# Dane County EMS System


## Protocols, Policies & Procedures

**2016-2018**

Emergency Medical Responder

Approved October, 2016


DANE COUNTY
EMS
ASSOCIATION

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**Authorization**:
In accordance with Wisconsin Statute 256 and Chapter 110 of the Wisconsin Administrative Code, effective January 1st, 2017 the following medical protocols are authorized by the Dane County EMS Medical Director for use in the County. Changes to these protocols can be made only with the approval and authorization of the Medical Director.

Michael T. Lohmeier, MD, FACEP
Dane County Medical Director

Michael Mancera, MD
Dane County Associate Medical Director

**Introduction**:
The Dane County EMS Protocols contained within this document are intended to provide and ensure uniform treatment for all patients who receive care from EMS Agencies and Providers participating in the Dane County EMS System. These protocols apply exclusively to agencies responding via the 9-1-1 System within the County. Any other use must receive prior approval from the Medical Director of Dane County EMS.

These protocols are the direct result of countless hours reviewing evidence-based guidelines, historically proven treatments and the best practices of EMS Systems recognized as leaders in the nation. We sincerely hope that this document will be viewed as an invaluable tool for learning, teaching and reference so that the Dane County EMS System may continue to provide the highest quality of out-of-hospital care. Although we have attempted to address all patient care scenarios, it is possible that unforeseen circumstances and patient care needs will arise. In these situations, the EMS Provider should rely on their education, experience and clinical judgment combined with the principle of patient centered care to achieve optimal results. As always, On-Line Medical Control is available for consultation and assistance with patients, scenarios or presentations that do not fall within the scope of this document.

**Acknowledgements**:
The protocols contained within this document have been extensively reviewed not only by the Dane County EMS Office, but by representatives from all aspects of the local medical community. They are intended to create a seamless and consistent treatment plan across provider levels, and have been evaluated for applicability as well as internal consistency. While they may not be perfect, it is our sincere hope that this document is viewed as the most complete and robust protocol set possible, and that they meet or exceed the standard set by the top EMS Services in the nation. The Office would like to specifically acknowledge the following individuals and groups for their contributions to this document.

Dane County EMS Commission
Dane County Medical Advisory Subcommittee
Dane County ALS Consortium
Meriter Hospital
St. Mary's Hospital
William S. Middleton Memorial Veterans Hospital
Stoughton Hospital
University of Wisconsin Hospitals and Clinics
University of Wisconsin Emergency Education Center
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Dr. Michael Kim
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Dr. Hee Soo Jung
Tim Hillebrand
Dr. J. Brent Myers
Dr. Azita Hamedani
**Dane County Protocol Workgroup** *(in alphabetical order)* – Greg Bailey, Chris Carbon, Ryan Dockry, Jeff Dostalek, Kim Feiner, Kim Jack, Carrie Meier, Jen Minter, Jen Román, Scott Russell, Brandon Ryan, Ché Stedman

"If you are going to achieve excellence in big things, you develop the habit in little matters. Excellence is not an exception, it is a prevailing attitude."

-Colin Powell

**Guidelines for Use of Protocols**:
In general, the protocols are divided into Adult and Pediatric sections, with subheadings for Medical and Trauma. For pediatric patients, the appropriate pediatric-specific protocol should be used if one exists. If there is no pediatric-specific protocol for a condition, use the adult protocol but use weight-based dosing for medications. The adult dose of a medication should never be exceeded for a pediatric patient.

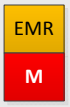
There have been a great many changes from previous versions of the Dane County EMS Protocols. While the core of the protocols remains the same – to provide the highest level of patient centered care possible – this protocol book may almost be viewed as a completely new document. A summary of the major formatting changes appears below this paragraph, but it is not a replacement for careful study of the protocol book itself. Please take the time to orient yourself and become familiar with the look and flow of the content.

In order to make the flowcharts easier to read, a standardized presentation has been adopted. For circumstances where an EMS Provider needs to make a decision, the question appears in a diamond-shaped box with the answers coming off in separate, usually opposite directions. For simplicity, every attempt was made to make these "yes/no" or dichotomous decisions whenever possible.

When an EMS Provider is referenced to another Protocol within the book, the name of the Protocol appears in a rectangular box, with a lime-green shadow.

If there is a bi-directional arrow referencing another Protocol, the intention is that the EMS Provider returns to the current Protocol after a critical assessment or treatment is completed in the referenced Protocol. For example, a bi-directional arrow referencing the Airway Management, Adult Protocol would imply that after the airway has been addressed that the Provider return to the current Protocol for further evaluation and patient management.

When an EMS Provider is referenced to a Procedure within the book, the name of the Procedure appears in a rectangular box, with a purple shadow.




When medications are referenced in the Protocol, they are coded to the level of the EMS Provider with a key attached to the left side of the medication box. Procedures and medications that are in the scope of the Emergency Medical Responder (EMR) have an orange box attached to the left side. Any time Medical Control must be contacted for approval or authorization, the key is red with the letter M. The Legend appears in the top left corner of all Protocols for reference.

Under the heading for each Protocol, there are two sections immediately below entitled, "Pertinent Positives and Negatives" and "Differential". These boxes are meant to be a guide to assist with the pertinent historical information as well as a reminder of the multiple potential causes for a patient presentation that should be considered by the EMS Provider. It is expected that these elements be considered in the patient evaluation and appear in the documentation for the call.

Finally, the "Pearls" section at the bottom of the page provides further guidance as well as some tips to keep in mind when assessing patients and scenes. It is impossible to condense all of Emergency Medicine into a single page flow chart, but the pearls section allows for expanded medical advice, hints and descriptions of special situations. Please study these sections along with the rest of the flowcharts – there is likely to be something new to learn on every page!

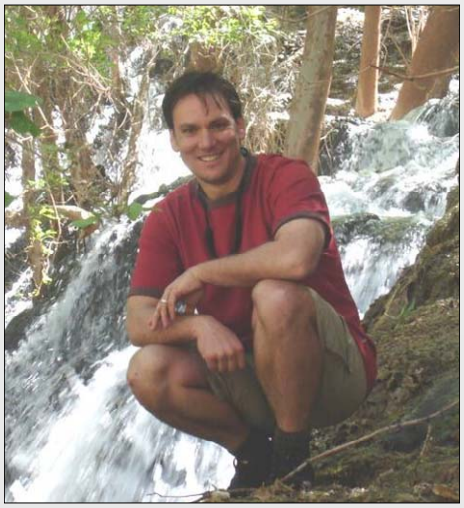
These protocols are the basis of the care we provide. Combined with your experience and education, this document should help you provide patient care that rivals the best in the world.

**In Memoriam**:
The Dane County Medical Director would like to acknowledge the significant work of two individuals, Dr. Darren Bean and Robert L. Brunning.

Dr. Darren Bean served as the Medical Director for the City of Madison Fire Department until 2008. His vision, dedication and drive were instrumental in the development of the current ALS System as well as the expansion of Dane County EMS. His passion was to create a unified out-of-hospital system so that the highest level of compassionate, quality medical care could be rendered to all people in Dane County. Tragically, Dr. Bean died on May 10, 2008 while transporting a patient in his capacity as a Med Flight Physician. We will never forget Dr. Bean, Pilot Steve Lipperer or Nurse Mark Coyne, RN.

Robert L. Brunning served as the first Dane County EMS System Coordinator. "Bob" was hired with the mission to transition medical care from the Dane County Traffic Police to fully trained EMS Personnel with specialized equipment and vehicles. In the 1970's he won several Federal Grants for Dane County to purchase ambulances and equipment for use by all services. He was able to successfully coordinate over 21 different EMS Agencies in the County, and it was not uncommon for him to be out at 3am helping a District in any way he could. Sadly, Bob passed away in 1995. In his memory the Dane County EMS office established the Robert L. Brunning Award of Excellence.

In memoriam, we thank Dr. Darren Bean and Robert Brunning for their vision, passion and dedication. We hope these Protocols make you proud.



**Dedication**:
These protocols are dedicated to ***you***, the EMS Providers of Dane County. It is your tireless dedication, commitment to continuous improvement and solemn promise to care for the sick and injured that makes Dane County, Wisconsin the special community that it is. While missed time with family and friends comes too often and the 'thank yous' come far too infrequently, please know that your time and efforts are sincerely appreciated. Some people spend a lifetime wondering if they made a difference in the world; you don't have that problem.

**EMS, Fire and Law Enforcement Honor Guards**:
Lastly, we would like to acknowledge all of the EMS, Fire and Law Enforcement Honor Guards within Dane County, who ensure that fallen members of the EMS profession are given the honor, respect and dignity they deserve for the vital service in public safety they so willingly provided to their communities. Thank you for honoring those who have dedicated their lives to others.

"Perfection is not attainable, but if we chase perfection we can catch excellence."
-Vince Lombardi

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Medical Transport Destination

**Purpose**:

To provide guidelines for the transport of patients with Time Critical Diagnoses (TCDs) to the most appropriate facility that can provide definitive level care.

**Policy**:

When feasible, patients AND/OR their healthcare power of attorney should be permitted to make autonomous decisions regarding their destination hospital, and given the opportunity to choose. Occasionally, patients may need to be directed away from their preferred institution in favor of a specialty resource center, which can provide advanced levels of care not available at every hospital. In those instances, the EMS Provider's decision should be calmly and respectfully communicated to the patient and their family. By keeping a patient-centered focus and always working to do what is right for the patient, transport to the most appropriate level of care will hopefully be an obvious decision. At the time of publication, the following centers have achieved the appropriate level of credentialing for each of the Time Critical Diagnoses (TCDs) and Specialty Resource Center listed:

Policies

**Comprehensive Stroke Center:**
UW Hospital – Main Campus

**Primary Stroke Center:**
Mercy Hospital – Janesville
Meriter Hospital
St. Mary's – Madison
VA Hospital

**Acute Stroke Ready (CT and TPA Only):**
Fort Memorial Hospital – Ft. Atkinson
The Richland Hospital – Richland Center
Stoughton Hospital
St. Clare Hospital – Baraboo
St. Mary's – Sun Prairie
St. Mary's – Janesville
Upland Hills Health – Dodgeville
UW at The American Center

**Burn Unit**:
UW Hospital – Main Campus

**ST-Segment Elevation MI**:
Meriter Hospital
Monroe Clinic
St. Mary's – Madison
UW Hospital – Main Campus
VA Hospital

**Pediatric Trauma Unit**:
UW Hospital – Main Campus

**Level I Trauma**:
UW Hospital – Main Campus

**Level II Trauma**:
Mercy Hospital – Janesville

**Level III Trauma**:
Meriter Hospital
Sauk Prairie Hospital
St. Clare Hospital - Baraboo
St. Mary's – Madison
St. Mary's – Janesville

**Level IV Trauma**:
Monroe Clinic
Stoughton Hospital
St. Mary's – Sun Prairie
Upland Hills Health – Dodgeville

**Pediatric Intensive Care Unit**:
UW Hospital – Main Campus

**Neonatal Intensive Care Unit**:
Meriter Hospital
St. Mary's - Madison
UW Hospital – Main Campus

**OB, Labor and Delivery Receiving**:
Fort Memorial Hospital – Ft. Atkinson
Mercy Hospital – Janesville
Meriter Hospital
Monroe Clinic
The Richland Hospital – Richland Center

**OB, Labor and Delivery Receiving (cont)**:
Sauk Prairie Hospital
St. Clare Hospital - Baraboo
St. Mary's – Madison
St. Mary's – Janesville
Upland Hills Health – Dodgeville

**SANE (Sexual Assault Nurse Examiner) Nurse**:
Meriter Hospital

Policies

**Any patient who is judged to be too unstable for transfer to definitive care may be transported to the closest Emergency Department for immediate stabilization**

| Legend | |
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# Patient Without A Protocol

**Purpose**:

To ensure the provision of appropriate medical care for every patient, regardless of presenting problem or medical condition.

**Policy**:

Any person requesting EMS service shall receive a professional evaluation, treatment and transportation as necessary in a systematic, orderly fashion regardless of the chief complaint, medical condition or ability to pay.

Medical evaluation and management for all patient encounters that can be triaged into a Dane County EMS Protocol shall be initiated and conducted as per the standing protocols.

When confronted with an emergency situation or patient condition that does not fit into an existing Dane County EMS Protocol, evaluation and management of the patient should be started under the General Approach – Adult, Medical OR General Approach – Peds, Medical Protocols, as appropriate. On-Line Medical Control should be contacted for consultation as soon as possible for further direction and instructions on patient management within your scope of practice.



Policies

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# Paramedic Request Guidelines

**Purpose**:

To outline circumstances in which an Advanced Life Support (ALS) Service should be requested in addition to the local Basic Life Support (BLS) Service to help manage a patient.

**Policy**:

The situations listed below are not all-inclusive, but are intended to serve as examples of when the highest level of care would be appropriate for advanced interventions and patient safety. In addition to advanced skills and additional medication options, Paramedics also bring an experience with critically ill and injured patients, and can assist with the safe evaluation and destination determination process.

While the care of the patient should be the top priority of all providers in the Dane County System, many factors go into the decision to request an ALS unit. Time of day, traffic conditions, weather and proximity to appropriate medical care all may be considered when making the decision.

Some examples of patients that may benefit from ALS level evaluation and management include but are not limited to;

- Cardiopulmonary Arrest
- Altered Mental Status not explained by simple hypoglycemia or opiate overdose
- Severe Respiratory Distress AND/OR Impending Airway Compromise
- Multi-System Trauma
- Unstable or Deteriorating Vital Signs
- Chest Pain with Hemodynamically Compromising Dysrhythmia
- ST-Segment Elevation MI with Hypotension, Altered Mental Status or Impending Cardiac Arrest
- Complex Seizures (First Seizure without History, Seizure After Head Injury, Recurrent Seizure without Return to Baseline)
- Allergic Reaction assessed to be 'Severe' or 'Impending Cardiac Arrest'
- Asthma Exacerbation not improving after Albuterol OR Requiring Multiple Nebs
- Complications of Childbirth
- Mass Casualty Incident
- Any Situation that the Dane County EMS Provider OR Medical Control feels warrants ALS Evaluation and Management

**We are all working together to get the right patient to the right level of care at the right time!**


Policies

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# Patient Care During Transport

**Purpose**:

To provide general guidelines and to set best practice when caring for patients both on the scene of an emergency as well as in the ambulance during transport to the receiving facility.

**Policy**:

All sick or injured persons requesting transport shall be transported without delay to the most appropriate Emergency Department, with high consideration given to patient preference. Exceptions to this policy are as follows:

- ❑ An "appropriate local Emergency Department" includes all Dane County Emergency Departments as well as hospitals in contiguous counties as designated in this Procedures and Protocols Handbook. The ability of a patient to pay or the insurance status (if known) should not play a part in this decision. If EMS Unit availability will be a concern due to requested destination, contact your Service EMS Supervisor prior to initiating transport.
- ❑ All sick or injured persons requesting transport who *do not express a preference* or who rely on the knowledge of the EMS Provider should be transported to the closest, most appropriate local Emergency Department.
- ❑ Patients who are suffering from a Time Critical Diagnosis (TCD) or a condition covered under the Destination Determination Protocols should be transported in accordance with the specialty resource required by the treatment flowchart. All other patients should be transported per the policy statement above.
- ❑ Transport destination decisions should take into consideration the preexisting healthcare relationships that a patient may have. In general, a patient should be taken to the hospital at which they typically receive care and/or where their primary care physician has affiliation, *unless the patient expressly requests otherwise*. Providers should discuss risks and benefits of transport to a facility that has not previously cared for the patient, and document the discussion clearing in the electronic Patient Care Report (ePCR).

The following situations shall require more than one EMS Provider in the passenger compartment of the transporting vehicle, to provide adequate medical care. The additional provider(s) is/are present not only to serve as additional "hands", but to expand the critical thinking of the team and to help optimize patient outcomes. **For these circumstances, students with the current training permit may assist with patient care, but may NOT count as one of the additional EMS Providers.**

- ❑ Cardiac Arrest of Medical OR Traumatic etiology
- ❑ Post Resuscitation Return of Spontaneous Circulation (ROSC) patients, *even if Vital Signs are stable*
- ❑ Active Airway Management, *regardless of modality chosen* (Endotracheal Tube, Blindly Inserted Airway Device (BIAD) or Bag-Valve Mask (BVM)
- ❑ Impending Arrest or "Peri-Code" Situation
- ❑ Imminent Delvery
- ❑ Newly Born Patients (Mother and Newborn count as two patients, and require an attendant for each)
- ❑ At the Attending EMS Provider's Judgement, for cases not covered above

If a second EMS Provider is not available and transport would be delayed, initiation may be started under these two circumstances:

- ❑ An Advanced Care Intercept (Ground ALS or HEMS) has been contacted and arrangements made for rendezvous en route
  **OR**
- ❑ The case has been reviewed with On-Line Medical Control (OLMC) AND approval granted


Policies

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# Documentation of Vital Signs

**Purpose**:

To provide guidelines and to set best practice for documentation of vital signs (VS) in the electronic Patient Care Report (ePCR).

**Policy**:

Vital Signs (VS) play a critical role in patient assessment and evaluations, and must be documented in the ePCR for any patient.

- ❑ An initial complete set of VS includes
  - Pulse Rate, Systolic AND Diastolic Blood Pressure (may substitute cap refill for children <3 years), Respiratory Rate, SpO2, Pain and GCS for trauma patients.
- ❑ If no interventions are made during EMS Provider evaluation and management (**including** IV Fluids, dextrose and naloxone), palpated Blood Pressures are acceptable for REPEAT VS.
- ❑ Based on the patient condition, complaint and/or treatment protocol used, VS may also include
  - Temperature, Level of Awareness

If the patient refuses EMS evaluation, an assessment of capacity must be completed AND documented in the ePCR. Detailed documentation should be captured regarding the patient's clinical presentation, reason for refusing (if known) and the refusal process in the ePRC narrative. Be sure to *capture the names of family members, Law Enforcement personnel or other EMS personnel who are present* for this conversation and evaluation.

For children, the need for Blood Pressure measurement should be determined on a case-by-case basis, considering the clinical condition of the child and the EMS Provider's rapport with the patient. Every effort should be made to document Blood Pressure, particularly in critically ill patients, or cases where treatment decisions are guided by VS and/or changes in VS.

Any abnormal VS should be followed closely, and repeated as indicated by change in patient subjective status or clinical condition.

**Remember – if you didn't document it, it never happened!**

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Policies

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# Documentation of Patient Care

**Purpose**:

To provide guidelines and to set best practice for documentation of patient encounters in the electronic Patient Care Report (ePCR).

**Policy**:

As EMS Providers and out-of-hospital care becomes increasingly more important to the healthcare community, it has brought a focus on the documentation of patient encounters and a need to have a more robust set of standards for the Patient Care Reports generated. The hospitals are sending a clear message to the EMS Providers nationally – what you **document** is almost as important as **what you see and the interventions you make** to help your sick and injured patients. To that end, these criteria should help set the standards for documentation and maximize your productivity as members of the healthcare delivery team. At a minimum, every electronic Patient Care Report (ePCR) should include:

- ❑ A clear history of the present illness with chief complaint, onset time, associated complaints, pertinent positives and negatives, mechanism of injury, etc. This should be included in the subjective portion of the PCR. The section should be sufficient to refresh the clinical situation after it has faded from memory.
  - Consider the **P-SOAP-delta** format for the narrative
    - **P** – prearrival information, including delays to scene or factors inhibiting patient access or treatment
    - **S** – subjective information (what the patient tells the EMS Provider)
    - **O** – objective information (VS, physical exam findings, etc.)
    - **A** – assessment (EMS Provider Impression of patient illness as well as differential diagnosis)
    - **P** – plan of treatment (EMS Provider interventions planned to administer)
    - **Delta** – change in patient condition due to EMS Provider interventions
- ❑ An appropriate physical assessment that includes all relevant portions of a head-to-toe physical exam. When appropriate, this information should be included in the procedures section of the PCR.
- ❑ At least two complete sets of vital signs for transported patients and one complete set for non- transported patients (pulse, respirations, auscultated blood pressure, pulse oximetry at minimum). These vital signs should be repeated and documented after drug administration, prior to patient transfer, and as needed during transport. For Children age < 3, blood pressure measurement is not required for all patients, but should be measured if possible, especially in critically ill patients in whom blood pressure measurement may guide treatment decisions.
- ❑ Only approved medical abbreviations may be used – see Appendix.
- ❑ The CAD to PCR interface embedded within the PCR system should be used to populate all PCR data fields it supplies. When 9-1-1 center times are improperly recorded, these may be edited as necessary.
- ❑ Medications administered, dosages, route, administration time, treatments delivered and patient response shall be documented.
- ❑ Extremity neurovascular status after splinting affected limb, or all limbs after spinal immobilization shall be documented.
- ❑ Requested Medical Control orders, whether approved or denied, should be documented clearly.
- ❑ ALL crew members are responsible for, and should review, the content of the PCR for accuracy.
- ❑ After the ePCR is closed, patient care information may not be modified for any reason. Corrections or additions should be in the form of an addendum to the ePCR, with note for the reason of the addendum.
- ❑ When possible, all ePCRs should be completed and the report closed prior to leaving the hospital. If the ePCR cannot be completed and a copy left with a receiving caregiver before departing the hospital, a draft version of the narrative, medications administered and vital signs shall all be given to the receiving team prior to departing.
- ❑ Paper copies of the ECG, DNR paperwork, Skilled Nursing Facility documentation and - when applicable - documentation of refusal to accept an appropriate assessment, treatment, or hospital destination shall be provided to the receiving hospital.
- ❑ If patient transported from the scene with red lights and siren, be sure to document the reason for doing so.

**Remember – if you didn't document it, it never happened!**


Policies

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| M | Medical Control |

# Domestic Violence (Spousal and/or Partner Abuse) Recognition and Reporting

**Purpose**:

To provide guidelines and resources for the EMS Provider who encounters suspected and/or confirmed cases of domestic violence while on duty.

**Policy**:

Domestic Violence is physical, sexual or psychological abuse and/or intimidation which attempts to control another person in a current or former family, dating or household relationship. The recognition, appropriate reporting and referral of abuse is an essential step to improving patient safety, providing quality care and preventing further abuse.

Effective management of a case of suspected abuse or neglect is based upon the following:

- ❑ Protect the patient from harm
- ❑ Suspect that the patient may be a victim of abuse, especially if the illness/injury is not consistent with the reported history
- ❑ Respect the privacy of the patient and the family
- ❑ Collect as much information as possible, and preserve physical evidence

**Any findings of abuse or neglect OR suspicion of abuse or neglect must be handled with sensitivity and delicacy by the EMS Provider**. Provision of emotional support is key, without passing judgment on the victim or alleged perpetrator of domestic violence. Discretion should be a high priority, and when possible questions regarding abuse and safety should be done in private. Offering the resources below to the patient may feel awkward at the time, but are excellent resources and may be used at any time in the future. Have a low threshold to transport patients of suspected or confirmed domestic violence, as they may not have other means of escaping their assailant and accessing resources that may be available at the hospital.

There are many subtle signs of abuse that may be missed without a high index of suspicion. Some include:
Psychological cues – excessively passive in nature, fearful behavior, excessive aggression, violent tendencies, excessive or inappropriate crying, substance abuse, medical noncompliance or repeat EMS requests for seemingly minor problems.
Physical cues – injuries inconsistent with the reported mechanism, defensive injuries (i.e. forearms), injuries during pregnancy are suggestive of abuse. Multiple bruises and injuries in various stages of healing may also suggest repeated violence against the victim.
Signs of neglect – inappropriate level of clothing for weather, poor hygiene, absence of and/or inattentive caregivers, poor living conditions and physical signs of malnutrition.

<u>For Suspected Domestic Violence</u> –

- ❑ EMS Providers should attempt in private to provide the victim with the Dane County Domestic Abuse Intervention Services (DAIS) helpline, (608) 251-4445 or (800) 747-4045. Both numbers are available 24 hours per day.
- ❑ EMS Providers may also provide the National Hotline (800) 799-SAFE (7233)
- ❑ Depending on the situation, transport should be considered regardless of the illness or injury, so that the victim may receive the expert consultation and additional services that are available in the Emergency Department

See the Dane County Domestic Abuse Intervention Services (DAIS) website for additional information as necessary:
http://www.abuseintervention.org

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# Child/Elder Abuse Recognition and Reporting

**Purpose**:

To provide guidelines for the EMS Provider who encounters suspected and/or confirmed cases of child or elder abuse while on duty.

**Policy**:

Child Abuse is the physical and mental injury, sexual abuse, negligent treatment and/or maltreatment of a child under the age of 18 by a person who is responsible for the child's welfare. The recognition of abuse and the proper reporting is a critical step to improving the safety of children and preventing child abuse.

An elderly person is defined in the State of Wisconsin as a person >60 years of age. Elder abuse is the physical and/or mental injury, sexual abuse, negligent treatment or maltreatment of a senior citizen by another person. Abuse may be at the hand of a caregiver, spouse, neighbor or adult child of the patient. The recognition of abuse and the proper reporting is a critical step to improve the health and well-being of senior citizens.

Effective management of a case of suspected abuse or neglect is based upon the following:

- ❑ Protect the patient from harm
- ❑ Suspect that the patient may be a victim of abuse, especially if the illness/injury is not consistent with the reported history
- ❑ Respect the privacy of the patient and the family
- ❑ Collect as much information as possible, and preserve any physical evidence

Any findings of abuse or neglect OR suspicion of abuse or neglect must be reported immediately to Law Enforcement or Protective Services upon arrival to the receiving hospital. In cases of suspected abuse or neglect where a patient contact does not result in transport, Law Enforcement or Protective Services must be notified prior to clearing the scene.

There are many subtle signs of abuse that may be missed without a high index of suspicion. ALL patients evaluated by EMS should be screened for these cues. Some include:
**Psychological cues** – excessively passive behavior, fearful behavior, excessive aggression, violent tendencies, excessive or inappropriate crying, substance abuse, medical noncompliance or repeat EMS requests for seemingly minor problems.
**Physical cues** – injuries inconsistent with the reported mechanism, defensive injuries (i.e. forearms), injuries during pregnancy are suggestive of abuse. Multiple bruises and injuries in various stages of healing may also suggest repeated violence against the victim.
**Signs of neglect** – inappropriate level of clothing for weather, poor hygiene, absence of and/or inattentive caregivers, poor living conditions and physical signs of malnutrition.

**EMS Providers in the State of Wisconsin are required by law to report suspected cases of child abuse and neglect as well as those situations in which they have reason to believe that a child / elder has been treated with abuse or neglect or that abuse or neglect will occur.**

For Suspected Elder Abuse or Neglect -

- ❑ Cases in Dane County NOT in a State-licensed facility, contact the Dane County Department of Human Services Elder Abuse/Neglect Helpline at **(608) 261-9933**.
- ❑ Cases in Dane County that ARE in a State-licensed nursing home, contact the State Division of Quality Assurance at **(608) 266-7474**.
- ❑ Cases in Dane County that ARE in a State-licensed program such as assisted living, community based residential facility (CBRF), adult family home (AFH), contact the Wisconsin State Bureau of Assisted Living at **(608) 264-9888**.
- ❑ Cases outside of Dane County, call the Elder Care Locator at **(800) 677-1116**.

See the Wisconsin Department of Health Services internet listing of County elder abuse agencies as necessary.
http://www.dhs.wisconsin.gov/aps/Contacts/eaaragencies.htm

For Suspected Child Abuse or Neglect -

- ❑ Contact the Dane County Department of Human Services Protective services:
  Mon-Fri, 7:45AM-4:30PM – **(608) 261-KIDS (5437)**
  After hours and on weekends – **(608) 255-6067**
- ❑ If caregivers are refusing the evaluation or treatment of a child that you suspect may be the victim of abuse or neglect, do not hesitate to contact Medical Control for advice. If necessary, Law Enforcement may be consulted to help settle disagreements on scene, while maintaining the effective management principles above.
- ❑ In the RARE instance that a child has a life or limb threatening illness or injury AND the caregivers are refusing evaluation, the child should be transported to the closest appropriate facility, with simultaneous contact of Law Enforcement and On-Line Medical Control. If your Service Medical Director is unavailable, the Dane County Medical Director should be contacted to assist as needed.
- ❑ When abuse or suspected abuse is reported to Law Enforcement, it is required that name and badge number of the officer receiving the report be captured in your documentation.

See the Dane County Department of Human Services Protective Services website for additional information as necessary:
http://www.danecountyhumanservices.org/ProtectiveServices/Child/


Policies

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# Patients in Police Custody

**Purpose**:

To provide guidelines for the evaluation and management of patients requiring EMS assessment while in the custody of Law Enforcement. As with every patient interaction, it is important that the EMS Provider serve as a patient advocate and use their best medical judgment to assist Law Enforcement in making safe, appropriate decisions regarding medical aid and disposition decisions.

**Policy**:

As a general rule, when evaluating a patient who is in the custody of Law Enforcement, the EMS Provider should approach the patient with the same respect and consideration as patients who are not being detained. While EMS is not equipped or authorized to provide "Medical Clearance" before transport to jail, it is the responsibility of the EMS Provider to provide an unbiased assessment and to make recommendations based on Dane County Protocols as well as EMS Provider experience and judgment.

These patient encounters have a higher than average incidence of scrutiny on review; as such, take steps to ensure that your documentation is clear, descriptive and complete. Law Enforcement Agent names and badge numbers are essential in the EMS Provider documentation.

- ❑ If a patient in custody of Law Enforcement is evaluated by EMS and felt to need transport to the Emergency Department and *the patient is refusing transport*:
  - Evaluate the capacity of the patient to make informed decisions as outlined in the Dane County Protocols
  - Advise the Law Enforcement Agent of the decision of the patient, and consider potential risks or hazards to Law Enforcement if the patient were to refuse (i.e. lacerations that may pose a biohazard to officers or other detainees)
    - ❑ If Law Enforcement requests transport, document their request and coordinate safe transport to the closest, most appropriate Emergency Department. In these instances, the Law Enforcement Agent must take the patient into Protective Custody and effectively making decisions as the healthcare power of attorney for the patient.
    - ❑ Document that Law Enforcement has taken Protective Custody of the patient.
    - ❑ In this instance, the Law Enforcement Agent must accompany the patient to the Emergency Department.
  - If the patient is evaluated to have capacity and does not pose an undue risk to Law Enforcement, execute a Patient Refusal as outlined in the Dane County Protocols

- ❑ If a patient in custody of Law Enforcement is evaluated by EMS and felt to need transport to the Emergency Department and the *Law Enforcement Agent is refusing transport*:
  - Advise the Law Enforcement Agent that transport is indicated by Dane County Protocols, and that medical clearance is not authorized by EMS Personnel in the field.
  - Contact On-Line Medical Control for consultation and assistance as needed.
    - ❑ If Law Enforcement continues to decline transport for medical evaluation and management, allow the patient to remain in the custody of the Law Enforcement Agent, and advise them that EMS may be re-contacted at any time to provide medical assistance as needed
    - ❑ The Law Enforcement Agent in these situations is taking the patient into Protective Custody and effectively make decisions as the healthcare power of attorney for the patient.
    - ❑ Document that Law Enforcement has taken Protective Custody of the patient.
  - Document the Law Enforcement Agency as well as the name and badge number of the responsible officer along with specifics of the discussion in your electronic Patient Care Report (ePCR).

- ❑ If a patient in custody of Law Enforcement requires transport to the Emergency Department and is *requiring physical restraint* by the Law Enforcement Agent for behavior modification:
  - Advise the Law Enforcement Agent that Dane County EMS Policy requires their accompaniment in the patient compartment of the ambulance during transport to the Emergency Department.
    - ❑ With active restraints in place, it is an issue of patient safety as well as provider safety
  - Consider the Behavioral Emergencies Protocol in the Dane County Protocol book, OR contact On-Line Medical Control for advice regarding medication management as appropriate to assist with safe and expeditious transport


Policies

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Physician On Scene

**Purpose**:

To define the responsibilities of EMS Providers responding to an emergency scene, to identify the chain of command and to prevent potential conflicts regarding patient care that may arise during EMS evaluation and management when a licensed physician is on scene. No other healthcare professionals are permitted to provide medical direction under this policy.

This policy is not intended to apply to Service Medical Directors.

**Policy**:

The medical evaluation and management of patients at the scene of an emergency is the responsibility of the person most appropriately trained in emergency medical care. As an agent of the EMS Service Medical Director and operating under the Dane County EMS Protocols, the EMS Provider routinely fills this role. Occasions may arise when a physician on scene may wish to deliver care to a sick or injured patient, or to direct EMS personnel in medical management. In order for a physician to assume care of a patient, they **MUST**:

- ❑ Provide photo identification verifying his/her current credentialing as a physician (MD/DO) AND a current copy of his/her license to practice medicine in the State of Wisconsin **AND**
- ❑ Assume care of the patient AND allow documentation of of his/her assumption of care on the electronic Patient Care Report (ePCR), as verified by his/her signature, **AND**
- ❑ Agree to accompany the patient during transport to the receiving hospital **AND**
- ❑ Not appear to be impaired or under the influence of drugs, alcohol or medical conditions **AND**
- ❑ Explicitly express willingness to accept liability for the care provided to the patient under their personal medical license

Contact with Medical Control must be established as soon as possible, and the Medical Control Physician must agree to relinquish responsibility for patient care to the Physician On Scene.

Once care has been transferred from the On-Line Medical Control to the Physician On Scene, the EMS Provider may provide care under the license and authority of the Physician On Scene. Direction provided by the Physician On Scene assuming care of the patient should be followed by the EMS Provider, granted that the interventions are not believed by the EMS Provider to endanger the well-being of the patient.

Orders received from an authorized (as determined by this Policy) Physician On Scene may be followed, even if they conflict with existing local protocols, provided the orders encompass skills AND/OR medications approved by both the Dane County Medical Advisory Subcommittee and the Wisconsin State Medical Board for a provider's level of credentialing. **Under no circumstances** shall EMS Providers perform procedures or give medications that are outside of their scope of practice AND/OR credentialing.

**Conflict with Physician On Scene**:

If the Physician On Scene is judged by the EMS Provider on scene to be potentially harmful or dangerous to the patient, the EMS Provider should politely voice their objection, and immediately contact On-Line Medical Control for further assistance. On-Line Medical Control should be briefed by the EMS Provider, and the Physician On Scene allowed to communicate directly with the On-Line Medical Control. When at all possible, these conversations should be held on a recorded line.

If the Physician On Scene and On-Line Medical Control are in conflict, it is the responsibility of the EMS Provider to:

- ❑ Follow the directions of On-Line Medical Control
- ❑ Enlist the aid of Law Enforcement as necessary to regain control of the emergency scene and resume authority of the scene

**Documentation**:

All interactions with Physicians On Scene must be thoroughly documented in the electronic Patient Care Report (ePCR), including the full name and medical license number of the Physician On Scene, as well as the interventions performed at their direction.


Policies

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Request for Helicopter EMS (HEMS)

**Purpose**:

To provide general guidelines for the appropriate utilization of Helicopter EMS (HEMS) during routine daily operations.

**Policy**:

Helicopter EMS activation should be considered in Time Critical Diagnoses (TCDs) when the transport time to definitive care is prolonged, as well as situations when advanced resources and skills may help improve the patient's chances of survival. Depending on the situation and resources present, it may be prudent to begin transport by ground ambulance and arrange for a rendezvous at an existing airfield or helipad rather than establish a scene Landing Zone (LZ) and wait for HEMS. Please see the next page for a listing of local airfields and hospital-based helipads that would not require establishment of an LZ by Fire or Law Enforcement.

A helicopter may be considered for request under the following circumstances *but not limited to*:

- ❑ Patient meets Level I Trauma Center criteria under the Destination Determination Protocol AND ground transport time is estimated to be greater than 30 minutes
- ❑ Patient is critically ill or injured AND entrapped with extrication expected to last greater than 20 minutes
- ❑ Patient has unstable Vital Signs (VS) and ALS intercept would further delay arrival at definitive care
- ❑ Patient has field diagnosed ST-Segment Elevation MI and is not expected to make the goal first medical contact-to-balloon time of <90 minutes without HEMS assistance
- ❑ Patient requires specialized medical attention in the field that is beyond the scope of the EMS Providers present on scene or available at the time of the emergency (i.e. field amputation, pediatric intubation)
- ❑ Mass Casualty Incident with multiple critically ill or injured patients, when activation would not put the responding HEMS unit at increased risk (i.e. active shooter without neutralized threat)

**Procedure**:

- ❑ When considering air transport, the following terminology should be referenced when speaking with HEMS Dispatch:
  - **"Status Inquiry"** or **"Inquiry"** - contact asking whether HEMS is available to fly or not based on current weather conditions, aircraft availability and crew status. An aircraft will NOT be reserved based on an "Inquiry", and if another flight "Request" is received before final decision is made the second "Request" WILL be accepted by HEMS.
  - **"Stand-by"** - for all calls *within the borders of Dane County*, an aircraft will be pulled out and prepared for flight, but WILL NOT lift off until final decision is made regarding HEMS use. Anyone in Public Safety may put a helicopter on "Stand-by". If another flight request is received before final decision is made, the second "Request" will NOT be accepted by HEMS.
  - **"Request"** - final decision has been made by the EMS Provider(s) on scene to transport the patient by air, and the helicopter will launch to the scene or rendezvous point as soon as possible.
- ❑ The highest credentialed EMS Provider on scene will determine if a HEMS unit is appropriate for the patient.
- ❑ That EMS Provider will request the Dane County 9-1-1 Center to contact Helicopter EMS and "Request" dispatch of the closest, most appropriate HEMS unit.
- ❑ A safe landing zone (LZ) must be established per protocol prior to HEMS arrival.
  - **If using a landing zone (LZ) in Dane County such as a grass airstrip at night, it should be marked by flares, strobes, vehicle lights or other suitable ground based lighting.**
- ❑ The highest quality patient care should be continued per Dane County Protocols until HEMS arrival, at which time care may be transitioned to the HEMS medical crew.
- ❑ Patients coming from a Hazardous Materials (HazMat) scene need to be fully decontaminated prior to HEMS transport. This includes contamination with various fuels as well as ingestions of volatile substances which may cause off-gassing.
- ❑ **Under NO circumstances should patient transport be delayed to use a helicopter.**

There are multiple Helicopter Landing Zones (LZs) in and around Dane County that do NOT require Fire or Law Enforcement establishment. If appropriate for the situation, weather and patient condition, these locations may be considered for rendezvous with the HEMS unit and transfer of patient care. This will take clear communication from the EMS Providers on scene and coordination through the Dane County 9-1-1 Center and the HEMS Dispatcher.

