Infarction?
      i. Anticipate complications
10. Location of Infarction
   a. Inferior Wall – Leads II, III and AVF
   b. Septal Wall – Leads V₁ and V₂
   c. Anterior Wall Leads V₃ and V₄
   d. Lateral Wall Leads V₅, V₆, I and aVL,

11. The 12-lead device is to be pre-programmed using the following default selections:
   a. Lead II, III and AVF

12. It is certain that many infarcting patients that dial 911 will not present with chest pain. Obviously, not every out-of-hospital patient should receive a 12 lead ECG and judgment must be exercised. However, EMS can maintain a high index of suspicion, obtaining a 12-lead ECG when an Acute Coronary Syndrome (ACS) is considered a realistic possibility. Such suspicion may help to identify these patients earlier. The following Anginal Equivalents are to be used during the assessment of patients over the age of 30.
   a. Dyspnea
   b. Chest pain
   c. Palpitations
   d. Syncope or near syncope
   e. CVA/TIA
   f. General Weakness
   g. DKA/Diabetes
   h. CHF/PE
   i. Diaphoresis not explained by environment
   j. Heart rate over >150 or < less than 50
   k. Epigastric pain or indigestion
   l. Thoracic back pain without trauma
   m. Overdose dose (OD) especially with tricyclic antidepressants, cocaine and other known substances that may cause cardiac irregularity.
   n. Cardiac transplant patients

13. **Patients with severe and/or multiple risk factors should be evaluated with a high index of suspicion for acute coronary syndrome.** Such would include:
   a. Individuals under the age of 30 that have pre-existing cardiovascular disease
   b. Smoking
   c. Hypertension
   d. Family History
   e. Obesity & Sedentary lifestyle
   f. Hyperlipidemia

14. Whenever possible, the 12 lead adapter cable for the Medtronic LP12 should be left attached to the patient for continued monitoring after the first 12 lead ECG is acquired. The device, with the 12 lead adapter wires left attached, will continually reassess the 12 lead internally and if the device notes any acute changes in the 12 lead, as compared to the original ECG that was acquired, will automatically print out a strip indicating changes that have occurred. The device, to continually reassess the 12 lead ECG, must have had an original 12 lead ECG completed on that specific device. Example: E29 completes a 12 lead ECG and transfers patient care to Sunstar. Sunstar’s LP12 will not be able to reassess the 12 lead, even if the 12 lead wires are in place, because an original 12 lead ECG was not completed on Sunstar’s LP12. If E29 were to ride in, the LP12 12 lead wires could be left attached to the patient for continuous monitoring of the 12 lead. When care is transferred, Sunstar must complete an original 12 lead ECG on their LP12 and then leave the 12 lead wires in place for the device to be able to continually reassess.

Reference Protocols:
- Abnormal 12 Lead ECG Findings
- Acute Coronary Syndromes (ACS)
8.8 Triage Procedure

History: Effective: 06/01/99; Revised: 10/10/06, 07/01/03, 11/01/01; MCB Approved: 05/08/03

Purpose:

The purpose of this protocol is to describe the triage process at the scene of a mass casualty incident. This protocol may also be used at the scene of a multiple casualty incident while the first responding units await the arrival of additional resources.

Description:

Triage is a French word meaning “to sort”. Its purpose is to identify patients with life-threatening injuries and give them immediate treatment and transportation. The aim of triage is to provide the GREATEST GOOD FOR THE GREATEST NUMBER. The triage tags should be used whenever there are sufficient numbers of patients to present significant triage or tracking problems at the scene. The judgment of the incident commander or the paramedic in charge will be needed to make this decision.

One of the tasks of the primary triage clinician(s) is to triage patients to one of four color-coded severity categories (GREEN, YELLOW, RED, and BLACK). Primary triage is performed via the START© method for adults and the JumpSTART© method for pediatric patients. (See algorithm at the end of the protocol) Patients may be marked by color during this stage of triage via triage tags (State approved triage tag) or by alternate methods, including colored surveyor’s tape or other markings. If triage tags are not applied at primary triage, they should be applied at a secondary triage or treatment point, and documentation should be as complete as the circumstances allow.

Triage tags or other markings may also be used at smaller multiple patient incidents as a training and familiarization tool, but remember that state documentation requirements must still be met.

Procedure:

1. Triage Sector
   a. Determine whether the scene is safe for triage personnel to proceed.
   b. Obtain triage tools (triage tags or alternate approved method)
   c. The most experienced clinician(s) should perform triage. The clinician does NOT have to be a paramedic if the number of ALS providers is limited. Triage is a Basic Life Support function with very clear clinical definitions; ALS providers may serve better as secondary triage or treatment personnel.
   d. The triage officer or designee should announce that all patients who can walk (or, if in the case of infants and toddlers, be carried) should move to a designated area. These are GREEN patients. This group of patients should be marked GREEN with the designated triage markings. As soon as resources are available, this group should receive secondary triage, as patient status may deteriorate.
   e. The triage sector then proceeds to perform START© and JumpSTART© evaluations on the remaining patients (see algorithm at the end of the protocol), marking each one with the designated triage tool and leaving the patient in place for secondary triage or treatment personnel to package and remove to the appropriate areas.
f. Keep in mind that spending too much time with any single patient at this point may ultimately result in loss of life by delaying other steps in the process of mobilizing and preparing other resources or attending to other patients with similar or even more urgent needs. The JumpSTART\textsuperscript{©} triage method is designed to allow clinicians to use physiologically sound criteria to determine whether or not a child is salvageable; this lifts some of the psychological burden of pediatric triage from the clinician’s shoulders.

g. Relay information regarding numbers of patients in each triage category to Command or to the appropriate Sector Officer.

h. If a secondary triage site is established, triage tags should be initiated and documentation begun. This area may be combined with treatment areas.

i. Once all patients have been triaged primarily, the triage sector may assist in further secondary triage or may be assigned by the appropriate officer to other tasks.

2. Treatment /Secondary Triage Sector
   a. Personnel assigned to this sector should be assembled into teams to perform BASIC packaging and transportation to the appropriate treatment areas. Note that scene hazards or other circumstances may require departure from normal packaging and transportation methods.

   b. The Treatment Sector Officer should keep in close contact with the Transport Sector Officer, communicating the numbers of patients requiring urgent transport and notifying when patients are ready for transport.

   c. Appropriate critical interventions should be performed in the treatment area. Non-critical interventions, such as splinting, may be performed as time and resources allow, but emphasis should be put on reassessment of all patients for potential up- or down-grading of their condition. If changes do occur, the Treatment Sector Officer may require the patient to be moved to the appropriately coded treatment area.

   d. GREEN patients may be assigned to provide basic assistance in patient care, at the clinician’s discretion.

   e. Triage tags, if not placed previously, should be placed on all patients (even category GREEN) and the information should be filled out as completely as possible. The last name of the patient’s primary caregiver should also be written on the tag. These tags should not be attached to clothing, which may later be removed. If available on the triage tag, the “Contaminated” strip should be removed or left intact, as appropriate. Before leaving the treatment area, each patient should have the tracking number found on the triage tag documented on the patient care record. The method for doing this may vary with the triage tag, but usually involves tearing off a corner with the reference number on it. The rest of the tag goes with the patient to the Transport Area.

3. Transport Sector
   a. This person or his/her designee should report incident status to the Medical Communications Officer (MCO) for assistance in determining transportation destination and to alert the hospital network to initiate disaster plans, as appropriate.

   b. ALL patients, including GREEN patients, must be dispositioned via the Transport Sector for tracking purposes.

   c. EVERY patient (including those who deny injury) must have the following documented at the Transport Sector. This may be accomplished with most tags by tearing off the appropriate corner and recording:
START®/JumpSTART® Triage Algorithms

The Simple Triage and Rapid Treatment (START®) Plan originated in California by Hoag Hospital personnel and the Newport Beach Fire and Marine Department following the Loma Prieta earthquake. START® provides an objective method by which to quickly determine the severity of injury of adult mass casualty patients for the purpose of maximizing resource utilization. The plan utilizes three main triage points (respirations, circulation, and mental status) to classify adult patients into one of four color categories (GREEN/Minor, YELLOW/Delayed, RED/Immediate, and BLACK/Deceased, in order of ascending severity). Utilizing the START® method, each patient can be assigned a triage priority within 60 seconds or less. The only treatment performed during the START® procedure is one manual attempt at opening the airway, and placing pressure on a source of major bleeding (assign the task to another provider or bystander).

The START® Plan does not specifically address the potentially unique needs of pediatric patients. Several years ago, Dr. Lou Romig created the JumpSTART® Method for triage of pediatric patients. JumpSTART® utilizes the START® method as a starting point, and includes modifications designed to take pediatric physiology into account. There is no absolute upper age limit for the use of JumpSTART®; Dr. Romig advises that patients who “appear to be young adults” be triaged using START®, while those “appearing to be children” are eligible for JumpSTART®. Respirations, circulation, and mental status remain the three parameters evaluated, but adjustments are made to account for varying norms at different ages. In addition, because of the predominance of airway and ventilation problems as etiologies of pediatric cardiac arrest and near-arrest, an additional step of providing five mouth-to-mask or BVM breaths for apneic patients with a pulse is added. This may result in a “jumpstart” of the patient’s respiratory drive. JumpSTART® also provides objective criteria for use by emergency personnel in an extremely stressful emotional environment, hopefully providing emotional support to allow them to make more objective decisions.

The following is a combined version of the START® and JumpSTART® Triage Algorithms. Further START® information can be obtained at http://miemss.umaryland.edu/Start.pdf and many other internet sites. Further information about JumpSTART® can be found at www.jumpstarttriage.com.
Combined START/JumpSTART Triage Algorithm

- **Able to walk?**
  - **YES** → **MINOR** → **SECONDARY TRIAGE**
  - **NO**
    - **Breathing?**
      - **NO** → **POSITION UPPER AIRWAY** → **IMMEDIATE**
      - **APNEIC** → **ADULT**
        - **PEDI**
          - + **PULSE** → **5 RESCUE BREATHS** → **IMMEDIATE**
          - **NO PULSE** → **DECEASED**
      - **IMMEDIATE**
    - **YES**
      - **Respiratory Rate**
        - >30 **ADULT** → **IMMEDIATE**
        - <15 OR >40 **PEDI**
        - <30 **ADULT**<15-45 **PEDI**
      - **Perfusion**
        - **CR > 2 sec (ADULT)** → **IMMEDIATE**
        - **NO PALPABLE PULSE (PEDI)** → **IMMEDIATE**
      - **Mental status**
        - **DOESN'T OBEY COMMANDS (ADULT)** → **IMMEDIATE**
        - **OBEYS COMMANDS (ADULT)**
          - **X**, **V** OR **P** (APPROPRIATE) (PEDIATRIC) → **DELAYED**
          - **(pediatric)** → **IMMEDIATE** (Pediatric)**

*Using the JS algorithm, evaluate first all children who did not walk under their own power.*

© Lee Romig MD, 2002
8.9 Needle Thoracostomy

The purpose of this protocol is to describe the authorized procedures for the treatment of a tension pneumothorax by performing emergent needle thoracostomy (chest decompression). Medical Control contact must be made as soon as possible post completion or attempt of the procedure, successful or unsuccessful.

Description:

1. Confirm the need for chest decompression:
   a. Cyanosis and/or respiratory distress
   b. Loss of the radial pulse
   c. Loss of consciousness
   d. Absent or decreased breath sounds on the affected side; AND/OR bag compliance decreasing; AND
   e. A deviated trachea away from the side of the injury.
   f. Neck vein distention – may not be present if there is associated severe hemorrhage

2. Complications:
   a. Laceration of intercostal vessel with possible hemorrhage
   b. Creation of a pneumothorax, if one not already present
   c. Laceration of the lung
   d. Infection

3. Administer high concentration oxygen.

4. Identify the second or third intercostal space on the anterior chest at the mid-clavicular line on the same side as the pneumothorax.
   a. The anterior site is preferred because the patient lying supine has a better chance of having accumulated air in the pleural space removed when decompressing at the midclavicular area as opposed to the midaxillary area.

5. If there is significant anterior chest trauma, the alternate site may be used; the midaxillary line, fourth or fifth intercostals space directly above the fifth or sixth rib (the nipple is over the 5th rib).

6. Cleanse the overlying skin with alcohol preps or providone iodine solution.

7. Remove the plastic cap from the 10 gauge, 3 inch large-bore catheter.

8. Insert the catheter into the skin over the superior border of the third rib, midclavicular line (or into the skin over the border of the fifth or sixth rib midaxillary), and direct it into the intercostals space at a 90 degree angle to the third rib.

9. As the needle enters the pleural space, there will be a “pop”.

10. Insert the catheter through the parietal pleura until air exits under pressure.

11. Remove the needle and leave the plastic cannula in place until it is replaced in the Emergency Department.

12. Attach a flutter valve, if available, to the end of the plastic cannula and secure the cannula for transportation.

13. Reassess vital signs


References:

8.10 Blood Alcohol Specimens

History: Effective: 6/1/99; Revised: 11/01/01

Purpose:

The purpose of this protocol is to describe the legal authority and proper procedures to be followed when obtaining a blood specimen at the request of law-enforcement agencies.

Description:

*Florida Statute Chapter 316.1932(3)(f)(2)*

"Only a physician, certified paramedic [certified as provided in Chapter 401], registered nurse, licensed practical nurses, or duly licensed clinical laboratory technologist or clinical laboratory technician acting at the request of a law enforcement officer, may withdraw blood for the purpose of determining the alcoholic content thereof or presence of chemical substances thereof or controlled substances herein. However, the failure of a law enforcement officer to request the withdrawal of blood shall not affect the admissibility of a test of blood withdrawn for medical purposes."

1 Introduction:
   a) There are several situations in which a County Certified paramedic or EMS physician may be called upon to draw blood samples at the request of law enforcement officers for determination of alcohol or drug levels. In any case, the highest priority of EMS is to render emergency medical care as needed. Blood samples may be drawn only after those needs have been addressed. Situations may arise where blood sampling must be delayed or deferred to the receiving emergency department to attend to higher medical priorities.
   b) Types of situations in which law enforcement may request blood sampling include the following:
      i) At an accident scene in which a fatality, or potentially fatal injury, has occurred.
      ii) In cases of DUI (Driving Under the Influence (of drugs or alcohol)) where an accident is of lesser severity or in which no accident has occurred.
      iii) In cases involving crimes apart from those involving traffic, such as rape, assault, etc.
   c) Regardless of the situation, if a blood sample is drawn at the request of law enforcement for the purpose of determining blood alcohol or drug levels, the following procedure shall be used. Blood samples requested by law enforcement for DNA testing are not currently approved by the EMS Medical Director.

2 Procedure:
   a) Check the "Supplemental Form" box to indicate a blood sample form is attached.
   b) In the "Remarks" section, note the following:
      i) A blood alcohol kit was used
      ii) Betadine (providone-iodine) solution (or hydrogen peroxide acetone if allergic to iodine) was used for the skin preparation.
      iii) Time of draw
      iv) If paramedic drawing sample is different from the one signing the report, that paramedic will sign under the above information
   v) A blood sample form was completed
c) In the flow sheet, log the time of the blood sample as a procedure.

d) Each vial containing blood samples shall have on the label:
   i) Date of draw
   ii) Time of draw
   iii) Name of person drawing blood sample
   iv) Initials of person drawing and officer requesting the drawing

e) All blood samples taken shall be surrendered to the requesting law enforcement officer.

f) The paramedic shall:
   i) Obtain a minimum of two samples per person per draw
   ii) Render emergency medical service or treatment as necessary prior to the drawing of blood alcohol samples
   iii) Obtain blood alcohol samples only at the request of a law enforcement officer

3  Consent:
   a) Florida Statute 316.1933(1)(a) – Blood test for impairment or intoxication in cases of death or serious bodily injury; right to use reasonable force.
   b) In cases at an accident scene where a fatality, or potentially fatal injury, has occurred, the law allows for blood samples to be drawn even if the subject/patient does not consent. Consent and cooperation should be sought, but if the law enforcement officers are able to adequately restrain the patient (using "reasonable force" if necessary), a County Certified paramedic or EMS physician may draw the blood sample in these circumstances. The test shall also be performed in a reasonable manner. See additional information below for definition of “serious bodily injury”
   c) Any person who is incapable of refusal by reason of unconsciousness or other mental or physical condition shall be deemed to have not withdrawn his or her consent to such test. A blood test may be administered whether or not such person is told that his failure to submit to such test will result in the suspension of the person’s privilege to operate a motor vehicle in the state of Florida.
   d) In cases where an accident is of lesser severity or in which a DUI violation is suspected without an accident, blood samples may be drawn by a County Certified paramedic or EMS physician if the patient gives consent. The subject/patient may NOT be forced into providing a blood sample in such cases.
   e) For cases involving crimes other than traffic accidents or DUI, law enforcement officers may bring suspects/patients to fire stations or to ambulances to obtain your assistance in drawing blood samples. Again, the subject/patient must consent to the procedure. The subject/patient may not be forced into giving a blood sample in such cases.
   f) For cases of blood sampling requiring consent, the Pinellas County EMS Blood Sampling Consent Form shall be utilized. Use of the form is self-explanatory. The form should be attached to the top copy of the EMS run report.

4  Additional Information:
   a) No hospital, clinical laboratory, medical clinic, or similar medical institution or physician, certified paramedic, registered nurse, licensed practical nurse, other person authorized by a hospital to draw, or duly licensed clinical laboratory director, supervisor, technologist, or technician, or other person assisting a law enforcement officer shall incur any civil or criminal liability as a result of the withdrawal or analysis of a blood or urine specimen, or chemical test of a person’s breath pursuant to accepted medical standards when requested by a law enforcement officer, regardless of whether or not the subject resisted administration of the test.
b) **The term “serious bodily injury”** means an injury to any person, including the operator, which consists of a physical condition that creates a substantial risk of death, serious personal disfigurement, or protracted loss or impairment of the function of any bodily member or organ.

c) F.S. 843.06 Neglect or refusal to aid peace officers. Whomever, being required in the name of the state by any officer of the Florida Highway Patrol, police officer, beverage enforcement agent, or watchman, neglects or refuses to assist him in the execution of his office in a criminal case, or in the preservation of the peace, or the apprehending or securing of any person for the breach of peace, or in case of the rescue or escape of a person arrested upon civil process, shall be guilty of a misdemeanor of the second degree. This assumes the subject is adequately restrained.
8.11 Capnography

Interpreting the results:

The capnogram can be divided into four (4) phases:

![Capnogram Diagram]

Phase I is the inspiration phase. Phase II is characterized by a rapid increase in CO2 as the alveoli begin to empty. Phase III (alveolar plateau) is when the alveoli empty and phase IV is when the inspiration starts and the waveform returns to zero.

A. When CO2 is not detected, three factors must be quickly evaluated by the field clinician for possible causes:

   a) Loss of airway due to apnea or due to improper placement of the endotracheal tube.
   b) Loss of circulatory function as a result of cardiac arrest, exsanguination and/or massive pulmonary embolism.
   c) Equipment malfunction, extubation of the endotracheal tube or tube obstruction.

B. Factors Affecting Accuracy:

   1) Moisture and secretions entering and clogging the breathing circuit can interrupt monitoring and can cause inaccurate measurements.
   2) The CO2 sensors are cross sensitive to anesthetic gases.
   3) The added weight of the adapter on the endotracheal tube can cause kinking and extended extubation.

C. Three Common Causes Affecting CO2 Excretion:

   1) Decreased metabolic rate (sedation, hypothermia, and death) = decreased CO2 blood levels = decreased ET CO2 readings.
   2) Increased metabolic rate (exercise, fever, shivering, sympathomymetic drugs) = increased CO2 blood levels = increased ETCO2 readings.
   3) Decreased blood flow (inadequate chest compressions, shock, hypovolemia, tension pneumothorax, pulmonary embolism, cardiac arrest) = decreased CO2 delivery to the lungs = decreased ET CO2 readings.
D. Capnography Waveforms:

1) Normal wave form @ 35-45 mmHg:

2) Cardiac Arrest with Pulmonary Emboli

3) Airway Disconnect or Missed Placed Endotracheal Tube

4) Inadequate Seal Around the Endotracheal Tube

5) Kinked Endotracheal Tube, Partial Airway Obstruction or Bronchospasm

6) Hypoventilation

7) Effect of Hyperventilation
8.12 Common Scene Equipment

History: Effective: 06/01/99; Revised 11/01/01

Purpose:

The purpose of this protocol is to properly provide appropriate equipment and trade tools for the anticipated care the patients are to receive. The equipment you anticipate needing for the type of incident you have been requested to shall be taken to the patient’s side. The information provided from the communication centers and other personnel who may already be on scene may assist in better defining what, if any, additional or specialty equipment might be necessary. Additional clinical study may determine future modification of the below assignments if necessary.

First Arriving EMS Assignment:

**Category 1 NECESSARY EQUIPMENT GUIDELINES**

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<thead>
<tr>
<th>A) Downgraded – Medical</th>
<th>B) Emergency - Medical</th>
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<tr>
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<td>2. Monitor</td>
<td>2. Suction</td>
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<td>3. Drug Box</td>
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<td>4. Monitor</td>
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<tr>
<th>C) Downgraded – Trauma</th>
<th>D) Emergency – Trauma</th>
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<tbody>
<tr>
<td>1. Airway/Oxygen</td>
<td>1. Airway/Oxygen</td>
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<tr>
<td>2. Trauma Box</td>
<td>2. Trauma Box</td>
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<td>4. Suction</td>
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<td>2. Pediatric Care Kit</td>
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<td>2. Obstetric Kit</td>
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<td>3. Pediatric Care Kit</td>
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<td>4. Drug Box</td>
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<td>5. Suction</td>
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<td>6. Monitor</td>
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Category 2

SPECIAL CONSIDERATIONS

1. Downgraded lift-assist calls (with no pre-determined injury) may only require an airway kit for taking vital signs.
2. If patient is located outside right next to the unit and obviously conscious and moving, equipment can be considered to be at the patient’s side (i.e., the unit). If patient is not moving, all equipment should be brought to the patient’s side, due to the possibility of cardiac arrest or serious injury.
3. If initial arriving crew is limited to two personnel, the long spine board and any anticipated cervical spinal motion restriction equipment identified in Category 1 assignments may be brought to the patient by the second due-in unit.
4. The ambulance crew should bring a stretcher and any other necessary equipment to the patient’s side in all instances, with the exception of personnel already on the scene advising differently. The stretcher shall be brought at least to the patient’s front door.
5. When the ambulance arrives first, and it can be anticipated through pre-arrival instructions that the patient’s injury or illness is time urgent, the ambulance crew may leave their stretcher in their unit and expeditiously take appropriate equipment (according to Category 1) to the patient’s side. The second arriving unit will bring the transportation stretcher, and any other equipment that may be needed, to the patient’s side.
6. EMS responses to large commercial buildings including structures over one-story tend to complicate what equipment should be brought to the patient’s side. These structures tend to delay your “At Patient” arrival up to one to six minutes. In these circumstances, it is better to be overly prepared. In all commercial buildings and structures over one-story, all incidents assigned as an emergency response for each illness or injury will be taken to the patient’s side unless manpower is limited.
7. **Safe patient movement is the responsibility of both first responder and transport agencies.** All on-scene personnel must assist with loading patients onto the stretcher and into the transport unit (both first responder and ambulance transport), if such assistance is requested. This is particularly important for heavy, confused, agitated, seizure, or violent patients. Irregular ground or pavement also may require additional personnel for safe movement.
8. **Good communication and teamwork between providers will not only assist in providing optimal patient care, but will guarantee a smooth scene interaction.**
8.13 Nasogastric Tubes, Aspiration, and Lavage (Level 3 Procedure Only)

History: Effective: 10/01/02, 06/01/99; Revised: 09/01/02, 11/01/01

Purpose:

Nasogastric (NG) Intubation, aspiration, and lavage provide the best method of removing ingested poisons from the stomach in most circumstances. Although the benefit of this procedure is reduced with time due to the 15 – 30 minute transit time of materials through the stomach, the subsequent instillation of activated charcoal may inactivate remaining poisons and continue to do so throughout the entire intestine. Appearance of charcoal-colored stool indicates the neutralization of the gut is completed.

CONTRAINDICATION:

- Head or facial trauma

PRECAUTIONS:

1. Corrosives: (Level III, call OLMC). Placing an NG tube, aspirating contents, followed by instilled activated charcoal neutralization, after protecting the airway with a cuffed endotracheal tube may help, otherwise this should be avoided as esophageal perforation may occur from NG tube insertion in such cases.

2. Petroleum distillates: (Level III, Call OLMC). These may enter the lung and cause hydrocarbon pneumonitis. Induced emesis is NOT recommended. For an obtunded, unconscious, or patient with no gag reflex, airway protection with a cuffed endotracheal tube is recommended. This can be followed by NG tube placement, aspiration of contents, and instillation of activated charcoal. This may provide optimal benefit, especially if the petroleum distillate is a liquid carrier for a more deadly poison such as concentrated organophosphate pesticides. In such cases the risk of injury from the ingested pesticide outweighs the risk of petroleum emesis.

3. In these precautionary circumstances, for conscious patients, following NG tube insertion, maintaining the patient in a head-down position with frequent suctioning of the pharynx reduces the risk of airway aspiration.

PROCEDURE- NASOGASTRIC TUBE INSERTION:

1. Decon must continue concurrently with treatment protocol.
2. Appropriate PPE must be worn.
   a. Caution must be exercised when handling suctioned material, vomit, and other fluids from a contaminated patient.
3. Equipment Needed:
   a. Personal protective equipment (gloves, mask, face shield, etc.)
   b. Nasogastric tube (18 FR)
   c. Water soluble lubricant
   d. Tape
   e. Suction equipment
f. Toomey syringe

g. Cup of water or ice chips (if patient conscious)

4. Measure the length of the nasogastric tube to be inserted by placing the tip of the tube over
the approximate area of the stomach and extending it to the patient’s ear and from the ear
to the tip of the nose. NOTE the marks on the tube used for measurement.

5. If the patient’s condition permits, explain the NG tube insertion procedure, position the
patient upright (high fowlers), with the head flexed on the chest to compress the trachea and
place the esophagus in direct alignment with the posterior nares.

6. If the patient is obtunded, unconscious or without a gag reflex, insert a cuffed endotracheal
tube to protect the airway prior to NG tube insertion.

7. Select the widest nasal passage for NG tube insertion.

8. Apply water soluble lubricant, to the tip and the first 2 to 3 inches of the NG tube to ease
insertion through the nares.

9. Instruct the patient to suck on ice chips or to take small sips of water (if not contraindicated)
and to swallow on command during the procedure. This will assist with passage of the tube.

10. Insert the tube along the floor of an unobstructed nostril. If the patient has a deviated
septum, choose the nostril with the most open channel.

11. Gently and slowly advance the tube while having the patient continue to swallow (if
conscious) until the tube is at the level previously noted by the marks. It is common for the
patient to choke and cough during the procedure. If this occurs, hold the tube and allow the
patient to rest. If choking and coughing persists, remove the tube as it may have entered the
trachea. Retatempt insertion.

12. Following passage of the tube into the oropharynx, if the patient can cooperate, have them
swallow or drink, as the NG tube will then pass into the esophagus with the swallowing
action.

13. After the tube has been fully inserted to its predetermined length, verify placement in the
stomach by injecting 20 – 30 ml of air with the toomey syringe into the tube while
auscultating the epigastric region for the sound of air movement. Leave the syringe attached
to the tube until aspiration of stomach contents is initiated or intermittent suction is available.

14. Tape the NG out of reach of the patient to prevent its removal. A Veniguard over the nose
may help accomplish this.

15. Lavage stomach contents by injecting 100 ml to 150 ml boluses of normal saline into the
tube and allowing the return of gastric contents by aspiration or intermittent suction.
Document the amount of fluid infused and returned by lavage. Use HAZMAT and normal
medical precautions

16. Administer appropriate dose of activated charcoal if directed to do so.

17. Possible Complications:

   a. Nasal Hemorrhage
   b. Passage of the tube into the trachea
   c. Perforation of the esophagus
   d. Gastrointestinal bleeding
   e. Coiling of the tube in the posterior pharynx
   f. Obstruction of the passage resulting from septal deviation
   g. Passage of the tube intracranially (with cribiform plate fractures)

References:

8.14 Mark I Kit Auto-Injectors

History: Effective: 01/01/03; Original: 01/01/03; Revised; MCB Approved: 11/18/02

Purpose:

Described in this protocol are the signs and symptoms of exposure to a nerve agent, operation of an active Mark I kit and operation of a Mark I kit trainer. Regular familiarization with the Mark I kit trainers will make system personnel efficient at the use of an active Mark I kit should the need ever arise.

Description:

I. Nerve Agent Effects – Vapor Exposure
   A. Mild – Onset of effect: seconds to minutes after exposure
      1. Eyes
         i. Small pupils (miosis)
         ii. Dim vision
         iii. Headache
      2. Nose
         i. Runny nose (rhinorhea)
      3. Mouth
         i. Salivation
      4. Lungs
         i. Tightness in the chest
   B. Severe – Onset of effect: seconds to minutes after exposure
      1. All of the effects above, plus the following:
         i. Severe difficulty breathing or apnea
         ii. Generalized muscular twitching, weakness, or paralysis
         iii. Convulsions
         iv. Loss of consciousness
         v. Loss of bladder and/or bowel control

II. Nerve Agent Effects – Liquid on Skin
   A. Mild/Moderate – Onset of effects: 10 minutes to 18 hours after exposure
      1. Muscle twitching at site of exposure
      2. Sweating at site of exposure
      3. Nausea, vomiting
      4. Weakness
   B. Severe – Onset of effects: minutes to an hour after exposure
      1. All of the above, plus all symptoms listed in I.B.

III. NAAK (Nerve Agent Antidote Kit)
   A. Consists of three Mark I Auto-Injector Kits and One Diazepam Auto-Injector
IV. Operation of the Mark I Auto-Injector

1. Remove the Mark I kit from the protective pouch
2. Hold unit by plastic clip (See graphic A.)
3. Remove Atropen from slot 1 of the plastic clip. The yellow safety cap will remain in the clip and the Atropen will now be armed. DO NOT hold unit by the green tip. The needle ejects from the green tip. (See graphics B & C.)
4. Grasp the unit and position the green tip of the Atropen on victim’s outer thigh.
5. Push firmly until auto-injector fires.
6. Hold in place for 10 seconds to ensure Atropine has been properly delivered.
7. Remove 2-PAM Cl ComboPen from slot number 2 of the plastic clip. The gray safety cap will remain in the clip and the ComboPen will now be armed. DO NOT hold the unit by the black tip. The needle ejects from the black tip.
8. Grasp the unit and position the black tip of the ComboPen on victim’s outer thigh (See graphics D & E.)
10. Hold in place for 10 seconds to ensure Pralidoxime Chloride has been properly delivered.

V. Diazepam Auto-Injector

1. Remove the grey safety cap by pulling it out. DO NOT touch the black end of the injector until you are ready to inject.
2. Place black end of the Autoinjector against the mid-outer thigh. Push the injector hard against the thigh. Inject through the clothing.
3. Wait 10 seconds, then remove needle with a quick pull.
VI. Treatment

A. Mild Vapor Exposure
   1. Self-aid: Administer one – Mark I kit
   2. Buddy-aid: stand-by

B. Severe Vapor Exposure
   1. Self-aid: None. Personnel will be unable to help themselves.
   2. Buddy-aid: Administer three – Mark I kits and diazepam IMMEDIATELY.

C. Mild/Moderate Liquid on Skin Exposure
   1. Self-aid: Administer one to two Mark I Kits, depending on severity of symptoms
   2. Buddy-Aid: Stand-by

D. Severe Liquid on Skin Exposure
   1. Self-aid: None. Personnel will not be able to help themselves.
   2. Buddy-Aid: Three – Mark I kits and diazepam IMMEDIATELY.

* The most important care exposed personnel receive is the care given within the first several minutes after exposure.

* When the effects progress to more than one organ system, the situation is moving rapidly from a mild to a severe exposure. Recognizing this change is critical.

VII. Practicing with Mark I Auto-injector Trainers

   1. Remove kit from protective pouch.
   2. Hold Mark I trainer by plastic clip.
   3. Remove AtroPen trainer from slot number 1 of the plastic clip. The yellow safety cap will remain in the clip.
   4. Grasp the trainer and position the green tip of the AtroPen trainer on victim’s outer thigh.
   5. Push firmly until red prod ejects from unit.
   6. Remove ComboPen trainer from slot number 2 of the plastic clip. The gray safety cap will remain in the clip.
   7. Grasp the trainer and position the black tip of the ComboPen trainer on victim’s outer thigh.
   8. Push firmly until white prod ejects from unit.

VIII. Resetting Mark I Auto-Injector Trainers AtroPen trainer

   1. Gently pull the green tip out about ¼ inch to expose the neck of the unit.
   2. Clamp open end of recocking tool on the neck of the AtroPen trainer below the green tip
   3. Place red prod down on a hard surface and apply pressure until you hear a click.
   4. Remove recocking tool.
   5. Slide AtroPen trainer back into the plastic clip slot number 1 and press end of the unit into the yellow safety cap.

References:

- Meridian Medical Technologies, Inc. website October 2001 http://www.meridianmeds.com
8.15 Physical Restraint

History: Effective: 04/01/03; Original: 02/01/02; Revised: 10/01/05; MCB Approved: 10/13/05, 02/21/02

Purpose:

The purpose of this protocol is to describe the authorized restraint procedures to be used by the EMS system when it becomes necessary to protect the patient and the treatment crew from personal injury due to patient combativeness.

Description:

Restraint is defined as any mechanism that physically restricts a person’s freedom of movement, physical activity, or normal access to his/her body. Always consider the medical etiology in treating the patient’s irrational behavior and use appropriate treatment modalities if the etiology is identified. The system clinician is given broad clinical jurisdiction in managing behavioral emergencies. Reference should be made to MOM Protocol 5.25 (Behavioral Emergencies) when using this procedure.

In-Field/Pre-Transport Procedure from Emergency Scene: Nonviolent but unintentionally uncooperative or resistant patients

Elderly demented patients, those with developmental or emotional disabilities, or other patients with chronic or acute illness or injury may not be overtly violent, but unintentionally uncooperative or resistant to attempts to evaluate or treat them. These patients generally are not functioning at a fully cognitive level. In many cases, verbal reassurance and patience can overcome this type of resistance, but in others, it is beneficial to the patient and the provider to utilize soft restraints so that necessary procedures can occur and neither party is injured in the process. If a patient is normally restrained at a nursing or other long-term care facility, consideration should be given to continuing the same level of restraint during transport. OLMC consultation is NOT required for the use of soft restraints for these types of patients, but the decision to restrain must not be made lightly, and documentation of the reason for restraint, methods employed and ongoing monitoring for complications of restraint is mandatory. If the patient is not controllable with soft restraints, they should be handled under the procedures of the next section.

In-Field/Pre-Transport Procedure from Emergency Scene: Violent and/or intentionally uncooperative or resistant patients

When possible, leave any kind of restraining to local law enforcement officials. Always consider scene safety (See MOM Protocol 6.5, Staging)

1. If you have determined the scene to be safe, never leave a violent patient alone; watch them constantly, and remain alert to your immediate surroundings. Locate accessible exits and when possible, place yourself between the patient and an exit in the event the need to exit rapidly for personal safety arises.

2. When possible, you should always try to verbally deescalate a situation before resorting to physical restraint. The patient should be gently and cautiously persuaded to follow the guidance and instruction of the treatment team.
3. Law enforcement personnel **must** be summoned immediately, if not already on the scene when it is apparent that restraint of a patient will become necessary.

4. When possible, contact should be made with OLMC prior to restraining such patients. If it is impossible to obtain OLMC consult prior to use of restraint, OLMC shall be advised and consulted at the earliest point possible.

5. Gather enough people (four to six individuals) to overpower the patient using reasonable force before you try to restrain them. Reasonable force will be defined on a case by case basis by the legal system\(^1\). Effective teamwork will be more important than strength of any individual member.

6. Explain to the patient (at least three times) and any bystanders what you are doing. Tell the patient that the restraints are for their protection and the safety of others.

7. Reinforced (poly style) restraints used by EMS personnel shall be padded (soft cloth) so that they will not injure a patient who struggles. Soft restraints (fabric straps with foam padding) should only be considered in the severely debilitated, elderly and pediatric patients. The use of hard restraints such as handcuffs or flexcuffs is not permissible unless applied by law enforcement and law enforcement intends to physically remain with the patient during transport. The use of a long spine board or pediatric immobilizer may be indicated if extremity (4 point) restraints are not sufficient for the extremely agitated patient.

8. **Once the patient is restrained, do not remove the restraints!** Never bargain with the patient, and do not agree to remove the restraints upon their promise to cooperate.

9. Request law enforcement accompaniment during transport to the hospital when it is necessary or determined by the treatment crew that their assistance is warranted for personnel safety.

**Interfacility Transport via Ambulance:**

1. Before the arrival of ambulance transportation, the Emergency Medical Dispatchers (EMD) working in the Sunstar Communications Center will have provided a caller interrogation with facility staff in accordance with the current Standard Operating Procedure (SOP) approved by the Pinellas County Medical Control Board. This interrogation should provide the responding clinician(s) the following information:

   a) The patient is likely to need oxygen or medical attention during transport, or
   b) The patient is currently exhibiting signs of violent behavior or has he/she has exhibited such behavior during the current emergency department evaluation, or
   c) The client is at high risk for elopement by statements made or behavior exhibited, or
   d) The patient will require transport out of county.

2. If the patient is exhibiting signs of violent behavior and/or has a high risk for elopement, i.e., b. and c. above, the patient will require restraint (chemical or physical) prior to and during ambulance transportation. Field crews should seek assistance from other facility staff and/or security while using the restraint techniques described within this protocol. If the transporting crew is uncomfortable with any patient and/or believes that inadequate protective restraint has been provided for by the transferring facility, OLMC consult should be obtained.