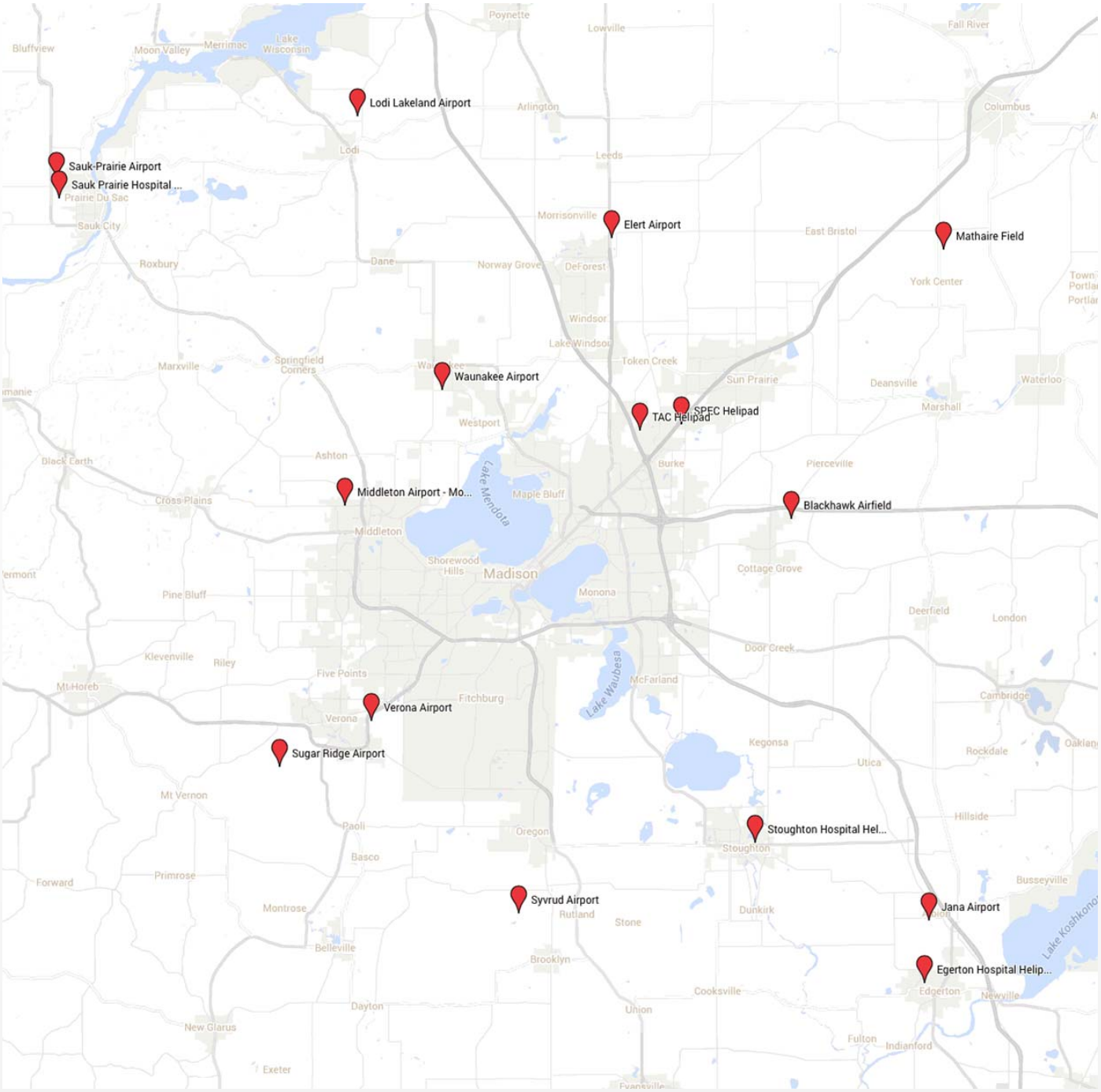
Please see the following page for a map and list of airfields and helipads in the greater Dane County area that may be considered.


Policies

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Helicopter EMS (HEMS) Landing Zones






- Sauk Prairie Airport
- St. Mary's Sun Prairie Helipad
- Sugar Ridge Airport
- Elert Airport
- Middleton Airport – Morey Field
- Verona Airport
- Mathaire Field
- Blackhawk Airfield
- Sauk Prairie Hospital Helipad
- UW at The American Center Helipad
- Waunakee Airport
- Jana Airport
- Stoughton Hospital Helipad
- Stoughton Airport (Matson)
- Lodi Lakeland Airport
- Edgerton Hospital Helipad
- Syvrud Airport

Policies

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Do Not Resuscitate (DNR)

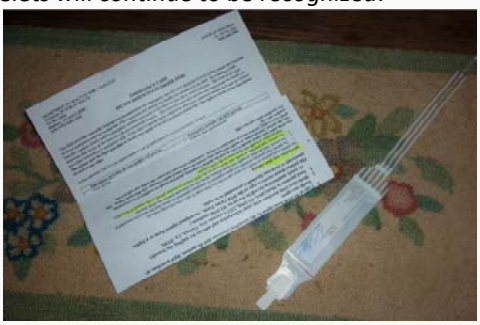
**Purpose**:

To clarify the State of Wisconsin Do Not Resuscitate (DNR) laws, and to provide guidance for several exceptions to the rule.

**Policy**:

As defined in Wisconsin Statute 154.17(2), a valid Do Not Resuscitate (DNR) order directs EMS Providers not to attempt cardiopulmonary resuscitation on the person for whom the order is issued if that person suffers cardiac or respiratory arrest. As further defined in 154.17(5), "Resuscitation" means cardiopulmonary resuscitation or any component of cardiopulmonary resuscitation, including cardiac compression, endotracheal intubation and other advanced airway management, artificial ventilation, defibrillation, administration of cardiac resuscitation medications and related procedures. "Resuscitation" does not include the Heimlich maneuver or similar procedure used to expel an obstruction from the throat or upper airway.

There are two types of DNR bracelets available to identify a person with a valid DNR order. One is a plastic ID bracelet, which looks like a hospital ID band. The other is a metal bracelet, which is currently available from StickyJ® Medical ID. Per Wisconsin Statute 154, StickyJ® is the *current* State of Wisconsin authorized vendor of the metal bracelets; however, the previous MedicAlert® bracelets *will continue to be recognized*.





DNR patients should still receive appropriate treatment from EMS Personnel under the Dane County Protocols, to include but not limited to: clearing the airway, administering supplemental $O_2$, positioning for comfort, splinting extremities, hemorrhage control, providing pain medications, providing emotional support and transporting to an Emergency Department for evaluation.

DNR orders shall be followed by EMS Providers, except in the following situations:

- ❑ The Do-Not-Resuscitate bracelet appears to have been tampered with or removed
- ❑ The emergency medical technician, first responder or member of the emergency health care facility knows that the patient is pregnant
- ❑ The Do-Not-Resuscitate order is revoked. Methods for revocation may occur at any time by the following (154.21):
  - The patient expresses to an emergency medical technician, first responder or to a person who serves as a member of an emergency health care facility's personnel the desire to be resuscitated. The emergency medical technician, first responder or the member of the emergency health care facility shall promptly remove the do-not-resuscitate bracelet.
  - The patient defaces, burns, cuts or otherwise destroys the do-not-resuscitate bracelet.
  - The patient removed the do-not-resuscitate bracelet or another person, at the patient's request, removed the do-not-resuscitate bracelet
- ❑ The Guardian or Health Care Agent of an incapacitated qualified patient may direct an emergency medical technician, first responder or a person who serves as a member of an emergency health care facility's personnel to resuscitate the patient. The emergency medical technician, first responder or the member of the emergency health care facility shall promptly remove the do-not-resuscitate bracelet. (154.225)

Under Wisconsin Statute 154.23, no physician, emergency medical technician, first responder, health care professional or emergency health care facility may be held criminally or civilly liable, or charged with unprofessional conduct, for any of the following:

- ❑ Under the directive of a do-not-resuscitate order, withholding or withdrawing, or causing to be withheld or withdrawn, resuscitation from a patient
- ❑ Failing to act upon the revocation of a do-not-resuscitate order unless the person or facility had actual knowledge of the revocation
- ❑ Failing to comply with a do-not-resuscitate order if the person or facility did not have actual knowledge of the do-not-resuscitate order or if the person or facility in good faith believed that the order had been revoked.


Policies

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Criteria for Death / Withholding Resuscitation

**Purpose**:

To provide guidelines for situations when initiation of resuscitative efforts by EMS Personnel is not appropriate. For patients with a valid Do-Not-Resuscitate (DNR) order, please refer to the Do Not Resuscitate Policy.

**Policy**:

Resuscitative efforts should not be undertaken for an adult patient ≥18 years of age who is pulseless and apneic IF one or more of the following criteria are met:

- ❑ Decapitation
- ❑ Incineration
- ❑ Decomposition of Body Tissue
- ❑ Rigor Mortis and/or Dependent Lividity
- ❑ Massively Deforming Head or Chest Injury

Do not initiate resuscitative measures for patients meeting the above criteria.

If resuscitative efforts are in progress, consider contacting Medical Control for consultation as necessary.

If the arrest is traumatic in nature, go to the Traumatic Arrest Protocol.
If the patient is believed to have severe hypothermia (core temperature <82°F or <28°C), go to the Environmental, Hypothermia – Adult, Trauma Protocol

**If the circumstances are unknown or unclear, or if there is question about the validity of a DNR order, initiate resuscitation while simultaneously contacting On-Line Medical Control for further advice.**

Notify Law Enforcement of the patient's death and involve the Dane County Medical Examiner. If the patient is in a medical facility (nursing home, physician's office, rehab facility) and under the supervision of medically trained personnel (physician or RN), you may contact the patient's primary physician directly and involve the Dane County Medical Examiner

All EMS Providers will handle the deceased subjects in a uniform, professional and timely manner. Once the determination has been made that resuscitative efforts will not be initiated, respect for the patient and family with protection of the dignity of the deceased is critically important.

As with every EMS call, situational awareness should be a high priority. Maintain vigilance and be aware that these patient calls may be investigated as a crime scene; do your best to avoid disturbing the scene or any potential evidence.

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Policies

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Poison Control

**Purpose**:

To provide guidelines for involving Poison Control with out-of-hospital management of patients with potential or actual poisonings.

**Policy**:

Patients who have sustained significant poisonings, envenomations, and environmental/biochemical terrorism exposures in the out-of-hospital setting require timely and appropriate level of care, including the decisions regarding scene treatment and transport destination. By integrating the State Poison Center into the out-of-hospital response plan for HazMat and biochemical terrorism incidents, this policy aims to empower the out-of-hospital care provider and enhance the ability to deliver the most appropriate care to the patient possible.

If the patient is assessed by the EMS Provider and no immediate life threat or indication for immediate transport is identified, the EMS Provider may conference call with the Poison Center at the Wisconsin State Poison Center at **1 (800) 222-1222.**

The Poison Center will help evaluate the exposure and make recommendations regarding the need for on-site treatment and hospital transport in a timely manner. If EMS transport to the hospital is determined to be necessary, the Poison Center will contact the receiving hospital and provide information regarding the poisoning, including treatment recommendations. EMS may also contact On-Line Medical Control for further instructions or for treatment options.

If EMS transport is determined to *not be* necessary, the contact phone number for the patient will be provided to the Poison Center. The Poison Center will make a minimum of one follow-up phone call to determine the status of the patient. Additionally, the EMS Provider must contact On-Line Medical Control to review the case and discuss the recommendations of the Poison Center and what is believed to be in the best interest of the patient.

As detailed elsewhere in this document, exposures and/or poisonings that are the result of suicide attempts or gestures, or children who sustain an exposure and/or poisoning due to child abuse or neglect *SHOULD NOT be allowed to refuse transport*. These are both vulnerable populations who are at an increased risk of death or permanent disability if not cared for appropriately. As always, good Provider judgment and patient advocacy will be the cornerstones of making sound, defensible patient treatment decisions.

In any cases of poisoning, whether accidental, intentional or the consequence of a bioterrorism event, the safety of the First Responders should be of the highest priority. At a minimum, the following information should be gathered so that the Poison Center can make the best recommendations for the current situation

- ❑ Age of the patient
- ❑ Substance(s) involved with the exposure (if known)
- ❑ Time and Duration of exposure (if known)
- ❑ Signs and Symptoms
- ❑ Any Treatments provided and the response to the intervention

As with many of the EMS Protocols, a significant amount of information is collected by the EMS Providers on scene and can be extremely valuable for downstream providers. Be sure to notice and document HazMat placards in cases of transportation incidents, any MSDS sheets available in the industrial / manufacturing setting, or the contents and volumes of products / substances present in the cases of household ingestion.

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Policies

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

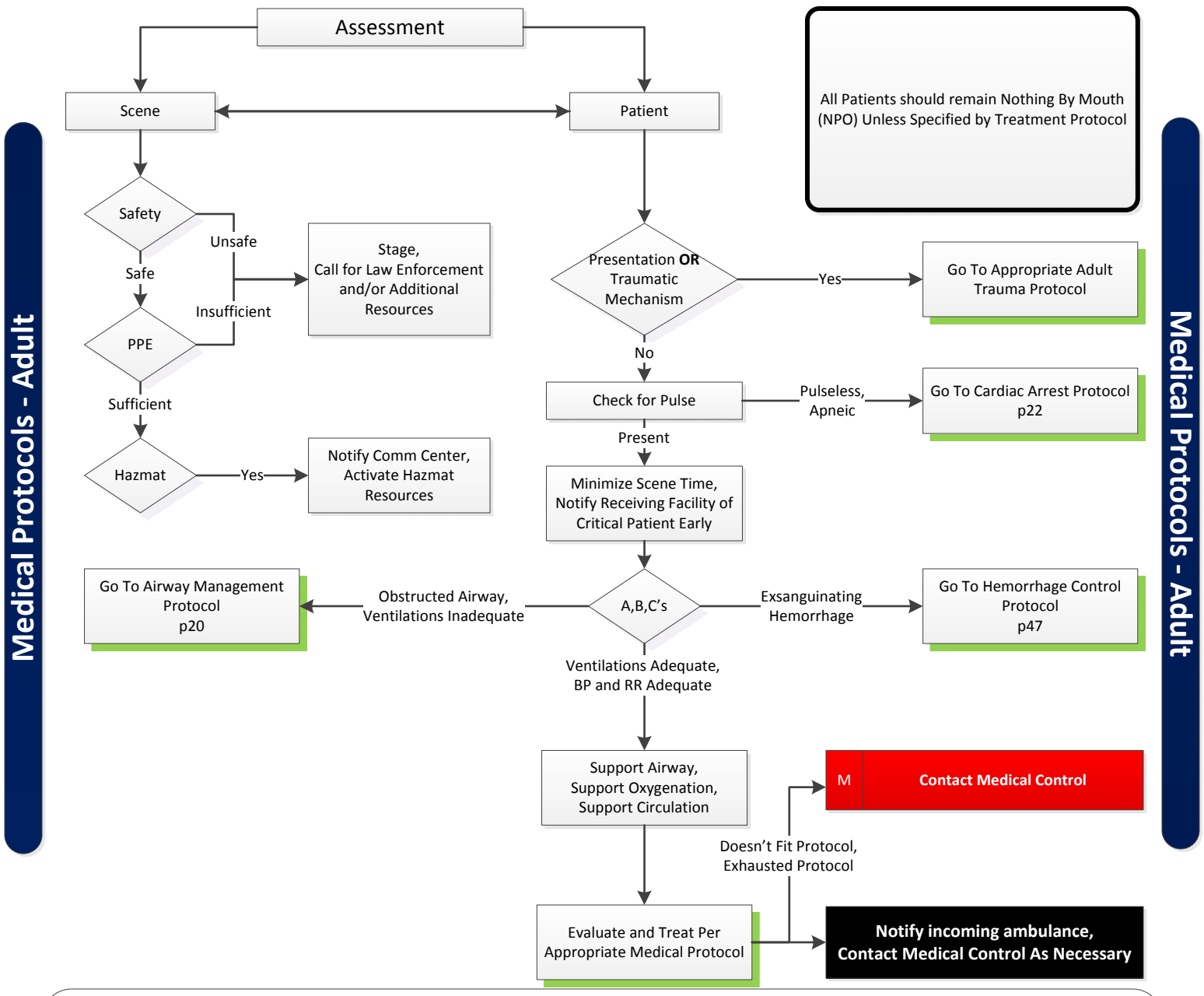
# General Approach – Adult, Medical

**Pertinent Positives and Negatives**

- Age, VS, BP, RR, SpO2
- SAMPLE history
- OPQRST history
- Source of blood loss, if any (GI, vaginal, AAA, ectopic)
- Source of fluid loss, if any (vomiting, diarrhea, fever)
- Pregnancy history
- Mental Status
- Pale, Cool Skin
- Delayed Cap Refill
- Coffee Ground Emesis
- Tarry Stools
- Allergen Exposure

**Differential**

- Cardiac Dysrhythmia
- Hypoglycemia
- Ectopic Pregnancy
- AAA
- Sepsis
- Occult Trauma
- Adrenal Insufficiency




**Pearls**

**REQUIRED EXAM: VS, GCS, Nature of Complaint**

- Include Blood Glucose reading for *any* patient with complaints of **weakness, altered mental status, seizure, loss of consciousness or known history of diabetes**
- Measure *and document* SpO2 for ANY patient with complaint of weakness, altered mental status, respiratory distress, respiratory failure or EMS managed airway
- Any patient contact which does not result in an EMS transport must have a completed refusal form.
- Never hesitate to consult medical control for assistance with patient refusals that can't meet all required fields, clarification of protocols or for patients that make you uncomfortable.

General Approach – Adult, Medical

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Airway Management - Adult

**Pertinent Positives and Negatives**

- Age, VS, SpO2, EtCO2, RR
- SAMPLE history
- OPQRST history
- History of CHF, COPD, Asthma
- Lung Sounds before *AND after* intervention
- Allergen Exposure
- Toxic / Environmental Exposure

**Differential**

- Head Injury
- Electrolyte Abnormality
- COPD Exacerbation
- CHF Exacerbation
- DM, CVA, Seizure, Tox
- Sepsis
- Asthma Exacerbation
- Drug Ingestion / Overdose

Medical Protocols - Adult

General Approach – Adult, Medical

Assess A,B,C's (RR, Effort, Adequacy)

Adequate → Supplemental Oxygen As Appropriate (Nasal Cannula, Facemask)

Supplemental Oxygen As Appropriate (Nasal Cannula, Facemask) → Evaluate and Treat Per Appropriate Adult, Medical Protocol

Inadequate → Basic Airway Maneuvers (Open Airway, Suction, NPA vs. OPA)

Basic Airway Maneuvers (Open Airway, Suction, NPA vs. OPA) ↔ Consider Need for ALS Level Service EARLY

If obstruction suspected, Go to Airway Obstruction Procedure p77

Assess Mental Status

Altered **AND/OR** Apneic → Bag-Valve Mask

Bag-Valve Mask

Consider Blindly Inserted Airway Device (BIAD); Max 2 Attempts ** p79

Awake **OR** Protecting Airway → Assess Air Movement and Chest Rise

Assess Air Movement and Chest Rise → Poor Chest Rise **OR** Poor Air Exchange → Bag-Valve Mask

Assess Air Movement and Chest Rise ← Poor Chest Rise **OR** Poor Air Exchange ← Bag-Valve Mask

Bag-Valve Mask

If obstruction suspected, Go to Airway Obstruction Procedure p77

Adequate Chest Rise **AND** Good Air Exchange → **Notify incoming ambulance, Contact Medical Control As Necessary**

Adequate Chest Rise **AND** Good Air Exchange → **Notify incoming ambulance, Contact Medical Control As Necessary**

Medical Protocols - Adult

**Pearls**

**REQUIRED EXAM: VS, GCS, Head, Neck, Blood Glucose**

- If Airway Management is adequately maintained with a Bag-Valve Mask and waveform SpO2 >93%, it is acceptable to defer advanced airway placement in favor of basic maneuvers and rapid transport to the hospital
- *Always* assume that patient reports of dyspnea and shortness of breath are physiologic, **NOT** psychogenic! Treatment for dyspnea is O2, not a paper bag!
- Gastric decompression with Oral Gastric Tube should be considered on all patients with advanced airways, if time and situation allow
- **** This Skill Requires Advanced Training and Approval**

Airway Management - Adult

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# COPD / Asthma - Adult

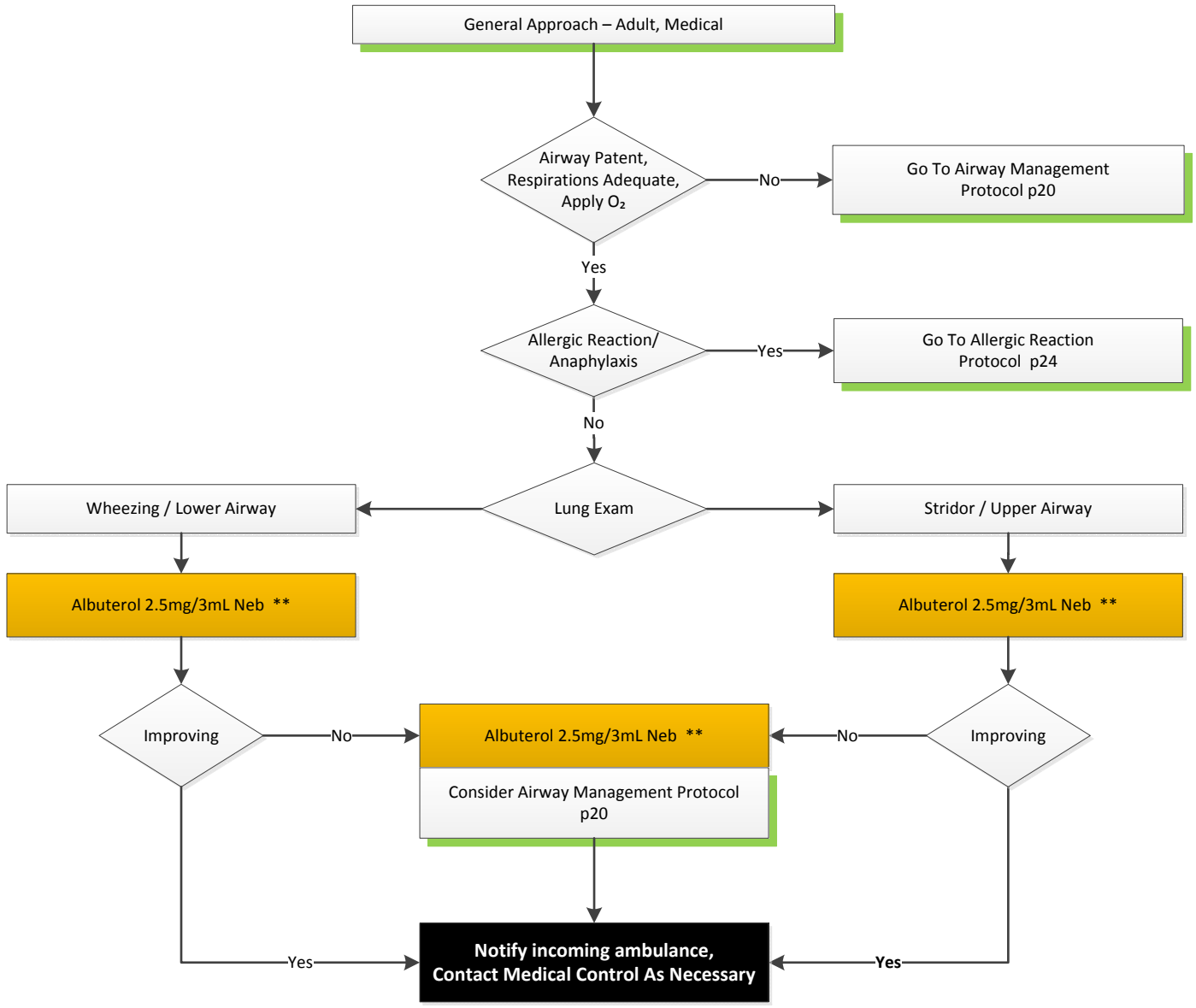
**Pertinent Positives/Negatives:**

- Age, VS, SpO2, EtCO2
- SAMPLE history
- OPQRST history
- Asthma, COPD, CHF history
- Home meds used prior to call (Nebs, Steroids, Theophylline)
- Wheezing, Rhonchi
- Accessory Muscle Use
- Decreased Ability to Speak
- History of CPAP/Intubation/ICU Admission from previous flares
- Smoke Exposure, Inhaled Toxins

**Differential**

- Simple Pneumothorax
- Tension Pneumothorax
- Pericardial Tamponade
- STEMI, CHF
- Inhaled Toxins (CO, CN, etc.)
- Anaphylaxis
- Asthma/COPD






Medical Protocols - Adult

**Pearls**

**REQUIRED EXAM: VS, GCS, RR, Lung Sounds, Accessory muscle use, nasal flaring**

- Do not delay administration of inhaled meds to get extended history
- Supplemental O2 for all cases of hypoxia, tachypnea, subjective air hunger
- Keep patient in position of comfort if partial obstruction
- Patients with COPD can retain CO2 and become altered; monitor mental status closely, *especially* when giving supplemental O2
- Severe Asthma may restrict airflow to such an extent that NO breath sounds are heard; wheezing may not be present until meds are given
- Albuterol has a MAXIMUM of 3 doses total
- ****This Skill Requires Advanced Training and Approval**

COPD / Asthma - Adult

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Cardiac Arrest - Adult

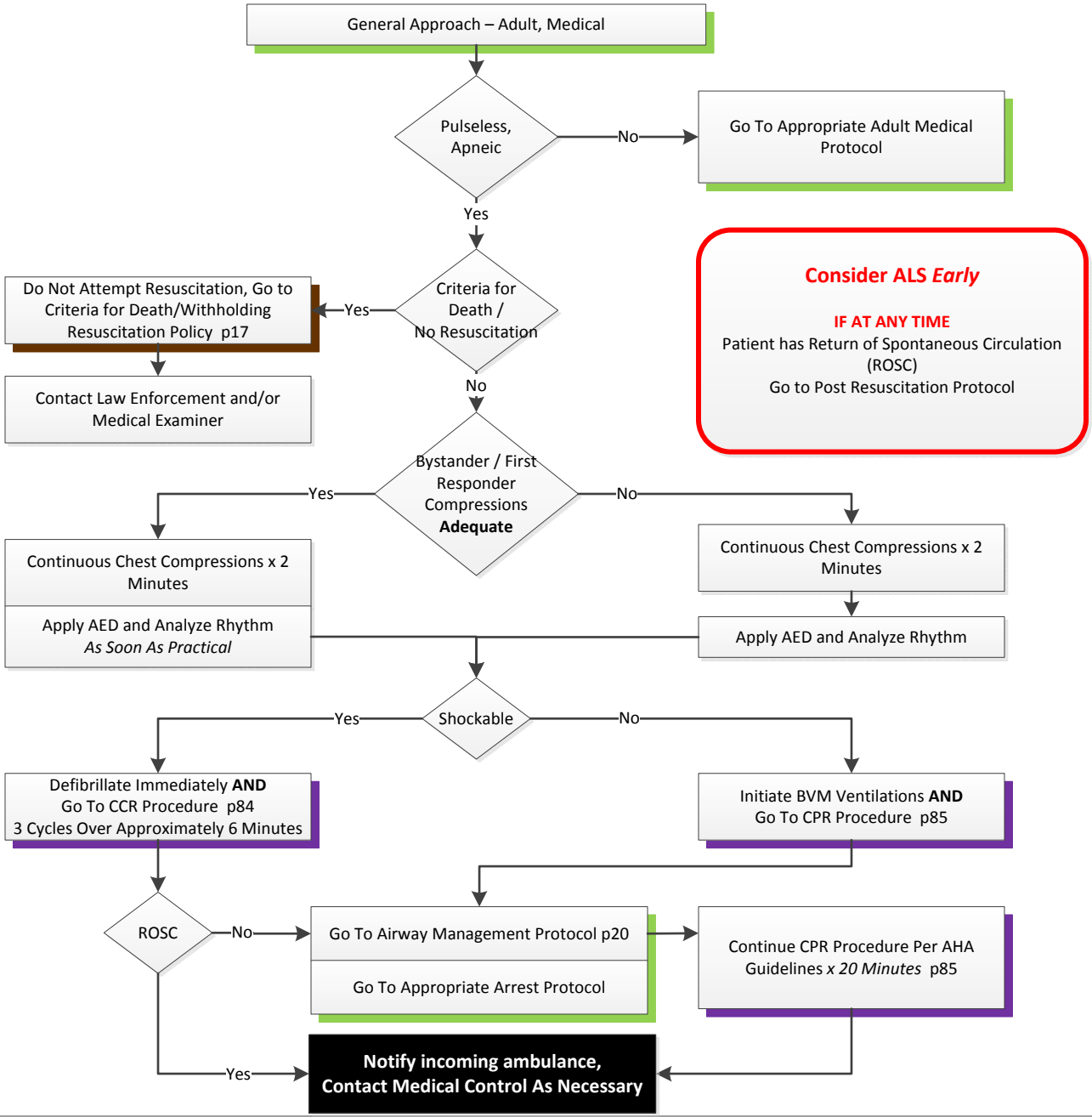
**Pertinent Positives and Negatives**

- Events leading to arrest
- Estimated downtime
- Past Medical History
- Medications
- Existence of terminal illness
- Signs of lividity, rigor mortis
- Code Status (Full Code, DNR, Partial)

**Differential**

- Medical or Trauma
- Shockable Dysrhythmia
- Non-Shockable Dysrhythmia
- Respiratory Arrest
- Hypoxia
- Toxic Exposure
- Metabolic Derangement






Medical Protocols - Adult

**Pearls**

**RECOMMENDED EXAM: Mental Status, Pulse, Initial and Final Rhythm**

- Immediately after defibrillation, resume chest compressions with a different operator compressing. Do not pause for post-shock rhythm analysis. Stop compressions only for signs of life (patient movement) or rhythm visible through compressions on monitor or pre-defibrillation rhythm analysis every 2 minutes and proceed to appropriate protocol
- **CCR is indicated in ADULT patients that have suffered cardiac arrest of a *presumed cardiac nature*.** CCR is NOT to be used in cardiac arrest due to overdose, hanging, drowning, trauma or individuals less than 18 years of age.
- **In the event a patient suffers cardiac arrest in the presence of EMS, the absolute highest priority is to apply the AED/Defibrillator and deliver a shock immediately if indicated.**
- Reassess airway frequently and with every patient move. Cycle compressors frequently – compression quality deteriorates before fatigue is perceived.
- Designate a "code leader" to coordinate transitions, defibrillation and pharmacological interventions. "Code Leader" ideally should have no procedural tasks.
- External Compression Devices may be considered if available and will not impede patient care.

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Chest Pain / Suspected Acute Coronary Syndrome - Adult

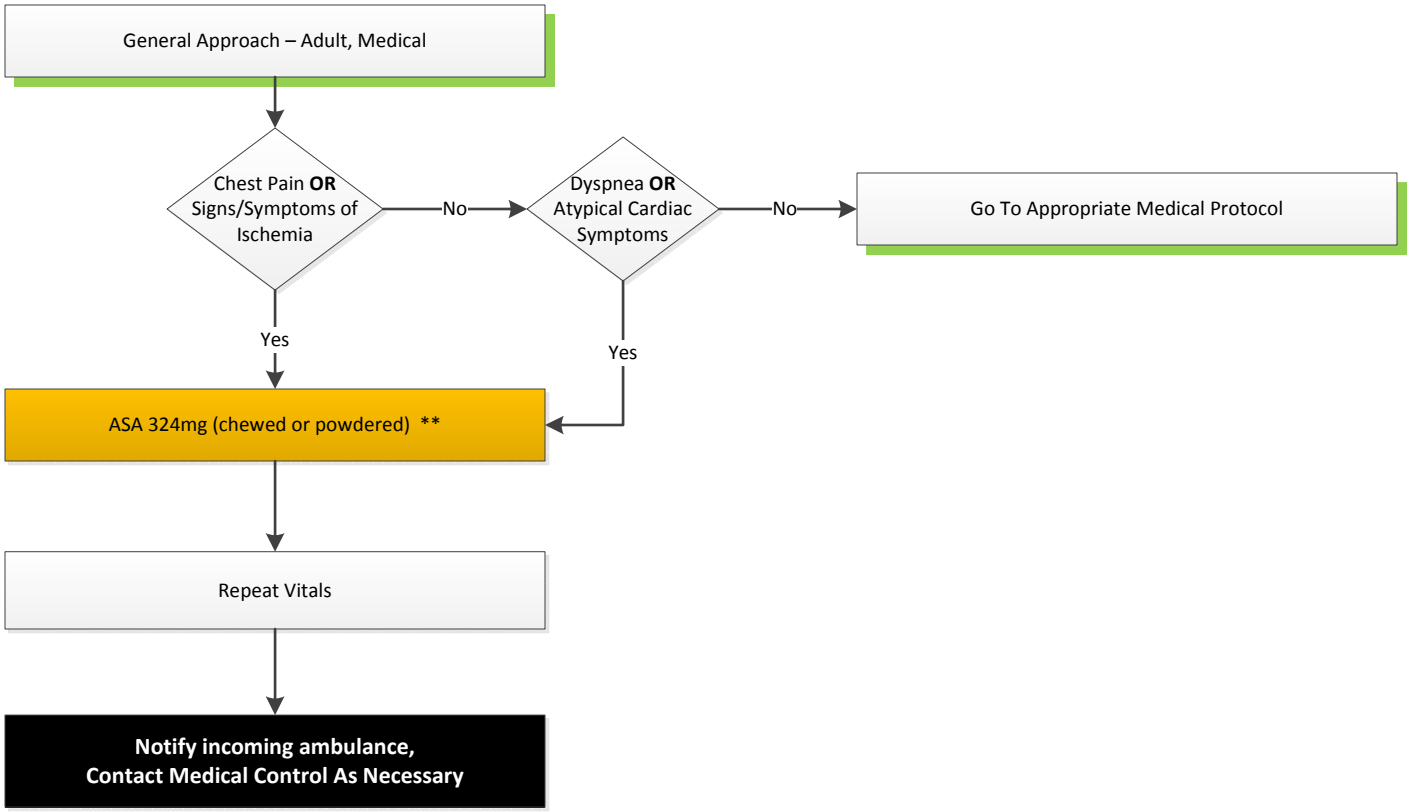
**Pertinent Positives and Negatives**

- Age, VS, SpO2, EtCO2, RR
- SAMPLE History
- OPQRST History
- CHF, CAD, Chest Pain History
- Home meds prior to EMS Arrival (Digoxin, Lasix, ASA, Viagra, Cialis)
- Respiratory Distress
- Orthopnea, JVD

**Differential**

- Pericardial Tamponade
- Pericarditis
- Asthma / COPD
- Aortic Dissection
- Sympathomimetic Overdose
- Pulmonary Embolism
- Esophageal Spasm
- Gastroesophageal Reflux (GERD)

Medical Protocols - Adult




Medical Protocols - Adult

**Pearls**

**REQUIRED EXAM: VS, GCS, RR, Lung Sounds, Cardiac Exam, JVD**

- Elderly patients, diabetics and women are more likely to have atypical chest pain – SOB, fatigue, weakness, back pain, jaw pain
- ****This Skill Requires Advanced Training and Approval**

Chest Pain / Suspected Acute Coronary Syndrome - Adult

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Allergic Reaction - Adult

**Pertinent Positives and Negatives**
- Age, VS, SpO2, EtCO2, RR
- SAMPLE history
- OPQRST history
- Onset and Location of Symptoms
- Lung Sounds before *AND after* intervention
- Allergen Exposure
- Toxic / Environmental Exposure
- Subjective throat "tightness" OR "closing"

**Differential**
- Urticaria (Rash Only)
- Anaphylaxis (Systemic Effect)
- Shock (Vascular Effect)
- Angioedema
- Aspiration / Airway Obstruction
- Vasovagal Event
- Asthma / COPD
- CHF

Medical Protocols - Adult

General Approach – Adult, Medical

Severity of Symptoms

**Mild**

Flushing, Hives, Itching, Erythema
Normal BP, **NO** Respiratory Involvement

**Moderate**

Flushing, Hives, Erythema PLUS
Dyspnea, Wheezing
Chest Tightness

Consider Epi 0.3mg IM (1:1000)
IF HR<150, Age <50 and no CAD **

M **Consider Epi 0.15 mg IM (1:1000) ** IF HR >150, Age ≥50 or CAD**

Albuterol 2.5mg/3mL Neb
May repeat Q10min, Max 3 **

**Severe**

Derm symptoms may not be present, depending on perfusion
Wheezing, Dyspnea, Hypoxia,
Nausea/Vomiting **PLUS** Hypotension

Epi 0.3mg IM (1:1000)
IF HR<150, Age <50 and no CAD **

M **Consider Epi 0.15 mg IM (1:1000) ** IF HR >150, Age ≥50 or CAD**

Albuterol 2.5mg/3mL Neb
May repeat Q10min, Max 3 **

**Imminent Cardiac Arrest**

Altered Mental Status, Hypotension,
Pallor, Diaphoresis, Weak Pulses

Epi 0.3mg IM (1:1000) **

Improving

Yes

Worsening/Refractory

Monitor and Reassess
Document Response to Medications

Worsening/Refractory

Consider Airway Management Protocol p20

Stable / Improving

**Notify incoming ambulance, Contact Medical Control As Necessary**

Medical Protocols - Adult

**Pearls**

**REQUIRED EXAM: VS, GCS, Skin, Cardivascular, Pulmonary**

- Contact Medical Control prior to administering epinephrine in patients who are ≥50 years old, have a history of Coronary Artery Disease (CAD) or if HR is >150, as epi may cause acute MI.
- Medical Control *may* authorize Epinephrine at ½ dose (0.15mg OR EpiPen Jr.) for patients ≥50, known CAD or if HR >150
- In general, the shorter the time from allergen contact to start of symptoms, the more severe the reaction
- Consider ALS EARLY in patients with symptoms that progress rapidly or that do not improve with treatments given above, as they have a high likelihood of severe illness
- Consider the Airway Management Protocol early in patients with Severe Allergic Reaction or subjective throat closing
- ****This Skill Requires Advanced Training and Approval**

Allergic Reaction - Adult

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Altered Mental Status - Adult

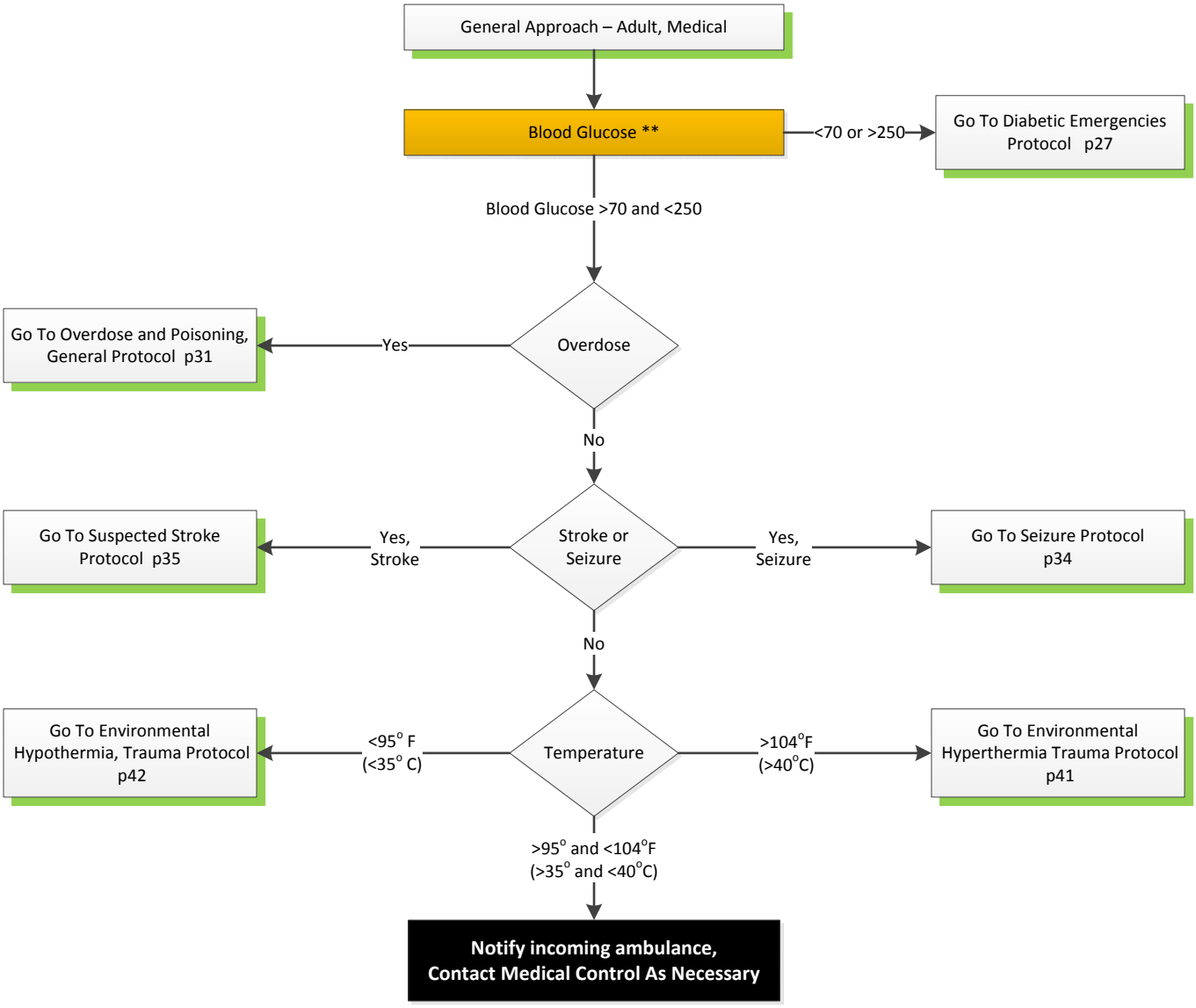
**Pertinent Positives and Negatives**

- Age, VS, SpO2, EtCO2, RR
- SAMPLE history
- OPQRST history
- History of DM, medic alert bracelet
- Drug paraphernalia or report of illicit drug use
- Evidence of environmental toxin / ingested toxin

**Differential**

- Head Injury
- Electrolyte Abnormality
- Psychiatric Disorder
- Cardiac Dysrhythmia
- DM, CVA, Seizure, Tox
- Sepsis
- Hypothermia
- Hypothyroidism
- Pulmonary

Medical Protocols - Adult




Medical Protocols - Adult

**Pearls**

**REQUIRED EXAM: VS, GCS, Head, Neck, Blood Glucose**

- Pay special attention to head and neck exam for bruising or signs of injury
- Altered Mental Status may be the presenting sign of environmental hazards / toxins. Protect yourself and other providers / community if concern. Involve Hazmat early
- Safer to assume hypoglycemia if doubt exists. Recheck blood sugar after dextrose/glutose administration and reassess
- **Do not let EtOH fool you!!** Alcoholics frequently develop hypoglycemia, Alcoholic Ketoacidosis (AKA) and often hide traumatic injuries!
- ****This Skill Requires Advanced Training and Approval**

Altered Mental Status - Adult

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Behavioral / Excited Delirium - Adult

**Pertinent Positives and Negatives**
- Age, VS, SpO2, EtCO2, RR
- SAMPLE history
- OPQRST history
- Situational Crisis
- Psychiatric Illness / Medication History
- Medic Alert Bracelet, DM History
- Anxiety, Agitation or Confusion
- Suicidal / Homicidal Thoughts or History
- Evidence of Substance Use / Overdose

**Differential**
- EtOH Intoxication / Withdrawal
- Toxic Ingestion
- Substance Use / Abuse
- Schizophrenia
- Hypoglycemia
- Hypoxia
- Head Injury
- Occult Trauma
- Cerebral Hypoperfusion

Medical Protocols - Adult

General Approach – Adult, Medical

Provider Safety

No → Stage, Call for Law Enforcement and/or Additional Resources

→ Consider Altered Mental Status Protocol, As Appropriate p25

Yes

Consider Need for ALS Level Service EARLY

Consider Safety of ALL Responders including Law Enforcement

Evidence of Exposure / Toxidrome

Yes → Go To Overdose / Poisoning General Protocol p31

No

Evidence of Head Injury

No → Remove Patient from stressful environment, use verbal calming techniques

Yes → Go To Head Injury, Adult Trauma Protocol p46

No

Blood Sugar

<70 → Go To Diabetic Emergencies Protocol p27

≥70 **OR** Unobtainable Due to Condition

Uncooperative **AND** Danger To Self or Others

No → Reassess. Follow Mental Status, SpO2, Respiratory Effort and Rate CLOSELY

Yes → Stage, Call for Law Enforcement and/or Additional Resources

**Notify incoming ambulance, Contact Medical Control As Necessary**

Medical Protocols - Adult

**Pearls**

**REQUIRED EXAM: VS, GCS, Skin, Cardivascular, Pulmonary**

- Safety First – For Providers, Police and Patients! Never restrain any patients in the prone (face down) position
- All patients who require chemical restraint MUST be continuously monitored by ALS Personnel on scene or immediately upon their arrival
- Patients who are actively fighting physical restraints are at high risk for Excited Delirium and In-Custody Death; Have a low threshold to activate ALS for chemical restraint
- Transport of patients requiring handcuffs or Law Enforcement (LE) restraint **require** LE to ride in the ambulance to the hospital – they have the keys!
- If a patient with Excited Delirium suddenly becomes cooperative/quiet, *reassess them quickly*! *Sudden Cardiac Death is common in this population*

Behavioral / Excited Delirium - Adult

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Diabetic Emergencies - Adult

**Pertinent Positives/Negatives:**

- Age, VS, Blood Glucose Reading
- SAMPLE History
- OPQRST History
- Last Meal, History of Skipped Meal
- Diaphoresis
- Seizures
- Abnormal Respiratory Rate
- History of DKA

**Differential**

- Toxic Ingestion
- Head Injury
- Sepsis
- Stroke/TIA
- Seizure
- EtOH Abuse/Withdrawal
- Drug Abuse/Withdrawal


**Pearls**

**REQUIRED EXAM: VS, SpO2, Blood Glucose, Skin, Respiratory Rate and Effort, Neuro Exam**

- Do NOT administer oral glucose to patients that can't swallow or adequately protect their airway
- Patients on oral diabetes medications are at a very high risk of recurrent hypoglycemia and should be transported. Contact Medical Control for advice/ patient counseling if patient is refusing. See Refusal after Hypoglycemia Treatment Protocol for additional information as necessary.
- Always consider intentional insulin overdose, and ask patients / family / friends / witnesses about suicidal ideation or gestures
- ****This Skill Requires Advanced Training and Approval**

Diabetic Emergencies - Adult

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# OB General - Adult

**Pertinent Positives and Negatives**

- Age, VS, SpO2, EtCO2, RR
- SAMPLE history
- OPQRST history
- Pregnancy History (G's and P's)
- Headache
- Abdominal Pain +/- Contractions
- Blurred Vision
- Vaginal Bleeding
- Chest Pain, Dyspnea, Hypoxia

**Differential**

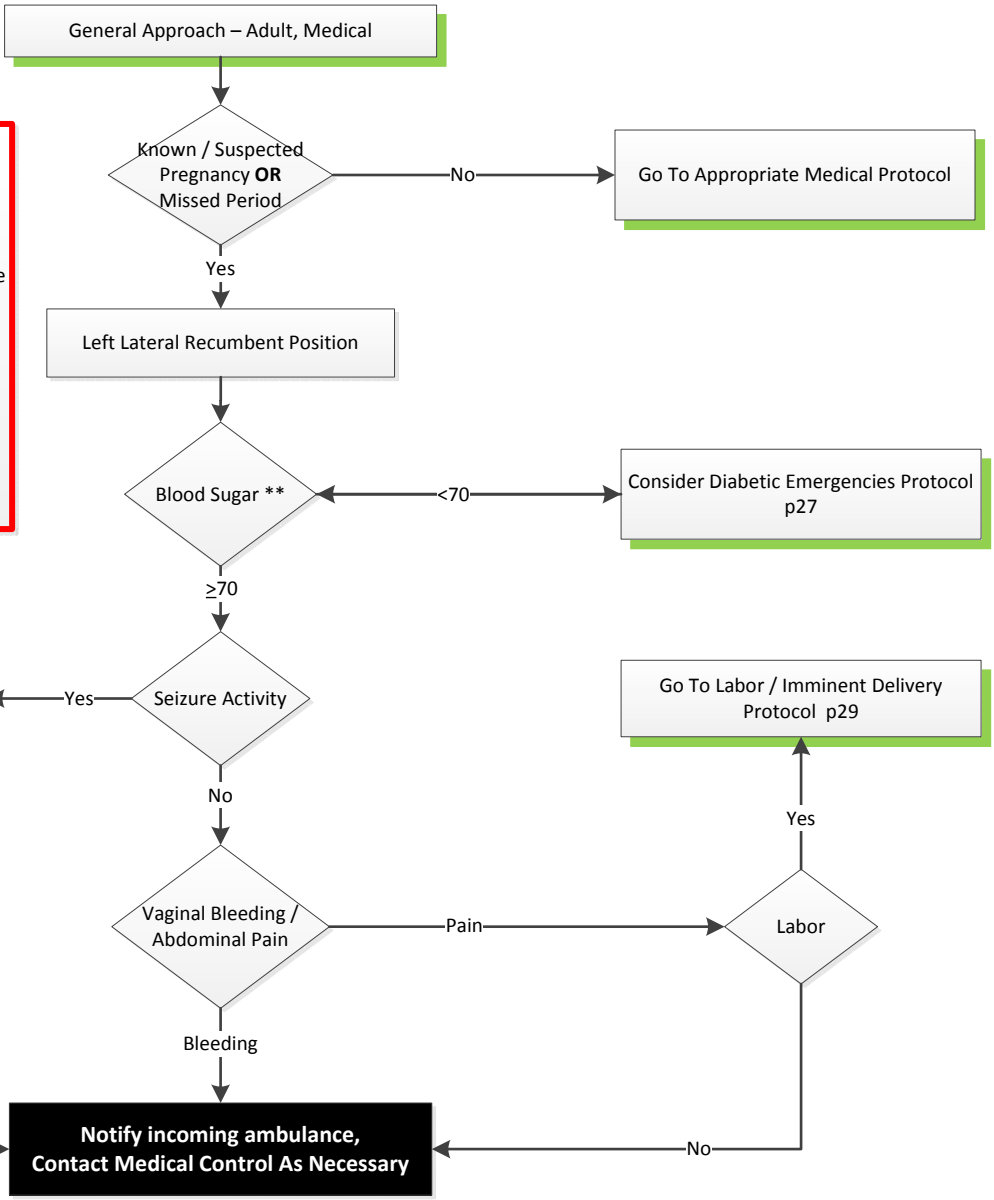
- Pre-Eclampsia / Eclampsia
- Ectopic Pregnancy
- Hypertensive Encephalopathy
- Uterine Rupture
- Pulmonary Embolism
- Threatened / Impending / Missed Spontaneous Abortion
- Head Injury / Cushing's Reflex (Bradycardia + HTN)
- Domestic Abuse

Medical Protocols - Adult

Remember you have TWO patients during pregnancy; evaluate, treat and protect **BOTH**

Left Lateral Recumbent Position takes pressure off of the Inferior Vena Cava and prevents supine hypotension

**Preeclampsia** and **Eclampsia** are typically encountered in 3rd trimester, but may be in late 2nd trimester and up to 6 weeks after delivery




Medical Protocols - Adult

**Pearls**

**REQUIRED EXAM: VS, GCS, Mental Status, Neuro, Abdominal Exam, Cardiovascular**

- Hypertension, Severe headache, vision changes, RUQ pain, diffuse edema may indicate preeclampsia. This may progress to seizures (eclampsia).
- Any pregnant patient involved in an MVC or other trauma should be evaluated by MD for evaluation and fetal monitoring
- ****This Skill Requires Advanced Training and Approval**

OB General - Adult

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Labor / Imminent Delivery - Adult

**Pertinent Positives and Negatives**

- Age, VS, SpO2, EtCO2, RR
- SAMPLE history
- OPQRST history
- Pregnancy History (G's and P's)
- Estimated Due Date
- Prenatal Care / High Risk Pregnancy
- Time of Contraction Onset, Frequency
- Rupture of Membranes and Time
- Sensation of Fetal Movement

**Differential**

- Endometritis
- Normal Active Labor
- Abnormal Presentation
- Prolapsed Cord
- Preterm Labor
- Threatened / Impending / Missed Spontaneous Abortion
- Premature Rupture of Membranes
- Placenta Previa / Placenta Abruption

General Approach – Adult, Medical

Abnormal Vaginal Bleeding / Hypertension

Yes → Go To OB General Protocol p28

No

**Left Lateral Recumbent Position**

**Unable To Deliver**

Create air passage by supporting presenting part of infant

Place 2 fingers alongside the nose and push away from the infant's face

Transport in Knee-Chest or Left Lateral Recumbent Position

M **Contact Medical Control**

**Cord**

Consider double clamping cord 10-12cm from infant abdomen, once cord stops pulsating cut between the clamps

Inspect Perineum
**NO** Digital Vaginal Exam

**No Crowning**

Monitor and Document VS
Reassess Frequently

Crowning, ≥36 Weeks Gestation

Yes → Presentation

**Crowning, ≥36 Weeks Gestation**

**Crowning, <36 Weeks Gestation**
Abnormal Presentation
Severe Vaginal Bleeding
Multiple Gestation

Activate ALS

Expedite Transport to Nearest OB Receiving Facility

No

**Presentation**

**Prolapsed Cord / Shoulder Dystocia**

- Hips Elevated, Knees to Chest
- Insert Gloved Fingers Into Vagina Relieve Pressure on Umbilical Cord
- Moist Saline Dressing Over Cord Eval Fetal Heart Rate / Cord Pulsation

**Breech / Footling / Abnormal Presentation**

- Transport knees to chest Unless Delivery Imminent
- Encourage Mother to Refrain from Pushing
- Support Presenting Parts, Do **NOT** Pull

**Crowning, Delivery Imminent**

- Control delivery with gentle support of head to prevent injury to Mother/Baby
- Check for nuchal cord; if present slip over head gently
- Gently apply downward pressure to deliver anterior shoulder, then upward to deliver posterior shoulder

**Notify incoming ambulance, Contact Medical Control As Necessary**

Medical Protocols - Adult

Medical Protocols - Adult

**Pearls**

**REQUIRED EXAM: VS, GCS, Mental Status, Neuro, Abdominal Exam, Cardiovascular**

- **If Delivery is Completed, go to *Newly Born Protocol* for evaluation and management of the infant**
- Remember that you have TWO patients during Pregnancy, Labor and Delivery; be sure to monitor and protect both throughout your management
- After Delivery, massage the uterus through the anterior abdomen and wait for the placenta; **NEVER** pull on the umbilical cord to expedite the afterbirth
- Record the APGAR Scores for the infant at 1minute and 5minutes after delivery; if either in the Moderately Depressed range, continue to record and document every 5 minutes while supporting the infant per the Newly Born Protocol

Labor / Imminent Delivery - Adult

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Newly Born - Peds

**Pertinent Positives and Negatives**

- Age, VS, SpO2, EtCO2, RR
- SAMPLE history
- OPQRST history
- Pregnancy History (G's and P's)
- Estimated Due Date
- Prenatal Care / High Risk Pregnancy
- Time of Contraction Onset, Frequency
- Rupture of Membranes and Time
- Sensation of Fetal Movement

**Differential**

- Maternal Medication Effect
- Hypovolemia
- Pneumothorax
- Hypoglycemia
- Congenital Heart Defect
- Maternal / Newborn Infection / Sepsis
- Airway Obstruction – Secretions
- Choanal Atresia (imperforate nares)

**Airway Suctioning**

Routine Suctioning of the Newborn is NO LONGER Recommended

**Clear Amniotic Fluid**

Suction ONLY when obstruction is present and/or BVM is required

**Meconium Present**

Non-Vigorous Newborns may undergo suctioning under direct laryngoscopy

M **Contact Medical Control If Any Questions**

| | 0 Points | 1 Point | 2 Points | Points Totaled |
|---|---|---|---|---|
| Activity (Muscle Tone) | Absent | Arms and Legs Flexed | Active Movement | |
| Pulse | Absent | <100 bpm | ≥100 bpm Active | |
| Grimace (Reflexes, Irritability) | Flaccid | Some Flexion of Extremities | Motion (Sneeze, Cough, Pull | |
| Appearance (Skin Color) | Blue, Pale | Body Pink, Extremities Blue | Completely Pink | |
| Respirations | Absent | Slow, Irregular | Vigorous Cry | |

| | |
|---|---|
| Severely Depressed | 0-3 |
| Moderately Depressed | 4-6 |
| Excellent Condition | 7-10 |

Medical Protocols - Adult

Labor / Imminent Delivery – Adult, Medical

Term Gestation Breathing or Crying Good Muscle Tone

Yes → Provide Warmth, Dry Infant Wipe Mouth, then Nose As Needed → Pulse Oximetry → Skin-To-Skin Contact With Mother If Situation Appropriate

No → Warm, Dry and Stimulate Infant Clear Mouth, then Nose As Needed

Heart Rate <100 Agonal Breathing **OR** Apnea

No → Labored Breathing / Persistent Cyanosis

Labored Breathing / Persistent Cyanosis → No → Skin-To-Skin Contact With Mother If Situation Appropriate

Yes (Heart Rate <100 Agonal Breathing OR Apnea) → BVM Assisted Ventilations with 10-15L X 30 seconds, 60bpm → Pulse Oximetry

Yes (Labored Breathing / Persistent Cyanosis) → BVM Assisted Ventilations with 10-15L X 30 seconds, 60bpm

Heart Rate <100

Yes → Consider Neonatal Resuscitation Protocol p57

No → Supplemental O2 via Blow-By Maintain SpO2 ≥93% → Pulse Oximetry → Skin-To-Skin Contact With Mother If Situation Appropriate

Yes → BVM Assisted Ventilations with 10-15L X 30 seconds, 60bpm → Pulse Oximetry

Heart Rate <60

Yes → Go To Neonatal Resuscitation Protocol p57

No → **Notify incoming ambulance, Contact Medical Control As Necessary**

Medical Protocols - Adult

**Pearls**

**REQUIRED EXAM: VS, GCS, Mental Status, Neuro, Abdominal Exam, Cardiovascular**

- Most Newborns requiring resuscitation will respond to supplemental O2, BVMs, airway clearing maneuvers. If not, go to Neonatal Resuscitation Protocol
- Consider birth trauma during evaluation of non-vigorous Newborn; pneumothorax, hypovolemia, hypoglycemia
- Term gestation, strong cry / adequate respirations with good tone will generally need no resuscitation
- Expected Pulse Ox Readings: Birth – 1min = 60-65%, 1-2min = 65-70%, 3-4min = 70-75%, 4-5min = 75-80%, 5-10min = 80-85%, >10min = >90%
- APGAR scores at 1min and 5 min. Appearance, Pulse, Grimace, Activity, Respirations. Each score gets 0, 1 or 2 points (Total 10). If either in the moderately depressed range, continue to record and document every 5 minutes.

Newly Born - Peds

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Overdose and Poisoning, General - Adult

**Pertinent Positives/Negatives:**

- Age, VS, SpO2, EtCO2, RR
- SAMPLE history
- OPQRST history
- History of Ingestion or Suspected Ingestion
- Dysrhythmias
- SLUDGEM
- DUMBELLS
- Time of Ingestion
- Type, Number and Dose of Pills Taken (if known)
- Seizures
- Mental Status Change
- Vomiting

**Differential**

- Head Injury
- Hazmat Exposure
- Electrolyte Imbalance
- DM, CVA, Seizure
- Sepsis

**Remember D.E.B.**
**Do Everyone's Blood Sugar!!**

Medical Protocols - Adult

General Approach – Adult, Medical

Hazmat Scene
- Yes → Call For Additional Resources, Stage Until Safe
- No → Pulse

Pulse
- Absent → Go To Cardiac Arrest Protocol p22
- Present → Assess Respirations, Ventilations and Oxygenation

Assess Respirations, Ventilations and Oxygenation
- Inadequate → Airway Management Protocol p20
- Adequate → Blood Sugar **

Blood Sugar **
- <70 → Go To Diabetic Emergencies Protocol p27
- ≥70 → Assess Mental Status

Assess Mental Status
- Altered / Somnolent, Hypoxic → Administer Supplemental O2 to Maintain SpO2 ≥93%
- Awake, Protecting Airway → Look For Potential Causes

Administer Supplemental O2 to Maintain SpO2 ≥93% → Opiate Overdose

Opiate Overdose
- No → Look For Potential Causes
- Yes → Naloxone 0.5-1mg IN ** per nare, may repeat **ONCE**

Naloxone 0.5-1mg IN ** per nare, may repeat **ONCE**
- No improvement → Look For Potential Causes
- Improved → Notify incoming ambulance, Contact Medical Control As Necessary

Look For Potential Causes → Notify incoming ambulance, Contact Medical Control As Necessary

**Single Agent Opiate Medications**

Oxycodone
Hydrocodone
Morphine
Heroin
Dilaudid
Fentanyl
Codeine

**Combination Opiate Medications**

Vicodin – Hydrocodone + Tylenol
Norco – Hydrocodone + Tylenol
Percocet – Oxycodone + Tylenol
Darvocet – Darvon + Tylenol
Vicoprofen – Hydrocodone + Ibuprofen
T3 – Tylenol + Codeine

**Long-Acting Opiate Medications**

Oxycontin
MS Contin
Methadone

Medical Protocols - Adult

**Pearls**

**REQUIRED EXAM: VS, GCS, Mental Status, Skin, Blood Glucose**

- Patients are unreliable historians in overdose situations, particularly in suicide attempts. Trust what they tell you, but verify (pill bottles, circumstances, etc.)
- Bring pill bottles, contents, emesis to the ED for evaluation and assessment
- Be careful of off-gassing in cases of inhalation of volatile agents
- Many intentional overdoses involve multiple substances, Contact Poison Control for all non-opiate overdoses: **1-800-222-1222**
- **SLUDGEM – S**alivation, **L**acrimation, **U**rination, **D**efecation, **G**I Upset, **E**mesis, **M**iosis
- **DUMBELLS -D**iarrhea, **U**rination, **M**iosis/**M**uscle Weakness, **B**ronchorrhea, **E**mesis, **L**acrimation, **L**ethargy, **S**alivation/**S**weating
- ****This Skill Requires Advanced Training and Approval**

Overdose and Poisoning, General - Adult

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Carbon Monoxide Poisoning - Adult

**Pertinent Positives/Negatives:**

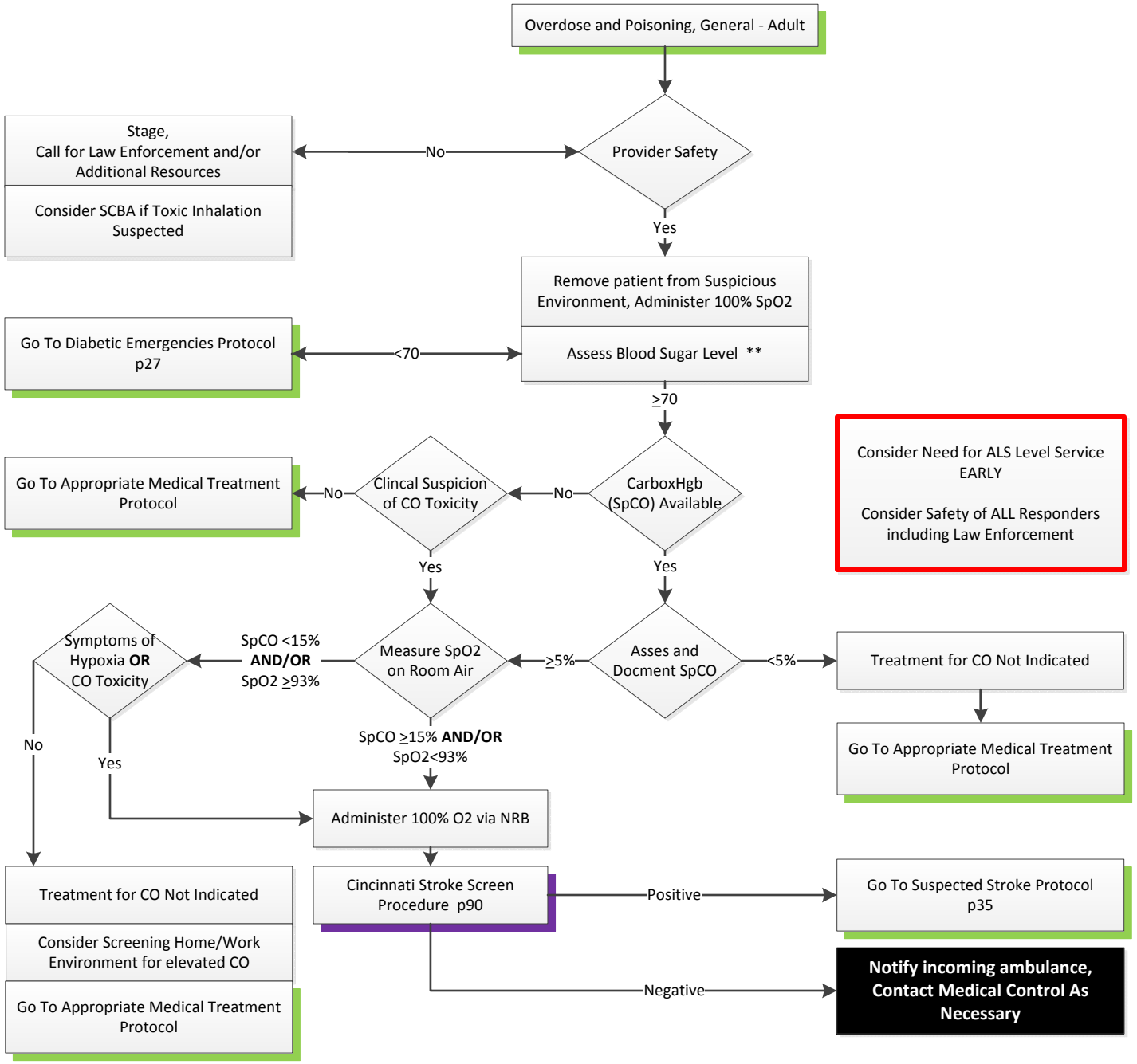
- Age, VS, SpO2, EtCO2, RR
- SAMPLE history
- OPQRST history
- Known or suspected CO Exposure
- Source and Duration of Exposure
- Dysrhythmias
- Headache, Nausea/Vomiting
- Chest Pain, Arrhythmias
- Respiratory Distress
- Seizures
- Mental Status Change
- Vomiting

**Differential**

- Acute Myocardial Infarction
- Hypoglycemia
- Diabetic Ketoacidosis
- Subarachnoid Hemorrhage
- Acute Stroke
- Influenza
- Other toxic inhalation
- Tension Headache



Medical Protocols - Adult




**Pearls**

**REQUIRED EXAM: VS, GCS, Mental Status, Neuro, Abdominal Exam, Cardiovascular**

- Fetal hemoglobin has a stronger affinity for CO than adult, and will preferentially take the CO from the Mother, giving her a FALSE LOW SpCO level
- Hospital evaluation should be strongly encouraged for any pregnant or suspected to be pregnant females
- The absence or low levels of SpCO is not a reliable predictor of firefighter/victim exposures to other toxic byproducts of combustion. Consider the Cyanide Poisoning Protocol
- Multiple patients presenting with vague, influenza-like symptoms simultaneously should raise your suspicion of CO exposure. Ask about home heating methods, generator use, exposure to combustible fuels
- ****This Skill Requires Advanced Training and Approval**

Carbon Monoxide Poisoning - Adult

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Refusal Protocol - Adult

**Pertinent Positives and Negatives**

- Age, VS, BP, RR, SpO2
- SAMPLE history
- OPQRST history
- Mental Status
- Pale, Cool Skin
- Delayed Cap Refill

**Differential**

- Cardiac Dysrhythmia
- Hypoglycemia
- Overdose
- Toxidrome
- Sepsis
- Occult Trauma
- Adrenal Insufficiency



General Approach – Adult, Medical

- ❑ ≥18 Years of Age **OR**
- ❑ Court Emancipated Minor **OR**
- ❑ Legally Married Person of Any Age **OR**
- ❑ Unwed Pregnant Female <18 **IF and ONLY IF** EMS Call Related to Pregnancy

No → Parent/Legal Guardian of Patient Can Be Contacted

Yes → Pediatric Refusal Protocol p63

Yes

- ❑ Altered Mental Status **OR**
- ❑ Impaired Decision Making Ability **OR**
- ❑ Hallucinations or Thought Disorder **OR**
- ❑ Incapacitated* **OR**
- ❑ Suicidal or Homicidal Ideation

Yes → Transport Required Under Implied Consent **OR** Police Protective Custody

No

- ❑ Clinically Intoxicated** **OR**
- ❑ EtOH Use AND *Prudent EMS Provider* Believes Treatment IS Needed

Yes →

- ❑ Consult PD To Determine Appropriate Disposition
- ❑ Transport by Ambulance or Alternative (Wisconsin State Statute 51.45)
- ❑ Police Officer Name and Badge Number REQUIRED in Documentation

No

- ❑ Document assessment including mental status, physical exam, vitals, blood glucose and SpO2
- ❑ Assure that the patient/parent/guardian understands the possible consequences of refusal
- ❑ Complete documentation of refusal and obtain signatures
- ❑ Contact On-Line Medical Control for refusals that arise after EMS treatment has been initiated

Medical Protocols - Adult

**Pearls**

**REQUIRED EXAM: VS, GCS, Nature of Complaint**

- *Incapacitated definition: A person who, because of alcohol consumption or withdrawal, is unconscious or whose judgment is impaired such that they are incapable of making rational decisions as evidenced by extreme physical debilitation, physical harm or threats of harm to themselves, others or property. Evidence of incapacitation: inability to stand on ones own, staggering, falling, wobbling, vomit/urination/defecation on clothing, inability to understand and respond to questions, DTs, unconsciousness, walking or sleeping where subject to danger, hostile toward others.
- **Intoxicated definition: A person whose mental or physical functioning is substantially impaired as a result of the use of alcohol.
- If there is ANY question, do not hesitate to involve Law Enforcement to ensure the best decisions are being made on behalf of the patient.

Refusal Protocol - Adult

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Seizure - Adult

**Pertinent Positives and Negatives**

- Age, VS, GCS, SpO2, Blood Sugar
- SAMPLE History
- OPQRST History
- Seizure History, Med Compliance
- Bowel or Bladder Incontinence
- Tongue Biting
- Pregnancy History
- Evidence of Trauma
- Number of Seizures and Duration

**Differential**

- Hypoxia
- Hypoglycemia
- Electrolyte Imbalance
- Eclampsia
- Stroke
- Hyperthermia
- Drugs, EtOH Abuse
- Drugs, EtOH Withdrawal
- Occult Head Injury
- Tumor
- Liver / Kidney Failure
- Infection / Sepsis


Medical Protocols - Adult

Medical Protocols - Adult

**Pearls**

**REQUIRED EXAM: Blood Sugar, SpO2, GCS, Neuro Exam**

- Status epilepticus is >2 successive seizures without recovery or consciousness in between. This is a TRUE EMERGENCY requiring Airway Management and rapid transport
- Assess for possibility of occult trauma, substance abuse
- ****This Skill Requires Advanced Training and Approval**

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

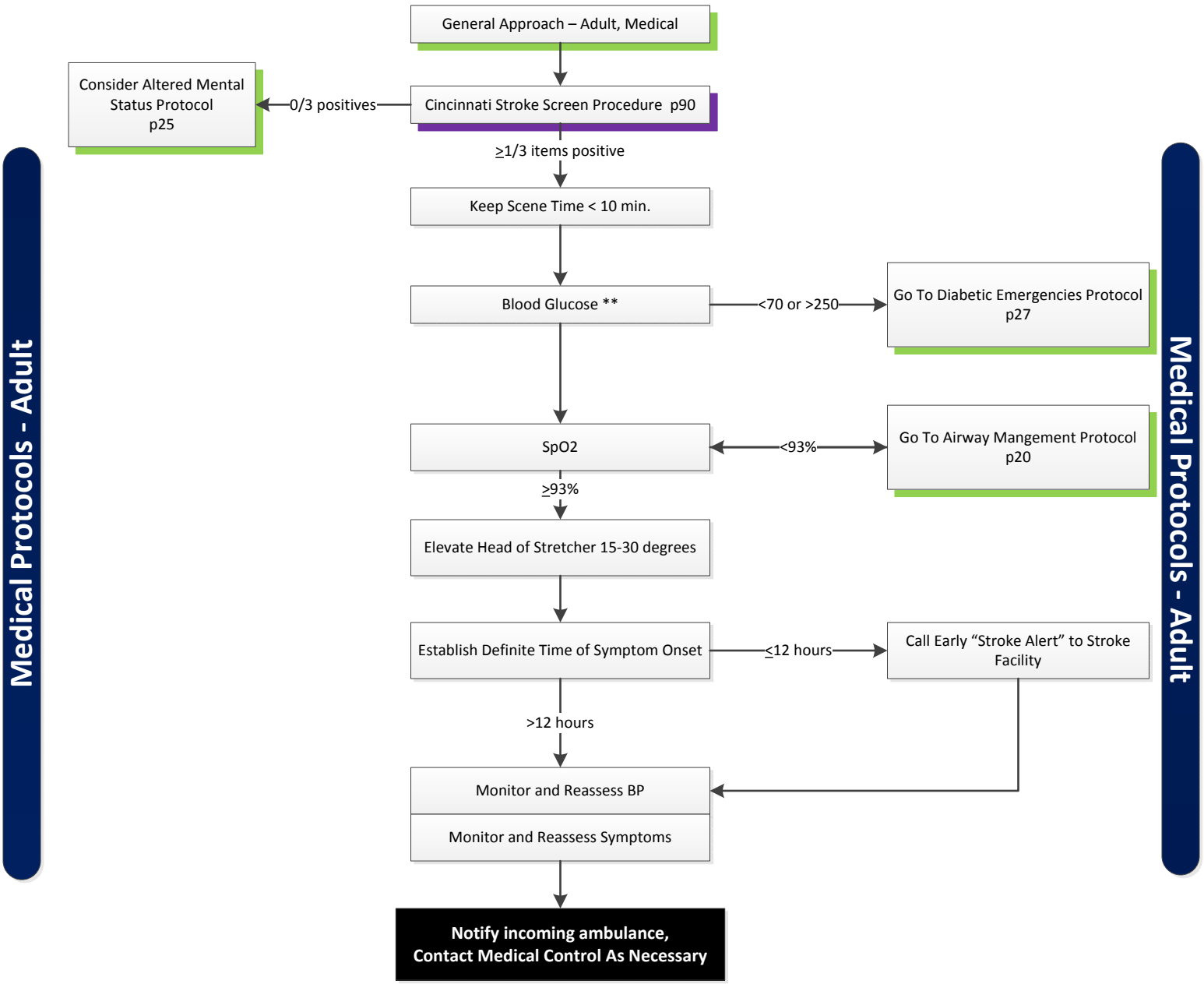
# Suspected Stroke - Adult

**Pertinent Positive/Negative:**

- SAMPLE History
- OPQRST History
- History of CVA, TIA
- Previous Cardiac, Vascular Surgery
- Anticoagulant Use
- Weakness / Paralysis
- Aphasia / Dysarthria
- Headache
- Vertigo
- Seizure

**Differential**

- TIA
- Seizure
- Hypoglycemia
- Tumor
- Occult Trauma
- Stroke
  - -Thrombolic (~85%)
  - -Hemorrhagic (~15%)




**Pearls**

**REQUIRED EXAM: VS, SpO2, Blood Glucose, Neuro Exam, Cincinnati Stroke Scale**

- Thrombolytic Screening Protocol should be completed for any suspected stroke patient
- Think **FAST** – **F**acial Asymmetry, **A**rm Strength, **S**peech and **T**ime since last seen normal
- Be very diligent observing for airway compromise in suspected acute stroke (swallowing, vomiting, aspirating)
- Hypoglycemia, Infection and Hypoxia can present with Neurologic deficit, *especially in the elderly*.
- ****This Skill Requires Advanced Training and Approval**

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

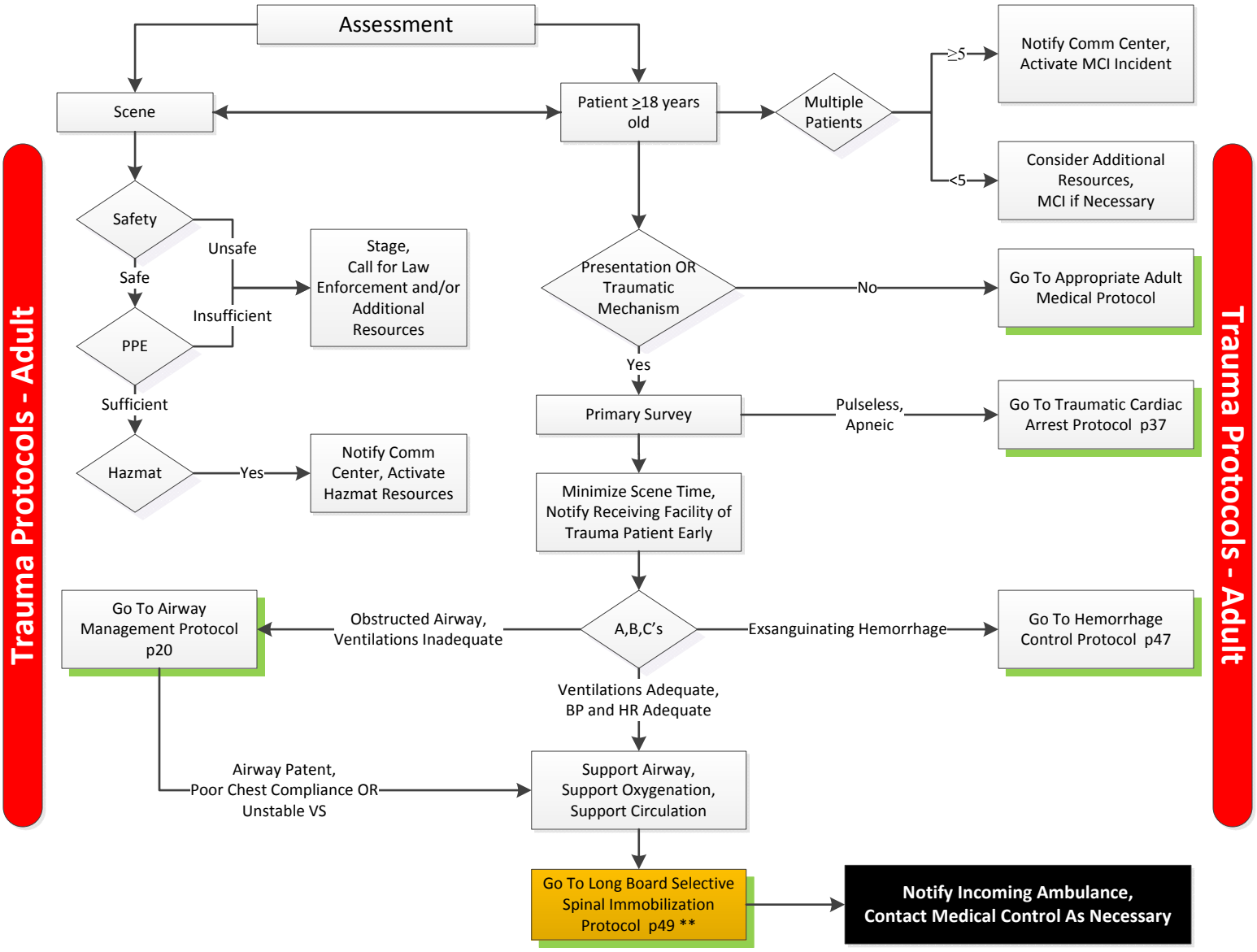
# General Approach – Adult, Trauma

**Pertinent Positives and Negatives**

- Age, VS, GCS
- Time of Injury, Mechanism of Injury
- DCAP-BTLS
- SAMPLE History
- OPQRST History
- Pain / Swelling
- Mental Status
- Hypotension / Shock

**Differential**

- Stroke
- STEMI
- Overdose
- Elder Abuse
- Domestic Violence
- Non-Accidental Trauma




**Pearls**

**REQUIRED EXAM: Vital Signs, GCS, Loss of Consciousness, Location of Pain (then targeted per Appropriate Trauma Protocol)**

- Assess for major trauma criteria immediately upon patient contact
  - -RR <10 or >29; SBP <90; Pulse <50 or >140; GCS <13; SpO2<93%
  - -Minimize scene time to goal of <10 minutes
- Disability – assess for neuro deficits including paralysis, weakness, abnormal sensation
- ****This Skill Requires Advanced Training and Approval**