3. **Once the patient is restrained, do not remove the restraints!** Never bargain with the patient, and do not agree to remove the restraints upon their promise to cooperate.
4. If the patient adamantly wants to vacate the ambulance and is demanding to be released from our services, EMS may have to comply with the patient's wishes. In these situations the patient must be determined competent. If the patient is being transported under the Baker Act (Chapter 394, F.S.) for involuntary medical or psychiatric examination, they are not legally entitled to this request. However, those patients being transported for a voluntary examination do have the right to this request. If the patient makes such a request, it will be necessary to determine their transportation status, i.e., Involuntary or Voluntary. If the patient is considered in a Voluntary status, contact On-Line Medical Control (OLMC) concerning a high-risk refusal and conduct an EMS Cognitive Examination. If the patient passes this examination, and if approved by OLMC, the patient may be dropped off at a safe location. If the patient fails the EMS Cognitive Examination, he/she should be transported to the nearest facility and restrained if necessary as authorized by OLMC under the Baker Act or Florida Statue 401.

Problems Encountered During Transport:

1. A patient that suddenly turns violent enroute to a receiving facility should be managed in the following manner:
   a) The driver shall contact the 911-communication center and advise them of the situation and their exact location. He/she will pull the transport unit over immediately and request law enforcement’s response to the location. The vehicle’s emergency lights are to be turned on for rapid locating by law enforcement.
   b) Request additional resources for assistance
   c) If there is imminent danger to EMS personnel, depress the “Emergency” button on the 800 mHz mobile or portable radio.
      i. Advise your unit ID
      ii. Advise “Emergency Traffic” or “Code H.”
      iii. Provide your exact location.
      iv. Advise the nature of the problem:
         • Baker Act patient fleeing
         • Violent psychiatric
         • Medical emergency
   d) The attendant will position him or herself between the patient and the exit door in case the attendant needs to exit rapidly for his/her safety.
   e) The attendant should never attempt physical restraint alone; wait for assistance.
   f) Restrain the patient using the proper procedures described within this protocol.
   g) Transport to the closest hospital.

2. If the patient suddenly elects to flee from the ambulance, summon law enforcement immediately. Advise them of the situation including the exact location of the occurrence and a description of the patient, including clothing the patient was wearing and medical items still on the pt., ex. BP cuff, IV reseal, etc. Stay in the response vehicle and follow the patient at a safe distance while providing law enforcement any location or status changes. Do not attempt physical confrontation without assistance. Once law enforcement arrives on the scene let them calm the environment. When the scene is determined stable, a complete physical assessment of the patient will be necessary. Make certain that you are dealing with a psychological and not medical emergency that has caused the disturbed behavior, e.g., hypoglycemia, hypoxia.
Restraint Procedure:

1. Physical Restraint application
   
   b. Apply restraints following the manufacturers' instructions.
   c. If the patient is not physically injured, restrain and transport in the supine position. Be aware of positional restraint asphyxia.²
   d. A patient should be placed on backboard, stretcher or pediatric spinal motion restriction device (Peds).
   e. Strap Placement
      
      A. Stretcher straps
         
         i. Chest strap under the arms high on chest
         ii. Leg strap immediately above the knees
      
      B. Backboard (when utilized) straps
         
         i. Chest straps across the chest (in the form of an “X”)
         ii. Abdominal strap on the hips (not abdomen)
         iii. Leg strap immediately above the knees
   f. Secure hands
      
      i. Dominate hand (if known) tied to stretcher above head (same side)
      ii. Non-dominant hand tied to stretcher (same side)
   g. Secure ankles individually to each side of the stretcher (right ankle to the right side of the stretcher and left ankle to the left side of the stretcher).
   h. Be prepared to reposition the restrained patient to prevent aspiration. **Have suction readily available !!!!**

* Any patient restrained by law enforcement in a prone position should be returned to the supine position once patient is controlled. Monitor the patient for signs and symptoms of positional restraint asphyxia.

**Level I**

Contact with OLMC is mandatory for all patients exhibiting violent and/or intentionally uncooperative or resistant behavior for whom the use of either physical or chemical restraint is necessary. The use of soft restraints for unintentionally uncooperative or resistant patients is authorized without OLMC contact.

**Level II**

Expect orders for:

a. Chemical Restraint for violent behavior following MOM Protocol 5.25, Behavioral Disorders.
b. Involuntary transport following MOM Protocol 10.7 Involuntary Transport Policy
c. Baker Act following MOM Protocol 10.2 Baker Act
d. Physical restraints for any risk of elopement or any situation that involves a request to vacate the transport unit.
Documentation:

1. Make detailed notes on what you have witnessed and learned about the patient. Document patient statements word-for-word in quotation marks for medical as well as legal reasons.
2. Document evidence of incompetence (EMS Cognitive Examination).
3. Document failure of verbal attempts to control situation.
4. Document and show that an emergency existed prior to restraining.
5. Document the threat to self/others.
6. Document the use of restraint, the type, and the time applied.
7. Document distal circulation, sensory, and motor assessments every five minutes.

Definitions:

6. **Reasonable force** is an amount of force equal to or minimally greater than the amount of force being exerted by the resisting patient.
7. **Positional asphyxia** occurs when the position of a person’s body interferes with their normal respiratory effort, including any body position that obstructs the airway or interferes with the muscular or mechanical components of respiration.

References:


Reference Protocols:

- Behavioral Disorders
- Staging
- Mental Health Transport (MHT)
- Baker Act
- Involuntary Transport Policy
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7.17 Succinylcholine
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Section 1
Critical Care Transport (CCT) Medical Operations Manual – Introduction
1.1 Critical Care Transport (CCT) Medical Operations Manual - Purpose

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved; Original: 12/15/93

Purpose:

The purpose of this protocol is to describe the need for, and assumptions behind, the policies, procedures, and protocols in the CCT Medical Operations Manual.

Description:

The CCT Medical Operations Manual is to be used in conjunction with the current Pinellas County Medical Operations Manual and the current ambulance contractor procedure manual. The enclosed policies have been developed to assist the health care provider in assessing and delivering appropriate treatment. They are to serve as a framework and are not intended to represent the total body of knowledge, judgment and skill necessary in the delivery of high quality healthcare.

The following reference books have been adopted by the Critical Care Transport Team to serve as general standards of care to be delivered:

- AACN Clinical Reference for Critical Care Nursing – 4th Edition Published 2001
- Nursing Drug Handbook – Published 2008
- Intensive Care of the Fetus and Neonate – 2nd Edition Published 2005
- Advanced Cardiac Life Support – Current Edition
- Pediatric Advanced Life Support – Current Edition
- Neonatal Resuscitation Program – Current Edition

Specific Critical Care policies have been developed to ensure continuity of care within the Pinellas County healthcare system. CCT will utilize the sending, and/or receiving physician’s written orders for specific patient care when available and applicable.

Emergency Medical Technicians, Paramedics and Nurses are expected to adhere to the protocols set forth in the Pinellas Medical Operations Manual.

Paramedics and EMT’s function within the scope of their training and statutory authority. Paramedics will function at the advanced level based on the training they received regarding the critical patient and advanced adjuncts in place.

Registered Nurses function within the scope of practice as defined by the Florida Nurse Practice Act in accordance with their level of skill and training, and as allowed by the Medical Director. All Registered Nurses will have a current Florida nursing license, ACLS certification, and be trained in critical care.

Accountability for the care of the patient will be the responsibility of the individual who is most highly trained and skilled in providing stabilization, intervention with advanced adjuncts and
transport. Specifically, the Registered Nurse's judgment takes precedence over both the Paramedic and the EMT. The Paramedic's judgment takes precedence over the EMT. In 911 emergency situations the Paramedic and RN will be equally accountable for the actions of the Critical Care Team.
Section 2

On-Line Medical Control Operations
2.1 Consultation with On-line Medical Control (OLMC)

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved; Original: 01/16/96

Purpose:

The purpose of this protocol is to describe the role of OLMC in patient care through CCT.

Description:

Real-time clinical support is available to field clinicians through On-Line Medical Control (OLMC). CCT staff is responsible for compliance with MOM Protocol 2.3 with additions and exceptions as noted below. Due to the complexity of patients transported by Critical Care Transport, consult will only be made to a Medical Control Physician. Post transport procedure notifications may be made to any on duty OLMC staff. **MD1 is the preferred physician for medical control consultation for complex patient transports.**

- **Additions**
  - If there is a reasonable probability that there may be significant patient deterioration during transport, OLMC may be contacted for patient familiarization to save time in an emergency situation.
  - If in the opinion of CCT, a patient’s condition is too unstable for transport and the benefits of transport do not outweigh the risks, OLMC must be contacted to abort the call. *(MD1 preferred)*

- **Exceptions**
  - CCT is not required to contact OLMC prior to administering a controlled substance unless determined necessary by CCT or by protocol.

- **Point of Emphasis**
  - If a CCT intervention, procedure or treatment methodology is challenged by the hospital staff or contradictory to the patient’s physician orders, OLMC must be contacted prior to proceeding.
Section 3

Dispatch Operations
3.1 Accessing Critical Care Transport (CCT) for Interfacility Transports

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 06/01/96

Purpose:

The purpose of this protocol is to define the complexity of interfacility transfer requests to assure the appropriate level of care for transport and outline the procedure for accessing CCT for the transfers that meet those criteria.

Description:

Definitions for Use in This Protocol

“Low Complexity Call” refers to the transport of a patient who has medicated drips that have been approved by the Office of the Medical Director to be placed on a Stat Master (KCL, Heparin, Lidocaine, Pronestyl, Aminophylline, Tagamet, and Zantac), for transport in addition to approval from the sending facility. Other medications may be transported utilizing the STAT Master with OLMC approval.

“High Complexity Call” refers to the transport of a patient who has needs outside of the Pinellas County Paramedic Scope of Practice and above the Low Complexity call criteria.

“High Complexity System Car” refers to the transport of a patient who meets High Complexity criteria and the sending facility has opted to send its own Nurse (must have current ACLS certification).

“High Complexity CCT” refers to the transport of a patient who meets High Complexity criteria and Critical Care Transport is utilized for the transport.

“ASAP request” refers to the transport of a patient in which the facility states “needed ASAP” due to the need for potential intervention. CCT receives report as soon as possible and responds appropriately. CCT will upgrade their response if patient condition warrants it.

“STAT request” refers to transport requests where the patient is critical and requires urgent transfer to a higher level of care and/or for an immediate intervention. CCT receives report while enroute to the call. These are usually emergency responses. CCT may downgrade their response if patient condition indicates.

Patient Selection Criteria for CCT

- Invasive Pressure Lines (Arterial lines, Arterial/Venous Sheaths, Swan-Ganz Catheters, Intracranial Pressure Lines, CVP’s, etc.)
- Advanced Airway Adjuncts (Mechanical Ventilators, Continuous Positive Airway Pressure [CPAP] devices, Tracheostomy patient with artificial adjunct or complications)
• Medicated Intravenous Lines (IV’s requiring accurate mechanical dose regulation such as pressors, antianginal, thrombolytics, antidysrhythmics, anticoagulants, tocolytics, paralytic, volume expanders including blood, plasma, platelets and colloids)

• Adjuncts to Support Circulation (Intra-Aortic Balloon Pumps, Internal/External Cardiac pacing)

• Trauma patients (field response at the request of the agency on scene and facility transfers to a state approved trauma center)

• Pediatric Patients (Unstable conditions, advanced adjuncts or requiring transport to specialized pediatric facility)

• Neonatal Patients (Neonatal Patients or infants post precipitous delivery requiring isolette transport or requiring transport to a specialized facility in an isolette)

• Obstetric Patients (High Risk, premature labor or requiring transport to a Regional Perinatal Intensive Care Center)

• Other Patients (as determined by the Paramedic on scene, Medical Control, Sending/Receiving Physician or CCT crew) that have the need for advanced, and/or specialty care, or the patient has the high potential for deterioration during transport.

Procedure:

Upon determining that there is a high complexity call and a need to utilize the Critical Care Transport unit (CCT):

1. When a call is received in dispatch, the call taker determines if CCT is necessary with Determinant Card #33 (interfacility/palliative care) and with communications center policy in regards to CCT requests.
2. The call taker will advise the caller that the transport is above the level of Pinellas County Paramedics and will require that they send a Nurse or utilize the CCT unit (the caller may initially request CCT for their transport).
3. The call taker will ascertain requested time of pick up, or if it is STAT or ASAP.
4. The SSC will then page the CCT crew with patient information as outlined in the determinant card.
5. CCT will acknowledge receipt of the page on Sunstar Tac channel Alpha (“A”).
6. The CCT RN will call the sending facility to obtain patient report and set pick up time based on other calls holding and severity of patient condition. (CCT will call the facility back as soon as possible on all requests to assure proper triage and response mode.)
3.2 Critical Care Transport (CCT) Response Mode

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved: Original: 12/15/93

Purpose:

The purpose of this protocol is to give clear guidance for the response mode of Critical Care Transport to prehospital EMS and interfacility requests for service.

Procedure:

EMS Scene Response

1. Upon receipt of a 911 EMS Call, the CCT unit will respond emergency to the scene.
2. The CCT unit will acknowledge the call on the Sunstar Tac channel for dispatch information, assigned units and working Fire Tac channel.
3. While enroute, the CCT unit will come up on the FD Tac channel to obtain additional call information and may be downgraded at the discretion of the EMS unit on scene.

Interfacility Response

1. The CCT unit will initially respond emergency to a “STAT” request. CCT will downgrade the response based on information obtained in report about patient condition.
2. The CCT unit will initially respond non-emergency to “ASAP” requests. CCT will upgrade the response based on information obtained in Nurse report about patient condition.
3. Emergency response determinations should be based on patient condition. Examples of determinants that may indicate an emergency response are:
   • Unstable vital signs, c/o chest pain or SOB, critical lab values, etc.
   • Requires invasive procedures to maintain stability (intubation, IABP, aggressive pharmacology, etc.).
   • Requires immediate definitive intervention at receiving hospital (PTCA, surgery, dialysis for critical lab values, etc.).
   • High risk perinatal patient with evidence of fetal distress or imminent delivery in a non-obstetric facility.
4. The CCT unit will NOT respond emergency to a call:
   • in which an emergency response has been requested based on “physician wants the patient transported now”, the patient is stable, and the patient will not be receiving any intervention or higher level of care at the receiving facility.
   • on the sole basis that the pick up has been delayed due to a higher priority call.
   • on the sole basis of bed availability, or changes in cath lab schedules.
3.3 Critical Care Transport (CCT) Transport Mode/Diversion

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved; Original: 12/15/93

Purpose:

The purpose of this protocol is to provide clear guidelines for the transport of critical care patients and diverting a patient whose status unexpectedly deteriorates and is unmanageable during transport.

Procedure:

**Diversion**

The CCT unit may divert to a closer hospital during transport if the patient develops a sudden, unexpected, unmanageable emergency.

The patient will be transported immediately to the nearest appropriate emergency department. OLMC will be notified of the diversion. Report will provided to the new destination ER either via radio report to the MCO on Med “Alpha” to relay the information to the ER or if time/condition permits, the CCT Team will make direct contact with the new destination ER via med radio while enroute.

Once the patient has arrived at the ER and has been turned over to the emergency physician, the CCT team will contact and advise the sending and receiving physicians of the diversion.

The CCT Supervisor must be notified of any diversions as soon as possible by the CCT RN.
3.4 Critical Care Transport (CCT) Interfacility Transports

**History:** Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved; Original:

**Purpose:**

The purpose of this protocol is to provide guidelines in assuring all legal requirements are met prior to performing an interfacility transport.

**Description:**

A patient may be transferred to another hospital if:

1. The patient, family or personal physician desires.
2. The sending physician and facility are in compliance with EMTALA guidelines on patient transfers, if it is a transfer as defined by EMTALA. This compliance is accomplished by the sending physician/facility completing a Certificate of Transfer form, a copy of which must accompany the patient, and be delivered to the receiving facility. This form assures the following:
   a. The patient (or surrogate) has consented to the transport.
   b. The transfer is arranged as a physician-to-physician transfer certifying need/risks/benefits of transfer. Name of sending and receiving physician must be obtained.
   c. The receiving facility has an assigned bed for the patient and has accepted the patient. Bed number must be obtained prior to transport.
   d. A Nurse-to-Nurse report has been called to the area where the patient is being accepted at the sending facility. It is encouraged to obtain the name of the Nurse who took report at the receiving facility.

**Procedure:**

1. The CCT RN will receive a complete patient report.
2. Patient ID must be verified.
3. The CCT RN will perform a full patient assessment
4. The CCT RN will consult with On-line Medical Control if necessary
5. The CCT Paramedic, EMT, and RN will make changes to CCT equipment in order to maintain at least the current level of care being provided.
6. The RN will assure the patient’s paperwork is complete to include a transfer form, a face sheet, required insurance forms and any specific physician orders for transport.
   **Note:** Should the sending physician request or anticipate a medication that is not currently a part of CCT’s stock, the sending facility will be asked to supply the medication.
7. Arrangements should be made to have all patient belongings sent home with family members if at all possible.
3.5 Critical Care Transport (CCT) – Out of County Transports

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved; Original: 12/15/93

Purpose:

To provide guidelines in response to an out-of-county (OOC) request for CCT service.

Procedure:

Note: Requests to transport to Tampa or Pasco do not require that this procedure be activated.

1. The CCT RN on duty must obtain all patient information at the time of the request. Patient condition is the first and foremost factor in this decision process (patient report can be deferred to the CC2 RN if on duty).

2. OOC calls not requiring the CCT isolette may be run by the CCT back up unit when available. Any time CC1 must be used for an OOC call during business hours, a CCT back up unit must be staffed and available for Pinellas County calls.

3. Notify the CCT Supervisor and/or the CC2 RN of the request for out of county service. Provide the following information:
   a. Requesting facility and phone number.
   b. Patient name, location and condition. Please provide the person making OOC arrangements with your clinical evaluation of the patient based on the information that you have received.
   c. The supervisor's name or the person to contact.

4. The CCT crew will be notified by the person who is making the arrangements when all information is in place and the transport can begin. In patient emergencies, it is the responsibility of the CCT RN to convey this information and wave this protocol regarding the billing practices.

Note: Emergency requests will be decided by the condition of the patient as per the report provided to the CCT RN. Patient condition is a deciding factor in the time of response and preparation.

Whether an OOC call is to be run by CC1 or CC2 can depend on several factors such as time of day of the transport, distance of transport, available staffing, etc. These items should all be evaluated by the CCT RN when making a decision as to call in the CC2 crew for the transport.
3.6 Critical Care Transport (CCT) – Aborted Call

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 12/15/93

Purpose:

To provide guidelines for the CCT team regarding the documentation and reporting procedure for aborted calls based on patient condition.

Procedure:

If in the opinion of the CCT RN, a patient’s condition is too unstable for transport and the benefits of transport do not outweigh the risks, the decision may be made to abort the transport.

1. The CCT RN must make contact with OLMC (MD1 preferred) to discuss the patient’s condition and rationale for wanting to abort the call.
2. If the sending physician is adamant about wanting the patient transported regardless of the CCT RN’s decision not to transport, the patient’s sending physician will be put in communication with the On-line Medical Control physician (MD1 preferred). *(In the majority of these cases, the On-line Medical Control physician will advise the sending physician that if he wants the patient to be transported he will need to assume total control and liability and accompany the patient during transport.)*
3. If the sending physician decides to accompany the patient in transport and assume care and liability, the transport can resume.
4. If the sending physician does not opt to accompany the patient and assume care, then the transport is aborted until the patient is stabilized.
5. Notify the Critical Care Transport Supervisor of all transports that are aborted on the basis of patient condition.
Section 4

Administrative Section
4.1 Critical Care Transport (CCT) Backup Activation

History: Effective: 09/01/98; Revised: 07/01/08, 12/01/05, 03/01/04; MCB Approved:; Original: 03/20/95

Purpose:

The purpose of this protocol is to outline the appropriate procedure for activating the back up critical care transport unit.

Description:

The back up Critical Care Transport Unit is designated as CC2. CC2 is available, on-call, Monday through Friday from 0800-1700 hours. CC2 can be activated after hours and on the weekends if necessary for call volume or out of county transports.

The backup Critical Care Transport Unit (CC2) is held to the same standards as the primary Critical Care Transport Unit.

At least one back up crew will be in the system Monday through Friday. The back up crew is identified as an 800 unit and is kept mid-county for quick conversion times.

Procedure:

1. CC2 can be activated any time there are 2 or more CCT calls holding at the discretion of the CC1 RN or the Critical Care Transport Supervisor.
2. CC2 will be activated any time critical CCT calls are holding.
3. Typically CC1 will handle the STAT or ASAP calls and CC2 will handle the other time critical call.
4. When it is determined that CC2 is needed, CC1 will either directly contact the CC2 RN or will make notification through the communication center.
5. The back up crew will be placed out of service and brought into the Critical Care Station to obtain additional equipment and convert to CC2.
6. The CC2 RN will either obtain a patient report from CC1, if they have already obtained one, or from the sending facility.
7. The CC2 RN or back up crew will advise the Sunstar Materials counter person to adjust the failsafe to reflect the crew converting over to CC2.
8. The CC2 crew will obtain all needed equipment and place on the CC2 unit.
9. CC2 will then respond to the call and make radio communications as per the ambulance contractor’s current company policy.
10. Once the CC2 call has been completed, the crew will place themselves as “Status 5” and inquire about other CCT calls holding. If there are calls holding, CC2 will contact CC1 to determine which, if any, CC2 will be needed to handle.
11. At the completion of running CC2 calls, the unit will return to the Critical Care Station and advise the communication center that they have completed their calls.
12. The CC2 equipment that was added will now be returned to the appropriate place, supplies used restocked, and the crew will assure all equipment is plugged in for charging.
13. If the paramedic and EMT are not end of shift, they will return to their 800 unit and finish out their shift in the system.
4.2 Maintenance of Equipment

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved; Original;

Purpose:

The purpose of this protocol is to provide for the maintenance and repair of equipment on the Critical Care Transport unit for quality assurance and Critical Care Transport personnel responsibilities.

Description:

Preventative Maintenance and Repairs

Isolette- Preventative Maintenance of the Airborne Isolette is performed by a certified bio-medical maintenance company once a year.

IV Pumps- Maintenance of the IVAC Medsystem III IV pumps is performed by Alaris Medical or Quality Medical South. Each unit is sent in at least once a year for preventative maintenance.

Ventilator- Maintenance of the Pulmonetics LTV 1000 is performed by Quality Medical South. Preventative Maintenance is performed every two years or every 10000 hours of use, which ever comes first.

Medtronic/Physio-Control Life Pak 12 (ECG, Pulse Ox, NIBP, IBP, and Capnography)- Maintenance is performed by Medtronic/Physio-Control. Preventative maintenance is performed once a year.

Equipment Service / Repair requests

It is the responsibility of the oncoming crew to check out ALL equipment and the vehicle at start of shift. Documentation of check out is recorded on the shift change form.

If you experience a problem with any of your equipment during your start of shift checkout or at any time during your shift, report it to the CCT Training Officer. If the equipment is standard ALS equipment, make additional notification to the Sunstar Materiel’s Department.

Fill out the Equipment Report Form and turn in by the end of your shift.

The CCT Training Officer maintains durable medical equipment service and failure records. Events will be tracked and trended on a regular basis to determine if equipment needs to be removed from service and replaced.

Employees who write up equipment for service or failures will be able to follow up on the outcome of their report upon request.
Equipment Critical Failure

Critical Failures are incidents when you experience an equipment failure while caring for a patient. It is vital that any such occurrence be reported to the CCT Supervisor and CCT Training Officer immediately and documented in a timely manner.

When you experience a failure, accommodate for the failure and continue to care for the patient.

Report the failure to the CCT Supervisor and CCT Training Officer. Complete the Equipment Failure form and fill out an additional incident report if there was any patient compromise as a result of the failure. Describe in the incident report what accommodations were made for the failure.

The ambulance contractor is required by law to report any suspected medical device related patient deaths or serious injuries to the FDA and the manufacturer. Information is to be given to the CCT Training Officer.

The Office of the Medical Director will be notified via generation of an Equipment Failure Report through the Quality Assurance Review process of all events involving questionable operation or failure of any piece of medical equipment or medication in the system whether or not a patient is involved.

The equipment will be secured and placed out of service to investigate the cause of the failure. The approved vendor will perform the investigation and service of the equipment.

The CCT Training Officer will maintain durable medical equipment service and failure records. Events will be tracked and trended on a regular basis to determine if a piece of equipment needs to be removed from service and replaced.

Employees who write up equipment for service or failures will be able to follow up on the outcome of their report. A record of equipment reports will be maintained and available to CCT employees upon request to the CCT Training Officer.
4.3 Temperature Control of Medications and Sensitive Equipment

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved.; Original: 01/01/05

Purpose:

This document’s purpose is to establish guidelines to aid in the prevention and resolution of incidents where environmentally sensitive equipment or products are exposed to potentially harmful temperatures.

The ideal temperature range for storage set by the manufacturers of the medications that are currently stocked is between 59 and 77 degrees Fahrenheit. This does not mean they cannot be administered in environments above or below this range but rather that their effectiveness may be compromised if exposed to such temperature extremes for extended periods of time.

Currently there is no conclusive data to determine the period of time for a medication to deteriorate at extreme temperatures. For the purpose of this policy, an extended period of time will be defined as greater than 24 hours.

Procedure:

1. The patient compartment air conditioning will be run at all times when possible.

2. More temperature sensitive medications will be stored in the locked refrigerator.

3. When the primary Critical Care Transport Unit is parked at the station, in the garage, the shoreline roof air conditioning does not need to be running

4. When switching out ambulances during maintenance of the primary Critical Care Transport Unit, strip the truck of the majority of temperature sensitive items and store in a secure temperature controlled environment (Critical Care crew station or Sunstar Materiel’s warehouse).

5. Should a crew become aware that sensitive equipment such as medications and fluids have been damaged due to being exposed to extreme temperatures for an extensive period of time they are to notify the CCT Training Officer or the Sunstar Materials department so the proper action can be taken.

6. Products damaged by extreme temperatures cannot be used for patient care and must be disposed in the approved manner by the Sunstar Materials department.
4.4 Controlled Substance Records

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 01/01/05

Purpose:

To provide guidelines for the control, distribution, verification and disposal of controlled pharmaceuticals.

Procedure:

1. The Critical Care Transport (CCT) controlled substance boxes will be stocked with a set inventory. Controlled substances will be maintained in a double lock system (locked box and locked cabinet) in the CCT ambulance.
2. Replacement for used controlled substances will be obtained at Sunstar Headquarters from the Sunstar Material’s Department utilizing the narcotic index card system. MD1 should be entered as the authorizing physician for all CCT narcotic administration
3. CCT controlled substance boxes contain additional controlled medications. The controlled substance box for the back up unit will be stored and maintained at the CCT station. A log book will be maintained and checked on a daily basis by the oncoming and off going CCT crew. When back up is utilized, the controlled substance box will be checked out by the Medic and the Nurse of the back up crew.
4. The CCT Team assumes responsibility for the controlled substances during transport.
5. All controlled medications released by the sending facility for use during transport will be documented on the Transport Report. If not used, these will be wasted at the receiving facility with the RN who witnesses the waste signing the Transport Report.
6. An inventory of all controlled substances (CC1/CC2) will be recorded and reported to the Sunstar Materials Department Supervisor or designee at the end of each month. This inventory will include control numbers of all the medications along with the expiration dates.
7. The off-going and on-coming CCT Paramedics:
   • are responsible for verifying the count of controlled substances upon the start of each shift
   • must be present during the controlled substance count
   • must sign the narcotic log verifying the am inventory count
8. Any discrepancies in inventory count from prior day must be immediately documented in an incident report and forwarded to the Supervisor or CCT Supervisor.
9. All individual pages from the Controlled Substance Log shall be retained for a minimum of two years.
10. Medications that are provided by the sending facility to the CCT unit for the transport of critically ill patients are the responsibility of the CCT RN.
11. The medications received for the transfer will be listed on the patient care report.
12. The CCT RN and the receiving RN will determine the disposition of the medications that were not used during the transport. The CCT RN and the receiving RN will sign the EMS run report regarding the disposition of the medication.
13. Unused portions of controlled substances administered to patients shall be wasted by the administering Paramedic or Nurse. This wastage shall be witnessed by another Paramedic, Registered Nurse or Physician (Preferably who is not a member of the transport team) at the receiving facility.
14. Should a controlled substance vial be damaged or broken, an incident report shall be prepared and signed by the responsible employee. The incident report should be signed by at least one witness to the breakage event. The damaged or broken vial shall be attached to the incident report, along with the controlled substance card, which shall be turned over to the Materials Supervisor.

15. Anytime a controlled substance is drawn up and none is used, an incident report stating rationale must accompany the controlled substance card with the appropriate signatures and shall be turned over to the Material Supervisor.

16. Any outdated controlled substances should not be destroyed, but should be exchanged with the Materials Manager.
Section 5

Standards of Care
5.1 Standard Patient Care Transfer/Transport

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved; Original: 01/01/05

Purpose:

To provide guidelines for the CCT Team and participating facilities for the orderly transfer of the patient and to provide consistent, optimal care during transport.

Procedure:

After receiving a request for critical care transport:

1. The CCT Team advises the appropriate facility staff of the teams’ arrival to the unit.
2. The CCT Team will introduce themselves to the patient and family members (if present).
3. The CCT Team will receive report from the sending RN and/or physician. Arrangements will be made at this time to meet any special patient care needs.
4. The CCT Team will confirm the identity of the patient via wrist band.
5. The CCT Team will set up all required equipment at the patient’s bedside.
6. Upon completion of report, the CCT Team will perform an assessment of the patient and transfer the patient to the CCT cardiac monitor, IV pumps and oxygen.
7. The patient will then be transferred and secured to the stretcher. Combative patients may need restraining. Equipment will also be secured.
8. Obtain completed transfer paperwork including consent for transfer form, face sheet, required insurance forms, recent ECG if indicated, list of medications and allergies, pertinent labs, and any x-rays or cath films.
9. Once the above steps are completed, the patient will be transported to the ambulance and equipment will be transferred to the on board resources (i.e., O₂, electrical).
10. The CCT Team will provide continuous monitoring and assessment of the patient while enroute and will maintain the flow of current IV’s.
11. Advanced Life Support, in accordance with Pinellas County standards, will be initiated by the CCT Team as required.
12. The CCT Team will document specific physician orders when medications are titrated to the sending or receiving physician’s orders. The CCT Team will document written physician orders for parameters of medications patient is receiving. Any sending or receiving physician orders that CCT references for care during transport (titration or administration of medication, invasive pressure monitoring, transport via CCT, etc.) will be documented on the patient care record (PCR)(obtain copy of pertinent physician’s orders and include with PCR).
13. The CCT Team will contact OLMC should there be any significant patient care related questions or issues enroute.
14. In the event of any sudden, unexpected, unmanageable emergency enroute the CCT RN will contact OLMC.
15. Upon arrival at the receiving facility the patient will be unloaded from the ambulance and registered in accordance with the facility’s policy if patient condition allows. The patient will then be transported to the receiving unit. All monitoring and therapies will be continued until care is transferred to the receiving medical staff.
16. The CCT Team will advise the unit's staff of the patient's arrival.
17. The CCT Team will give the receiving RN report on the patient, turn over all transfer records and check the patient’s belongings.
18. The patient will be removed from the CCT equipment once they are placed on the facility’s equipment.
19. The EMS PCR will be completed and a copy left with the receiving facility for the patient’s medical record.

**Vitals**
Vital signs will be obtained and documented at least every 15 minutes. The only exception is for long distance transports for which vitals will be obtained every 30 minutes.

**Intravenous Access**
All patients with the exception of those being transported to a lower level of care facility such as residence or skilled nursing facility will have IV access.

Current IVs or reseals will be maintained and infused at prescribed rates or within designated parameters based on patient condition.

Authorized IV routes include all peripheral venous sites. External jugular veins may be utilized when other peripheral site attempts have been unsuccessful or would be inappropriate.

**Medications**
Medications, including narcotics, not carried by the CCT Team will be supplied by the sending facility. These medications will be documented on the CCT PCR.

Medications that the patient is currently receiving may be titrated according to the patient’s condition and/or sending physician’s orders. The CCT Team will document written physician orders for parameters of medications patient is receiving. Document specific physician orders when medications are titrated to the sending physician’s orders. Include a copy of physician orders with PCR.

**GI/GU**
Unconscious patients should have bladder catheters and NG tubes when indicated. Documentation of output should be recorded on the PCR.

**C-Spine Injury**
If there is any chance of spinal injury, stabilize at all times with backboard and cervical collar. Patients being transferred post trauma should have spinal clearance by x-ray performed prior to transport if cervical spinal motion restriction is not to be maintained.

**Patient Care Report Documentation**
The patient care report will be completed according to the Pinellas County Medical Operations Manual. In addition, the following items must be documented: patient weight, sending and receiving physician, ECG lead monitored, admission date, diagnosis, reason for transport, IV medications with mixture and dosage, IV sites and condition, interventions, invasive pressures with sites and condition, patient adjuncts, and patient assessment to include all body systems. Additional documentation may be required based on implementation of quality improvement projects.
5.2 Obstetric Patient Standards of Care

History: Effective: 02/01/08; Revised: 07/01/08, 01/07/08, 12/01/05, 03/01/04; MCB Approved: Original 4/11/95

Purpose:

The purpose of this protocol is to provide guidelines to the CCT personnel regarding the care of obstetric patients.

Description:

The perinatal period is defined as after the 28th week of pregnancy through 28 days following birth. There are many complications that can occur in obstetric patients. This standard of care will include the evaluation, assessment and interventions required of the Critical Care Transport Team in the care and transport of an obstetric patient.

Procedure:

Response Mode

When CCT receives a request for an OB transport, the crew will call for report as soon as possible. CCT will respond accordingly depending on condition of patient.

Assessment

All patients who are transported by the Critical Care Transport Team will have:

1. A thorough history of their pregnancy obtained from the sending facility to include; estimated date of confinement, condition of membranes, gravida, para, an explanation of any discrepancies, timing of contractions, effacement, dilation, station, fetal heart tones including rate and character, fetal position and maternal history of any complications associated with this pregnancy.
2. Copies of the medical record to include; All pertinent records, a transfer form, face sheet, and any required insurance forms.
3. The receiving facility name, including the accepting perinatologist and nurse's name that patient report was called to prior to departure.
4. Interventions that are currently in place will be discussed with the CCT RN.

If Patient in Pre-term Labor

1. Inquire about Magnesium Sulfate levels if Magnesium has been infusing greater than 6 hours.
2. Inquire about antibiotic administration.
3. Inquire about administration of betamethasone.
4. Request insertion of foley if appropriate.

Evaluation

1. The CCT RN will receive an updated patient report upon arrival from the physician or RN and assess the patient to obtain current vital signs as well as evaluation of labor.
2. The CCT Team will perform a physical evaluation of the patient.
3. All IV solutions will be transferred to the IV pump for accurate delivery.
4. Assessment of labor:
   a. If the patient is currently in an obstetric facility, the OB nurse or physician will assess
      the progression of labor and report the findings to the CCT RN.
   b. If the patient is not in an OB facility, the sending physician should evaluate the
      progression of labor and the CCT RN will manually evaluate the patient if a qualified
      physician is not present. The fetal monitor should be initiated at bedside to help
      determine condition of patient and fetus.
   c. Patients who are actively bleeding or have other contraindications such as PROM,
      Placenta previa, etc. will not be manually evaluated by the CCT RN.
   d. A patient in pre-term labor will be manually evaluated by the CCT RN only if
      specifically directed by the receiving physician, or the patient condition mandates.
   e. Confirm rupture of membranes (or inquire from sending facility how confirmation was
      made) by nitrazine positive test tape (nitrazine paper will turn blue) and patient exam.
   f. Assessment of the progression of labor should occur within a reasonable time frame
      prior to transport based on patient condition.

5. Consultation with On-line Medical Control (OLMC) will take place prior to transport if there
   are questions or concerns regarding the stability of the patient. The final decision to accept
   or decline the transport rests with OLMC and the CCT RN.

Decision to Transport

- Based on the patient evaluation and progression of labor, the CCT RN in conjunction with
  the sending, receiving and OLMC physicians will determine if it is appropriate to transport
  the patient.

The following guidelines may be used to triage these calls:
1. A fetus of 22-24 weeks or less gestation has little chance of survival.
2. A fetus of 25-32 weeks gestation is more likely to survive and require the services of a high-
   risk nursery.
3. If the fetus is 32+ weeks gestation and the mother is in active labor and >4-6 cm dilated,
   the delivery should ideally take place at the facility.

- **Exception:** primi para, conditions preventing normal delivery (cephalopelvic
  disproportion, shoulder dystocia, etc.), benefit of transport truly outweighs the risk
  and it is believed transport can occur prior to delivery, sending physician assumes
  sole responsibility in high risk situations and he/she or other equally qualified
  personnel designated by the physician accompanies the patient in transport.

- In the event that CCT declines the transport, the facility is to be advised as to the
  reason(s) why and if appropriate, alternate options suggested: i.e. patient’s physician
  to accompany the CCT team or utilize air transport to reduce transport time.

- The CCT RN will advise the CCT Supervisor in real time if the call is aborted. All cases
  will be reviewed.

**NOTE:** If there is no resolution after consult with sending and receiving physicians, the
final decision with accepting an obstetric patient in labor rests with OLMC and the CCT RN.
The physician at the sending facility may request to speak with OLMC.
Transport Considerations

1. Continuous cardiac monitoring is not always necessary on high risk obstetrical patients. Vitals signs can be obtained manually, and the Lifepak can be applied for continuous monitoring if deemed necessary dependent on patient condition and diagnosis.