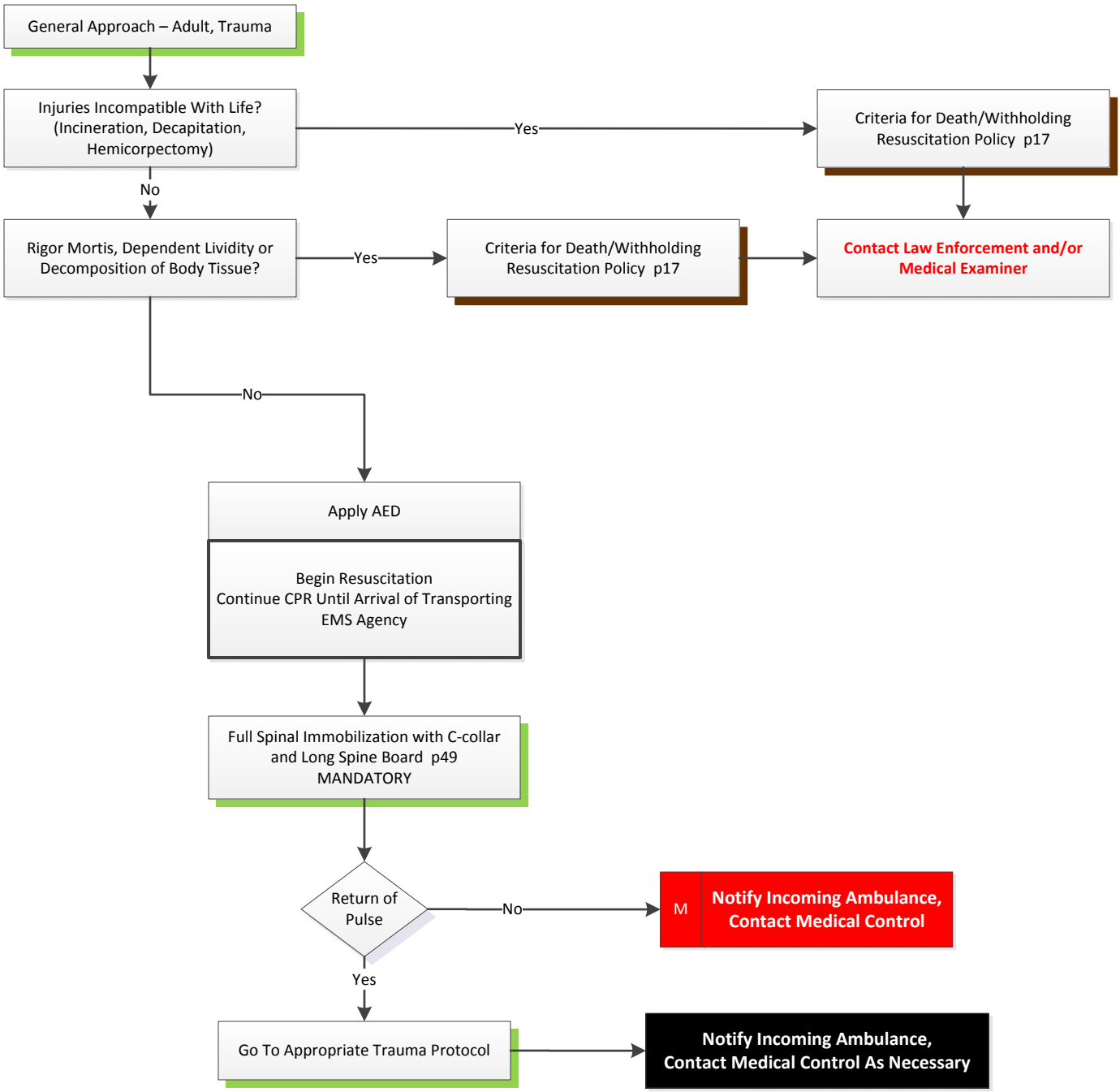
| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Traumatic Cardiac Arrest – Adult, Trauma

**Pertinent Positives and Negatives**
- Age, if known
- Mechanism of Injury
- Events leading up to arrest

**Differential**
- Hypovolemic Shock
  - -External Hemorrhage
  - -Internal Hemorrhage
  - -Unstable Pelvic Fracture
- Tension Pneumothorax
- Medical Condition Causing Trauma (i.e. Cardiac Arrest)

Trauma Protocols - Adult




Trauma Protocols - Adult

**Pearls**

**REQUIRED EXAM: Pupillary Light Reflex, Palpation of Pulses, Heart and Lung Auscultation**

- Injuries incompatible with life include; decapitation, incineration, massively deforming head or chest injury, dependent lividity, rigor mortis
- As with all trauma patients, DO NOT delay transport
- Consider using medical cardiac arrest protocols if uncertainty exists regarding etiology of arrest
- Use of a long spine board will make chest compressions more effective; however, if spinal immobilization interferes with CPR use reasonable effort to limit patient and spine movement
- Be aware that these may be crime scenes: do your best to avoid disturbing forensic evidence
- If provider safety becomes a concern, transport of deceased patients to the hospital *is acceptable*

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Bites and Envenomations – Adult, Trauma

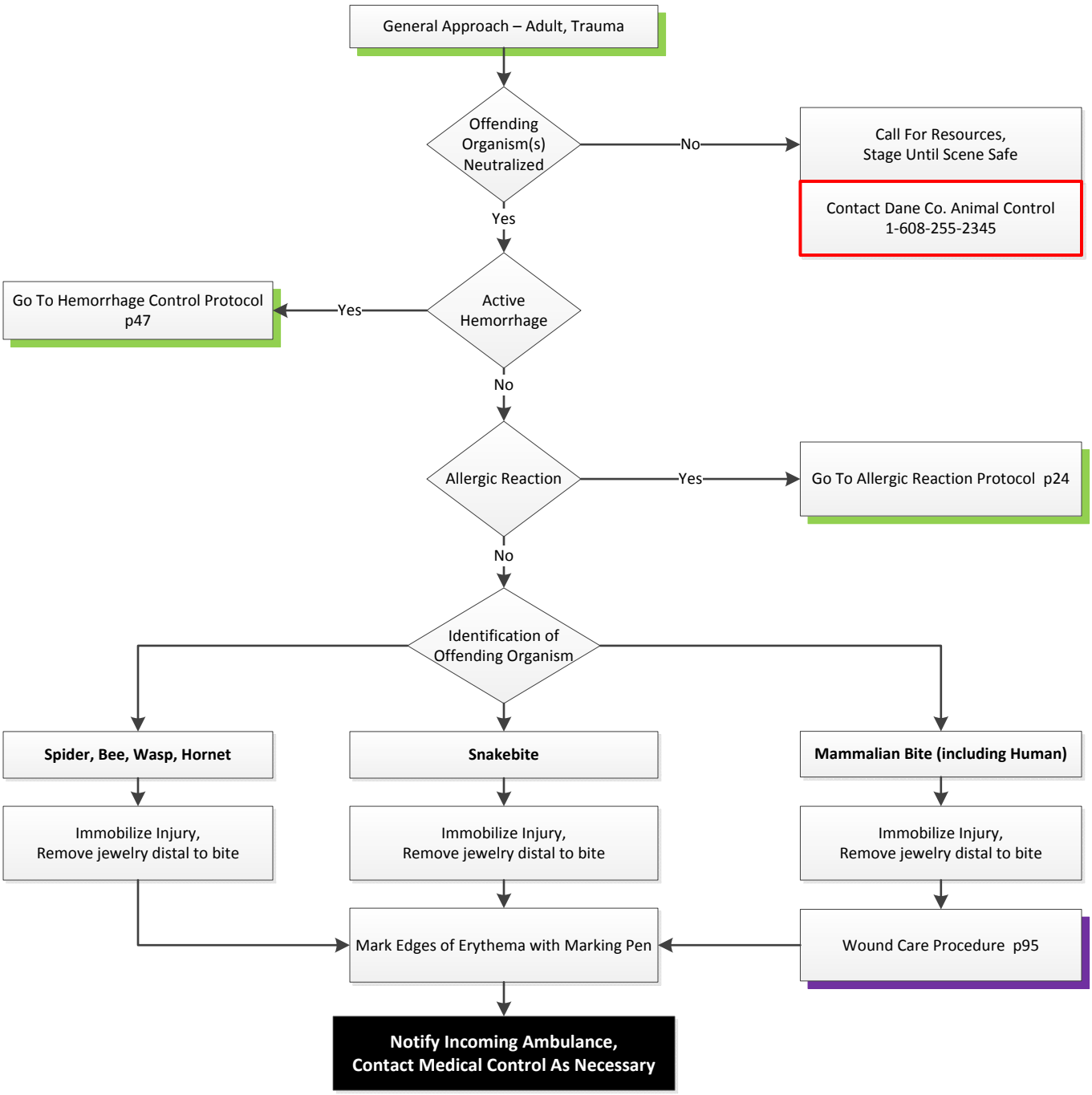
**Pertinent Positives and Negatives**

- Age, VS, Pulses distal to wound
- SAMPLE History
- OPQRST History
- Description or photo of offending creature
- Tetanus status
- Immunization History of Creature (if known)
- Domestic vs. Wild Animal
- Allergic Reaction
- Hypotension, Shock, Fever

**Differential**

- Penetrating Trauma
- Dry Bite (Snake)
- Abscess/Cellulitis
- Non-Accidental Trauma
- Projectile Injury

Trauma Protocols - Adult




Trauma Protocols - Adult

**Pearls**

**REQUIRED EXAM: VS, GCS, Evidence of Intoxication, Affected Extremity Neurovascular Exam**

- Cat bites may not initially appear serious, but can progress rapidly to severe infection
- Human bites have higher rates of infection than animal bites and necessitate evaluation in the Emergency Department for antibiotics
- Bites on the hands and lacerations over knuckles should be assumed to be “Fight Bites” until proven otherwise, and need evaluation
- Brown recluse spider bites are usually painless at the time of bite. Pain and tissue necrosis develops over hours to days
- Immunocompromised patients have higher risk of infection – Think: Diabetes, Chemotherapy, Organ Transplant

Bites and Envenomations – Adult, Trauma

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Burns – Adult, Trauma

**Pertinent Positives and Negatives**

- Age, VS
- SAMPLE History
- OPQRST History
- Mechanism of Burn (heat, gas, chemical)
- Time of Injury
- Singed Facial Hair
- Wheezing, Hoarseness
- Subjective Throat Swelling
- Loss of Consciousness

**Differential**

- Blast Injury
- Radiation Injury
- Electrical Injury
- Cyanokit Need?
- Cellulitis
- Dermatitis
- Drug Reaction (Stevens-Johnson Syndrome)

**Consider need for Airway Management EARLY**

General Approach – Adult, Trauma

Estimate TBSA Burned / Severity

**Minor Burn**

<5% TBSA, 1st – 2nd Degree Burn
No inhalation Injury
Normal BP, SpO2

- Remove Rings, Bracelets and Constricting Items
- Remove or Cool Heat Source (if not already done)
- Apply Dry Clean Sheet or Non-Adherent Dressing

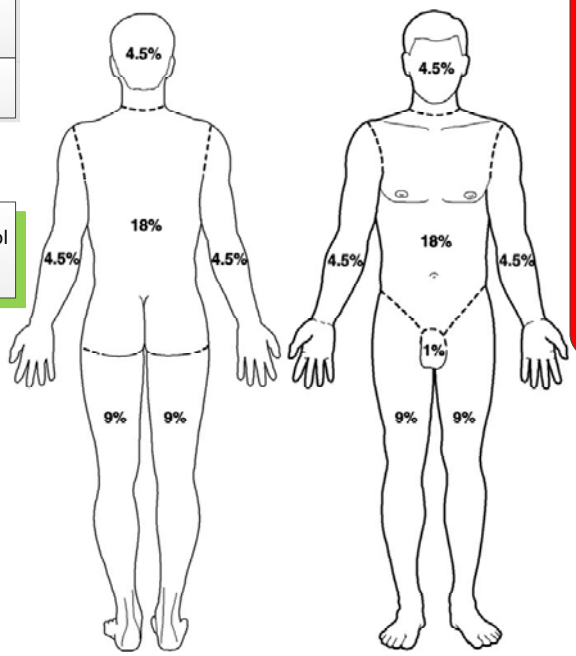
**Serious Burn**

5-15% TBSA, 2nd – 3rd Degree Burn
Suspected Inhalation Injury
Hypotension, Altered Mental Status

- Remove Rings, Bracelets and Constricting Items
- Remove or Cool Heat Source (if not already done)
- Apply Dry Clean Sheet or Non-Adherent Dressing
- Consider Airway Management Protocol p20

**Critical Burn**

>15% TBSA, 2nd – 3rd Degree Burn
Burn with Trauma
Burn with Airway Compromise




**Notify Incoming Ambulance, Contact Medical Control As Necessary**

Trauma Protocols - Adult

Trauma Protocols - Adult

**Pearls**

**REQUIRED EXAM: VS, GCS, Lung Sounds, HEENT, Posterior Pharynx**

- Burns to face and eyes, remove contact lenses prior to irrigation
- Chemical burns require removal of contaminated clothing. Brush away dry powder before beginning irrigation. Flush with copious warm water on scene and continue irrigation en route.
- Early intubation is strongly recommended if suspicion of inhalation injury. Consider ALS for early intubation. Signs and symptoms include carbonaceous sputum, facial burns or edema, hoarseness, singed nasal hairs, agitation, hypoxia or cyanosis

Burns – Adult, Trauma

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Near-Drowning / Submersion Injury – Adult, Trauma

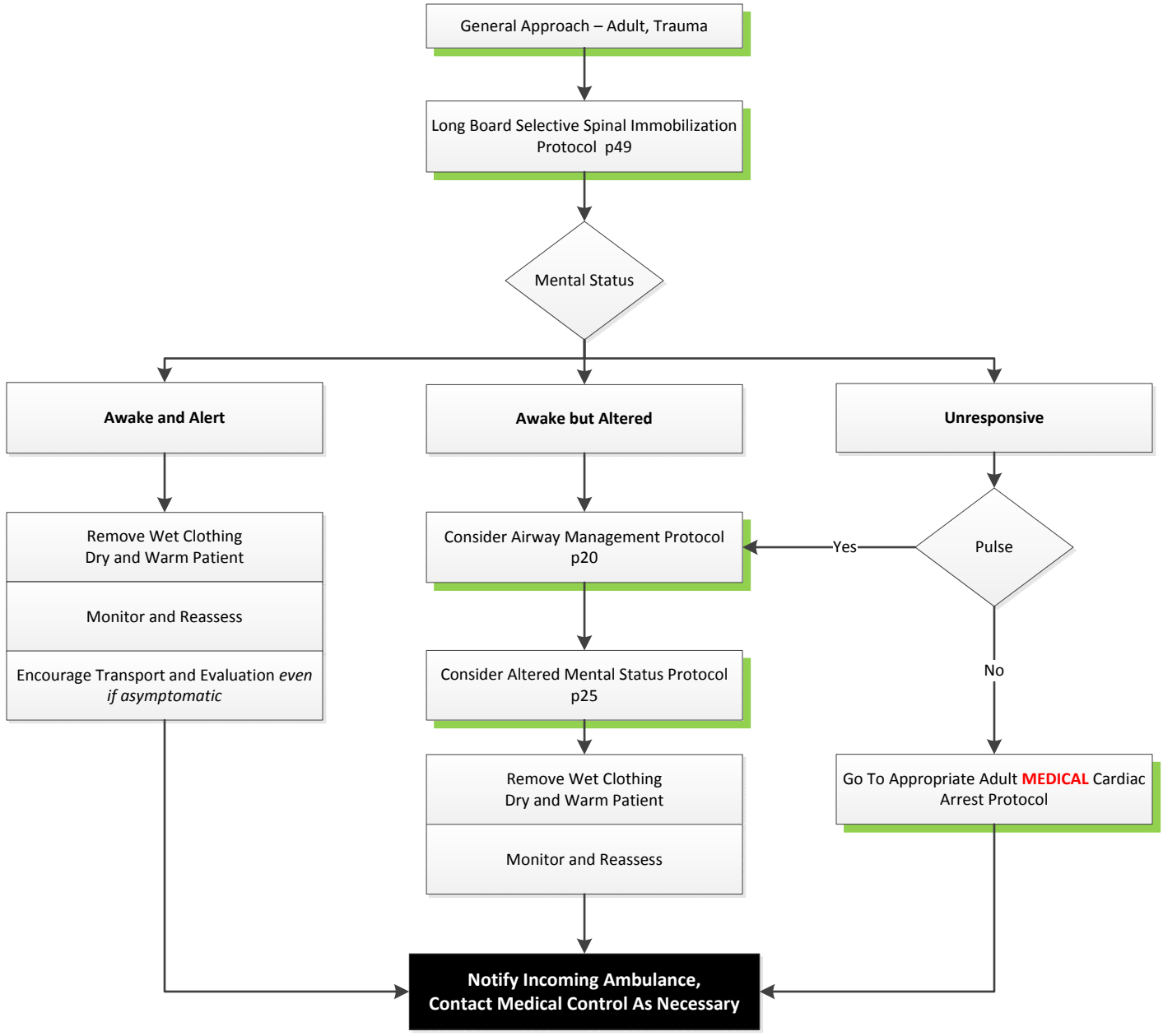
**Pertinent Positives and Negatives**

- Submersion in water regardless of depth
- SAMPLE History
- OPQRST History
- Temperature of water
- Mental Status Changes
- Degree of Water Contamination
- Vomiting
- Coughing, Wheezing, Rales, Rhonchi, Stridor

**Differential**

- Spinal Trauma
- Pre-Existing Medical Condition
- Hypothermia
- Aspiration
- The Bends
- Pressure Injury
  - Barotrauma
  - Decompression Sickness
- Post-Immersion Syndrome

Trauma Protocols - Adult




Trauma Protocols - Adult

**Pearls**

**REQUIRED EXAM: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremity, Back, Neuro**

- Have a HIGH index of suspicion for possible spinal injuries. Any diving injury or submersion with unclear details should be fully immobilized
- Hypothermia is often associated with near-drowning and submersion injuries. Consider the Hypothermia Protocol as appropriate
- *All* patients with Near-Drowning / Submersion Injury should be transported for evaluation due to delayed presentation of respiratory failure
- With diving injuries (decompression / barotrauma) consider availability of a hyperbaric chamber; contact Medical Control early.

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Environmental, Hyperthermia – Adult, Trauma

**Pertinent Positives and Negatives**

- Age, VS, Mental Status
- SAMPLE History
- OPQRST History
- Time and length of exposure to hot environment
- Hot, dry or sweaty skin
- Seizures
- Nausea
- Hypotension, Shock, Fever

**Differential**

- Alcohol Withdrawal (DTs)
- Hyperthyroidism (Thyroid Storm)
- Dehydration
- Cocaine or Sympathomimetic OD
- Sepsis
- CNS Lesion or Head Injury
- Abuse or Neglect (Elderly or disabled)
- Medication (Serotonin Syndrome, Malignant Hyperthermia)

Trauma Protocols - Adult

General Approach – Adult, Trauma

Remove Patient from Hot Environment (if applicable)

Estimate Severity of Symptoms

**Heat Cramps**

Painful Spasms of Extremities and/or Abdominal Muscles
*Normal Mental Status*
Normal Vital Signs

Oral Fluids
Sponge with Cool Water and Fan

**Heat Exhaustion**

Dizziness, Lightheadedness, Headache, Irritability, Nausea
*Normal or Mildly Depressed Mental Status*
Mild Tachycardia (<150)
Normal or Mildly Elevated Temp

Keep Patient Supine
Apply 100% Oxygen
Sponge with Cool Water and Fan

**Heat Stroke**

*Marked Alteration in Level of Consciousness*
May Be Sweating OR Hot, Dry, Red Skin
Extremely High Temp, >104°F

Semi-Reclining Position with Head Elevated
Apply 100% Oxygen
Rapid Cooling with Cold Packs, Sponge with Cool Water and Fan

Tolerating Oral Fluids

Yes

No

Reassess and Document Mental Status, VS and ability to take PO

Abnormal

**Notify Incoming Ambulance, Contact Medical Control As Necessary**

Normal

Requires Transport

No

Execute and Document Patient Refusal Protocol p33

Yes

Trauma Protocols - Adult

**Pearls**

**REQUIRED EXAM: VS, GCS, Skin, HEENT, Neuro, Evidence of Intoxication, Mental Status**

- Extremes of Age are more prone to heat emergencies due to inability to easily self-extricate from hot environments
- Patients on Tricyclic Antidepressants, Anticholinergics, Diuretics (i.e. Lasix) are more susceptible to heat emergencies due to medication effects
- Cocaine, amphetamines and salicylates all may elevate body temperature or interfere with the ability to auto-regulate
- Sweating generally disappears as body temperature rises above 104°F
- If Heat Cramps resolved without IV Access or Medications, patients may refuse transport, IF tolerating oral fluids and VS normal

Environmental, Hyperthermia – Adult, Trauma

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Environmental, Hypothermia – Adult, Trauma

**Pertinent Positives and Negatives**

- Age, VS, Mental Status
- SAMPLE History
- OPQRST History
- Time and length of exposure to cold environment
- Cold or clammy skin
- Confusion
- Arrhythmias, J-waves on ECG
- Hypotension, Shock

**Differential**

- Alcohol Intoxication
- Hypothyroidism (Myxedema Coma)
- Dehydration
- Sepsis
- CNS Lesion or Head Injury
- Abuse or Neglect (Elderly or disabled)
- Medication (beta blocker overdose, opiate overdose)

Trauma Protocols - Adult


Trauma Protocols - Adult

**Pearls**

**REQUIRED EXAM: VS, GCS, Skin, HEENT, Neuro, Evidence of Intoxication, Mental Status**

- Hypoglycemia is found in many hypothermic patients, because hypothermia may be a result of hypoglycemia
- Severe hypothermia may cause myocardial irritability and rough handling can theoretically cause V-fib. Please handle carefully.
- Extremes of age, malnutrition, ETOH and drug abuse and outdoor hobbies / employment all predispose to hypothermia
- ****This Skill Requires Advanced Training and Approval**

Environmental, Hypothermia – Adult, Trauma

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Extremity Injury – Adult, Trauma

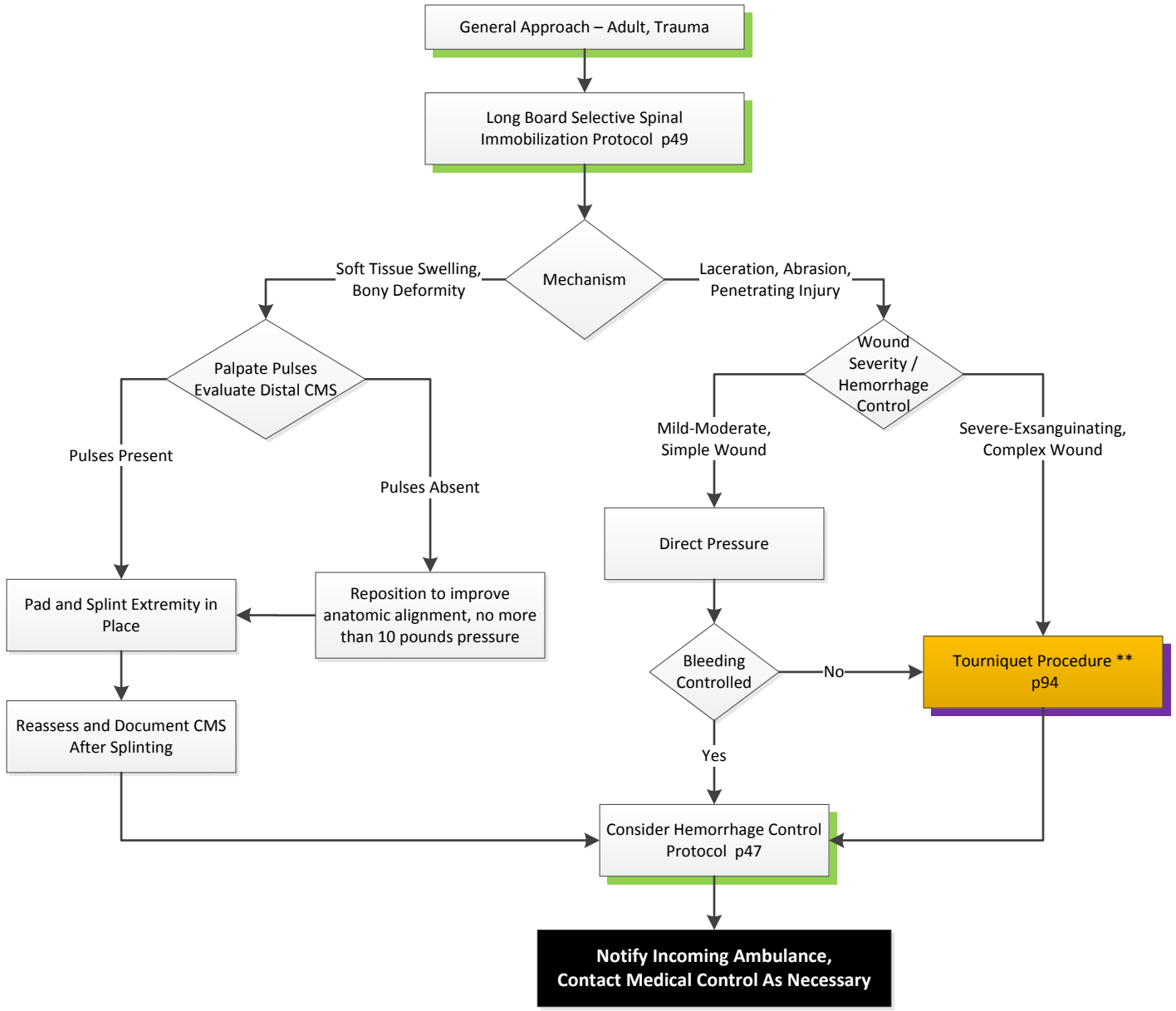
**Pertinent Positives and Negatives**

- Type of injury
- Mechanism (blunt vs. penetrating)
- Central and Peripheral Pulses
- Neuro Function Distal to Injury
- SAMPLE History
- OPQRST History
- Evidence of Intoxication
- Evidence of Multi-System Trauma

**Differential**

- Vascular Disruption
- Amputation
- Fracture, Dislocation
- Sprain, Strain
- Abrasion
- Contusion
- Laceration
- Compartment Syndrome

Trauma Protocols - Adult




Trauma Protocols - Adult

**Pearls**

**REQUIRED EXAM: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremity, Back, Neuro**

- Immobilization of bony injuries should include the joint above and below. Joint injuries require immobilization of bone above and below
- Palpate and document Circulation, Movement and Sensation both before and after splint application
- Tourniquets should remain in place once hemorrhage control is adequate. The tourniquet is tight enough when the bleeding stops!
- If active hemorrhage and bony/soft tissue deformity, priority should be put on hemorrhage control *first*, then splinting – remember A,B,C's
- If amputated extremities available, seal in a plastic bag and place in cool water and bring to the hospital with the patient
- ****This Skill Requires Advanced Training and Approval**

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Eye Pain – Adult, Trauma

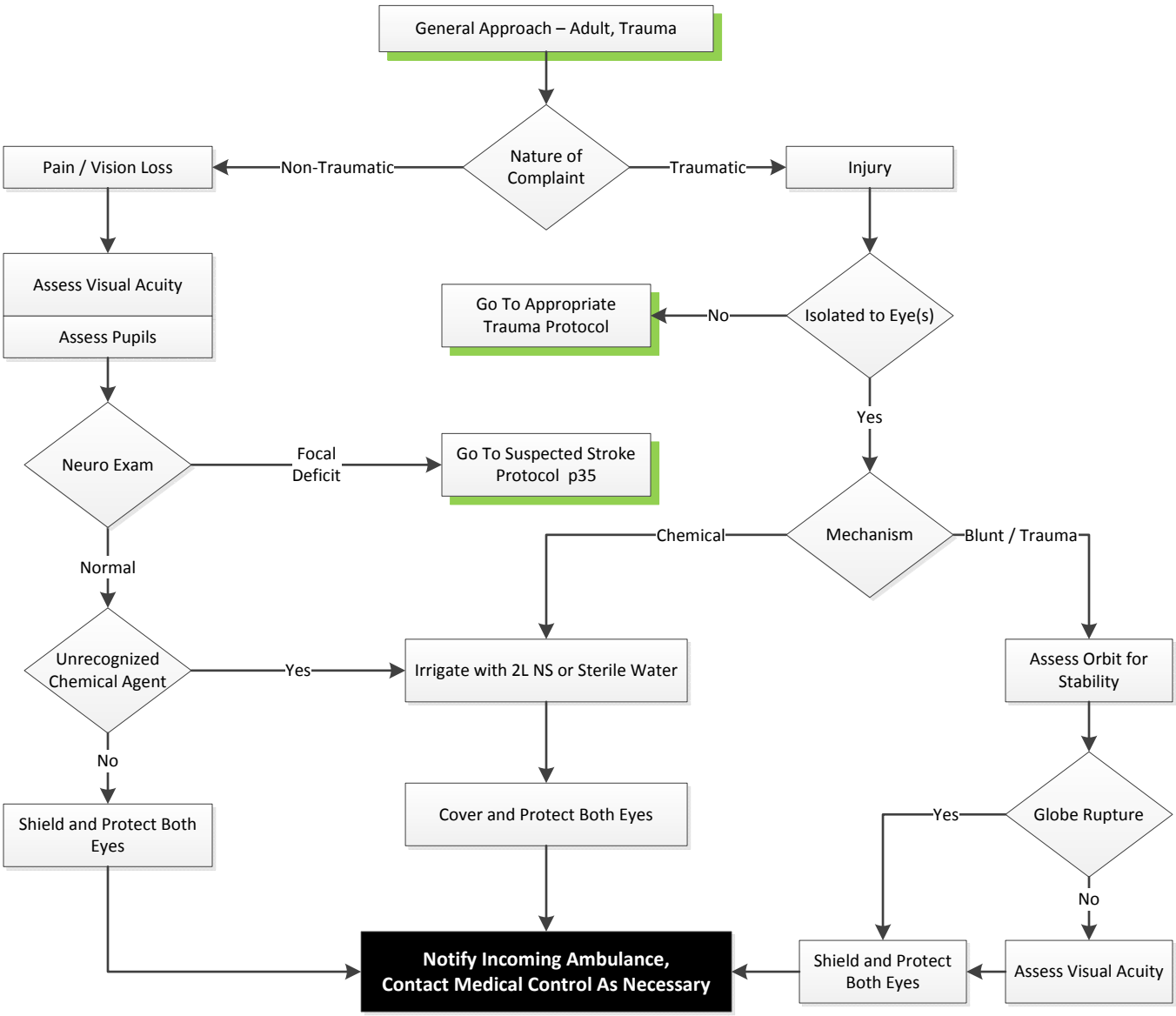
**Pertinent Positives and Negatives**

- Age, VS, Visual Acuity
- SAMPLE History
- OPQRST History
- Time of Injury
- Involved Chemical MSDS
- Contact/Corrective Lens Use
- "Shooting" or "Streaking" Lights
- Rust Ring
- "Lowering Shade" in Vision

**Differential**

- Globe Rupture
- Acute Closed Angle Glaucoma
- Stroke
- Retinal Artery Occlusion
- Chemical Burn
- Retinal Venous Thrombus

Trauma Protocols - Adult




Trauma Protocols - Adult

**Pearls**

**REQUIRED EXAM: VS, GCS, Visual Acuity, Neuro Exam, Extraocular Movements**

- Stabilize any penetrating objects. DO NOT remove any embedded / impaled objects
- If Long Spine Board not indicated, transport with head of stretcher elevated to 60 degrees to help reduce intraocular pressure
- Remove contact lenses when possible
- Always cover both eyes to prevent further injury
- Orbital fractures increase concern for globe or optic nerve injury; follow visual acuity and extraocular movements for changes
- Normal visual acuity can be present, even with severe injury

Eye Pain – Adult, Trauma

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Hazmat, General – Adult, Trauma

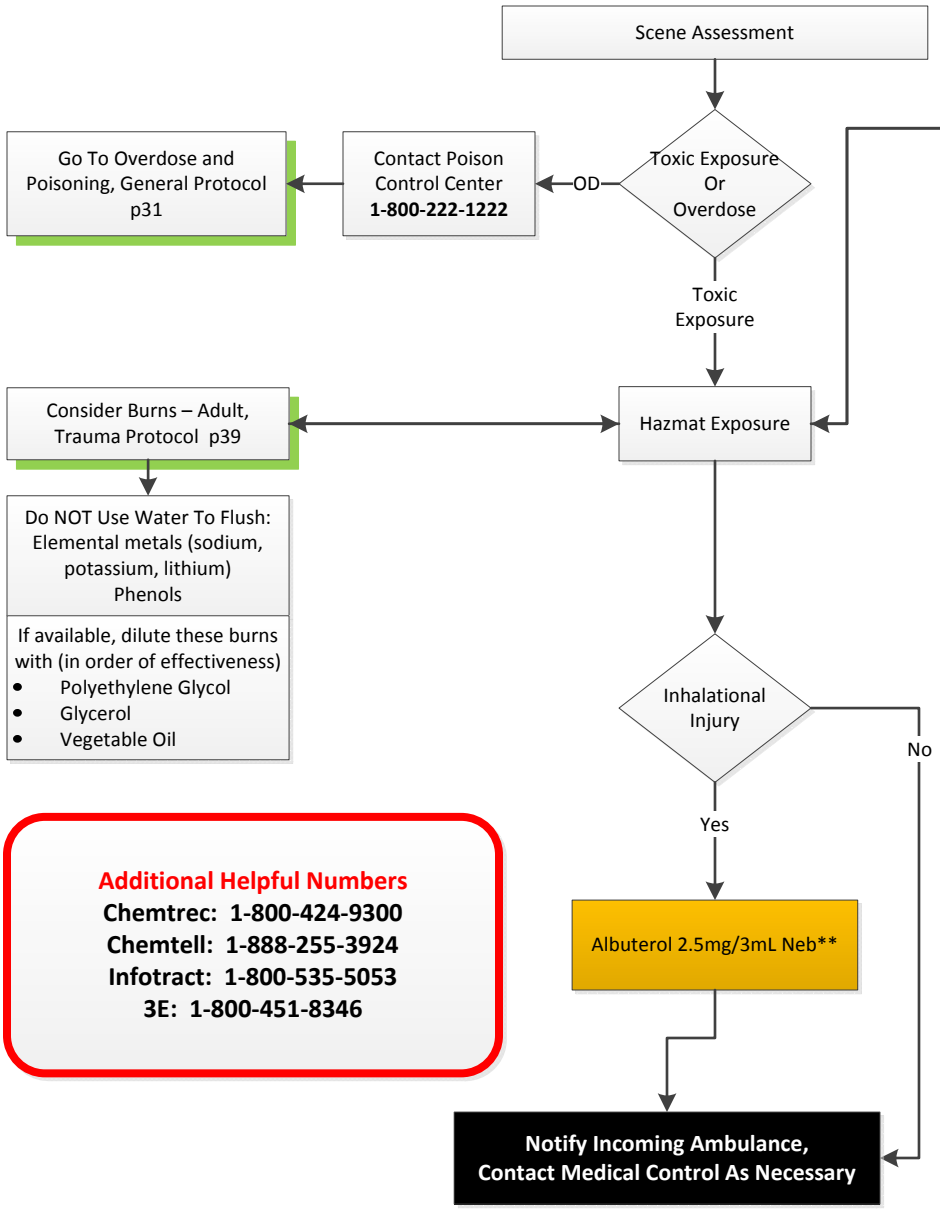
**Pertinent Positives and Negatives**

- Age, VS, Mental Status
- SAMPLE History
- OPQRST History
- Time and length of exposure to toxic environment
- MSDS Sheet Info
- Mode of Release
- Number of Victims

**Differential**

- Alcohol Intoxication
- Hyperthyroidism
- Drug Abuse, Intoxication
- Sepsis
- CNS Lesion or Head Injury
- Abuse or Neglect (Elderly or disabled)
- Medication (beta blocker overdose, opiate overdose)

Trauma Protocols - Adult




**Additional Helpful Numbers**

**Chemtrec: 1-800-424-9300**
**Chemtell: 1-888-255-3924**
**Infotract: 1-800-535-5053**
**3E: 1-800-451-8346**

**Step 1 – Site Control**

- Respond to suspected Hazmat release from uphill and upwind
- Utilize binoculars for scene size-up
- Wear all appropriate PPE
- Control the scene by preventing entry into the area

**Step 2 – Identification of Products**

- As soon as safely possible, ID product(s) involved
- If moderately or extremely hazardous, notify HIT
- Utilize ERG for ID of placards, containers or product(s)

**Step 3 – Hazard and Risk Assessment**

- Utilize the ERG to make risk assessment

**Step 4 – Personal Protective Equipment**

- Use the ERG to determine PPE requirement
- Structural Firefighting Protective Clothing (SFPC) is not recommended for many Hazardous Materials

**Step 5 – Information and Resource Coordination**

- Communicate with additional units as appropriate
- Update HIT Leader on their arrival

**Step 6 – Control Measures**

- Confine and Contain product release as appropriate
- Consider additional resources as needed

**Step 7 – Decontamination**

- Consider appropriate decon after Hazmat incident
- Confer with HIT Leader as necessary

**Step 8 – Termination Activities**

- Before leaving the scene document all actions and equipment used
- Document possible parties names, addresses and phone numbers
- Turn the scene over to responsible party

Trauma Protocols - Adult

**Pearls**

**REQUIRED EXAM: VS, GCS, Skin, HEENT, Neuro, Evidence of Intoxication, Mental Status**

- The most important factor in Hazmat response is provider safety – you can't help anyone else if you're a victim as well
- In any Hazmat situation, consider that the exposure may not be accidental; consider intentional releases, secondary devices and terrorism
- Always park upwind and uphill of any potential exposures, and be conscious of any symptoms you may begin to develop
- Communication is key; contact the appropriate Hazmat authority early and notify the Hazmat leader as well as the Comm Center of findings
- In a large-scale event, have the Comm Center activate Dane County Mass Casualty Plan and notify the Base Hospital to get prepared
- Inhaled bicarb is controversial but seems to help. Aslan S, Kandis H, Akgun M, Cakir Z, Inandi T, Görgüner M. The effect of nebulized NaHCO3 treatment on "RADS" due to chlorine gas inhalation. *Inhal Toxicol*. 2006 Oct. 18(11):895-900.
- ****This Skill Requires Advanced Training and Approval**