2. Electronic fetal monitoring should be initiated at the sending facility bedside even if the patient is not being monitored. Continuous electronic fetal monitoring will continue throughout patient transport.

3. Uterine assessment is an important component in fetal monitoring interpretation. Contractions will be evaluated for frequency, intensity and duration. All findings will be documented appropriately.

4. Fetal heart tones will be obtained prior to departure from the sending facility. FHTs will be documented every 15 minutes on the run report along with the location.

5. Electronic Fetal Monitoring (EFM). It is recognized that there are limitations to adequate tracings obtained with an electronic monitor. (e.g. gestational age, excessive fetal movement, maternal obesity and vibration from transport vehicle.) All findings should be confirmed with auscultation, palpation and patient assessment as necessary.

6. Non-Reassuring FHR Patterns
   - The following interventions should be implemented in the presence of non-reassuring FHR pattern:
     - Assess the potential physiological cause of observed pattern
     - Change maternal position to left or right lateral. (if not already in lateral position?)
     - Assess vital signs
     - Administer oxygen at 12-15 L/min via NRBM.
     - Consider fluid bolus.
     - Notify receiving facility findings, interventions provided and outcome
     - Provide complete documentation.

6. The following should be documented after interpretation of the EFM tracing:
   - Baseline rate
   - Variability as either absent, minimal, moderate or marked
   - Presence or absence of accelerations
   - Presence or absence of decelerations
   - Characteristics of decelerations
   - Frequency of contractions
   - Duration of contractions
   - Intensity of contractions (by palpation)
   - Uterine resting tone (by palpation)
   - Pain score

7. Maternal vital signs will be documented every 15 minutes.

8. The patient will be transported in either the left or right lateral recumbent position. This must be documented on the run report. Premature labor or premature rupture patients will be transported in a head down, lateral position.

9. Oxygen will be supplied, when necessary, to maintain a maternal oxygen saturation of 95% and/or when there are any signs or symptoms of fetal distress.

10. All obstetrical patients transported by CCT will have a patent intravenous access site.

11. Lactated Ringers is the IV solution that will be utilized unless otherwise indicated by the patient's underlying condition.

12. An IV reseal is acceptable, unless the patient is unstable or has a high likelihood of becoming unstable. The CCT RN or Paramedic will assure that the site is patent prior to transport.
13. Contact with the receiving physician will be initiated at the discretion of the CCT RN concerning initiating tocolytics.

14. Contact via telephone will be established with the receiving OB unit as time permits to provide an accurate ETA and patient update. If time does not permit telephone contact by the CCT unit and the patient's labor is rapidly progressing, contact the MCO via Med Alpha "A" to relay information to the Labor and Delivery Unit (*relay the telephone number of the Labor and Delivery Unit to the MCO).

15. Medications will be administered as directed by the receiving physician. All interventions will be documented with outcome.

16. Report to the receiving RN will be provided upon arrival at the receiving institution. The CCT crew will assist the receiving staff in transferring the patient to their equipment, which includes switching the external fetal monitor. *Patients in active labor should not be left alone.

17. A foley catheter should be considered for patients who are receiving MgSO4.

Goals

1. To maintain the highest level of care possible for the patient and fetus during transport.
2. To prevent maternal and fetal complications within the means available, by providing interventions deemed appropriate through continuous monitoring and assessment.
3. To reduce maternal anxiety during the transport by providing information and emotional support.
4. To implement the specific orders of the sending/receiving physicians as approved by OLMC.
5. To ensure a smooth transition in patient care.
5.3 Hemodynamic Monitoring

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 01/01/05

Purpose:

To provide guidelines for the transfer of patients with Swan-Ganz and/or arterial catheters.

Description:

Hemodynamic monitoring involves the observation of how the cardiovascular system responds to illness, injury, and therapeutic intervention.

Procedure:

Hemodynamic monitoring by means of intravascular catheters is extremely useful in the diagnosis and management of many cardiovascular and pulmonary disorders. Intra-arterial pressure monitoring is more accurate than noninvasive blood pressures in patients who are obese, hypotensive, peripherally vasoconstricted or severely hypertensive. All patients who are transported by the Critical Care Transport Unit that have invasive pressure lines will be monitored continuously with the use of the Medtronic/Physio-Control LifePak 12 Monitor. There will be some occasions when it is justified that CCT does not monitor the patient’s Arterial Line. These situations are for very stable patients with a very short transport distance and the invasive line is incompatible with CCT’s equipment. All Swan-Ganz catheters will be monitored during transport. The following standards will be achieved on all patients meeting the criteria for hemodynamic monitoring.

The Critical Care Transport Team will:

1. Assess the pressure waveform displayed on the sending facility monitor.
2. When indicated (poor waveform, poor pressure readings), obtain a pre-transport strip of waveform from sending facility’s monitoring equipment as well as a post-transport strip from receiving facility’s monitoring equipment.
3. Obtain current pressure readings from the monitor and the sending RN.
4. The CCT-RN or the CCT-P will evaluate the pressure line for compatibility with the CCT equipment. If the line is not compatible, the pressure line must be changed to facilitate monitoring by the CCT unit during the transport.
5. Flush the invasive line prior to changing over to CCT equipment to assure patency.
6. Once line has been changed over, flush any visible air out of line via stopcock before flushing to patient.
7. The pressure bag will be inflated to 300 mm/Hg.
8. The pressure cable will be connected to the monitor and the patient end will be connected to the transducer port on the pressure tubing.
9. The transducer will be placed at the Phlebostatic axis (4th intercostals space, mid-axillary) line and taped securely.
10. All excess tubing will be coiled and taped in an orderly fashion.
11. The pressure line will be zeroed and calibrated to the monitor.
12. The waveform will be identified by the labels provided in the monitor (PA, ART).
13. The waveform will be assessed on the monitor, a pressure reading will be obtained and a strip will be printed showing the waveform. The strip will be identified as to the type of tracing.
14. Pulmonary artery pressures will be documented in conjunction with the secondary survey, as well as every 15 minutes for the duration of the transport. The pulmonary artery catheter should never be wedged during transport. Pressures can be documented more frequently.

15. Arterial pressures will be documented in conjunction with the secondary survey, as well as every 15 minutes for the duration of the transport.

16. The types and sites of these invasive lines will be documented on the Critical Care run sheet.

17. All distal pulses, capillary refill times, skin temperature, and sensation will be assessed and documented on extremities used.

**MOM Reference Protocols:**

- None

**CCT Reference Protocols:**

- Swan-Ganz Catheters – Protocol 6.16
5.4 Physical Assessment

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; Revised 06/01/2008; MCB Approved; Original: 01/01/05

Purpose:

All patients that are to be transported by the Critical Care Transport Team will be assessed by the Critical Care Transport Registered Nurse. This physical assessment will include all systems.

Procedure:

The following guidelines will be used and the findings will be recorded on the EMS Patient Care Record (PCR).

Guidelines for Physical Assessment Using the System Approach:

Based on the information obtained from the sending RN, the CCT RN will:

1. Greet the patient and introduce the Critical Care Transport Team members.
2. Confirm the identity of the patient using the patient’s wrist band.

Nervous System / Neurological Status

1. Evaluate and document the patient’s Glasgow Coma Score and general neurological condition.
2. Perform neurological assessment to include motor-sensory, cranial nerves when indicated, pupil size and response, strength of extremities (grip strength), and deep tendon reflexes (when indicated).

Cardiovascular System

1. Assess the cardiac rhythm, rate and lead the patient is monitored in. All attempts should be made to continue to monitor in the lead that reflects any injury patterns to the myocardium.
2. Evaluate dysrhythmias, note patient’s tolerance to these rhythm disturbances. Document the percentage of pacemaker beats if indicated. Note the MA, and rate of transvenous or transcutaneous pacemakers.
3. Auscultate the heart; note the presence of rubs, murmurs or extra heart sounds.
4. Evaluate the presence and quality of the radial and pedal pulses.
5. Obtain a current blood pressure. A manual blood pressure shall be documented on all patients in order to establish correlation with automatic equipment. Obtain bilateral blood pressures when clinically indicated.
6. Evaluate the presence of peripheral edema. Document the degree of pitting edema by using the following scale: 0 to ¼” = 1+, ¼” to ½” = 2+, ½” to 1” = 3+, >1” = 4+
7. Assess capillary refill; normal value <2 seconds.

Respiratory System

1. Observe and document patient’s respiratory rate, effort and use of accessory muscles.
2. Check the liter flow of oxygen that the patient is currently receiving. Patients should have oxygen applied if pulse oximeter is below 95% or patient’s normal value. (COPD patients may not be able to achieve a pulse ox of 95%. If the patient is stable, Oxygen delivery should not exceed 4-6 liters.)
3. Evaluate and document the pulse oximeter reading and capnometry values when indicated.
4. Auscultate and document the lung sounds.
5. Note and specify the airway type (normal, tracheostomy, endo-tracheal). Documentation is to include sizes and liplines.
6. Assess and document any unusual findings regarding the thorax (chest tube).

Gastrointestinal System
1. Auscultate and document bowel sounds
2. Observe and document any unusual findings (dressings, ostomies, NG tube, JP drains, etc.)

Genitourinary System
1. Observe and document any unusual findings
2. Document the presence of catheters, the color of the urine or drainage, and output as appropriate.

Integumentary System
1. Note and document the color of the patient’s skin (pale, cyanotic, jaundice)
2. Note and document the moisture content (dry, diaphoretic, etc.)
3. Note and document any lesions, or ecchymotic areas
4. Note and document any dressings that are in place, include the condition of the dressing and type

Other:

Swan-Ganz Catheters
All patients who have this type of catheter in place will be monitored and waveform evaluated to determine location of the catheter in the pulmonary artery. Pulmonary artery pressures will be assessed and recorded with vital signs on the EMS run report.

Arterial Catheters
All patients with this type of invasive line will have distal pulses and capillary refill assessed and documented on the extremity that is being used. Arterial pressures, when monitored, will be documented with vital signs on the EMS PCR. Specify on the PCR which are arterial pressures.

Intra-aortic Balloon Pump
All patients being supported with an IABP will be assessed for pressures, as well as timing of the pump. These patients will be monitored in the ECG lead that provides the greatest R wave amplitude. Insertion site and condition, timing, and augmentation will be documented on run report. Distal pulses and capillary refill will be assessed and documented on the extremity that is being used.
Perinatal Patients in Active Labor

These patients will have documented: effacement, dilation, condition of the membranes, fetal heart tones and their location, timing and duration of contractions, fetal position, EDC, gravida, para, and estimated gestational age. If the labor is pre-term, the effacement and dilation values will be determined by the patient’s physician or nurse midwife. In the absence of such staff, the CCT RN will perform the assessment only when instructed to do so by the receiving physician or if the patient condition mandates.

MOM Reference Protocols:

- None

CCT Reference Protocols:

- Obstetric Patient Standards of Care – Protocol 5.2
- Swan Ganz Catheters – Protocol 6.16
5.5 Mechanical Ventilation

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved; Original: 01/01/05

Purpose:

To provide a positive force in the airway to inflate the lungs with oxygenated air. Mechanical ventilation is necessary for patients who are unable to provide enough force for their own respirations, such as patients with compromised lungs or chest wall and apneic or nearly apneic patients.

Mechanical Ventilator Settings

1. Tidal Volume (VT)
   If this mode is not predetermined by the sending physician, will be set at 5 to 10 ml/kg of patient body weight.

2. Mode of Ventilation
   There are several modes available - this setting should be selected by the sending physician depending on the patient’s needs. If no mode is selected by the sending physician, the CCT RN will place the patient on A/C (assist control).

   It is the responsibility of the Critical Care Transport Team to accurately document the clinical indications for the mode of ventilation that is selected.

3. Respiratory Rate
   If the rate is not set at the sending facility, the CCT crew will evaluate the patient’s condition, diagnosis, recent ABG, capnography, and intrinsic respiratory rate prior to selecting the setting. Generally a rate of 10-12 per minute will be sufficient to maintain adequate minute ventilation on adult patients.

4. FiO2
   FiO2 should be sufficient to maintain pulse oximetry at or above 95%.

5. PEEP-Positive End Expiratory Pressure
   • Initiation of PEEP should be considered on patients who fail to maintain adequate oxygenation in spite of increased FiO2 and/or ventilatory rate. Initial PEEP value should be 5 cm H2O and titrated in increments of 1 cm H2O.
   • Continuous observation and assessment is mandatory for patients who are placed on PEEP (vitals, lung sounds, etc.).

6. Emergency or Scene Response
   The ventilator will be set by the CCT RN or CCT P using the above guidelines when indicated. CCT may opt to utilize manual ventilation.

Transport Considerations

All patients who are transported by the Critical Care Transport Unit will be monitored closely for the following:
**Pulse oximetry** will be continuous and these patients will maintain an $O_2$ saturation of 95% or above. The pulse oximeter readings will be documented on the patient care record (PCR) prior to departure from the sending facility and every 15 minutes throughout the duration of the transport. Report from the sending facility should include the patient's normal range of SpO$_2$. This will set the parameters for the CCT team regarding SpO$_2$. Some patients will not have, nor maintain an SPO$_2$ of 95% or greater due to their underlying pulmonary condition. Documentation of the reason for the variance from the CCT standard of care is essential.

**Capnography**- will be continuously monitored in all intubated patients. Trached patients will have capnography/capnometry monitored when indicated. Examples would be abnormal vital signs and/or changes from normal condition. Titrations in respiratory rate and/or tidal volume may be made in order to maintain EtCO$_2$ at normal range of 35-45 mmHg or level prescribed by physician or patient condition.

**Vital signs** will be taken prior to departure and documented on the PCR, as well as every 15 minutes throughout the duration of the transport.

**Cardiac rhythm** and rate will be documented prior to departure as well as every 15 minutes.

**Ventilator settings** will be documented on the run sheet, as well as any changes that are made during the transport.

**An intravenous line** will be established if the patient does not have venous access. Patients returning to long-term care facilities do not require IV access.

**Endotracheal** or tracheal suctioning will be performed using aseptic technique when necessary to maintain a patent airway; the type, color and amount of secretions will be documented on the run sheet.

- Patients that require *sedation* and/or a paralytic to maintain adequate oxygenation and reduce anxiety will be provided with medication as per protocol.

- All medical interventions will be properly documented on PCR.

- Accidental *extubation* will be handled quickly and efficiently. Intervention will be documented.

- Intubation to prevent any compromise to the respiratory condition requires OLMC contact as soon as possible.

- The CCT Team will ensure that all patients whose airway is maintained by a *tracheostomy* tube will be provided with the obturator and an additional tracheostomy tube prior to leaving the sending facility.

- The CCT Team will ensure that a bag valve mask (BVM) resuscitator is kept with the patient at all times. This will ensure adequate ventilation management in the event of mechanical ventilator failure.

- Communicate with a vent patient, prior to switching to the CCT vent, the differences they will experience. Continue to talk with the patient and attempt to alleviate anxiety/restlessness.
• All patients will have an accurate weight (in kilograms) documented on the PCR.

• All premature infants requiring ventilatory support will be accompanied by one of the following: neonatal nurse practitioner, RRT, CRTT, or the sending/receiving neonatologist.

Goals

1. To maintain pulmonary management of the ventilator dependant patient during transport.
2. To maintain or improve the patient’s level of care.
3. To prevent complications of oxygen toxicity/dependence by providing the appropriate FiO₂.
4. To provide quality patient care utilizing the transport team approach.
5. To prevent complications of positive pressure ventilation.

MOM Reference Protocols:

• None

CCT Reference Protocols:

• Patient Sedation – Protocol 6.6
5.6 Pediatric Patients

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 01/01/05

Purpose:

To provide guidelines for the care and transfer of pediatric patients.

Procedure:

The care of the pediatric patient can be a challenge to any transport team. The following are guidelines for the Critical Care Transport Team to ensure that the pediatric patient receives appropriate assessment and care during transport to a pediatric intervention facility:

Procedure/Assessment

All pediatric patients that are transported by the Critical Care Transport (CCT) Team will have:

1. A thorough history of their present condition, including past medical history, provided to the CCT Team upon their arrival at the sending facility.
2. Copies of the medical record, including a transfer consent form and face sheet, X-ray's, current vital signs and pertinent lab values should be included.
3. The receiving facility name, room number or unit, accepting physician and nurse’s name.
4. A review of current treatments and interventions that are in place at the time of transfer.
5. The specific reason for the transport should be provided by the sending RN or physician.
6. The names and phone numbers of the responsible family members, in the event that they are not present at the time of transfer.

Evaluation

1. The CCT Team will introduce themselves to the child in a non-threatening manner as well as to the significant family member who may be present.
2. The CCT RN will perform a physical assessment of the child. This assessment will include, temperature, heart rate and rhythm, peripheral pulses (presence and quality), BP, respiratory rate and effort, SpO₂, lung sounds, heart sounds, bowel sounds and GU.
3. All invasive lines will be adequately secured to prevent accidental removal.
4. All IV solutions will be converted to the IV pump to ensure accurate delivery rate. When possible buretrol devices should remain in-line with the use of IV pump halfset tubing.
5. The CCT RN or Paramedic will review the current lab values that are pertinent to the child’s diagnosis.
6. The child will be placed on the CCT equipment to ensure accurate monitoring of the vital signs during the transport. The CCT Team will ensure that the equipment is adjusted in size to meet the needs of the patient.
7. An accurate weight and pediatric length based measurement device color zone.
8. A total intake and output will be obtained from the sending RN. When necessary this will include a diaper count. Intake and output during transport must be documented on the run report.
9. A blood glucose level will be obtained on all infant and pediatric patients except those returning to long-term care facility.
10. A gastric tube may be placed by the CCT RN or Paramedic if necessary, based on the patient’s condition.
**Transport Considerations**

1. The CCT crew will ensure that the equipment is of the appropriate size and configuration to assure accurate monitoring of vital signs.
2. No family member will be allowed to ride in the patient compartment unless it is deemed necessary by the CCT RN.
3. ECG and SpO$_2$ will be monitored continuously and a complete set of vital signs including skin temperature will be documented on the run report every 15 minutes or more if the patient’s condition warrants it.
4. Oxygen will be supplied in the least restrictive manner when necessary, to maintain an SpO$_2$ greater than or equal to 95%.
5. CCT will maintain spinal motion restriction (SMR) if it is in place. The CCT Team may initiate SMR at their discretion.
6. If SMR is not required, patients 10-40 lbs will be transported in a position of comfort utilizing the Pedi-Mate. Blanket rolls can be utilized to provide better positioning of the patient when needed. Patients weighing less than 10 lbs will be transported in an isolette.
7. Temperature of the patient compartment will be adjusted according to the needs of the patient.
8. All pediatric patients will have a patent intravenous access site. This must be obtained prior to transport. Exceptions will be allowed for chronic long term patients or patients that the CCT RN, in conjunction with the physician, do not feel require this invasive procedure at the time of transport. If the patient’s condition would be worsened by continual agitation, an IV should be deferred.

**Report To Receiving Hospital**

Upon arrival at the receiving facility, the CCT Team will:

1. Assist the hospital staff in transferring the patient to their equipment.
2. Complete the EMS Patient Care Record.
3. Provide the receiving staff with family information.

**Goals**

1. To maintain the appropriate level of care during transport.
2. To prevent complications by intervening on changes in the patients condition within the means available.
3. To reduce family anxiety by providing information and emotional support.
4. To ensure a smooth transition of patient care at the receiving facility.
5. To provide quality patient care utilizing the transport team approach.
Section 6

Treatment

Protocols
6.1 Chest Pain of Suspected Cardiac Origin

**History:** Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved; Original: 01/01/05

**Purpose:**
To describe authorized interventions in cases where chest pain may be resulting from an acute myocardial infarction, unstable angina or other ischemic syndromes of coronary heart disease.

**Procedure:**

1. Initiate care per MOM Protocol 5.7 (ACS) with the following additions and/or exceptions:
2. Consider increase in oxygen administration (titrate slowly for patients with severe COPD).
3. If patient has a Nitroglycerin drip (Tridil) increase in 10 mcg increments until
   a. Chest pain entirely relieved or
   b. BP falls to less than 90 systolic or
   c. BP falls and patient becomes symptomatic (tachycardic, pale, diaphoretic)
4. If patient does not have a Nitroglycerin drip, give Nitroglycerin 0.4 mg sublingually q 3-5 min to a maximum of 1.2 mg, or until:
   a. chest pain entirely relieved or
   b. BP falls less than 90 systolic or
   c. BP falls and patient becomes symptomatic (tachycardic, pale, diaphoretic).
   d. If patient has received 1.2 mg of Nitroglycerin and the chest pain is not relieved, initiate a Tridil drip. The standard drip is 50 mg/250cc to start at 3 cc/hour (10mcg/min) and increase in 3 cc/hour increments every 2 minutes until pain is relieved or patient becomes hypotensive.
5. If hypotension occurs, give a fluid bolus of 250cc approved system IV fluid. CCT may also consider decreasing Tridil drip based on patient condition.
6. If chest pain is still not entirely relieved, consider Morphine Sulfate IV in increments as tolerated by the patient q 5 minutes until:
   a. Chest pain abates
   b. BP falls to less than 90 systolic or
   c. BP falls and patient becomes symptomatic (tachycardic, pale, diaphoretic).
   d. Respiratory rate decreases to ineffective rate
   e. If a total dose of 20 mg has been administered, contact OLMC to consult for addition medication.
7. Other analgesics such as Fentanyl may be considered to treat chest pain as tolerated by the patient.
8. Contact receiving facility if time permits to advise of the change in patient condition and to prepare for an unstable patient (may change where patient will be placed at receiving facility or may be directed to take patient directly to cath lab)
9. If patient is not responding to narcotic analgesics, consider medicating with an anxiolytic such as Valium, Ativan, or Versed.

**MOM Reference Protocols:**

- Acute Coronary Syndromes (ACS) – Protocol 5.7
- Morphine Sulfate – Protocol 9.21
- Fentanyl – Protocol 9.22
- Diazepam (Valium) – Protocol 9.24
CCT Reference Protocols:

- Lorazepam (Ativan) – Protocol 7.6
- Midazolam Hydrochloride (Versed) – Protocol 7.8
- Nitroglycerin (Tridil) – Protocol 7.9
6.2 Cardiac Dysrhythmias

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 01/01/05

Purpose:

To describe authorized interventions in cases where the primary cardiac rhythm is other than sinus rhythm and there are significant symptoms or potential for deterioration and hemodynamic compromise.

Procedure:

A. Refer to the MOM Protocols 5.5, 5.6, 5.8 through 5.11 for approved interventions for the following:
   1. Narrow Complex Tachycardia (Adenosine, Diltiazem, Amiodarone)
   2. Wide Complex Tachycardia (Amiodarone, Lidocaine, Magnesium Sulfate). CCT may utilize Procainamide (Pronestyl) in the treatment of V-Tach refractory to other antiarrhythmics.
      a. Administer 20 mg/min. IV infusion to a maximum dose of 17 mg/kg or widening of QRS complex. In urgent situations, up to 50 mg/min may be given to total dose of 17mg/kg. (mix 1g in 100ml D5W for a 10 mg/ml concentration).
      b. If Procainamide suppresses ectopy, start maintenance infusion of 1-4 mg/min (1 g in 250ml or 2 g in 500ml for a 4 mg/ml concentration).
   3. Pulseless Electrical Activity (Consider and treat possible causes, Epinephrine, Atropine if rate < 60 bpm)
   4. Ventricular Ectopy (Lidocaine).
      • CCT may utilize Amiodarone in the treatment of Ventricular Ectopy when indicated.
         a. Infusion of 150 mg IV over 10 minutes (15 mg/min). May repeat infusion if needed.
         b. If Amiodarone suppresses ectopy, start maintenance infusion of 360 mg IV over 6 hours (1mg/min).
      • CCT may utilize Procainamide in the treatment of ventricular ectopy when indicated.
         a. 20 mg/min. to a maximum dose of 17 mg/kg or widening of the QRS complex. (mix 1 G in 100ml D5W for a 10 mg/ml concentration).
         b. If Procainamide suppresses ectopy, start maintenance infusion of 1-4 mg/min (1 G in 250ml or 2 G in 500ml for a 4 mg/ml concentration).
   5. Ventricular Fibrillation/Pulseless Ventricular Tachycardia (Epinephrine, Amiodarone).
      CCT may utilize Procainamide and/or Magnesium Sulfate in the treatment of V-Fib and pulseless V-Tach refractory to Amiodarone and Lidocaine when indicated.
      a. Magnesium Sulfate 1-2 G in 50 ml of D5W infused over 1-2 minutes. If MgSO4 converts rhythm, start Magnesium maintenance infusion (1 G in 250 ml D5W) @ 30-60 gtts/min.).
      b. Procainamide 20 mg/min. to a maximum dose of 17 mg/kg. If Procainamide suppresses ectopy, start maintenance infusion of 1-4 mg/min (1 G in 250ml or 2 G in 500ml for a 4 mg/ml concentration).

Note: Reduce Procainamide maintenance infusion by 50% for patients with kidney disease. Consider applying defibrillation pads to patients known to be a high risk for cardiac dysrhythmias.
MOM Reference Protocols:

- Asystole/Pulseless Electrical Activity (PEA) – Protocol 5.5
- Ventricular Fibrillation/Pulseless Ventricular Tachycardia – Protocol 5.6
- Narrow Complex Tachycardia – Protocol 5.8
- Wide Complex Tachycardia – Protocol 5.9
- Bradycardia and Atrioventricular Block – Protocol 5.10
- Ventricular Ectopy – Protocol 5.11
- Amiodarone HCL – Protocol 9.5
- Epinephrine – Protocol 9.6
- Adenosine – Protocol 9.9
- Diltiazem – Protocol 9.10

CCT Reference Protocols:

- Magnesium Sulfate – Protocol 7.7
- Procainamide – Protocol 7.14
6.3 Head and Spinal Injury Clearance

**History:** Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved; Original: 01/01/05

**Purpose:**

To provide guidelines regarding clearance of all patients suspected of head or spinal injuries in interfacility transports.

**Procedure:**

1. All patients with a history of head or spinal trauma will be considered to have a cervical/spinal injury unless documentation provided from sending facility proves that such injury has been ruled out.
2. Upon receiving report from the sending facility, the CCT RN will ascertain whether spinal injury has been ruled out, by what means, and if documentation of such results is available.
3. The CCT RN will instruct the sending facility to include the documentation of cervical/spinal clearance in the chart that will be going with the patient.
4. If cervical/spinal clearance has not been obtained by the sending facility and the CCT RN feels it is indicated:
   a. The CCT RN will request that cervical/spinal clearance be obtained via x-ray prior to transport.
   b. If the sending facility does not obtain spinal clearance or it is questionable, then CCT will place patient in spinal motion restriction accordingly for transport.
5. Cervical/spinal clearance must be documented on the CCT run report in the flow sheet section with the secondary survey as well as interventions performed to maintain spinal motion restriction.
6. Contact OLMC if necessary.

**MOM Reference Protocols:**

- None

**CCT Reference Protocols:**

- None
6.4 Nausea and Vomiting

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved; Original: 01/01/05

Purpose:

To describe authorized interventions in treating patients with nausea and vomiting secondary to motion sickness or as a side effect of medication administered.

Procedure:

1. General supportive care.
2. Evaluate the severity of the patient’s nausea and determine possible cause.
3. Administer or increase delivery of oxygen if tolerated by the patient.
4. Administer Phenergan
   a. Adult:
      • 12.5 mg per dose in 100 ml D5W over 5-10 minutes, may repeat 1 time in 15 minutes if needed.
      • IM up to 25 mg in any given dose, deep IM injection.
   b. Pediatric:
      • IV 0.25-1 mg/kg. of body weight up to 12.5 mg (Not indicated for children under 2 yrs of age)
      • Mix 12.5mg in 100 ml of D5W

MOM Reference Protocols:

- Promethazine Hydrochloride (Phenergan) – Protocol 9.18

CCT References:

- Promethazine Hydrochloride (Phenergan) – Protocol 7.15
6.5 Pain Management

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 01/01/05

Purpose:

The purpose of this protocol is to describe authorized interventions in cases where the patient is experiencing a significant amount of pain.

Procedure:

1. Continue general supportive care.
2. Evaluate and request the patient's pain severity score using the “10” scale, (“10”=extreme, “0”=pain free). Document the pre-treatment pain severity score on the PCR and begin pain management.
3. For musculoskeletal system pain, flank pain with known history of kidney stones (same type of pain) and other non-abdominal types of pain, administer one of the following:
   a. Fentanyl (Adult and Pediatric)
      i. 1 mcg/kg IV up to 200 mcg per dose over at least 30-60 seconds. Additional 1-2 mcg/kg increments IV up to 200 mcg per dose dependent upon maintenance of vital signs, airway, and level of consciousness.
      ii. In hypotensive or elderly patients, administer 0.5 mcg/kg IV (up to 100 mcg) over as least 30-60 seconds and repeat x 1 if needed 3-5 minutes later.
      iii. 1.5 mcg/kg intranasal (IN), up to 200 mcg per dose but maximum 1 cc of fluid in each nostril (onset of action may be up to 10-15 minutes). Repeat dose as needed to a maximum dose specified by OLMC and dependent upon maintenance of vital signs, airway, and level of consciousness.
   OR
   b. Morphine
      i. ADULT- 2- 4 mg IV initial dose over 30 to 60 seconds. If vitals remain stable, titrate in further increments of 2 mg IV every 3-5 minutes until pain resolves – maximum dose of 20 mg. Use smaller doses in the elderly and use with extreme caution in hypotensive patients. On-line Medical Control must be contacted prior to further administration.
      ii. PEDIATRIC- Up to a total of 0.1 mg/kg, with a maximum single dose of 2 mg IV or IO as an initial dose over at least 30-60 seconds. If stable, titrate in 1- 2 mg doses up to 10 mg total. OLMC must be contacted prior to further administration.
      iii. Consider administering Phenergan, up to 12.5 mg to combat nausea in high doses of Morphine.
4. If needed, address adverse effects of narcotic administration as follows:
   a. For muscle rigidity compromising the ability to ventilate, administer Naloxone 0.4-0.8 mg IV, ET, IM, or SQ or 1 mg IN in each nostril. If muscle rigidity does not respond to Naloxone, administer Norcuron 0.1 mg/kg over 2 minutes OR Rocuronium, 0.6 mg/kg IV over 30 seconds.
   b. For non-intubated patients with drug induced respiratory suppression, titrate Naloxone in 0.4 mg increments IV, IM or SQ or 1 mg IN in each nostril to the point of restoring spontaneous ventilations.
   c. Valium, 2.5 mg IV incrementally will be considered for muscular skeletal strains, sprains and rigidity if no relief from other interventions.
5. Document post treatment pain intensity score, GCS, and vital signs on the PCR after each dose.
6. Conscious patients with intraosseous access may receive the following for complaints or evidence of pain during infusion.
   a. Lidocaine 2% slow IV Push prior to flush
      i. Pediatric 0.5 mg/kg up to 20 mg total X1 dose
      ii. Adult 20-40 mg X1 dose
   b. Flush with normal saline
      i. Pediatric - 5 ml
      ii. Adult - 10 ml

**MOM Reference Protocols:**

- Morphine Sulfate – Protocol 9.21
- Fentanyl (Sublimaze) – Protocol 9.22
- Diazepam (Valium) – Protocol 9.24
- Naloxone (Narcan) – Protocol 9.28

**CCT References:**

- Promethazine Hydrochloride (Phenergan) – Protocol 7.15
- Rocuronium – Protocol 7.16
- Norcuron – Protocol 7.17
6.6 Patient Sedation

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 01/01/05

Purpose:

To describe authorized interventions in cases where a patient becomes combative, restless or anxious. Patients requiring mechanical ventilation may need sedation to improve oxygenation and ventilatory compliance.

Procedure:

1. General supportive care.
2. Attempt to communicate with the patient to alleviate anxiety/restlessness.
3. Consider the administration of one of the following sedatives. **Note:** Utilized sending facility’s physician orders if available for choice of sedative and dosages.
   a. **Ativan:**
      i. **Adults:** 0.5 mg IV. May repeat dose to obtain effect up to a maximum of 4 mg.
      ii. **Pediatrics:** 0.05 mg/kg/dose. May repeat dose to obtain effect up to a maximum of 4 mg.
   b. **Versed (Indicated in treating patients with a desired short duration effect):**
      i. **Adults:** 1.0 mg/min slow IV, titrating for effect to a maximum of 5 mg. May repeat dose once if indicated.
      ii. **Pediatrics:** 0.05 - 0.08 mg/kg/dose. May repeat dose to obtain effect up to a maximum of 2.5 mg.
      iii. Monitor closely.
   c. **Valium:**
      i. **Adults:** 2.5 mg IV. May repeat dose to obtain effect up to a maximum of 10 mg.
      ii. **Pediatrics:** 0.05 mg/kg/dose. May repeat dose to obtain effect up to a maximum of 5.0 mg.

5. Patients maintained on a Diprivan drip will be continued and maintained in transport. CCT may titrate to desired sedation. (Usual maintenance infusion is 0.1- 0.2 mg/kg/min for adults and 0.05 - 0.1 mg/kg/min for children). CCT may additionally give 10 mg boluses incrementally to desired effect followed by assessment.

**MOM Reference Protocols:**

- Diazepam (Valium) – Protocol 9.24

**CCT Reference Protocols:**

- Lorazepam (Ativan) – Protocol 7.6
- Midazolam Hydrochloride (Versed) – Protocol 7.8
6.7 Rapid Sequence Intubation (RSI)

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 01/01/05

Purpose:

The purpose of this protocol is to establish parameters under which RAPID SEQUENCE INTUBATION (RSI) may be attempted, and describe the procedures that are to be followed for this technique. Authorization for use of this protocol will be granted on a case by case basis by the Pinellas County EMS Medical Director as over-all CCT Medical Director.

Use of this procedure requires the presence of two County Certified Paramedics, or one County Certified RN and one County Certified Paramedic, but only one need be certified to perform RSI.

Prerequisite to the use of this procedure is demonstrated proficiency in standard endotracheal intubation, as well as cricothyrotomy.

*It is recognized that these procedures may require performance without prior consult with OLMC; however, follow-up contact and reporting is still mandatory.*

Description:

1. **General Indications (parallel those for standard intubation)**
   a) Protect the patient’s airway from aspiration of gastric contents, blood, and secretions.
   b) Access and maintenance of the airway from impending respiratory failure.
   c) Administration of positive pressure ventilation.
   d) Administration of 100% oxygen.
   e) Facilitate the removal of foreign bodies or secretions.
   f) Decrease the workload of breathing.
2. **Goals of RSI**
   a) Facilitation of endotracheal intubation.
   b) Reduction in the degree of adverse effects such as increased intracranial pressure, and decrease in other complications of intubation.
   c) Control of airway in combative patients.
3. **Specific Indications for RSI**
   a) Facilitate intubation in patients who would otherwise be extremely difficult to intubate without paralysis.
   b) Combative patient, head injured patients, patients with severe bronchospasm and patients in status epilepticus that require advanced airway management.
4. **Relative Contraindications to RSI**
   a) Abnormal airway anatomy.
   b) Complete upper airway obstruction.
   c) Laryngeal fracture.
   d) Inability to ventilate the patient with a Bag Valve Mask alone.
   e) Tracheal wound with an opening for endotracheal tube placement.
Adult Care:

Level 1:
1. Note that some medications may be administered IM if necessary, however time to onset of action will be prolonged. Refer to appropriate portions of this protocol for further information.
   a. Pulse oximetry, cardiac monitor, capnography and oxygen must be employed.
2. Prepare intubation equipment, suction and rescue airway equipment
3. Pre-oxygenate the patient as long as possible. Avoid bag mask ventilation if possible so as to not hyperinflate the stomach.

Level 2 - None

Level 3:
1. Premedicate with the following:
   a. Atropine, 0.5 mg IV if possible for the following:
      i. Patients with persistent bradycardia prior to procedure
      ii. Prior to administration of a second dose of Succinylcholine
      iii. NOTE: If no IV is available for patients with the conditions above, consider alternatives to RSI. Proceed without Atropine if benefits outweigh risks.
   b. Administer Etomidate, 0.3 mg/kg IV over 20 to 30 seconds approximately 30 to 60 seconds prior to intubation attempt.
   c. If allergic to Etomidate, consider Versed 2-4 mg IV approximately 60 to 90 seconds prior to intubation attempt.
2. Apply Sellick’s maneuver and maintain until the endotracheal tube is in place, confirmed, cuff inflated and tube secured.
3. Administer paralytic agent:
   a. If not contraindicated, administer Succinylcholine 1.5 mg/kg IV or 3.0 mg/kg IM.
   b. If Succinylcholine is contraindicated, administer Rocuronium, 0.6 mg/kg IV or IM over 5-15 seconds.
4. Perform intubation upon adequate muscle relaxation. If unable to intubate, continue BVM ventilations and/or utilize airway rescue techniques. (It is permissible, but not optimal to repeat Succinylcholine dose if needed; however, administration of atropine prior to the repeat dose is mandatory (See # 1a)
5. Following endotracheal tube confirmation:
   a. Monitor with pulse oximetry, ECG and capnography.
   b. For continued paralysis: administer Rocuronium maintenance dosage of 0.1 mg/kg should provide additional 12 minutes of muscle relaxation; 0.15 mg/kg will add 17 minutes; or 0.2 mg/kg will add 24 minutes to the duration of effect.
   c. If transport time is greater than 20 minutes, consider administration of Norcuron 0.1 mg/kg IV over 2 minutes. May repeat if needed.
   d. Administer sedative and/or analgesia, based on patient condition and desired outcome, as needed for continued sedation if paralysis is maintained or if continued sedation is required. Refer to Protocol 6.7 and 6.8 regarding suggested doses.
   e. Monitor heart rate, blood pressure and motor activity for indications of emergence from paralytic and/or sedation.

Pediatric Care:
Level 1:

1. **General Supportive Care** *(Pediatric length based measurement device – refer to color for appropriate equipment sizes/medication dosages)* with large bore IV access if possible. Note that some medications may be administered IM if necessary; however time to onset of action will be prolonged. Refer to appropriate portions of this protocol for further information.
   a. Pulse oximetry, cardiac monitor, capnography and oxygen must be employed.

2. Prepare intubation equipment, suction and rescue airway equipment.

3. Pre-oxygenate the patient as long as possible. Avoid bag mask ventilation if possible so as to not hyperinflate the stomach.

**Level 2 – None**

**Level 3:**

1. Premedicate with the following: *(Doses follow Length Based Resuscitation Tape)*
   a. Administer Atropine, 0.02 mg/kg IV to a maximum of 0.5 mg IV for the following:
      i. Child aged less than or equal to 8 to 10 years of age
      ii. Patient with persistent bradycardia prior to procedure
      iii. Prior to administration of a second dose of Succinylcholine
      iv. NOTE: If no IV is available for patients with the conditions above, consider alternatives to RSI. Proceed without Atropine if benefits outweigh risks
   b. Administer Etomidate, 0.3 mg/kg IV over 20 to 30 seconds approximately 30 to 60 seconds prior to intubation attempt.
   c. If allergic to Etomidate, consider Versed 0.3 mg/kg IV approximately 60 to 90 seconds prior to intubation attempt.

2. Apply Sellick’s maneuver and maintain until the endotracheal tube is in place, confirmed, cuff inflated and tube secured.

3. Administer paralytic agent:
   a. If not contraindicated, administer Succinylcholine 2.0 mg/kg IV or 3.0 mg/kg IM.
   b. If Succinylcholine is contraindicated, administer Rocuronium, 1.0 mg/kg IM over 5-15 seconds.

4. **Perform intubation upon adequate muscle relaxation. If unable to intubate, continue BVM ventilations and/or utilize airway rescue techniques.** *(It is permissible, but not optimal to repeat Succinylcholine dose if needed; however, administration of atropine prior to the repeat dose is mandatory (See # 1a)*

5. Following endotracheal tube confirmation:
   a. Monitor with pulse oximetry, ECG and capnography.
   b. For continued paralysis: administer Rocuronium maintenance dosage of 0.075 -0.125 mg/kg should provide additional 7-10 minutes of muscle relaxation.
   c. If transport time is greater than 20 minutes, consider administration of Norcuron 0.1 mg/kg IV over 2 minutes. May repeat if needed.
   d. Administer sedative and/or analgesia, based on patient condition and desired outcome, as needed for continued sedation if paralysis is maintained or if continued sedation is required. Refer to CCT MOM Protocol 6.8 regarding suggested doses.
   e. Monitor heart rate, blood pressure and motor activity for indications of emergence from paralytic and/or sedation.
NOTE: USE OF LEVEL 3 PROCEDURES MUST BE REVIEWED BY THE TEAM’S MEDICAL DIRECTOR (OR DESIGNEE) FOR APPROPRIATENESS, AND FOR TEAM TEACHING PURPOSES. ADDITIONALLY, THE MCO (582-2532) MUST BE NOTIFIED FOR REGISTRY PURPOSES.

References:

- **RSI/Intubation**

- **Etomidate (Amidate®, Hypnomidate)**
  - Bozeman WP; Lamsens SD; Young S; “Efficacy of etomidate as a sole agent for emergency endotracheal intubation in the out-of-hospital aeromedical setting”; abstract in *Annals of Emergency Medicine*, 2000 October; 36(4)
  - Kociszewski C; Thomas SH; Harrison T; Wedel K; “Etomidate versus Succinylcholine for intubation in an air medical setting”; *American Journal of Emergency Medicine*, 2000 November; 18(7) 757-63
  - Smith DC; Bergen JM; Smithline H; Kirschner R; “A trial of etomidate for rapid sequence intubation in the emergency department”; *Journal of Emergency Medicine*, January; 18(1):13-6
  - Sokolove PE; Price DD; Okada P; “The safety of etomidate for emergency rapid sequence intubation of pediatric patients”; *Pediatric Emergency Care*, 2000 February; 16(1): 18-21
  - Stringham LC; Sahni R; Ausband S; Vore S; “Pretreatment with lidocaine does not protect against increased ICP when using etomidate”; abstract in *Academic Emergency Medicine*, 2002: 9(5) 496
  - Swanson E; Fosnocht D; Neff RJ; “The use of etomidate for rapid-sequence intubation in the air medical setting”; *Prehospital Emergency Care*, 2001 April-June; 5(2): 142-46
  - Reed DB; Snyder G; Hogue TD; “Regional EMS experience with etomidate for facilitated intubation”; *Prehospital Emergency Care*, 2002 Jan.-Mar.; 6(1): 50-3
  - Vinson DR; Bradbury DR; “Etomidate for procedural sedation in emergency medicine”; *Annals of Emergency Medicine*, 2002 June; 38(6): 592-8

- **Fentanyl (Sublimaze®)**

**MOM Reference Protocols:**

- Atropine – Protocol 9.4
- Etomidate – Protocol 9.20
- Morphine Sulfate – Protocol 9.21
- Fentanyl (Sublimaze) – Protocol 9.22
- Diazepam (Valium) – Protocol 9.24
CCT Reference Protocols:

- Prolonged Intubated/Vent Patients – Maintenance – Protocol 6.8
- Rocuronium (Zemuron) – Protocol 7.16
- Succinylcholine – Protocol 7.17
- Vecuronium (Norcuron) – Protocol 7.19
6.8 Prolonged Intubated/Vent Patients - Maintenance

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved; Original: 01/01/05

Purpose: To describe the authorized procedure for the sedation of a patient who requires prolonged intubation and mechanical ventilation.

Description:

The continued paralysis of certain patients may be necessary for proper airway control and patient comfort.

Procedure:

In this protocol it is assumed that the patient is already intubated. Intubated patients receiving paralytics or sedation will have continuous cardiac, pulse oximetry and capnography monitoring.

1. Assure correct ET tube placement and secure tube.
2. Administer Ativan 1-4 mg IV prn to obtain/maintain desired level of sedation (PEDIATRIC DOSE – Administer dose per pediatric length based measurement tape).
3. May consider administering Versed 2.5 mg IV; may repeat at 10-15 min intervals until adequately sedated or maximum dose of 5 mg is given. A lower dose may be indicated if the patient is receiving a paralytic (2 mg IV per dose up to 10 mg total). (PEDIATRIC DOSE is 0.1 mg/kg to maximum of 2.5 mg)
4. Administer Rocuronium 0.6 mg/kg over 30 seconds or Norcuron 0.1 mg/kg over 2 minutes until adequate relaxation occurs (1 minute onset time with a duration of 25 minutes). May repeat Rocuronium, at smaller doses for continued maintenance of paralysis if needed. See CCT MOM Protocol 6.9 for dosing suggestions. May repeat Norcuron for maintenance at 0.015 mg/kg within 25 minutes of initial dose if needed. PEDIATRIC DOSE if > than 8 years old utilize adult dosing. Children < than 8 years may require a slightly higher initial dose and may also require a supplementation slightly more often than adults.
5. Patients already on a paralytic infusion will be maintained during transport using guidelines associated with that drug.

MOM Reference Protocols:

- Diazepam (Valium) – Protocol 9.24

CCT Reference:

- Head Injury – Protocol 6.9
- Lorazepam – Protocol 7.6
- Midazolam Hydrochloride – Protocol 7.8
- Rocuronium Bromide – 7.16
- Vecuronium Bromide (Norcuron) – Protocol 7.19
6.9 Head Injury

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 01/01/05

Purpose:

To describe authorized interventions in cases where the patient has sustained a severe head injury.

Procedure:

1. Rule out spinal injury
2. Secure Airway
3. If glasgow coma score (GCS) is eight or less, attempt to intubate.
4. Administer 100% oxygen, ventilate the pt. to keep CO$_2$ at 35-40 cm Hg.
5. Initiate seizure precautions
7. Run intravenous fluids at t.k.o. rate if there is no hypotension, otherwise IV fluids to 90-100 systolic (20cc/kg).
8. If signs of impending herniation (Cushing’s triad, posturing, change in pupillary response, etc):
   a. Hyperventilate if signs of impending herniation to CO$_2$ level of 30-35 cm Hg.
   b. If no improvement with hyperventilation, then administer Mannitol 1 gm/kg over one hour IV.

Pediatric dose: 0.25 - 0.5 Grams/kg over one hour IV

CCT may need to actively pursue orders for Mannitol prior to transport from the transferring or receiving physician. If no orders provided, CCT should contact OLMC to discuss indications for administration of Mannitol.

It is important that the CCT crew closely monitor the amount of Mannitol being administered. The CCT crew should be able to advise exactly how much of the medication has been delivered and how much still needs to be administered.

MOM Reference Protocols:

- None

CCT Reference Protocols:

- Osmitrol (Mannitol) – Protocol 7.10
6.10 Ventriculostomy Patients

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 01/01/05

Purpose:

To provide a general guideline for the care and transfer of a patient with a ventriculostomy. Use clinical discretion and OLMC consultation as appropriate.

Procedure:

1. Maintain patient’s head position per physician’s order (usually 30 degrees).
2. Check and document dressing site and appearance.
3. Confirm in physician orders, level of drain and any other patient specifics in regards to monitoring.
   a. Drainage:
      i. Review physician’s order to place ventriculostomy to drain as ordered or to monitor.
      ii. To place the system to drain, the stopcock at the zero level is opened to the drainage bag side. The drip chamber is placed so that the zero level is at the foramen of Monroe (Point of communication between the 3rd and lateral ventricles of the brain). Anatomical landmark for foramen of Monroe is the external auditory canal.
      iii. The Buretrol will be moved so the pressure line is at the ordered level of drainage.
      iv. The system must be secured on a pole at all times. The system is adjusted to obtain the zero level.
      v. To obtain ICP readings, turn off to drain for a minimum of 1 minute prior to readings.
      vi. If patient set up for drainage, clamp tubing between patient and drain chamber during transfers or anytime patient’s head is lowered or with repositioning or any other procedure (suctioning) which will cause increase is CSF drainage to prevent excessive loss of CSF.
   b. Monitoring only:
      i. An order may be written to monitor (stopcock is closed to drain) and drain PRN for increased ICP. Turn stopcock off to drainage when prescribed parameters are met.
      ii. Transducer must be kept at external auditory canal with head of bed at a consistent level (usually 30 degrees).
      iii. Monitor ICP whenever possible. Assure the stopcock at the transducer is positioned at the level of the external auditory canal.
      iv. Zero and calibrate line after moving patient to stretcher.
4. If tubing becomes occluded during transport, do not flush or manipulate line. Notify receiving staff upon arrival.
5. Document on PCR drainage amount, color, ICP and any other pertinent information.

References:

MOM Reference Protocols:

• None

CCT Reference Protocols:

• None
6.11 Seizure

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved; Original: 01/01/05

Purpose: To describe authorized interventions for the acute treatment of seizures in the critical care setting.

Procedure:

1. General supportive care.
2. Obtain blood glucose level. (all patients)
   a. Adults: Administer D50, 25gm I.V. if below 80 mg/dl.
   b. Pediatrics: Administer D25, 0.5 to 1 gram/kg if below 60 mg/dl.
   c. Neonates: Administer D10, 0.5-1 gram/kg if below 40 mg/dl (Can achieve D10 by squeezing out 40 ml’s of D50 and then adding 40 ml’s of normal saline. With this mixture, dose in ml would be 2-4cc/kg).
3. Considered other treatable causes for seizures (i.e. fever, head injury, Eclampsia, CVA, hypoxia)
4. Administer one of the following: (Pediatric doses follow Length Based Resuscitation Tape)
   a. Ativan:
      i. Adult: 1- 2 mg IV slow push. Repeat as needed.
      ii. Pediatric: 0.1 mg/kg IV over 2-5 minutes with maximum of 4 mg total dose. 0.1 mg/kg rectal over 2-5 minutes. May repeat as needed.
      iii. Neonate: 0.1 mg/kg IV. May repeat in 10-15 minutes
   b. Valium:
      i. Adult: 2.5 - 10 mg IV q 10-15 minutes.
      ii. Pediatric: 0.2 mg/kg IV increments q 2-5 min until seizure has ceased or a total of 5 mg has been administered. Rectal dose is 0.5 mg/kg increments up to 5 mg total dose.
      i. 4 grams in 100 cc D5 or NS infused over 3-10 minutes. If seizures have ceased, initiate drip at 2 gm/hr.

   • If patient has not responded to the above treatments, OLMC should be contacted for further options that may include the following:

   a. Phenobarbital:
      i. Adult: Loading dose of 15 - 20 mg/kg IV up to 500 mg.
      ii. Pediatric > 2 months: Loading dose of 20 mg/kg.

MOM Reference Protocols:

• Diazepam (Valium) – Protocol 9.24
• Dextrose – Protocol 9.26
CCT Reference Protocols:

- Lorazepam (Ativan) – Protocol 7.6
- Magnesium Sulfate – Protocol 7.7
- Midazolam Hydrochloride (Versed) – Protocol 7.8
- Phenobarbital – Protocol 7.12
6.12 Abdominal and Thoracic Aortic Aneurysm

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 01/01/05

Purpose:

To describe authorized interventions in cases where the patient has been diagnosed with a thoracic or abdominal aortic aneurysm.

Procedure:

Rapid transport to a center with appropriate surgical intervention is the goal of treatment. Blood pressure should be controlled without delaying transport.

1. General supportive care
2. Administer oxygen at a rate dependent on patient condition and pulse oximetry. Consider intubation if patient condition deteriorates.
3. Assure that there are two large bore peripheral IV lines with approved system IV fluid. Adjust rate of infusion based on urine output, blood pressure, and clinical status of patient.
4. Monitor blood pressure continuously. Maintain systolic blood pressure near 100 mmHg.
5. If blood pressure is less that 80 mmHg, bolus patient with 200-300 cc approved system IV fluid. Repeat if needed.
6. For systolic blood pressure greater than 140 mmHg, start Nitroglycerine infusion at 10 mcg/min and titrate to keep systolic pressure below 140 (use parameters set by sending facility physician if specified.)
7. If the sending facility has initiated a Nipride infusion, maintain using same parameters as with Nitroglycerine.

MOM Reference Protocols:

- None

CCT Reference Protocols:

- Nitroglycerin – Protocol 7.9
6.13 Hypertensive Urgency

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 01/01/05

Purpose:

To outline the management of patients whose systolic blood pressure is dangerously elevated. In the presence of focal neurologic findings, prehospital treatment of hypertension may be contraindicated because a rapid or precipitous drop in BP may compromise cerebral blood flow and create further CNS injury.

Description:

Procedure:

Initial Treatment

1. General supportive care
2. Each patient (including female patients) regardless of age, is to be asked about the use of Viagra/Revatio (Sildenafil Citrate), Levitra (Vardenafil HCL), and Cialis (Tadalafil), emphasizing the importance of an honest answer. If they answer “yes”, a consult with OLMC is mandatory to weigh “risk-benefit” ratio BEFORE GIVING Nitroglycerin.
3. If:
   a. Diastolic pressure > 130 mmHg or if systolic pressure > 220 mmHg without any accompanying symptoms OR
   b. Diastolic pressure > 120 or systolic pressure > 200 with symptoms of chest pain or shortness of breath OR
   c. Diastolic pressure > 110 or systolic pressure > 185 with neurologic deficits, THEN
   d. Initial target should be reduction of BP to less than 185 mm Hg systolic and 110 mm Hg diastolic over minutes to hours unless rapid and more extreme BP reduction is specifically warranted (for aortic dissection or eclampsia, for example).
4. If any of the above conditions are met:
   a. Administer NTG 0.4 to 0.8 mg SL up to 3 doses if needed (preferred for asthma, heart block and CHF patients). May follow up with Tridil infusion beginning at 20 mcg/min and titrated to desired target BP if sublingual NTG is inadequate OR
   b. Administer Labetalol 20 mg IV push initial dose over 2 minutes. May give additional doses of 40-80 mg at 10 minutes intervals up to total dose of 300 mg. (Use with extreme caution for asthma, heart block and CHF patients due to beta blocker effects and consider adding nitroglycerin if any signs of cardiac ischemia or CHF.)

Continuing Previous Treatment

1. Continue treatment/medications that have been initiated and ordered by sending physician if resulting in a positive impact in patient condition.
2. If patient is on a Nipride drip, titrate using sending physician’s ordered parameters or maintain using the same parameters as with Tridil and titrate as needed.

MOM Reference Protocols:

- None
CCT Reference Protocols:

- Labetalol Hydrochloride – Protocol 7.5
- Nitroglycerin – Protocol 7.9
6.14 Nasogastric/Orogastric Tube Insertion

**History:** Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 01/01/05

**Purpose:**
To describe the approved technique for inserting a gastric (OG/NG) tube.

**Indications:**
Gastric tubes are indicated in pediatric patients who are intubated, adult patients who have noticeable gastric distention that interferes with ventilatory support, and patients who are at risk for aspiration due to emesis. Gastric tubes are primarily used for stomach decompression.

**Contraindications:**
Nasogastric tubes are contraindicated in the presence of severe facial trauma. In this instance, an orogastric (OG) tube may be inserted.

**Procedure:**
1. Assess need for gastric intubation.
2. Lubricate end of nasogastric tube with 4% viscous lidocaine gel, if available or KY gel.
3. May lubricate nare if difficulty inserting tube.
4. Measure tube from base of ear to nose and then to xiphoid to determine appropriate length needed. Mark the point on the tube with a piece of tape or use the manufacturer’s markings.
5. Insert nasogastric tube along floor of nose in a horizontal position. Curve tube and insert until in posterior pharynx, then rotate tube 180 degrees and continue to advance. Do not force the NG tube. If resistance is felt, withdraw slightly and gently reinsert using a twisting motion to avoid the turbinates in the nose.
6. Oral route may be used as well.
   a. *In unconscious patients,* it is recommended that tube advancement is done under direct visualization until seen to extend down pharynx into hypopharynx. Continue to advance the tube until predetermined length is reached.
   b. *In conscious patients,* as the tube is advanced and reaches the hypopharynx, ask the patient to swallow (patient may be given water to assist in swallowing if not contraindicated) and advance tube. Continue to advance tube until length inserted is deemed adequate to have reached the stomach (use marking obtained when tube measured as a guide).
7. Aspirate a small amount of gastric contents with a Toomey syringe. Confirm tube placement by instilling air into the stomach through the tube while listening for sounds of air insufflation within the stomach with a stethoscope.
8. Tape tube in place and note depth of tube on PCR.
9. Connect tube to low intermittent suction when indicated.
10. Tube may be clamped when indicated.

**MOM Reference Protocols:**
- None
CCT Reference Protocols:

- None
6.15 Blood and Blood Products

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 01/01/05

Purpose:

To provide guidelines for the administration, transport and documentation of patients receiving blood and/or blood products.

Procedure:

1. A written consent is required for administration of any blood product. The consent is to be obtained by the sending facility, and a copy should be included in the patient’s chart.
2. Every patient receiving blood or blood products is to have a recipient band in place.
3. If product is infusing at time of initial patient contact, verify facility transfusion checklist.
   a. Patient’s name and social security number/hospital number matched with transfusion record form (attached to product bag).
   b. Type and number on transfusion record form matched with product bag.
   c. Pre-transfusion temperature, pulse, respirations and blood pressure are documented on transfusion record form.
   d. Nurse administering product has signed, dated and timed the transfusion record form.
   e. All original copies of the transfusion slip should remain with the patient. Sending facility should make a copy of this for their records.
4. If CCT is going to initiate the transfusion of blood or blood products during transport, verify the order and facility transfusion checklist with patient’s primary RN prior to transport.
5. Obtain necessary equipment, ie. Tubing, filters, etc. from sending facility to administer transfusion.
6. Prior to administering blood or blood products enroute, the CCT RN and CCT Paramedic will complete the facility’s pre-transfusion checklist and document accordingly on the product slip and in the CCT run report.
7. Blood or blood products may NOT be piggybacked into an existing IV line. When administering via a multi-lumen central venous catheter it is suggested that the most “distal” lumen be utilized.
8. Vital signs including temperature should be obtained and recorded 15 mins., 45 mins. and then 1 hour, at a minimum, after initiating the transfusion until completed. If patient spikes a temperature 2 degrees greater than baseline, discontinue the blood infusion.
9. If the transfusion is completed enroute, it is the CCT RN’s responsibility to document on the transfusion slip the date and time completed, amount given, whether or not the blood is warmed, if a reaction occurred and post-transfusion vital signs. All completed bags and tubing should be turned over to the receiving facility with the patient.
10. It is the receiving facility’s responsibility to return the transfusion slip to the sending facility’s blood bank.

WHOLE BLOOD, PACKED RBC’S, AND FROZEN RBC’S

1. Verify transfusion checklist.
2. Prime Y-type blood tubing with Normal Saline and begin infusion slowly.
3. Attach blood bag to Y-type blood tubing. Clamp tubing to saline. Open clamp to blood and adjust flow to run slowly for the first 15 minutes. If no adverse reaction, increase flow based on patient condition and transfusion times.
   a. 1-1/2 – 3 hours Whole Blood
   b. 1-1/2 – 3 hours Packed RBC’s
c. 2 hours maximum Washed Packed Cells

4. Monitor vital signs as previously outlined.

5. Monitor for signs/symptoms of adverse reaction. If adverse reaction noted, stop infusion and refer to MOM Protocol 5.24 Anaphylaxis and Allergic Reaction.

6. Blood tubing should be changed after each unit. EXCEPTION: If emergent situation, and several units of blood are being administered rapidly, tubing should be changed every 4 hours or every other unit.

**MOM Reference Protocols:**

- Anaphylaxis and Allergic Reactions – Protocol 5.24

**CCT Reference Protocols:**

- None
6.16 Swan-Ganz Catheters

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 01/01/05

Purpose:

To provide guidelines for monitoring and troubleshooting Swan-Ganz Catheters during transport.

Procedure:

1. Obtain and record the Pulmonary Artery Pressure (PAP) Systolic/Diastolic, mean Pulmonary Artery Pressure (PAP), Pulmonary Artery Capillary Pressure (PCWP) before leaving facility and q 15 minutes or as ordered by physician during transport. The Pulmonary Artery Capillary Pressure (PCWP) will only be obtained at the sending facility unless the CCT RN feels the measurement would assist in interventions for the patient.
   a. Normal Mean Values:
      i. Pulmonary Artery Pressure (PAP)  Systolic  15-30 torr  Diastolic  4-12 torr
      ii. Pulmonary Artery Capillary Pressure (PCWP):  4-10 torr
      iii. Central Venous or Right Atrial Pressure (CVP):  0-12 torr
          *(Therapeutic ranges may be somewhat higher than the above values)*
   b. Exceptions:
      i. The optimal mean PCWP (wedge) may be 15-20 torr in patients with compromised left ventricular function, post-op stress or post MI.
      ii. For patients with COPD and respiratory failure, expect PCWP pressures in the range of 30-50 torr. PCWP should be normal in pure pulmonary hypertension.
   c. Trends in PAP and PCWP pressures are the most significant factors in detecting significant physiological changes in the patient’s condition. Be sure to obtain history of these values prior to transport.

2. Inspect and document the insertion site. Note and document the Swan Ganz insertion depth.

3. Calibrate the transducer at the beginning of the transfer before the patient is transferred over to the stretcher and with any major position changes.

4. Maintain pressurized flush system at 300 mmHg.

5. If catheter slips into RV, inflate balloon until PAP waveform returns, but inflate for no longer than 5 minutes. If unsuccessful, have patient cough and/or turn side to side while inflated. If at any time the patient exhibits signs of ventricular ectopy or attempt to relocate fails, deflate the balloon and withdraw catheter until RA waveform is obtained. Secure catheter (change any drips to distal port) and closely monitor EKG.

6. If catheter remains wedged despite flushing and attempts at manual aspiration, be sure balloon is deflated. Never re-inject aspirate. Have patient cough and/or turn side to side. If these steps prove unsuccessful, slowly withdraw catheter until PA waveform appears. Secure catheter.

7. If in withdrawing catheter from over wedged position it should fall into RV, proceed with #5 above. **NEVER ADVANCE THE CATHETER.**
8. If catheter is withdrawn per above steps, discontinue RA infusions. Cap ports with Luer caps and label port, "Do Not Use". Switch IV drips to distal PA port if this is the only venous access available. To obtain RA reading, close PA stopcock to IV solution, open to catheter. Return to original position when completed.

9. Follow set parameters for specific IV vasoactive drips as ordered by transferring physician or see protocol for IV vasoactive pharmaceutical titrations and/or communicate with the online physician.

10. CCT RN must document all interventions that take place regarding Swan Ganz catheter. If PCWP reading is necessary for patient treatment intervention, CCT RN must oversee the procedure.

11. Label all pressure tracings and document the tracings on the patient care report.

**MOM Reference Protocols:**

- None

**CCT Reference Protocols:**

- None
6.17 Intra-Aortic Balloon Pump (IABP) Management

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 01/01/05

Purpose:

To provide guidelines to the CCT Team regarding the specialized care and management of the Intra-aortic balloon pump (IABP) patient during inter-facility transport.

Procedure:

1. Review the most recent 12-lead ECG. Select lead with greatest R-Wave amplitude. Place patient in this lead on cardiac monitor for continuous monitoring during transport. Limit chest artifact. ECG Leads for the IABP will be secured to the patient’s chest and maintained during transport. Lead selection may need to be changed in order to get the best R-wave and capture on the balloon pump (If ECG triggered).

2. Arterial line shall be maintained on the IABP. Assure that the transducer is directly connected to the pump and in working order. Maintain adequate arterial tracing. If radial site is used, secure arm with arm board to protect site during transport. Secure tubing.

3. Evaluate balloon insertion site. Note balloon size on the patient care record (PCR). Check dressing site appearance. Monitor site frequently (every 15 minutes and as needed) during transport. Instruct patient to keep affected leg straight. Use a sheet restraint for additional reinforcement.

4. Establish baseline condition. Evaluate hemodynamics and clinical condition. Hemodynamic assessment will include: temperature; blood pressure; respiration rate and quality; heart rate and rhythm; arterial blood pressure; Augmented pressures, MAP; CVP; PAP; PCWP; augmented diastolic pressure (ADP). Document findings including patient’s weight.

5. Evaluate pulses, both radial sites as well as posterior tibial and dorsalis pedis to facilitate subsequent localization during transport, also capillary filling times and extremity temperature.

6. Review lab values including platelet count, Hgb/Hct, Pt and PH.

7. Maintain H.O.B. at lowest point tolerated by patient, never to exceed 30°.

8. Evaluate and closely monitor urinary output. All patients will have an in-dwelling catheter; oliguric state could indicate serious problems requiring immediate attention.

9. Auscultate lung sounds, heart sounds and bowel sounds prior to transport. Compare to staff's baseline.

10. Establish baseline neurologic status. Compare with staff nurse’s assessment. Determine Glasgow Coma score.


Precautions

- Never leave balloon pump inactive in patient for more than 20-30 minutes (i.e., not inflating and deflating). Thrombosis formation could occur after 30 minutes. Utilize 60 cc syringe to manually fill and deflate balloon.

- **Balloon leak**: Observe tubing for blood. If blood is observed in the pneumatic tubing, shut off the balloon pump and leave intact. Maintain sterile technique and notify the physician and receiving facility immediately.
• **IABP Failure:** Evaluate patient’s condition and hemodynamics. The CCT RN will troubleshoot the device and make every effort to correct the problem and maintain the patient’s safety. If IABP is inoperable for greater than 20-30 minutes, inflate IABP manually with 60 cc syringe every 3-5 minutes to avoid clot formation (Inflate with 10cc less than balloon size).
• Assure IABP battery is charged and Helium tank level is sufficient for transport. The balloon pump should be plugged into the ambulance inverter or generator outlets during transport.
• Assure there is ample tubing length for transfer and loading the patient into the ambulance. Secure the IABP tubing at patient end and stretcher end, but not mid-line. Put loop in tubing if length permits.

**MOM Reference Protocols:**

• None

**CCT Reference Protocols:**

• None
6.18 Chest Tube Management

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 01/01/05

Purpose:
To provide guidelines to the CCT Team regarding the care and management of patients with chest tubes in place.

Description:
If injury, surgery or any disruption in the integrity of the lungs and chest cavity occurs, placement of a chest tube is warranted. The chest tube is a drain. It serves to remove air, fluid, or blood from the pleural space, to restore negative pressure to the pleural space, to re-expand a collapsed lung, and to prevent reflux of drainage back into the chest.

Procedure:

1. Inspect the patient’s chest wall to ensure that all connections are tight and that the tubing is not kinked. Also check the skin around the insertion site for subcutaneous emphysema. Be sure that the tube is properly secured.
2. Note color, consistency and amount of drainage.
3. Note any air leak in the water chamber. Ask the sending facility staff RN if there has been a prior leak.
4. Mark Pleur-evac (or other drainage system) with a pen at the current level of drainage in the system.
   - Be alert to sudden changes in the amount of drainage. A sudden increase indicates hemorrhage or sudden patency of a previously obstructed tube. A sudden decrease indicates chest tube obstruction or failure of the chest tube or drainage system.
5. Adjust wall suction to create a gentle rolling of bubbles in the water seal chamber. Vigorous bubbling results in water loss.
6. Verify the level of the suction control chamber is at the level prescribed by the physician (usually 20 cm).
7. The suction hose should be clamped during travel time between suction devices. The hose can then be unclamped and re-connected to suction in the CCT unit. In the newer models of collection devices, a stopcock may be present for this purpose.
8. Position patient in semi-fowlers (if condition allows) to enhance air and fluid evacuation. NEVER raise the chest tube above the chest or the drainage will backup into the chest. Avoid any dependent loops as drainage problems and tube obstruction may occur. The tubing should be coiled flat on the bed and from there fall in a straight line to the chest drainage system.
9. Transport the chest tube after placing patient in the truck on the floor and secure with 3” tape, so the pleur-evac is not knocked over during transport.
10. Dislodgment of the chest tube - If the chest tube falls out or is accidentally pulled out, it is important to quickly seal off the insertion site. Use a gloved hand until petroleum gauze is available. Petroleum gauze is necessary to prevent air from entering the pleural cavity. Apply petroleum gauze as a 3-sided occlusive dressing.
11. Dislodgment from the Drainage system (Pleurovac)- If the chest tube becomes disconnected from the Pleurovac or other collection device, clamp the chest tube (using Kelly clamps) until corrective action can be taken.
References:

- [www.cssolutions.biz/cts.html](http://www.cssolutions.biz/cts.html)

MOM Reference Protocols:

- None

CCT Reference Protocols:

- None
6.19 Temporary Transvenous Pacemaker Policy

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved; Original: 01/01/05

Purpose:

To outline instructions in the proper hookup of a temporary pacemaker generator to external pacer wires and provide guidelines in its maintenance.

Procedure:

1. Place a new battery in the temporary pacemaker and test it prior to use. Remove battery from pacemaker when finished with transport.

2. Connect pacer wires to Temporary Pacemaker
   a. Cables with leads/heartwires - the patient cable with lead or heartwire plugs into socket on top of unit. In the absence of patient cables, temporary transvenous leads plug directly into the two smaller sockets.
   b. Match the positive (+) and negative (-) leads to the positive (+) and negative (-) sockets or clips (as applicable). There may be instances where the leads are reversed in polarity to obtain capture. CCT will connect in the same manner as the sending facility.

3. Set the pacemaker controls
   a. Set the sensitivity (the highest number is least sensitive; the lowest is most sensitive)
      i. Demand mode - (withholds its pacing stimulus after sensing a spontaneous depolarization) set the sensitivity value to detect intrinsic activity.
         • Set pacemaker’s rate 10 bpm slower than patient’s intrinsic rate (the sense indicator will flash regularly)
           o Reduce milliamps (output) to the minimum value (this avoids risk of competitive pacing).
           o Increase the sensitivity value until the ECG indicates that the pacemaker is delivering its output pulses asynchronously. (The sense indicator will stop flashing indicating a loss of sensing. The pace indicator will start flashing. Capture is not likely to occur at the minimum milliamps (output) value.
           o Decrease the sensitivity value until the ECG indicates that sensing has been restored. This value is the sensitivity threshold for the chamber being sensed. (The sense indicator will start flashing, indicating that sensing has been restored; and the pace indicator will stop flashing.)
         • Set sensitivity value to half (1/2) the sensitivity threshold value. This provides a safety margin, allowing for threshold variation while maintaining sensing.
           o Restore original pulse generator rate and output values.
           o If asynchronous mode is indicated (stimulates at a fixed, preset rate independently of the electrical and/or mechanical activity of the heart) turn sensitivity dial to ASYNC- (NOT THE PREFERRED MODE FOR CCT).
         • Set the rate and milliamps (output) –
           o Set the milliamps (output) at 5 and the rate at 60 or as directed by the physician orders.
         • Turn the pacemaker ON
Check the monitor to ascertain that capture (depolarization of the atria and/or ventricles) is obtained— if not, increase the milliamps slowly until capture is obtained, this is the threshold (minimum electrical stimulus needed to consistently elicit a cardiac depolarization). Then set the milliamps at two (2) x the threshold.

b. More on setting stimulation threshold:
   i. Assure the patient is connected to pacemaker and being monitored on ECG.
   ii. Set pulse generator rate at least 10 ppm faster than the patient's intrinsic rate (The pace indicator will be flashing regularly at the set rate).
   iii. Decrease the milliamps (output) until 1:1 capture is lost (the pace and sense indicators will be flashing intermittently).
   iv. Increase the milliamps (output) to restore 1:1 capture. This value is the stimulation threshold for the chamber being paced. (the pace indicator will be flashing; and the sense indicator will have stopped flashing.)
   v. Set output value to 2-3 times the threshold value. This safety margin will allow for threshold variation while maintaining capture.
   vi. Restore original pacemaker rate value (60 or physician prescribed rate).

c. To turn the Medtronic pacemaker off, press the ON and OFF buttons at the same time.

**MOM Reference Protocols:**

- None

**CCT Reference Protocols:**

- None
6.20 Preterm Labor

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved; Original: 01/01/05

Purpose:

To describe the authorized procedures for treating a pregnant patient with preterm labor.

Description:

Premature labor is defined as regular contractions producing cervical changes occurring between the 20th and 30th week of gestation.

Procedure:

1. Identify that the patient meets criteria to be classified as preterm labor:
   a. Gestational age between 20-37 weeks
   b. Uterine contractions every ten minutes or less for one hour
   c. Intact membranes
   d. Cervical change noted on digital or speculum exam
2. Position the patient in left lateral recumbent position (right lateral is also acceptable).
4. Request insertion of a foley.
5. Assess fetal heart tones (FHTs) prior to transport, and during transport Q 15 min utilizing fetal monitor. Record FHTs and location on PCR.
6. Hang Lactated Ringers and hydrate if normotensive with an initial infusion of 250 cc over 15 minutes. (Once an infusion rate has been determined, the infusion should be maintained on an IV pump.)
7. Monitor and record total amount of fluid intake at end of transport and report to receiving facility.
8. If a tocolytic has been initiated by sending facility continue infusion as per physician’s orders.
   a. Contraindications to pharmacologic tocolytics include:
      i. Fetal compromise
      ii. Intrauterine infection
      iii. Abruption
      iv. Fetal death
      v. Lethal fetal anomalies
      vi. Gestation age > 37 weeks
9. If cervix is 1-2 cm dilated and thick and no tocolytics have been administered, administer Terbutaline Sulfate 0.25 mg SQ Q 15 minutes x 3 doses with hydration or otherwise prescribed by physician’s orders.
10. Magnesium Sulfate is the treatment of choice for pharmacologic inhibition of labor when dilation is greater than 2 cm.
    a. Administer loading dose of 4 - 6 grams MgSO4 (5 G in 100ml D5W) infused IVPB over 30 minutes regulated by an infusion pump.
    b. Initiate MgSO4 maintenance dose of 2 gm/hour (25G/250ml = 1G/10ml) via IV infusion regulated by infusion pump. Piggyback with primary IV. (Alternate method is to mix 20 GM/500 ml (1 gm/25cc) and infuse 125 ml over 30 minutes with pump set for 250 ml/hr to achieve loading dose and then change infusion to maintenance dose of 2 gm/hr or 50 ml/hr)
11. If MgSo4 has been initiated by the sending facility obtain and document Magnesium levels (therapeutic levels: 4.5 mEq/l or 5.5 - 8.5 mg/dl)

12. Monitor and record patient’s deep tendon reflexes (DTR). If DTRs absent, STOP MgSo4 infusion. Reduce infusion rate if urine output less than 25cc/hr, or respiratory rate less than 12/min. Antidote for MgSo4 is Calcium Gluconate (1 Gram dilute in 10cc NS. Give slow IV push for reversal of untoward reactions).

13. If ordered, administer Ampicillin 2 gms IVPB if not already administered. If patient is allergic to Penicillin, use Cleocin 900 mg IVPB. (Obtain these medications from the sending facility).

14. When indicated advise sending facility to administer 12.5 mg Beta Methasone IM.

15. Transport patient in left lateral head down position.

**Cardiopulmonary Changes During Pregnancy**

<table>
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<th>Normal</th>
<th>Pregnant</th>
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<tr>
<td>CO 4-8 L/min</td>
<td>30-50% increase</td>
</tr>
<tr>
<td>HR 60-100 beats/min</td>
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<tr>
<td>O₂ consumption 225-250 ml O₂/min</td>
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<tr>
<td>Tidal volume 6-8 ml/kg</td>
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<tr>
<td>PaCO₂ 35-45 mm Hg</td>
<td>Decreased 27-32 mm Hg</td>
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<tr>
<td>Bicarbonate 22-26 mEq/L</td>
<td>18-31 mEq/L</td>
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</tbody>
</table>

**Note:** If CCT chooses to use alternative delivery of Magnesium Sulfate in #9, IV pump must be set up initially with volume remaining of 125 ml to assure bolus does not exceed 5 Grams.