Hazmat, General – Adult, Trauma

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Head Injury – Adult, Trauma

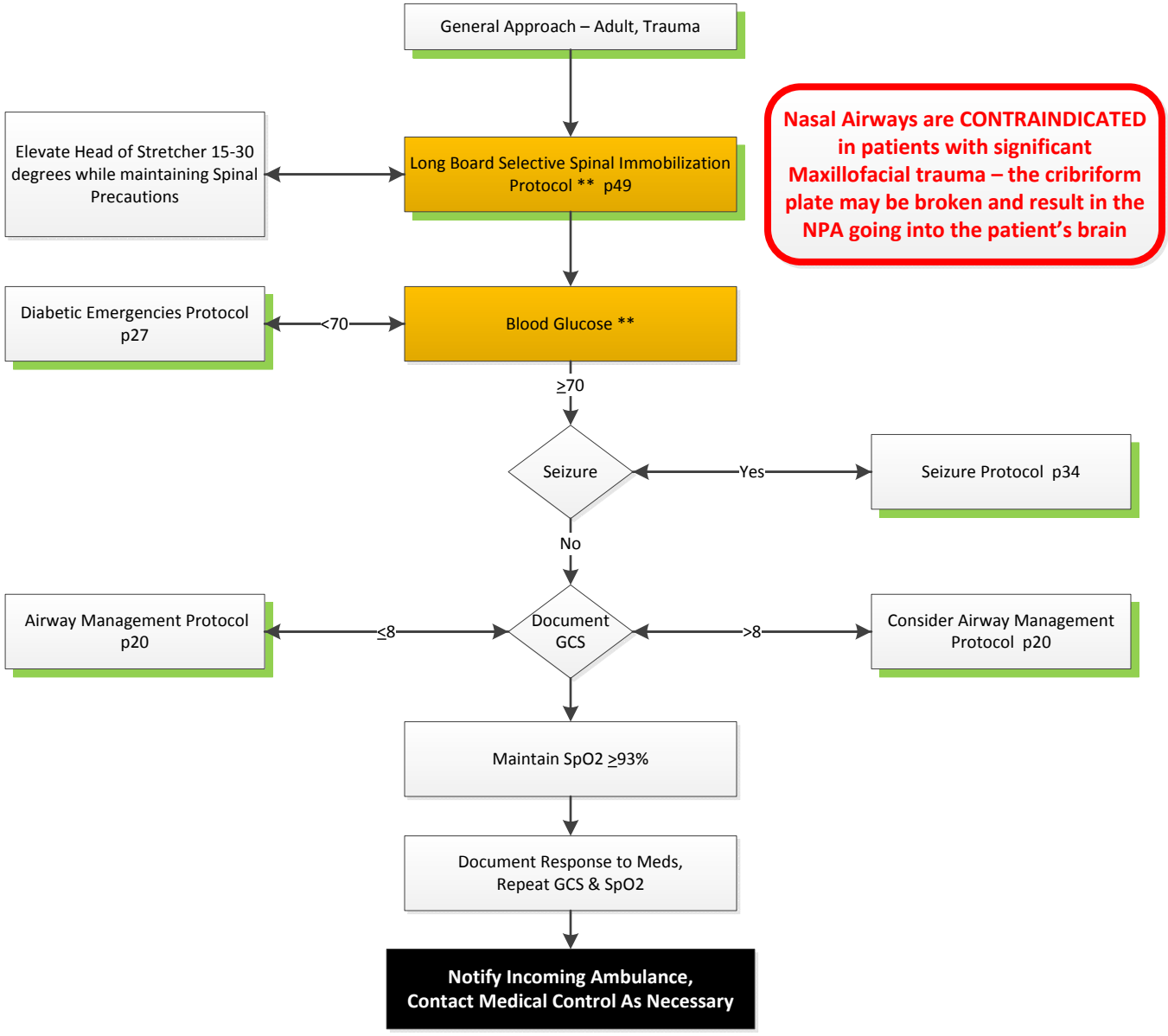
**Pertinent Positives and Negatives**

- Type of injury
- Mechanism (blunt vs. penetrating)
- Loss Of Consciousness
- Vomiting, Altered Mental Status
- SAMPLE History
- OPQRST History
- Evidence of Intoxication
- Evidence of Multi-System Trauma

**Differential**

- Skull fracture
- Epidural hematoma
- Concussion, Contusion, Laceration, Hematoma
- Non-Accidental Trauma
- Spinal Cord Injury
- Subdural Hematoma
- Subarachnoid Hemorrhage

Trauma Protocols - Adult




Trauma Protocols - Adult

**Pearls**

**REQUIRED EXAM: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremity, Back, Neuro**

- If GCS <13 consider Air transport or Rapid Transport
- **Airway interventions can be detrimental to patients with head injury by raising intracranial pressure, worsening hypoxia (and secondary brain injury) and increasing risk of aspiration. Whenever possible these patients should be managed in the least invasive manner to safely maintain O2 saturation >90% (ie. NRB, BVM with 100% O2)**
- Hypotension usually indicates injury or shock unrelated to the head injury and should be treated aggressively
- Most important vital sign to monitor and document is level of consciousness (GCS)
- Concussions are periods of confusion or loss of consciousness (LOC) associated with trauma which may have resolved by the time EMS arrives. Any confusion or mental status abnormality which does not return to normal within 15 minutes or any documented loss of consciousness should be transported to an Emergency Department. Any questions or clarifications, contact Medical Control.
- ****This Skill Requires Advanced Training and Approval**

Head Injury – Adult, Trauma

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Hemorrhage Control – Adult, Trauma

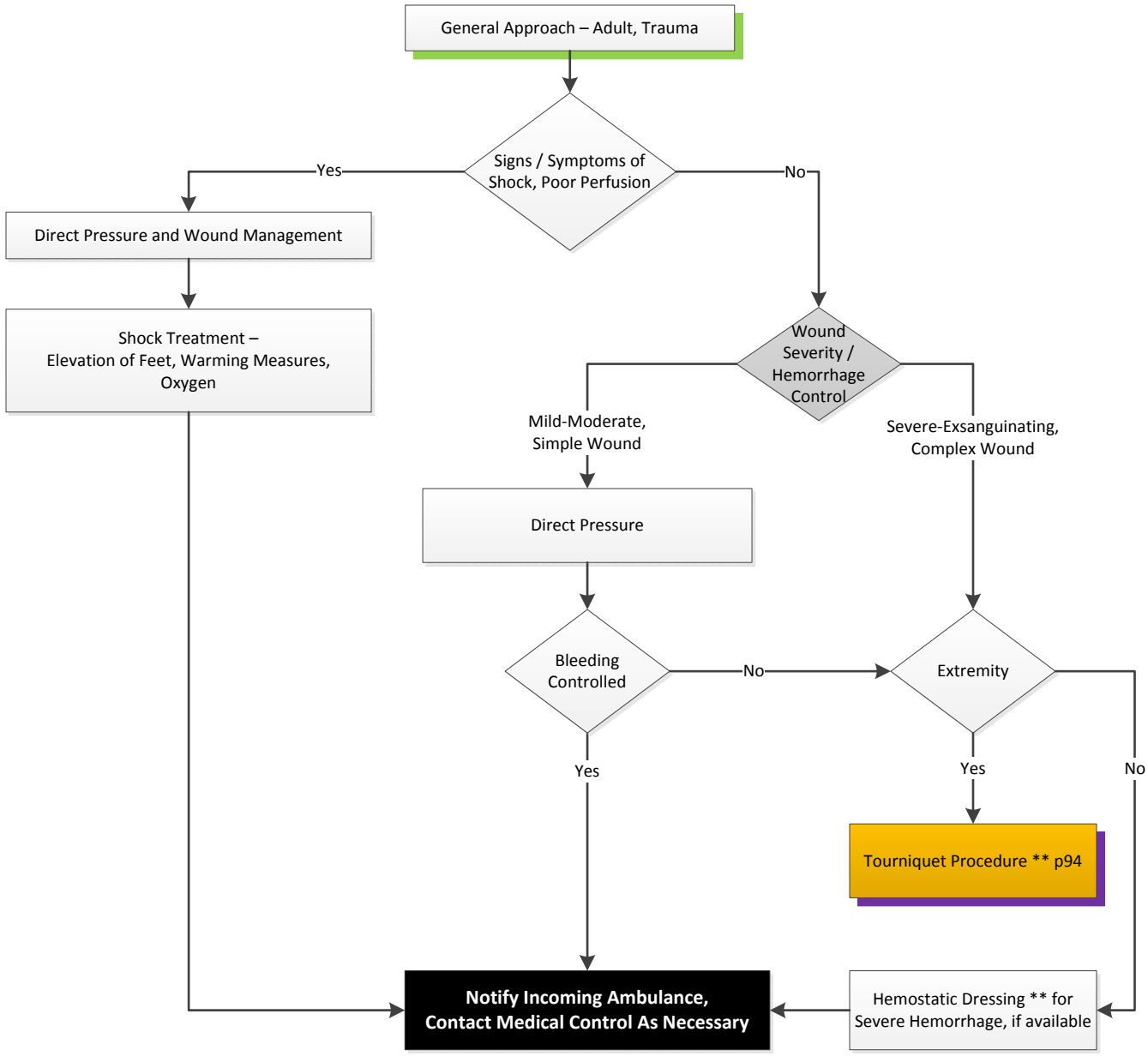
**Pertinent Positives and Negatives**

- Type of injury
- Mechanism (blunt vs. penetrating)
- Central and Peripheral Pulses
- Neuro Function Distal to Injury
- Time of Injury
- Deformity
- Diminished pulse / capillary refill

**Differential**

- Vascular Disruption
- Amputation
- Fracture, Dislocation
- Sprain, Strain
- Abrasion
- Contusion
- Laceration
- Compartment Syndrome

Trauma Protocols - Adult




Trauma Protocols - Adult

**Pearls**

**REQUIRED EXAM: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremity, Back, Neuro**

- **Hypotension in trauma needs blood products early**, so minimize scene time. Goal for scene time in major trauma cases should be <10 min
- Multiple casualty incident or obvious life threatening hemorrhage, consider Tourniquet Procedure and/or Hemostatic Dressing FIRST
- Hemostatic Dressings are appropriate for hemorrhage that can't be controlled with a tourniquet, such as abdominal and pelvic wounds
- Signs/Symptoms of Shock include: altered mental status, pallor, hypotension (SBP <100), cap refill >3 sec, faint/absent peripheral pulses
- ****This Skill Requires Advanced Training and Approval**

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Lightning Strike – Adult, Trauma

**Pertinent Positives and Negatives**

- Type of Strike (Direct, Splash, Contact)
- Central and Peripheral Pulses
- Nausea, Vomiting, Diarrhea
- Amnesia, Confusion, Neuro Deficits
- Duration of Unresponsiveness (if applicable)
- Time of Strike
- Wounds to Hands, Feet or Areas of Contact

**Differential**

- Thermal Injury
- Electrical Injury
- Blast Injury
- Acute Myocardial Infarction
- Spine Fracture
- Rhabdomyolysis
- Cardiac Dysrhythmia
- Hypoglycemia

Trauma Protocols - Adult

General Approach – Adult, Trauma

Scene Safe

No → Shelter, Stage, Call for Law Enforcement and/or Additional Resources if necessary

Yes

Normal Mental Status

Yes → Go to Appropriate Medical Protocol

No

Estimate Symptom Severity

**Cardiorespiratory Arrest**

Cardiac Arrest – Adult Protocol p22

Full Spinal Immobilization** Procedure p91

**Altered Level of Consciousness**

Blood Glucose**, SpO2, Full Spinal Immobilization **Procedures

**Inadequate Respirations**

Airway Management – Adult Protocol p20

Full Spinal Immobilization ** Procedure p91

Seizure

Yes → Go To Seizure, Adult Medical Protocol p34

No → **Notify Incoming Ambulance, Contact Medical Control As Necessary**

## Lightning Strike Patient Management

Typically, patients victims of lightning strike who do not suffer cardiac or respiratory arrest survive; **typical triage protocols do not apply under these circumstances**, and resuscitation should be provided to those who are PNB

Most injuries occur outdoors, but contact with plumbing, phone lines, etc. that are struck *can injure people indoors*.

Trauma Protocols - Adult

**Pearls**

**REQUIRED EXAM: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremity, Back, Neuro**

- National lightning safety guidelines state that risk continues for 30 minutes after the last lightning is seen or thunder heard
- Lightning not striking twice is a **myth**; if there is continued risk to EMS providers, remove the patient to a safe place before treatment
- *Full spinal immobilization should be performed* in any patient with altered level of consciousness, as spinal injuries are common from the concussive force of the strike and/or involuntary muscle spasms
- There are reports of patients surviving prolonged periods of arrest after lightning strike. Treatment for cardiopulmonary arrest is per ACLS protocols, but *decision to terminate resuscitation should be made in coordination with Medical Control.*
- ****This Skill Requires Advanced Training and Approval**

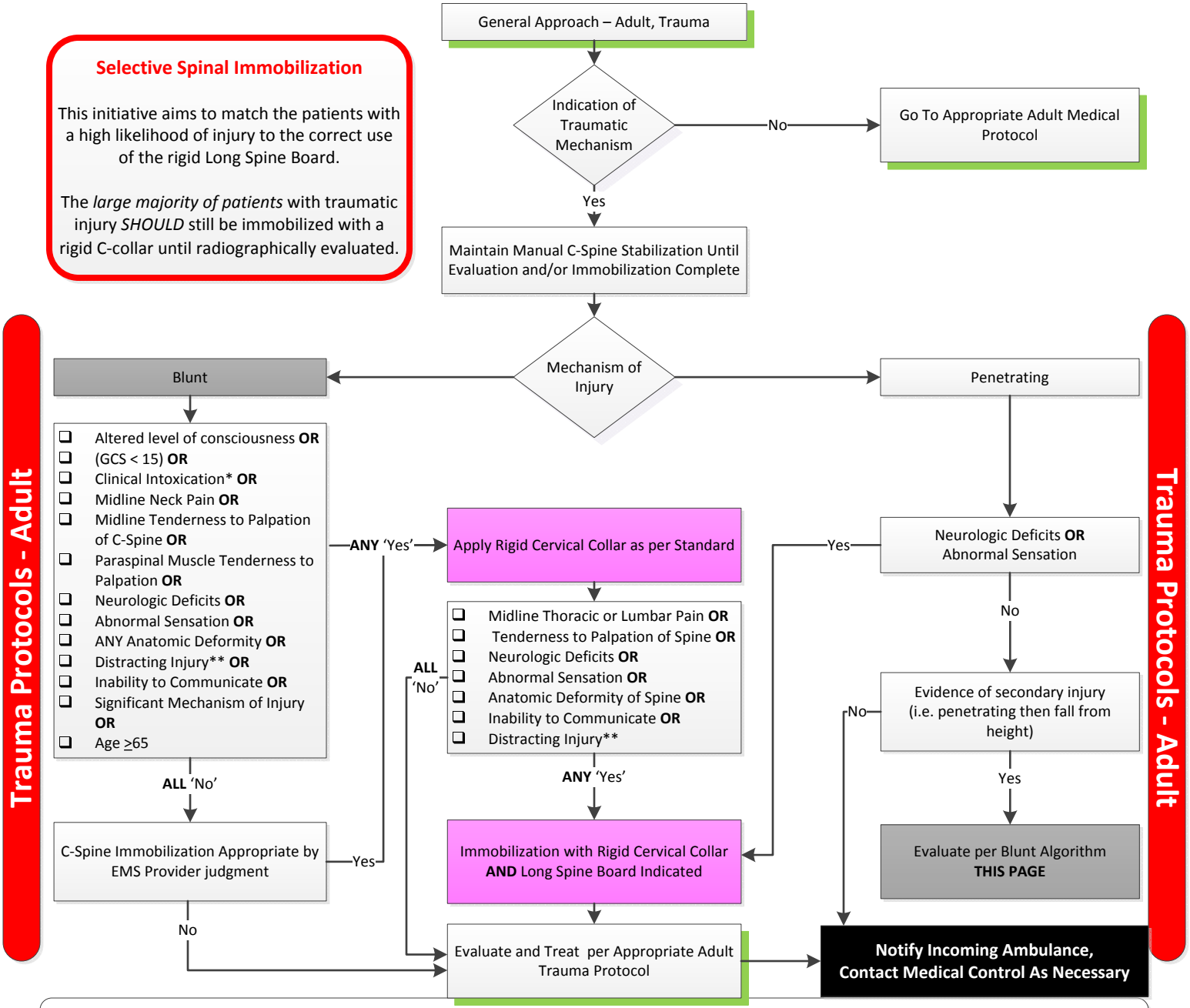
| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Long Board Selective Spinal Immobilization – Adult, Trauma **

**Selective Spinal Immobilization**

This initiative aims to match the patients with a high likelihood of injury to the correct use of the rigid Long Spine Board.

The *large majority of patients* with traumatic injury *SHOULD* still be immobilized with a rigid C-collar until radiographically evaluated.




**Pearls**

**REQUIRED EXAM: Motor Function both upper and lower extremities, Sensation of upper and lower extremities, subjective abnormal sensation, Tenderness to palpation of bony prominences OR paraspinal muscles**

- ***Clinical Intoxication** – A transient condition resulting in disturbances in level of consciousness, cognition, perception, affect or behavior, or other psychophysiological functions and responses. Common examples include; ataxia, emotional instability, flight of ideas, tangential thought or motor incoordination.
- ****Distracting Injury** – Examples include, but are not limited to; long bone fracture, dislocations, large lacerations, deforming injuries, burns **OR** *any condition preventing patient cooperation with history*.
- **ALL** shallow water near drownings, diving injuries and high-voltage electrical injuries (lightning, ≥1000V AC or ≥1500V DC) **MUST** be fully immobilized
- If immobilization *indicated but refused*; advise the patient of risk of death, permanent disability or long term impairment. Clearly document the refusal and the conversation (re: risk); Apply a cervical collar, if allowed and transport in neutral alignment.
- Long spine boards have risks and benefits for patients. Spinal immobilization should always be applied when any doubt exists about the possibility of spinal trauma.
- It is always safer and better patient care to assume that a Cervical Spine injury has occurred and provide protection, and should be the standard of care in trauma patient management
- Long spine boards can be very useful for extricating patients, transferring locations, and providing a firm surface for chest compressions.
- Very thoughtful consideration should go into any decision to NOT use the rigid cervical collar OR long spine board.
- ****This Skill Requires Advanced Training and Approval**

Long Board Selective Spinal Immobilization – Adult, Trauma

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# WMD / Nerve Agent Exposure – Adult, Trauma

**Pertinent Positives and Negatives**

- Type of exposure (heat, gas, chemical)
- Central and Peripheral Pulses
- Nausea, Vomiting, Diarrhea
- Chemical Name (if known)
- Exposure to Chemical, Biologic, Nuclear or Radiologic Hazard
- Time of Exposure (duration)
- Pesticide Exposure

**Differential**

- Thermal Injury
- Chemical Burn
- Blast Injury
- Nerve Agent Exposure
- Respiratory Irritant (Chlorine Gas, Ammonia, etc.)
- Vesicant (blistering agent) exposure
- Organophosphate Exposure



General Approach – Adult, Trauma

Scene Safe

No → Stage, Call for Law Enforcement and/or Additional Resources

Yes

Evidence of Exposure / Toxidrome

Yes → Begin Triage and Decontamination, As Appropriate

Estimate Symptom Severity

**Asymptomatic**

**Minor Symptoms**
Respiratory Distress + SLUDGE

DuoDote x 1 dose IM **
EMS Provider Use *only*
May repeat x1 if symptoms return at 10 minutes

**Major Symptoms**
Altered Mental Status, Seizure, Respiratory Distress/Failure

DuoDote x 3 doses IM**
EMS Provider Use *only*

Seizure

Yes → Go To Seizure, Adult Medical Protocol p34

No → **Notify Receiving Facility, Contact Medical Control As Necessary**

## WMD / Nerve Agent Exposure Patient Management

Consider provider safety, number of patients and early notification of receiving facility

Toxicity to the crew may occur from inhalation or topical exposure to the offending agent

DuoDote AND/OR Mark-I Kit may be used for civilians IF cache released from the State of Wisconsin

Trauma Protocols - Adult

**Pearls** ****This Skill Requires Advanced Training and Approval**

**REQUIRED EXAM: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremity, Back, Neuro**

- *Each DuoDote Kit contains 600mg 2-PAM and 2.1mg of Atropine. The kits in the ambulance are intended for responder use only. If/When the emergency cache has been released by the State of Wisconsin, those kits may be used for the general public.
- **SLUDGEM** – **S**alivation, **L**acrimation, **U**rination (Incontinence), **D**efecation (Incontinence), **G**I Upset, **E**mesis, **M**iosis
- For patients with major symptoms, there is no max dosing for Atropine; continue administering until salivation/secretions improved
- Follow all Hazmat procedures, strictly adhere to personal protective equipment for exposure prevention and begin decontamination early
- Patients who have been exposed to organophosphates are highly likely to off-gas; be sure to use all responder PPE and to avoid exposure to clothing or exhalations of victims. Helicopter EMS is generally NOT appropriate for these patients.

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Public Safety Personnel Rehab – Special Operations

General Approach – Adult, Medical

- ❑ Log Member into Rehab Sector
- ❑ Assist in removal of all PPE

Baseline Assessment

**Criteria for Rehab**

Use of a 2nd 30-minute or 45-minute self-contained breathing apparatus (SCBA) cylinder, a single 60-minute SCBA cylinder or 40 minutes of intense work without SCBA are recommended as criteria mandating entry into the Rehab Sector.

**Infection Control**

Members with direct involvement with patient care or exposure to bodily fluids must be decontaminated fully prior to entry into the Rehab Sector and accessing rehab supplies.

Special Operations

- ❑ Chest Pain **OR**
- ❑ Shortness of Breath not Improving with O2 **OR**
- ❑ Irregular HR and/or HR >160 **OR**
- ❑ STEMI **OR**
- ❑ Syncope, Disorientation OR Confusion **OR**
- ❑ Member Requesting Transport For Any Reason

**ANY** 'Yes' → Go To Appropriate Adult Medical Protocol → **Notify Incident Command, Begin ePCR and Initiate Transport to Hospital** → **Notify Receiving Facility, Contact Medical Control As Necessary**

**ALL** 'No'

- ❑ Temp >100.5°F **OR**
- ❑ Systolic BP ≥160 **OR**
- ❑ Diastolic BP ≥100 **OR**
- ❑ Pulse ≥100 **OR**
- ❑ RR <12 or >20 **OR**
- ❑ SpO2 ≤93% **OR**

**ANY** 'Yes' →

- ❑ **Consider Transport to Medical Facility**
- ❑ Hydrate orally
- ❑ Begin temperature controls based on member temperature and environment
- ❑ Rest for *at least* 10 minutes
- ❑ Reassess Vital Signs at 10 minutes

**ALL** 'No'

- ❑ Hydrate orally
- ❑ Begin temperature controls based on member temperature and environment
- ❑ Rest for *at least* 10 minutes
- ❑ Reassess Vital Signs at 10 minutes

Abnormal VS (as Previous)

**ANY** 'Yes' →

- ❑ **Consider Transport to Medical Facility**
- ❑ Continue temperature controls
- ❑ Orally hydrate, consider IV Fluids
- ❑ Rest for 10 minutes
- ❑ Reassess Vital Signs every 5 minutes

Abnormal VS (as Previous)

**ALL** 'No' → Release Member From Rehab Division

**ANY** 'Yes' → Evaluate and Treat per Appropriate Adult Medical Protocol → **Notify Receiving Facility, Contact Medical Control As Necessary**

Special Operations

**Pearls**

**REQUIRED EXAM: Mental Status, Skin Condition, Temperature, Heart Rate, Respiratory Rate, Blood Pressure, SpO2, SpCO**

- This Protocol was named "Public Safety Rehab", and should be applied to any situation during which Firefighters, Law Enforcement Officers, Emergency Medical Services or ANY Emergency Response Personnel are exerting themselves for > 40 minutes.
  - This INCLUDES training operations, special events and non-emergency operations lasting longer than 40 minutes.
- *Per NFPA 1584 Requirements*, the Rehab Site should be set up in a location that provides shelter for the members, is far enough away from the active scene that the turnout gear, SCBA and protective equipment may be safety doffed, and provide protection from the environmental conditions.
  - Ideally, members should be shielded from view of the active scene, to reduce anxiety and to prevent members from trying to exit rehab inappropriately.
- The purpose of this Protocol is to protect the physical and mental condition of members operating at the scene of an emergency or a training exercise and to prevent decompensation of the individual. By keeping the individuals safe, it improves the safety and integrity of the team as well as the operation.
- At a minimum, turnout coat and nomex hood should be removed and turnout pants pushed down to the knees while seated in Rehab.

Public Safety Personnel Rehab – Special Operations

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Quick Reference Page – Peds (<12 years)



**Vital Signs In Children**

| Age | Heart Rate (Beats Per Minute) | | Age | Respiratory Rate (Breaths Per Minute) | Age | Minimum Systolic Blood Pressure |
|---|---|---|---|---|---|---|
| | Awake Rate | Sleeping Rate | | | | |
| Newborn – 3mos | 85-205 | 80-160 | Infant | 30-60 | Term Neonates (0-28days) | >60 |
| 3mos – 2years | 100-190 | 75-160 | Toddler | 24-40 | Infants (1-12mos) | >70 |
| 2years – 10years | 60-140 | 60-90 | Preschooler | 22-34 | Children 1-10years | >70 + (age in years x 2) |
| >10years | 60-100 | 50-90 | School-Aged Child | 18-30 | Chilcren >10years | >90 |
| | | | Adolescent | 12-16 | | |

**Modified Glasgow Coma Scale for Infants and Children**

| | Child | Infant | Score |
|---|---|---|---|
| **Eye Opening** | Spontaneous<br>To Speech<br>To Pain<br>None | Spontaneous<br>To Speech<br>To Pain<br>None | 4<br>3<br>2<br>1 |
| **Best Verbal Response** | Oriented, Appropriate<br>Confused<br>Inappropriate Words<br>Incomprehensible Sounds<br>None | Coos and Babbles<br>Irritable, Cries<br>Cries in Response to Pain<br>Moans in Response to Pain<br>None | 5<br>4<br>3<br>2<br>1 |
| **Best Motor Response** | Obeys Commands<br>Localizes Painful Stimulus<br>Withdraws in Response to Pain<br>Flexion in Response to Pain<br>Extension in Response to Pain<br>None | Moves Spontaneously and Purposely<br>Withdraws in Reponse to Touch<br>Withdraws in Response to Pain<br>Abnormal Flexion Posture to Pain<br>Abnormal Extension Posture to Pain<br>None | 6<br>5<br>4<br>3<br>2<br>1 |

**Wisconsin EMSC Recommended Weight Conversion**
**(2.2lbs = 1kg -OR- 1lb = 0.45kg)**

| Lbs. | Kgs. | Lbs. | Kgs. | Lbs. | Kgs. |
|---|---|---|---|---|---|
| 5 lbs | 2 kgs | 20 lbs | 9 kgs | 35 lbs | 16 kgs |
| 6 | 3 | 21 | 10 | 36 | 16 |
| 7 | 3 | 22 | 10 | 37 | 17 |
| 8 | 4 | 23 | 10 | 38 | 17 |
| 9 | 4 | 24 | 11 | 39 | 18 |
| 10 lbs | 5 kgs | 25 lbs | 11 kgs | 40 lbs | 18 kgs |
| 11 | 5 | 26 | 12 | 41 | 19 |
| 12 | 5 | 27 | 12 | 42 | 19 |
| 13 | 6 | 28 | 13 | 43 | 20 |
| 14 | 6 | 29 | 13 | 44 | 20 |
| 15 lbs | 7 kgs | 30 lbs | 14 kgs | 45 lbs | 20 kgs |
| 16 | 7 | 31 | 14 | 46 | 21 |
| 17 | 8 | 32 | 15 | 47 | 21 |
| 18 | 8 | 33 | 15 | 48 | 22 |
| 19 | 9 | 34 | 15 | 49 | 22 |
| www.chawisconsin.org | | | | 50 lbs | 23 kgs |

| Equipment | GRAY 3-5kg | PINK Small Infant 6-7kg | RED Infant 6-9kg | PURPLE Toddler 10-11kg | YELLOW Small Child 12-14kg | WHITE Child 15-18kg | BLUE Child 19-23kg | ORANGE Large Child 24-29kg | GREEN Adult 30-36kg |
|---|---|---|---|---|---|---|---|---|---|
| Resuscitation Bag | | Infant/Child | Infant/Child | Child | Child | Child | Child | Child | Adult |
| Oxygen Mask (NRB) | | Pediatric | Pediatric | Pediatric | Pediatric | Pediatric | Pediatric | Pediatric | Pediatric/ Adult |
| Oral Airway (mm) | | 50 | 50 | 60 | 60 | 60 | 70 | 80 | 80 |
| Laryngoscope Blade (Size) | | 1 Straight | 1 Straight | 1 Straight | 2 Straight | 2 Straight | 2 Straight OR Curved | 2 Straight OR Curved | 3 Straight OR Curved |
| King Airway | NA | NA | NA | NA | Size 2 (Green) | Size 2 (Green) | Size 2.5 (Orange) | Size 3 (Yellow) | Size 3 (Yellow) |
| LMA | NA | #1 | #1 | #1.5 | #2 | #2.5 | #3 | #3.5 | #4 |
| Suction Catheter (French) | | 8 | 8 | 10 | 10 | 10 | 10 | 10 | 10-12 |
| BP Cuff | Neonatal #5/ Infant | Infant/Child | Infant/Child | Child | Child | Child | Child | Child | Small Adult |
| IV Catheter (ga) | | 22-24 | 22-24 | 20-24 | 18-22 | 18-22 | 18-20 | 18-20 | 16-20 |
| IO (ga) | | 18/15 | 18/15 | 15 | 15 | 15 | 15 | 15 | 15 |
| NG Tube (French) | | 5-8 | 5-8 | 8-10 | 10 | 10 | 12-14 | 14-18 | 16-18 |

Medical Protocols - Pediatric

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# General Approach – Peds, Medical

**Pertinent Positives and Negatives**

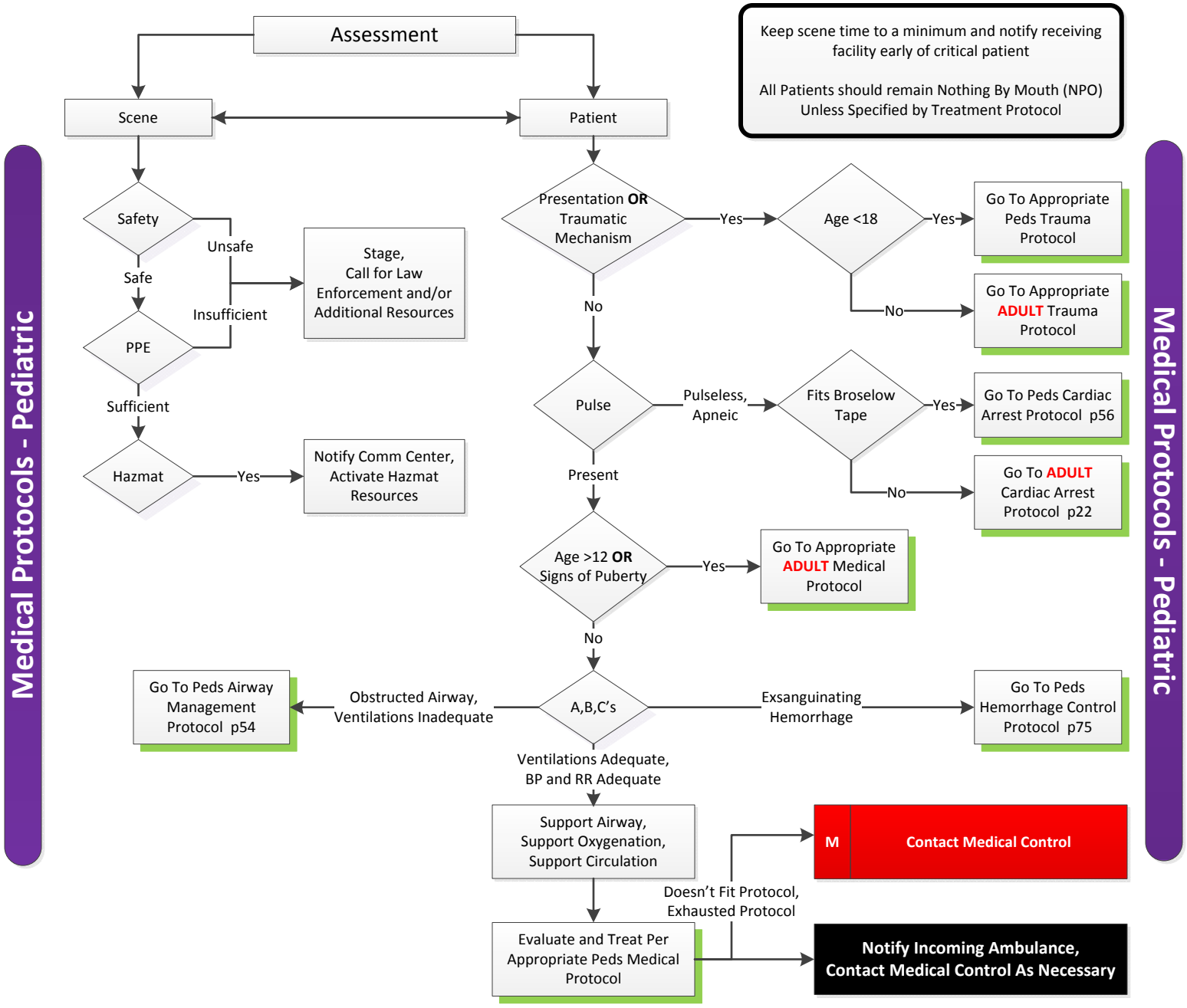
- Age, VS, BP, RR, SpO2
- SAMPLE history
- OPQRST history
- Source of blood loss, if any (GI, vaginal, AAA, ectopic)
- Source of fluid loss, if any (vomiting, diarrhea, fever)
- Pregnancy history
- Mental Status
- Pale, Cool Skin
- Delayed Cap Refill
- Coffee Ground Emesis
- Tarry Stools
- Allergen Exposure

**Differential**

- Cardiac Dysrhythmia
- Hypoglycemia
- Ectopic Pregnancy
- AAA
- Sepsis
- Occult Trauma
- Adrenal Insufficiency

Keep scene time to a minimum and notify receiving facility early of critical patient

All Patients should remain Nothing By Mouth (NPO) Unless Specified by Treatment Protocol




Medical Protocols - Pediatric

Medical Protocols - Pediatric

**Pearls**

**REQUIRED EXAM: VS, GCS, Nature of Complaint**

- Include Blood Glucose (If advanced training and approval) reading for *any* patient with **weakness, altered mental status, seizure, loss of consciousness or known history of diabetes**
- Measure *and document* SpO2 for ANY patient with complaint of weakness, altered mental status, respiratory distress, respiratory failure or EMS managed airway
- Any patient contact which does not result in an EMS transport must have an appropriately executed and completed refusal form.
- Never hesitate to consult Medical Control for assistance with patient refusals that can't meet all required fields, clarification of protocols or for patients that make you uncomfortable.

General Approach – Peds, Medical

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Airway Management - Peds

**Pertinent Positives and Negatives**

- Age, VS, SpO2, EtCO2, RR
- SAMPLE history
- OPQRST history
- History of CHF, COPD, Asthma
- Lung Sounds before *AND after* intervention
- Allergen Exposure
- Toxic / Environmental Exposure

**Differential**

- Head Injury
- Electrolyte Abnormality
- COPD Exacerbation
- CHF Exacerbation
- DM, CVA, Seizure, Tox
- Sepsis
- Asthma Exacerbation
- Drug Ingestion / Overdose

Medical Protocols - Pediatric


Medical Protocols - Pediatric

**Pearls**

**REQUIRED EXAM: VS, GCS, Head, Neck, Blood Glucose**

- If Airway Management is adequately maintained with a Bag-Valve Mask and waveform SpO2 >93%, it is acceptable to defer advanced airway placement in favor of basic maneuvers
- *Always* assume that patient reports of dyspnea and shortness of breath are physiologic, **NOT** psychogenic! Treatment for dyspnea is O2, not a paper bag!
- Once secured, every effort should be made to keep the advanced airway in the airway; commercially available tube holders and C-collars are good adjuncts
- For this protocol, an Attempt is defined as Advanced Airway past the teeth
- ****This Skill Requires Advanced Training and Approval**

Airway Management - Peds

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Wheezing / Asthma - Peds

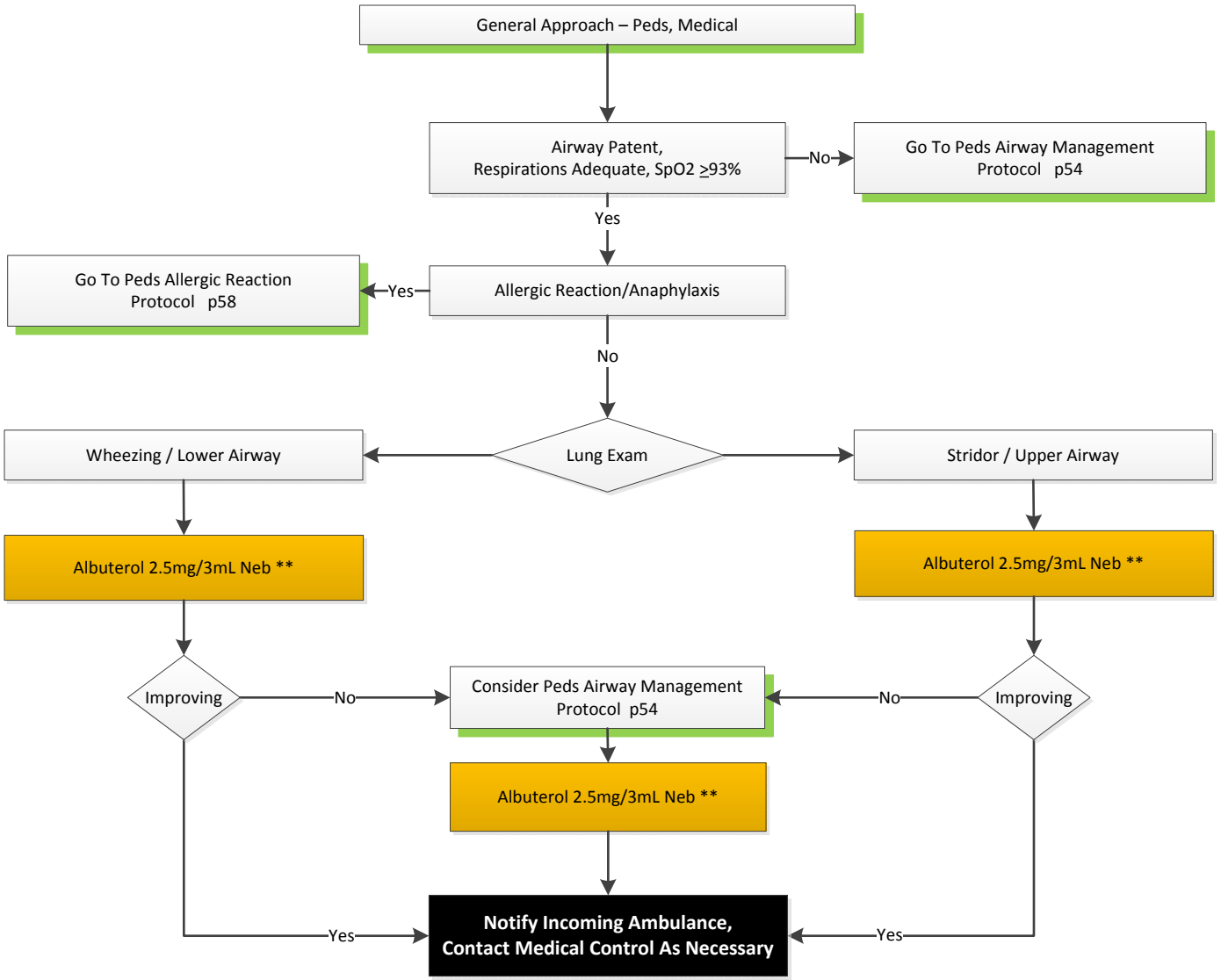
**Pertinent Positives/Negatives:**

- Age, VS, SpO2, EtCO2
- SAMPLE history
- OPQRST history
- Asthma, COPD, CHF history
- Home meds used prior to call (Nebs, Steroids, Theophylline)
- Wheezing, Rhonchi
- Accessory Muscle Use
- Decreased Ability to Speak
- History of CPAP/Intubation/ICU Admission from previous flares
- Smoke Exposure, Inhaled Toxins

**Differential**

- Simple Pneumothorax
- Tension Pneumothorax
- Pericardial Tamponade
- STEMI, CHF
- Inhaled Toxins (CO, CN, etc.)
- Anaphylaxis
- Asthma/COPD






Medical Protocols - Pediatric

**Pearls**

**REQUIRED EXAM: VS, GCS, RR, Lung Sounds, Accessory muscle use, nasal flaring**

- Do not delay inhaled meds to get an extended history. Assessments and interviews may be carried out simultaneously with breathing treatments
- Supplemental O2 should be administered for all cases of hypoxia, tachypnea, and subjective air hunger
- Keep patient in position of comfort if partial obstruction
- Severe Asthma attacks may have such severe obstruction that they do NOT wheeze. Cases of "Silent Chest" need aggressive management with inhaled and IV medications. This is an ominous sign of impending respiratory failure.
- * **Albuterol** max 3 doses total. If pt. requires repeat dosing , contact Med Control **AND/OR** Activate ALS
- ****This Skill Requires Advanced Training and Approval**

Wheezing / Asthma - Peds

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Cardiac Arrest, General - Peds

**Pertinent Positives and Negatives**

- Age (if known), Estimated Weight or Broselow
- Events Surrounding Arrest
- Estimated Time of Arrest
- Past Medical History (if known)
- Medications
- Concern for Foreign Body Aspiration
- Body Temperature
- History of Congenital Heart Defect

**Differential**

- Hypoxemia, Hypovolemia, Hypotension, Acidosis
- Toxins, Tension Pneumo, Pericardial Tamponade
- Hypoglycemia, Trauma
- Respiratory Failure
  -Foreign Body, Infectious, Epiglottitis

Medical Protocols - Pediatric

**CPR Quality**

- Push hard (>1/3 of anterior-posterior diameter of chest) and fast (at least 100/ min) and allow for complete chest recoil
- Minimize interruptions in compressions
- Avoid excessive ventilations
- Rotate compressors every 2 minutes
- If no advanced airway, 15:2 compressions:ventilations ratio two rescuer. 30:2 one rescuer ratio
- If advanced airway, 8-10 breaths per minute with continuous chest compression

**Reversible Causes**

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen Ion (acidosis)
- **H**ypoglycemia
- **H**ypo- / **H**yperkalemia
- **H**ypothermia
- **T**ension Pneumothorax
- **T**amponade, Cardiac
- **T**oxins
- **T**hrombosis, Pulmonary
- **T**hrombosis, Coronary

**Advanced Airway****

- Supraglottic advanced airway
- Once advanced airway in place, give 1 breath every 6-8 seconds (8-10 breaths per minute)

**Return of Spontaneous Circulation (ROSC)**

- Pulse and Blood Pressure check and documentation
- Spontaneous arterial pressure waves in the intra-arterial monitoring

Medical Protocols - Pediatric

**Pearls**

**RECOMMENDED EXAM: Mental Status**

- In order to successfully resuscitate a Pediatric patient, a cause of arrest must be identified and corrected
- Airway is the most important intervention. This should be addressed immediately. Survival is often dependent on successful airway management
- Airway management with BVM is often sufficient in the Pediatric patient.
- ****This Skill Requires Advanced Training and Approval**

Cardiac Arrest, General - Peds

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Neonatal Resuscitation - Peds

**Pertinent Positives and Negatives**

- Time of Delivery, Estimated Weight or Broselow
- Events Surrounding Arrest
- Estimated Time of Arrest
- Past Medical History (if known)
- Medications
- Concern for Foreign Body Aspiration
- Body Temperature
- History of Congenital Heart Defect

**Differential**

- Hypoxemia, Hypovolemia, Hypotension, Acidosis
- Toxins, Tension Pneumo, Pericardial Tamponade
- Hypoglycemia, Trauma
- Respiratory Failure
  - -Foreign Body, Infectious, Epiglottitis

Medical Protocols - Pediatric

Newly Born – Adult, Medical

Warm, Dry and Stimulate Infant
Clear Mouth, then Nose As Needed

Heart Rate

HR ≤60:
- Pulse Oximetry, **Check Glucose****
- Chest Compressions at 120/minute
- BVM Assisted Ventilations with 10-15L $O_2$ At 60bpm X 30 seconds
- M: **Contact Medical Control AND Activate ALS**

HR >100:
- Supplemental O2 via Blow-By Maintain SpO2 ≥94%
- Pulse Oximetry
- Skin-To-Skin Contact With Mother If Situation Appropriate
- **Notify Incoming Ambulance, Contact Medical Control As Necessary**

HR>60 BUT ≤100:
- BVM Assisted Ventilations with 10-15L At 60bpm X 30 seconds
- Pulse Oximetry, Check Glucose

Heart Rate

>60:
- BVM Assisted Ventilations with 10-15L At 60bpm X 30 seconds

Heart Rate

≤60:
- Chest Compressions at 120/minute, BVM at 3:1 Compressions:Breaths
- M: **Contact Medical Control AND Notify Incoming Ambulance**

>60 BUT ≤100:
- Heart Rate

>100:
- Heart Rate

>100:
- **Notify Incoming Ambulance, Contact Medical Control As Necessary**

≤100:
- M: **Contact Medical Control AND Notify Incoming Ambulance**

Medical Protocols - Pediatric

**Pearls**

**REQUIRED EXAM: VS, GCS, Skin, Cardivascular, Pulmonary**

- Call early for ALS Intercept on neonates who are critically ill, and involve Medical Control so arrangements can be made at the receiving facility
- Transport rapidly to an OB Receiving Facility
- Consider hypoglycemia as etiology of neonatal arrest/peri-arrest situation. If not able to evaluate blood sugar, treat presumptively x 1
- **This Skill Requires Advanced Training and Approval

Neonatal Resuscitation - Peds

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Allergic Reaction - Peds

**Pertinent Positives and Negatives**

- Age, VS, SpO2, EtCO2, RR
- SAMPLE history
- OPQRST history
- Onset and Location of Symptoms
- Lung Sounds before *AND after* intervention
- Allergen Exposure
- Toxic / Environmental Exposure
- Subjective throat "tightness" OR "closing"

**Differential**

- Urticaria (Rash Only)
- Anaphylaxis (Systemic Effect)
- Shock (Vascular Effect)
- Angioedema
- Aspiration / Airway Obstruction
- Vasovagal Event
- Asthma / COPD
- CHF

Medical Protocols - Pediatric

General Approach – Peds, Medical

Severity of Symptoms

| Mild | Moderate | Severe | Imminent Cardiac Arrest |
|---|---|---|---|
| Flushing, Hives, Itching, Erythema Normal BP, No Respiratory Involvement | Flushing, Hives, Erythema PLUS Dyspnea, Wheezing Chest Tightness | Derm symptoms may not be present, depending on perfusion Wheezing, Dyspnea, Hypoxia, Nausea/Vomiting PLUS Hypotension | Altered Mental Status, Hypotension, Pallor, Diaphoresis, Weak Pulses |
| | **Consider** <28kg, EpiPen Jr. (0.15mg) ≥28 kg, Adult EpiPen (0.3mg) **OR** Epi 0.3mg IM 1:1000** | <28kg, EpiPen Jr. (0.15mg) ≥28 kg, Adult EpiPen (0.3mg) **OR** Epi 0.3mg IM 1:1000** | <28kg, EpiPen Jr. (0.15mg) ≥28 kg, Adult EpiPen (0.3mg) **OR** Epi 0.3mg IM 1:1000** |
| | Albuterol 2.5mg/3mL Neb ** May repeat Q10min, Max 3 | Albuterol 2.5mg/3mL Neb ** May repeat Q10min, Max 3 | Improving? Yes |

Worsening / Refractory

Monitor and Reassess
Document Response to Medications

Worsening/Refractory

Consider Peds Airway Management Protocol p54

Stable/Improving

**Notify Incoming Ambulance, Contact Medical Control As Necessary**

Medical Protocols - Pediatric

**Pearls**

**REQUIRED EXAM: VS, GCS, Skin, Cardiovascular, Pulmonary**

- In general, the shorter the time from allergen contact to start of symptoms, the more severe the reaction
- Consider the Airway Management Protocol early in patients with Severe Allergic Reaction or subjective throat closing
- Imminent Cardiac Arrest should be considered in patients with severe bradycardia, unresponsiveness, no palpable radial or brachial pulse
- If parents have administered diphenhydramine (Benadryl) prior to EMS arrival, confirm medication given as well as dose
- ****This Skill Requires Advanced Training and Approval**

Allergic Reaction - Peds

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Altered Mental Status - Peds

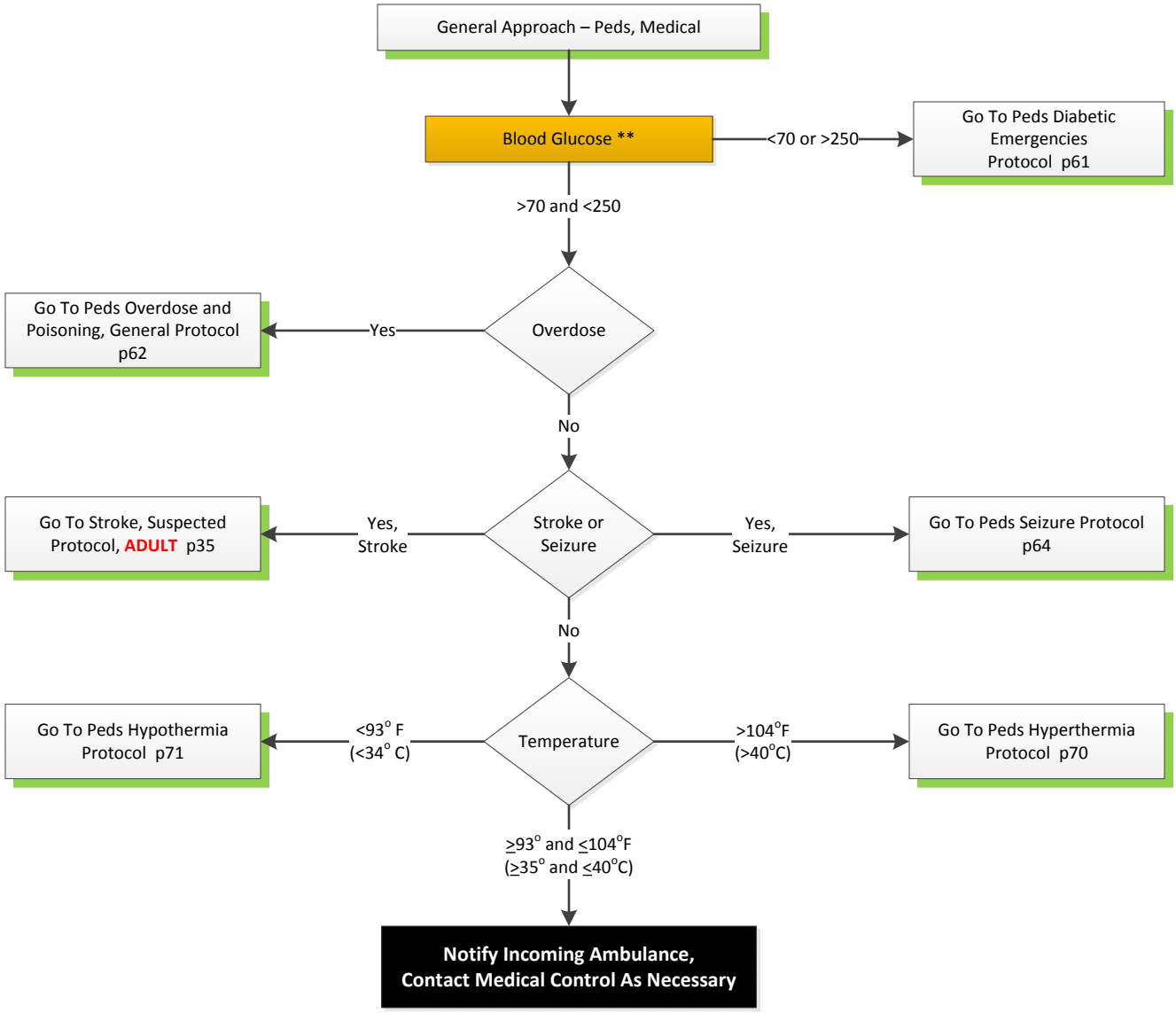
**Pertinent Positives and Negatives**

- Age, VS, SpO2, EtCO2, RR
- SAMPLE history
- OPQRST history
- History of DM, medic alert bracelet
- Drug paraphernalia or report of illicit drug use
- Evidence of environmental toxin / ingested toxin

**Differential**

- Head Injury
- Electrolyte Abnormality
- Psychiatric Disorder
- DM, CVA, Seizure, Tox
- Sepsis

Medical Protocols - Pediatric




Medical Protocols - Pediatric

**Pearls**

**REQUIRED EXAM: VS, GCS, Head, Neck, Blood Glucose**

- Pay special attention to head and neck exam for bruising or signs of injury
- Altered Mental Status may be the presenting sign of environmental hazards / toxins. Protect yourself and other providers / community if concern. Involve Hazmat early
- Safer to assume hypoglycemia if doubt exists. Recheck blood sugar after dextrose/glutose administration and reassess
- **Do not let EtOH fool you!!** Intoxicated patients frequently develop hypoglycemia
- ****This Skill Requires Advanced Training and Approval**

Altered Mental Status - Peds

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Apparent Life-Threatening Episode (ALTE) - Peds

**Pertinent Positives and Negatives**

- Age, VS, SpO2, EtCO2, RR
- SAMPLE history
- OPQRST history
- Events Leading up to 9-1-1
- Pregnancy History
- Complications During Pregnancy/Delivery
- Mother's GBS Status at Delivery
- Color, Tone and Appearance During Event

**Differential**

- Hypoglycemia
- Hyponatremia
- Seizure
- Congenital Heart Defect
- Non-Accidental Trauma
- Inborn Error of Metabolism
- Periodic Apnea
- Reflux

Medical Protocols - Pediatric


Medical Protocols - Pediatric

**Pearls**

**REQUIRED EXAM: VS, GCS, Skin, Cardivascular, Pulmonary**

- An Apparent Life Threatening Event (ALTE) occurs in children **≤1 year of age** and may be referred to as **"Near-miss SIDS"; it** is an episode that is frightening to the observer/caregiver and involves some combination of the following: Apnea, Color Change, Marked Change In Muscle Tone, and Choking or Gagging
- The incidence of ALTE was found to be 7.5% in one studied out-of-hospital infant population
  - The overwhelming majority of ALTE patients (83%) **appeared to be in no apparent distress by EMS assessment**
  - Nearly half of the patients assessed by EMS to be in no apparent distress **(48%) were later found to have significant illness** upon ED evaluation
- This is why the history of an apparent life-threatening event (ALTE) must always result in transport to an emergency department regardless of the infant's appearance at the time of EMS assessment
- **If the parent or guardian is refusing EMS transport, OLMC must be contacted prior to executing a refusal. Be supportive of parents as they may feel embarrassed for calling when the child now appears well**
- ***Always* have a high index of suspicion for Non-Accidental Trauma (NAT). It affects all ethnicities, socioeconomic statuses and family types.**
- ****This Skill Requires Advanced Training and Approval**

Apparent Life-Threatening Episode (ALTE) - Peds

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Diabetic Emergencies - Peds

**Pertinent Positives/Negatives:**

- Age, VS, Blood Glucose Reading
- SAMPLE History
- OPQRST History
- Last Meal, History of Skipped Meal
- Diaphoresis
- Siezures
- Abnormal Respiratory Rate
- History of DKA

**Differential**

- Toxic Ingestion
- Head Injury
- Sepsis
- Stroke/TIA
- Seizure
- EtOH Abuse/Withdrawal
- Drug Abuse/Withdrawal

Medical Protocols - Pediatric

General Approach – Peds, Medical

Blood Glucose**

- <70
- ≥250 → Go To Appropriate Peds Medical Protocol
- ≥70 and <250 → Go To Appropriate Peds Medical Protocol

Mental Status

- Awake Protecting Airway → Glutose 15g PO May repeat x1 ** → Reassess Mental Status Blood Glucose ** within 10 minutes
- Altered **AND/OR** Compromised Gag → Monitor Airway; Patient's Glucagon Autoinjector ** 0.5mg if <25kgs, 1mg if ≥25kgs **One Time**; Consider Peds Airway Management Protocol p54

Repeat Blood Glucose within 10 minutes

- ≥70 → Mental Status
  - Altered from Baseline **OR** Unknown → Go To Peds Altered Mental Status Protocol p59
  - Baseline → Full Assessment Evaluate for Secondary Complaint
    - Issue Discovered → Go To Appropriate Peds Medical Protocol
    - None → Recommend Transport
      - Parent/Guardian/ Patient Refuses → M Contact Medical Control
      - Accepts → **Notify Incoming Ambulance, Contact Medical Control As Necessary**
- <70 → **Notify Incoming Ambulance, Contact Medical Control As Necessary**

Medical Protocols - Pediatric

**Pearls**

**REQUIRED EXAM: VS, SpO2, Blood Glucose, Skin, Respiratory Rate and Effort, Neuro Exam**

- Normal blood sugar for birth to 72 hours of life is >30, and then ≥70 at >72 hours of life.
- Do NOT administer oral glucose to patients that can't swallow or adequately protect their airway
- Prolonged hypoglycemia may not respond to Glucagon
- Infants and patients with congenital liver diseases may not respond to Glucagon due to poor liver glycogen stores
- Patients on oral diabetes medications are at a very high risk of recurrent hypoglycemia and should be transported. Contact Medical Control for advice/ patient counseling if patient is refusing. See Refusal after Hypoglycemia Treatment Protocol for additional information as necessary.
- Always consider intentional insulin overdose, and ask patients / family / friends / witnesses about suicidal ideation, comments or gestures
- ****This Skill Requires Advanced Training and Approval**

Diabetic Emergencies - Peds

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Overdose and Poisoning, General - Peds

**Pertinent Positives/Negatives:**

- Age, VS, SpO2, EtCO2, RR
- SAMPLE history
- OPQRST history
- History of Ingestion or Suspected Ingestion
- Dysrhythmias
- SLUDGEM
- DUMBELLS
- Time of Ingestion
- Type, Number and Dose of Pills Taken (if known)
- Seizures
- Mental Status Change
- Vomiting

**Differential**

- Head Injury
- Hazmat Exposure
- Electrolyte Imbalance
- DM, CVA, Seizure
- Sepsis

**Remember D.E.B.**
**Do Everyone's Blood Sugar!!**

Medical Protocols - Pediatric

General Approach – Peds, Medical

Hazmat Scene

Yes → Call For Additional Resources, Stage Until Safe

No → Pulse

Absent → Go To Peds Cardiac Arrest Protocol p56

Present → Assess Respirations, Ventilations and Oxygenation

Inadequate → Go To Peds Airway Management Protocol p54

Adequate → Blood Sugar **

<70 → Go To Peds Diabetic Emergencies Protocol p61

≥70 → Assess Mental Status

Altered / Somnolent, Hypoxic → Administer Supplemental O2 to Maintain SpO2 ≥93%

Awake, Protecting Airway → Look For Potential Causes

Opiate Overdose

No → Look For Potential Causes

Yes → Naloxone 0.1mg/kg IN** (max 1mg per nare)

No improvement → Look For Potential Causes

Improved → Notify incoming ambulance, Contact Medical Control As Necessary

Look For Potential Causes → Notify incoming ambulance, Contact Medical Control As Necessary

**Single Agent Opiate Medications**

Oxycodone
Hydrocodone
Morphine
Heroin
Dilaudid
Fentanyl
Codeine

**Combination Opiate Medications**

Vicodin – Hydrocodone + Tylenol
Norco – Hydrocodone + Tylenol
Percocet – Oxycodone + Tylenol
Darvocet – Darvon + Tylenol
Vicoprofen – Hydrocodone + Ibuprofen
T3 – Tylenol + Codeine

**Long-Acting Opiate Medications**

Oxycontin
MS Contin
Methadone

Medical Protocols - Pediatric

**Pearls**

REQUIRED EXAM: VS, GCS, Mental Status, Skin, Blood Glucose

- Patients are unreliable historians in overdose situations, particularly in suicide attempts. Trust what they tell you, but verify (pill bottles, circumstances, etc.)
- Bring pill bottles, contents, emesis to the ED for evaluation and assessment
- Be careful of off-gassing in cases of inhalation of volatile agents
- Contact Poison Control for all non-opiate overdoses: **1-800-222-1222**
- **SLUDGEM** – **S**alivation, **L**acrimation, **U**rination, **D**efecation, **G**I Upset, **E**mesis, **M**iosis
- **DUMBBELLS** – **D**iarrhea, **U**rination, **M**iosis/Muscle Weakness, **B**ronchorrhea, **B**radycardia, **E**mesis, **L**acrimation, **L**ethargy, **S**alivation/Sweating
- ****This Skill Requires Advanced Training and Approval**

Overdose and Poisoning, General - Peds

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Refusal Protocol - Peds

**Pertinent Positives and Negatives**
- Age, VS, BP, RR, SpO2
- SAMPLE history
- OPQRST history
- Mental Status
- Pale, Cool Skin
- Delayed Cap Refill

**Differential**
- Cardiac Dysrhythmia
- Hypoglycemia
- Overdose
- Toxidrome
- Sepsis
- Occult Trauma
- Adrenal Insufficiency



General Approach – Peds, Medical

Parent or Legal Guardian is A&O x 4 and has capacity for decision making

No → Transport Required Under Implied Consent **OR** Police Protective Custody

Yes

Parent/Guardian Condition:
- ❑ Altered mental status
- ❑ Impaired decision making ability
- ❑ Hallucinations or thought disorder
- ❑ Incapacitated or intoxicated
- ❑ Expresses Suicidal or Homicidal Ideation

Yes → Transport Required Under Implied Consent **OR** Police Protective Custody Contact On-Line Medical Control as necessary

No

- ❑ <1 year old
- ❑ Vital Sign or Physical Exam abnormalities
- ❑ Reasonable concern that the parent/guardian decision poses a threat to the minor
- ❑ Advanced Life Support measures initiated and parent/ guardian refusing

Yes → Transport Required Under Implied Consent **OR** Police Protective Custody Contact On-Line Medical Control as necessary

No

- ❑ Document assessment including mental status, physical exam, vitals, blood glucose and SpO2
- ❑ Assure that the patient/parent/guardian understands the possible consequences of refusal
- ❑ Complete documentation of refusal and obtain signatures

Medical Protocols - Peds

**Pearls**

**REQUIRED EXAM: VS, GCS, Nature of Complaint**
- *Incapacitated definition: A person who, because of alcohol consumption or withdrawal, is unconscious or whose judgment is impaired such that they are incapable of making rational decisions as evidenced by extreme physical debilitation, physical harm or threats of harm to themselves, others or property. Evidence of incapacitation: inability to stand on ones own, staggering, falling, wobbling, vomit/urination/defecation on clothing, inability to understand and respond to questions, DTs, unconsciousness, walking or sleeping where subject to danger, hostile toward others.
- **Intoxicated definition: A person whose mental or physical functioning is substantially impaired as a result of the use of alcohol.
- If there is ANY question, do not hesitate to involve Law Enforcement to ensure the best decisions are being made on behalf of the patient.

Refusal Protocol - Peds

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Seizure - Peds

**Pertinent Positives and Negatives**
- Age, VS, GCS, SpO2, Blood Sugar
- SAMPLE History
- OPQRST History
- Seizure History, Med Compliance
- Bowel or Bladder Incontinence
- Tongue Biting
- Recent Fever History
- Evidence of Head Trauma
- Number of Seizures and Duration

**Differential**
- Hypoxia
- Hypoglycemia
- Electrolyte Imbalance
- Eclampsia
- Drugs, EtOH Abuse
- Drugs, EtOH Withdrawal
- Occult Head Injury
- Non-Accidental Trauma
- Syncope



Medical Protocols - Pediatric

General Approach – Adult, Medical

**Consider ALS *Early***
**Prolonged Seizures Are BAD for Neurologic Outcomes!**

***Subtle Indications of Peds Seizure:***
**Persistent Gaze Deviation, Jaw Clenching, Rhythmic Mouth Movements, Focal Stiffening or Rhythmic Twitching of Extremity**

Environmental Cause or Toxic Exposure
- Yes → Notify Comm Center and Hazmat Team Ensure Responder and Public Safety → Go To Hazmat, Trauma Protocol p45
- No ↓

Actively Seizing on EMS Arrival
- No ↓
- Yes ↓

Blood Glucose **
- ≤70 → Go To Diabetic Emergencies Protocol p61 **OR** M: If Peds Ketogenic Diet, Goal Blood Sugar ≥50 → Consider Peds Airway Management Protocol p54
- >70 ↓

Loosen Constrictive Clothing Protect Patient from Injury ↓

Monitor and Reassess
- ↔ Consider Peds Spinal Immobilization Protocol p76 **

Normal Mental Status
- No → Consider Peds Altered Mental Status Protocol p59
- Yes ↓

Consider Peds Airway Management Protocol p54 → Monitor for Recurrence of Seizure → **Notify incoming ambulance, Contact Medical Control As Necessary**

Blood Glucose **
- ≤70 → Go To Diabetic Emergencies Protocol p61 **OR** M: If Peds Ketogenic Diet, Goal Blood Sugar ≥50 → Consider Peds Airway Management Protocol p54
- >70 ↓

Loosen Constrictive Clothing Protect Patient from Injury ↓

Consider Peds Spinal Immobilization Protocol p76 ** ↔ Monitor and Reassess

Still Seizing
- No → Consider Peds Altered Mental Status Protocol p59
- Yes ↓

Notify incoming ambulance, Contact Medical Control As Necessary

**Pearls**

**REQUIRED EXAM: Blood Sugar, SpO2, GCS, Neuro Exam**

- Status epilepticus is a seizure lasting greater than 5 minutes OR ≥2 successive seizures without recovery of consciousness in between. This is a TRUE EMERGENCY requiring Airway Management and rapid transport to the most appropriate Pediatric ICU Capable facility
- Assess for possibility of occult trauma, substance abuse
- ****This Skill Requires Advanced Training and Approval**

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Quick Reference Page – Peds (<18 years)

**Vital Signs In Children**

| Age | Heart Rate (Beats Per Minute) | | Age | Respiratory Rate (Breaths Per Minute) | Age | Minimum Systolic Blood Pressure |
|---|---|---|---|---|---|---|
| | Awake Rate | Sleeping Rate | | | | |
| Newborn – 3mos | 85-205 | 80-160 | Infant | 30-60 | Term Neonates (0-28days) | >60 |
| 3mos – 2years | 100-190 | 75-160 | Toddler | 24-40 | Infants (1-12mos) | >70 |
| 2years – 10years | 60-140 | 60-90 | Preschooler | 22-34 | Children 1-10years | >70 + (age in years x 2) |
| >10years | 60-100 | 50-90 | School-Aged Child | 18-30 | Chilcren >10years | >90 |
| | | | Adolescent | 12-16 | | |

**Modified Glasgow Coma Scale for Infants and Children**

| | Child | Infant | Score |
|---|---|---|---|
| **Eye Opening** | Spontaneous<br>To Speech<br>To Pain<br>None | Spontaneous<br>To Speech<br>To Pain<br>None | 4<br>3<br>2<br>1 |
| **Best Verbal Response** | Oriented, Appropriate<br>Confused<br>Inappropriate Words<br>Incomprehensible Sounds<br>None | Coos and Babbles<br>Irritable, Cries<br>Cries in Response to Pain<br>Moans in Response to Pain<br>None | 5<br>4<br>3<br>2<br>1 |
| **Best Motor Response** | Obeys Commands<br>Localizes Painful Stimulus<br>Withdraws in Response to Pain<br>Flexion in Response to Pain<br>Extension in Response to Pain<br>None | Moves Spontaneously and Purposely<br>Withdraws in Reponse to Touch<br>Withdraws in Response to Pain<br>Abnormal Flexion Posture to Pain<br>Abnormal Extension Posture to Pain<br>None | 6<br>5<br>4<br>3<br>2<br>1 |

**Wisconsin EMSC Recommended Weight Conversion**
**(1 kg = 2.2 lbs -OR- 1 lb = 0.45 kgs)**

| Lbs. | Kgs. | Lbs. | Kgs. | Lbs. | Kgs. |
|---|---|---|---|---|---|
| 5 lbs | 2 kgs | 20 lbs | 9 kgs | 35 lbs | 16 kgs |
| 6 | 3 | 21 | 10 | 36 | 16 |
| 7 | 3 | 22 | 10 | 37 | 17 |
| 8 | 4 | 23 | 10 | 38 | 17 |
| 9 | 4 | 24 | 11 | 39 | 18 |
| 10 lbs | 5 kgs | 25 lbs | 11 kgs | 40 lbs | 18 kgs |
| 11 | 5 | 26 | 12 | 41 | 19 |
| 12 | 5 | 27 | 12 | 42 | 19 |
| 13 | 6 | 28 | 13 | 43 | 20 |
| 14 | 6 | 29 | 13 | 44 | 20 |
| 15 lbs | 7 kgs | 30 lbs | 14 kgs | 45 lbs | 20 kgs |
| 16 | 7 | 31 | 14 | 46 | 21 |
| 17 | 8 | 32 | 15 | 47 | 21 |
| 18 | 8 | 33 | 15 | 48 | 22 |
| 19 | 9 | 34 | 15 | 49 | 22 |
| www.chawisconsin.org | | | | 50 lbs | 23 kgs |

| Equipment | GRAY 3-5kg | PINK Small Infant 6-7kg | RED Infant 6-9kg | PURPLE Toddler 10-11kg | YELLOW Small Child 12-14kg | WHITE Child 15-18kg | BLUE Child 19-23kg | ORANGE Large Child 24-29kg | GREEN Adult 30-36kg |
|---|---|---|---|---|---|---|---|---|---|
| Resuscitation Bag | | Infant/Child | Infant/Child | Child | Child | Child | Child | Child | Adult |
| Oxygen Mask (NRB) | | Pediatric | Pediatric | Pediatric | Pediatric | Pediatric | Pediatric | Pediatric | Pediatric/ Adult |
| Oral Airway (mm) | | 50 | 50 | 60 | 60 | 60 | 70 | 80 | 80 |
| Laryngoscope Blade (Size) | | 1 Straight | 1 Straight | 1 Straight | 2 Straight | 2 Straight | 2 Straight OR Curved | 2 Straight OR Curved | 3 Straight OR Curved |
| King Airway | NA | NA | NA | NA | Size 2 (Green) | Size 2 (Green) | Size 2.5 (Orange) | Size 3 (Yellow) | Size 3 (Yellow) |
| LMA | NA | #1 | #1 | #1.5 | #2.0 | #2.5 | #3 | #3.5 | #4 |
| Suction Catheter (French) | | 8 | 8 | 10 | 10 | 10 | 10 | 10 | 10-12 |
| BP Cuff | Neonatal #5/ Infant | Infant/Child | Infant/Child | Child | Child | Child | Child | Child | Small Adult |
| IV Catheter (ga) | | 22-24 | 22-24 | 20-24 | 18-22 | 18-22 | 18-20 | 18-20 | 16-20 |
| IO (ga) | | 18/15 | 18/15 | 15 | 15 | 15 | 15 | 15 | 15 |
| NG Tube (French) | | 5-8 | 5-8 | 8-10 | 10 | 10 | 12-14 | 14-18 | 16-18 |

Trauma Protocols - Pediatric

Trauma Protocols - Pediatric

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# General Approach – Peds, Trauma

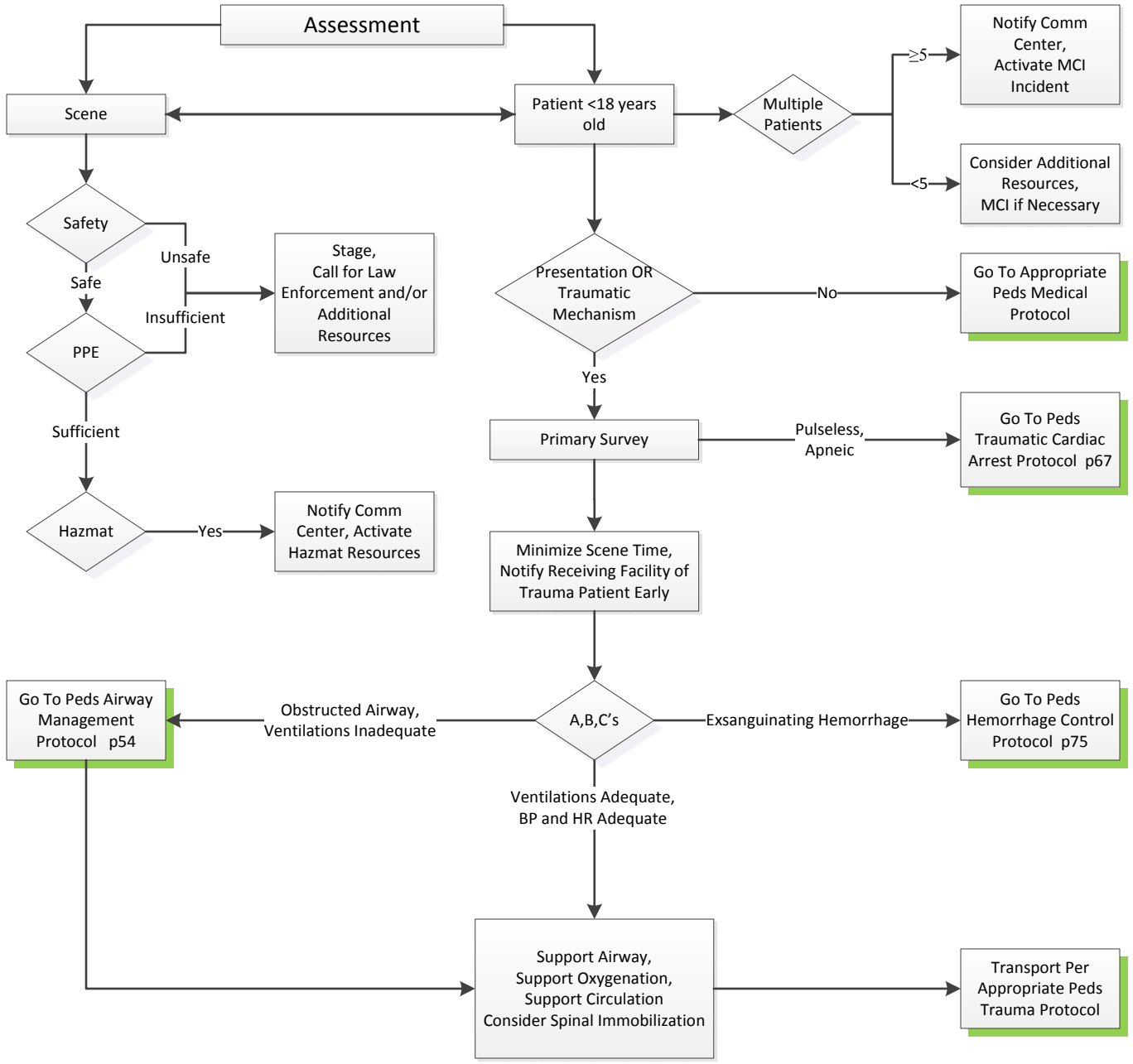
**Pertinent Positives and Negatives**

- Age, VS, GCS
- Time of Injury, Mechanism of Injury
- DCAP-BTLS
- SAMPLE History
- OPQRST History
- Pain / Swelling
- Mental Status
- Hypotension / Shock

**Differential**

- Stroke
- STEMI
- Overdose
- Elder Abuse
- Domestic Violence
- Non-Accidental Trauma

Trauma Protocols - Pediatric




Trauma Protocols - Pediatric

**Pearls**

**REQUIRED EXAM: Vital Signs, GCS, Loss of Consciousness, Location of Pain (then targeted per Appropriate Trauma Protocol)**

- Assess for major trauma criteria immediately upon patient contact
  - -RR <10 or >upper normal ; SBP <70 + (age in years x 2)mmHG; Pulse <50 or >upper normal ; GCS <13; SpO2<93%
  - -Transport to Trauma Center, minimize scene time to goal of <10 minutes
- Disability – assess for neuro deficits including paralysis, weakness, abnormal sensation

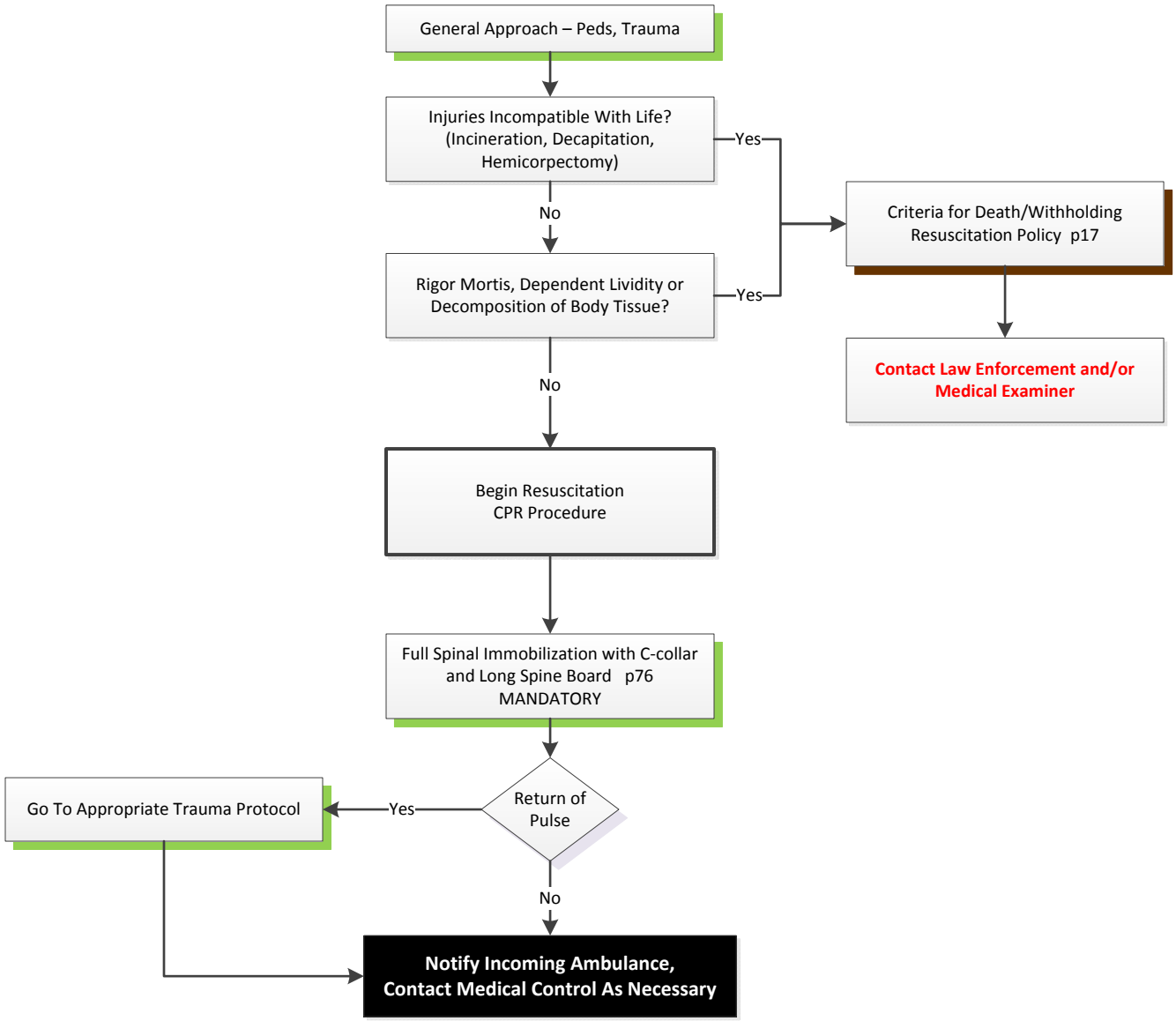
| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Traumatic Cardiac Arrest – Peds, Trauma

**Pertinent Positives and Negatives**
- Age, if known
- Mechanism of Injury
- Events leading up to arrest

**Differential**
- Hypovolemic Shock
  - -External Hemorrhage
  - -Internal Hemorrhage
  - -Unstable Pelvic Fracture
- Tension Pneumothorax
- Medical Condition Causing Trauma (i.e. Cardiac Arrest)






Trauma Protocols - Pediatric

**Pearls**

**REQUIRED EXAM: Pupillary Light Reflex, Palpation of Pulses, Heart and Lung Auscultation**

- This protocol is compliant with the Joint Position Statement of the ACS, ACEP, NAEMSP and AAP and can be referenced here: http://www.annemergmed.com/article/S0196-0644(14)00074-2/fulltext#sec6
- Injuries incompatible with life include; decapitation, incineration, massively deforming head or chest injury, dependent lividity, rigor mortis
- Consider using medical cardiac arrest protocols if uncertainty exists regarding etiology of arrest
- Use of a long spine board will make chest compressions more effective; however, if spinal immobilization interferes with CPR use reasonable effort to limit patient and spine movement
- Be aware that these may be crime scenes: do your best to avoid disturbing forensic evidence

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Burns – Peds, Trauma

**Pertinent Positives and Negatives**

- Age, VS
- SAMPLE History
- OPQRST History
- Mechanism of Burn (heat, gas, chemical)
- Time of Injury
- Singed Facial Hair
- Wheezing, Hoarseness
- Subjective Throat Swelling
- Loss of Consciousness

**Differential**

- Blast Injury
- Radiation Injury
- Electrical Injury
- Cyanokit Need?
- Cellulitis
- Dermatitis
- Drug Reaction (Stevens-Johnson Syndrome)

Trauma Protocols - Pediatric

**Consider need for Airway Management EARLY**

General Approach – Peds, Trauma

Estimate TBSA Burned / Severity

**Minor Burn**

<5% TBSA, 1st – 2nd Degree Burn
No inhalation Injury
Normal BP, SpO2

Remove Rings, Bracelets and Constricting Items

Remove or Cool Heat Source (if not already done)

Apply Dry Clean Sheet or Non-Adherent Dressing

**Serious Burn**

5-15% TBSA, 2nd – 3rd Degree Burn
Suspected Inhalation Injury
Hypotension, Altered Mental Status

Remove Rings, Bracelets and Constricting Items

Remove or Cool Heat Source (if not already done)

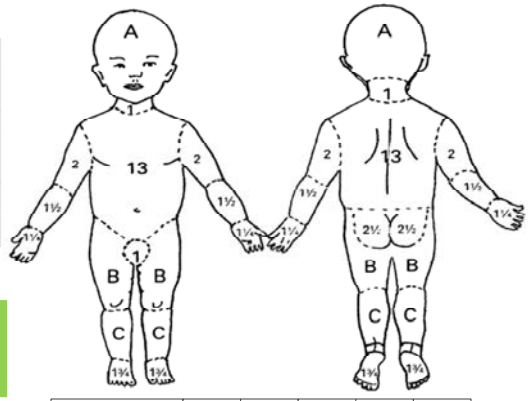
Apply Dry Clean Sheet or Non-Adherent Dressing

Consider Peds Airway Management Protocol p54

**Critical Burn**

>15% TBSA, 2nd – 3rd Degree Burn
Burn with Trauma
Burn with Airway Compromise

**Notify Incoming Ambulance, Contact Medical Control As Necessary**




| Area | Age 0 | Age 1 | Age 5 | Age 10 | Age 15 |
|---|---|---|---|---|---|
| A=½ of Head | 9 ½ | 8 ½ | 6 ½ | 5 ½ | 4 ½ |
| B=½ of Thigh | 2 ¾ | 3 ¼ | 4 | 4 ¼ | 4 ½ |
| C=½ of Leg | 2 ½ | 2 ½ | 2 ¾ | 3 | 3 ¼ |

Trauma Protocols - Pediatric

**Pearls**

**REQUIRED EXAM: VS, GCS, Lung Sounds, HEENT, Posterior Pharynx**

- Safety First! Assure a Chemical source of burn is NOT a hazard to responders. Assure an Electrical source of burn is OFF or no longer contacting pt. Never overlook the possibility that a burn injury may be the result of child abuse / non-accidental trauma.
- High Voltage Electrical Burns (>600 volts) require spinal immobilization regardless of external appearance of injury
- Chemical burns require removal of contaminated clothing, brush away dry powder before irrigation. Flush with copious warm water on scene and continue irrigation en route
- Burns to face and eyes, remove contact lenses prior to irrigation
- Early advanced airway is strongly recommended if suspicion of inhalation injury. Consider requesting ALS. Signs and symptoms include carbonaceous sputum, facial burns or edema, hoarseness, singed nasal hairs, agitation, hypoxia or cyanosis

Burns – Peds, Trauma

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Near-Drowning / Submersion Injury – Peds, Trauma

**Pertinent Positives and Negatives**

- Submersion in water regardless of depth
- SAMPLE History
- OPQRST History
- Temperature of water
- Mental Status Changes
- Degree of Water Contamination
- Vomiting
- Coughing, Wheezing, Rales, Rhonchi, Stridor

**Differential**

- Spinal Trauma
- Pre-Existing Medical Condition
- Hypothermia
- Aspiration
- The Bends
- Pressure Injury
  - Barotrauma
  - Decompression Sickness
- Post-Immersion Syndrome



Trauma Protocols - Pediatric


**Pearls**

**REQUIRED EXAM: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremity, Back, Neuro**

- Have a HIGH index of suspicion for possible spinal injuries. *Any* diving injury or submersion with unclear details should be fully immobilized
- Hypothermia is often associated with near-drowning and submersion injuries. Consider the Hypothermia Protocol as appropriate
- *All* patients with Near-Drowning / Submersion Injury should be transported for evaluation due to delayed presentation of respiratory failure
- With diving injuries (decompression / barotrauma) consider availability of a hyperbaric chamber; contact Medical Control early.