**References:**

- Perinatologist Group at Bayfront Medical Center
- Advanced Concepts of O.B. Transort
- OB Stat, Inc. 2002

**MOM Reference Protocols:**

- None

**CCT Reference Protocols:**

- Magnesium Sulfate – Protocol 7.7
- Terbutaline Sulfate (Brethine) – Protocol 7.18
6.21 Premature Rupture of Membranes

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 01/01/05

Purpose:

To describe the authorized procedures for treating a pregnant patient with premature ruptured membranes (PROM).

Description:

The definition of PROM is the spontaneous rupture of membranes prior to the onset of labor irrespective of gestational age. If it occurs prior to 37 weeks it is considered preterm premature rupture of membranes.

Procedure:

1. Confirm rupture of membranes (or inquire from sending facility how confirmation was made) by nitrazine positive test tape (nitrazine paper will turn blue) and patient exam.
2. If PROM is witnessed, assess amniotic fluid; color, amount and odor.
3. Obtain information regarding performed ultrasounds, amniocentesis; establish gestational age.
4. Perform NO vaginal exams if less than 37 weeks/perform one digital exam if greater than 37 weeks.
5. Establish presentation
6. Determine if patient is in labor.
7. General supportive care
8. Hang Lactated Ringers and hydrate if normotensive with an initial infusion of 250 cc over 15 minutes. Once an infusion rate has been determined, the infusion should be maintained on an IV pump.
9. When indicated advise sending facility to administer 12.5 mg Beta Methasone IM.
10. Assess fetal heart tones (FHT) prior to transport and during transport Q 15 minutes. Record FHTs and location on patient care report.
11. Transport in left lateral recumbent position (right side also acceptable).
12. CCT can initiate preterm labor protocol if 26-36 weeks gestation to maintain pregnancy to allow administration of steroids and antibiotics.

References:

- Perinatologist group at Bayfront Medical Center (Regional Perinatal Intensive Care Center).
- Advanced Concepts of O.B. Transport
- OB Stat, Inc. 2002

MOM Reference Protocols:

- None

CCT Reference Protocols:

- None
6.22 Pregnancy Induced Hypertension (PIH)

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 01/01/05

Purpose:

To describe the authorized procedures for treating a pregnant patient with pregnancy induced hypertension (PIH).

Description:

Patients with a systolic blood pressure greater than 140 and/or a diastolic pressure greater than 90 in a previously normotensive patient may be considered to have PIH. In some patients who typically run hypotensive, a blood pressure of 130/80 may be significant. PIH differs from pre-eclampsia in that there is no proteinuria associated with the hypertension.

Procedure:

1. General supportive care
2. Assess vital signs Q 15 min, blood pressure supine and in left lateral position
3. Request insertion of foley.
4. Monitor and record I & O at completion of transport and report to receiving facility.
5. Keep patient NPO.
6. Monitor fetal heart tones (FHT) Q 15 min and record rate and location on the patient care record (PCR)
7. Assess Deep Tendon Reflexes (DTRs)
8. Maintain fluids at 75 cc/hr via infusion pump
9. If blood pressure > than 140/90 on two occasions while patient is at rest, administer Magnesium Sulfate IV.
   a. 5 gram bolus IV over 30 minutes followed by a maintenance dose at 2 g/hr using mixture of 25 grams in 250 ml of D5W = 20c/hr (total fluid intake not to exceed 125 ml/hr.
   b. (Alternate method is to mix 20 GM/500 ml (1 gm/25cc) and infuse 125 ml over 30 minutes with pump set for 250 ml/hr to achieve loading dose and then change infusion to maintenance dose of 2 gm/hr or 50 ml/hr).
10. If diastolic pressure is greater than 110, administer Apresoline 5 mg IV push over 2 minutes. Repeat dose in 15-20 minutes if necessary per physician’s orders.
    OR
    CCT may administer Labetalol 20 mg IV push initial dose over 2 minutes. May give additional doses of 40-80 mg at 10 minute intervals up to 300 mg total dose. Keep patient in right or left lateral recumbent position. (Use with extreme caution for asthma, heart block and CHF patients due to beta blocker effects.)

Note: If CCT chooses to use alternative delivery of Magnesium Sulfate in #9, IV pump must be set up initially with volume remaining of 125 ml to assure bolus does not exceed 5 Grams.

References:

- Perinatologist group at Bayfront Medical Center (Regional Perinatal Intensive Care Center).
MOM Reference Protocols:

- None

CCT Reference Protocols:

- Hydralazine (Apresoline) – Protocol 7.4
- Labetolol – Protocol 7.5
- Magnesium Sulfate – Protocol 7.7
6.23 Preeclampsia/Eclampsia

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved: Original: 01/01/05

Purpose:

To describe the authorized procedures for treating a pregnant patient with preeclampsia/eclampsia.

Description:

Preeclampsia is the development of hypertension, proteinuria, edema or both after the 20th week of pregnancy or during the puerperium (42 days following childbirth). Eclampsia is the progressive severity of preeclampsia characterized by tonic and clonic convulsions.

Procedure:

1. Mild preeclampsia is characterized by the following:
   a. Hypertension:
      i. a rise in systolic pressure of at least 30 mm Hg
      ii. a rise in diastolic pressure of at least 15 mm Hg
      iii. a value of 140/90 or above
      iv. The degree of elevation is more important than the absolute value; each case must be individualized.
      v. elevated blood pressures must be manifest on two occasions at least six hours apart.
      vi. judgment should be made on the basis of previously known blood pressure.
   b. Edema: a very imprecise clinical parameter that can reflect non-pathologic changes.
   c. Proteinuria:
      i. usually appears last
      ii. is defined as urinary protein in concentrations of > 300 mg/24 hours (1+ to 2+ on dipstick) on low samples at least 6 hours apart

Management:

Mild preeclampsia is not usually treated with diuretics or antihypertensives. The patient should be monitored closely throughout transport and transported in left lateral recumbent position.

General supportive care
1. Monitor fetal heart tones (FHT) Q 15 min and record rate and location on patient care record (PCR)
2. Assess vital signs Q 15 min, blood pressure supine and in left lateral position
3. Request insertion of foley catheter.
4. Monitor and record I & O at completion of transport and report to receiving facility.
5. Assess DTRs
6. Maintain fluids at 75 cc/hr via infusion pump (total fluid intake not to exceed 125cc/hr).
7. Keep patient NPO.
8. Consider following the CCT MOM Protocol 6.22.
Severe Preeclampsia

1. Preeclampsia is regarded as severe when one or more of the following is found:
   a. Blood pressure of > 160 systolic or > 110 diastolic on two occasions at least 6 hours apart while patient is at rest.
   b. Proteinuria of > 5 g in 24 hours or 3+ to 4+ on dipstick
   c. Oliguria < 400 cc/24 hrs.
   d. Cerebral or visual disturbances (altered consciousness, unremitting headaches, scotomata or blurred vision).
   e. Epigastric pain
   f. Thrombocytopenia/evidence of clotting difficulties

Management

1. General supportive care
2. Request the sending facility to insert a foley catheter when obtaining patient report while enroute (if not already present).
3. Monitor FHTs Q 15 min and record rate and location on PCR.
4. Assess vital signs Q 15 min, blood pressure supine and in left lateral position.
5. Monitor and record I & O at completion of transport and report to receiving facility.
6. Assess Deep Tendon Reflexes (DTRs)
7. Maintain fluids at 75 cc/hr via infusion pump (fluid intake not to exceed total of 125cc/hr).
8. Magnesium Sulfate IV (to control/prevent seizures)
   5 g bolus IV over 30 minutes
   Initiate maintenance dose at 2 g/hr using mixture of 25 Grams in 250 ml of D5W = 20cc/hr.
   Maintain on infusion pump. Piggy Back with primary IV.
9. If diastolic pressure is greater than 110, administer:
   Apresoline 5 mg IV push over 2 minutes. May repeat dose in 15-20 minutes if necessary.
   OR
   Labetalol 20 mg IV push initial dose over 2 minutes. May give additional doses of 40-80 mg at 10 minute intervals up to 300 mg total dose. (Be aware for orthostatic hypotension).

Eclampsia

If the patient should develop eclamptic seizures:
   a. Maintain the patient’s airway, prevent injury to patient, support and protect head, turn to side if possible to prevent aspiration of emesis.
   b. Increase oxygen delivery to 8-10 L via facemask or non-rebreather.
   c. 4 g MgSO4 IV bolus over 3 - 10 minutes as anticonvulsant.
   d. If seizure continues or reoccurs, initiate seizure protocol:
      i. Ativan: Adult: 1-2 mg IV slow push. Repeat as needed.
      ii. Valium: Adult: 2.5-10 mg IV q 10-15 minutes.
   e. Monitor fetal heart rate to assess fetal well-being.
   f. If the patient is in labor or delivers, continue MgSO4 (approximately 1/3 of eclamptic seizures occur within the first 24 hours after delivery).

References:

- Perinatologist group at Bayfront Medical Center (Regional Perinatal Intensive Care Center).
MOM Reference Protocols:

- None

CCT References:

- Pregnancy Induced Hypertension (PIH) – Protocol 6.22
- Hydralazine (Apresoline) – Protocol 7.4
- Labetalol – Protocol 7.5
- Lorazepam (Ativan) – Protocol 7.6
- Magnesium Sulfate – Protocol 7.7
6.24 Post Partum Hemorrhage

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:; Original: 01/01/05

Purpose:

To describe the authorized procedures for treating a fresh postpartum patient with symptoms of hemorrhage and prevent shock.

Procedure:

1. General supportive care.
2. Monitor amount and color of blood loss by assessing peripads or blue chux pads.
3. Monitor vitals q 5 minutes if profuse bleeding, otherwise, q 15 minutes.
4. Massage uterus to stimulate contractions and control bleeding.
5. Express clots after uterus is firm.
6. After expulsion of placenta, hang IV of 1000 ml LR with 20 units of Pitocin and infuse at rate necessary to help uterus contract and control bleeding, usually 10-20 milli-units/minute (start infusion at 60 ml/hr and increase to desired effect with max at 125 cc/hr).
7. Document intake and output on PCR.

MOM Reference Protocols:

• None

CCT Reference Protocols:

• Oxytocin (Pitocin) – Protocol 7.11
6.25 Umbilical Venous Catheterization

History: Effective: 01/01/05; Revised: 07/01/08, 12/01/05; MCB Approved:: Original: 01/01/05

Purpose:

To describe the procedure for umbilical Catherization as a site of vascular access during neonatal resuscitation (within 1 hour of birth).

Precautions:

This procedure should only be undertaken after appropriate training and then performed with extreme care. This is a sterile procedure. Assure you are cannulating the umbilical vein, not the umbilical arteries. Do not insert catheter more than 6 cm.

Possible complications of this procedure include infection, hemorrhage, air emboli, and thrombus formation.

Procedure:

1. Prepare equipment
   a. 5 Fr umbilical catheter or 16 gauge 2 inch IV catheter without needle
   b. Three-way stopcock
   c. Syringe
   d. Scalpel
   e. Alcohol
   f. Povidone-Iodine (Betadine)
   g. Crystalloid IV Solution
   h. Sterile gauze pad
   i. Tape
   j. Umbilical tape or ligature
   k. Sterile drape
2. Attach crystalloid filled syringe and three-way stopcock to umbilical catheter and flush.
3. Sterile prep and drape the cord area.
4. Clean umbilical stump and surrounding skin with alcohol and then Betadine. Let Betadine dry for at least one minute.
5. Apply umbilical tape or ligature around the base of the umbilical cord near skin to control bleeding.
6. Cut the cord approx 2 cm from the skin, leaving a clean, smooth end.
7. Identify the 2 thick-walled constricted arteries (4 O’clock and 8 O’clock positions) and the thinner-walled larger vein (12 O’clock position). A pair of iris forceps may be helpful in identifying and opening the lumen of the vein.
8. Insert the catheter tip in the vein lumen and gently advance it. It may be helpful to stabilize the cord by gently holding the cord at the base or applying traction with a clamp on the Wharton’s jelly. The umbilical vein normally runs in a cephalad direction. Directing the catheter in that line may assist in ease of entry. The venous catheter should be inserted only as far as necessary to obtain blood return, which is normally 2-3 cm. Advancing the catheter further may result in a placement in the liver and consequent hepatic damage from medication injections. Never exceed 6 cm. Do not use the catheter if there is no blood return.
9. If blood return, secure catheter with tape, cover with gauze pad.
10. Frequently flush with 1-2 ml of crystalloid solution.

References:


MOM Reference Protocols:

- None

CCT Reference Protocols:

- None
Section 7

Formulary
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<tr>
<th>Section</th>
<th>Drug Name</th>
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<td>Apresoline</td>
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7.1 Calcium Gluconate

**History:** Effective: 01/01/05; Revised: 07/01/08; MCB Approved:; Original: 01/01/05

**PHARMACEUTICAL NAMES:** Kalcinate

**CLASS:** Electrolyte

**ACTIONS:** An electrolyte replacement which replaces and maintains calcium.

**INDICATIONS:** Hypocalcemia; Hyperkalemia; Antidote for severe respiratory depression related to MgSO4 therapy.

**CONTRAINDICATIONS:** Ventricular Fibrillation

**PRECAUTIONS:** Administer slowly through small needle into a large vein or through an IV line containing a free flowing compatible solution, severe necrosis and tissue sloughing follow extravasation; monitor ECG when administering.

**DRUG INTERACTION:** Administer cautiously (if at all) to digitalized patients due to increased risk of digitalis toxicity; decreased effectiveness when used with calcium channel blockers.

**SIDE EFFECTS:**
1. CNS: Tingling sensation and hot flash with IV administration
2. CVS: Arrhythmia’s, cardiac arrest, hypotension
3. GI/GU: Constipation, nausea and vomiting
4. Other: Vein irritation with IV use

**ROUTES OF ADMINISTRATION:** Intravenous

**ADVERSE REACTIONS:**

**DOSAGE:** 1-2 GRAMS IV for treatment of Hyperkalemia. 1 GRAM IV at a rate not to exceed 5 ml/min for Hypocalcemia.

**TECHNIQUES FOR ADMINISTRATION:**

**HOW SUPPLIED:**

**END POINTS:**

**ADDITIONAL INFORMATION:** 1. Calcium Gluconate will be administered under direction of the perinatal specialist in instances of suspected MgSO4 toxicity. In some cases, it may be preferred to intubate the patient rather than reverse the tocolytic effects of MgSO4. OLMC must be notified.
2. Assessment of labor status as per the obstetric policy must be completed. 3. A blood calcium level will be obtained from the sending facility and documented on the patient care report. 4. Close observation of the patient is imperative and must be documented. 5. OLMC will be advised of all pertinent CCT action and patient responses if indicated. 6. All interventions must be properly documented on the CCT patient care report.
7.2 Digoxin

History: Effective: 01/01/05; Revised: 07/01/08; MCB Approved:; Original: 01/01/05

PHARMACEUTICAL NAMES: Digoxin, Lanoxicaps, Lanoxin

CLASS: Inotropics

ACTIONS: Lanoxin is an inotropic drug which inhibits sodium potassium activated adenosine triphosphate, thereby promoting movement of calcium from extra cellular to intracellular cytoplasm and strengthening myocardial contraction. Also acts on CNS to enhance vagal tone, slowing conduction through the SA and AV nodes and providing anti-arrhythmic effects. Lanoxin has an onset effect of 5 to 30 minutes after IV administration. It peaks in 1-5 hours and has a duration of 30-40 hours with effects persisting 3-4 days after last dose.

INDICATIONS: CHF, PSVT, Atrial Fibrillation, Atrial Flutter

CONTRAINDICATIONS: Contraindicated in patients with hypersensitivity to the drug, any digitalis induced toxicity, ventricular fibrillation or ventricular tachycardia unless caused by CHF.

PRECAUTIONS: Use in extreme caution in elderly patients and those with Acute MI, incomplete AV Block, Sinus Bradycardia, PVC's, chronic constrictive pericarditis, hypertrophic cardiomyopathy, renal insufficiency, severe pulmonary disease, hypothyroidism. Reduce dose in renal impaired patients. Before administering loading dose, obtain baseline data, heart rate/rhythm, blood pressure, electrolytes and question patient about recent use of digitalis glycosides (within previous 2-3 weeks). Loading dose is always divided over the first 24 hrs unless clinical situation indicates otherwise. Before giving, take apical/radial pulse for one full minute. Record/report any significant changes, sudden increase or decrease in pulse rate, pulse deficit, irregular beats and particularly regularization of previously irregular rhythm. If any of these obtain BP and 12-lead ECG. Therapeutic Digoxin levels: 0.5-2.0 mg/ml. Excessive slowing of pulse rate (60 bpm or <) may be a sign of toxicity.


SIDE EFFECTS:
1. CNS: Fatigue, generalized muscle weakness, agitation, hallucinations, headache, malaise, dizziness, vertigo, stupor, parasthesia
2. CV: Arrhythmia’s (most commonly conduction disturbances with or without AV Block, PVCs and supraventricular arrhythmias); arrhythmias may lead to increased severity of CHF or hypotension. Toxic effects on the heart may be life threatening and require immediate attention.
3. GI/GU: Anorexia, nausea, vomiting, diarrhea
4. EENT: Yellow-green halos around visual images, blurred vision, photophobia

ADVERSE REACTIONS:

 ROUTES OF ADMINISTRATION: Intravenous, Oral
TECHNIQUES FOR ADMINISTRATION:

DOSAGE:

END POINTS:

ADDITIONAL INFORMATION: 1. CCT will not administer Lanoxin without first contacting the patients physician or OLMC. 2. CCT will evaluate and document patients vital signs including an apical pulse prior to administration of Lanoxin. 3. CCT will not administer Lanoxin if apical pulse is 60 bpm or less. 4. Prior to administration of Lanoxin, CCT will obtain electrolyte levels (potassium, calcium, and magnesium), and a recent digoxin level to determine if Lanoxin is contraindicated. Low electrolyte levels should be corrected. 5. CCT will administer Lanoxin as a slow rate over 5 minutes. 6. CCT will obtain ECG strips prior to and after administration of Lanoxin. 7. OLMC will be advised of all pertinent CCT actions and patient responses. 8. All interventions must be properly documented on the CCT Patient Care Report.

Pregnancy Risk Factor: Animal studies have shown an adverse effect on the fetus, but adequate studies have not been conducted on humans. The benefits from use in pregnant women may be acceptable despite potential risks.
7.3 Heparin Sodium

**History:** Effective: 01/01/05; Revised: 07/01/08; MCB Approved; Original: 01/01/05

**PHARMACEUTICAL NAMES:** Heparin Sodium

**CLASS:** Anticoagulants

**ACTIONS:** Heparin inhibits reactions that lead to the clotting of blood. Heparin acts at multiple sites in the normal coagulation system. Heparin prevents new clot formation.

**INDICATIONS:** Treatment of Myocardial Infarction; Treatment and/or prevention of diseases with clotting complications; As an IV flush solution to maintain patency of IV indwelling and intra-arterial catheters.

**CONTRAINDICATIONS:** Uncontrolled bleeding

**PRECAUTIONS:** Patients partial thromboplastin time (PTT) should be measured carefully and regularly. Anticoagulation is present when PTT values are 1.5 to 2 times control values.

**DRUG INTERACTION:** Heparin reduces the effectiveness of Tridil and should be infused in a separate line.

**SIDE EFFECTS:**
1. Blood: Hemorrhage with excessive dosage, prolonged clotting
2. Local: Irritation, prolonged clotting

**ROUTES OF ADMINISTRATION:** Intravenous

**DOSAGES:**

**TECHNIQUES FOR ADMINISTRATION:**

**HOW SUPPLIED:**

**END POINTS:**

**ADDITIONAL INFORMATION:** 1. Heparin will be utilized by the CCT unit for conversion of pressure systems to ensure compatibility with CCT invasive monitoring equipment. 2. Therapeutic heparin infusions can be adjusted based on PTT at the direction of the sending or receiving physician. OLMC will be informed of the adjustment in dosage. 3. Heparin bolus therapy can be delivered by the CCT unit at the request of the sending or receiving physician. 4. Assess most recent PTT levels prior to transport. 5. Heparin infusions can be discontinued at the direction of the sending or receiving physician based on the PTT results of by the CCT RN or Paramedic after consultation with OLMC based on PTT results. 6. All interventions must be properly documented on the CCT Patient Care Report.
7.4 Hydralazine Hydrochloride

**History:** Effective: 01/01/05; Revised: 07/01/08; MCB Approved.; Original: 01/01/05

**PHARMACEUTICAL NAMES:** Apresoline

**CLASS:** Antihypertensive

**ACTIONS:** Apresoline directly relaxes arteriolar smooth muscle, which results in vasodilation. Peripheral vasodilating effect of Apresoline results in decreased arterial blood pressure (diastolic more than systolic); decreased peripheral vascular resistance; and an increased heart rate, stroke volume and cardiac output. Apresoline has an onset time of approximately 5 minutes with a peak action at 20 to 40 minutes following IV administration. Duration of action is 6-8 hours.

**INDICATIONS:** Hypertensive crisis in pregnant patients. The goal in mild to moderate pregnancy induced hypertension is to reduce blood pressure to baseline levels. In severe pregnancy induced hypertension, the goal is to maintain diastolic pressure between 90-100 mm Hg.

**CONTRAINDICATIONS:** Hypersensitivity to Apresoline; existing myocardial ischemia; mitral valvular rheumatic heart disease.

**PRECAUTIONS:** A decrease in diastolic pressure below 90 mm Hg in patients with severe hypertension will decrease placental blood flow, often with a concomitant decrease in fetal heart rate; caution in patients with CVA's; effects of Apresoline are increased in volume depleted patients.

**DRUG INTERACTION:** Diazoxide, MAO Inhibitors: may cause severe hypotension. Indomethacin: may decrease effect of Hydralazine, monitor blood pressure closely.

**SIDE EFFECTS:**
1. Cardiovascular: Orthostatic hypotension, tachycardia, sodium retention, and palpitations
3. GI System: Anorexia, nausea, vomiting, and diarrhea
4. Nervous System: headache

**ROUTES OF ADMINISTRATION:** INTRAVENOUS

**DOSAGES:**

**TECHNIQUES FOR ADMINISTRATION:**

**HOW SUPPLIED:**

**END POINTS:** Blood pressure returned to baseline levels (mild to moderate hypertension); diastolic pressure to 90-100 mg Hg (severe hypertension); maximum dosing achieved.
ADDITIONAL INFORMATION: 1. Apresoline will be utilized by the CCT unit for the control of hypertensive crisis in obstetric patients only when ordered by the receiving Perinatologist. 2. Prior to the administration of Apresoline, the receiving doctor must be consulted and OLMC notified. 3. OLMC will continue to be advised of all pertinent CCT actions and patient responses. 4. Obstetric patients will be transported in a lateral recumbent position. 5. All interventions must be properly documented on the CCT run report.
7.5 Labetalol Hydrochloride

**History:** Effective: 01/01/05; Revised: 07/01/08; MCB Approved:; Original: 4/01/04

**PHARMACEUTICAL NAMES:** Normodyne, Trandate

**CLASS:** Alpha-, beta-adrenergic blocker, Antihypertensive

**ACTIONS:** Blocks alpha1-, beta1-, beta2- (large doses) adrenergic receptor sites. Therapeutic Effect: Slows sinus heart rate; decreases peripheral vascular resistance, cardiac output, B/P. Large doses increase airway resistance. Onset time is approximately 5-10 minutes. Half life is between 3-6 hours.

**INDICATIONS:** Management of mild, moderate, severe hypertension. May be used alone or in combination with other antihypertensives. Also used off label for treatment of chronic angina pectoris.

**CONTRAINDICATIONS:** Bronchial asthma, uncontrolled CHF, second- or third-degree heart block, severe bradycardia, cardiogenic shock.

**PRECAUTIONS:** Drug-controlled CHF, nonallergic bronchospastic disease (chronic bronchitis, emphysema), impaired hepatic, cardiac function, pheochromocytoma, and diabetes mellitus.

**DRUG INTERACTION:** Diuretics, other hypotensives: may increase hypotensive effect; sympathomimetics, xanthines: may mutually inhibit effects; insulin, oral hypoglycemics: may mask symptoms of hypoglycemia; MAO inhibitors: may produce hypertension.

**SIDE EFFECTS:**
- CNS: Drowsiness, trouble sleeping, unusually tired or weak, dizziness, anxiety, depression
- CV: swelling of hands/feet,
- Resp: difficulty breathing
- GI: Constipation, diarrhea, nausea, vomiting, stomach discomfort, altered taste
- GU: decreased sexual ability, increased urination
- EENT: nasal congestion, dry eyes
- Other: transient scalp tingling, numbness or tingling in fingers/toes/scalp

**ROUTES OF ADMINISTRATION:** Intravenous, Oral

**DOSAGES:** IV: Initially 20 mg. Additional doses of 20 - 80 mg may be given at 10 min intervals, up to a total dose of 300mg. IV Infusion: Initially, 2 mg/min up to a total dose of 300 mg. PO: 200-400 mg twice a day.

**TECHNIQUES FOR ADMINISTRATION:** Give over 2 min at 10-min intervals to provide concentration of 1 mg/ml, start at rate of 2 mg/min and adjust according to B/P.

**HOW SUPPLIED:** Tablets: 100 mg, 200 mg, 300 mg. Injection: 5 mg/ml

**END POINTS:** Blood pressure returned to baseline levels.
ADDITIONAL INFORMATION: May precipitate or aggravate CHF. Abrupt withdrawal may precipitate ischemic heart disease; produce sweating, palpitations, headache, and tremor. Beta-blockers may mask symptoms of acute hypoglycemia in diabetic patients. Monitor B/P immediately before and q 5-10 min during IV administration. Incompatible with Lasix and heparin. Compatible with Cordarone, Dobutrex, Dopamine, Lido, Levophed, KCl, Diprivan, Ativan, NTG, MgSO4, Ca Gluc.
7.6 Lorazepam

History: Effective: 01/01/05; Revised: 7/01/08; MCB Approved.; Original: 01/01/05

PHARMACEUTICAL NAMES: Alzapam, Ativan, Lorazepam Intensol, Controlled Substance
Schedule IV

CLASS: Antianxiety

ACTIONS: Unknown. Probably stimulates gamma-aminobutyric receptors in the ascending reticular activating system. Onset occurs within 5 minutes of IV administration, 15-30 minutes after IM injection, about 1 hour after PO administration.

INDICATIONS: Anxiety

CONTRAINDICATIONS: Contraindicated in patients with acute-closure glaucoma or hypersensitivity to the drug, other benzodiazepines or its vehicle (use in parenteral dosage form).

PRECAUTIONS: Give slowly in IV use, at a rate not to exceed 2 mg/min. Dilute with an equal volume of sterile water, Sodium Chloride, or D5W for injection. For IM use, inject deeply into a muscle mass, do not dilute. Dosage should be reduced in elderly and debilitated patients, IV dose should not exceed 2 mg in patients over 50 years of age. Should be avoided during pregnancy, especially the first trimester. Use with caution in patients with pulmonary, renal, or hepatic impairment. **Lorazepam should be refrigerated to prolong shelf life.** Possibility of abuse and addiction exist.

DRUG INTERACTION: *Digoxin:* may increase serum digoxin levels and risk of toxicity. *Ethanol, other CNS depressants:* increased CNS depression, avoid concomitant use. *Smoking:* increased clearance of benzodiazepines. Monitor for lack of effect.

SIDE EFFECTS:
1. CNS: Drowsiness, amnesia, insomnia, agitation, sedation, dizziness, weakness, unsteadiness, disorientation, depression, headache
2. EENT: Visual disturbances
3. GI/GU: abdominal discomfort, nausea, change in appetite
4. Other: Acute withdrawal syndrome

ROUTES OF ADMINISTRATION: Intravenous, Intramuscular, Oral

DOSAGES:

TECHNIQUES FOR ADMINISTRATION:

HOW SUPPLIED:

END POINTS:

ADDITIONAL INFORMATION: 1. Ativan will be kept in a temperature controlled environment. 2. When administering Ativan, the CCT crew will monitor the patients blood pressure, heart rate and rhythm, respiration, airway integrity, and oxygen saturation. Vitals Signs will be recorded at 5 minutes after administration and q 15 minutes there after as per protocol. 3. CCT will be prepared
to assist the patient with ventilations if hypoventilation or apnea should occur. 4. OLMC will be advised of all pertinent CCT actions and patient responses when indicated. 5. All interventions must be properly documented on the CCT Patient Care Report.
7.7 Magnesium Sulfate

**History:** Effective: 01/01/05; Revised: 07/01/08; MCB Approved; Original: 01/01/05

**PHARMACEUTICAL NAMES:** Magnesium Sulfate

**CLASS:** Anticonvulsant

**ACTIONS:** Acts as a CNS depressant by decreasing the quantity of acetylcholine released by motor nerve impulses and thereby blocking neuromuscular transmission. This action reduces the possibility of convulsion. (It is also believed that Magnesium Sulfate interferes with the transport of calcium so that less calcium is available for muscle contraction.) It secondly relaxes smooth muscle and may decrease blood pressure and frequency/intensity of uterine contractions.

**INDICATIONS:** Prevention or control of seizures in pre-eclampsia or eclampsia. Suppress uterine contractions in premature labor.

**CONTRAINDICATIONS:** Myasthenia Gravis; Impaired renal function, myocardial damage and heart block (monitor intake and output). Urine output should be 100 ml or more in 4-hour period of each dose. Hypocalcemia

**PRECAUTIONS:** Disappearance of knee-jerk and patellar reflexes is a sign of pending toxicity. Rapid infusion rate (150 mg/min) will induce uncomfortable feeling of heat. Observe neonates delivered within 24 hours of mother receiving Magnesium Sulfate for neuromuscular or respiratory depression. Observe mother postpartum for hemorrhage.

**DRUG INTERACTION:** Anesthetics, CNS depressants: may cause additive CNS depression, use cautiously. Digitalis glycosides: concomitant use may exacerbate arrhythmias, use together cautiously. Neuromuscular blockers: may cause increased neuromuscular blockade, use cautiously.

**SIDE EFFECTS:**
1. CNS: Sweating, depressed reflexes, dry mucus membranes
2. CV: hypotension, flushing, circulatory collapse, heart block
3. Other: Respiratory paralysis

**ROUTES OF ADMINISTRATION:** Intravenous, Intramuscular

**TECHNIQUES FOR ADMINISTRATION:**

**HOW SUPPLIED:**

**END POINTS:** Respiratory depression, Magnesium Sulfate level of > 16 mEq/L.

**ADDITIONAL INFORMATION:** 1. Assess status of pregnancy and progression of premature labor as per Obstetric policy. 2. Obtain most recent MgSO4 level. 3. Prior to transport, obtain specific parameters from Perinatologist regarding titration of the MgSO4. CCT will maintain the MgSO4 infusion with the IV pump at the rate prescribed by the Perinatologist. 4. MgSO4 will be maintained as an IV piggyback through a primary solution. The rate of the primary solution will depend on the underlying maternal condition. 5. Monitor patients’ deep tendon reflex upon arrival.
at sending facility and q 30 minutes during transport. Monitor patient closely for signs of toxicity. 6. All interventions must be properly documented on the CCT Patient Care Report.

Medication Levels:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Level:</td>
<td>1.5-2.1 mEq/L</td>
</tr>
<tr>
<td>Therapeutic Level:</td>
<td>4.0-7.0 mEq/L</td>
</tr>
<tr>
<td>CNS Depression:</td>
<td>5.0-6.0 mEq/L</td>
</tr>
<tr>
<td>Disappearance Patellar Reflex:</td>
<td>6.6-8.3 mEq/L</td>
</tr>
<tr>
<td>Respiratory Depression:</td>
<td>10-14.2 mEq/L</td>
</tr>
<tr>
<td>Decreased Cardiac Conduction:</td>
<td>&gt;16 mEq/L</td>
</tr>
</tbody>
</table>
7.8 Midazolam Hydrochloride

**History:** Effective: 01/01/05; Revised: 07/01/08; MCB Approved.; Original: 01/01/05

**PHARMACEUTICAL NAMES:** Versed

**CLASS:** Antianxiety, Controlled Substance Schedule IV

**ACTIONS:** Versed is a short acting benzodiazepine CNS depressant. Its onset of action - 2 to 3 minutes - without pain on injection. Due to its chemistry one can expect a short duration of action - 1 to 2 hours - even in the elderly.

**INDICATIONS:** Versed is indicated for preoperative sedation (induction of sleepiness or drowsiness and relief of apprehension) and to impair memory of preoperative events; as an agent of conscious sedation; for induction of general anesthesia. Versed is associated with high incidence of partial or complete impairment of recall for the next several hours.

**CONTRAINDICATIONS:** Versed should never be used when known hypersensitivity to the drug exists. Should not be used in patients with acute angle-closure glaucoma, shock, coma, or acute alcohol intoxication.

**PRECAUTIONS:** Prior to administration, the immediate availability of oxygen, resuscitation equipment and skilled personnel for the maintenance of a patent airway and ventilatory support should be ensured. Patients should be continuously monitored for underventilation or apnea.

**DRUG INTERACTION:** Versed may increase the risk of apnea if it is used with ethanol or other CNS depressants.

**SIDE EFFECTS:**
1. CNS: Headache, oversedation, drowsiness, amnesia
2. CV: Variations in blood pressure and pulse rate
3. GI/GU: Nausea, vomiting, hiccups
4. Resp: Decreased respiratory rate, apnea
5. Other: Pain at injection site

**ROUTES OF ADMINISTRATION:** Intravenous

**TECHNIQUES FOR ADMINISTRATION:**

**HOW SUPPLIED:**

**END POINTS:**

**ADDITIONAL INFORMATION:** 1. When delivering Versed, the CCT crew will closely monitor the patient’s blood pressure, heart rate and rhythm, respirations, airway integrity and oxygen saturation. Vital signs will be recorded every 5 minutes immediately following administration of Versed and then every 15 minutes. 2. CCT will be prepared to assist the patient with ventilations if hypoventilation or apnea should occur. 3. OLMC will be advised of all pertinent CCT actions and patient responses when indicated. 4. All interventions must be properly documented on the CCT Patient Care Report.
7.9 Nitroglycerin

**History:** Effective: 01/01/05; Revised: 07/01/08; MCB Approved; Original: 01/01/05

**PHARMACEUTICAL NAMES:** Tridil

**CLASS:** Antianginal

**ACTIONS:** Relaxes vascular smooth muscle. Venous effects predominate. Produces dilation of the coronary arteries, post capillary vessels, including large veins, promotes peripheral pooling of blood and decreases venous return to the heart, reducing left ventricular end-diastolic pressure (preload). Arteriolar relaxation reduces systemic vascular resistance and arterial pressure (afterload). Therapeutic doses reduce systolic, diastolic and mean arterial blood pressure. Tridil’s action is immediate and duration is dose related. Half life is 1-4 minutes. It is rapidly metabolized by the liver and excreted in urine as inactive metabolites.

**INDICATIONS:** *Angina*: dilates epicardial stenosis (causes relaxation of smooth muscle in wall of coronary artery that is not encompassed by the plaque), dilates coronary collateral vessels, reduces ventricular diastolic pressure which lowers extra vascular resistance to endocardial perfusion. All of which results in increased oxygen delivery to the ischemic heart. *Acute MI when Left Ventricular failure is involved:* Reduces preload and therefore reduces the load on the heart. If there is Right Ventricular involvement, Nitroglycerin is kept at low doses since these patients are highly dependent on preload. *Coronary Artery Spasm:* Vasodilation (spasm/contraction of the smooth muscle fibers in the walls of an epicardial coronary artery may temporarily narrow the vessel lumen, decrease coronary blood flow and produce myocardial ischemia. This results in increased ST segments on the ECG and may mimic an MI. Administration of Tridil in coronary artery spasm will dilate the artery to allow blood flow and ST segments should return to baseline). *CHF associated with acute MI:* Decreases preload. *Hypertension:* Vasodilation

**CONTRAINDICATIONS:** Known hypersensitivity to nitrates, uncorrected hypovolemia, increased intracranial pressure, constrictive pericarditis and pericardial tamponade

**PRECAUTIONS:** Hypotension induced by nitroglycerin’s vasodilation effects. Can result in syncope and cerebral ischemia.

**DRUG INTERACTION:** Alcohol, antihypertensives, calcium channel blockers, beta-adrenergic blockers or phenathiazides may potentiate orthostatic hypotension from additive vasodilation.

**SIDE EFFECTS:**
1. CNS: Headache, dizziness related to hypotension, muscle twitching restlessness
2. CV: Hypotension, tachycardia
3. GI/GU: Nausea, vomiting, abdominal pain

**ADVERSE REACTIONS:**

**ROUTES OF ADMINISTRATION:** Intravenous

**TECHNIQUES FOR ADMINISTRATION:** Must be infused via mechanical IV pump.

**HOW SUPPLIED:** 50 mg/250 cc glass bottle.
END POINTS: Relief of chest pain or patient becomes hypotensive.

ADDITIONAL INFORMATION:
7.10 Osmitrol

History: Effective: 01/01/05; Revised: 07/01/08; MCB Approved; Original: 01/01/05

PHARMACEUTICAL NAMES: Mannitol

CLASS: Diuretic

ACTIONS: An osmotic diuretic that increases the osmotic pressure of glomerular filtrate, inhibiting tubular re-absorption of water and electrolytes, and that elevates blood plasma osmolarity, resulting in enhanced water flow into extra cellular fluid. Mannitol has an onset time of 30-60 minutes with a peak effect within one hour, and duration of 6 to 8 hours.

INDICATIONS: Edema, ascities caused by renal, hepatic or cardiac failure, reduction of intraocular or intracranial pressure, diuresis in drug intoxication.

CONTRAINDICATIONS: Mannitol is contraindicated in patients with a known hypersensitivity to the drug, and in those with anuria, severe pulmonary congestion, frank pulmonary edema, severe CHF, severe dehydration, metabolic edema progressive renal disease or dysfunction, or active intracranial bleeding except during craniotomy.

PRECAUTIONS: IV Use: Administer as intermittent or continuous infusion at prescribed rate using an in-line filter and infusion pump. Direct injection is not recommended. Check IV line patency at infusion site before and during administration. Avoid infiltration, if it occurs, observe for inflammation, edema, and necrosis. Monitor vital signs, including central venous pressure and fluid intake and output hourly.

DRUG INTERACTION: Lithium: increased urinary excretion of lithium, monitor closely.

SIDE EFFECTS:
1. CNS: Rebound increase in intracranial pressure 8-12 hrs after diuresis, headache, confusion
2. CV: Transient expansion of plasma volume during infusion causing circulatory overload and Pulmonary Edema, tachycardia, angina-like chest pain
3. GI/GU: Thirst, nausea, vomiting, diarrhea, urine retention
4. EENT: Blurred vision, rhinitis
5. Other: Fluid/electrolyte imbalance, water intoxication, cellular dysfunction

ADVERSE REACTIONS:

ROUTES OF ADMINISTRATION: Intravenous

DOSAGES:

TECHNIQUES FOR ADMINISTRATION: CCT will utilize an in-line filter when administering a Mannitol infusion.

HOW SUPPLIED: Pre-mix 20% Mannitol in 500 ml D5W (100 gm/500ml)

END POINTS:
ADDITIONAL INFORMATION: 1. CCT will utilize Mannitol in the treatment of intracranial pressure, unless otherwise prescribed by patient's physician or OLMC. 2. Mannitol will not be initiated if the following conditions exist: active intracranial bleeding, severe CHF, severe pulmonary congestion, anuria, or severe dehydration. 3. Strict I & O will be monitored and recorded on the CCT run report. 4. Serum osmolality of approximately 325 mOsm/l should not be exceeded. 5. Electrolytes should be recorded and monitored since Mannitol depletes the body of sodium and potassium as well as water. 6. OLMD will be advised of all pertinent CCT actions and patient responses. 7. All interventions must be properly documented on the CCT Patient Care Report. 8. It is important that the CCT crew closely monitor the amount of Mannitol being administered. The CCT crew should be able to advise exactly how much of the medication has been delivered and how much still needs to be administered.

Pregnancy Risk Factor: Animal studies have shown an adverse effect on the fetus, but adequate studies have not been conducted on humans. The benefits from use in pregnant women may be acceptable despite potential risks.
7.11 Oxytocin

**History:** Effective: 01/01/05; Revised: 07/01/08; MCB Approved; Original: 01/01/05

**PHARMACEUTICAL NAMES:** Oxytocin, Pitocin, Syntocinon

**CLASS:** Oxytocic

**ACTIONS:** Affects the myometrial cells of the uterus by increasing the excitability of the muscle cell, increasing the strength of the muscle contraction, and supporting propagation of the contraction (movement of the contraction from one myometrial cell to the next). During the first half of gestation, little excitability of the myometrium occurs and the uterus is fairly resistant to the effects of Oxytocin. It has inherent pressor and anti-diuretic properties, which may be elicited when large doses are administered. Onset of action is 5 minutes.

**INDICATIONS:**
- **Postpartum:** To produce uterine contractions during the third stage of labor and to control postpartum bleeding or hemorrhage.
- **Antepartum:** For initiation or improvement of uterine contraction, in order to promote vaginal delivery.
  1. Medical indication: Rh problems, maternal DM, pre-eclampsia at or near term, when delivery is in the best interest of mother and fetus or when membranes are prematurely ruptured and delivery is indicated.
  2. Stimulation or reinforcement of labor as in selected cases of uterine inertia.
  3. As adjunctive therapy in the management of complete or inevitable abortion in second trimester.

**CONTRAINDICATIONS:** Contraindicated when cephalopelvic disproportion is present or when delivery requires conversion, as in transverse lie, in fetal distress when delivery isn’t imminent, prematurity, and other obstetric emergencies; and in patients with severe toxemia, hypertonic uterine patterns, hypersensitivity to the drug, total placenta previa, vasoprevia, active herpes genitalis, cord presentation, and prolapse of the cord.

**PRECAUTIONS:**
1. Has been shown to have an intrinsic anti-diuretic effect, acting to increase water re-absorption from the glomerular filtrate. Consideration should, therefore, be given to the possibility of water intoxication, particularly when Oxytocin is administrated continuously by infusion and the patient is receiving fluids by mouth.
2. Hyperstimulated contractions interfere with oxygenation of the fetus.
3. May cause early placental separation.
4. Maternal deaths due to hypertensive episode, subarachnoid hemorrhage, rupture of the uterus, fetal deaths due to various causes have been reported associated with the use of parenteral oxytocic drugs for induction of labor.

**DRUG INTERACTION:** Severe hypertension has been reported when Oxytocin was given 3-4 hours following prophylactic administration of a vasoconstrictor in conjunction with caudal block anesthesia.

**SIDE EFFECTS:**

**Maternal:**
1. CNS: Seizures or coma resulting from water intoxication
2. CV: Increased heart rate, systemic venous return, and cardiac output; arrhythmias
3. GI/GU: Nausea and vomiting
4. Other: Hypersensitivity, abruptio placenta, impaired uterine blood flow, anaphylaxis, pelvic hematoma, cervical laceration

**Fetal:**
1. CV: Bradycardia, PVC’s, arrhythmias
2. Resp: Anoxia, asphyxia
3. Other: Infant brain damage, low Apgar scores at 5 minutes, neonatal jaundice, neonatal retinal hemorrhage.

ADVERSE REACTIONS:

ROUTES OF ADMINISTRATION: Intravenous

DOSAGES:

TECHNIQUES FOR ADMINISTRATION:

HOW SUPPLIED:

ADDITIONAL INFORMATION: Pitocin will be used exclusively for the treatment of postpartum hemorrhage and at no time will be used to induce labor. Pitocin will be started on all fresh postpartum patients. If it has not been initiated by the sending facility, the CCT will initiate Pitocin in accordance with the CCT standards. The following measures will be taken secondary to the infusion of Pitocin:
7.12 Phenobarbital

**History:** Effective: 01/01/05; Revised: 07/01/08; MCB Approved:; Original: 01/01/05

**PHARMACEUTICAL NAMES:** Phenobarbital, *Controlled Substance Schedule IV*

**CLASS:** Anticonvulsant

**ACTIONS:** Depresses monosynaptic and polysynaptic transmission in the CNS and increases the threshold for seizure activity in the motor cortex. As a sedative, probably interferes with transmission of impulses from the thalamus to the cortex of the brain. A barbiturate. Onset is within 15 minutes of IV injection with a peak in 15-30 minutes. Onset is within 20-60 minutes after IM injection with a peak in 1-6 hours. Effects persist for 10-12 hours.

**INDICATIONS:** Status epilepticus

**CONTRAINDICATIONS:** Patients with barbiturate hypersensitivity, porphyria, hepatic dysfunction, respiratory disease with dyspnea or obstruction, nephritis, and in breast-feeding patients. Use cautiously in patients with hyperthyroidism, diabetes mellitus, and anemia, and in elderly or debilitated patients.

**PRECAUTIONS:** Give IV injection slowly under close supervision. Monitor respirations closely. Do not give more than 50 mg / minute.

**DRUG INTERACTION:** *MAO Inhibitors, valproic acid:* potentiated barbiturate effects. *Corticosteroids, digitoxin, doxycycline, estrogens, oral anti-coagulants, TCA’s:* Phenobarbital may enhance metabolism of these drugs. *Diazepam:* increased effect of both drugs. *Ethanol or other CNS depressants including narcotic analgesics:* should not be used in conjunction with Phenobarbital.

**SIDE EFFECTS:**
1. CNS: Drowsiness, lethargy
2. CV: Hypotension, bradycardia
3. GI/GU: Nausea, vomiting
4. Resp: Respiratory depression

**ADVERSE REACTIONS:**

**ROUTES OF ADMINISTRATION:** Intravenous

**DOSAGES:**

**TECHNIQUES FOR ADMINISTRATION:**

**HOW SUPPLIED:**

**END POINTS:**

**ADDITIONAL INFORMATION:** Therapeutic blood levels are 15 to 40 mcg/ml.
7.13 Potassium Chloride

**History:** Effective: 01/01/05; Revised: 07/01/08; MCB Approved:; Original: 01/01/05

**PHARMACEUTICAL NAMES:** Potassium Chloride, K-Dur, Slow-K,

**CLASS:** Electrolyte

**ACTIONS:** Replaces and maintains potassium levels. Serum levels peak immediately after IV infusion.

**INDICATIONS:** Hypokalemia

**CONTRAINDICATIONS:** Contraindicated in patients with severe renal impairment with oliguria, anuria, azotemia, in those with unrelated Addison's disease; and in patients with acute dehydration, heat cramps, hyperkalemia, hyperkalemic form of familial periodic paralysis, and other conditions associated with extensive tissue breakdown.

**PRECAUTIONS:** Use with caution in patients with cardiac disease and those with renal impairment. **Given by infusion only.** Never by IV push or IM. Give slowly as dilute solution, potentially fatal hyperkalemia may result from too rapid infusion. Monitor ECG and Serum Electrolyte levels during therapy. Monitor renal function. Potassium should never be given following postoperative period until urine flow is established.

**DRUG INTERACTION:** Ace inhibitors, potassium-sparing diuretics: risk of hyperkalemia, use with extreme caution.

**SIDE EFFECTS:**
1. CNS: Parasthesia of the extremities, listlessness, mental confusion, weakness or heaviness of limbs, flaccid paralysis
2. CV: Peripheral vascular collapse with fall in blood pressure, arrhythmias, heart block, possible cardiac arrest, ECG changes prolonged PR interval, widened QRS complex, ST-depression, tall tented T-waves)
3. GI/GU: Nausea, vomiting, diarrhea, abdominal pain, GI ulcerations, oliguria
4. Skin: Cold skin, gray pallor
5. Other: Postinfusion phlebitis

**ADVERSE REACTIONS:**

**ROUTES OF ADMINISTRATION:** Intravenous – **Infusion Only**

**DOSAGES:**

**TECHNIQUES FOR ADMINISTRATION:**

**HOW SUPPLIED:**

**ADDITIONAL INFORMATION:** Normal Serum Potassium levels are between 3.5-5.0 mEq/L.
1. CCT will administer Potassium Chloride for hypokalemia as per physician orders or after consult with the OLMC. 2. CCT will obtain a current potassium level and assess the patient for S &S of hypokalemia (muscle weakness, paralysis, cramping, cardiac dysrhythmias, S-T or T-wave
depression and U waves. 3. A Potassium infusion will be initiated if the patient's serum potassium level is less than 3 mEq/L. 4. CCT will assess the patient for possible cause of hypokalemia (alkalosis, barium poisoning, gastrointestinal losses, diabetic problems, thyrotoxicosis, hyperaldosteronism, etc.) and make adjustments or interventions if indicated. 5. CCT will administer Potassium Chloride by diluting 20 mEq in 500 ml of D5 1/2 NS and infuse at:

100 ml / hour if serum level is 2 mEq - 3 mEq/L.
500 ml / hour if serum level is less than 2 mEq/L.

6. The patient will be monitored closely for cardiac dysrhythmias or signs of Hyperkalemia (peaked T-waves, disappearance of P wave, widened QRS). 7. Monitor and record vital signs and patient status Q 15 minutes as per protocol. 8. Notify OLMC of all pertinent CCT actions and patient responses. 9. All interventions must be properly documented on the CCT Patient Care Report. 10. Watch for fluid overload and consult with physician to change dilution fluid volume. 11. Agitate fluid as KCL will settle in IV bag and produce burning at infusion site. 12. Explain to patient about potential burning at infusion site.
7.14 Procainamide

**History:** Effective: 01/01/05; Revised: 07/01/08; MCB Approved;; Original: 01/01/05

**PHARMACEUTICAL NAMES:** Pronestyl

**CLASS:** Antiarrhythmic

**ACTIONS:** Procainamide is an antiarrhythmic that increases the effective refractory period of the atria. It reduces myocardial excitability in the atria and increases the threshold for excitation in the ventricles. Inhibition of ectopic pacemaker activity is also achieved by retardation of the slow phase of diastolic depolarization. IV administration of Procainamide can produce therapeutic levels within minutes after infusion is started. Procainamide is eliminated through the kidneys with a half-time for elimination of 3 to 4 hours.

**INDICATIONS:** Ventricular arrhythmias which cause hemodynamic instability, sustained ventricular tachycardia, refractory to Lidocaine.

**CONTRAINDICATIONS:** Complete heart block: due to Procainamide’s effects in suppressing nodal or ventricular pacemakers and the hazard of asystole. 
*Torsades de Pointes:* may aggravate this special type of ventricular extrasystole or tachycardia instead of suppressing it. 
*Digitalis intoxication:* Procainamide should be considered only if discontinuation of digitalis and therapy with potassium, Lidocaine or phenytoin are ineffective.

**First Degree Heart Block**
*Congestive Heart Failure:* since even slight depression of myocardial contractility may further reduce cardiac output of the damaged heart. 
*Renal insufficiency* 
*Sulfite Sensitivity:* Procainamide contains sodium metabisulfite, a sulfite that may cause allergic-type reactions.

**PRECAUTIONS:** Procainamide has potent vasodilating and modest negative inotropic effects, especially in patients with left ventricular dysfunction. Adverse effects observed on the ECG include widening of the QRS complex, prolonged Q-T and P-R intervals and increasing A-V block. Because Procainamide is eliminated by the kidneys, caution should be used when administering to patients with impaired renal function and lower dose rates may be required.

**DRUG INTERACTION:** If other antiarrhythmic drugs are being used, additive effects on the heart may occur with Procainamide administration, and dosage reduction may be necessary.

**SIDE EFFECTS:**
1. CNS: Dizziness, weakness, mental depression
2. CV: Hypotension and disturbances of cardiac rhythm such as ventricular asystole or fibrillation
3. GI/GU: Nausea, vomiting, diarrhea, abdominal pain, anorexia, bitter taste, hepatomegaly
4. Other: A lupus erythematosus-like syndrome of arthralgia, pleural effusion, fever and chills in prolonged use.

**ADVERSE REACTIONS:**

**ROUTES OF ADMINISTRATION:** Intravenous
ADDITIONAL INFORMATION: CCT will never administer Procainamide as a bolus in an undiluted form.
7.15 Promethazine Hydrochloride

History: Effective: 01/01/03; Revised: 07/01/08, 03/03/03; MCB Approved: 06/20/02; Original: 06/20/02

PHARMACEUTICAL BRAND NAME: Phenergan

ACTIONS: Promethazine derivative that competes with histamine for H1- receptor sites on effector cells. Prevents, but doesn’t reverse, histamine-mediated responses. At high doses, it also has local anesthetic effects.

INDICATIONS:
- Motion sickness
- Nausea
- Rhinitis-allergy symptoms
- Adjunct to analgesics and sedation
- Clinical effects are generally apparent within 5 minutes when given IV and 20 minutes when given IM.

CONTRAINDICATIONS:
- Known hypersensitivity to the drug
- Patients with intestinal obstruction, prostatic hyperplasia, bladder-neck obstruction, angle-closure glaucoma, seizure disorders, coma, CNS depression, and stenosing or peptic ulcerations.
- Newborns, premature neonates
- Breast-feeding women
- Acutely ill or dehydrated children
- Not recommended for use in pediatric patients less than two years of age

PRECAUTIONS:
- Use cautiously in patients with asthma or pulmonary, hepatic or cardiovascular disease.
- Don’t administer by SC route.
- If given IM, inject deep IM.
- IV administration should be slowly.
- May lower seizure threshold. Use with caution in patients with seizure disorders
- Caution should be exercised when administering Phenergan injection to pediatric patients 2 years of age and older. Antiemetics are not recommended for treatment of uncomplicated vomiting in pediatric patients and their use should be limited to prolonged vomiting of known etiology.
- Excessively large dosages of antihistamines, including Phenergan injection, in pediatric patients may cause hallucinations, convulsions and sudden death.
- There is an increased susceptibility to dystonias with the use of Phenergan injection in pediatric patients who are critically ill associated with dehydration.
- Injection into or near a nerve may result in permanent tissue damage.
SIDE EFFECTS/ADVERSE REACTIONS:

- CNS:
  - Sedation
  - Confusion
  - Sleepiness
  - Dizziness
  - Disorientation
  - Extrapyramidal symptoms
  - Drowsiness
  - Paradoxical agitation.

- CV:
  - Hypotension
  - Hypertension.

- GI:
  - Nausea
  - Vomiting
  - Dry mouth.

- EENT:
  - Blurred vision.

- GU:
  - Urine retention

- Hematologic:
  - Leukopenia
  - Agranulocytosis
  - Thrombocytopenia.

- Metabolic:
  - Hyperglycemia

- Skin:
  - Photosensitivity
  - Rash.

INTERACTIONS:

- Drug – Drug:
  - Anticholinergics, phenothiazines, tricyclic antidepressants: Increased anticholinergic effects (CAUTION when giving these agents together).
  - CNS Depressants: Increased sedation. Use together cautiously.
  - Epinephrine: May partially block or partially reverse effects of epinephrine. Consider other pressor drugs instead.
  - Levodopa: May decrease antiparkinsonian action of levodopa. Avoid cocomitant use.
  - Lithium: May reduce GI absorption or enhance renal elimination of lithium. Avoid cocomitant use.
  - MAO inhibitors: Increased extrapyramidal effects. Don’t use together.

ROUTES OF ADMINISTRATION:

- IV
- Deep IM
TECHNIQUES OF ADMINISTRATION:

- A maximum dose of 12.5 mg Promethazine is to be diluted in 100 cc bag of D5W. This is accomplished by utilizing the carpuject format of Promethazine currently carried in the system and an 18g straing needle. Attach the 18g needle to the end of the Carpuject and inject 12.5 mg of Promethazine into a 100 cc bag of D5W, via the injection port on the bag. Gently tilt the 100 cc bag of D5W back and forth, to mix the medication into the D5W.
- Attach a 10 gtt IV Administration set to the 100 cc bag of D5W. Prime the tubing with the mixture from the bag.
- Administer the Promethazine drip over 5 - 10 minutes.
- Promethazine is only to be administered via a large vein, NEVER in a hand or wrist vein.
- Check the patency of the IV access site before administration in addition to any time the patient has a complaint of discomfort at the IV site or in the extremity that has the IV site and regularly during the administration with out complaint.
- In the event that a patient reports burning or discomfort during administration of Promethazine, administration will immediately be stopped. The IV site will be checked to ensure that the IV site is still patent, that the IV has not been placed intraarterial and that extravasation has not occurred. If extravasation has not occurred and the IV is confirmed to still be patent, administration of the medication is being done to fast and needs to be slowed down. If the patient still reports burning or discomfort during IV administration, then administration is to be immediately discontinued.
- Promethazine is never to be administered subcutaneously.
- Promethazine may also be given via deep muscular injection.

REFERENCES:

7.16 Rocuronium Bromide

History: Effective:; Revised:; MCB Approved:; Original:

PHARMACEUTICAL NAMES: Zemuron

CLASS: Paralytic

ACTIONS: Nondepolarizing drug that prevents acetylcholine from binding to receptors on the motor end plate, thus blocking neuromuscular transmission.

INDICATIONS:

- Patients with contraindications to Succinylcholine for the purpose of intubation
- To provide for maintenance of skeletal muscle relaxation following intubation

CONTRAINDICATIONS:

- Known hypersensitivity to Rocuronium or to bromides.

PRECAUTIONS:

- All patients receiving Rocuronium must have a controlled airway prior to or after the administration of the medication
- Use cautiously in patients with hepatic disease, severe obesity, bronchogenic carcinoma, electrolyte disturbances, neuromuscular disease, and altered circulation caused by CV disease, old age or edema.
- Certain types of drugs may enhance the effects of Rocuronium such as antibiotics (aminoglycosides, vancomycin, tetracylines, bacitracin, polymyxins, colistins and sodium colistimethate) and Succinylcholine.
- Some patients receiving chronic anticonvulsant therapy may demonstrate resistant effects to Rocuronium in the form of diminished magnitude of neuromuscular block or shortened clinical duration.

ADVERSE REACTIONS:

- CV – Tachycardia, abnormal ECG, transient hypotension, hypertension, edema
- GI – nausea, vomiting
- Respiratory – Asthma, hiccups, respiratory insufficiency, apnea
- Skin – rash, pruritis

ROUTES OF ADMINISTRATION:

- IV

TECHNIQUES OF ADMINISTRATION: N/A

DOSAGE INFORMATION:

Duration of clinical effect is dependent on dosage:
Average Onset - 1 minutes, Peak intubation conditions – 2 minutes, Duration 20-60 minutes

END POINTS:

- Muscle paralysis

HOW SUPPLIED:

- Rocuronium 10ml multiple dose vial containing 100mg Rocuronium Bromide Injection (10mg/ml).
- Should be refrigerated at 2-8°C (36-45°F). DO NOT FREEZE. Storage at room temperature (25°C/77°F), Rocuronium must be used with in 60 days.

REFERENCES:

- www.Rxlist.com
- www.rocuronium.com
- Organon Inc. Zemuron® Injection Package Insert
7.17 Succinylcholine

History: Effective: 01/01/05; Revised: 07/01/08; MCB Approved:; Original: 08/01/04

Pharmaceutical Names: Quelicin, Anectine

Class: Paralytic

Actions: Binds with a high affinity to cholinergic receptors, prolonging depolarization of the motor end plate and ultimately producing muscle paralysis.

Indications:
- Provide for skeletal muscle relaxation during mechanical ventilation, and to facilitate endotracheal intubation.

Contraindications:
- Known hypersensitivity to the drug
- Family history of malignant hyperthermia
- In patients after the acute phase of injury following major burns, multiple trauma, extensive denervation of skeletal muscle, or upper motor neuron injury, because succinylcholine administered to such individuals may result in severe hyperkalemia which may result in cardiac arrest. The risk of hyperkalemia in these patients increases over time and usually peaks 7 – 10 days after the injury.
- Intraocular pressure (ie. Narrow angle glaucoma, penetrating eye injury) unless the potential benefit of succinylcholine use outweighs the potential risk.

Precautions:
- All patients receiving Anectine must be intubated prior to or after administration of the medication.
- Patients with chronic abdominal infection, subarachnoid hemorrhage, or conditions causing degeneration of central and peripheral nervous systems should receive succinylcholine with GREAT CAUTION because of the potential for developing severe hyperkalemia
- Succinylcholine should be administered with GREAT CAUTION to patients suffering from electrolyte abnormalities and those who may have massive digitalis toxicity, because in these circumstances succinylcholine may induce serious cardiac arrhythmias or cardiac arrest due to hyperkalemia.
- Succinylcholine should be employed with caution in patients with fractures or muscle spasm because the initial muscle fasiculations may cause additional trauma
- Succinylcholine may increase intragastric pressure, which could result in regurgitation and possible aspiration of stomach contents.
- Children are more likely to have bradycardias in response to the administration of succinylcholine

Drug Interactions:

None listed
SIDE EFFECTS:
None listed

ADVERSE REACTIONS:
- Profound skeletal muscle relaxation resulting in respiratory depression to the point of apnea
- Anaphylaxis
- Cardiac arrest
- Malignant hyperthermia
- Arrhythmias
- Bradycardia
- Tachycardia
- Hypertension
- Hypotension
- Hyperkalemia
- Prolonged respiratory depression
- Apnea
- Increased intraocular pressure
- Muscle fasiculations
- Jaw rigidity
- Excessive salivation

ROUTES OF ADMINISTRATION:
- IV
- IM

DOSAGES:

TECHNIQUES OF ADMINISTRATION:
None listed

END POINTS:
- Muscle paralysis

ADDITIONAL INFORMATION:

REFERENCES:
- Abbott Laboratories Quelicin Product Insert Rev. March 1999
7.18 Terbutaline Sulfate

**History:** Effective: 01/01/05; Revised: 07/01/08; MCB Approved;; Original: 01/01/05

**PHARMACEUTICAL NAMES:** Brethine

**CLASS:** Bronchodilator

**ACTIONS:** Relaxes bronchial smooth muscle by acting on beta-2 adrenergic receptors. Also relaxes uterine muscle.

**INDICATIONS:** Treatment of premature labor, relief of bronchospasm in patients with reversible obstructive airway disease.

**CONTRAINDICATIONS:** Should be used cautiously in patients with diabetes, hypertension, hyperthyroidism, severe cardiac disease, and cardiac arrhythmias.

**PRECAUTIONS:** Protect injection from light, do not use if discolored. Give SC injections in lateral deltoid area. Monitor neonates for hypoglycemia.

**DRUG INTERACTION:**
- **CNS stimulants:** increased CNS stimulation.
- **Digitalis glycosides:** increased risk of arrhythmias.
- **MAO inhibitors:** when given with sympathomimetics, may cause severe hypertension (hypertensive crisis).
- **Propranolol, other beta-blockers:** blocked bronchodilating effects of Terbutaline.

**SIDE EFFECTS:**
- CNS: Nervousness, tremors, headache, drowsiness, sweating
- CV: Palpitations, increased heart rate
- GI/GU: Nausea and vomiting

**ADVERSE REACTIONS:**

** ROUTES OF ADMINISTRATION:** Intravenous, Subcutaneous

**DOSAGES:**

**TECHNIQUES FOR ADMINISTRATION:**

**HOW SUPPLIED:**

**END POINTS:**

**ADDITIONAL INFORMATION:**
- Hemodynamic status will be assessed prior to administration of the medication and q 5 minutes throughout the duration of the transport.
- FHT will be assessed prior to administration of the medication and q 10 minutes throughout transport.
- Side effects that would necessitate urgent consultation with OLMD or receiving Perinatologist regarding discontinuation of the medication would be any of the following – maternal tachycardia > 140 bpm, BP < 90/60, chest pain or tightness, cardiac arrhythmias.
7.19 Vercuronium Bromide

**History:** Effective: 01/01/05; Revised: 07/01/08; MCB Approved:; Original: 01/01/05

**PHARMACEUTICAL NAMES:** Norcuron

**CLASS:** Neuromuscular Blocker

**ACTIONS:** Norcuron is a neuromuscular blocker and a nondepolarizing agent that prevents acetylcholine from binding to receptors on the muscle end plate, thus blocking depolarization. Norcuron has an onset time of 1 minute. It peaks in 3-5 minutes and has a duration of 25 to 30 minutes. 25% recovery of muscle twitch strength within 24 to 40 minutes, 95% recovery in 45 to 65 minutes.

**INDICATIONS:** Adjunct to general anesthesia to facilitate endotracheal intubation and to provide skeletal muscle relaxation during mechanical ventilation.

**CONTRAINDICATIONS:** Patients with hypersensitivity to bromides. Caution in elderly patients, in patients with altered circulation time from cardiovascular disease, and edematous states; in patients with hepatic disease, severe obesity, and bronchogenic carcinoma; and in patients with electrolyte disturbances and neuromuscular disease.

**PRECAUTIONS:** Do not mix with alkaline solutions

**DRUG INTERACTION:** Aminoglycoside antibiotics, polymyxin antibiotics, clindamycin, bacitracin, tetracycline’s, quinidine, general anesthetics, other skeletal muscle relaxants: potentiated neuromuscular blockade, leading to increased skeletal muscle relaxation and potentiated effect. Opioed analgesics: potentiated neuromuscular blockade, leading to increased skeletal muscle relaxation and possible respiratory paralysis. Use with extreme caution, and reduce dose of Norcuron. **Norcuron can be reversed with neostigmine or edrophonium, which are usually administered with an anticholinergic such as Atropine.**

**SIDE EFFECTS:**
1. CV: Transient increase in heart rate
2. Resp: Prolonged dose related apnea
3. Other: redness, itching, skeletal muscle weakness

**ADVERSE REACTIONS:**

**ROUTES OF ADMINISTRATION:** Intravenous

**DOSAGES:**

**TECHNIQUES FOR ADMINISTRATION:**

**HOW SUPPLIED:**

**END POINTS:**
ADDITIONAL INFORMATION: To reverse effects of Norcuron, utilize Neostigmine Bromide. Give 0.6-1.2 mg Atropine Sulfate IV before Neostigmine. Then give Neostigmine 0.5-2.5 mg IV slowly. Repeat prn to a total of 5 mg.
Description of Formulary Format

Description:

PHARMACEUTICAL NAMES:

These are the brand names that are often printed on the boxes and vials that contain the medication. The pharmaceutical name may vary depending on which manufacturer the medication is purchased from. Therefore, only generic names are used in this Formulary. Example: Generic name -- furosemide; Pharmaceutical name -- Lasix®.

NOTE: check all drugs for expiration date, gross appearance (color, clarity, precipitates, turbidity, and viscosity) prior to use. Protect from prolonged heat and be aware of heat stability. Check drugs on receipt, periodically, and prior to use. Replace any drug that appears abnormal. Package insert may refer to safe temperature ranges and appearance of potentially abnormal drugs.

CLASS:

This describes the general category of the drug, based on either its actions or effects. Example: furosemide is a diuretic.

ACTION:

This item briefly describes how the medication works or how it exerts its effects. Example: Atropine accelerates SA node impulse formation and A-V conduction by blocking the inhibiting effects of the vagus nerve.

INDICATIONS:

This item describes the types of problems and situations in which the medication may be helpful. Example: Atropine is used in cases of bradycardia and second and third degree A-V block with hemodynamic compromise.

CONTRAINDICATIONS:

Contraindications describe situations in which the medication should not be used. Example: Lidocaine should not be used in patients with third degree heart block. Often times the clinician may question certain EMS drug contraindications with certain patient care findings, symptoms, age, or presentation. The Medical Communications Officer (MCO) may be accessed from the field using tac-channel Med “C” for additional drug contraindications for our EMS medications.

PRECAUTIONS:

Precautions describe the kinds of cases, situations and procedures to be aware of to avoid problems. Example: Atropine in small doses given slowly may produce a paradoxical bradycardia.
ADVERSE REACTIONS:

Adverse reactions are events where the patient has an unfavorable reaction that suggests discontinuation of any additional administration of the medication and/or treatment to reverse its effects. Example: Central nervous system evidence of lidocaine toxicity is characterized by a progression of signs and symptoms from tinnitus, twitching and tremors into seizures.

ROUTES OF ADMINISTRATION:

Medications may often be given by more than one route of administration. All Pinellas County EMS approved routes of administration for each medication are listed in this section. Example: Atropine may be given intravenously, endotracheal, intraosseous, and intramuscular.

TECHNIQUES FOR ADMINISTRATION:

Where special techniques for administration may be necessary, they will be specified here. Example: Bretylium (when patient has a spontaneous pulse): Mix the desired amount of bretylium in 100 ml bag of Lactated Ringers and infuse with a macro drip administration set over an 8-10 minute period.

END POINTS:

Some, but not all, medications are given until a desired effect is achieved. The status of a sign or symptom that appears when the desired effect has been achieved is called an end point. Alternatively, an end-point is the maximum dosage level. Example: Lidocaine is given until the premature ventricular ectopy is abolished or the total dose reaches 3 mg/kg.

REFERENCES:

Activated Charcoal Suspension

**PHARMACEUTICAL BRAND NAME:** Kerr Insta-Char Activated Charcoal Suspensions

**ACTIONS:** Activated charcoal instantly adsorbs and complexes with most previously ingested toxic substances in the gastrointestinal tract in such a manner that inhibits further absorption by gastrointestinal mucosal. Sorbitol is a hexahydric sugar alcohol which serves as an osmotic cathartic. Sorbitol’s cathartic action is produced by hydroscopic action increasing the amount of water in the large intestines. The resultant effect increases luminal pressure to produce catharsis. Catharsis generally takes 1.0 to 1.5 hours and can continue for 8 or more hours. It is accompanied by severe cramping and diarrhea. This can produce excessive dehydration. Cathartic action may be delayed in patients who have ingested toxins which decrease bowel motility such as opiates, anticholinergic drugs or various plants.

**INDICATIONS:**
- Acute poisoning
- Acute overdose

**CONTRAINDICATIONS:**
- Hypersensitivity to fructose
- Persons known to have genetic intolerance to fructose
- DO NOT use Insta-Char in a sorbitol base in children less than 1 year of age or weighing less than 16 kg (36 lbs.)

**PRECAUTIONS:**
- Remove any food or other obstruction from the mouth to insure an adequate supply of air to the lungs and minimize the risk of aspiration.
- Before administering Insta-Char products, make sure the patient has a patent airway and gag reflex.
- If gag reflex is not adequate, insta-Char can still be administered via an oro or nasogastric tube.
- If patient is vomiting, place patient face down with head lower than chest to prevent vomitus from being aspirated into the lungs.
- Insta-Char should not be administered until vomiting ceases.
- Some substances such as acids, alkalines, iron compounds, lithium and electrolyte replacements are not absorbed by activated charcoal.
- Insta-Char in a sorbitol base usually produces diarrhea.

**SIDE EFFECTS/ADVERSE REACTIONS:**
- GI
  - Diarrhea
  - Black stools until the charcoal completely passes through the gastrointestinal tract
  - Vomiting
ROUTES OF ADMINISTRATION:

- Orally
- Via orogastric or Nasogastric tube

TECHNIQUES FOR ADMINISTRATION:

- It is important to administer Insta-Char as soon as possible after ingestion of toxins.
- Invert bottle and shake vigorously until the charcoal slurry is in suspension.
- Oral Administration:
  - Non-flavored – Cut off tip of opaque container and insert the included opaque straw and have the patient drink it.
  - Cherry flavored – Cut off the tip of the opaque container and insert the included opaque straw. Remove cap from included flavor container and squirt flavor into straw and have the patient drink it.
- Gastric Tube Administration:
  - Cut off tip of Insta-Char container to fit the gastric tube used and squeeze contents into tube.
- If after administration, a significant amount of charcoal remains, add water and readminister.

REFERENCES:

- Frank W. Kerr Chemical CO. Kerr Insta-Char Activated Charcoal Suspension Package Insert.
Adenosine

**PHARMACEUTICAL NAMES:** Adenocard (Fujisawa)

**CLASS:** Antiarrhythmic - nucleoside

**ACTION:** Naturally occurring nucleoside that acts on the AV node to slow conduction and inhibit reentry pathways. Drug is also useful in treating PSVT's including those with accessory bypass tracts (Wolff-Parkinson-White syndrome)

**INDICATIONS:**
- Convert paroxysmal supraventricular tachycardia (PSVT) to sinus rhythm.

**CONTRAINDICATIONS:**
- 2nd or 3rd degree AV block or known sick sinus syndrome unless there is a functioning artificial pacemaker in place.
- Known hypersensitivity to adenosine.

**PRECAUTIONS:**
- Use cautiously in patients with asthma, emphysema or bronchitis because bronchospasm may occur.
- Adenosine does not convert atrial flutter.
- Adenosine does not convert atrial fibrillation.
- In the former two cases, a transient slowing of the ventricular response may be seen. In some cases, a wide complex tachycardia may not be apparent upon initial evaluation of the patient. Rare cases of conversion to V-fib have been reported, but most of these cases involved the concomitant use of digoxin, however, resuscitation equipment should be ready.
- Dosage may need to be increased in patients on methylxanthines (i.e. caffeine, theophylline).

**ADVERSE REACTIONS:**
- **CNS:** dizziness, light-headedness, numbness, tingling in the arms, headache
- **CV:** chest pressure, facial flushing
- **GI:** nausea
- **Respiratory:** dyspnea, shortness of breath

**PHARMACOKINETICS:**
- **IV – Onset:** immediate
  - **Peak:** immediate
  - **Duration:** unknown
  - **Half-life:** less than 10 seconds

**PREGNANCY CATEGORY:** “C”

**TECHNIQUES FOR ADMINISTRATION:**
- Adenosine should be given as a rapid bolus over 1 – 2 seconds by peripheral intravenous route.
- When using IV tubing, it should be given as close to the patient as possible, and followed by a rapid flush (minimum 5 - 10 ml in children).
- Pediatric patients ≥ 50 kg use the adult dose.
END POINTS:
• Termination of SVT, or recognition that the narrow complex tachycardia is in reality rapid atrial fibrillation or atrial flutter.

REFERENCES:
• Lippincott Williams and Wilkins Nursing 2009 Drug Handbook, Pages 24, 331 – 332
Albuterol Sulfate

PHARMACEUTICAL NAMES: Proventil, Albuterol Sulfate Inhalation Solution 0.083%

CLASS: Adrenergic

ACTIONS: Relaxes bronchial, uterine, and vascular smooth muscle by stimulating Beta2 receptors.

INDICATIONS:
- Exercise induced brochospasm
- Relief of bronchospasm with reversible obstructive airway disease and acute attacks of bronchospasm

CONTRAINDICATIONS:
- Hypersensitivity to the drug or its ingredients

PRECAUTIONS:
- Patients with cardiovascular disorders, convulsive disorders, hyperthyroidism, diabetes mellitus
- Patients who are unusually responsive to adrenergics

ADVERSE REACTIONS:
- CNS: tremor, nervousness, headache, hyperactivity, insomnia, dizziness, weakness, CNS stimulation, malaise
- CV: tachycardia, palpitations, hypertension
- EENT: dry and irritated nose and throat with inhaled form, nasal congestion, epistaxis, hoarseness
- GI: nausea, vomiting, heartburn, anorexia, altered taste, increased appetite
- Metabolic: hypokalemia
- Musculoskeletal: muscle cramps
- Respiratory: bronchospasm, cough, wheezing, dyspnea, bronchitis, increased sputum
- Other: hypersensitivity reactions

PHARMACOKINETICS:
- Half-life – about 4 hrs.