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Environmental, Hyperthermia – Peds, Trauma

**Pertinent Positives and Negatives**

- Age, VS, Mental Status
- SAMPLE History
- OPQRST History
- Time and length of exposure to hot environment
- Hot, dry or sweaty skin
- Seizures
- Nausea
- Hypotension, Shock, Fever

**Differential**

- Alcohol Withdrawal (DTs)
- Hyperthyroidism (Thyroid Storm)
- Dehydration
- Cocaine or Sympathomimetic OD
- Sepsis
- CNS Lesion or Head Injury
- Abuse or Neglect (Elderly or disabled)
- Medication (Serotonin Syndrome, Malignant Hyperthermia)

Trauma Protocols - Pediatric

General Approach – Peds, Trauma

Remove Patient from Hot Environment (if applicable)

Estimate Severity of Symptoms

**Heat Cramps**

Painful Spasms of Extremities and/or Abdominal Muscles
*Normal Mental Status*
Normal Vital Signs

Oral Fluids
Sponge with Cool Water and Fan

**Heat Exhaustion**

Dizziness, Lightheadedness, Headache, Irritability, Nausea
*Normal or Mildly Depressed Mental Status*
Mild Tachycardia (<150)
Normal or Mildly Elevated Temp

Keep Patient Supine
Apply 100% Oxygen
Sponge with Cool Water and Fan

**Heat Stroke**

*Marked Alteration in Level of Consciousness*
May Be Sweating OR Hot, Dry, Red Skin
Extremely High Temp, >104°F

Semi-Reclining Position with Head Elevated
Apply 100% Oxygen
Rapid Cooling with Cold Packs, Sponge with Cool Water and Fan

Tolerating Oral Fluids

Yes

No

Reassess and Document Mental Status, VS and ability to take PO

Abnormal

**Notify Incoming Ambulance, Contact Medical Control As Necessary**

Normal

Requires Transport

Yes

No

Execute and Document Peds Patient Refusal Protocol p63

Trauma Protocols - Pediatric

**Pearls**

**REQUIRED EXAM: VS, GCS, Skin, HEENT, Neuro, Evidence of Intoxication, Mental Status**

- Extremes of Age are more prone to heat emergencies due to inability to easily self-extricate from hot environments
- Patients on Tricyclic Antidepressants, Anticholinergics, Diuretics (i.e. Lasix) are more susceptible to heat emergencies due to medication effects
- Cocaine, amphetamines and salicylates all may elevate body temperature or interfere with the ability to auto-regulate
- Sweating generally disappears as body temperature rises above 104°F

Environmental, Hyperthermia – Pediatric, Trauma

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Environmental, Hypothermia – Peds, Trauma

**Pertinent Positives and Negatives**

- Age, VS, Mental Status
- SAMPLE History
- OPQRST History
- Time and length of exposure to cold environment
- Cold or clammy skin
- Confusion
- Hypotension, Shock

**Differential**

- Alcohol Intoxication
- Hypothyroidism (Myxedema Coma)
- Dehydration
- Sepsis
- CNS Lesion or Head Injury
- Abuse or Neglect (Elderly or disabled)
- Medication (beta blocker overdose, opiate overdose)

Trauma Protocols - Pediatric

General Approach – Peds, Trauma

Remove Patient from Cold Environment (if applicable)
Remove Wet Clothing
Dry and Warm the Patient

Localized Cold Injury (Frostbite)

Yes → General Wound Care
Do NOT Rub Skin To Warm
PREVENT Refreezing p95

No

Blood Glucose Procedure p82 **

<70 → Go To Peds Diabetic Emergencies Protocol p61

≥70

Estimate Severity of Symptoms

**Mild Hypothermia**
**90-95°F (32-35°C)**

Sympathetic Nervous System Excitation – Shivering, Hypertension, Tachycardia, Tachypnea
*Awake But May Be Confused*

**Moderate Hypothermia**
**82-90°F (28-32°C)**

Shivering more violent, ataxia and incoordination apparent.
*Stumbling pace and Moderate Confusion*
Appears pale as surface vessels constrict to retain heat.

**Severe Hypothermia**
**<82°F (<28°C)**

Heart rate, blood pressure and respiratory rate decrease.
*Disoriented, confused and combative*
Paradoxically may discard clothing

External Rewarming Measures

Consider Peds Airway Management Protocol p54

Consider Peds Altered Mental Status Protocol p59

**Notify Incoming Ambulance, Contact Medical Control As Necessary**

Trauma Protocols - Pediatric

**Pearls**

**REQUIRED EXAM: VS, GCS, Skin, HEENT, Neuro, Evidence of Intoxication, Mental Status**

- Hypoglycemia is found in many hypothermic patients, because hypothermia may be a result of hypoglycemia
- Severe hypothermia may cause myocardial irritability and rough handling can theoretically cause V-fib. Please handle carefully.
  -Do not withhold advanced airway or CPR for this concern

Extremes of age, malnutrition, EtOH and drug abuse and outdoor hobbies / employment all predispose to hypothermia

****This Skill Requires Advanced Training and Approval**

Environmental, Hypothermia – Peds, Trauma

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Extremity Injury – Peds, Trauma

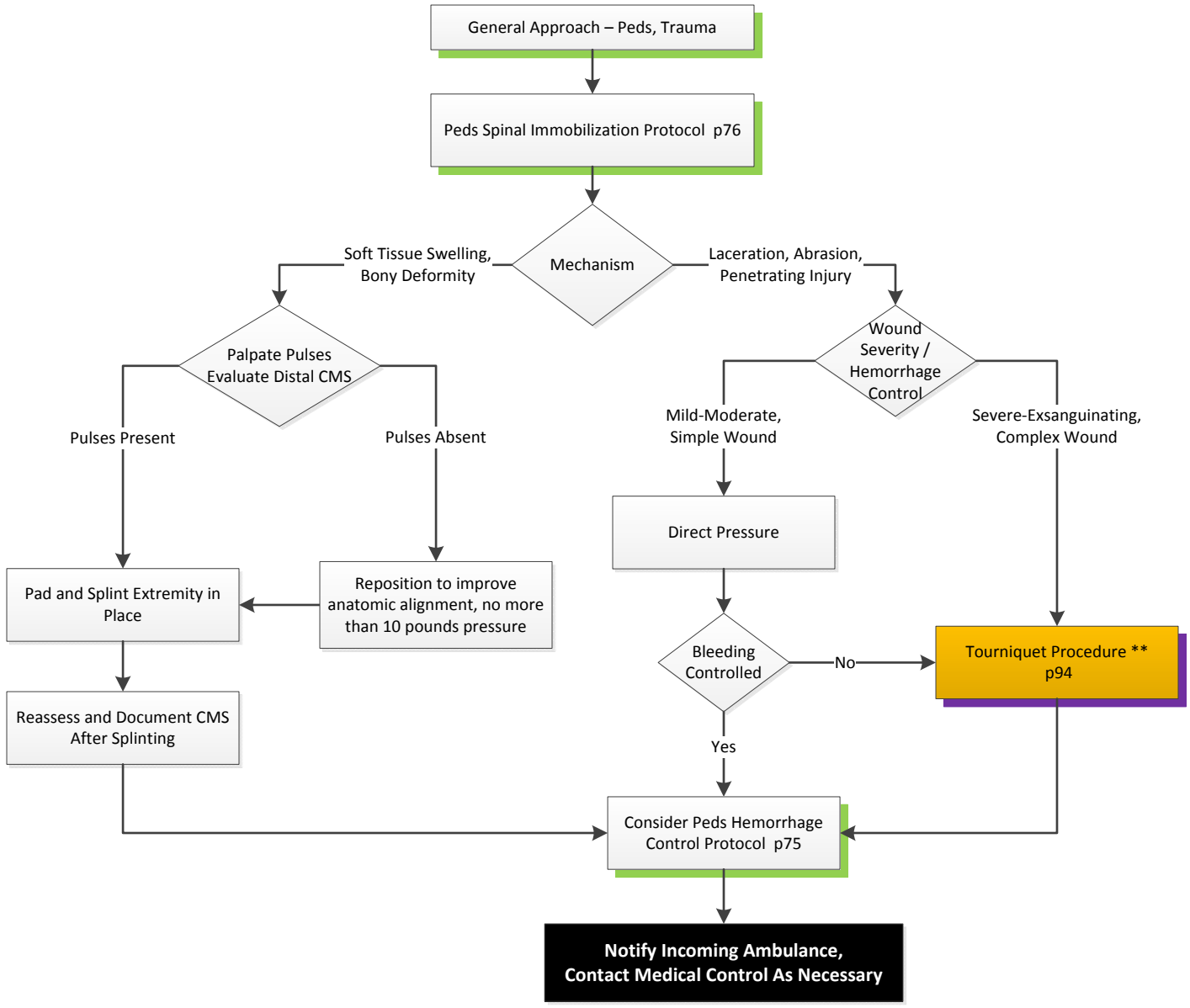
**Pertinent Positives and Negatives**

- Type of injury
- Mechanism (blunt vs. penetrating)
- Central and Peripheral Pulses
- Neuro Function Distal to Injury
- SAMPLE History
- OPQRST History
- Evidence of Intoxication
- Evidence of Multi-System Trauma

**Differential**

- Vascular Disruption
- Amputation
- Fracture, Dislocation
- Sprain, Strain
- Abrasion
- Contusion
- Laceration
- Compartment Syndrome






Trauma Protocols - Pediatric

**Pearls**

**REQUIRED EXAM: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremity, Back, Neuro**

- Immobilization of bony injuries should include the joint above and below. Joint injuries require immobilization of bone above and below
- Palpate and document Circulation, Movement and Sensation both before and after splint application
- Tourniquets should remain in place once hemorrhage control is adequate. The tourniquet is tight enough when the bleeding stops!
- If active hemorrhage and bony/soft tissue deformity, priority should be put on hemorrhage control *first*, then splinting – remember A,B,C's
- If amputated extremities available, seal in a plastic bag and place in cool water and bring to the hospital with the patient
- **This Skill Requires Advanced Training and Approval

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Eye Pain – Peds, Trauma

**Pertinent Positives and Negatives**

- Age, VS, Visual Acuity
- SAMPLE History
- OPQRST History
- Time of Injury
- Involved Chemical MSDS
- Contact / Corrective Lens Use
- "Shooting" or "Streaking" Lights
- Rust Ring
- "Lowering Shade" in Vision

**Differential**

- Globe Rupture
- Acute Closed Angle Glaucoma
- Stroke
- Retinal Artery Occlusion
- Chemical Burn
- Retinal Venous Thrombus



Trauma Protocols - Pediatric


**Pearls**

**REQUIRED EXAM: VS, GCS, Visual Acuity, Neuro Exam, Extraocular Movements**

- Stabilize any penetrating objects. DO NOT remove any embedded / impaled objects
- If Long Spine Board not indicated, transport with head of stretcher elevated to 60 degrees to help reduce intraocular pressure
- Remove contact lenses when possible
- Always cover both eyes to prevent further injury
- Orbital fractures increase concern for globe or optic nerve injury; follow visual acuity and extraocular movements for changes
- Normal visual acuity can be present, even with severe injury

Eye Pain – Peds, Trauma

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Head Injury – Peds, Trauma

**Pertinent Positives and Negatives**

- Type of injury
- Mechanism (blunt vs. penetrating)
- Loss Of Consciousness
- Vomiting, Altered Mental Status
- SAMPLE History
- OPQRST History
- Evidence of Intoxication
- Evidence of Multi-System Trauma

**Differential**

- Skull fracture
- Epidural hematoma
- Concussion, Contusion, Laceration, Hematoma
- Non-Accidental Trauma
- Spinal Cord Injury
- Subdural Hematoma
- Subarachnoid Hemorrhage




Trauma Protocols - Pediatric

**Pearls**

**REQUIRED EXAM: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremity, Back, Neuro**

- If GCS <13 consider Air transport or Rapid Transport to Leveled Trauma Facility
- **Airway interventions can be detrimental to patients with head injury by raising intracranial pressure, worsening hypoxia (causing secondary brain injury) and increasing risk of aspiration. Whenever possible these patients should be managed in the least invasive manner to safely maintain O2 saturation >90% (ie. NRB, BVM with 100% O2, etc.)**
- Hypotension usually indicates injury or shock unrelated to the head injury and should be treated aggressively
- Most important vital sign to monitor and document is level of consciousness (GCS)
- Concussions are periods of confusion or loss of consciousness (LOC) associated with trauma which may have resolved by the time EMS arrives. Any confusion or mental status abnormality should be transported to an Emergency Department. **Any questions or clarifications, contact Medical Control.**
- ****This Skill Requires Advanced Training and Approval**

| Legend | |
|---|---|
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| M | Medical Control |

# Hemorrhage Control – Peds, Trauma

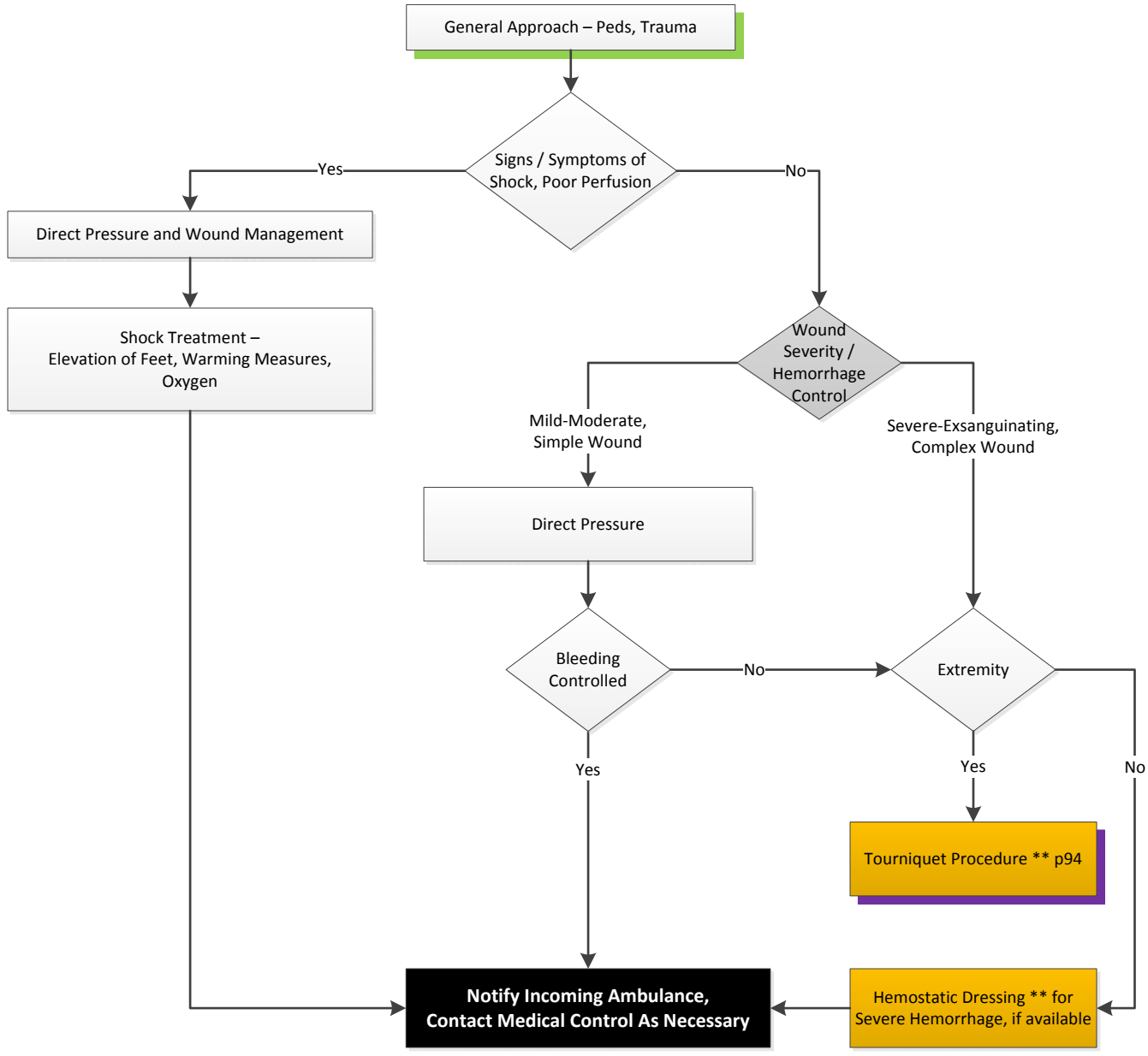
**Pertinent Positives and Negatives**

- Type of injury
- Mechanism (blunt vs. penetrating)
- Central and Peripheral Pulses
- Neuro Function Distal to Injury
- Time of Injury
- Deformity
- Diminished pulse / capillary refill

**Differential**

- Vascular Disruption
- Amputation
- Fracture, Dislocation
- Sprain, Strain
- Abrasion
- Contusion
- Laceration
- Compartment Syndrome






Trauma Protocols - Pediatric

**Pearls**

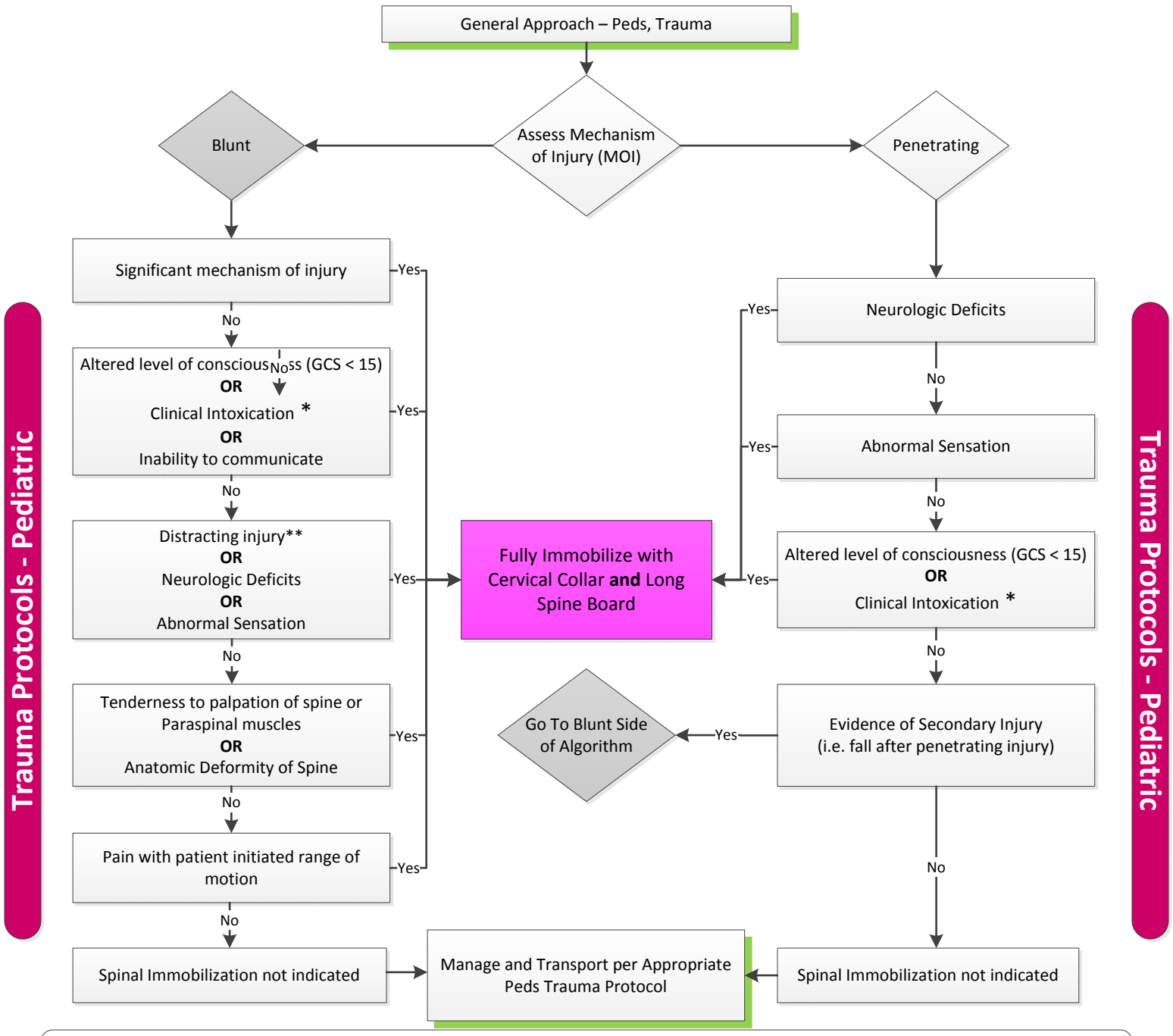
**REQUIRED EXAM: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremity, Back, Neuro**

- **Hypotension in trauma needs blood products early**, so minimize scene time. Goal for scene time in major trauma cases should be <10 min
- Multiple casualty incident or obvious life threatening hemorrhage, consider Tourniquet Procedure and/or Hemostatic Dressing FIRST
- Hemostatic Dressings are appropriate for hemorrhage that can't be controlled with a tourniquet, such as abdominal and pelvic wounds
- Signs/Symptoms of Shock include: altered mental status, pallor, cap refill >3 sec, faint/absent peripheral pulses, hypotension (age defined)
- ****This Skill Requires Advanced Training and Approval**

Hemorrhage Control – Peds, Trauma

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Spinal Immobilization – Peds, Trauma




**Pearls**

**REQUIRED EXAM: Motor Function both upper and lower extremities, Sensation of upper and lower extremities, subjective abnormal sensation, Tenderness to palpation of bony prominences OR paraspinal muscles**

- ***Clinical Intoxication** – A transient condition resulting in disturbances in level of consciousness, cognition, perception, affect or behavior, or other psychophysiological functions and responses. Common examples include; ataxia, emotional instability, flight of ideas, tangential thought or motor incoordination.
- **Distracting Injury – Examples include, but are not limited to: long bone fracture, dislocations, large lacerations, deforming injuries, burns OR any condition preventing patient cooperation with history.
- It is always safer and better patient care to assume that a Spinal Cord injury has occurred and provide protection, and should be the standard of care in trauma patient management
- Rigid cervical collars have risks and benefits for patients. Spinal immobilization should always be applied when ***any*** doubt exists about the possibility of spinal trauma.
- EXTREMELY thoughtful consideration and careful physical exam should be part of any decision to apply or not apply the spinal immobilization, and *must be well documented*.

Spinal Immobilization – Peds, Trauma

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Airway Obstruction – Procedure

**Procedure**:

Foreign Body Airway Obstruction – 1 Year Old Or Less, *Conscious*

- ❑ If coughing, wheezing and exchanging air, do not interfere with the victims efforts to expel the foreign body.
- ❑ If unable to cry or speak, weak or absent cough or no air exchange
  - 1. Support the victim in the head down position with your non-dominant hand and forearm.
  - 2. Perform 5 back slaps with the heel of your dominant hand between the should blades
  - 3. Perform 5 chest thrusts with two fingers in the center of the chest
  - 4. Repeat the steps above until the object is expelled or the victim becomes unresponsive

Foreign Body Airway Obstruction – Greater Than 1 Year Old, *Conscious*

- ❑ If coughing, wheezing and exchanging air, do not interfere with the patient's efforts to expel the foreign body.
- ❑ If unable to speak, weak or absent cough OR no air exchange, perform abdominal thrusts (Heimlich Maneuver).

Foreign Body Airway Obstruction – All Ages, *Unconscious*

- ❑ 1. If patient was responsive and then became unresponsive
  - lower the victim to the ground and begin CPR, starting with compressions (do not check for a pulse)
  - Every time you open the airway to give breaths, open the mouth wide and look for the object
  - If you see an object that can easily be removed, remove it with your finger
  - If you do not see an object, continue CPR
- ❑ 2. Provide suction as needed
- ❑ 3. Resume appropriate CPR and airway management



Procedures

**ACTIVATE ALS IF NOT ALREADY CONTACTED**

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| EMR | Emergency Med Responder |
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# Pulse Oximetry ** – Procedure

**Procedure**:

- ❑ 1. Apply probe to patient finger or toe, as recommended by the device manufacturer.
- ❑ 2. Allow machine to register oxygen saturation level
- ❑ 3. Record time and initial saturation percent on room air if possible on/with the PCR
- ❑ 4. Verify pulse rate on machine or with actual manual pulse check of the patient
- ❑ 5. Monitor critical patients continuously until arrival at the hospital. If recording a one-time reading, monitor patients for a few minutes as oxygen saturation can vary
- ❑ 6. Document percent of oxygen saturation every time vital signs are recorded and in response to therapy to correct hypoxemia
- ❑ 7. In general, normal saturation is 97-99%. Below 93% suspect a respiratory compromise
- ❑ 8. Use the pulse oximetry as an added tool for patient evaluation. Treat the patient, not the data provided by the device
- ❑ 9. The pulse oximeter reading should never be used to withhold oxygen from a patient in respiratory distress or when it is the standard of care to apply oxygen despite good pulse oximetry readings, such as chest pain
- ❑ 10. Factors which may reduce the reliability of the pulse oximetry reading include:
  - Poor peripheral circulation (blood volume, hypotension, hypothermia)
  - Excessive pulse oximeter sensor motion
  - Fingernail polish (may be removed with acetone pad)
  - Carbon monoxide bound to hemoglobin
  - Irregular heart rhythms (atrial fibrillation, SVT, etc.)
  - Jaundice
  - Placement of Blood Pressure cuff on same extremity as pulse ox probe

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Procedures

| Legend | |
|---|---|
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# King LT-D and King LTS-D Laryngeal Tube Airway** – Procedure

**Prepare All Procedure Specific Materials**:

- ❑ Correctly sized Laryngeal Tube Airway (LTA) – see chart below
- ❑ Bag Valve Mask
- ❑ Oxygen Reservoir
- ❑ Suction Device
- ❑ Bite Block AND/OR endotracheal tube holder (if available)
- ❑ Appropriately sized syringes for inflating cuff
- ❑ Oxygen Saturation Monitoring Devices

| Airway Size | Connector Color | Patient Height | OD/ID (mm) | Cuff Volume (ml) | Gastric Tube (Fr.) |
|---|---|---|---|---|---|
| 0 | Transparent | <5kg | NA | 10ml | 10 |
| 1 | White | 5-12kg | NA | 20ml | 10 |
| **2** | Green | 12-25kg | NA | 25-35 | 16 |
| **2.5** | Orange | 41-51 inches | NA | 30-40 | 16 |
| **3** | Yellow | 4-5 feet | 18/10mm | 45-60 | Up to 18 |
| **4** | Red | 5-6 feet | 18/10 | 60-80 | Up to 18 |
| **5** | Purple | >6 feet | 18/10 | 70-90 | Up to 18 |

**Procedure**:

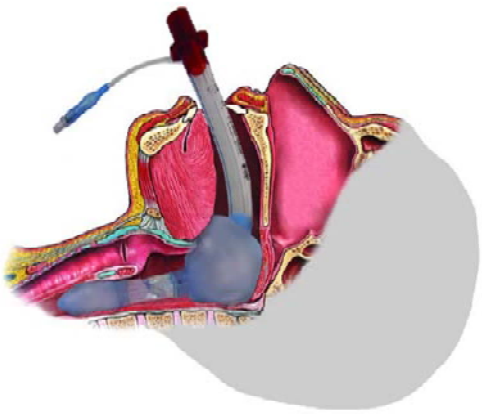
- ❑ 1. Pre-oxygenate patient with 100% Oxygen via Bag Valve Mask or spontaneous ventilation to achieve O2 saturation of ≥93% if possible
- ❑ 2. Check the integrity of the cuff inflation system and pilot balloon
- ❑ 3. Fully deflate the cuff with the syringe
- ❑ 4. Lubricate the posterior distal tip of the device with a water soluble lubricant
- ❑ 5. Place patient in neutral sniffing position (if no Cervical Spine/Spinal Injury suspected)
  - For patient with suspected Cervical Spine injury, perform two-person insertion technique
  - One person maintains manual in-line cervical spine stabilization while the other person proceeds with procedure
- ❑ 6. Pull mandible down to open mouth
- ❑ 7. Insert uninflated device into oral cavity with midline or a lateral technique
- ❑ 8. Advance the tip behind the base of the tongue while rotating tube back to midline so that the blue orientation line faces the chin of the patient.
- ❑ 9. Without exerting excessive force, advance tube until base of the colored connector is aligned with teeth or gums
- ❑ 10. Inflate the King with the appropriate volume:
  - If inflated King Airway insertion is difficult, perform jaw thrust, pulling the tongue forward. Alternately, a laryngoscope may be used to lift the jaw/mandible to facilitate insertion.
- ❑ 11. Attach the BVM to the King.
- ❑ 12. While bagging the patient, gently withdraw the tube until ventilation becomes easy and free flowing (large tidal volume with minimal airway pressure).
- ❑ 13. Adjust cuff inflation if necessary to obtain a seal of the airway at the peak ventilatory pressure employed.
- ❑ 14. Auscultate breath sounds bilaterally, look for chest excursion, and check oxygen saturation
- ❑ 15. Secure in the midline to help maintain a good seal over the larynx.
- ❑ 16. Place bite block, oral airway or endotracheal tube holder (if available) between teeth to prevent biting tube
- ❑ 17. Place orogastric tube and attach to low continuous suction as directed in the applicable procedure to assist in gastric decompression
- ❑ 18. Ensure C-spine is still immobilized
- ❑ 19. If repeated attempts are made, oxygenate with 100% O2 for 2 minutes between attempts
- ❑ 20. *Follow manufacturers suggested guidelines at all times*
- ❑ 21. Document status of at time of EACH patient movement, including at time of transfer of care at the Emergency Department.


Procedures

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# King LTD and King LTS-D Laryngeal Tube Airway** – Procedure



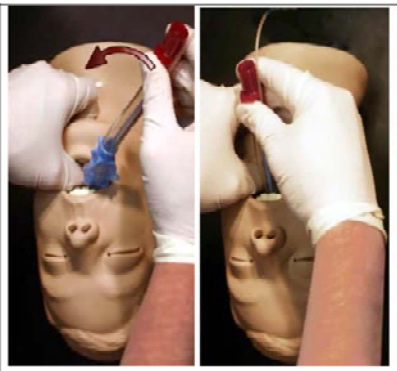


**King LT Airway –** The correctly placed King LT airway lies with the tip resting in the upper esophagus. The distal cuff inflates in the esophagus, isolating the laryngopharynx from the esophagus. The proximal cuff inflates at the base of the tongue. It isolates laryngopharynx from the oropharynx and the nasopharynx.

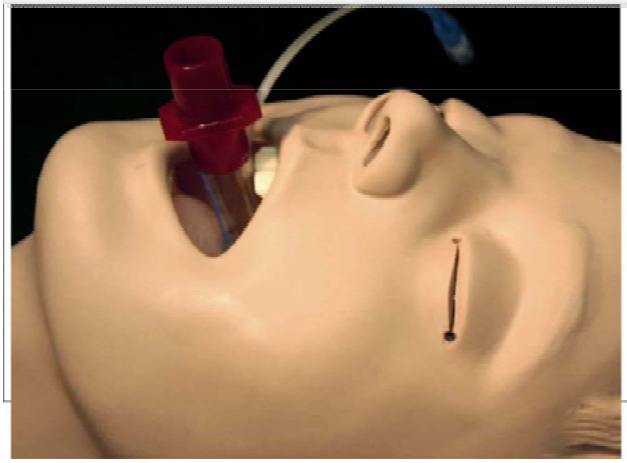
**Proper placement of a King LT (Emergency Insertion Technique)**

1. Place patient in neutral (sniffing position if no cervical spine injury suspected) and pull down on the mandible to open the mouth. Insert the King LT into the oral cavity from either a midline or lateral approach.

2. Advance the tip of the tube behind the base of the tongue (see figure 1).Then rotate the tube back to the midline so that the blue orientation line faces the chin of the patient (see figure2).



3. Without exerting force, advance tube until base of connector is aligned with the teeth or gums. Then inflate cuff with appropriate volume.



4. Attach BVM to King LT. While bagging the patient gently withdraw the tube until ventilation becomes easy and free flowing (large tidal volume with minimal airway pressure). Adjust cuff inflation to maintain seal at the peal ventilatory pressure employed.

| Legend | |
|---|---|
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# Suctioning (Basic) – Procedure

**Procedure**:

- ❑ 1. Ensure suction device is in proper working order with suction tip in place.
- ❑ 2. Set mechanical suction device to appropriate setting (Adult: 120-150mmHg **OR** Pediatric: 80-100mmHg).
- ❑ 3. Measure suction tip from corner of mouth to ear lobe and marks maximum insertion depth; **OR** ensure tip of catheter is always in sight during use.
- ❑ 4. Preoxygenate the patient.
- ❑ 5. Explain the procedure to the patient, if they are coherent.
- ❑ 6. Examine the oropharynx and remove any potential foreign bodies or material that may occlude the airway if dislodged by the suction device.
- ❑ 7. If applicable, remove ventilation devices (i.e. BVM, OPA) from the mouth and upper airway.
- ❑ 8. Insert into mouth without finger hole covered
- ❑ 9. Once inserted, cover the finger hole with a gloved finger to remove any secretions, blood, or other substances. The alert patient may assist with this procedure. Continue to cover the finger hole while removing.
- ❑ 9. Max suction time:
  - Adult - 15 seconds
  - Pediatric - 10 seconds
  - Infant - 5 seconds
- ❑ 10. Reattach ventilation device (i.e. BVM) and resume ventilations or patient assistance, as applicable.
- ❑ 11. Record the time and result of the suctioning procedure in the electronic Patient Care Report (ePCR).


Procedures

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Blood Glucose Analysis** – Procedure

**Prepare All Procedure Specific Materials**:

- ❑ Glucometer
- ❑ Test Strip
- ❑ Lancet
- ❑ 2x2 gauze pad
- ❑ Alcohol prep pad
- ❑ Bandage

**Procedure**:

- ❑ 1. Select appropriate site.
- ❑ 2. Blood samples for performing glucose analysis may be obtained simultaneously with intravenous access when possible.
- ❑ 3. Cleanse site appropriately with alcohol prep.
- ❑ 4. Puncture skin with lancet.
- ❑ 5. Dispose of sharps in proper container.
- ❑ 6. Wipe first drop of blood with 2x2 gauze.
- ❑ 7. Place correct amount of blood on reagent strip or site on glucometer per the manufacturers instructions.
- ❑ 8. Apply direct pressure and cover site with bandage as needed.
- ❑ 9. If result does not fit patient clinical picture:
  - Consider presumptive management per Diabetic Emergencies Protocol while reassessing.
  - Consider equipment error, may redraw sample and repeat analysis.
- ❑ 10. Record the time and result of the blood glucose analysis in the electronic Patient Care Report (ePCR).