PREGNANCY CATEGORY: “C”

TECHNIQUES FOR ADMINISTRATION: N/A

END POINTS:
- Improvement in air exchange
- Reduction or elimination of wheezing.

REFERENCES:
- DEY Albuterol Sulfate Inhalation Solution 0.083% Product Insert Revised 1/00
Amiodarone Hydrochloride

**PHARMACEUTICAL NAME:** Cordarone®, Pacerone

**ACTIONS:** Effects result from blockade of potassium chloride leading to a prolongation of action potential duration.

**INDICATIONS:**
- Refractory VF/Pulseless VT
- Atrial and Ventricular Tachycardias

**CONTRAINDICATIONS:**
- Use in combination with drugs that prolong QT interval
- Presence of cardiogenic shock, second or third degree AV block
- Known hypersensitivity to the drug or to iodine
- Presence of cardiogenic shock, second or third degree AV block

**PRECAUTIONS:**
- Use cautiously in patients receiving other antiarrhythmics
- Use cautiously in patients with pulmonary, hepatic, or thyroid disease

**ADVERSE REACTIONS:**
- **CNS:** fatigue, malaise, tremor, peripheral neuropathy, ataxia, paresthesia, insomnia, sleep disturbances, headache
- **CV:** hypotension, bradycardia, arrhythmias, heart failure, heart block, sinus arrest, edema
- **EENT:** asymptomatic corneal microdeposits, visual disturbances, optic neuropathy or neuritis resulting in visual impairment, abnormal smell
- **GI:** nausea, vomiting, abnormal taste, anorexia, constipation, abdominal pain
- **Hematologic:** coagulation abnormalities
- **Hepatic:** hepatic failure, hepatic dysfunction
- **Metabolic:** hypothyroidism, hyperthyroidism
- **Respiratory:** acute respiratory distress syndrome, severe pulmonary toxicity
- **Skin:** photosensitivity, solar dermatitis, blue-gray skin

**PHARMACOKINETICS:**
- IV/IO – Onset: Unknown
  - Peak: Unknown
  - Duration: Unknown

**PREGNANCY CATEGORY:** “D”

**TECHNIQUE FOR ADMINISTRATION:**
- AVOID AGITATION while drawing from the vials.
- Draw up the appropriate amount for pediatric dosage utilizing the same technique.
- Thoroughly flush line if Amiodarone is followed by Normal Saline.
REFERENCES:
- Lippincott Williams and Wilkins Nursing 2009 Drug Handbook, Pages 332-335
- Physicians’ Desk Reference. (53): 3286-3289, 1999
- Ornato, Joseph. Introduction to the proceedings of the turtle creek consensus conference on prehospital care. Prehospital Emergency Care 269-282, 1999
Amyl Nitrite

PHARMACEUTICAL BRAND NAME: Amyl Nitrite

ACTIONS: Effect probably results from dilation of arterial and venous beds. The net effect is a reduction in myocardial oxygen demand, improving perfusion to the ischemic myocardium. Drug converts hemoglobin to methemoglobin (which binds cyanide) to treat cyanide poisoning.

INDICATIONS:
- Antidote for cyanide poisoning

CONTRAINDICATIONS:
- Hypersensitivity to nitrates
- Patients with severe enemia
- Angle-closure glaucoma
- Orthostatic hypotension
- Early MI
- Increased intracranial pressure
- During pregnancy

PRECAUTIONS:
- Ampule may ignite
- Looks very similar to ammonia inhalants

SIDE EFFECTS/ADVERSE REACTIONS:
- CNS
  - Headache, sometimes with throbbing
  - Dizziness
  - Weakness
  - Syncope
- CV
  - Orthostatic hypotension
  - Tachycardia
  - Flushing
  - Palpitations
- GI
  - Nausea
  - Vomiting
- Hematologic
  - Methemoglobinemia
- Skin
  - Cutaneous vasodilation
  - Rash
- Other
  - Hypersensitivity reactions
ROUTES OF ADMINISTRATION:

- Inhalation

TECHNIQUES FOR ADMINISTRATION:

- Have patient lay down and stay as still as possible with no sudden movements.
- Wrap ampule in 4 x 4s. Crush ampule, hold under the nose and have the pt. inhale for 15 – 30 seconds every 3 – 5 minutes, intermittently with high flow O2.
- If patient is unconscious, the ampule can be crushed and placed in the bag of a BVM and then ventilated.

REFERENCES:

- James Alexander brand of Amyl Nitrite Inhalant, USP Package Insert December 2000
Aspirin

PHARMACEUTICAL NAMES: ASA

CLASS: Salicylate

ACTIONS: Thought to produce analgesia and exert its anti-inflammatory effect by inhibiting prostaglandin and other substances that sensitize pain receptors. Drug may relieve fever through central action in the hypothalamic heat-regulating center. In low doses, drug also appears to interfere with clotting by keeping a platelet-aggregating substance from forming.

INDICATIONS:
- Cases of suspected acute myocardial infarction or angina.

CONTRAINDICATIONS:
- Known hypersensitivity to the drug, in those with NSAID-induced sensitivity reactions or hx of bleeding disorders.
- Coumadin does not preclude a patient from the administration of Baby ASA.

PRECAUTIONS:
- Avoid use with pregnant women during the last trimester of pregnancy to avoid problems with the fetus or complications during delivery.

ADVERSE REACTIONS:
- **EENT**: tinnitus, hearing loss
- **GI**: nausea, GI bleeding, dyspepsia, GI distress, occult bleeding
- **Hematologic**: prolonged bleeding time, leucopenia, thrombocytopenia
- **Hepatic**: hepatitis
- **Skin**: rash, bruising, urticaria
- **Other**: angioedema, Reye syndrome, hypersensitivity reactions

PHARMACOKINETICS:
- **PO – Onset**: 5 – 30 mins.
  - Peak: 25 – 40 mins.
  - Duration: 1 – 4 hrs.
- **Half – Life**: 15 to 20 mins.

PREGNANCY CATEGORY: “B”

TECHNIQUES FOR ADMINISTRATION:
- Instruct patient to chew tablets prior to swallowing to increase speed of absorption
- May be given prior to establishing an IV.
- If patient may have difficulty swallowing for any reason, DO NOT GIVE. (Use of aspirin many hours after evolving MI has proven to be as effective as giving early in MI).

END POINT: None

REFERENCES:
Atropine

**PHARMACEUTICAL NAMES:** Atropine Sulfate

**CLASS:** Parasympatholytic – muscarinic blocker

**ACTIONS:** Inhibits acetylcholine at parasympathetic neuroeffector junction, blocking vagal effects on SA and AV nodes, enhancing conduction through AV node and increasing heart rate.

**INDICATIONS:**
- Symptomatic sinus bradycardia
- First degree heart block
- Second degree type I heart block
- Asystole
- PEA with absolute bradycardia
- Organophosphate poisoning or nerve gas poisoning

**CONTRAINDICATIONS:**
- Tachycardia
- Known hypersensitivity to the drug.

**PRECAUTIONS:**
- Use cautiously in patients with Down syndrome because they may be more sensitive to drug.
- May cause inspissation of bronchial secretions and formation of dangerous viscid plugs in patients with chronic lung disease.

**ADVERSE REACTIONS:**
- **CNS:** headache, restlessness, insomnia, dizziness, ataxia, disorientation, hallucinations, delirium, excitement, agitation, confusion.
- **CV:** bradycardia, palpitations, tachycardia
- **EENT:** blurred vision, mydriasis, photophobia, cycloplegia, increased intracocular pressure
- **GI:** dry mouth, constipation, thirst, nausea, vomiting
- **GU:** Urinary retention, impotence
- **Other:** Anaphylaxis

**PHARMACODYNAMICS:**
- **IV/IO – Onset:** Immediate
  - Peak: 2 – 4 hrs
  - Duration: 4 hrs
  - Half – Life: 2 hrs

**PREGNANCY CATEGORY:** “C”

**TECHNIQUES FOR ADMINISTRATION:**
- Administration of less than 0.5 mg can produce a paradoxical bradycardia because of the central or peripheral parasympathomimetic effects of low doses in adults. This is more pronounced in children; thus the minimum pediatric dose is 0.1 mg regardless of weight.
END POINTS:
• If rate exceeds 40 b.p.m. in asystole, consider the presence of PEA.
• In organophosphate poisoning, endpoint is decrease in bronchial secretions to the point where the airway is maintainable.

REFERENCES:
• International Medication Systems, Limited Package Insert Rev. 2-2000
• Lippincott Williams and Wilkins Nursing 2009 Drug Handbook, Pages 25, 335-337, 1308-1309
Atropine Sulfate (HAZMAT)

PHARMACEUTICAL BRAND NAME: Atropine Sulfate

ACTIONS: Binds with acetylcholine receptors thus diminishing the actions of acetylcholine.

INDICATIONS:

- Anticholinesterase syndrome poisoning
- Organophosphate and carbonate signs of poisoning:
  - Salivation
  - Lacrimation
  - Urination
  - Defecation
  - Gi distress
  - Emesis
  - Myosis
- Pinpoint pupils
- Bradycardia
- Excessive sweating

CONTRAINDICATIONS:

- None in cases of severe organophosphate poisoning

PRECAUTIONS:

- Patient must be adequately oxygenated and ventilated prior to administration
- Monitor ECG closely

SIDE EFFECTS/ADVERSE REACTIONS:

- CNS
  - Coma
  - Headache
  - Restlessness
  - Ataxia
  - Disorientation
  - Hallucinations
  - Delirium
  - Dizziness
  - Insomnia
  - Excitement
  - Agitation
  - Confusion
• CV
  o Palpitations
  o Bradycardia
  o Tachycardia
  o Ventricular fibrillation

• EENT
  o Photophobia
  o Blurred vision
  o Mydriasis
  o Cycloplegia

• GI
  o Dry mouth
  o Thirst
  o Constipation
  o Nausea
  o Vomiting

• GU
  o Urine retention

**REFERENCES:**

Calcium Chloride

PHARMACEUTICAL NAMES: Calcium Chloride, USP 10%

CLASS: Inorganic salt

ACTIONS: Blocks the arrhythmic effects of hyperkalemia and hypermagnesemia; antagonizes effects of calcium channel blocker medications.

INDICATIONS:
- Hypocalcemic emergency
- Hypocalcemic tetany
- Hyperkalemia with secondary cardiac toxicity

CONTRAINDICATIONS:
- In cancer patients with bone metastases and in those with ventricular fibrillation, hypercalcemia, hypophosphatemia or renal calculi

PRECAUTIONS: N/A

ADVERSE REACTIONS:
- CNS: tingling sensations, sense of oppression or heat waves with IV use, syncope with rapid IV use.
- CV: bradycardia, arrhythmias, cardiac arrest with rapid IV use, mild drop in blood pressure, vasodilation.
- GI: constipation, irritation, chalky taste, hemorrhage, nausea, vomiting, thirst, abdominal pain
- GU: polyuria, renal calculi
- Metabolic: hypercalcemia
- Skin: local reactions including burning, necrosis, tissue sloughing, cellulitis, soft tissue calcification with IM use, pain irritation at SubQ injection site.

PHARMACOKINETICS:
- IV – Onset: immediate
  Peak: immediate
  Duration: 30 min. – 2 hrs.
- Half-Life: unknown

PREGNANCY CATEGORY: “NR”

TECHNIQUES FOR ADMINISTRATION:
- IV Only – Calcium chloride solution injection into muscle or into subcutaneous or perivascular tissue may cause severe necrosis and sloughing.
- IV injections of this drug must be made with great care to avoid leakage into the perivascular tissue.
- The rate of injection should not exceed 0.5 ml to 1 ml per minute.
- Rapid infusion produces significant bradycardia or asystole - Precipitates if bicarbonate is in the line.

END POINTS:
- Restoration of normal hemodynamics
REFERENCES:
- Lippincott Williams and Wilkins Nursing 2009 Drug Handbook, Pages 1371 - 1373
Calcium Gluconate 10%

PHARMACEUTICAL BRAND NAME: Calcium Gluconate, Kalcinate

ACTIONS: Basic element essential for growth and maintenance of nerve, muscle, bone and tissue. Necessary for transmission of nerve impulses in contraction of cardiac, smooth and skeletal muscle. Important in the regulation of neurotransmitters, hormones and amino acid metabolism. In hydrofluoric acid toxicity, provides calcium which binds with fluoride ions producing calcium fluoride.

INDICATIONS:

- Hydrofluoric acid burns
- Magnesium sulfate overdose
- Black widow spider bites
- Calcium channel blocker overdose

CONTRAINDICATIONS:

- Cancer patients with bone metastases
- Patients with:
  - Ventricular fibrillation
  - Hypercalcemia
  - Hypophosphatemia
  - Renal calculi

PRECAUTIONS:

- Use all calcium products with extreme caution in:
  - Digitalized patients
  - Patients with sarcoidosis
  - Patients with renal disease
  - Patients with cardiac disease
  - Patients with cor pulmonale
  - Patients with respiratory acidosis
  - Patients with respiratory failure
- Give IM injections in the gluteal region in adults, lateral thigh in infants
- Use IM route only in emergencies when no IV route is available because of irritatio of tissue by calcium salts.
- Monitor ECG when giving calcium IV.
- After IV injection, patient should remain recumbent for 15 minutes.
- Severe necrosis and tissue sloughing can occur after extravasation.
- DO NOT mix with Sodium Bicarbonate or Phosphate containing solutions (TPN).
- SQ or IM administration can cause severe tissue necrosis and tissue sloughing
SIDE EFFECTS/ ADVERSE REACTIONS:

- CNS
  - Tingling sensation
  - Sense of oppression or heat waves with IV use
  - Syncope with rapid IV injection

- CV
  - Mild drop in the blood pressure
  - Vasodilation
  - Bradycardia
  - Arrhythmias
  - Cardiac arrest with rapid IV injection

- GI
  - Irritation
  - Constipation
  - Chalky taste
  - Hemorrhage
  - Nausea
  - Vomiting
  - Thirst
  - Abdominal pain

- GU
  - Polyuria
  - Renal calculi

- Metabolic
  - Hypercalcemia

- Skin
  - Local reactions
  - Burning
  - Necrosis
  - Tissue sloughing
  - Cellulitis
  - Soft tissue calcification with IM use

- Other
  - Pain irritation at SC injection site
  - Vein irritation

ROUTES OF ADMINISTRATION:

- IV
- Topically
- Nebulized

TECHNIQUES FOR ADMINISTRATION:

- Skin burns:
  - Mix 30 cc of a 10% Calcium Gluconate solution with 4 oz. Of water soluble gel (K-Y) and apply to affected area. Cover with a sterile dry dressing.
  - 0.5 ml of a 5% solution (diluted with Normal Saline) injected every ¼ inch SQ into burned area (if severe burn and pain).
• Eye burns:
  o Mix 50 cc of a 10% Calcium Gluconate solution in 500 cc of Normal Saline. Flush eyes using IV tubing, nasal cannula or Morgan lens.

• Inhalation injury:
  o Mix 3 cc of a 10% Calcium Gluconate solution with 6 cc of sterile water and administer via nebulizer.

REFERENCES:

• American Regent Laboratories, Inc. Calcium Gluconate Injection, USP 10% Package Insert Rev 2/00
D5W IV FLUID

PHARMACEUTICAL NAME: Dextrose Injection

CLASS: N/A

ACTIONS: Dextrose injection, USP is a sterile nonpyrogenic solution for fluid replenishment and caloric supply.

INDICATIONS:
- Source of water and calories

CONTRAINDICATIONS:
- Should not be administered simultaneously with blood through the same administration set because of the possibility of pseudoagglutination or hemolysis.

PRECAUTIONS:
- Patients with overt or subclinical diabetes mellitus
- Pregnant woman
- Administration can cause fluid and/or solute overloading resulting in dilution of serum electrolyte concentrations, overhydration, congested states or pulmonary edema.

ADVERSE REACTIONS:
- Febrile response
- Infection at the site of injection
- Venous thrombosis or phlebitis extending from the site of the injection
- Extravasation
- Hypervolemia

PHARMACOKINETICS: N/A

PREGNANCY CATEGORY: N/A

ROUTE OF ADMINISTRATION:
- IV
- IO

TECHNIQUE FOR ADMINISTRATION: N/A

REFERENCES:
Dextrose

PHARMACEUTICAL NAMES: Dextrose 50%

CLASS: Carbohydrate caloric agent

ACTIONS: A simple water-soluble sugar that minimizes glyconeogenesis and promotes anabolism in patients whose oral caloric intake is limited.

INDICATIONS:
• Hypoglycemia

CONTRAINDICATIONS:
• Patients with allergy to corn or corn products
• Patients in diabetic coma while glucose level remains excessively high
• Patients with intracranial or intraspinal hemorrhage
• Dehydrated patients with delirium tremens
• Patients with severe dehydration or anuria

PRECAUTIONS:
• Use cautiously in patients with cardiac or pulmonary disease, hypertension, renal insufficiency, urinary obstruction, or hypovolemia.

ADVERSE REACTIONS:
• CNS: unconsciousness in hyperosmolar hyperglycemic nonketotic syndrome, fever, confusion
• CV: worsened hypertension and heart failure with fluid overload in susceptible patients, phlebitis, venous sclerosis, tissue necrosis with prolonged or concentrated infusions, especially when given peripherally.
• GU: glycosuria, osmotic diuresis
• Metabolic: hypovolemia, hypervolemia, hyperglycemia, dehydration and hyperosmolarity with rapid infusion of concentrated solution or prolonged infusion.
• Respiratory: pulmonary edema
• Skin: sloughing and tissue necrosis if extravasation occurs with concentrated solutions.

PHARMACOKINETICS:
• IV/IO – Onset: immediate
  Peak: immediate
  Duration: unknown
• Half-life: unknown

PREGNANCY CATEGORY: “C”

TECHNIQUES FOR ADMINISTRATION:
• Improper administration of hypertonic solutions may lead to extravasation of fluid and a chemical phlebitis. This is a painful and potentially debilitating condition that can be minimized by vigilance on the part of the clinician.
• Care should be taken to insure that the IV catheter is well within the lumen of the vein and that extravasation does not occur.
• Concentrated dextrose solution is not be administered SQ or IM.
Adult:

1. Establish an IV line in a large vein, whenever possible, with a small-bore catheter, 20-22 gauge.
   a. DO NOT use a site distal to any unsuccessful venipuncture sites.
   b. DO NOT use a IV reseal without IV fluids attached and flowing.
   c. Avoid using the external jugular veins, unless necessary, as extravasation has the potential to cause airway problems.
2. Ensure that the IV catheter is placed well into the vein and adequately secured.
3. Test the patency of the IV line:
   a. Run 10 – 20 cc of IV fluid through the IV line and carefully check the site for signs of infiltration.
   b. Lower the IV bag below the level of the patient’s heart and ensure blood return into the IV tubing near the IV catheter.
4. Move any clothing covering the arm proximal to the IV site.
5. Dextrose must be administered slowly over at least 3 – 5 minutes through a patent running IV line. The IV line is not to be pinched shut during administration.
6. Regularly recheck the IV site and the area proximal to it, for signs of extravasation (ie. swelling, redness, etc.)
7. Stop and pinch the IV tubing, above the injection port through which the Dextrose is being administered, after every 10 cc of Dextrose and aspirate back on the syringe. You should get a blood return in the IV tubing. In the event a blood return does not occur, stop administration of the Dextrose and recheck the IV placement and patency before continuing the administration.

Pediatric:

1. Ages 1 – 12 years old:
   a. Mix 7.5cc of D50W in a 100cc bag of D5W to create D25W solution prior to administration.
   b. Administer 2 ml/kg. Reassess blood glucose level.
2. Ages < 1 year old:
   a. Mix 2.5cc of D50W in a 100cc bag of D5W to create D10W solution prior to administration.
   b. Administer 2 ml/kg. Reassess blood glucose level.
3. DO NOT USE NORMAL SALINE OR LACTATED RINGERS TO MAKE D25W OR D10W.
4. Stop and consider other alternatives if there is any question of the patency of the IV during the administration.

END POINTS:
- Improvement in mentation
- Normalization of serum glucose concentration

REFERENCES:
- Lippincott Williams and Wilkins Nursing 2009 Drug Handbook, Pages 1383 – 1384
Diazepam

PHARMACEUTICAL NAMES: Valium

CLASS: Benzodiazepine

ACTIONS: A benzodiazepine that probably potentiates the effects of GABA, depresses the CNS, and suppresses the spread of seizure activity.

INDICATIONS:
- Anxiety
- Acute Alcohol Withdraw
- Muscle Spasm
- Cardioversion
- Status epilepticus
- Cocaine intoxication with seizures

CONTRAINDICATIONS:
- Known hypersensitivity to the drug or soy protein.
- In pregnant women, especially in the first trimester
- In patients experiencing shock, coma, or acute alcohol intoxication
- Acute narrow angle glaucoma

PRECAUTIONS:
- Respiratory depressant effects are more pronounced when patient has ingested alcohol or other CNS depressant agents (phenothiazine, barbiturates, antidepressants, narcotics, MAO inhibitors).

ADVERSE REACTIONS:
- CNS: drowsiness, dysarthria, slurred speech, tremor, transient amnesia, fatigue, ataxia, headache, insomnia, paradoxical anxiety, hallucinations
- CV: cv collapse, bradycardia, hypotension
- EENT: diplopia, blurred vision, nystagmus
- GI: nausea, constipation
- GU: incontinence, urine retention
- Hematologic: neutropenia
- Hepatic: jaundice
- Respiratory: respiratory depression, apnea
- Skin: rash, phlebitis at injection site
- Other: altered libido, physical

PHARMACOKINETICS:
- IM – Onset: unknown Peak: 2 hr. Duration: unknown
- PR – Onset: unknown Peak: 90 mins. Duration: Unknown
- Half-life: 1 to 12 days

PREGNANCY CATEGORY: “D”
TECHNIQUES FOR ADMINISTRATION:
• Inject slowly, taking at least one minute for each 5 mg given
• If at all possible, avoid injecting into veins in the back of the hand or wrist as these sites are associated with a higher incidence of infiltration and phlebitis
• DO NOT mix or dilute diazepam with other solutions or drugs in a syringe
• Dose can be given rectally with a needleless syringe, when no IV is possible.

END POINTS:
• Cessation of seizure activity
• Reduction in agitation
• Sedation
• Relief of muscle spasm

REFERENCES:
• Elkins-Sinn Diazepam Injection, USP Product Insert Revised October 1994
• Lippincott Williams and Wilkins Nursing 2009 Drug Handbook, Pages 686 - 689
Diltiazem (Cardizem)

**PHARMACEUTICAL NAME:** Diltiazem, Cardizem

**CLASS:** Calcium Channel Blocker

**ACTIONS:** A calcium channel blocker that inhibits calcium ion influx across cardiac and smooth-muscle cells, decreasing myocardial contractility and oxygen demand. Drug also dilates coronary arteries and arterioles.

**INDICATIONS:**
- Paroxysmal supraventricular tachycardia
- Atrial Flutter
- Atrial Fibrillation

**CONTRAINDICATIONS:**
- Patients with sick sinus syndrome or second or third degree AV block except in the presence of a functioning ventricular pacemaker
- Blood pressure below 90 mm Hg
- Acute MI
- Cardiogenic shock
- Known hypersensitivity to the drug
- IV Diltiazem and IV beta-blockers should not be administered together or in close proximity (within a few hours)
- Patients with atrial fibrillation or atrial flutter associated with an accessory bypass tract such as in Wolff-Parkinson-White Syndrome or short PR syndrome
- Patients with ventricular tachycardia.
- Newborns, due to the presence of benzyl alcohol

**PRECAUTIONS:**
- Use cautiously in elderly patients and in those with heart failure or impaired hepatic or renal function

**ADVERSE REACTIONS:**
- **CNS:** headache, dizziness, asthenia, somnolence
- **CV:** edema, arrhythmias, AV Block, bradycardia, heart failure, flushing, hypotension, conduction abnormalities, abnormal ECG
- **GI:** nausea, constipation, abdominal discomfort
- **Hepatic:** acute hepatic injury
- **Skin:** rash

**PHARMACOKINETICS:**
- IV/IO – Onset: < 3 mins.
  - Peak: 2 – 7 mins.
  - Duration: 1 – 10 hrs.
- Half-life: 3 to 9 hrs.

**PREGNANCY CATEGORY:** "C"

**TECHNIQUE FOR ADMINISTRATION:**
- Reference the product mixing instruction insert.
REFERENCES:

Diphenhydramine Hydrochloride

PHARMACEUTICAL NAMES: Benadryl

CLASS: Ethanolamine

ACTIONS: Competes with histamine for H₁ receptor sites. Prevents, but doesn’t reverse, histamine-mediated responses, particularly those of the bronchial tubes, GI tract, uterus, and blood vessels. Structurally related to local anesthetics, drug provides local anesthesia and suppresses cough reflex.

INDICATIONS:
- Rhinitis
- Allergic reactions
- Motion sickness
- Antipsychotic-induced dystonia
- Parkinson’s disease
- Sedation

CONTRAINDICATIONS:
- Patients with angle-closure glaucoma
- Stenosing peptic ulcer
- During an asthma attack
- Patients taking MAO inhibitors

PRECAUTIONS:
- Increased intraocular pressure
- Hyperthyroidism
- CV disease
- Hypertension

ADVERSE REACTIONS:
- CNS: drowsiness, sedation, sleepiness, dizziness, incoordination, seizures, confusion, insomnia, headache, vertigo, fatigue, restlessness, tremor, nervousness
- CV: palpitations, hypotension, tachycardia
- EENT: diplopia, blurred vision, nasal congestion, tinnitus
- GI: dry mouth, nausea, epigastric distress, vomiting, diarrhea, constipation, anorexia
- GU: dysuria, urine retention, urinary frequency
- Hematologic: thrombocytopenia, agranulocytosis, hemolytic anemia
- Respiratory: thickening of the bronchial secretions
- Skin: urticaria, photosensitivity, rash
- Other: anaphylactic shock

PHARMACOKINETICS:
- IV/IO: Onset: immediate
  Peak: 1 – 4 hrs.
  Duration: 6 – 8 hrs.
- IM: Onset: Unknown
  Peak: 1 – 4 hrs.
  Duration: 6 – 8 hrs.
  Half-life: 2.4 to 9.3 hrs.

TECHNIQUES FOR ADMINISTRATION: N/A

PREGNANCY CATEGORY: “B”
REFERENCES:
**Dopamine**

**PHARMACEUTICAL NAMES:** N/A

**CLASS:** vasopressor - dose dependent alpha, beta, and dopaminergic agonist

**ACTIONS:** Stimulates dopaminergic, alpha and beta receptors of the sympathetic nervous system resulting in a positive inotropic effect and increased cardiac output. Action is dose-related; large doses cause mainly alpha stimulation.

**INDICATIONS:**
- Treat shock and correct hemodynamic imbalances
- Improve perfusion to vital organs
- Increase cardiac output

**CONTRAINDICATIONS:**
- Patients with uncorrected tachyarrhythmias
- Pheochromocytoma
- Ventricular fibrillation

**PRECAUTIONS:**
- Correct any volume deficit before instituting therapy with dopamine.
- Dopamine increases heart rate and can cause or exacerbate both supraventricular and ventricular dysrhythmias.

**ADVERSE REACTIONS:**
- **CNS:** headache, anxiety
- **CV:** hypotension, ventricular arrhythmias, ectopic beats, tachycardia, angina, palpitations, vasoconstriction
- **GI:** nausea, vomiting
- **Metabolic:** azotemia, hyperglycemia
- **Respiratory:** asthmatic episodes, dyspnea
- **Skin:** necrosis and tissue sloughing with extravasation, piloerection

**PHARMACOKINETICS:**
- IV – Onset: 5 mins.
  - Peak: Unknown
  - Duration: < 10 mins after infusion
- Half-life: 2 mins.

**PREGNANCY CATEGORY:** “C”

**TECHNIQUES FOR ADMINISTRATION:**
- Dopamine can cause tissue necrosis and sloughing
- Care should be taken to prevent infiltration or leakage at the infusion site.
- Infuse through a large, stable vein. Less suitable infusion sites should be used only if the patient’s condition requires immediate attention.
- May be deactivated by alkaline solutions (i.e. Sodium Bicarbonate and Furosemide)
- Titrate to patient response
END POINTS:
• Normotension
• Excessive tachycardia
• Ectopy
• Angina

REFERENCES:
• Lippincott Williams and Wilkins Nursing 2009 Drug Handbook, Pages 58, 463-465
Epinephrine

PHARMACEUTICAL NAMES: Epinephrine

CLASS: Vasopressor - adrenergic agonist

ACTIONS: Alpha and beta adrenergic agonist that simulates all the effects of the sympathetic nervous system except for those affecting the arteries of the face and the sweat glands; major sympathetic effects include: inotropy, chronotropy, peripheral vasoconstriction, increased cerebral blood flow in cardiac arrest, coronary vasodilatation, and bronchodilation.

INDICATIONS:
- Cardiac Arrest
- Bronchospasm
- Anaphylaxis
- Acute asthma attack

CONTRAINDICATIONS:
- Unstable angina
- Acute myocardial infarction
- Angle closure glaucoma
- Known hypersensitivity to sympathomimetic amines
- Patients in shock

PRECAUTIONS:
- Give cautiously in patients (especially elderly patients) with hypertension, tachycardia, diabetes, uncontrolled hyperthyroidism, or pregnancy.
- Keep solution protected from light prior to usage.
- DO NOT use the injection if its color is pinkish or darker than slightly yellow or if it contains a precipitate.

ADVERSE REACTIONS:
- CNS: drowsiness, headache, nervousness, tremor, cerebral hemorrhage, stroke, vertigo, pain, disorientation, agitation, fear, dizziness, weakness
- CV: palpitations, ventricular fibrillation, shock, widened pulse pressure, hypertension, tachycardia, anginal pain, altered ECG (including a decreased T-wave amplitude)
- GI: nausea, vomiting
- Respiratory: dyspnea
- Skin: urticaria, hemorrhage at injection site, pallor
- Other: tissue necrosis

PHARMACOKINETICS:
- IV: Onset – immediate
  Peak – 5 mins.
  Duration – short
- IM: Onset – variable
  Peak – 5 mins.
  Duration – 1 – 4 hrs.
  Peak – 30 mins.
  Duration – 1- 4 hrs.
- Half – Life : Unknown

PREGNANCY CATEGORY: “C”

TECHNIQUES FOR ADMINISTRATION:
- IM: Massage site after IM injection to counteract vasoconstriction
Etomidate

PHARMACEUTICAL NAMES: Etomidate (Amidate, Hypnomidate)

CLASS: Ultra-short acting nonbarbiturate sedative hypnotic

ACTIONS: Sedative-hypnotic agent without analgesic or amnestic effects; causes minimal hemodynamic effects; minimal respiratory depressant effects; lowers intracranial pressure and cerebral metabolic rate of oxygen consumption.

INDICATIONS:
- Use for adult and pediatric patients requiring:
  - Rapid Sequence Intubation per protocol
  - Sedative Facilitated Intubation per protocol
  - Other procedural sedation as ordered per OLMC (Example: cardioversion)

CONTRAINDICATIONS:
- Known hypersensitivity to the drug

PRECAUTIONS:
- Use with caution in elderly patients, particularly if they are hypotensive; these patients are at higher risk for cardiac depression
- Use with caution in hypotensive patients, though minimal cardiovascular effects are observed
- Use with caution in combination with other CNS depressant medications
- Use carefully in adequately spontaneously breathing patients who may be at high risk for difficult intubation if respirations are suppressed (Example: severe facial trauma), although Facilitated Intubation using Etomidate may often be preferable to RSI in these patients.

ADVERSE REACTIONS:
- Cardiac depression, mostly in the elderly
- Respiratory suppression, though rare
- Decreased seizure threshold, though very low incidence

SIDE EFFECTS:
- Vomiting, though infrequent
- Muscle twitching (not seizure activity), usually when drug pushed over less than 20 to 30 seconds

PHARMACOKINETICS:
- Intravenous (IV) or intraosseous (IO) route
  - Onset of effect: 30 to 60 seconds
  - Duration of effect: 3 to 5 minutes (occasionally up to 10 minutes)

NOTE: When used as part of RSI protocol, note that Etomidate administration should be followed by administration of a longer acting sedative for amnestic properties and continued sedation if paralysis is to be continued.

TECHNIQUES OF ADMINISTRATION: N/A
END POINTS: N/A

REFERENCES:

- Bozeman WP; Lamsens SD; Young S; “Efficacy of etomidate as a sole agent for emergency endotracheal intubation in the out-of-hospital aeromedical setting”; abstract in Annals of Emergency Medicine, 2000 October; 36(4)
- Kociszewski C; Thomas SH; Harrison T; Wedel K; “Etomidate versus Succinylcholine for intubation in an air medical setting”; American Journal of Emergency Medicine, 2000 November; 18(7) 757-63
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- Sokolove PE; Price DD; Okada P; “The safety of etomidate for emergency rapid sequence intubation of pediatric patients”; Pediatric Emergency Care, 2000 February; 16(1): 18-21
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- Swanson E; Fosnocht D; Neff RJ; “The use of etomidate for rapid-sequence intubation in the air medical setting”; Prehospital Emergency Care, 2001 April-June; 5(2): 142-46
- Reed DB; Snyder G; Hogue TD; “Regional EMS experience with etomidate for facilitated intubation”; Prehospital Emergency Care, 2002 Jan.-Mar.; 6(1): 50-3
- Vinson DR; Bradbury DR; “Etomidate for procedural sedation in emergency medicine”; Annals of Emergency Medicine, 2002 June; 38(6): 592-8
**Fentanyl**

**PHARMACEUTICAL BRAND NAME:** Fentanyl (Sublimaze)

**CLASS:** Opiate analgesic/narcotic receptor agonist

**ACTIONS:** Unknown. Binds with opioid receptors in the CNS, altering perception of and emotional response to pain.

**INDICATIONS:**
- To manage breakthrough cancer pain in patients already receiving and tolerating an opioid
- Relief of pain due to trauma and/or myocardial ischemia or other disease processes
- Part of the Rapid Sequence Intubation Procedure and/or Facilitated Intubation Procedure

**CONTRAINDICATIONS:**
- Contraindicated in patients intolerant to drug.
- Fentanyl does not cross-react with morphine; therefore it can be administered to patients allergic to morphine

**PRECAUTIONS:**
- Use carefully in adequately spontaneously breathing patients who may be at high risk for difficult intubation if respirations are suppressed (Example: severe facial trauma)
- Use with caution in patients with known kidney or liver dysfunction (use smaller doses)
- Use with caution in hemodynamically unstable patients (use smaller doses)
- Use with caution in combination with other CNS depressant medications, such as Diazepam, Etomidate, Lorazepam, and Midazolam or other prescription sedatives or analgesics
- Use with caution in the elderly due to increased sensitivity to drug (use smaller doses)

**ADVERSE REACTIONS:**
- **CNS:** asthenia, clouded sensorium, confusion, euphoria, sedation, somnolence, seizures, anxiety, depression, dizziness, hallucinations, headache, nervousness.
- **CV:** arrhythmias, chest pain, hypertension, hypotension
- **GI:** constipation, abdominal pain, anorexia, diarrhea, dyspepsia, dry mouth, ileus, nausea, vomiting
- **GU:** urine retention
- **Musculoskeletal:** skeletal muscle rigidity (dose-related)
- **Respiratory:** apnea, hypoventilation, respiratory depression, dyspnea
- **Skin:** diaphoresis, pruritus

**PHARMACOKINETICS:**
- Half-life: 3 ½ hrs IV – 5 to 15 hrs after transdermal use
PREGNANCY CATEGORY: "C"

REFERENCES:
• DeVellis P; Thomas SH; Wedel SK; “Prehospital and emergency department analgesia for air-transported patients with fractures. Prehospital Emergency Care, 1998 Oct.-Dec.; 2(4): 293-6
• DeVellis, P; Thomas SH; Wedel SK; Stein JP; Vinci RJ; “Prehospital fentanyl analgesia in air-transported pediatric trauma patients. Pediatric Emergency Care, 1998 Oct; 14(5): 321-3
• Lippincott Williams and Wilkins Nursing 2009 Drug Handbook, Pages 52, 744 – 747
**Furosemide**

**PHARMACEUTICAL NAMES:** Lasix

**CLASS:** diuretic - Loop of Henle

**ACTIONS:** Loop diuretics inhibit sodium and chloride reabsorption in the ascending loop of Henle, thus increasing excretion of sodium, chloride and water. Like thiazide diuretics, loop diuretics increase excretion of potassium. Loop diuretics produce more diuresis and electrolyte loss than thiazide diuretics.

**INDICATIONS:**
- Acute pulmonary edema
- Edema
- Hypertension

**CONTRAINDICATIONS:**
- Anuria
- Known hypersensitivity to the drug
- Patients with hepatic cirrhosis

**PRECAUTIONS:**
- Patients allergic to sulfonamides
- Patients with hepatic cirrhosis

**ADVERSE REACTIONS:**
- **CNS:** vertigo, headache, dizziness, paresthesia, weakness, restlessness, fever
- **CV:** orthostatic hypotension, thrombophlebitis
- **EENT:** transient deafness, blurred or yellow vision, tinnitus
- **GI:** abdominal discomfort and pain, diarrhea, anorexia, nausea, vomiting, constipation
- **GU:** azotemia, nocturia, polyuria, frequent urination, oliguria
- **Hematologic:** agranulcytosis, aplastic anemia, leucopenia
- **Hepatic:** hepatic dysfunction, jaundice
- **Metabolic:** volume depletion, dehydration, asymptomatic hyperuricemia, impaired glucose tolerance, hypokalemia, hypochloremic alkalosis, hyperglycemia, dilutional hyponatremia, hypocalcemia
- **Musculoskeletal:** muscle spasm
- **Skin:** dermatitis, purpura, photosensitivity reactions, transient pain at IM injection site
- **Other:** gout

**PHARMACOKINETICS:**
- IV/IO – Onset: within 5 mins.
  - Peak: 30 mins.
  - Duration: 2 hrs.
- Half-life: 30 mins.

**PREGNANCY CATEGORY:** “C”

**TECHNIQUES OF ADMINISTRATION:**
- Administer slow IV push over 1 – 2 minutes.

**END POINTS:** N/A
REFERENCES:
**Glucagon**

**PHARMACEUTICAL NAMES:** GlucaGen

**CLASS:** Antihypoglycemic

**ACTIONS:** Raises blood glucose level by promoting catalytic depolymerization of hepatic glycogen to glucose. Relaxes the smooth muscle of the stomach, duodenum, small bowel and colon.