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Procedures

| Legend | |
|---|---|
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| M | Medical Control |

# Carbon Monoxide Measurement** – Procedure

**Procedure**:

- ❑ 1. Apply probe to patient's digit(s) as recommended by the manufacturer. If near strobe lights, cover the finger to avoid interference and/or move away from the lights if possible. Where the manufacturer provides a light shield it should be used.
- ❑ 2. Allow machine to register percent circulating carboxyhemoglobin values
- ❑ 3. Verify pulse rate on machine with palpated pulse of the patient
- ❑ 4. Record levels in electronic Patient Care Report (ePCR) or on the scene rehabilitation form
  - If CO ≤5%, assess for other possible illness or injury
  - If CO >5% to ≤15% and symptomatic from Carbon Monoxide – treat per Carbon Monoxide Exposure Protocol
  - If CO >15% - treat per Carbon Monoxide Exposure Protocol

***Signs and symptoms of Carbon Monoxide (CO) poisoning* – altered mental status, dizziness, headache, nausea/vomiting, chest pain, respiratory distress, neurological impairments, vision problems, reddened eyes, tachycardia, tachypnea, arrhythmias, seizures and/or coma.**

- ❑ 5. Monitor critical patients continuously with continuous pulse oximetry (SpO2) and SpCO until arrival at the hospital.
- ❑ 6. Document percent of carboxyhemoglobin values every time vital signs are recorded during therapy for exposed patients.
- ❑ 7. Use the SpO2 feature of the device as an added tool for patient evaluation. Treat the patient, not the data provided by the device. Utilize the relevant protocol for guidance.
- ❑ 8. The SpO2 reading should never be used to withhold oxygen from a patient with respiratory distress or complaining of shortness of breath.
- ❑ 9. Factors which may reduce the reliability of the reading include:
  - Poor peripheral circulation (hypovolemia, hypotension, hypothermia).
  - Excessive external lighting, particularly strobe/flashing lights
  - Excessive sensor motion.
  - Fingernail polish (should be removed with acetone pad).
  - Irregular heart rhythms (atrial fibrillation, SVT, etc.).
  - Jaundice.
  - Placement of BP cuff on same extremity as SpO2 probe.

***CO poisoning can look a lot like influenza, particularly in the winter months. Have a high index of suspicion when seeing multiple patients from the same environment with flu-like illnesses and consider Carbon Monoxide.***

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Cardio-Cerebral Resuscitation** – Procedure



**Procedure**:

- ❑ 1. Check for responsiveness and feel for a carotid pulse.
- ❑ 2. If compressions are ongoing on EMS arrival, evaluate rate and depth while attaching the AED
  - If compressions adequate, begin AED analysis **OR** charge the monitor for rhythm analysis and shock immediately
  - If no compressions **OR** felt to be inadequate, initiate high quality chest compressions for two minutes
- ❑ 3. Open the airway with a head-tilt, chin-lift
- ❑ 4. Apply an airway adjunct (OPA or NPA) with NRB mask and O2 at 15Lpm
- ❑ 5. At first rhythm analysis: (Immediately after AED application if bystander compressions adequate, **OR** after 2 minutes)
  - If shock advised by AED, deploy charge and notify dispatch of first defibrillation time, Continue to #6
  - If no shock advised by AED, discard shock and continue chest compressions, go to CPR Procedure
- ❑ 6. At every 2 minutes (200 chest compressions), perform a rhythm and pulse check
  Begin preparing the AED for defibrillation approximately 20 seconds before the 2 minute mark
  - If adequate personnel present, rotate compressors every 1-2 minutes
  - Management per Cardiac Arrest Protocol
- ❑ 7. Minimize interruptions in chest compressions
- ❑ 8. At 6 minutes (3 cycles of chest compressions), perform a rhythm and pulse check
- ❑ 9. If patient continues to be pulseless and apneic, begin positive pressure ventilations
  - BVM with airway adjunct (OPA or NPA) **OR**
  - Advanced Airway (BIAD) if situation and clinical presentation appropriate *
    - ❑ If situation dictates or unable to successfully place advanced airway, it is always acceptable to fall back to BVM with an airway adjunct (NPA or OPA)
- ❑ 10. Contact Medical Control for any additional orders or questions.

**Notes**:

**This Procedure is NOT appropriate for patients <18 years of age, overdoses, hangings, drownings, traumatic arrests OR arrests suspected to be noncardiac in etiology.**

The Kellum and Barney article in 2008 evaluated CCR performed on witnessed arrests with initial shockable rhythm

Dr. Ewy's article in Circulation evaluated witnessed arrest due to V-fib in adults.
http://circ.ahajournals.org/content/111/16/2134.full

The protocols listed all have CCR for shockable rhythms only
http://www.azdhs.gov/asshare/documents/EMSresponder.pdf

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| Legend | |
|---|---|
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| M | Medical Control |

# Cardiopulmonary Resuscitation – Procedure

**Procedure**:

- ❑ 1. Check for responsiveness and feel for a pulse
  - Carotid pulse for adults and older children, brachial or femoral pulse for infant
- ❑ 2. If compressions are ongoing on EMS arrival, evaluate rate and depth while attaching the AED
  - If compressions adequate, prepare the AED for rhythm analysis and shock delivery immediately if appropriate
  - If no compressions **OR** felt to be inadequate, initiate high quality chest compressions at >100 compressions per minute for two minutes.
- ❑ 3. Open the patient's airway
  - Head-tilt, chin-lift technique if no head or neck trauma suspected
  - Jaw-thrust if head or neck trauma suspected or unknown
- ❑ 4. For arrests without advanced airway, perform compressions:breaths as age appropriate
  - Once advanced airway established, transition to >100 compressions per minute *uninterrupted* with 8-10 breaths per minute.
- ❑ 5. At first rhythm analysis:
  - If shock advised by AED, defibrillate and notify dispatch of first defibrillation time.
  - If no shock advised by AED, discard shock and continue.
- ❑ 6. At 2 minutes if no response to resuscitation, consider advanced airway placement ** (BIAD) if situation and clinical presentation appropriate.
  - If good chest rise and air exchange achieved, it is acceptable to continue BVM with an airway adjunct (NPA or OPA)
- ❑ 7. At every 2 minute mark (200 chest compressions)
  - Utilize AED to analyze the rhythm.
    - ❑ If shockable, deliver shock as per Appropriate Cardiac Arrest Protocol
    - ❑ If non shockable, safely dump pending charge to prevent negligent discharge and/or responder injury.
    - ❑ Rotate compressors (as allowed by personnel on scene)
- ❑ 9. Resume compressions at 100 per minute, ventilations at 8-10 breaths per minute (as age appropriate if no advanced airway).
  - Minimize interruptions in chest compressions as much as possible.
- ❑ 10. Repeat steps 7-9 until change in patient condition or decision made to terminate resuscitation after 20 minutes (4 rounds of ACLS medications)
- ❑ 11. Contact Medical Control as needed for orders or with any questions.

| Age | Location | Depth | Rate |
|---|---|---|---|
| Infant | Over sternum, between nipples (inter-mammary line), 2-3 fingers | 1.5 inches (1/3 the anterior-posterior chest dimension | At least 100/minute 15:1 |
| Child | Over sternum, between nipples, heel of one hand | 2 inches (1/3 the anterior-posterior chest dimension | At least 100/minute 15:1 |
| Adult | Over sternum, just above the xyphoid process, hadns with interlocked fingers | At least 2 inches (1/3 the anterior-posterior chest dimension, not greater than 2.4 inches | At least 100/minute, no more than 120/minute 30:2 |


Procedures

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Defibrillation – Procedure

Procedures

## Automated

**Procedure**:

- ❑ 1. If multiple rescuers available, one rescuer should provide uninterrupted chest compressions while the AED is being prepared for use
- ❑ 2. Remove any medication patches on the chest and wipe off any residue
- ❑ 3. Apply defibrillator pads per manufacturer recommendations. Use alternate placement when implanted devices (pacemakers, AICDs) occupy preferred pad positions (front/back or shifted slightly to not rest on the implanted device).
- ❑ 4. If necessary, connect defibrillator leads, per manufacturer recommendations
- ❑ 5. Activate AED for analysis of rhythm
- ❑ 6. Stop chest compressions and clear the patient for rhythm analysis. Keep interruption in chest compressions as brief as possible
- ❑ 7. Assertively state “CLEAR” and visualize that no one, including yourself, is in contact with the patient prior to defibrillation.
- ❑ 8. Defibrillate if appropriate by depressing the “shock” button. Biphasic defibrillators will determine the correct joules accordingly
- ❑ 9. Continue to follow protocol
- ❑ 10. Record the time and result of the analysis in the electronic Patient Care Report (ePCR).

Procedures

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# Mechanical CPR Device** - Procedure

**Clinical Indications**:

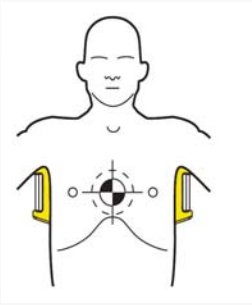
- May be used in patients 12 years of age or greater requiring chest compressions related to cardiac arrest.

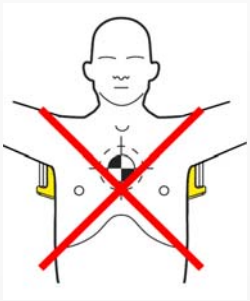
**Contraindications**:

- Patients <12 years
- Patients suffering traumatic cardiac arrest or patients with obvious signs of traumatic injury
- Patients who do not fit within the device:
  - Too large and with whom you cannot press the pressure pad down 2 inches
  - Too small and with whom you cannot pull the pressure pad down to touch the sternum

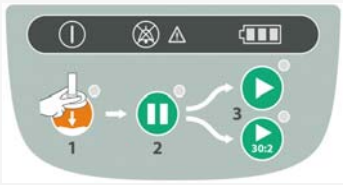
**Procedure**:

- ❑ All therapies related to the management of cardiopulmonary arrest should be continued as currently defined.
- ❑ Initiate resuscitative measures following protocol – **DO NOT DELAY MANUAL CPR FOR THE DEVICE. CONTINUE MANUAL CPR UNTIL THE DEVICE CAN BE PLACED**
- ❑ Detailed instructions for LUCAS device follow:
- ❑ 1. While resuscitative measures are initiated, the LUCAS device should be removed from its carrying device and placed on the patient in the following manner
- ❑ 2. The Backplate should be centered on the nipple line and the top of the backplate should be located just below the patient's armpits





- ❑ 3. In cases which the patient is already on the stretcher, place the backplate underneath the thorax. This can be accomplished by log-rolling the patient or raising the torso (placement should occur during a scheduled discontinuation of compressions [ie. After five cycles of 30:2 or two minutes of uninterrupted compressions])
- ❑ 4. Position the compressor
- ❑ 5. Turn the LUCAS Device on (the device will perform a 3 second self test)




- ❑ 6. Remove the LUCAS device from its carrying case using the handles provided on each side
- ❑ 7. With the index finger of each hand, pull the trigger to ensure the device is set to engage the backplate. Once this is complete you may removed your index finger from the trigger loop
- ❑ 8. Approach the patient from the side opposite the person performing manual chest compressions
- ❑ 9. Attach the claw hook to the backplate on the side of the patient opposite that where compressions are being provided.
- ❑ 10. Place the LUCAS device across the patient, between the staff members' arms who is performing manual CPR
- ❑ 11. At this point the staff member performing manual CPR stops and assists attaching the claw hook to the backplate on their side
- ❑ 12. Pull up once to make sure that the parts are securely attached


Procedures

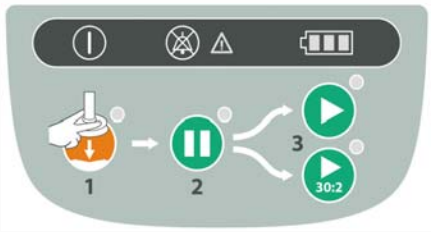
| Legend | |
|---|---|
| EMR | Emergency Med Responder |
| M | Medical Control |

# Mechanical CPR Device** - Procedure



**Procedure Continued**:

- ❑ 13. Adjust the height of the compression arm
- ❑ 14. Use the two fingers (V pattern) to make sure that the lower edge of the Suction Cup is immediately above the end of the sternum. If necessary, move the device by pulling the support legs to adjust the position
- ❑ 15. Press the Adjust Mode Button on the control pad labeled #1 (this will allow you to easily adjust the height of the compression arm)




- ❑ 16. To adjust the start position of the compression arm, manually push down the SUCTION CUP with two fingers onto the chest (without compressing the patient's chest)
- ❑ 17. Once the position of the compression arm is satisfactory, push the green PAUSE button labeled #2 (This will lock the arm in this positon), then remove your fingers from the SUCTION CUP
- ❑ 18. If the position is incorrect, press the ADJUST MODE BUTTON and repeat the steps
- ❑ 19. Start Compressions
- ❑ 20. If the patient in not intubated and you will be providing compression to ventilation ratio of 30:2 push ACTIVE (30:2) button to start
- ❑ 21. If the patient is intubated and you will be providing continuous compressions push ACTIVE (continuous) button
- ❑ 22. Patient Adjuncts
- ❑ 23. Place the neck roll behind the patient's head and attach the straps to the LUCAS device (this will prevent the LUCAS from migrating toward the patient's feet
- ❑ 24. Place the patient's arms in the straps provided

-Defibrillation can and should be performed with the LUCAS device in place and in operation
-One may apply the AED pads either before or after the LUCAS device has been put in position
-The pads and wires should not be underneath the suction cup
-If the pads are already in an incorrect position when the LUCAS is placed, you must apply new pads

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Procedures

# Intranasal** – Procedure



**Procedure**:

- ❑ 1. Determine appropriate dose of medication per Protocol
- ❑ 2. Draw medication into syringe and dispose of the sharps, do not administer more than 1ml per nostril.
- ❑ 3. Attach intranasal device to syringe
- ❑ 4. With one hand, control the patient's head
- ❑ 5. Gently introduce device into nare, stop when resistance is met.
- ❑ 6. Aim slightly upwards and toward the ear on the same side
- ❑ 7. ***Briskly*** compress the syringe to administer one half of the medication, repeat the procedure with the remaining medication on the other nare.
  - It is important for the medication to be atomized or it will not be absorbed.
- ❑ 8. Document the results in the electronic Patient Care Report (ePCR).

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Procedures

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# Cincinnati Stroke Screen – Procedure

**Procedure**:

- ❑ 1. Assess and treat suspected stroke patients as per protocol
- ❑ 2. The Cincinnati Stroke Screen should be completed for all suspected stroke patients
- ❑ 3. Establish the "time last normal" for the patient. This will be the presumed time of onset.
- ❑ 4. Perform the screen through physical exam:
  - Look for facial droop by asking the patient to smile
  - Have patient, while sitting upright or standing, extend both arms parallel to floor, close eyes, and turn their palms upward. Assess for unilateral drift of an arm.
  - Have the person say, "you can't teach an old dog new tricks", or some other simple, familiar saying. Assess for the person to slur the words, get some words wrong, or inability to speak.
- ❑ 5. If one of these exam components is "yes", then the stroke screen is positive
- ❑ 6. Evaluate Blood Glucose level
- ❑ 7. If the "time last normal" is ≤12 hours, blood glucose is between 60 and 400, and at least one of the physical exam elements is positive, follow the Suspected Stroke Protocol,
  - Alert the receiving hospital with Stroke Alert as early as possible.
- ❑ 8. All sections of the Cincinnati screen must be completed.
- ❑ 9. The complete screening should be documented in the electronic Patient Care Report (ePCR).

## Cincinnati Prehospital Stroke Scale[4]

**Facial Droop** (have patient smile)

Normal: Both sides of face move equally

Abnormal: One side of face does not move as well

**Arm Drift** (have patient hold arms out for 10 seconds)

Normal: Both arms move equally or not at all

Abnormal: One arm drifts compared to the other, or does not move at all

**Speech** (have patient speak a simple sentence)

Normal: Patient uses correct words with no slurring

Abnormal: Slurred or inappropriate words, or mute



Procedures

| Legend | |
|---|---|
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# Spinal Immobilization** – Procedure

**Clinical Indications:**

- ❑ Need for spinal immobilization, as per appropriate Trauma Protocol
- ❑ Utilization of the Long Spine Board should occur in consideration with the risks and benefits to the individual patient and the current circumstances

**Patients who should be immobilized with a Long Spine Board include:**

- ❑ Blunt trauma with distracting injury
- ❑ Altered mental status
- ❑ Intoxication
- ❑ Neurologic complaint, including numbness and/or subjective weakness (even without finding on exam)
- ❑ Blunt trauma with spinal pain, tenderness to palpation of spine or paraspinal muscles, and spinal deformity
- ❑ Inability to communicate with the EMS Personnel

**Prepare All Procedure Specific Materials**:

- ❑ Backboard
- ❑ Straps
- ❑ C-collar appropriate for patient size
- ❑ Tape and/or Head Rolls

**Procedure**:

- ❑ 1. Explain the procedure to the patient.
- ❑ 2. Apply an appropriately sized c-collar while maintaining in-line stabilization of the c-spine. This stabilization, to be provided by a second rescuer, should not involve traction or tension but rather simply maintaining the head in a neutral, midline position while the first rescuer applies the collar. This may be performed by any credentialed responder if indicated by protocol.
- ❑ 3. Once the collar is secure, the second rescuer should continue to maintain inline neutral position to ensure stabilization.
  - The collar is helpful but will not do the job by itself.
- ❑ 4. If the patient is supine or prone, consider the log roll technique. For the patient in a vehicle or otherwise unable to be placed prone or supine, place them on the backboard by the safest method available that maximizes maintenance of in-line spinal stability
- ❑ 5. Stabilize the patient with straps and head rolls/tape or other similar device. Once the head is secured to the backboard, the second rescuer may release manual in-line stabilization.
- ❑ 6. NOTE: some patients , due to size or age, will not be able to be immobilized through in-line stabilization with standard backboards and c-collars. Never force a patient into a non-neutral position to immobilize them. Such situations may require a second rescuer to maintain manual stabilization throughout the transport to the hospital.
- ❑ 7. Document the time of the procedure in the electronic Patient Care Report (ePCR).


Procedures

| Legend | |
|---|---|
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# Spinal Immobilization of Athletes with Helmets **– Procedure

*EMS Providers must use extreme caution when evaluating and treating an injured player, especially when the extent of the injury remains unknown. Suspect any unconscious football player to have an accompanying spinal injury until proven otherwise. If the player isn't breathing or the possibility of respiratory arrest exists, its essential that certified athletic trainers and EMS providers work quickly and effectively to remove the face mask and administer care. In most situations, the helmet should not be removed in the field. Proper management of head and neck injuries includes leaving the helmet and shoulder pads in place whenever possible, removing only the face mask from the helmet and developing a plan to manage head-and-neck injured players using well-trained sports medicine and EMS providers.*

Procedures

**Guidelines and Recommendations:**

The following guidelines and recommendations were developed by the Inter-Association Task Force for the appropriate Care of the Spine-Injured Athlete:

❑ 1. General Guidelines for Care *Prior to Arrival of EMS*
- The Emergency Medical Services system should be activated
- Any athlete suspected of having a spinal injury should not be moved and should be managed as though a spinal injury exists.
- The athlete's airway, breathing and circulation, neurological status and level of consciousness should be assessed
- The athlete should NOT be moved unless absolutely essential to maintain airway, breathing and circulation
- If the athlete must be moved to maintain airway, breathing and circulation, the athlete should be placed in a supine position while maintaining spinal immobilization.
- When moving a suspected spine injured athlete, the head and trunk should be moved as a unit. One accepted technique is to manually splint the head to the trunk.

❑ 2. Face Mask Removal
- The face mask should be removed prior to transportation, regardless of current respiratory status (see figure 1)
- Those involved in the pre-hospital care of injured players must have the tools for face mask removal readily available.

**Indications for Helmet Removal:**

❑ 1. The athletic helmet and chin straps should *only* be removed *if*:
- The helmet and chin strap do not hold the head securely, such that immobilization of the helmet does not also immobilize the head
- The design of the helmet and chin strap is such that even after removal of the face mask the airway cannot be controlled, or ventilation be provided.
- The face mask cannot be removed after a reasonable period of time
- The helmet prevents immobilization from transporting in an appropriate position.

**Helmet Removal:**

❑ 1. If it becomes absolutely necessary, spinal immobilization must be maintained while removed the helmet
- Helmet removal should be frequently practiced under proper supervision by an EMS supervisor or Training Division staff
- Due to the varying types of helmets encountered, the helmet should be removed with close oversight by the team athletic trainers and/or sports medicine staff
- In most circumstances, it may be helpful to remove cheek padding and/or deflate air padding prior to helmet removal.

**Spinal Alignment:**

❑ 1. Appropriate spinal alignment *must* be maintained during care and transport using backboard, straps, tape, head blocks or other necessary equipment.
- Be aware that the helmet and shoulder pads elevate an athlete's trunk when in the supine position
- Should either be removed, or if only one is present, appropriate spinal alignment must be maintained.
- The front of the shoulder pads can be opened to allow access for CPR and defibrillation

Procedures

| Legend | |
|---|---|
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# Splinting – Procedure

**Clinical Indications:**

- ❑ Immobilization of an extremity for transport due to suspected fracture, sprain or other traumatic injury
- ❑ Immobilization of an extremity for transport to secure medically necessary devices such as IV catheter

**Procedure**:

- ❑ 1. Assess and document pulses, sensation and motor function prior to placement of the splint. If no pulses are present and a fracture is suspected, consider reduction of the fracture prior to placement of the splint.
  - If extended scene time, prolonged extrication and pulseless extremity, contact Medical Control for recommendations
- ❑ 2. Remove all clothing from the extremity.
- ❑ 3. Select a site to secure the splint both proximal and distal to the area of suspected injury or the area where the medical device will be placed.
- ❑ 4. Do not secure the splint directly over the injury.
- ❑ 5. Place the splint and secure with Velcro, straps, or bandage material (ie. Kling, kerlex, cloth bandage, etc.) depending on the splint manufacturer and design.
- ❑ 6. Document pulses, sensation and motor function after placement of the splint. If there has been a deterioration in any of these 3 parameters, reposition the splint and reassess. If no improvement, remove splint.
- ❑ 7. IF a femur fracture is suspected and there is no evidence of pelvic fracture or instability, place a traction splint**.
- ❑ 8. Document the time, type of splint, and the pre and post assessment of pulse, sensation and motor function in the electronic Patient Care Report (ePCR).

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Procedures

| Legend | |
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# Tourniquet (CAT – Combat Application Tourniquet)** – Procedure

**Principles**:

- ❑ Apply Tourniquet as proximal as possible to wound, minimum of 2" above hemorrhage site. Do not cross joints or bony prominences with the Tourniquet
- ❑ Secure Tourniquet in place and expedite transport.
- ❑ Document time and location of tourniquet deployment in electronic Patient Care Report (ePCR) and on device.
- ❑ Notify receiving center of tourniquet use, location of device and time placed.
- ❑ IF hemorrhage not controlled, a second tourniquet can be deployed, proximal to the first without overlap.

**Procedure**:

1. Route the self adhering band around the extremity and pass the free-running end of the band through the inside slit of the friction adapter buckle

2. Pass the band through the outside slit of the buckle, utilizing the friction adaptor buckle, which will lock the band in place.

3. Pull the self-adhering band tight and securely fasten the band back on itself.

4. Twist the rod until bright red bleeding has stopped.

5. Lock the rod in place with the Windlass Clip™

6. Hemorrhage is now controlled. Secure the rod with the strap: Grasp the Windlass Strap™, pull it tight and adhere it to the opposite hook on the Windlass Clip™



Procedures

| Legend | |
|---|---|
| EMR | Emergency Med Responder |
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# Wound Care – Procedure

**Clinical Indications**:

Skin and soft tissue wounds with associated bleeding and pain.

**Procedure**:

- ❑ 1. Use personal protective equipment, including gloves, gown and mask as indicated.
- ❑ 2. If active bleeding, elevate the affected area if possible and hold direct pressure. Do not rely on compression bandage to control bleeding. Direct pressure is much more effective
- ❑ 3. Consider tourniquet use early for extremity bleeding not controlled with direct pressure.
- ❑ 4. Once bleeding is controlled, irrigate contaminated wounds with saline as appropriate
  - Consider Pain Management Protocol before beginning irrigation.
  - Irrigation and decontamination are key to stopping ongoing tissue injury, preventing infection and promoting wound healing.
  - Control bleeding and address life threats first.
  - Irrigate thermal burns, chemical burns or contaminated wounds with Normal Saline, Lactated Ringer's or sterile water.
  - For chemical splashes to the eye, emergent irrigation is critical to preventing further tissue damage. If possible, have patient remove contact lenses as early as possible. Go to Eye Pain Protocol, as appropriate.
- ❑ 5. Cover wounds with sterile gauze/dressings. Check distal pulses, sensation, and motor function to ensure the bandage is not too tight.
- ❑ 6. Monitor wounds and/or dressing throughout transport for bleeding
- ❑ 7. Bolster existing bandages as necessary if saturation or
- ❑ 8. Consider tourniquet use as indicated in protocol/procedure
- ❑ 9. If serious hemorrhage not controlled by other means:
  - Apply approved non-heat generating hemostatic agent** per manufacturer's directions
  - Supplement hemostatic agent impregnated gauze with direct pressure and standard hemorrhage control techniques
  - Apply additional hemostatic impregnated gauze** and/or standard dressings as needed.
  - Hemostatic impregnated gauze** is contraindicated in wounds involving the thoracic cavity or violating the peritoneum of the abdominal cavity.
- ❑ 9. Document the wound assessment and care in the electronic Patient Care Report (ePCR).

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Procedures

## Overview

The purpose of this section is to serve as a drug information supplement and to provide a brief description of the out-of-hospital medications that are authorized by the State of Wisconsin for use in the Dane County EMS System. This document in no way represents the comprehensive pharmaceutical knowledge required for use of these medications by Emergency Medical Technicians providing field care. The comprehensive information about the use of these medications by practicing EMTs and paramedics, requires reference to other detailed sources.

Medications are listed alphabetically based on generic names.

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Medical Director,
Dane County EMS



Overview

# Albuterol **

## Mechanism of Action
Beta$_2$-adrenergic agonist. Activates beta$_2$ receptors on airway smooth muscle, increasing the cyclic AMP concentration, increasing activation of protein kinase A and lowers intracellular ionic calcium concentrations, leading to muscle relaxation.

## Uses
Bronchospasm associated with asthma, exercise induced asthma, COPD
**Unlabeled Uses:** Hyperkalemia

## Contraindications
Hypersensitivity to sympathomimetics, tachydysrhythmias, severe cardiac disease, heart block
**Precautions**
Pregnancy (C), breast-feeding, cardiac/renal disease, hyperthyroidism, diabetes mellitus, hypertension, prostatic hypertrophy, angle-closure glaucoma, seizures, exercise-induced bronchospasm (aerosol) in children <12 y/o, hypoglycemia

## Dosage and Routes
**Bronchospasm**
Refer to specific protocol
**Other Respiratory Conditions**
Refer to specific protocol

## Side Effects
**CNS**: Tremors, anxiety, insomnia, headache, dizziness, stimulation, restlessness, hallucinations, flushing, irritability
**CV**: Palpitations, tachycardia, angina, hypo/hypertension, dysrhythmias
**EENT**: Dry nose, irritation of nose and throat
**GI**: Heartburn, nausea, vomiting
**MS**: Muscle cramps
**Resp**: Cough, wheezing, dyspnea, parodoxical bronchospasm, dry throat
**Misc**: Flushing, sweating, anorexia, bad taste/smell changes, hypokalemia, metabolic acidosis

## Pharmacokinetics
Extensively metabolized in the liver and tissues, crosses placenta, breast mild, blood-brain barrier
**INH –** onset 5-15min, peak 1-1.5hr, duration 3-6hr, half-life 4hr

## Interactions
Increase: QTc prolongation – other drugs that increase QT prolongation
Increase: ECG changes/hypokalemia – potassium wasting diuretics
Increase: action of albuterol – tricyclics, MAOIs, other adrenergics; do not use together
Decrease: effectiveness of albuterol – other β-blockers

## EMT Considerations
Respiratory Function: vital capacity, forced expiratory volume, ABGs; lung sounds, hear rate and rhythm, BP, sputum (baseline and peak); whether patient has not received theophylline therapy before giving dose
Evaluate: therapeutic response: absence of dyspnea, wheezing after 1hr, improved airway exchange, improved ABG

## Treatment of Overdose
Administer $\beta_1$-adrenergic blocker, IV Fluids

Albuterol

# Aspirin **



## Mechanism of Action
Blocks pain impulses in CNS, reduces inflammation by inhibition of prostaglandin synthesis; antipyretic action results from vasodilation of peripheral vessels; decreases platelet aggregation

## Uses
Mild to moderate pain or fever including RA, osteoarthritis, thromboembolic disorders; TIAs, rheumatic fever, post-MI, prophylaxis of MI, ischemic stroke, angina, acute MI
**Unlabeled Uses:** Prevention of cataracts, Kawasaki disease, pericarditis, PCI

## Contraindications
Pregnancy (D) 3rd trimester, breastfeeding, children <12 y/o, children with flu-like symptoms, hypersensitivity to salicylates, GI bleeding, bleeding disorders, intracranial bleeding, nasal polyps, urticaria
**Precautions**
Abrupt discontinuation, acid/base imbalance, alcoholism, ascites, asthma, bone marrow suppression in elderly, G6PD deficiency, gout, heart failure, anemia, renal/hepatic disease, gastritis, pregnancy (C) 1st trimester

## Dosage and Routes
**Pain/Fever**
Refer to specific protocol
**MI, Stroke Prophylaxis**
Refer to specific protocol

## Side Effects
**CNS:** Stimulation, drowsiness, dizziness, confusion, seizures, headache, flushing, hallucinations, coma
**CV:** Rapid pulse, pulmonary edema
**EENT:** Tinnitus, hearing loss
**Endocrine:** Hypoglycemia, hyponatremia, hypokalemia
**GI:** Nausea, vomiting, GI bleeding, diarrhea, heartburn, anorexia, hepatitis, GI ulcer
**Heme:** Thrombocytopenia, agranulocytosis, leukopenia, neutropenia, hemolytic anemia, increased bleeding time
**Resp:** Wheezing, hyperpnea, bronchospasm
**Skin:** Rash, urticaria, bruising
**Syst:** Reye's syndrome (children), anaphylaxis, laryngeal edema

## Pharmacokinetics
Enteric metabolism by liver; inactive metabolites excreted by kidneys; crosses placenta; excreted in breast mild; half-life 15-20min

## Interactions
Increase: gastric ulcer risk – corticosteroids, anti-inflammatories, NSAIDs, alcohol
Increase: bleeding – alcohol, plicamycin, thrombolytics, anticoagulants
Increase: hypotension - nitroglycerin
Decrease: effects of aspirin – antacids (high dose), urinary alkalizers, corticosteroids

## EMT Considerations
Allergic reactions: rash, urticaria; if these occur, product may have to be discontinued; patients with asthma, nasal polyps allergies: severe allergic reaction may occur
Ototoxicity: tinnitus, ringing, roaring in ears; audiometric testing needed before, after long-term therapy

## Treatment of Overdose
Lavage, activated charcoal, monitor electrolytes, VS

Aspirin

## Epinephrine **

### Mechanism of Action
$\beta_1$- and $\beta_2$-agonist causing increased levels of cAMP, thereby producing bronchodilation, cardiac and CNS stimulation; high doses cause vasoconstriction via alpha-receptors; low doses can cause vasodilation vai $\beta_2$-vascular receptors

### Uses
Acute asthma attacks, hemostasis, bronchospasm, anaphylaxis, allergic reactions, cardiac arrest, shock

### Contraindications
Hypersensitivity to sympathomimetics, sulfites, closed-angle glaucoma, nonanaphylactic shock during general anesthesia

**Precautions**

Pregnancy (C), breastfeeding, cardiac disorders, hyperthyroidism, diabetes mellitus, prostatic hypertrophy, hypertension, organic brain syndrome, local anesthesia in certain areas, labor, cardiac dilation, coronary insufficiency, cerebral atherosclerosis, organic heart disease

### Dosage and Routes
**Anaphylaxis / Severe asthma exacerbation**

Refer to specific protocol

**Cardiac arrest**

Refer to specific protocol

**Hypotension**

Refer to specific protocol

### Side Effects
**CNS**: Tremors, anxiety, insomnia, headache, dizziness, confusion, hallucinations, cerebral hemorrhage, weakness, drowsiness
**CV**: Palpitations, tachycardia, hypertension, dysrhythmias, increased T wave
**GI**: Anorexia, nausea, vomiting
**MISC**: Sweating, dry eyes
**Resp**: Dyspnea

### Pharmacokinetics
Crosses placenta, metabolized in the liver. **IM** – onset variable, duration 1-4 hours; **Inhaled -** onset 1-5 minutes, duration 1-3 hours

### Interactions
Do not use with MAOIs or tricyclics; hypertensive crisis may occur.
Toxicity: other sympathomimetics
Decrease: hypertensive effects – β-adrenergic blockers

### EMT Considerations
Assess Asthma – auscultate lungs, pulse, BP, respiratory rate and effort, sputum
ECG completed when continuous albuterol administered
Sulfite sensitivity may be life-threatening
Allergic reactions, bronchospasms

### Treatment of Overdose
Discontinue product, administer α -blocker and β -blocker

Epinephrine

## Glucagon ** Patient Prescribed Auto Injector ONLY

### Mechanism of Action
Increases in blood glucose, relaxation of smooth muscle of the GI tract, and a positive inotropic and chronotropic effect on the heart; increases in blood glucose are secondary to stimulation of glycogenolysis

### Uses
Hypoglycemia, used to temporarily inhibit movement of GI tract as a diagnostic test

### Contraindications
Hypersensitivity, pheochromocytoma, insulinoma (insulin-secreting tumor)

### Dosage and Routes
**Hypoglycemia**
Refer to specific protocol

### Side Effects
**CNS**: Dizziness, headache,
**CV**: Hypotension
**GI**: Nausea, vomiting

### Pharmacokinetics
IV: Onset immediate, peak 30 minutes, duration 1-1½ hours
IM: Onset 5-10 minutes, peak 13-20 minutes, duration 12-30 minutes

### Interactions
Increase: Bleeding risk – anticoagulants

### EMT Considerations
Assess for hypoglycemia – monitor blood glucose levels before and after use; use other products to control hypoglycemia if patient is conscious

### Treatment of Overdose
Discontinue product, supportive care

Glucagon

## Glucose

### Mechanism of Action
Needed for adequate utilization of amino acids; decreases protein, nitrogen loss; prevents ketosis

### Uses
Increases intake of calories; increases fluids in patients unable to take adequate fluids, calories orally; acute hypoglycemia

### Contraindications
Inability to swallow effectively, impaired airway reflexes / inability to protect airway, hyperglycemia, delirium tremens, hemorrhage (cranial/spinal), CHF, anuria, allergy to corn products

**Precautions**

Cardiac/renal/hepatic disease, diabetes mellitus, carbohydrate intolerance

### Dosage and Routes
**Hypoglycemia**

Refer to specific protocol

### Side Effects
**CNS**: confusion, **loss of consciousness**, dizziness
**CV**: hypertension, **CHF, pulmonary edema, intracranial hemorrhage**
**Endo**: Hyperglycemia, rebound hypoglycemia, hyperosmolar syndrome, hyperglycemic non-ketotic syndrome, aluminum toxicity, hypokalemia, hypomagnesium
**GI**: Nausea
**GU**: Glycosuria, osmotic diuresis
**Skin**: Chills, flushing, warm feeling, rash, urticarial, extravasation necrosis
**Resp**: Pulmonary edema

### Pharmacokinetics
Metabolized at the cellular level to carbon dioxide and water
**Oral –** onset 10 minutes, peak 40 minutes

### Interactions
Increase: fluid retention/electrolyte excretion—corticosteroids

### EMT Considerations
Assess: Mental status and appropriateness for oral medications, electrolytes (Potassium), blood glucose
Evaluate: Therapeutic response

### Treatment of Overdose
Insulin, IVF, discontinue product, supportive care

Glucose (Oral)

## Mark 1 Kit **

Mark I NAAK ("Nerve Agent Antidote Kit") is a dual-chamber autoinjector with two anti-nerve agent drugs. The kits are only effective against the nerve agents **tabun** (GA), **sarin** (GB), **soman** (GD) and **VX**. It may also be used in cases of agricultural insecticide exposure, as organophosphates are a key component of the agent. Common examples of insecticides using organophosphates are **malathion**, **parathion**, **diazinon**, **fenthion**, **dichlorvos**, **ethion** and **trichlorfon**.

### Mechanism of Action

**Atropine** counters the parasympathetic response from the muscarinic receptor overstimulation associated with organophosphate and nerve agent poisoning, and reverses the SLUDGEM symptoms.
**Pralidoxime chloride** ("2-PAM") binds to the organophosphate or nerve agent and changes the conformation of the molecule, which causes it to lose its binding to the acetylcholinesterase enzyme. The joined poison / antidote then releases from the site and regenerates the enzyme, allowing it to function again.

### Uses

Organophosphate and nerve agent poisonings.

### Contraindications

None in the emergency setting.
**Precautions**
Known hypersensitivity to the Mark I or DuoDote Kit and Pediatric patients under the age of 3 are *relatively* contraindicated.

### Dosage and Routes

Each kit contains: Atropine 2mg and Pralidoxime chloride 600mg
Minor initial symptoms – administer **ONE** Mark I Kit via autoinjector (IM)
Severe symptoms appearing within 10 minutes of first dose – administer **ONE additional** Mark I Kit via autoinjector (IM)
Severe symptoms present from the beginning – administer **THREE** Mark I Kits via autoinjector (IM)
**Tube one (atropine) is always administered before tube two (2-PAM)**

### Side Effects

**HEENT**: Dry mouth
**Skin**: Flushing
**CNS**: Dilated pupils, Headache, Drowsiness
**CV**: Tachycardia

### Interactions

**Morphine**, theophylline, aminophylline and **succinylcholine** should be avoided in patients with organophosphate poisoning. Barbiturates are potentiated by the anticholinesterase enzyme and should be used cautiously when treating seizures in the poisoned patient.

### EMT Considerations

The use of a Mark I Kit offers no prophylactic protection and should be administered only if symptoms are present.

There is a high potential for "off-gassing" from patients exposed to both organophosphates and nerve agents. In cases of "off-gassing", vapors are given off by chemically contaminated clothing or exhaled by poisoned individuals. EMS Providers should use all appropriate PPE including SCBA and be vigilant when monitoring for symptoms in themselves and other responders. These patients are generally NOT safe for transport by Helicopter EMS (HEMS).

### Treatment of Overdose

Discontinue product; supportive care

Mark I Kit

# Naloxone **

## Mechanism of Action
Pure opioid antagonist that competes and displaces opioids at opioid receptor sites

## Uses
Opiate overdose, respiratory depression induced by opioids, pentazocine, propoxyphene
Unlabeled uses: opiate-induced pruritis

## Contraindications
Hypersensitivity
**Precautions**
Pregnancy (C), breastfeeding, children, neonates, CV disease, opioid dependency, seizure disorder, drug dependency

## Dosage and Routes
**Opiate Overdose**
Refer to specific protocol
**Altered Mental Status**
Refer to specific protocol

## Side Effects
**CNS**: Drowsiness, nervousness, seizures, tremor
**CV**: Rapid pulse, increase systolic BP (high doses), ventricular tachycardia/fibrillation, hypo/hypertension, cardiac arrest, sinus tachycardia
**GI**: Nausea, vomiting, hepatotoxicity
**Resp**: Tachypnea, pulmonary edema

## Pharmacokinetics
Metabolized by liver, crosses placenta; excreted in urine/breast milk
**IV –** onset 1 minute, duration 45 min. Half-life 30-81 minutes

## Interactions
Increase: seizures - tramadol
Decrease: effect of opioid analgesics

## EMT Considerations
**Assess**: *Withdrawal*: cramping, hypertension, anxiety, vomiting; signs of withdrawal in drug-dependent individuals may occurs <2 hours after administration;
Vital Signs q3-5 minutes;
*Cardiac Status*: tachycardia, hypertension, monitor ECG ;
*Respiratory Function*: respiratory depression, character, rate, rhythm, if respiration <10/min, administer naloxone; probably due to opioid overdose; monitor LOC;
*Pain*: duration, intensity, location before and after administration
**Preform/Provide**: Dark storage at room temp
**Evaluate**: Therapeutic Response: reversal of respiratory depression; change in level of consciousness

## Treatment of Overdose
Discontinue product; supportive care


Naloxone