**INDICATIONS:**
- Hypoglycemia
- Beta blocker or calcium channel blocker overdose with hemodynamic instability

**CONTRAINDICATIONS:**
- Known pheochromocytoma (produces hypertensive reaction)
- Known hypersensitivity to the drug

**PRECAUTIONS:** N/A

**ADVERSE REACTIONS:**
- CV: hypotension
- GI: nausea, vomiting
- Respiratory: bronchospasm, respiratory distress
- Other: hypersensitivity reactions

**PHARMACOKINETICS:**
- IV – Onset: immediate
  - Peak: 30 mins.
  - Duration: 60 – 90 mins.
- IM – Onset: 4 – 10 mins.
  - Peak: 13 mins.
  - Duration: 12 – 32 mins.
- SQ – Onset: 4 – 10 mins.
  - Peak: 20 mins.
  - Duration: 12 – 32 mins.
- Half-life – 8 to 18 mins.

**PREGNANCY CATEGORY:** “B”

**TECHNIQUES FOR ADMINISTRATION:**
- GlucaGen should be reconstituted with the supplied 1 ml of Sterile Water for Reconstitution
- Draw up all of the sterile water for reconstitution with syringe and inject into the GlucaGen vial
- Roll the vial gently until powder is completely dissolved and no particles remain in the fluid
- The reconstituted GlucaGen gives a concentration of approximately 1 mg / ml Glucagon
- **Sterile Water is the only fluid to be used for Reconstitution.**

**END POINTS:**
- Improvement in mental status
- Relief of partial esophageal obstruction

**REFERENCES:**
- Bedford Laboratories GlucaGen Product Insert July 1999
- Lippincott Williams and Wilkins Nursing 2009 Drug Handbook, Pages 1055 - 1056
PHARMACEUTICAL NAMES: Haldol, Haloperidol Decanoate, Haloperidol Lactate

CLASS: phenylbutylpiperidine derivative

ACTIONS: A butyrophenone that probably exerts antipsychotic effects by blocking postsynaptic dopamine receptors in the brain.

INDICATIONS:
- Psychotic disorders
- Tourette syndrome
- Delirium

CONTRAINDICATIONS:
- Known hypersensitivity to the drug
- CNS depression
- Comatose states
- Parkinson's Disease

PRECAUTIONS:
- Elderly and debilitated patients
- Patients with history of seizures or EEG abnormalities
- Severe cardiovascular disorders
- In patients taking anticonvulsants, antiparkinsonians or lithium
- Haloperidol lowers the seizure threshold, thus increasing the probability that a patient with a preexisting seizure disorder will experience a seizure (Valium may be the preferred tranquilizer of choice in seizure patients)

ADVERSE REACTIONS:
- CNS: severe extrapyramidal reactions, tardive dyskinesia, neuroleptic malignant syndrome, seizures, sedation, drowsiness, lethargy, headache, insomnia, confusion, vertigo
- CV: tachycardia, hypotension, hypertension, ECG changes, torsades de pointes (with IV use).
- EENT: blurred vision
- GI: dry mouth, anorexia, constipation, diarrhea, nausea, vomiting, dyspepsia
- GU: urine retention, menstrual irregularities, priapism
- Hematologic: leukopenia, leukocytosis
- Hepatic: jaundice
- Skin: rash, other skin reactions, diaphoresis
- Other: gynecomastia

PHARMACOKINETICS:
- IV/IO – Onset: unknown
  Peak: unknown
  Duration: unknown
- IM – Onset: unknown
  Peak: 10 – 20 mins.
  Duration: unknown
- Half-life: IM 21 hrs.

PREGNANCY CATEGORY: “C”
TECHNIQUES FOR ADMINISTRATION:
• Only Haloperidol Lactate can be given IV.
• Protect drug from light. Slight yellowing of injection is common and does not affect potency.
  Discard very discolored solutions.

END POINTS: N/A

REFERENCES:
• Lippincott Williams and Wilkins Nursing 2009 Drug Handbook, Pages 659 – 660
Hydroxocobalamin

PHARMACEUTICAL NAMES: Cyanokit®

CLASS: Vitamins and Minerals

ACTIONS: The action of Cyanokit in the treatment of Cyanide poisoning is based on its ability to bind cyanide ions. Each hydroxocobalamin molecule can bind one cyanide ion by substituting if for the hydroxo ligand linked to the trivalent cobalt ion, to form cyanocobalamin, which is then excreted in the urine.

INDICATIONS: Indicated for the treatment of known or suspected Cyanide poisoning

CONTRAINDICATIONS: None

PRECAUTIONS:
- Known hypersensitivity to hydroxocobalamin or cyanocobalamin
- Increased blood pressure
- Hydroxocobalamin absorbs visible light in the UV spectrum. It therefore has potential to cause photosensitivity.

ADVERSE REACTIONS:
- Allergic reaction
- Increase in blood pressure
- Eye disorders: swelling, irritation, redness
- Gastrointestinal disorders: dysphagia, abdominal discomfort, vomiting, diarrhea, dyspepsia, hematochezia
- General disorders and administration site conditions: peripheral edema, chest discomfort
- Immune system disorders: allergic reaction
- Nervous system disorders: memory impairment, dizziness
- Psychiatric disorders: restlessness
- Respiratory, thoracic and mediastinal disorders: dyspnea, throat tightness, dry throat
- Skin and subcutaneous tissue disorders: urticaria, pruritus
- Vascular disorders: hot, flush

ROUTES OF ADMINISTRATION: IV

PREGNANCY CATEGORY: “C” – There are no adequate and well controlled studies in pregnant women. Cyanokit should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.
TECHNIQUES FOR ADMINISTRATION:

• Cyanide poisoning should be suspected in any person exposed to smoke in a closed-space at the scene of a fire, regardless of whether burns have been sustained.
• Soot in the mouth and around the nose, combined with altered level of consciousness, also suggests a high probability of cyanide toxicity.
• Consult with Poison Control as needed 1-800-222-1222.
• Cyanokit administration:
  1. Determine the need for either one or two vials (ie., dose required).
  2. Per vial, reconstitute: Add 100 ml of 0.9% Sodium Chloride injection (Lactated Ringers or 5% Dextrose (D5W) have also been found to be compatible) to vial using transfer spike. Fill to line. Holding vial in upright position:
  3. Mix: Rock or rotate vial for 30 seconds to mix solution. DO NOT SHAKE!!!!!!!
  4. Inspect mixed vial for particulate matter and color prior to administration. If the reconstituted solution is not dark red or if particulate matter is seen after the solution has been appropriately mixed, the solution should be discarded.
  5. Infusion: Use vented IV tubing to hang and infuse over 7.5 minutes (per vial).
  6. Peds (calculated dose 70 mg/kg up to adult dose of 5 grams): After mixing, draw off the unneeded amount (see dose chart).
  7. Cyanokit is to be administered through a dedicated line. No other medications are to be administered through the same line.
• Parallel administration of ACLS medications and the Cyanokit should occur for patients in cardiac arrest. The Cyanokit is to be administered via a dedicated IV line.

END POINTS: N/A

REFERENCES:

• DEY Laboratory Cyanokit Package Insert 12/2006
• Lippincott Williams and Wilkins Nursing 2009 Drug Handbook, Pages 1432-1433
Ipratropium Bromide

PHARMACEUTICAL NAME(S): Atrovent

ACTION: Inhibits vagally mediated reflexes by antagonizing acetylcholine at muscarinic receptors on bronchial smooth muscle

INDICATIONS:
• Bronchospasm in chronic bronchitis and emphysema

CONTRAINDICATIONS:
• Known hypersensitivity to the drug, atropine, or its derivatives.
• Patients who are allergic to peanuts, frequently are allergic to Ipratropium that contains a preservative called Soya Lecithin. The brand of Ipratropium utilized in the system is preservative free, therefore can be utilized even with those who have an allergy to peanuts.

PRECAUTIONS:
• Patients with narrow angle glaucoma
• Use with caution in patients with glaucoma, prostatic hypertrophy, nursing mothers, age under 12. No known drug interactions, and overdose unlikely (tested to 40 times normal dose).

ADVERSE REACTIONS:
• CNS: dizziness, pain, headache, nervousness
• CV: palpitations, hypertension, chest pain
• EENT: blurred vision, rhinitis, pharyngitis, sinusitis, epistaxis
• GI: nausea, GI distress, dry mouth
• Musculoskeletal: back pain
• Respiratory: upper respiratory tract infection, bronchitis, bronchospasm, cough, dyspnea, increased sputum
• Skin: rash
• Other: flu-like symptoms, hypersensitivity reactions

PHARMACOKINETICS:
• Inhalation – Onset: 5 – 15 mins.
  Peak: 1 – 2 hrs.
  Duration: 3 – 6 hrs.
• Half-Life – about 2 hrs.

PREGNANCY CATEGORY: “B”

TECHNIQUES FOR ADMINISTRATION:
• Temporary blurring of vision, precipitation or worsening of narrow-angle glaucoma or eye pain.
• Use of a nebulizer with a mouthpiece rather than a face mask may be preferable, to reduce the likelihood of the nebulizer solution coming into direct contact with the eyes.

END POINTS:
• Improvement in air exchange
• Reduction or elimination of wheezing.

REFERENCES:
• DEY Ipratropium Bromide Inhalation Solution 0.02% Product Insert April 1998
• Lippincott Williams and Wilkins Nursing 2009 Drug Handbook, Pages 849 – 850
Lidocaine

PHARMACEUTICAL NAMES: N/A

CLASS: Antiarrhythmic

ACTIONS: A class IB antiarrhythmic that decreases the depolarization, automaticity, and excitability in the ventricles during the diastolic phase by direct action on the tissue, especially the Purkinje network.

INDICATIONS:
- Ventricular arrhythmias caused by MI, cardiac manipulation, or cardiac glycosides

CONTRAINDICATIONS:
- Patients with Adam-Stokes syndrome, Wolff-Parkinson-White syndrome, and severe SA, AV, or intraventricular block if a pacemaker is not already in place
- Patients hypersensitive to amide-type anesthetics
- Known hypersensitivity to the drug

PRECAUTIONS:
- Use cautiously and at reduced dosages in patients with complete or second-degree heart block or sinus bradycardia, in elderly patients, in those with heart failure or renal or hepatic disease and in those who weigh less than 50 kg.

ADVERSE REACTIONS:
- CNS: confusion, tremor, stupor, restlessness, light-headedness, seizures, lethargy, somnolence, anxiety, hallucinations, nervousness, paresthesia, muscle twitching
- CV: hypotension, bradycardia, new or worsened arrhythmias, cardiac arrest
- EENT: tinnitus, blurred or double vision
- GI: vomiting
- Respiratory: respiratory depression and arrest
- Skin: soreness at injection site
- Other: anaphylaxis, sensation of cold

PHARMACOKINETICS:
- IV/IO – Onset: immediate
  - Peak: immediate
  - Duration: 10 – 20 mins.
- Half-life – 1.5 to 2 hrs. (may be prolonged in patients with heart failure or hepatic disease)

PREGNANCY CATEGORY: “B”

TECHNIQUES FOR ADMINISTRATION: N/A

END POINTS:
- Termination of ventricular tachycardia
- Suppression of ventricular ectopy to the point where it does not impact upon hemodynamics.

REFERENCES:
- Lippincott Williams and Wilkins Nursing 2009 Drug Handbook, Pages 24, 345 – 346
Magnesium Sulfate

PHARMACEUTICAL NAME: Magnesium Sulfate

CLASS: Magnesium salt

ACTIONS: Replaces magnesium and maintains magnesium level; as an anticonvulsant, reduces muscle contractions by interfering with release of acetylcholine at myoneural junction.

INDICATIONS:
- Mild hypomagnesemia
- Symptomatic severe hypomagnesemia
- Torsades de Pointes
- Refractory Ventricular Fibrillation
- Prevention or control of seizure in toxemia of pregnancy
- Suppression of uterine contractions in premature labor

CONTRAINDICATIONS:
- Contraindicated in patients with myocardial damage or heart block, coma, and in pregnant women in actively progressing labor.

PRECAUTIONS:
- Impaired renal function

ADVERSE REACTIONS:
- CNS: toxicity, weak or absent deep tendon reflexes, flaccid paralysis, drowsiness, stupor
- CV: slow, weak pulse, arrhythmias, hypotension, circulatory collapse, flushing
- GI: diarrhea
- Metabolic: hypocalcemia
- Respiratory: respiratory paralysis
- Skin: diaphoresis
- Other: hypothermia

PHARMACOKINETICS:
- IV – Onset: immediate
  Peak: unknown
  Duration: 30 mins.
- IM – Onset: 1 hr.
  Peak: unknown
  Duration: 3 – 4 hrs.
- Half-life: unknown

PREGNANCY CATEGORY: “D”

TECHNIQUE FOR ADMINISTRATION:
- Mix 2 grams in 100 ml D5W and administer over at least two minutes

REFERENCES:
Methylene Blue 1%

PHARMACEUTICAL BRAND NAME: Methylene Blue

ACTIONS: Low concentrations will convert methemoglobin to hemoglobin. High concentrations convert ferrous iron of hemoglobin to ferric iron, thus forming methemoglobin.

INDICATIONS:
- Initial treatment of methemoglobinemia
- Nitrogen compound poisoning

CONTRAINDICATIONS:
- Known sensitivity
- Renal insufficiency
- G6PD deficiency

PRECAUTIONS:
- Administer cautiously in patients with renal impairment.
- Avoid extravasation or SQ injection as tissue necrosis can occur.

SIDE EFFECTS/ADVERSE REACTIONS:
- CNS
  - Dizziness
  - Headache
  - Profuse sweating
  - Tremor
  - Anxiety
- CV
  - Chest pain
  - Hypertension
  - Dyspnea
  - Cyanosis
- GI
  - Nausea
  - Vomiting
  - Diarrhea
  - Abdominal pain
  - May induce hemolysis in patients deficient in glucose-6-phosphate dehydrogenase
- GU
  - Blue-green in color urine and stool
  - Renal calculi
- Skin
  - Thrombophlebitis
ROUTES OF ADMINISTRATION:

- IV (slow push)

TECHNIQUES FOR ADMINISTRATION:

- None

REFERENCES:

- Faulding Pharmaceuticals Methylene Blue Injection, USP 1% Package Insert Rev April 1996
- Taylor Pharmaceuticals Methylene Blue Injection, USP 1% Package Insert Rev 5/98
Methylprednisolone Sodium Succinate for Injection

PHARMACEUTICAL NAME: Solu-Medrol, A-Methapred

ACTION: Not clearly defined. Decreases inflammation, mainly by stabilizing leukocyte lysosomal membranes; suppresses immune response; stimulates bone marrow; and influences protein, fat, and carbohydrate metabolism

CLASS: Glucocorticoid

INDICATIONS:
- Bronchial asthma
- Allergic reactions
- Other bronchospastic disorders

CONTRAINDICATIONS:
- Premature infants
- Systemic fungal infections
- Known hypersensitivity to the drug or its ingredients

PRECAUTIONS: N/A

ADVERSE REACTIONS:
- **CNS**: euphoria, insomnia, psychotic behavior, pseudotumor cerebri, vertigo, headache, paresthesia, seizures
- **CV**: arrhythmias, heart failure, hypertension, edema, thrombophlebitis, thrombo-embolism cardiac arrest, circulatory collapse after rapid use of large IV dose.
- **EENT**: cataracts, glaucoma
- **GI**: peptic ulceration, GI irritation, increased appetite, pancreatitis, nausea, vomiting
- **GU**: menstrual irregularities
- **Metabolic**: hypokalemia, hyperglycemia, carbohydrate intolerance, hypercholesterolemia, hypocalcemia
- **Musculoskeletal**: growth suppression in children, muscle weakness, osteoporosis
- **Skin**: hirsutism, delayed wound healing, acne, various skin disruptions
- **Other**: cushingoid state, susceptibility to infections, acute renal insufficiency after increased stress or abrupt withdrawal after long-term therapy.

PHARMACOKINETICS:
- **IV** – Onset: Rapid
  - Peak: Immediate
  - Duration: 1 week
- **IM** – Onset: 6 – 48 hrs.
  - Peak: 4 – 8 days
  - Duration: 4 – 8 days
- **Half-Life**: 18 to 36 hrs.

PREGNANCY CATEGORY: “C”
TECHNIQUE OF ADMINISTRATION:
1. Remove protective cap. Give the plunger-stopper a quarter turn and press to force diluent into the lower compartment.
2. Gently agitate solution.
3. Sterilize top of the plunger-stopper with an alcohol wipe
4. Invert vial.
5. Insert needle squarely through center of plunger-stopper until the tip is just visible.
6. Withdraw dose
7. Administer direct injection over at least 1 minute.
8. IM administration: Give injection deeply into gluteal muscle. Avoid subcutaneous injection because atrophy and sterile abscesses may occur.

END POINTS: N/A

REFERENCES:
• Lippincott Williams and Wilkins Nursing 2009 Drug Handbook, Pages 42, 1083 - 1086
Morphine Sulfate

PHARMACEUTICAL NAMES: Morphine sulfate

CLASS: Opioid

ACTIONS: Unknown. Binds with opioid receptors in the CNS, altering perception of and emotional response to pain.

INDICATIONS:
- Relieve severe, acute pain or severe, chronic pain
- Morphine is the drug of choice in relieving MI pain

CONTRAINDICATIONS:
- Known hypersensitivity to the drug
- Patients with GI obstruction

PRECAUTIONS:
- Use with caution in elderly or debilitated patients and in those with head injury, increased intracranial pressure, seizures, chronic pulmonary disease, prostatic hyperplasia, severe hepatic or renal disease, acute abdominal conditions, hypothyroidism, Addison’s disease, and urethral stricture.
- Use with caution in patients with circulatory shock, biliary tract disease, CNS depression, toxic psychosis, acute alcoholism, delirium tremens and seizure disorders.
- Morphine may worsen or mask gallbladder pain.

ADVERSE REACTIONS:
- CNS: dizziness, euphoria, light-headedness, nightmares, sedation, somnolence, seizures, depression, hallucinations, nervousness, physical dependence, syncope
- CV: bradycardia, cardiac arrest, shock, hypotension, tachycardia
- GI: constipation, nausea, vomiting, anorexia, biliary tract spasms, dry mouth, ileus
- GU: urine retention
- Hematologic: thrombocytopenia
- Respiratory: apnea, respiratory arrest, respiratory depression
- Skin: diaphoresis, edema, pruritus, skin flushing
- Other: decreased libido

PHARMACOKINETICS:
- Half-life: 2 to 3 hrs.

PREGNANCY CATEGORY: “C”

TECHNIQUES FOR ADMINISTRATION:
- Give with IV line flowing wide open during administration
REFERENCES:
- Lippincott Williams and Wilkins Nursing 2009 Drug Handbook, Pages 52, 753 – 756
Naloxone Hydrochloride

PHARMACEUTICAL NAMES: Narcan

CLASS: Opioid antagonist

ACTIONS: May displace opioid analgesics from their receptors (competitive antagonism); drug has no pharmacologic activity of its own.

INDICATIONS:
- Patients with known or suspected opioid induced respiratory depression, including that caused by pentazocine and propoxyphene.
- Note: Not indicated for intubated patients with known or suspected narcotic overdose unless hemodynamically unstable.

CONTRAINDICATIONS:
- Known hypersensitivity to the drug

PRECAUTIONS:
- Use cautiously in patients with cardiac irritability or opioid addiction
- Abrupt reversal of opioid-induced CNS depression may result in nausea, vomiting, diaphoresis, tachycardia, CNS excitement, and increased blood pressure.

ADVERSE REACTIONS:
- CNS: seizures, tremors
- CV: ventricular fibrillation, tachycardia, hypertension with higher than recommended doses, hypotension
- GI: nausea, vomiting
- Respiratory: pulmonary edema
- Skin: diaphoresis
- Other: withdrawl symptoms in opioid dependent patients with higher than recommended doses.

PHARMACOKINETICS:
- IV/IO – Onset: 1 – 2 mins.  
  Peak: 5 – 15 mins.  
  Duration: variable
- IM/SQ – Onset: 2 – 5 mins.  
  Peak: 5 – 15 mins.  
  Duration: variable
- IN – Onset: 5 – 7 mins.  
  Half-life: 30 to 81 mins. in adults; 3 hrs in neonates

PREGNANCY CATEGORY: “C”

TECHNIQUES FOR ADMINISTRATION:
- Intranasal – Deliver no more than one cc of fluid volume in each nostril.
- Preferred for combative patients or those with specific blood and body fluid concerns or in whom IV access for other reasons is not expected.
- Some patients who do not show response to IN Naloxone within 5 mins., may require further Naloxone to be administered IV. Incidence of this may be decreased by carefully screening patients for relative contraindications for administration of intranasal (IN) drugs.
REFERENCES:
Nitroglycerin

PHARMACEUTICAL NAMES: Nitrolingual Pumpspray

CLASS: antianginal - organic nitrate

ACTION: A nitrate that reduces cardiac oxygen demand by decreasing left ventricular end-diastolic pressure (preload) and, to a lesser extent, systemic vascular resistance (after-load). Also increases blood flow through the collateral coronary vessels.

INDICATIONS:
- Angina pectoris
- Heart failure after myocardial infarction

CONTRAINDICATIONS:
- DO NOT USE IF PATIENT USES VIAGRA. (OLMC CONSULT)
- Orthostatic hypotension
- Increased intracranial pressure
- Hypersensitivity to nitrates

PRECAUTIONS:
- Sever hypotension, particularly with upright posture, may occur even with small doses of nitroglycerin.
- Paradoxical bradycardia and increased angina pectoris may accompany nitroglycerin induced hypotension.
- Volume depleted patients may experience exaggerated hypotensive response to nitroglycerin; the spray should not be inhaled.

ADVERSE REACTIONS:
- CNS: headache, dizziness, syncope, weakness
- CV: orthostatic hypotension, tachycardia, flushing, palpitations
- EENT: S.L. burning
- GI: Nausea, vomiting
- Skin: cutaneous vasodilation, contact dermatitis, rash
- Other: hypersensitivity reactions

PHARMACOKINETICS:
- S.L. – Onset: 1 – 3 mins.
  Peak: Unknown
  Duration: 30 – 60 mins.
- Half-life: about 1 to 4 mins.

PREGNANCY CATEGORY: “C”

TECHNIQUES FOR ADMINISTRATION:
- DO NOT SHAKE
- Hold the container upright with the forefinger on top of the grooved button
- Have the patient open their mouth and bring the container as close as possible
- Press the button firmly with the forefinger to release the spray onto or under the tongue. DO NOT INHALE THE SPRAY.
- Release the button and have the patient close their mouth.
- Ask the patient not to swallow for about 10 seconds.
END POINTS:
- Cessation of cardiac chest pain or anginal equivalent
- Improvement in cardiogenic pulmonary edema

REFERENCES:
- Horizon Pharmaceutical Corporation Nitrolingual Pumpspray Product Insert Rev. 8/99
- Lippincott Williams and Wilkins Nursing 2009 Drug Handbook, Pages 322 – 324
Ondansetron

PHARMACEUTICAL NAMES: Zofran

CLASS: Antiemetic, Selective serotonin (5-HT3) receptor antagonist

ACTIONS: Block serotonin stimulation centrally in the chemoreceptor trigger zone and peripherally in vagal nerve terminals.

INDICATIONS:
- Treatment of undifferentiated nausea and vomiting
- Prevention of nausea and vomiting prior to administration of emetogenic drugs such as chemotherapeutic agents
- Note: Ondansetron is NOT effective for motion sickness/vertigo

CONTRAINDICATIONS:
- Hypersensitivity to ondansetron

PRECAUTIONS:
- May be used in pregnancy, but only when absolutely necessary. (Example: Nauseated patient requiring spinal motion restriction)
- May mask symptoms of bowel obstruction or ileus
- Use caution in patients with known prolonged QT syndrome or those on medications that may prolong QT. (Examples include: antiarrhythmics such as procainamide and quinidine, tricyclic antidepressants, major tranquilizers such as haldol and thorazine, promethazine, erythromycin, fluoroquinolone antibiotics such as cipro and floxin.)
- Use with caution in patients with known hypokalemia and/or hypomagnesemia
- All patients receiving ondansetron should be placed on cardiac monitor

ADVERSE REACTIONS:
- Anaphylaxis
- Prolongation of QT interval/Torsades
- Rare dystonic reactions
- Sudden onset of temporary blindness, which is usually self-limited. Thought to be related to too rapid administration.

SIDE EFFECTS:
- Headache
- Fever
- Hiccups
- Occasional rash

PHARMACOKINETICS:
- IV - Onset: immediate
  Peak: 10 minutes
  Half-life: 4 hrs.
  Duration of action: 6 to 8 hours in normally metabolizing patients. May be prolonged in presence of moderate to severe liver dysfunction.
ROUTES OF ADMINISTRATION:
- IV
- IM (adults and children > 40 kg)

TECHNIQUES FOR ADMINISTRATION:
- Administer undiluted drug slow IV push over no less than 2 to 5 minutes
- Administer undiluted drug IM

REFERENCES:
- Lippincott Williams and Wilkins Nursing 2009 Drug Handbook, Pages 30, 907-909
Pralidoxime

**PHARMACEUTICAL BRAND NAME:** 2-Pam, Protopam Chloride, 2 – Pyridine, Aldoxime Methocholide

**ACTIONS:** Reactivates cholinesterase that has been deactivated by organophosphorus pesticides and related products, permitting degradation of accumulated acetylcholine and facilitating normal functioning of neuromuscular junctions.

**INDICATIONS:**
- Organophosphate toxicity
- Nerve gas agents (Sarin, Soman, Tabun, VX, etc.)
- Tacrine toxicity

**CONTRAINDICATIONS:**
- Hypersensitivity to the drug
- SEVIN (a carbonate insecticide) poisoning
- Phosphorus or inorganic phosphorus poisoning
- Organic phosphates without anticholinesterase activity

**PRECAUTIONS:**
- Asthma history
- Myasthenia gravis
- Renal insufficiency
- Peptic ulcers
- Use cautiously in patients:
  - On respiratory depressant medications (Morphine, Demerol, etc.)

**SIDE EFFECTS/ADVERSE REACTIONS:**
- CNS
  - Dizziness
  - Headache
  - Drowsiness
- CV
  - Tachycardia
- EENT
  - Blurred vision
  - Diplopia
  - Impaired accommodation
- GI
  - Nausea
- Hepatic
  - Transient elevation of liver enzyme levels
• Musculoskeletal
  o Muscular weakness
• Respiratory
  o Hyperventilation
• Other
  o Mild to moderate pain at injection site

**ROUTES OF ADMINISTRATION:**

• IV
• IM (mass casualty) IV bolus preferred route

**TECHNIQUES FOR ADMINISTRATION:**

• Reconstitute by adding 20 ml of sterile water for injection to the vial containing 1 g of drug. Further dilute the medication by adding to 100ml of normal saline solution. Infuse of 15 – 30 minutes.
• If patient has pulmonary edema, give drug by slow I.V. push over 5 minutes. DO NOT exceed 200mg/minute.
• **IF DRUG IS INFUSED TOO RAPIDLY, TACHYCARDIA, LARYNGOSPASM AND MUSCLE RIGIDITY MAY RESULT.**

**REFERENCES:**

• Nursing 2002 Drug Handbook 22\(^{nd}\) Edition Pages 1212 – 1213
**Pyridoxine Hydrochloride**

**PHARMACEUTICAL BRAND NAME:** Vitamin B-6, Nestrex, Pyridoxine Hydrochloride, Beesix, Bonusunit, Demo 6, Invite B6, Pydox, Rodex, Xanturenusi

**ACTIONS:** Coenzyme necessary for metabolism of carbohydrates, proteins and lipids. Aids in the release of liver and muscle stored glycogen. Aids in synthesis of GABA.

**INDICATIONS:**
- Methanol and ethylene glycol toxicity
- Acute toxicity of isoniazid, cycloserine or hydralazine overdoses

**CONTRAINDICATIONS:**
- Hypersensitivity to the drug

**PRECAUTIONS:**
- Seizures have occurred after IV administration of large doses
- When used to treat isoniazid toxicity, expect to also give anticonvulsants
- If Sodium Bicarbonate is needed to control acidosis in isoniazid toxicity, don’t mix in the same syringe with pyridoxine.

**SIDE EFFECTS/ADVERSE REACTIONS:**
- CNS
  - Paresthesia
  - Unsteady gait
  - Numbness
  - Somnolence
  - Seizures
  - Headache
- Skin
  - Photoallergic reaction
  - Burning at the injection site

**ROUTES OF ADMINISTRATION:**
- Intravenous
- Intramuscular

**REFERENCES:**
Sodium Bicarbonate 8.4 %

PHARMACEUTICAL NAMES: Sodium Bicarbonate USP

CLASS: Alkalinizer

ACTIONS: Restores buffering capacity of the body and neutralizes excess acid

INDICATIONS:
- Metabolic acidosis
- Urinary Alkalinization
- Antacid
- Cardiac Arrest

CONTRAINDICATIONS:
- In patients with metabolic or respiratory alkalosis and in those with hypocalcemia in which alkalosis may produce tetany, hypertension, seizures or heart failure
- In patients losing chloride because of vomiting or continuous GI suction and in those receiving diuretics that produce hypochloremic for acute ingestion of strong mineral acids

PRECAUTIONS:
- Use with caution in patients with renal insufficiency, heart failure, or other edematous or sodium-retaining condition.

ADVERSE REACTIONS:
- CNS: tetany
- CV: edema
- GI: gastric distention, belching, flatulence
- Metabolic: hypokalemia, metabolic alkalosis, hypernatremia, hyperosmolarity with overdose
- Skin: pain and irritation at injection site
- Half-life: unknown

PHARMACOKINETICS:
- IV – Onset: immediate
  Peak: immediate
  Duration: unknown

TECHNIQUES FOR ADMINISTRATION: N/A

END POINTS:
- No clinical endpoints to monitor

REFERENCES:
- Lippincott Williams and Wilkins Nursing 2009 Drug Handbook, Pages 23, 888 - 890
**Sodium Chloride IV Fluid**

**PHARMACEUTICAL NAME:** Sodium Chloride Injection

**CLASS:** N/A

**ACTIONS:** Sodium Chloride Injection, USP is a sterile nonpyrogenic solution for fluid and electrolyte replenishment. 0.9% Sodium Chloride Injection, USP contains 154 mEq/L sodium and 154 mEq/L chloride.

**INDICATIONS:**
- Sodium Chloride Injection, USP has value as a source of water and electrolytes. It is capable of inducing diuresis depending on the clinical condition of the patient. It also is indicated for use as a priming solution in hemodialysis procedures.

**CONTRAINDICATIONS:** N/A

**PRECAUTIONS:**
- Clinical evaluation and periodic laboratory determinations are necessary to monitor changes in fluid balance, electrolyte concentrations, and acid base balance during prolonged parental therapy or whenever the condition of the patient warrants such evaluation.
- Caution must be exercised in the administration of Sodium Chloride Injection, USP to patients receiving corticosteroids or corticotropin.
- Sodium Chloride Injection, USP should be given to a pregnant woman only if clearly needed.
- Do not administer unless solution is clear and seal is intact.
- Sodium Chloride Injection, USP should be used with great care, if at all, in patients with congestive heart failure, severe renal insufficiency, and clinical states in which there exists edema with sodium retention.
- In patients with diminished renal function, administration of Sodium Chloride Injection, USP may result in sodium retention.

**ADVERSE REACTIONS:**
- Febrile response
- Infection at the site of injection
- Venous thrombosis or phlebitis extending from the site of the injection
- Extravasation
- Hypervolemia

**ROUTE OF ADMINISTRATION:**
- IV
- IO

**TECHNIQUE FOR ADMINISTRATION:** N/A

**REFERENCES:**
Sodium Nitrite

PHARMACEUTICAL BRAND NAME: Sodium Nitrite, Natril, Natrium Nitrosum, Nitris, Nitrous Acid, Sodium Salt

ACTIONS: Produces methemoglobinemia that combines with the cyanide ion to form cyanmethemoglobin. It dissociates to liberate free cyanide, which is then converted to thiocyanate by sodium thiosulfate. The end product is excreted in the urine.

INDICATIONS:
- Cyanide toxicity
- Hydrogen sulfide toxicity

CONTRAINDICATIONS:
- Hypotension
- Pregnancy

PRECAUTIONS:
- Excessive methemoglobinemia is likely to occur with decreased arterial oxygen saturation.
- Use extreme caution when administering to children
- Overdose may cause cardiovascular collapse

SIDE EFFECTS/ADVERSE REACTIONS:
- CNS
  - Coma
  - Dizziness
  - Headache
- CV
  - Syncope
  - Hypotension
  - Dyspnea
  - Tachycardia
  - Cyanosis
- GI
  - Abdominal pain
  - Nausea
  - Vomiting
- Hematologic
  - Methemoglobinemia

ROUTES OF ADMINISTRATION:
- Intravenous

TECHNIQUES FOR ADMINISTRATION:
- None

REFERENCES:
Sodium Thiosulfate

PHARMACEUTICAL BRAND NAME: Sodium Thiosulfate, Tinver Lotion, Hyposulfene, S-Hydil, Sodium Hyposulfate, Sodium Oxide Sulfide

ACTIONS: Converts cyanide to the less toxic thiocyanate, which is excreted in the urine. Increases the rate of detoxification of cyanide by the enzyme rhodanese by providing an extra sulfur.

INDICATIONS:
- Cyanide toxicity
- Arsenic poisoning
- Tinea versicolor (inorganic bleaching reducing agent)
- Selenium dioxide burns
- Iodine exposure
- Chlorate salt and bromate toxicity
- Sodium nitroprusside toxicity

CONTRAINDICATIONS:
- Known hypersensitivity
- Hydrogen sulfide exposure

PRECAUTIONS:
- Pregnancy

SIDE EFFECTS/ADVERSE REACTIONS:
- CNS
  - Confusion
  - Psychosis
  - Coma
- CV
  - Hypotension
  - ECG changes
  - Weakness
- GI
  - Abdominal cramps
  - Nausea
  - Vomiting
  - Diarrhea
  - EENT
    - Tinnitus
- Skin
  - Contact dermatitis
ROUTES OF ADMINISTRATION:
• Intravenous

TECHNIQUES FOR ADMINISTRATION:
• Slow intravenous infusion

REFERENCES:
• American Regent Laboratories, Inc. Sodium Thiosulfate Injection, USP Package Insert Rev 8/98.
Tetracaine Hydrochloride 0.5% Eye Drops

PHARMACEUTICAL BRAND NAME: Tetracaine, Pontocaine, Ametop, Amethocaine Hydrochloride, Tetracaine Hydrochloride

ACTIONS: Blocks the initiation and conduction of nerve impulses by decreasing the neuronal membranes permeability to sodium ions, which results in inhibition of depolarization with resultant blockade of conduction. Anesthetizes the eyes within 20 seconds and lasts up to 15 minutes.

INDICATIONS:
- Used to relieve eye pain and/or discomfort

CONTRAINDICATIONS:
- Allergy to any topical anesthetic
- Liver disease
- CNS disease
- Myasthenia gravis

PRECAUTIONS:
- Used for topical ophthalmic use only, not for injection.
- Cardiac disease
- Hyperthyroidism

SIDE EFFECTS/ADVERSE REACTIONS:
- CNS
  - Restlessness
- CV
  - Chest pain
  - Palpitations
  - Weakness
- EENT
  - Ringing in the ears
- Skin
  - Dermatitis

ROUTES OF ADMINISTRATION:
- Topical

TECHNIQUES FOR ADMINISTRATION:
- None

REFERENCES:
- Bausch + Lomb Pharmaceuticals, Inc. Tetracaine Hydrochloride Ophthalmic Solution USP, 0.5% Package Insert Rev 12/96 - 6L
Thiamine

PHARMACEUTICAL BRAND NAME: Thiamine Hydrochloride

ACTIONS: Thiamine combines with adenosine triphosphate (ATP) to form thiamine pyrophosphate, also known as cocarboxylase, a coenzyme. Its role in carbohydrate metabolism is the decarboxylation of pyruvic acid in the blood and α-ketoacids to acetaldehyde and carbon dioxide. Increased levels of pyruvic acid in the blood indicate vitamin B1 deficiency.

INDICATIONS:
- Thiamine deficiency
- Wernicke’s encephalopathy
- Infantile beriberi with acute collapse
- Cardiovascular disease due to thiamine deficiency

CONTRAINDICATIONS:
- Hypersensitivity to the drug or to any of the ingredients in the drug

PRECAUTIONS:
- None

SIDE EFFECTS/ADVERSE REACTIONS:
- CNS
  - Restlessness
- CV
  - Weakness
- GI
  - Hemorrhage into the GI tract
- Respiratory
  - Pulmonary edema
  - Cyanosis
- Skin
  - Feeling of warmth
  - Pruritus
  - Urticaria
  - Sweating

ROUTES OF ADMINISTRATION:
- IV
- IM (mass casualty) IV bolus preferred route

REFERENCES: