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EMS Services

Section 1

PRE-HOSPITAL CARE

MEDICAL CONTROL

PROTOCOLS AND PROCEDURES
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Southwest General Health Center/EMS Services
INTRODUCTION

These protocols are for Emergency Medical Technicians (EMT’s) functioning under Susan Tout MD, Director of Emergency Medicine and Mark Harris MD, Asst. Medical Director of Emergency Services at Southwest General Health Center. This EMS Medical Control Protocol and Procedures Manual has been developed by the Medical Directors listed above, Southwest General Health Center EMS Services, Southwest Area Fire and Emergency Services (S.A.F.E.S.) and the EMS Advisory Board. These have been developed to establish the minimum standard of care, which will be provided by all Emergency Medical Services organizations under this Medical Control.

These protocols and procedures are to be used as guidelines for operation during EMS calls that require medical direction. They are also intended to be guidelines to ensure that personnel are trained in proper pre-hospital patient care. Procedures are not considered rigid rules, but rather established standards against which EMS practice can be measured.

Treatment protocols are specific orders directing the actions pertaining to techniques and/or medications used by EMS personnel who are required to practice under direct supervision of a physician and Southwest General Health Center.

Emergency Medical Services and their personnel who wish to operate under Southwest General Health Center EMS Medical Control authority may do so only with the express written and signed authorization of their respective EMS Medical Director.

Although not identical, these protocols and procedures are derived from the State of Ohio EMS Guidelines, Cuyahoga County, Northern Medina County and Eastern Lorain County Regions. Please note that items in this manual are subject to continuous review for the sake of providing members with the most current emergency medical information. Updates to this material may be frequent to maintain a current standard of care to benefit both the patient and the provider of emergency medical care. The bottom of the page shows when the most current version was printed. Please replace older versions with newly updated material as soon as it is issued. Once updated, older versions are to be considered obsolete and thus, are to be discarded to help eliminate confusion. The EMS Advisory Board will review the procedures on a regular basis and will add and/or update this document after review, as mandated by the chairperson of the EMS Advisory Board. Questions regarding procedures as stated in this document can be addressed to any member of the Southwest General Health Center EMS Advisory Board.
Southwest General Health Center works in conjunction with the The Southwest Area Fire and Emergency Services (S.A.F.E.S.) and the EMS Advisory Board. These protocols and procedures have been developed to facilitate the orderly working of the Emergency Medical Services within Southwestern Cuyahoga County, Northern Medina County, and Eastern Lorain County. The structure for the organizations are:

The Fire Chief from each community within the Southwest General Health Center EMS System will serve on the S.A.F.E.S. Committee. An appointed individual by the Fire Chief to serve on the EMS Advisory Board.

The Medical Directors will be a permanent member of the board.

The EMS Coordinator will be a member of the board.

The Emergency Department will designate a member of the board.

Health Center Administration will designate a member of the board.

A member of the Southwest Area Fire / Emergency Service (S.A.F.E.S.) will be a liaison member of the board.

The S.A.F.E.S. and EMS Advisory Board will meet the first Thursday of the month with no less than six meetings to be held per year.
1. The patient history should not be obtained at the expense of the patient. Life-threatening problems detected during the primary assessment must be treated first.

2. Cardiac arrest due to trauma is not treated by medical cardiac arrest protocols. Trauma patients should be transported promptly with CPR, control of hemorrhage, cervical spine immobilization, and other indicated procedures attempted enroute.

3. In patients with non-life-threatening emergencies who require IV’s, only two attempts at IV insertion should be attempted in the field, additional attempts must be enroute.

4. Patient transport, or other needed treatments, must not be delayed for multiple attempts at endotracheal intubation.

5. Verbally repeat all orders received before their initiation.

6. Any patient with a cardiac history, irregular pulse, unstable blood pressure, dyspnea, or chest pain must be placed on a cardiac monitor and a copy of the EKG must be attached to the EMS Run Sheet.

7. Transferring patient care should be performed between caregivers describing initial patient presentation and care rendered to the point of transfer.

8. If the patient’s condition does not seem to fit a protocol or protocols, contact Medical Control for guidance.

9. All trauma patients with mechanisms or history for multiple system traumas will be transported as soon as possible. The scene time should be 10 minutes or less.

10. Medical patients will be transported in the most efficient manner possible considering medical condition. Advanced life support therapy should be provided at the scene if it would positively impact patient care. Justification for scene times greater than 20 minutes should be documented.
INTRODUCTION

ACKNOWLEDGEMENTS

Appreciation is extended to all those who assisted in the development and revision of these protocols.

Susan Tout M.D.
Medical Director
Emergency Medical Services

Mark Harris M.D.
Assistant Medical Director
Emergency Department

Jackie Haumschild MSN, R.N., EMT-P
E.M.S. Coordinator/Nurse Manager

President of Southwest Area
Fire and Emergency Services

President of the E.M.S. Advisory Board

Thanks to the Associates of the E.M.S. Department of Southwest General Health Center along with the many dedicated Pre-Hospital Care Providers in our region who have given endless hours towards protocol development.
INTRODUCTION

UNIVERSAL MEDICAL CARE PROTOCOL

SCENE SAFETY

PATIENT ASSESSMENT

Adult Assessment Procedure
Pediatric Assessment Procedure

AIRWAY

Adult Airway Procedure

Neurological Protocol
Spinal Immobilization Protocol

VITAL SIGNS

Respirations
Breathing Rate and Quality
Heart Rate
Blood Pressure
SPO₂

Consider Cardiac Monitor

Appropriate Protocol

CONTACT MEDICAL CONTROL

TRANSPORT

Cardiac Arrest

Cardiac Arrest Protocol

Patient doesn’t fit protocol?
<table>
<thead>
<tr>
<th>General Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Any patient contact, which does not result in an EMS transport, must have documentation and run report.</td>
</tr>
<tr>
<td>• Exam: minimal exam, vital signs, mental status and location of injury or complaint.</td>
</tr>
<tr>
<td>• Required: vital signs on every patient, include blood pressure, pulse, respirations and pain scale.</td>
</tr>
<tr>
<td>• The Broselow-Luten tape defines a pediatric patient. If the patient does not fit on the tape, they are considered an adult.</td>
</tr>
<tr>
<td>• Timing of transport should be based on patient’s clinical condition and the transport policy.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>General</th>
</tr>
</thead>
<tbody>
<tr>
<td>• All patient care and documentation must be appropriate for your level of training and within the standard of care of the State of Ohio.</td>
</tr>
<tr>
<td>• Only functioning paramedics can perform ALS procedures.</td>
</tr>
<tr>
<td>• Use the standard AHA guidelines for CPR and rescue breathing.</td>
</tr>
<tr>
<td>• It may be necessary to reference several protocols while treating a patient.</td>
</tr>
<tr>
<td>• Refer to the appropriate protocol and provide the required interventions as indicated.</td>
</tr>
<tr>
<td>• Additional focus may be needed in specific areas as indicated by the patient’s chief complaint.</td>
</tr>
<tr>
<td>• Airway management and oxygen administration should be initiated based upon the results of the patient assessment and the protocols.</td>
</tr>
<tr>
<td>• IV’s should be initiated in all patients based upon the results of the patient assessment, and the Intravenous Access Procedure.</td>
</tr>
<tr>
<td>• Check blood glucose based on patient assessment.</td>
</tr>
<tr>
<td>• Administer cardiac monitoring (3-Lead) and perform a 12-Lead EKG based upon the results of the patient assessment or the protocols.</td>
</tr>
<tr>
<td>• If indicated and possible, perform a 12-Lead EKG before moving to the squad and before any medication administration.</td>
</tr>
<tr>
<td>• When assessing for pain, use a 0-10 pain scale; 0 = no pain; 10 = worst pain ever experienced.</td>
</tr>
<tr>
<td>• It is mandatory to document the reason why an intervention was not performed if it was indicated.</td>
</tr>
<tr>
<td>• Continuous quantitative waveform capnography is now recommended for intubated patients throughout the periarrest period. When quantitative waveform capnography is used for adults, applications now include recommendations for confirming tracheal tube placement and for monitoring CPR quality and detecting ROSC based on end-tidal carbon dioxide (PETCO₂) values.</td>
</tr>
<tr>
<td>• If Medical Control requests that a functioning paramedic perform an intervention outside of the protocol; the functioning paramedic may follow the orders as long as ALL of the following applies:</td>
</tr>
<tr>
<td>1. Medical Control was notified that the intervention is not in the protocol.</td>
</tr>
<tr>
<td>2. The intervention is in the recognized scope of practice for paramedics in the state of Ohio.</td>
</tr>
<tr>
<td>3. The patient’s condition could be severely affected if the intervention was not performed.</td>
</tr>
<tr>
<td>4. The paramedic has documented training in the intervention within the last 2 years.</td>
</tr>
<tr>
<td>5. The paramedic has received permission to perform the intervention from Medical Control.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adult</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Patients who are taking beta-blockers may not have an elevated heart rate, but may be in shock.</td>
</tr>
<tr>
<td>• Patients on anticoagulants are at a higher risk of hypovolemic shock and non-apparent bleeding, especially the elderly.</td>
</tr>
<tr>
<td>• General weakness can be a symptom of a life threatening illness.</td>
</tr>
<tr>
<td>• Hip fractures and dislocations in the elderly have a high mortality rate.</td>
</tr>
<tr>
<td>• What would be considered a minor or moderate injury in the adult patient can be life threatening in the elderly.</td>
</tr>
<tr>
<td>• Diabetic patients may have abnormal presentations of AMI and other conditions due to neuropathy.</td>
</tr>
<tr>
<td>• A medical cardiac arrest is not a “load and go” situation. It is in the best interest of the patient to perform all initial interventions (Defib, CPR, ETT, IV) and 1-2 rounds of medications prior to extrication.</td>
</tr>
<tr>
<td>• An adult patient is considered hypotensive if their systolic BP is 90 or less.</td>
</tr>
<tr>
<td>• An elderly patient (70 or older) is considered hypotensive if their systolic BP is 120 or less.</td>
</tr>
<tr>
<td>• Assess the patient every 300 mL of normal saline, and continue with fluid resuscitation until it is no longer indicated.</td>
</tr>
</tbody>
</table>
General Considerations Continued

Pediatric

- Assess the pediatric patient after every 20 mL/kg fluid bolus of normal saline, and continue with fluid resuscitation until it is no longer indicated.
- Refer to the Pediatric Intraosseous Procedure, if indicated.
- It may be necessary to alter the order of the assessment (except for the Initial Assessment) based upon the developmental stage of the patient.
- A pediatric trauma patient is any trauma patient who is 15 years old or younger.
EMS Services

Section 2

PRE-HOSPITAL CARE

MEDICAL CONTROL

PROTOCOLS AND PROCEDURES

- Detection
- Transfer to Definitive Care
- Care In Transit
- On-Scene Care
- Response
- Reporting
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Southwest General Health Center recognizes that there is a role for all levels of Emergency Medical Technician Certification. Patient care should always be delivered at the highest level of EMS available. Every EMS Provider must be aware of the State of Ohio requirements for recertification, and each individual is responsible for personally meeting these requirements. Those seeking to fulfill National Registry of Emergency Medical Technician (NREMT) requirements may do so under their own individual responsibility.

Continuing Education must be received through an approved and accredited Continuing Education site. Each EMS Provider must maintain his / her own personal records, and be responsible for his / her own Continuing Education status. The EMS office will maintain an ongoing class / data entry for classes attended at SWGHC.

EMS Provider problems will be addressed promptly, and documented by the Medical Director in conjunction with the EMS Coordinator, Fire / EMS Chief. A plan to resolve identified problems will be implemented. The Medical Director has the right to remove an EMS Provider from actively functioning under their Medical Control, either temporarily or permanently.
**OVERVIEW / MEDICAL CONTROL**

**EMS RECERTIFICATION REQUIREMENTS**

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<td>60 Hours of Continuing Education in 3 years</td>
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<td><strong>Mandatory hours required in:</strong></td>
<td><strong>Mandatory hours required in:</strong></td>
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<td>Trauma</td>
</tr>
<tr>
<td>1 Annual 6 hrs. Clinical Rotation</td>
<td></td>
<td>ACLS / Cardiac 6 hrs. Clinical Rotation</td>
</tr>
<tr>
<td>Optional Areas 24 hrs.</td>
<td>Optional Areas 34 hrs.</td>
<td>Optional Areas 50 hrs.</td>
</tr>
</tbody>
</table>

**70% of all continuing education through Southwest General Health Center**

**One 6 hour annual clinical rotation required at Southwest General Hospital.**

**The state requires all continuing education through an accredited training center only**

(all certificates must have the site accreditation number, date, participant name & hours)

**For those of you who maintain National Registry, remember the recertification cycle is every 2 years and the hours of CE are higher.**
Scope of Practice
Approved by
State Board of Emergency Medical, Fire and Transportation Services
Division of EMS, Ohio Department of Public Safety

This document offers an “at-a-glance” view of the Scope of Practice for Emergency Medical Responders (EMR), Emergency Medical Technicians (EMT), Advanced Emergency Medical Technicians (AEMT), and Paramedics as approved by the State Board of Emergency Medical, Fire and Transportation Services (EMFTS Board). The authorized services can be found in sections 4765.35 (FR/EMR), 4765.37 (EMT-B/EMT), 4765.38 (EMT-I/AEMT), and 4765.39 (EMT-P/Paramedic) of the Revised Code. The scopes of practice can be found in rules 4765-12-04 (EMR), 4765-15-04 (EMT), 4765-16-04 (AEMT), and 4765-17-03 (Paramedic) of the Administrative Code.

Performance of services outlined in this document and in the aforementioned code sections, shall only be performed if the EMR, EMT, AEMT, and Paramedic have received training as part of an initial certification course or through subsequent training approved by the EMFTS Board. If specific training has not been specified by the EMFTS Board, the EMR, EMT, AEMT, and Paramedic must have received training regarding such services approved by the local medical director before performing those services.

In accordance with rule 4765-10-06 of the Administrative Code, the individual medical director of each EMS agency may limit or ask that providers obtain medical control approval for certain treatments. Each community may need to tailor and revise the protocol to fit their region and individual practice, but must ensure that they remain within the approved scope of practice. EMS medical directors are reminded that they are not permitted to expand the scope of practice for EMS providers, but may provide clarifications or limitations on services that are permitted.

EMS medical directors and EMS providers are strongly encouraged to review the EMFTS Board’s policy statement “Regarding EMS Provider Pre-Hospital transport of Patients with Pre-Existing Medical Devices or Drug Administrations” dated October 2013 (attached to this document, page 7). This statement clarifies how EMS providers, in the prehospital setting, should deal with medical devices and medicine administrations that are outside their scope of practice.

Pursuant to rule 4765-6-04 of the Administrative Code, the EMFTS Board may allow EMRs, EMTs, AEMTs, and Paramedics to perform services beyond their respective scopes of practices as part of a board-approved research study. An entity must submit a research proposal to the EMFTS Board in accordance with the requirements of rule 4765-6-04 of the Administrative Code. The EMFTS Board is not obligated to approve the proposed research study nor accept any recommendation to permanently amend the scope of practice.

Updated 11/19/03; 5/17/05; 10/26/05; 10/17/07; 3/8/12; 8/22/13, 10/16/13, 12/18/13, 4/16/2014, 10/19/16, 2/15/17

Additional scope of practice information and clarification adopted by the State Board of Emergency Medical, Fire, and Transportation Services Board can be found here: EMFTS Board Position Papers.
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<th>AEMT</th>
<th>PARAMEDIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Open and maintain the airway</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>2. Oropharyngeal airway adjunct</td>
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<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3. Nasopharyngeal airway adjunct</td>
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<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5. Laryngoscopy for removal of airway obstruction</td>
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<td>X</td>
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<tr>
<td>6. Oral suctioning</td>
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<tr>
<td>7. Endotracheal (ET) tube suctioning via a previously established airway or a stoma</td>
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<td></td>
<td>X</td>
<td>X</td>
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<tr>
<td>8. Tracheostomy tube replacement</td>
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<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>9. Cricothyrotomy, surgical</td>
<td></td>
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<td>X</td>
<td></td>
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<tr>
<td>10. Cricothyrotomy, needle</td>
<td></td>
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<td>X</td>
<td></td>
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<tr>
<td>11. Pulse oximeter and capnography equipment application and reading</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>12. Oxygen administration</td>
<td>X</td>
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</tr>
<tr>
<td>a. Nasal cannula</td>
<td></td>
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<td>X</td>
</tr>
<tr>
<td>b. Non-rebreather mask</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>c. Mouth-to-barrier devices</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>d. Partial rebreather mask</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>e. Venturi mask</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>13. Ventilation management</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>a. Bag valve mask</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>b. Ventilation with a flow-restricted oxygen-powered device</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>c. Positive pressure ventilation devices (manually triggered or automatic ventilators)</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>14. Ventilator management - 16 years of age or older</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>15. Orotracheal intubation</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Apneic patients</td>
<td></td>
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<td>X</td>
<td>X</td>
</tr>
<tr>
<td>b. Pulseless and apneic patients</td>
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<td></td>
<td>X</td>
<td>X</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>17. Dual lumen airway</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Apneic patients</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>b. Pulseless and apneic patients</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>18. Extraglottic airways</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Apneic patients</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>b. Pulseless and apneic patients</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>19. CPAP administration and management</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>20. BIPAP administration and management</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Positive end-expiratory pressure (PEEP)</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medical Management</td>
<td>EMR</td>
<td>EMT</td>
<td>AEMT</td>
</tr>
<tr>
<td>---</td>
<td>----------------------------------------------------------------------------------</td>
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<td>------</td>
</tr>
<tr>
<td>1</td>
<td>Epinephrine administration via auto-injector</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2</td>
<td>Epinephrine administration via SQ or IM routes</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>3</td>
<td>Epinephrine administration via IV or IO route</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>4</td>
<td>Aspirin administration</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5</td>
<td>Oral glucose administration</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6</td>
<td>Activated charcoal administration</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>7</td>
<td>Nitroglycerin administration (patient assisted)</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>8</td>
<td>Nitroglycerin administration (non-patient assisted)</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>9</td>
<td>Aerosolized or nebulized medications administration (patient assisted)</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>10</td>
<td>Administration of aerosolized or nebulized medications (non-patient assisted)</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>11</td>
<td>Naloxone administration via auto-injector</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>12</td>
<td>Naloxone administration via intranasal route</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>13</td>
<td>Naloxone administration via ETT, IM, IV, IO, or SQ routes</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>14</td>
<td>Medication administration (protocol-approved)</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>15</td>
<td>Administration of intranasal medications (in addition to naloxone)</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

**Cardiac Management**

<table>
<thead>
<tr>
<th></th>
<th>Cardiac Management</th>
<th>EMR</th>
<th>EMT</th>
<th>AEMT</th>
<th>PARAMEDIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cardiopulmonary resuscitation (CPR)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2</td>
<td>Chest compression assist devices</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3</td>
<td>Automated external defibrillator (use of an AED)</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4</td>
<td>Manual defibrillation</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>5</td>
<td>Negative impedance threshold devices</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6</td>
<td>Administration of cardiac medication</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Set up cardiac monitor in the presence of an AEMT or Paramedic</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Cardiac monitor strip interpretation</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Cardioversion</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>10</td>
<td>Carotid massage</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>11</td>
<td>Transcutaneous cardiac pacing</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>12</td>
<td>12-lead EKG performance and interpretation</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>13</td>
<td>12-lead EKG application assisting Paramedic who is present</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>12-lead EKG set up and application for electronic transmission (^8)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

\(^8\) An EMT or AEMT may set up and apply a 12-lead electrocardiogram when assisting a Paramedic or for the purposes of electronic transmission if all of the following conditions are met: 1) performed in accordance with written protocol; 2) EMT or AEMT shall not interpret the electrocardiogram; 3) delay in patient transport is minimized; and 4) EKG is used in conjunction with destination protocols approved by the local medical director.
<table>
<thead>
<tr>
<th>Procedure</th>
<th>EMR</th>
<th>EMT</th>
<th>AEMT</th>
<th>PARAMEDIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 Immunizations for influenza to firefighters or EMS providers (ORC 4765.391)</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>17 Set up of IV administration kit in the presence of an AEMT or Paramedic</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 Transport of central/peripheral IV without an infusion</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>19 IV maintenance and fluid administration</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>20 Maintenance of medicated IV fluids</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>21 Central line monitoring</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>22 IV infusion pump</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>23 Intraosseous needle insertion</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>24 Saline lock initiation</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 Peripheral IV blood specimens</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26 Maintenance of blood administration</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>27 Thrombolytic therapy initiation and monitoring</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

*Patient Assisted Definition: May assist with 1) patient’s prescription upon patient request and with written protocol - OR - 2) EMS-provided medications with verbal medical direction.*

*See “AEMT Medications Approved by the EMFTS Board.”*

### Trauma Management

<table>
<thead>
<tr>
<th>Procedure</th>
<th>EMR</th>
<th>EMT</th>
<th>AEMT</th>
<th>PARAMEDIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 PASG</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Long spine board</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Short spine board</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Splinting devices</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Traction splint</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Cervical immobilization device (CID)</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Helmet removal</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Rapid extrication procedures</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>9 Needle decompression of the chest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Soft tissue management</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 Management of suspected fractures</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>12 Controlling of hemorrhage</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Basic Performances

<table>
<thead>
<tr>
<th>Procedure</th>
<th>EMR</th>
<th>EMT</th>
<th>AEMT</th>
<th>PARAMEDIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Body substance isolation precaution/administration</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>2 Taking and recording of vital signs</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>3 Patient Care Report (PCR) documentation</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Trauma triage determination per OAC 4765-14-02</td>
<td>X</td>
<td>X</td>
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<td>X</td>
</tr>
</tbody>
</table>

### Additional Services

<table>
<thead>
<tr>
<th>Procedure</th>
<th>EMR</th>
<th>EMT</th>
<th>AEMT</th>
<th>PARAMEDIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Emergency childbirth management</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>2 Glucose monitoring system use (with Clinical Laboratory Improvement Amendments (CLIA) waiver in place)</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>3 Blood chemistry analysis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Eye irrigation</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>5 Eye irrigation with Morgan lens</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Emergency Medical Services in Hospital</td>
<td>EMR</td>
<td>EMT</td>
<td>AEMT</td>
<td>PARAMEDIC</td>
</tr>
<tr>
<td>----------------------------------------</td>
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</tr>
<tr>
<td>An EMS provider may perform emergency medical services in the hospital emergency department (ED) or while moving a patient between the ED and another part of the hospital. The EMS provider shall be under physician medical direction and has received appropriate training. (OREC 4765.36)</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Additional Services in a Declared Emergency</th>
<th>EMR</th>
<th>EMT</th>
<th>AEMT</th>
<th>PARAMEDIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the event of an emergency declared by the governor that affects the public’s health, an EMS provider may perform immunizations and administer drugs or dangerous drugs, in relation to the emergency, provided the EMS provider is under physician medical direction and has received appropriate training regarding the administration of such immunizations and/or drugs. (OAC 4765-03)</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nerve Agent or Organophosphate Release</th>
<th>EMR</th>
<th>EMT</th>
<th>AEMT</th>
<th>PARAMEDIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>An EMS provider may administer drugs or dangerous drugs contained within a nerve agent antidote auto-injector kit, including a MARK I kit, in response to suspected or known exposure to a nerve or organophosphate agent provided the EMS provider is under physician medical direction and has received appropriate training regarding the administration of such drugs within the nerve agent antidote auto-injector kit. (OAC 4765-05)</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

### AEMT Medication Administration Approved by the EMFTS Board

A certified AEMT may administer medications from the following list, provided the AEMT is under physician medical direction and has received appropriate training regarding the administration of such medications. A medication that does not appear on the following list SHALL NOT be added to the department's AEMT protocol.

| Benzodiazepines | | Naibuphine |
|-----------------|----------------|
| Bronchodilators | | Narboxone |
| Dextrose in water | Narcotics or other analgesics for pain relief |
| Diphenhydramine | | Nitrous oxide |
| Epinephrine 1:1,000 (subcutaneous or intramuscular) | Oral ondansetron§ |
| Glucagon | Sublingual nitroglycerin |
| Lidocaine for pain relief after intraosseous needle insertions | |

§A certified AEMT may administer oral ondansetron to patients are the age of 18 years and older. For patients from the age of 12 years to 17 years who weigh greater than or equal to 40 kg, the maximum dose of ondansetron that can be administered is 4 mg. The administration of ondansetron is not permitted for patients of the age of 12 years to 17 years who weigh less than 40 kg nor is its administration permitted for all patients under the age of 12 years.

The approved route of administration of any specific medication is stated in the respective EMT, AEMT, and Paramedic curriculum. The EMS provider shall administer medications only via the route addressed in each respective curriculum and consistent with their level of training.

Approved by the EMFTS Board February 2014
The Ohio Board of Emergency Medical, Fire, and Transportation Services ("EMFTS Board") issues the following statement:

**Regarding EMS Provider Pre-Hospital Transport of Patients with Pre-Existing Medical Devices or Drug Administrations**

October 2013

*This statement is an attempt to provide general information about the above issue facing EMS providers. It should not be treated as legal advice or medical direction. For direct advice regarding a particular scenario, please consult with your medical director and legal counsel. Although the following statement represents the EMS Board's general position on the above issue, this statement in no way precludes the EMFTS Board from taking disciplinary action in a particular case if necessary. Any potential complaints brought before the EMFTS Board will be decided on a case-by-case basis.*

**Introduction:**
The EMFTS Board and the Ohio Department of Public Safety, Division of Emergency Medical Services, has developed a defined scope of practice for EMS providers. It is maintained in matrix form and available on-line as a reference for public access. This scope of practice addresses all levels of EMS providers and has been approved by the EMFTS Board. Updates to the scope of practice are made as necessary and after approval by the EMFTS Board.

From time to time, EMS providers are confronted on-scene with patients with pre-existing medical situations not included or addressed in their respective EMFTS Board approved scope of practice. Specifically, patients with pre-existing medical devices and drug administrations requiring prehospital EMS service are becoming more commonplace. The intent of this position paper is to address the EMS provider's approach to that prehospital patient with a pre-existing physician-ordered medical device or drug administration ("MDDA") not covered in the provider's scope of practice.

**Discussion:**
In general, the EMS provider should maintain the pre-existing MDDA and transport the patient to the appropriate facility. There is no expectation that the EMS provider will initiate, adjust, or discontinue the pre-existing MDDA. This implies that the EMS provider will maintain and continue care so that the patient can be transported.

The EMS provider is expected to follow local protocols regarding the overall evaluation, treatment, and transportation of this type of prehospital patient requiring EMS service. It applies to EMS provider situations where alternative transportation and care is not available or practical (prehospital or "911 scene response"). It implies that the most appropriate and available level of EMS provider will respond to the request for prehospital EMS service. It also implies that the patient requires the pre-existing MDDA and it is not feasible or appropriate to transport the patient without the pre-existing MDDA.

The number and type of pre-existing MDDAs currently or potentially encountered by the EMS provider in the community setting is extensive and may change frequently. The intent of this position paper is not to provide an inclusive list of pre-existing MDDAs. However, as a guideline for the EMS provider, current pre-existing MDDAs may include ventilatory adjuncts (CPAP, BiPAP), continuous or intermittent IV medication infusions (analgesics, antibiotics, chemotherapeutic agents, vasopressors, cardiac drugs), and nontraditional out-of-hospital drug infusion routes (subcutaneous infusaports, central venous access lines, direct subcutaneous infusions, self-contained implanted pumps).
Conclusion:
In conclusion, the EMS provider confronted with a prehospital patient with a pre-existing physician-ordered medical device or drug administration not covered in the EMS provider’s respective scope of practice should provide usual care and transportation while maintaining the pre-existing MDDA, if applicable. Concerns or questions regarding real-time events associated with a pre-existing MDDA should be directed to the relevant Medical Control Physician. Concerns or questions regarding previous, recurrent, or future pre-hospital transportations with a pre-existing MDDA should be directed to the appropriate EMS Medical Director and legal counsel.

Approved by the EMFTS Board February 2014
The Ohio Board of Emergency Medical, Fire, and Transportation Services ("EMFTS Board") issues the following statement:

Regarding Interfacility Transport of Patients by EMS Providers and the Scope of Practice
October 2013

This statement is an attempt to provide general information about the above issue facing EMS providers. It should not be treated as legal advice or medical direction. For direct advice regarding a particular scenario, please consult with your medical director and legal counsel. Although the following statement represents the EMFTS Board’s general position on the above issue, this statement in no way precludes the EMFTS Board from taking disciplinary action in a particular case if necessary. Any potential complaints brought before the EMFTS Board will be decided on a case-by-case basis.

Introduction:
The Ohio Board of Emergency Medical, Fire, and Transportation Services and the Ohio Department of Public Safety, Division of Emergency Medical Services, have developed a defined scope of practice for all EMS providers. The scope of practice for emergency medical technicians (EMTs), advanced emergency medical technicians (AEMTs), and Paramedics is established respectively in Ohio Administrative Code Chapters 4765-15, 4765-16, and 4765-17. An outline of the Ohio EMS scope of practice is available in a matrix form and is posted on the Ohio Department of Public Safety, Division of EMS’ website as a reference for public access. This scope of practice addresses all levels of EMS providers and has been approved by the EMFTS Board. Updates to the scope of practice are made as necessary and must be approved by the EMFTS Board.

From time to time, during interfacility transport, EMS providers are confronted with medications and therapies that are out of their usual scope of practice and training. The intent of this position paper is to address the approach of the EMS providers and their medical directors to these situations which are not explicitly covered in the Ohio EMS scope of practice.

Discussion:
The number and type of medications and therapies in the medical field currently or potentially encountered by the EMS provider in the interfacility transport setting is extensive and may change frequently. The intent of this position paper is not to provide an inclusive or exclusive list of therapies and medications that should be included or excluded from the EMS provider’s scope of practice. Rather, the intention of this document is to frame the discussion around maintenance of patient safety during interfacility transport and provision of patient care that is appropriate to the EMS provider’s level of training.

Additionally, the success of any EMS service requires robust medical direction from an actively involved physician who meets the requirements set forth in Ohio Administrative Code Rule 4765-3-05. This includes, but is not limited to, the initial and ongoing training of EMS providers, as well as an active performance improvement process in which all transports are subject to review for quality assurance.

The scope of this document includes all transports in which the highest level of training of the personnel in the transport vehicle is a Paramedic. The addition of the registered nurse to the crew creates a mobile intensive care unit which is qualified to transport critical patients as legislated in Section 4766.01 of the Ohio Revised Code and Rule 4766-4-12 of the Ohio Administrative Code.

Conclusion:
The EMT, AEMT, and Paramedic certification is limited to the scope of practice that is set forth respectively in Ohio Administrative Code Chapters 4765-15, 4765-16, and 4765-17. Furthermore, this position paper does not
provide an inclusive or exclusive list of therapies and medications that should be included or excluded from the EMS provider's scope of practice.

In addition, during the interfacility transportation of patients, the EMS provider:

- Shall not initiate the infusion of blood or blood products including the initiation of infusion of additional units. Under the current scope of practice, the Paramedic may only maintain the infusion of blood or blood products.
- Shall not initiate the infusion of intravenous parenteral nutrition including the initiation of infusion of additional units. Under the current scope of practice, the Paramedic may only maintain the infusion of intravenous parenteral nutrition.
- Shall not initiate or continue the infusion of chemotherapeutic agents.
- Shall follow written protocols, which have been developed and signed by the EMS provider's medical director, for the infusion of medications that are not specifically outlined within the EMS scope of practice as outlined by the State of Ohio.
  - The training for the infusion of these specific medications shall not be done at the time of the interfacility transfer of the patient.
  - This training must be completed well in advance of the transfer.
  - The completion of the training must be documented and approved by the medical director of the EMS agency.
  - Continuing education and recurrent training on the indications, contraindications, pharmacology, and side effects of these medications is also required.
- Should refuse to initiate a transport if the EMS provider feels that adequate training on a specific intervention has not been provided well in advance of the transfer as outlined above or if the EMS provider feels uncomfortable with the transport for any reason, including but not exclusive to safety reasons, patient scenario, or any requested parameter of patient care delivery ordered during patient transport.

Concerns or questions regarding specific interfacility transports should be directed to the Ohio Department of Public Safety, Division of Emergency Medical Services.
A member of the pre-hospital care team must contact Medical Control at the earliest time convenient to good patient care. This may be a brief early notification or “heads up”. It may mean that the hospital is contacted from the scene if assistance is needed in the patient’s immediate care or permission is required for part of the patient care deemed necessary by the EMS Provider in charge. This to include any field and/or patient situations that may have the potential to escalate and need additional emergency and hospital resources.

**PURPOSE**
- To provide the receiving hospital accurate, updated report of the patient’s presentation and condition throughout pre-hospital care and transport.
- To allow the receiving hospital the opportunity to prepare for receiving the patient and continue necessary medical treatment.

**PROCEDURE**
Contact the receiving facility and provide the following information:
- **Type of Squad**: Basic, Advanced, Paramedic
- **Age and Sex of Patient**
- **Type of Situation**: Injury and/or Illness
- **Specific Complaint**: Short and to the point (i.e., chest pain, skull fracture)
- **Vital Signs**: BP / Pulse / Resp. / LOC / EKG
- **Patient Care**: Airway Management, Circulatory Support, Drug Therapy
- **General Impression**: Stable / Unstable
- **Destination ETA**

**General Considerations**
- When calling in a report, it should begin by identification of the squad calling, and the level of care that can be provided to the patient (EMT, EMT-A, EMT-P), and the nature of the call (who you need to talk with, physician or nurse).
- Whenever possible, the EMT responsible for the highest level of direct patient care should call in the report.
- Although all EMS Providers have been trained to give a full, complete report, this is often not necessary and may interfere with the physician’s duties in the Emergency Department. Reports should be as complete and concise as possible to allow the physician to understand the patient’s condition.
- It is not an insult for the physician to ask questions after the report is given. This is often more efficient than giving a thorough report consisting mostly of irrelevant information.
- If multiple victims are present on the scene, it is advisable to contact Medical Control with a preliminary report. This should be an overview of the scene, including the number of victims, seriousness of the injuries, estimated on-scene and transport times to the control hospital or possible other nearby facilities. This allows preparation for receiving the victims and facilitates good patient care.
- Medical Control will notify receiving hospitals.
An EMS patient care report will be completed accurately and legibly to reflect the patient assessment, patient care and interactions between EMS and the patient, for each patient contact which results in some assessment component.

Every patient encounter by EMS will be documented. Vital signs are a key component in the evaluation of any patient and a complete set of vital signs is to be documented for any patient who receives some assessment component.

**PURPOSE**

To document total patient care provided including:

- Care provided prior to EMS arrival
- Exam of the patient as required by each specific complaint based protocol
- Past medical history, medications, allergies, Living Will / DNR, and personal MD
- All times related to the event
- All procedures / medications administered and their associated time and patient response
- Notation of treatment authorization if any deviation from protocol / narcotic use
- Reason for inability to complete or document any above item
- A complete set of vital signs

**PROCEDURE**

- The patient care report should be completed as soon as possible after the time of the patient encounter.
- All patient interactions are to be recorded on the patient care report form or the disposition form (if refusing care).
- The patient care report form must be completed with the above information.
- A copy of the patient care report forwarded electronically to the receiving medical facility.
- A copy of the patient care report can be accessed electronically by the EMS Department or Agency.

**General Considerations**

- Document the contact and any on-line medical direction that is given. If you are not able to reach Medical Control, document attempts and cause for failure. Always describe the circumstances of the call. It is very important to document the mental status of the patient who refuses transport.
- The times vitals are taken must be noted. Vitals should be repeated every five minutes, or following any medical treatments. Vitals should be completely recorded. If a part of the set of vitals is omitted, the reason should be clearly given. ("Unable to obtain BP due to clothing" is clear, “unable” written under the BP space, is not clear).
- Use accepted medical abbreviations and terminology. Do not make them up.
- Make an effort to spell correctly. Become familiar with the correct spelling of commonly used words.
- The name, dose, route, time and effect should be documented for all medications.
- When standards are followed such as in a full arrest, every step should be documented. To write “ACLS Protocols followed” is NOT SATISFACTORY.
- Always attach the 12 Lead tracing electronically to run reports and transmit 12 Lead EKG’s to ED.
- A complete set of times must be recorded on every report.
- All reports should reflect reassessment following interventions and care.
- All reports should state where and who assumed patient care with EMS completed.

**Documentation of Vital Signs:**

1. An initial complete set of vital signs includes:
   - Pulse rate AND Respiratory rate
   - Systolic AND diastolic blood pressure
   - Pain / severity (when appropriate to patient complaint)
2. When no ALS treatment is provided, palpated blood pressures are acceptable for repeat vital signs.
3. If the patient refuses this evaluation, the patient’s mental status and the reason for refusal of evaluation must be documented, along with an offer to return and transport.
4. Document situations that preclude the evaluation of a complete set of vital signs.
5. Record the time vital signs were obtained.
6. Any abnormal vital sign should be repeated and monitored closely.

All completed run reports should contain a summary statement regarding patient status upon transfer of care.
GUIDELINES / PROCEDURES / MEDICAL CONTROL

AEROMEDICAL TRANSPORT

The following principles regarding on-scene use of a helicopter have been adopted by the Cuyahoga County EMS Advisory Board, and are endorsed by these protocols. Air transport should be utilized whenever patient care can be improved by decreasing transport time, due to extended extrication or by giving advanced care not available from ground EMS.

PURPOSE
• Provide life-saving treatment by improving patient care in the pre-hospital setting.
• Allow for expedient transport in serious, mass casualty setting.

INDICATIONS FOR AEROMEDICAL TRANSPORT
1. Aeromedical services may be requested directly to the scene by:
   • An On – Scene EMS organization
   • Hospitals and healthcare facilities
2. A request for aeromedical service response may be initiated when one or more of the following conditions exists:
   • The patient’s airway, breathing, or hemorrhage / circulation can not be controlled by conventional means and the estimated arrival time of the air medical service is less than the time required for ground transport to the nearest hospital.
   • High priority patient with > 20 minute transport time.
   • Entrapped patients > 10 minute estimated extrication time.
   • Access hard to reach victims for whom the helicopter will have a special advantage.
   • When sufficient other Mutual Aid resources are not available.
   • Transport assist in dispersing multiple, serious victims to more distant hospitals. It is recognized that in major emergency incidents, the Cuyahoga County Emergency Management Plan permits no direct communications by squads with On-Line Medical Direction.
   • To bring a physician and equipment resources to a patient who specifically needs these on the scene. (Physician not available on all helicopter services).
   • Multiple casualty incident with red / yellow tag patients.
   • Multi-trauma or medical patient requiring life-saving treatment not available in prehospital environment (i.e., blood transfusion, invasive procedure, operative intervention).
3. If a potential need for air transport is anticipated, but not yet confirmed, an air medical transport service can be placed on standby.
4. If the scene conditions or patient situation improves after activation of the air medical transport service and air transport is determined not to be necessary, paramedic or administrative personnel may cancel the request of air transport.
5. Minimal Information which should be provided to the air medical transport service include:
   a. Number of patients
   b. Age of patients
   c. Sex of patients
   d. Mechanism of injury or complaint (MVC, fall, etc.)
AEROMEDICAL LANDING ZONE (LZ) SET UP PROCEDURE

1. LZ should be free of obstruction. Eliminate these hazards:
   - Wires (surrounding the landing area and High Tension power lines within ½ mile)
   - Towers (TV, Radio, Cellular within ½ mile)
   - Trees
   - Signs and Poles
   - Buildings
   - Vehicles
   - People
2. LZ should be 100’ X 100’ if possible.
3. LZ should have as little of a slope as possible (less than 5 degrees)
4. LZ area should be a hard surface (concrete, asphalt, gravel, lawns, etc.)
5. LZ corners should be marked with highly visible devices (cones, flairs, strobes).
6. No debris on landing surface within 100’ of landing area
7. Land the helicopter(s) a safe distance from the scene/patient.
8. Never point bright lights directly at the aircraft.
9. Maintain security of LZ while helicopter is present.
   - Landing Zone Briefing
   - Type of LZ surface and size
   - How LZ is marked (cones, flairs, strobes, etc.)
   - All noted obstructions (see list above)

NEVER ASSUME FLIGHT CREW WILL SEE A HAZARD
NEVER APPROACH HELICOPTER UNLESS DIRECTED BY FLIGHT CREW
Under the auspices of each individual EMS jurisdiction and the Medical director, this protocol provides an alternative transportation option for use by EMS personnel for patients that do not require emergent ambulance transportation.

**PURPOSE**
- To provide a suggested alternative transportation option to non-emergent patients who do not require emergent ambulance transportation.

**PROCEDURE**
Before advocating other means of transportation, EMS personnel must perform ALL of the following:
1. Appropriate medical exam, including vital signs.
2. Obtain pertinent patient information.
3. Contact Medical Control

**ALTERNATIVE TRANSPORT GUIDELINES**
Patient complaints for which EMS personnel may recommend other means of transportation to medical care are limited to the following:
- Ear pain with no apparent object in ear
- Minor extremity lacerations with no gross loss of function
- Pain or burning on urination
- Penile discharge
- Minor vaginal discharge unless the patient is obviously pregnant or suspects she is pregnant
- Toothache without swelling or radiating jaw pain. Pt must be transported if evident of impending airway compromise
- Minor sore throats and colds
- Prescription refills
- Scheduled clinic appointments

**KEY POINTS**
EMS personnel MAY NOT decline transport, or in any way suggest alternative means of transportation for any of the following patients, complaints, or situations:
1. Less than 18 years of age
2. Suicide Attempt
3. Intoxication
4. Abuse or negligence of adult or child
5. Any situation where the crew’s best judgement indicates transport

- Whenever presented with a medical complaint other than those listed in the Alternative Transport Guidelines section, follow the appropriate treatment protocol for patient care as authorized in these protocols or contact Medical Control

**DO NOT DEVIATE FROM THE GUIDELINES SET FORTH IN THE ALTERNATIVE TRANSPORT POLICY**

**MHFD as part of the City of Middleburg Heights' collaborative agreement with CCF in the management of stroke may choose to relinquish care of the 9-1-1 patient to the Mobile Stroke Unit. As such, additional ongoing management and care delivered to the patient becomes the sole responsibility of Cleveland Clinic and its condition-specific prehospital protocols (not those of SWGH) should be followed. Clear documentation of handoff to CCF personnel and the patient’s acceptance of such should be provided. As such, any resultant delay incurred in initiating Emergency Department and/or definitive hospital care of the patient will be assigned and attributed to the practices of CCF and MHFD.**
Child abuse is the physical and mental injury, sexual abuse, negligent treatment, 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.

**PURPOSE**

Assessment of a child abuse case based upon the following principles:

- **Protect** the life of the child from harm, as well as that of the EMS Team from liability.
- **Suspect** that the child may be a victim of abuse, especially if the injury/illness is not consistent with the reported history.
- **Respect** the privacy of the child and family.
- **Collect** as much evidence as possible, especially information.

**PROCEDURE**

1. With all children, assess for and document psychological characteristics of abuse, including excessively passive compliant or fearful behavior, excessive aggression, violent tendencies, excessive crying, fussy behavior, hyperactivity, or other behavioral disorders.
2. With all children, assess for and document physical signs of abuse, including especially any injuries that are inconsistent with the reported mechanism of injury. The back, buttocks, genitals, and face are common sites for abusive injuries.
3. With all children, assess for and document signs and symptoms of neglect, including inappropriate level of clothing for weather, inadequate hygiene, absence of attentive caregiver(s), or physical signs of malnutrition.
4. With all children, assess for and document signs of sexual abuse, including torn, stained, or bloody underclothing, unexplained injuries, pregnancy, or sexually transmitted diseases.
5. Immediately report any suspicious findings to both the receiving hospital (if transported) and law enforcement. 216-696-KIDS hot line is also to be notified.
6. EMS should not accuse or challenge the suspected abuser. This is a legal requirement to report, not an accusation. In the event of a child fatality, law enforcement must also be notified.
### General Considerations

- Child abuse/neglect is widespread enough that nearly all EMS Providers will see these problems at some time. The first step in recognizing abuse or neglect is to accept that they exist and to learn the signs and symptoms.
- Initiate treatment as necessary for situation using established protocols.
- If possible, remove child from scene, transporting to hospital even if there is no medical reason for transport.
- If parents refuse permission to transport, notify law enforcement for appropriate disposition. If a patient is in immediate danger, let law enforcement handle scene.
- Advise parents to go to hospital. **AVOID ACCUSATIONS** as this may delay transport. Adult with child may not be the abuser.

#### RED FLAGS TO CHILD ABUSE:

The presence of a red flag does not necessarily mean maltreatment. The suspicion of maltreatment is also based upon the EMS provider's observations and assessment.

**Signs that parents may display may include (not all-inclusive):**
- Parent apathy
- Parent over reaction
- A story that changes or that is different when told by two different “witnesses”
- Story does not match the injury
- Injuries not appropriate for child's age
- Unexplained injuries

**Signs that the child may display may include (not all-inclusive):**
- Pattern burns (donuts, stocking, glove, etc.)
- Multiple bruises in various stages of healing
- Not age appropriate when approached by strangers
- Not age appropriate when approached by parent
- Blood in undergarments
**PURPOSE:** To provide cleaning of rescue equipment by Central Sterile Supply (CSS).

1. Rescue personnel will be responsible for the labeling of all their equipment.
2. Rescue personnel will discard all disposable components into the appropriate containers.
3. Rescue personnel will discard linen into the hampers.
4. Rescue personnel will discard disposable needles and sharps into the appropriate sharps containers.
5. Items to be cleaned will be placed into a red biohazard bag that is secured with a twist tie.
6. Items to be cleaned will be left in the utility room in the Emergency Department.
7. The Emergency Department staff will do steps 2 through 6 if the equipment was left on the patient when the rescue squad left the Emergency Department.
8. Backboards will be cleaned in CSS. Cleaned backboards will be stored in EMS Equipment Room in the Emergency Department. Please retrieve on a timely basis. Remove the dated sticker from CSS indicating the equipment has been cleaned.
9. Equipment cleaned by departments is to be completely wiped off with standard hospital cleaning products. If patient is known or suspect of infection, bleach cleaning products are to be used to wipe equipment.

Refer to Infection Control SOP – pages 38-50.
While the possibility of finding a dangerous weapon on-scene has always existed, EMS personnel must be aware of current issues, which impose unique hazards upon them while performing their duties. These dangers present in many different ways, regardless of jurisdiction or call volume. Though not all accidents can be prevented, awareness must be made regarding the State of Ohio Concealed – Carry Laws.

Ohio’s Concealed – Carry Law permits individuals to obtain a license to carry a concealed handgun in Ohio, including into private businesses if the licensee also carries a valid license and valid identification when carrying the concealed handgun. This law has been in effect since April 8, 2004. Be aware that all patients may be carrying a dangerous weapon at all times, regardless of whether a permit has or has not been issued.

GUIDELINES

- Upon arrival at the scene, EMS Personnel should directly ask patients if they are carrying a weapon prior to performing a physical assessment. If the patient is unable to answer, please proceed with caution.
- If a weapon is present on scene or with a patient, it is recommended that a Law Enforcement Official be present to secure the weapon.
- The training of EMS Personnel in the safe handling and use of firearms lock boxes in squads is a departmental and municipal decision.
- Caution is advised due to the many types of weapons and the handler's ability to modify them.
- When transporting a patient to the hospital, please inform the receiving facility that a weapon has been found on the patient. This will allow enough time for Security to safely secure the weapon and maintain possession of it until Law Enforcement arrives.
GUIDELINES / PROCEDURES / MEDICAL CONTROL

CONSENT AND REFUSAL OF CARE GUIDELINES

PURPOSE
To provide:
- Rapid emergency EMS transport when needed.
- Protection of patients, EMS personnel, and citizens from undue risk when possible.
- Methods to document patient refusal of care.

PROCEDURES – ADULT
Consent:
Two types apply: **Expressed Consent**, when a conscious, oriented, (to person, place and time) competent adult (over 18 years old), gives the EMS Provider permission to care for him. This may be in the form of a nod, verbal consent or gesture after the intended treatment has been explained. **Implied Consent** occurs when a person is incapable of giving their permission for treatment due to being unconscious or incompetent. It is assumed that their permission would be given for any life saving treatments.

Refusal of Treatment:
A **competent adult** may refuse treatment even after calling for help. The person must be informed that they may suffer loss of life, limb or severe disability if they refuse care and transport, and sign a Release indicating that they understand this. If the patient refuses to sign, a witness at the scene, preferably a relative should sign. Documentation of the events must be clearly made. It also must be documented on the run sheet that the person is oriented to person, place and time, and a set of vital signs should be obtained if at all possible. An offer to return and transport them at a later time will be made by EMS. Contact with Medical Control should be made if there is any question about the person’s competency. If the need for treatment is obvious, speaking directly to the Nurse or Physician may assist in convincing the patient to be transported.

**Incompetent patient**. While an adult may refuse treatment, in some situations, their refusal may not be competent. In the following situations, the refusal of treatment may be incompetent:
- Patients showing altered mental status due to head trauma, drugs, alcohol, psychiatric illness, hypotension, hypoxia, or severe metabolic disturbances.
- Violent patients.
- Uncooperative minors.

PROCEDURES – MINORS
Consent to treat Minors, (under the age of 18 years in Ohio), must be obtained from the parent or guardian with two exceptions: there is need for life saving immediate treatment which should be given to the point of it being considered elective; or the Minor is emancipated; i.e.: married, living on their own, or in the armed forces and may give permission themselves.
Refusal of Treatment:
A minor might refuse to cooperate with the EMS crew, or the minor’s parent or guardian may refuse to consent to necessary treatment of the minor. A minor under the age of 18 years may not refuse treatment in Ohio. Transport should be initiated unless the parent or legal guardian refuse treatment on behalf of the minor. A circumstance may occasionally arise where the patient is a minor and there is no illness or injury, yet EMS has been called to the scene. If the responsible person is not able to be at the scene, it is acceptable for contact to be made by telephone. If care and transport is refused by the parent or guardian, TWO witnesses should verify this, and this shall be documented and signed by both witnesses on the run sheet. A request may be made that the person come to the fire station as soon as possible, to sign the release. A second circumstance may occur when the minor patient really needs to be transported and the parent or guardian is refusing transport. In this case, action must be taken in the minor’s best interest. This is described in the following section, Incompetent Refusal.

Incompetent Refusal:
- Parent/guardian refuse to give consent for treating their child when the child’s life or limb appears to be at risk.
- Parent/guardian refuses to give consent where child abuse is suspected.
- Suicidal patient – any age.

In all such cases, contact with Medical Control and a Physician is necessary, as the patient may have a life-threatening problem and is in need of medical care. The involvement of the police in these situations is often necessary and crucial. They may assist the EMS crew with transport as ordered by the On-line Physician. This is described in Ohio Revised Code, Section 5122.10.
CRIME SCENE GUIDELINES

Known or suspected crime scene

Assure safety of all EMS Providers

Summon law enforcement if not already present

Lead EMT may request entry of safe area to determine viability of patient – Additional personnel must be within visual contact.

Summon additional EMS resources only as absolutely required for patient care

Minimize scene disturbances
- Enter and exit scene in the same path
- Do not go any other places within the scene other than what is required for patient care and/or assessment
- Wear gloves at all times, put on prior to entry and do not remove until after exit
- Avoid pools of blood
- Minimize personnel allowed access to the scene to those who are absolutely required for patient care and/or assessment
- Do not cut clothes through knife or bullet holes
- Do not go through patients personal effects

VIABLE PATIENT
- Follow appropriate treatment protocol
- Remove from crime scene as soon as possible
- Relay any information regarding crime obtained during treatment to police as soon as possible
- TRANSPORT To facility appropriate

CONTACT MEDICAL CONTROL

DECEASED PATIENT
- Refer to DOA guidelines
- Do not move body
- One provider to apply cardiac monitor to document death
- CONTACT MEDICAL CONTROL
- Do not transport DOA

REFUSED ACCESS TO PATIENT
- Remain calm
- CONTACT MEDICAL CONTROL

This guideline shall be used when law enforcement personnel advise EMS that they have responded to a crime scene, or EMS determines that a crime scene may exist. The purpose is to ensure the protection of the patients’ welfare as well as to ensure the ability to conduct an effective and thorough investigation of the crime.
PURPOSE
EMS should not begin to resuscitate if any of the following criteria for death in the field are met for a patient who presents pulseless, apneic and with any one of the following:
- Decapitation
- Massive crush injury of the head, chest, or abdomen
- Gross decomposition
- Gross rigor mortis
- Gross incineration
- Severe blunt trauma
- Ohio DNR Comfort Care Order
- Other DNR as validated by on-line physician

PROCEDURE
In all cases, contact with Medical Control should be immediate and well documented. Obtaining an EKG of asystole in two leads may be possible in some cases. When the on-line physician states to do nothing, it should be documented as the pronouncement of death. Once this is done, the police should assume control of the scene, and EMS may go back into service.

General Considerations
- If a patient is in complete cardiopulmonary arrest (clinically dead) and meets one or more of the criteria below, CPR and ALS therapy need not be initiated:
  - Gross decomposition
  - Gross rigor mortis without hypothermia
  - Gross incineration
  - Dependent lividity
  - Severe blunt force trauma
  - Injury not compatible with life (i.e., decapitation, burned beyond recognition, massive open or penetrating trauma to head or chest with obvious organ destruction.)
  - Extended downtime with Asystole on the EKG
- If a bystander or first responder has initiated CPR or automated defibrillation prior to an EMS Paramedic’s arrival and any of the above criteria (signs of obvious death) are present, the paramedic may discontinue CPR and ALS therapy. All other EMS personnel levels must communicate with medical control prior to discontinuation of the resuscitative efforts.
- If doubt exists, start resuscitation immediately. Once resuscitation is initiated, continue resuscitation efforts until either:
  - Resuscitation efforts meet the criteria for implementing the Termination of Resuscitative Efforts Protocol, if valid in the EMS jurisdiction.
  - Patient care responsibilities are transferred to the destination hospital staff.
- When a Dead on Arrival (DOA) patient is encountered, the squad members should avoid disturbing the scene or the body as much as possible, unless it is necessary to do so in order to care for and assist other victims. Once it is determined that the victim is in fact dead, the squad members should move as rapidly as possible to transfer responsibility or management of the scene to the Police Department.
- Pregnant patients estimated to be 20 weeks or later in gestation should have standard resuscitation initiated and rapid transport to a facility capable of providing an emergent C-section. Paramedics CANNOT perform a C-section even with Med Command permission.
- Victims of a lighting strike, drowning, or a mechanism of injury that suggested non-traumatic cause for cardiac arrest should have standard resuscitation initiated.
- If the patient is pronounced on scene, leave the ETT, IV, and other interventions in place.
PURPOSE
- Ideally, any patient presenting to the EMS System with a valid DNR form shall have the form honored and CPR and ALS therapy withheld in the event of cardiac arrest.
- To honor the end of life wishes of the patient
- To prevent the initiation of unwanted resuscitation

PROCEDURE
Ohio’s DNR Comfort Care is the only law encompassing EMS. For any other type of DNR documents you must contact Medical Control and describe your circumstances to a physician. The physician will then decide if EMS should honor the DNR document, or begin resuscitation of the patient. This includes the Ohio Living Will or any other document to this effect.

A DNR order for a patient of a healthcare facility shall be considered current in accordance with the facility’s policy. A DNR order for a patient outside a healthcare facility shall be considered current unless discontinued by the patient’s attending Physician / CNP / CNS, or revoked by the patient. EMS personnel are not required to research whether a DNR order that appears to be current, has been discontinued.

STATE OF OHIO DNR COMFORT CARE GUIDELINES
Under its DNR Comfort Care Protocol, the Ohio Department of Health has established two standardized DNR order forms.

DNR Comfort Care – Terminally ill condition and in effect at all times.
DNR Comfort Care – Arrest – In effect in the event of a cardiac or respiratory arrest.

1) DNR Comfort Care –
When completed by a doctor (or certified nurse practitioner or clinical nurse specialist, as appropriate), these standardized DNR orders allow patients to choose the extent of the treatment they wish to receive at the end of life. Ohio DNR Comfort Care can be identified by the original/copy of the State of Ohio DNR Comfort Care form with official DNR logo, a DNR Comfort Care necklace, bracelet, or card with official DNR Comfort Care logo. The form must be completed with effective date and signed by the patient’s physician. To enact the DNR Comfort Care, the patient must be experiencing a terminal event. EMS is not required to search for a DNR identification but should make a reasonable attempt to identify that the patient is the person named in the DNR Comfort Care form. Only the patient may request reversal of the DNR Comfort Care.

CARE to be provided by EMS:
- Suction the airway
- Administer Oxygen
- Position for comfort
- Splint or immobilize
- Control bleeding
- Provide pain medication
- Provide emotional support
- Contact other appropriate health care providers (hospice, home health, attending physician or certified nurse
DNR - Continued

Care NOT to be provided by EMS:

- Administer chest compressions
- Insert artificial airway
- Administer resuscitative drugs
- Defibrillate or cardiovert
- Provide respiratory assistance (other than described above)
- Initiate resuscitative IV
- Initiate cardiac monitoring

2) DNR Comfort Care – Arrest – All life saving measures continue until a cardiac/respiratory arrest occurs at that point all efforts cease.

- The DNR order addresses your current state of health and the kind of medical treatment you and your physician decide is appropriate under current circumstances. If a patient is found in a suspicious or unrelated accident, follow standard protocols.
- A DNR order for a patient of a health care facility shall be considered current in accordance with the facility’s policy. A DNR order for a patient outside a health care facility shall be considered current unless discontinued by the patient’s attending physician / CNP / CNS, or revoked by the patient. EMS personnel are not required to research whether a DNR order that appears to be current has been discontinued.
- It is imperative that a copy of or the original DNR Comfort Care orders and identification accompany the patient wherever the patient goes. This will help to alleviate any confusion between health care givers at multiple sites.
- Be careful to check the patient’s DNR order or DNR identification to determine if DNR – CC or DNR – CC Arrest.
- EMS is not required to search a person to see if they have DNR identification. If any of the DNR identifiers are in the possession of the patient, EMS must make a reasonable attempt to identify the patient by patient’s name given by patient, family, caregiver or friend, health care worker who knows the patient, ID band from health care institution, driver’s license or other picture I.D. If identification cannot be verified, the protocol should be followed.
- The patient may request resuscitation even if he/she is a DNR Comfort Care or DNR Comfort Care – Arrest patient and/or the DNR Comfort Care Protocol has already been activated. The patient’s request for resuscitation amounts to a revocation of any or all DNR Comfort Care Status and resuscitative efforts must be activated.
- If EMS has responded to an emergency situation by initiating any of the “will not perform actions” prior to confirming that the DNR Comfort Care Protocol must be activated, discontinue them when you activate the protocol. You may continue respiratory assistance, IV medications, etc. that have been part of the patient’s ongoing course of treatment for their underlying condition of disease.
- If the patient’s family or bystanders request or demand resuscitation for a patient for whom the DNR Comfort Care Protocol has been activated, do not proceed with resuscitation. Provide “will perform actions” as outlined above and try to help them understand the dying process. The patient’s initial choice was not to be resuscitated.
- For EMS – The Ohio DNR Comfort Care law is the only one you (EMS) can honor on your own. For any other types of DNR documents, you must contact Medical Control and describe your circumstances to a Physician. The Physician will decide if you should honor the DNR document, or begin resuscitation of the patient.
- Your Living Will document specifies in advance the kind of medical treatment you would want if and when you have a terminal illness or are in a permanently unconscious state and are no longer able to state your own wishes. It may not protect you from receiving CPR or other heroics. It only takes effect if you are in a certifiably terminal or permanently unconscious state, and emergency squad personnel cannot determine if you meet these conditions.
- A Health Care Power of Attorney is a document that names another person (usually a spouse, child, or other relative, and preferably someone who can understand your health status and make hard decisions for you whenever you are unable to do so yourself. It is not a DNR order, though it ordinarily would permit the person you appoint to agree to a DNR order for you, if you are unable to express your wishes at the time.
- The General Power of Attorney usually does not address health care issues and ends if you become disabled. You may have given your General Power of Attorney to someone to manage your financial affairs while you were on vacation or in the hospital. If you want a General Power of Attorney to continue, even if you become disabled, the document must state that it is durable, or continuing, power of attorney. A health care power of attorney is a durable power; it continues even after you become disabled and appoints someone to carry out your health care wishes.
## DNR Identification Form

(Check only one box)

- **DNR**  (If this box is checked the DNR Comfort Care Protocol is activated immediately.)

- **DNRCC-Arrest**  (If this box is checked, the DNR Comfort Care Protocol is implemented in the event of a cardiac arrest or a respiratory arrest)

<table>
<thead>
<tr>
<th>Patient Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address:</td>
</tr>
<tr>
<td>City:</td>
</tr>
<tr>
<td>Birthdate:</td>
</tr>
<tr>
<td>Signature: (optional)</td>
</tr>
</tbody>
</table>

### Certification of DNR Comfort Care Status (to be completed by the physician)*

(Check only one box)

- **Do-Not-Resuscitate Order**—My signature below constitutes and confirms a formal order to emergency medical services and other health care personnel that the person identified above is to be treated under the State of Ohio DNR Protocol. I affirm that this order is not contrary to reasonable medical standards or, to the best of my knowledge, contrary to the wishes of the person or of another person who is lawfully authorized to make informed medical decisions on the person’s behalf. I also affirm that I have documented the grounds for this order in the person’s medical record.

- **Living Will (Declaration) and Qualifying Condition**—The person identified above has a valid Ohio Living Will (declaration) and has been certified by two physicians in accordance with Ohio law as being terminal or in a permanent unconscious state, or both.

<table>
<thead>
<tr>
<th>Printed name of physician*:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature:</td>
</tr>
<tr>
<td>Address:</td>
</tr>
<tr>
<td>City/State:</td>
</tr>
</tbody>
</table>

* A DNR order may be issued by a certified nurse practitioner, clinical nurse specialist, or a physician assistant when authorized by section 2133.211 of the Ohio Revised Code.

### See reverse side for DNR Protocol

Southwest General Health Center / EMS Services
DO NOT RESUSCITATE COMFORT CARE PROTOCOL

After the State of Ohio DNR Protocol has been activated for a specific DNR Comfort Care patient, the Protocol specifies that emergency medical services and other health care workers are to do the following:

WILL:
- Suction the airway
- Administer oxygen
- Position for comfort
- Splint or immobilize
- Control bleeding
- Provide pain medication
- Provide emotional support
- Contact other appropriate health care providers, such as hospice, home health, attending physicians, CNPs, and CNSs

WILL NOT:
- Administer chest compressions
- Insert artificial air way
- Administer resuscitative drugs
- Defibrillate or cardiovert
- Provide respiratory assistance (other than that listed above)
- Initiate resuscitative IV
- Initiate cardiac monitoring

If you have responded to an emergency situation by initiating any of the WILL NOT actions prior to confirming that the DNR Comfort Care Protocol should be activated, discontinue them when you activate the Protocol. You may continue respiratory assistance, IV medications, etc., that have been part of the patient’s ongoing course of treatment for an underlying disease.

If family or bystanders request or demand resuscitation for a person for whom the DNR Comfort Care Protocol has been activated, do not proceed with resuscitation. Provide comfort measures as outlined above and try to help the family members understand the dying process and the patient’s choice not to be resuscitated.
• 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 a critical step to improving patient safety, providing quality health care, and preventing future abuse.

• 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.

PURPOSE

Assessment of an abuse case based upon the following principles:

• **Protect** the patient from harm, as well as protecting the EMS team from harm and liability.
• **Suspect** that the patient may be a victim of abuse, especially if the injury / illness is not consistent with the reported history.
• **Respect** the privacy of the patient and family.
• **Collect** as much information and evidence as possible and preserve physical evidence.

PROCEDURE

1. Assess the / all patient(s) for any psychological characteristics of abuse, including excessive passivity, compliant or fearful behavior, excessive aggression, violent tendencies, excessive crying, behavioral disorders, substance abuse, medical non-compliance, or repeated EMS requests. This is typically best done in private with the patient.

2. Assess the patient for any physical signs of abuse, especially any injuries that are inconsistent with the reported mechanism of injury. The back, chest, abdomen, genitals, arms, legs, face, and scalp are common sites for abusive injuries. Defensive injuries (e.g. to forearms), and injuries during pregnancy are also suggestive of abuse. Injuries in different stages of healing may indicate repeated episodes of violence.

3. Assess all patients for signs and symptoms of neglect, including inappropriate level of clothing for weather, inadequate hygiene, absence of attentive caregiver(s), or physical signs of malnutrition.

4. Assess all patients for signs of sexual abuse, including torn, stained, or bloody underclothing, unexplained injuries, pregnancy, or sexually transmitted diseases.
Domestic Violence / Sexual Assault / Rape / Elder Abuse cont.

5. Immediately report any suspicious findings to the receiving hospital (if transported). If an elder or disabled adult is involved, also contact the Department of Social Services (DSS). After office hours, the adult social services worker on call can be contacted by the 911 communications center.

6. Notify SWGH ED, Physician and Case Manager at Ext. 5916 if unsafe living conditions are found.

<table>
<thead>
<tr>
<th>General Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SEXUAL ASSAULT:</strong></td>
</tr>
<tr>
<td>• A victim of a sexual assault has experienced an emotionally traumatic event. It is imperative to be compassionate and non-judgmental. Be sensitive to the victim. Expect a wide range of response to such an assault, depending upon social, cultural, and religious background.</td>
</tr>
<tr>
<td>• An abbreviated assessment may be indicated based on the patient’s mental state.</td>
</tr>
<tr>
<td>• Your responsibility is patient care and <em>not detective work</em>. Questioning of the patient should be limited, because there is no need for the EMS provider to attempt to get a detailed description of the assault. That type of questioning by EMS can harm the investigation, and should be left up to professional investigators. However, carefully document verbatim anything the patient says about the attack. <strong>DO NOT</strong> paraphrase. Based upon the patient’s mental state, the following questions may be asked and documented: (do not persist with questions.)</td>
</tr>
<tr>
<td>• What happened? (a brief description is acceptable)</td>
</tr>
<tr>
<td>• When did the attack occur?</td>
</tr>
<tr>
<td>• Did the patient bathe or clean up after the attack?</td>
</tr>
<tr>
<td>• If the patient changed his/her clothes, attempt to bring the clothes in a brown paper bag. <strong>DO NOT</strong> use a plastic bag.</td>
</tr>
<tr>
<td>• If the patient did not change his/her clothes, have the patient bring a change of clothes to the hospital (if possible).</td>
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</tbody>
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<table>
<thead>
<tr>
<th>AREAS FOR CONCERN</th>
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</thead>
<tbody>
<tr>
<td>Please refer to the list below to see if any of the following apply to your patient. Also, look for changes or extremes in behavior.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Communication</th>
<th>Physical Condition</th>
<th>Social Condition</th>
<th>Condition of Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>~ Confused</td>
<td>~ Walks with difficulty</td>
<td>~ Lives alone</td>
<td>~ Needs repair</td>
</tr>
<tr>
<td>~ Disoriented</td>
<td>~ In wheelchair</td>
<td>~ Isolated from others</td>
<td>~ Bad odor</td>
</tr>
<tr>
<td>~ Forgetful</td>
<td>~ Dirty clothes</td>
<td>~ May be abused</td>
<td>~ Pets neglected</td>
</tr>
<tr>
<td>~ Can’t hear well</td>
<td>~ Uncombed hair</td>
<td>~ May be exploited</td>
<td>~ Yard neglected</td>
</tr>
<tr>
<td>~ Can’t speak well</td>
<td>~ Unshaven</td>
<td>~ May be neglected</td>
<td>~ Rubbish lying about</td>
</tr>
<tr>
<td>~ Can’t speak English</td>
<td>~ Bruises, cuts, sores</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Economic Condition</th>
<th>Emotional Condition</th>
<th>Emotional Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>~ Confused about finances</td>
<td>~ Excessive reminiscing</td>
<td>~ Appears withdrawn</td>
</tr>
<tr>
<td>~ Has difficulty paying bills</td>
<td>~ Doesn’t eat well</td>
<td>~ Appears depressed / cries easily</td>
</tr>
<tr>
<td>~ Can’t afford food</td>
<td>~ Doesn’t sleep well</td>
<td></td>
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<tr>
<td>~ Can’t afford medicine</td>
<td>~ Recent death in family</td>
<td></td>
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<tr>
<td>~ Can’t afford transportation</td>
<td>~ Appears nervous</td>
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<table>
<thead>
<tr>
<th>Substance abuse</th>
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</thead>
<tbody>
<tr>
<td>~ Alcohol</td>
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<tr>
<td>~ Other drugs</td>
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</tbody>
</table>
Fire Departments under Southwest General Medical Control participate in a 1:1 drug exchange. All departments must have a copy of their current drug license, drug addendum, and list of certified providers on file with hospital pharmacy issued Biometric for Pyxis access. All Departments will notify the EMS Dept. immediately of personnel termination/suspension.

Strict control of the drug supply is an important function of all EMS units. Components of the drug control system include:

1. Responsible person for department (i.e.: EMS Coordinator /Fire Chiefs)
2. Responsible person for shift (reports to EMS Coordinator)
3. Weekly drug Inventory tracked on written form
4. Replacement of expired drugs as needed
5. Daily drug inspection at change of shift
6. Daily box security check
7. Check of box security after every EMS run (by Medic in charge)
8. Daily check of drug administration equipment (i.e.: needles/syringes)
9. Written records of all controls
10. Maintenance of double-lock system for all controlled drugs

EMS services not under Southwest General Medical Control are also eligible for a 1:1 exchange if they have the necessary drug license documents on file with the hospital, as listed above. Private Ambulance companies, are not eligible for drug replacement.

All drug replacements will occur as a 1:1 exchange through the EMS Pyxis medication machine. Each individual medic will use only his/her designated Bio ID & fingerprint for access. All controlled substances will be acquired through an ED RN. An EMS Patient Report for Medication Exchange will be submitted for all drug replacement. All medications, time, dose, route will be documented on EMS Patient Reports.
### EMS Patient Report for Medication Exchange

<table>
<thead>
<tr>
<th>Date</th>
<th>Fire Department</th>
<th>Run Number</th>
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<tbody>
<tr>
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<table>
<thead>
<tr>
<th>Patient Name</th>
<th>Date of Birth</th>
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<tr>
<th>Chief Complaint:</th>
<th>HX Of Event</th>
<th>PMH</th>
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<table>
<thead>
<tr>
<th>Time</th>
<th>B/P</th>
<th>PULSE</th>
<th>RESP</th>
<th>SPO2</th>
<th>GLUCOSE</th>
<th>OTHER Pertinent information</th>
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<tr>
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<th>MEDICATION</th>
<th>DOSE/ROUTE</th>
<th>TIME</th>
<th>Controlled SUBSTANCE</th>
<th>AMOUNT WASTED</th>
<th>WITNESS SIGNATURE</th>
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**MEDIC SIGNATURE:**

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**MEDIC SIGNATURE:**
PurposE: To insure rescue vehicles are adequately equipped to respond to an Emergency after transporting a patient to Southwest General Health Center.

1. Equipment used on patients during transport to Southwest General Health Center will be resupplied to the rescue department (e.g., ET, IV’s, dressings, tape, etc.).

2. The equipment will be exchanged on a one-for-one basis.

3. The equipment will be stored in the EMS Supply Room.

4. The Health Center will keep appropriate inventory. All EMT’s will restock from the EMS Supply Room.

5. If an exchange article is missing from the EMS Supply Room, the EMT will notify the EMS Secretary or the EMS Coordinator.

6. EMS equipment left at the Health Center for patient care will be cleaned by Central Sterile Supply (CSS). A dated tag will be placed on the equipment indicating cleaned.

7. Cleaned equipment will be stored in the EMS Equipment Room for retrieval. A dated sticker will be placed on all cleaned equipment.

8. EMS personnel will retrieve their equipment as soon as possible after notification that the equipment has been cleaned, remove the sticker and place back in service.

9. Special purchase equipment will be kept under lock and key in the EMS Supply Room. This equipment includes: Quick combi-pads (adult and pediatrics), glucometer test strips, save-a-tooth, disposable laryngoscope blades, Asherman Chest seals, Pediatric Stylets, Pediatric and Neonate Ambu bags, and other expensive items. These are charge items.

10. Do not remove stock or equipment from the Emergency Department patient areas. These rooms are stocked for emergencies and require correct equipment.
EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE, and the DOT GUIDEBOOK & MSDS are the recommended reference guides.

GENERAL CONSIDERATIONS
A. SCENE SAFETY – rescuer safety is the number one priority. Once chemical contamination is suspected, rescuers will remain a safe distance to assess risk and plan rescue activities.

Delay rescue attempts until chemical risk is identified and adequately trained per personnel with proper PPE are available (Fire Departments and/or HazMat Units).

B. OBJECTIVES IN PATIENT CARE
1. Terminate exposure
2. Prevent further injury
3. Prompt and effective patient treatment
4. Early notification to receiving hospital with all chemical information available:
   - description of the incident
   - chemical name (spell it and have it spelled back to you.)
   - manufacturer
   - signs and symptoms
   - nature of injuries
   - extent of field decontamination

C. HEALTH AND SAFETY ISSUES
1. Prevent spread of contamination
2. Prevent injury or exposure to responders

DECONTAMINATION – occurs in warm zone by properly trained and equipped personnel.

PATIENT TREATMENT – no medical intervention is to be performed until the exposed patient has been decontaminated and NO TRANSPORT of a contaminated patient will occur if the possibility of secondary contamination exists. EMS personnel should not enter the “HOT” or “WARM” zones, but wait to receive the decontaminated patient(s) and initiate pre-hospital care.

CONTACT WITH MEDICAL CONTROL MUST BE ESTABLISHED PRIOR TO ADVANCED PRE-HOSPITAL CARE (i.e., IV’s or administration of medications).

Actual treatment modalities – see Hazmat Protocols in the adult section of this document.
What does HIPAA stand for?
- The Health Insurance Portability and Accountability Act. Enacted in 1996, this federal law regulates health insurance and insurance benefit programs.

What is HIPAA’s Privacy Rule?
- The privacy rule is a set of laws created to protect the privacy of patient’s health information including medical records.

Why was HIPAA created?
- Before this rule was created, it was possible for patient information to be easily accessible without the patient’s authorization and for reasons that had nothing to do with medical treatment. For example, a patient’s medical information might be passed to a bank or lender, who might deny or approve a loan requested by the patient.

Who has to follow the rule?
- The privacy rule directly relates to healthcare providers (such as ambulance services, hospitals, physicians, and home health agencies), health plans and insurance companies, and healthcare clearing houses (such as companies that bill for healthcare services).

What if you don’t comply?
- The penalty for one violation is $100, with a limit of $25,000 per year for any single organization that fails to comply with multiple requirements. The authority to impose penalties is carried out by the Department of Health and Human Services. In cases involving grossly flagrant and intentional misuse of patient information, violators may be socked with criminal penalties up to $25,000, ten years in jail, or both depending on the circumstances.

What should I do at the scene?
- Exercise confidentiality on the scene by:
  - Not sharing information with bystanders.
  - Limiting radio transmissions that identify patients.
  - Avoid disclosure of unnecessary information to police (appropriate info includes patient’s name, DOB, and destination hospital.)
  - Protecting patient’s privacy whenever possible.
  - Don’t volunteer patient medical information with people at the scene.

Hospital Contact and EMS
The relationship of the hospital and EMS are not really affected by HIPAA. The process of Performance Improvement is an important element of patient care that is worked on at each department under Medical Control and then the issues are addressed by the Medical Director during Run Reviews at each station. Information about the patient may be given to the Emergency Department by radio, phone, fax, or electronically. The information is needed for treatment of the patient and becomes part of the medical record.

Following the privacy policy along with common sense regarding your patient’s right will assure that no HIPAA rules are violated.
PURPOSE

It is reasonably anticipated that any operation, including fires, Haz-mat, extrication, MVA’s etc. may involve exposure to blood, body fluids or other potentially infectious material. The health and welfare of each individual is the responsibility of each department (where employed), however Southwest General Health Center recognizes the need to offer guidance to minimize each individual’s risk of exposure to communicable diseases during all aspects of care. This comprehensive program will provide individuals with education, immunization and personal protective equipment to minimize exposure to blood borne pathogens and/or communicable diseases. The major areas of exposure control encompasses:

- Standard Precautions
- Engineering Controls
- Work Practice Controls
- Hand Hygiene
- Personal Protective Equipment
- Cleaning Procedures
- Hepatitis B vaccination
- Training regarding infection prevention and control will occur upon hire, yearly & as needed.

STANDARD PRECAUTIONS

The blood and body fluids/substances of ALL patients are be treated as potentially infectious, regardless of diagnosis (or before diagnoses is determined in the case of prehospital care). Appropriate barrier precautions (i.e., gloves, gowns, masks, and goggles) must be routinely and consistently used for contact with blood and body fluids/substance, mucous membranes and non-intact skin of ALL patients.

ENGINEERING CONTROLS

The following engineering controls are available to hospital care providers:
- Hand Hygiene methods (soap & water – sinks &/or hand sanitizers in rescue vehicles)
- Sharps containers are available at point of use – they are puncture resistant and leak proof
- Sharps safety devices are available for venipuncture devices, syringes and lancets
- Exposure from failed engineering controls must be reported to allow review of incident and follow-up.

PATIENT CARE EQUIPMENT CLEANING

- Patient care equipment will be cleaned on a daily, weekly or monthly schedule as determined by individual fire departments. See Addendum; Sample Patient Care Equipment Cleaning Schedule.
- EMS will follow any additional recommendations for decontamination given by SWGHC Infection Control, Cuyahoga County Board of Health, Ohio Dept. of Health and/or Centers for Disease Control.
• Hand hygiene is routinely and consistently performed (methods are described below).
• Avoid touching eyes, nose, or mouth while giving patient care or handling contaminated equipment.
• **Contaminated needles and sharps** are handled and disposed of in the appropriate container.
  ◦ Needles are never to be recapped, bent or broken or otherwise manipulated.
  ◦ After use, all needles & sharps are discarded uncapped and intact into needle disposal container.
  ◦ Safety devices MUST be activated by the user.
  ◦ Needle/sharps containers are changed when ¾ full and sealed.
• **All procedures involving blood or other infectious materials** are performed to minimize splashing, spraying or other actions generating droplets. Caregivers must anticipate potential exposures and wear appropriate protective equipment to protect themselves from splashing or spraying.
• **Patient items/equipment** – any reusable patient care equipment that becomes contaminated must be cleaned with an appropriate disinfectant or sterilized before it used again.
• **Eating, drinking, smoking, applying cosmetics/lip balm or handling contact lenses** is prohibited in work areas where there is potential for exposure to blood borne pathogens.
• **Food and drink** are not kept in refrigerators, freezers, counter tops or in other storage areas where blood or other potentially infectious materials are present.
• Where communicable exposure is possible or anticipated, individuals not immediately needed will remain a safe distance from operations.
• Patients will be advised of respiratory etiquette (cover their nose/mouth when coughing/sneezing, use tissue to contain respiratory secretion/dispose of tissue after use, perform hand hygiene prn, wear a surgical mask if he/she is unable to cover his nose/mouth or contain respiratory secretions).
• **Disposal of infectious waste in red biohazard bags** to prevent further contamination to personnel, patients, and the environment. The types of waste designated as infectious at S.W.G.H. are: Microbiologicals, pathological waste, blood and blood products, sharps, contaminated laboratory waste, fluid-filled containers of body substances, items that would release blood or other potentially infectious materials (OPIM) in a liquid or semi-liquid state if compressed (i.e. drippy or super-saturated), items caked with dried blood or OPIM and are capable of releasing these during handling.
• **EMS, Infection Control and ED** will follow established lines of communication to allow 24/7 alerting of prehospital care providers, surveillance of potentially infectious disease outbreaks and minimize risks.
• **Post exposure follow-up** will be done through EMS, ED and Infection Control Depts.
• If an exposure occurs, complete patient care, then seek immediate treatment in the ED.
• **It is essential that the source patient be identified and tested.**
Hand hygiene is the single most important means of preventing the spread of infection.

**HAND HYGIENE**: includes “washing” with soap and water or “sanitizing” with alcohol based hand rub.

**Wash with soap and water** (scrub together, at least 15 seconds) in the following situations:

- On your arrival to work
- When hands are visibly soiled (dirty)
- When hands are visibly contaminated with blood or body fluids
- Before eating or after using the bathroom
- Before preparing, handling or serving food
- On completion of duty before going home

**Sanitize with an alcohol hand rub** in the following situations: (soap & water may also be used)

- Before and after having direct contact with patients (taking BP, pulse or lifting a patient)
- Before inserting indwelling catheters, peripheral vascular catheters or other invasive devices not requiring a surgical procedure
- Before donning sterile gloves when inserting a central intravascular device
- After contact with body fluids or excretions, mucous membranes, non-intact skin and wound dressings if hands are not visibly soiled
- If moving from a contaminated body site to a clean body site
- After contact with inanimate, environmental objects (including medical equipment) in the immediate vicinity of the patient
- After removing personal protective equipment (i.e. gloves, gowns, masks)
- After sneezing, coughing, or blowing your nose

Alcohol hand rub is available in all rescue vehicles and in the EMS rooms at the health center.
PERSONAL PROTECTIVE EQUIPMENT

Occupational exposure may remain after engineering and work control practices have been implemented, requiring the use of personal protective equipment (PPE). PPE is a barrier that prevents blood or other infectious materials from passing through to skin and/or clothing underneath. These barriers include but are not limited to single use gloves, disposable gowns, face shields/masks, and protective eyewear. Individuals must anticipate the type of exposure that may occur during each patient contact and wear the appropriate PPE to prevent an exposure to blood and/or other potentially infectious body fluids. Although each situation will be different, below are general guidelines to consider for PPE:

GLOVES
1. Gloves should be worn for all EMS runs.
2. Gloves shall be replaced as soon as possible when soiled, torn, or punctured.
3. “Disposable gloves” are single patient use only, carefully remove by turning gloves inside out and disposing in the trash
4. “Structural fire fighting gloves” shall be worn in situations where sharp or rough edges are likely to be encountered. If contaminated, gloves must be washed before being re-used.
5. “Heavy-duty utility gloves” may be used for handling, cleaning, or decontamination of equipment.
6. Wash hands immediately after glove removal.

GOWNS/SHOES/HEAD COVERS
Fluid resistant disposable gowns are worn when it is anticipated that clothing may be soiled by blood or body fluids during the performance of a task or procedure. Under certain circumstances, head covers and/or shoe covers will be required to protect these areas from potential contamination. The goal is to protect the employee and their clothing from becoming contaminated. Structural fire fighting gear may be substituted to protect clothing from splashes and preferable in fire, rescue or vehicle extrication activities. Disposable, paper gowns may interfere with or present a hazard to the individual in these circumstances. The decision of what type of barrier protection to use to protect clothing will be left to the individual. If disposable gowns are used:
1. Shoe and head covers and gowns are single patient use and only removed immediately after use.
2. They should be rolled/folded with contaminated surface inside and disposed in the trash.
MASK/EYE/MOUTH PROTECTION
1. Masks and/or eye protection must be used whenever a reasonable potential for splashing or aerosolization of blood or body fluids to the eyes, nose or mouth exists.
2. Face shields on structural fire fighting helmets are not adequate for infection control purposes.
3. When treating a patient with known or suspected droplet transmissible disease (i.e. seasonal influenza, meningitis), a surgical mask must be worn if you anticipate being within 3 feet of the patient.
4. When treating a patient with known or suspected airborne transmissible disease (i.e. TB, Avian Flu), N95 face masks must be used. If possible have the patient wear a surgical mask. (Also, notify the ED of need for isolation as they will need to prepare a negative pressure room for the patient.)
5. In times of limited supplies of N95 masks, masks can be re-used by the same person unless wet, dirty or torn. Place disposable surgical mask over N95 to prevent external contamination and extend use.

MOUTH TO MOUTH RESUSCITATION EQUIPMENT
Emergency mouth to mouth resuscitation should not be performed. Bag Valve mask should be equipment of choice.

AFTER REMOVAL OF PPE
- Upon returning to quarters, wash grossly contaminated uniforms in hot water with washer provided by department. If washer is being used, place clothing into biohazard bag and wash A.S.A.P. Under no circumstance should grossly contaminated clothing be removed from the station without being washed.
- After any contact with contaminated item perform hand hygiene. (wash or sanitize hands)
- No living area may be entered by personnel if clothes are contaminated.
- The individual shall shower if body fluids were in contact with skin under work clothes.
- All individuals shall have (2) complete changes of uniform clothing.
- Per NFPA 1971 contaminated structural fire fighting gear shall be cleaned according to the manufacturer’s recommendations found on attached labels. (i.e. gloves, boots, turnout coats, bunker pants.)
Expanded precautions are designed for patients documented or suspected to be infected with highly transmissible or epidemiologically important pathogens spread by airborne or droplet transmission or by contact with the patient or contaminated surfaces. It is felt, at this time, that precautions beyond Standard Precautions are necessary or may be helpful to interrupt transmission in health care settings both pre-hospital and in the health center.

Southwest General has identified four (4) types of Expanded Precautions. These precautions are to be used in addition to Standard Precautions.

<table>
<thead>
<tr>
<th>EXPANDED PRECAUTION TYPE</th>
<th>PRE-HOSPITAL IMPLEMENTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CONTACT PRECAUTIONS (Green)</strong></td>
<td><strong>Gloves</strong> worn by everyone providing care and/or handling patient care equipment.</td>
</tr>
<tr>
<td></td>
<td><strong>Gowns required</strong> for anyone having direct contact with patient or patient environment.</td>
</tr>
<tr>
<td></td>
<td>Wash hands with <strong>soap and water</strong> after care.</td>
</tr>
<tr>
<td></td>
<td>DO NOT use alcohol hand rub (sanitizer)</td>
</tr>
<tr>
<td><strong>DROPLET PRECAUTIONS (Orange)</strong></td>
<td>Surgical mask required if you are within 3 feet of the patient. <strong>OR</strong></td>
</tr>
<tr>
<td></td>
<td>Surgical mask on patient during transport.</td>
</tr>
<tr>
<td><strong>AIRBORNE PRECAUTIONS (Pink)</strong></td>
<td>N95 mask for everyone providing care. <strong>OR</strong></td>
</tr>
<tr>
<td></td>
<td>Turn on exhaust fan in transporting vehicle <strong>OR</strong></td>
</tr>
<tr>
<td></td>
<td>Surgical mask on patient during transport.</td>
</tr>
<tr>
<td><strong>COMPROMISED PATIENT (White)</strong></td>
<td>Frequent, meticulous hand hygiene.</td>
</tr>
<tr>
<td></td>
<td>Associates with active infections such as colds, herpes virus, upper respiratory illness,</td>
</tr>
<tr>
<td></td>
<td>diarrhea, or other infectious diseases must have no contact with the patient. If this is</td>
</tr>
<tr>
<td></td>
<td>unavoidable, they must wear a mask or other appropriate barriers.</td>
</tr>
</tbody>
</table>
**PREPAREDNESS**

Routine surveillance may detect an individual who requires “Expanded Precautions” such as a person being transported with possible Tuberculosis, Clostridium Difficile, or MRSA (Methicillin Resistant Staphylococcus Aureus). This is handled with routine procedures.

Some patient presentations may require extraordinary procedures such as implementation of internal, external or hazmat disaster plans at the health center. This may be for suspected cases of SARS, Avian Flu, Bioterrorism, etc.... or for clusters of unusual infectious diseases being identified. EMS will notify the ED of suspected cases that may require the health center to implement their Emergency Management Plans. If this happens, “PPE” (Personal Protective Equipment) may be added to the disaster phase if it is implemented.

<table>
<thead>
<tr>
<th>Examples of situations that may require activation of disaster plans (Internal/External/Hazmat) and PPE is announced with the Disaster Phase:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PHASE I</strong></td>
</tr>
<tr>
<td>• A threatened biologic incident, an event where an intention is expressed or warning made that an infectious agent will be used (or has been used) to cause harm to people. No patients are present at this time.</td>
</tr>
<tr>
<td>• New influenza virus (i.e. SARS, Avian Flu) is detected in the United States.</td>
</tr>
<tr>
<td>• Unusual infectious disease cases identified or suspected such as SARS, Anthrax, Avian Flu, etc....</td>
</tr>
<tr>
<td><strong>PHASE I PPE</strong></td>
</tr>
<tr>
<td>• Clinical staff needs to locate their PPE (including N95 mask if already fit-tested).</td>
</tr>
<tr>
<td><strong>PHASE II</strong></td>
</tr>
<tr>
<td>• Potential terrorist utilizing biologic agents may not always threaten or notify that an event has taken place. Recognition then, in some instances, takes place by hospitals, ED Physicians, laboratory personnel who report increased numbers of ill persons to their supervisor, risk manager or infection control.</td>
</tr>
<tr>
<td>• Clusters of patient with unusual infectious disease identified or suspected in one or more Southwest General facilities.</td>
</tr>
<tr>
<td>• New influenza virus (i.e. SARS, Avian Flu) is detected in Ohio.</td>
</tr>
<tr>
<td>• Clinical staff responding to patient care areas must look for and follow Expanded Precautions signs: “Contact”, “Droplet”, “Airborne”, or “Compromised Patient”.</td>
</tr>
<tr>
<td>• Personal Protective Equipment will be available in their usual locations.</td>
</tr>
<tr>
<td>• Nurse Managers or designees are responsible to obtain replacement N95’s from Protection Services. Labor Pool may be utilized to assist with their distribution.</td>
</tr>
<tr>
<td><strong>PHASE II PPE</strong></td>
</tr>
<tr>
<td><strong>PHASE III</strong></td>
</tr>
<tr>
<td>• Pandemic Level 6 determined by the World Health Organization (virus transmission increases significantly and there is sustained transmissibility in the general population).</td>
</tr>
<tr>
<td>• Multiple infectious patients are presenting to all Southwest General facilities.</td>
</tr>
<tr>
<td>• All associates in all Southwest facilities will be required to wear PPE.</td>
</tr>
<tr>
<td>• Infection Control will determine what PPE will be required.</td>
</tr>
<tr>
<td>• Associate Occupational Health Services (AOHS) Department will distribute PPE.</td>
</tr>
<tr>
<td>• Associates report to Jones Atrium to be screened by AOHS (i.e. temperature checked, history asked). If cleared, associate will be given appropriate PPE.</td>
</tr>
<tr>
<td><strong>PHASE III PPE</strong></td>
</tr>
</tbody>
</table>
In addition to “routine” cleaning, items cleaned if visibly soiled or used for patient on expanded precautions. Unless otherwise noted, use these disinfectants: Super Sani clothes (general use) or TB-Cide Quat (blood spill).

Contaminated equipment shall be stored only in the decontamination area.

*For any new equipment, please forward information to Infection Control for cleaning schedule recommendations and then add to Unit Specific list above.

**Oversight and delegation of these items will be the responsibility of the Charge Person.
NOTIFICATION OF EMS WORKERS

POLICY:

- The health center will respond to an EMS Worker’s written request for notification of the presence of a contagious or infectious disease in a patient received at Southwest General Health Center.

- An EMS Worker who believes he has suffered a significant exposure through contact with a patient may submit a written request to be notified of the results of any test done on the patient to determine the presence of a contagious or infectious disease.

- A request for notification does not obligate the health center to conduct testing for an infectious or contagious disease.

DEFINITIONS:

- An EMS Worker includes:
  - A peace officer or sheriff as defined in ORC 109.71.
  - An employee of an emergency medical service as defined in ORC 3303.08 (G).
  - A fire fighter employed by a political subdivision.
  - A volunteer fire fighter, emergency or rescue operator.
  - An employee of a private organization that renders rescue services, emergency medical care or transportation to accident victims and persons suffering serious illness or injury.

- A contagious or infectious disease means a disease specific by the Public Health Council.

- A patient means a person, whether dead or alive, who was treated, handled, or transported by an EMS Worker.

- A significant exposure means either:
  - A percutaneous or mucous membrane exposure to the blood, semen, vaginal secretions or spinal, synovial, pleural, peritoneal, pericardial or amniotic fluids of a patient, or
  - Exposure by a route known to cause transmission of a contagious or infectious disease.
NOTIFICATION OF EMS WORKERS

PROTOCOL:

- The Request of Notification Form (see attachment) will be available in the Emergency Room and shall require the following information:

  ◦ The name, address and telephone numbers of the EMS Workers submitting the request.
  ◦ The name of the EMS Worker’s employer and his/her supervisor.
  ◦ The date, time, manner and site of the exposure.

- The Infection Control Nurse shall be informed of the request as soon as possible.

- The form shall be forwarded to the Infection Control Department.

- The request for notification is valid for 10 days after it is made.

  ◦ If at the end of the 10 day period no test has been performed to determine the presence of a contagious or infectious disease, no diagnosis has been made, or the result of the test is negative, the Infection Control Nurse or designee shall notify the EMS Worker in writing using the appropriate form (see attached).
  ◦ The notification shall not include the name of the patient.
  ◦ The request may be renewed in accordance with the same procedures and requirements as the original request.

- The Infection Control Nurse shall provide oral notification to the EMS Worker and his/her supervisor of the presence of a contagious or infectious disease or of a confirmed positive test result, if known.

  ◦ This notification shall be made as soon as test results are available, but not to exceed two (2) days after determining the presence of an infectious or contagious disease or a confirmed positive test result.
  ◦ A written notification shall be completed by the Infection Control Nurse and shall follow oral notification within three (3) days.
  ◦ Both oral and written notification shall include the following:
    • The name of the disease
    • Its signs and symptoms
    • The date of the exposure
    • The incubation period
    • The mode of transmission
    • The medical precautions necessary to prevent transmission to other persons, and
    • The appropriate prophylaxis, treatment and counseling of the disease

- The notification shall not include the name of the patient.
NOTIFICATION OF EMS WORKERS

- The information required as part of the notification shall not obligate the hospital to conduct testing for any contagious infectious disease.

- If the patient has been transferred from Southwest General Health Center, the Infection Control Nurse shall assist the EMS Worker in locating the patient (could be another health care facility or coroner’s office).
# NOTIFICATION OF EMS WORKERS

Emergency Medical System  
Request for Information

## ON INFECTIOUS DISEASES

<table>
<thead>
<tr>
<th>Name of person reporting</th>
<th>Date and time of report</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

<table>
<thead>
<tr>
<th>Home address</th>
<th>Home phone number</th>
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</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of employer</th>
<th>Address of employer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Employers phone</th>
<th>Supervisor’s name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supervisors address</th>
<th>Supervisor’s phone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Run number</th>
<th>Date and time of exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location of exposure</th>
<th>Patient’s name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description of exposure - include any involved body fluids:**

<table>
<thead>
<tr>
<th>Were you treated?</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If treated, Where: ___________________  When?: ___________________

**INSTRUCTIONS:** Deliver originals of this report and a copy of the Emergency Department record to Infection Control Department. Deliver a second copy to the EMS office.

Received in Infection Control Office: DATE: ____________  TIME: ____________
RESPONSE TO EMERGENCY CARE WORKERS
REQUEST FOR NOTIFICATION

ORAL NOTIFICATION GIVEN:

To:

Date: _____________________________ Time: _____________________________

By Whom: _____________________________
(Signature/Title)

WRITTEN NOTIFICATION SENT:

To: _____________________________ and _____________________________
(Name of ECW) (Name of Supervisor)

Date: _____________________________

Date and Type of Exposure: _____________________________

Name of disease: _____________________________

Incubation period: _____________________________

Signs and symptoms: _____________________________

Mode of transmission: _____________________________

Precautions necessary to prevent transmission to others: _____________________________

Prophylaxis and/or treatment (if applicable): _____________________________

Other follow-up: _____________________________

___________________________
(Signature/Title of person)
Identify, Isolate, Inform: Emergency Medical Services (EMS) Systems and 9-1-1 Public Safety Answering Points (PSAPs) for Management of Patients Who Present with Possible Ebola Virus Disease (Ebola) in the United States

**SCOPE:** Applies to emergency medical services providers (including emergency medical technicians (EMTs), paramedics, and medical first responders who could be providing patient care in the field—such as law enforcement and fire service personnel). For more detailed information, reference “Interim Guidance for Emergency Medical Services (EMS) Systems and 9-1-1 Public Safety Answering Points (PSAPs) for Management of Patients Who Present with Possible Ebola Virus Disease in the United States” http://www.cdc.gov/vhf/ebola/hcp/interim-guidance-emergency-medical-services-systems-911-public-safety-answering-points-management-patients-known-supported-united-states.html.

**DISPATCH/9-1-1 PSAPS**

1. **Inquire about travel and direct exposure history within the previous 21 days.**
   - Has patient traveled to, or lived in, a country with widespread Ebola virus transmission or uncertain control measures (a list of countries can be accessed at the following link: http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/distribution-map.html)?
   - Has patient had contact with blood or body fluids (such as urine, saliva, vomit, sweat, or diarrhea) of a person who is confirmed or suspected to have Ebola?

   **YES TO ANY**

2. **Ask about signs and symptoms.**
   - Does the patient have signs or symptoms of Ebola: Fever, severe headache, muscle pain, weakness, fatigue, diarrhea, vomiting, abdominal (stomach) pain, or unexplained hemorrhage (bleeding or bruising)?

   **YES – Patient may meet criteria for suspected Ebola Infection**

3. **Provide Instructions to Patients and EMS Providers.**
   - Instruct other people at the scene to restrict contact with patient unless wearing appropriate personal protective equipment (PPE).
   - Alert any first responders and EMS providers being dispatched of potential for a patient with possible exposure/signs and symptoms of Ebola before they arrive on scene.
   - Advise EMS providers that at a minimum, they should use the following PPE before direct contact with a patient has any of these symptoms: fever, fatigue, headache, muscle pain, or weakness (http://www.cdc.gov/vhf/ebola/hcp/ed-management-patients-possible-ebola.html):
     - Face shield and surgical face mask,
     - Impermeable gown; and
     - Two pairs of gloves.
   - If a patient is exhibiting obvious bleeding, vomiting, copious diarrhea or there is a concern for bleeding, vomiting, or diarrhea, advise EMS providers before entering the scene to wear PPE recommended for use by healthcare workers managing Ebola patients in U.S. hospitals (http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html).
   - If responding at an airport or other port of entry to the United States, the PSAP or EMS unit should notify the CDC Quarantine Station for the port of entry. Contact information for CDC Quarantine Stations can be accessed at http://www.cdc.gov/quarantine/quarantinestationscontacted.html.

4. **Medical director may consider additional questions/actions specific to the local area/region.**

   **EMS dispatched**

Additional Resources

CDC’s Case Definition for Ebola Virus Disease (EVD):

International Academy of Emergency Dispatch protocols:
Identify, Isolate, Inform: Emergency Medical Services (EMS) Systems and 9-1-1 Public Safety Answering Points (PSAPs) for Management of Patients Who Present with Possible Ebola Virus Disease (Ebola) in the United States

EMS—PRIOR TO ARRIVAL AT PATIENT

Considerations for Infection Control and PPE

- If 9-1-1 PSAP call takers advise that the patient is suspected to have Ebola, EMS providers should put on the PPE appropriate for suspected or confirmed cases of Ebola before entering the scene.

- Avoid direct contact with a patient who may have Ebola without wearing appropriate PPE.

- PPE should be put on before entering a scene to attend to a suspected Ebola patient and continued to be worn until providers are no longer in contact with the patient. PPE should be carefully put on and taken off under the supervision of a trained observer as described in the “Guidance on Personal Protective Equipment To Be Used by Healthcare Workers During Management of Patients with Ebola Virus Disease in U.S. Hospitals, Including Procedures for Putting On (Donning) and Removing (Doffing)” (http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html).

- If, based on the initial screening, the EMS provider suspects the patient has Ebola then level of PPE should be reassessed before coming within 3 feet of the patient.

To minimize potential exposure,

- Limit the number of EMS providers to essential personnel only who provide care for a patient with suspected Ebola. All EMS providers having direct contact with a suspected Ebola patient must wear PPE.

- One EMS provider should approach the patient and perform the initial screening from at least 3 feet away from the patient.

- Keep the other emergency responders further away, while assuring they are still able to support the provider with primary assessment duties. Consider the strategy of one provider putting on PPE and managing the patient while the other provider does not engage in patient care but serves in the role of trained observer.

- Use caution when approaching a patient with possible Ebola. On rare occasions, illness can cause delirium, with erratic behavior (e.g., flailing or staggering) that can place EMS providers at additional risk of exposure.

- There may be situations where a patient must be carried and multiple providers are required to put on PPE. EMS providers wearing PPE who have cared for the patient must remain in the back of the ambulance and should not serve as the driver.

- If needed. consider requesting additional resources, such as a dedicated driver.

Occupational Exposure

- If blood, body fluids, secretions, or excretions from a patient with suspected Ebola come into direct contact with an EMS provider’s unprotected skin or mucous membranes, then the EMS provider should immediately stop working and:

  - Immediately wash the affected skin surfaces with a cleansing or antiseptic solution. Mucous membranes (e.g., conjunctiva) should be irrigated with a large amount of water or eyewash solution, as per usual protocols.

- All wipes and solution should be placed in a biohazard bag.

- Place all waste in a biohazard bag.

- Notify your chain of command and report exposure to an occupational health provider, supervisor or designated infection control officer for follow-up as soon as possible.

- Follow agency policy for medical evaluation and follow-up care and monitoring.
Identify, Isolate, Inform: Emergency Medical Services (EMS) Systems and 9-1-1 Public Safety Answering Points (PSAPs) for Management of Patients Who Present with Possible Ebola Virus Disease (Ebola) in the United States

EMS ARRIVAL AT SCENE

Has PSAP call taker advised that the patient is suspected to have Ebola and EMS personnel should put on the PPE appropriate for suspected or confirmed cases of Ebola before entering the scene?

YES – Patient meets criteria for suspected Ebola Infection

1. Consider appropriate PPE in the EMS setting for a person with suspected Ebola.

   Is the patient exhibiting obvious bleeding, vomiting, or diarrhea or has a clinical condition that warrants invasive or aerosol-generating procedures (e.g., intubation, suctioning, active resuscitation)?

   If no, then EMS personnel should at a minimum wear the following PPE (link: http://www.cdc.gov/vhf/ebola/hcp/ed-management-patients-possible-ebola.html):
   - Face shield and surgical face mask
   - Impermeable gown, and
   - Two pairs of gloves

   If yes, then use PPE recommended for use by healthcare workers managing Ebola patients in U.S. Hospitals (http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html)

2. Inquire about travel and direct exposure history within the previous 21 days.
   - Has patient traveled to, or lived in, a country with widespread Ebola virus transmission or uncertain control measures (a list of countries can be accessed at the following link: http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/distribution-map.html)?
   - Has patient had contact with blood or body fluids (such as urine, saliva, vomit, sweat, or diarrhea) of a person who is confirmed or suspected to have Ebola?

3. Assess signs and symptoms.
   - Does the patient have fever, severe headache, muscle pain, weakness, fatigue, diarrhea, vomiting, abdominal (stomach) pain, diarrhea, or unexplained hemorrhage (bleeding or bruising)?

   YES – Patient meets criteria for suspected Ebola Infection

4. Isolate patient immediately and revisit Step #1 from EMS Arrival at Scene. Consider:

   If you anticipate performing pre-hospital resuscitation procedures such as endotracheal intubation, open suctioning of airways, or cardiopulmonary resuscitation, conduct these procedures while wearing the PPE recommended for use by healthcare workers managing Ebola patients in U.S. Hospitals (http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html).

5. Avoid unnecessary direct contact while managing patient, then prepare to transfer to an appropriate facility.

   - Limit the number of providers to essential personnel only who provide care for a patient with suspected Ebola. All EMS providers having direct contact with a suspected Ebola patient must wear PPE.
   - Remove and keep nonessential equipment away from the patient, so as to minimize contamination, on the scene and in the ambulance.
   - Do not perform phlebotomy or any other invasive procedures unless urgently required for patient care or stabilization. Handle any needles and sharps with extreme care and dispose in puncture-proof, sealed containers that are specific to the care of this patient, in accordance with OSHA’s Bloodborne Pathogens Standard. Do not dispose of used needles and sharps in containers that have sharps from other patients in them.
   - Consider giving the patient oral medicine to reduce nausea, per medical director protocols and consistent with scope of practice.
   - If patient is vomiting, give them a large red biohazard bag to contain any emesis. For profuse diarrhea, consider wrapping the patient in an impermeable sheet to reduce contamination of other surfaces.

Suspected Ebola Patients Should Only be Transported to a Healthcare Facility Prepared to Further Evaluate and Manage the Patient According to the Community’s Predefined Transportation/ Destination Plan Developed by Public Health Officials, Hospital, Medical and EMS Personnel.
TRANSPORT TO A HEALTHCARE FACILITY

6 Prepare for transport according to agency/local protocol.
   • Separate the driver from the patient compartment.
   • The driver should contact the receiving emergency department or hospital and follow previously agreed upon local or regional protocols to transport the patient to the receiving hospital. This will allow the facility to prepare for the patient.

7 Follow infection control principles during transport to the hospital.
   • Avoid contamination of reusable porous surfaces that are not designated for single use. Use only a mattress and pillow with plastic or other covering that fluids cannot penetrate. Cover the stretcher with an impermeable material.
   • During transport, ensure that an appropriate disinfectant approved for hospital use is available (for example, in spray bottles or as commercially prepared wipes).
   • Provide patient care, as needed, to minimize contact with patient and infection control guidelines as noted below. If performing pre-hospital resuscitation procedures such as endotracheal intubation, open suctioning of airways, and cardiopulmonary resuscitation, conduct these procedures under safer circumstances (e.g., stopped vehicle, hospital destination) and wear the PPE recommended by CDC to use during aerosol generating procedures (http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html).

AT HOSPITAL

8 After patient transfer, perform supervised/observed donning of PPE.
   In collaboration with the receiving hospital, EMS agencies should consider how best to facilitate
   • A supervised donning process. Donning of PPE must
     - Be performed in a designated location
     - Adhere to established procedures and in the presence of a trained observer in order to prevent self-contamination or other exposure to the patient.
     - A shower for EMS providers, if available, or an area to change into clean clothing.
   See guidance on PPE donning for more information: http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html

9 Decontaminate and disinfect (clean) vehicle and equipment while wearing appropriate PPE. Address disposal of waste.
   • Consider prepositioning a trained crew wearing appropriate PPE to perform these operations, so that EMS personnel can focus on donning PPE, communicating with hospital, and finishing appropriate documentation.
   • Put on fresh PPE as recommended by CDC before decontaminating and disinfecting the vehicle when body fluids from a patient with suspected Ebola are present. If no body fluids are present then minimal PPE should be worn, including face shield and surgical mask, impermeable gown, and two pairs of gloves.
   • Use an EPA-registered hospital disinfectant with a label claiming inactivation for a non-enveloped virus (e.g., norovirus, rotavirus, adenovirus, poliovirus) to disinfect environmental surfaces of vehicle and equipment used with suspected or confirmed Ebola virus infection. (http://www.cdc.gov/vhf/ebola/hcp/environmental-infection-control-in-hospitals.html)
     - Follow instructions for cleaning and decontaminating surfaces or objects soiled with blood or body fluids.
     - After the bulk waste is wiped up, the surface should be disinfected as described below. There should be the same care taken to the safety of the EMS provider during the cleaning and disinfection of the transport vehicle as there is during the care of the patient.
     - A blood spill or spill of other body fluid or substance should be managed by personnel wearing correct PPE, and includes removal of bulk spill matter, cleaning the site, and then disinfecting the site. For large spills, a chemical disinfectant with sufficient potency is needed to overcome the tendency of proteins in blood and other body substances to neutralize the disinfectant’s active ingredient. (http://www.cdc.gov/vhf/ebola/hcp/environmental-infection-control-in-hospitals.html)
   • Clean and disinfect patient-care surfaces and equipment, and other areas that are likely to become contaminated after each transport. Avoid contamination of reusable porous surfaces that are not designated as single use.
   • Place contaminated reusable patient care equipment (e.g., glucometer, blood pressure cuff) in biohazard bags and label for cleaning and disinfection. Clean and disinfect reusable equipment according to agency policies and manufacturer’s instructions by trained personnel wearing correct PPE.
   • Discard any bodily secretions (such as urine or vomit) as directed by hospital staff.
   • EMS systems should work with designated receiving hospitals to dispose of waste from suspected Ebola patients. Discarded materials suspected of being contaminated with Ebola (i.e., used PPE, used linens, non-fluid-impermeable pillows or mattresses and bulk waste) that are transported on an off-site disposal facility must be packaged and transported in accordance with the Hazardous Materials Regulations (HMR, 49 C.F.R. Parts 171-189).
   • Leave vehicle to dry as normal.
   • Once cleaning is complete, doff PPE using same procedures and trained observer in a designated area as with the patient care crew.
PURPOSE: The Internal Awareness Form is an extension of Southwest General Health Center EMS Quality Improvement Plan and is designed to increase the level of communication between all levels of EMS, Health Center personnel, and Medical Staff.

1. The Internal Awareness Form (IAF) should be used any time EMS and/or health center personnel wish to communicate an occurrence to the Southwest General Health Center EMS System.

2. The Internal Awareness Form shall be completed by the individual identifying the occurrence and delivered to the EMS Coordinator. The Internal Awareness Form is not to be copied.

3. The EMS coordinator will:
   a. investigate and address the issue and place the resolution / disposition in writing
   b. follow-up actions may include:
      • discussion of the reported issue with the appropriate Health Center personnel, or
      • discussion with the Medical Director, or
      • discussion with Health Center Administration

4. The EMS Coordinator will maintain an IAF file and documentation of trends for report to the EMS and Health Center Q. I. Committees.
INTERNAL AWARENESS FORM (IAF)

EMS COORDINATOR FOLLOW-UP ACTION / SOLUTION:

Date / Time: ________________________________

Reported by: ___________________________ Title: ________________________________

Department: ___________________________ Shift: ________________________________

Regarding: "Patient " Nurse " Fire Personnel " Physician " Other

Name of Patient: ___________________________ Phone No: ________________________________

STATEMENT OF EVENT:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

SIGNATURE: __________________________________ Date: ________________________________

ISSUE IS:

" RESOLVED ____________________________ FYI ____________________________

" UNRESOLVED: Forward for ED Head Nurse Review / Date: ________________________________

" UNRESOLVED: Forward for Critical Care Dir. Review / Date: ________________________________

" UNRESOLVED: Forward for Medical Director Review / Date: ________________________________

" UNRESOLVED: Forward for Fire Chief Review / Date: ________________________________

" UNRESOLVED: Forward to / Date: ________________________________

THIS FORM CANNOT BE DUPLICATED

Confidential Quality Assessment and Peer Review Document
Ohio Revised Code Sec. 2305-251 For Use In SWGHC Only
The Southwest General Health Center Controlled Substance Kit contents:

- 5 - 2 mg / mL morphine sulfate tubexes
- 1 - tubex holder
- 2 - Ativan 2mg / 1mL vial
- 1 - Versed 5 mg / 1 mL vial
- 2 - Versed 2 mg / 2 mL vials

The EMS Patient Report for medication exchange form is to be used to document the administration of controlled substances.

When controlled substances and all medications are used, the Medication Exchange Form must be completed.

- All controlled substance kits shall remain locked in the paramedic drug box.
- Controlled substances will be placed into the sharps container. Two paramedics and/or a paramedic and registered nurse can witness the wasting of unused morphine / Ativan / Versed. Each must sign and date the form, and leave the form in the Emergency Department/EMS Medication Room.
- A one-to-one drug replacement will be supplied by Southwest General Hospital. A completed EMS Patient Report and Medication Exchange Form will be required to receive the drug from an ED nurse.
Ohio law provides that a parent may drop-off a newborn baby within the first 72 hours at any law enforcement agency, hospital, or emergency medical services. Should this occur, the first priority is to care for the infant’s health and safety. Notification should then be made to the Public Children’s Services Agency of that county. If possible, obtain any medical information that may be available. If it appears that the infant has suffered any type of physical harm, attempts should be made to detain the person who delivered the child.

PURPOSE
To provide:
- Protection to infants that are placed into the custody of EMS under this law
- Protection to EMS systems and personnel when confronted with this issue

PROCEDURE
1. Initiate the Pediatric Assessment Procedure.
2. Initiate other treatment protocols as appropriate.
4. Contact Medical Control as soon as infant is stabilized.
5. Transport infant to medical facility as per local protocol.
6. Assure infant is secured in appropriate child restraint device for transport.
7. Document protocols, procedures, and agency no
All individuals served by the EMS System will be evaluated, furnished transportation (if indicated) in the most timely and appropriate manner for each individual situation.

**PURPOSE**
To provide:
- Rapid emergency EMS transport when needed.
- Appropriate medical stabilization and treatment at the scene when necessary.
- Protection of patients, EMS personnel, and citizens from undue risk when possible.

**PROCEDURE**
1. Each situation may dictate its own procedure for the transport of morbidly obese patients.
2. It is the responsibility of EMS personnel at the scene to provide the most appropriate medical care, including protection to the patient, EMS personnel, and bystanders while transporting morbidly obese patients.
3. Utilization of additional resources may be required, at the discretion of the on-scene EMS personnel.

### General Considerations

Less than one percent of the population has a weight in excess of 300 lbs. This means that in any community there may be one or more individuals who fall into this extreme. As patients, these individuals are frequently classed as high risk because of the increased medical complications associated with their excess weight. In the EMS System they present the additional problem of movement and transportation. These individuals have the right to expect prompt and expert emergency medical care. Therefore, in order to facilitate the care of these individuals without risking the health of EMS workers, the following protocol is established.

- In managing a patient with weight over 300 lbs., at no time should the patient be moved without at least sufficient manpower to assist.
- At the scene, as many EMS personnel as can be mobilized may be supplemented by police or other safety personnel as appropriate. If sufficient manpower is not available, mutual aid may be required.
- It may be necessary to remove doors, walls or windows. The situation is no different than extrication from a vehicle, although property damage may be higher. At all times the patient's life must be the first priority.
- The patient is to be loaded on at least 2 (double) backboards or other adequate transfer device for support.
- The patient is to be loaded on a cot that is in the down position, and the cot is to be kept in the down position at all times. Be aware of the cot weight limitations.
- It is necessary to notify the hospital well in advance of arrival so that preparations can be completed in a timely fashion.
- If individuals in the community are known to fall within this special category it is appropriate to inform them in advance of the type of assistance they can expect from the EMS System, and help them make plans well in advance to assist you.
- When calling for the squad, and if they identify themselves and their special needs, it will promote the timeliness of your efforts.
- Be aware of weight limits on all equipment used. Do not exceed amounts set by equipment manufacturer.
ATTENTION

Thank you for your offer of assistance. Be advised that these EMT Paramedics (EMTP), EMT Advanced (EMTA) and/or EMT Basics (EMTB) are operating under the authority of the Ohio State Law and medical protocols established by Southwest General Health Center (SWGHC).

No On-Scene EMT / Nurse / Physician or other Intervener may intercede in patient care without the Emergency Physician on duty at SWGHC relinquishing responsibility of the scene via radio or telephone.

If responsibility is given to a physician at the scene, that physician is responsible for any and all care given at the scene of the incident and enroute to the Health Center and said physician will be responsible to sign the medical record. Paramedics, Intermediates, or Basics cannot be directed to provide care beyond the scope of their protocols.

Thank you.

Susan Tout, MD
Director, Emergency Medicine
Southwest General Health Center
The medical direction of pre-hospital care at the scene of an emergency is the responsibility of those most appropriately trained in providing such care.

**PURPOSE**
- To identify a chain of command to allow field personnel to adequately care for the patient.
- To assure the patient receives the maximum benefit from pre-hospital care.
- To minimize the liability of the EMS System as well as the on-scene physician.

**PROCEDURE**
1. When a non medical-control physician offers assistance to EMS or the patient is being attended by a physician with whom they do not have an ongoing patient relationship, EMS personnel must review the On-Scene Physician form with the physician. All requisite documentation must be verified and the physician must be approved by on-line medical control.
2. When the patient is being attended by a physician with whom they have an ongoing patient relationship, EMS personnel may follow orders given by the physician if the orders conform to current EMS guidelines, and if the physician signs the Patient Care Report. Notify Medical Control at the earliest opportunity. Any deviation from local EMS Protocols requires the physician to accompany the patient to the hospital.
3. EMS personnel may accept orders from the patient’s physician over the phone with the approval of Medical Control. The Paramedic should obtain the specific order and the physician’s phone number for relay to Medical Control so that Medical Control can discuss any concerns with the physician directly.

## General Considerations

**EMT/Nurse/Healthcare-Intervener:**

On an EMS run where an unknown EMT / Nurse / Healthcare Intervener from outside the responding EMS agency wishes to intervene in the care of patients, the following steps should be initiated:
- Ideally, if no further assistance is needed, the offer should be declined.
- If the intervener’s assistance is needed or may contribute to the care of the patient:
  - An attempt should be made to obtain proper identification of a valid license/certification. Notation of intervener name, address and certification numbers must be documented on the run report.
  - Medical Control should be contacted and permission given.
### On-Scene EMT / Nurse / Physician Intervener Cont.

#### General Considerations

<table>
<thead>
<tr>
<th>On-Scene Physician:</th>
</tr>
</thead>
<tbody>
<tr>
<td>This is a physician with no previous relationship to the patient, who is not the patient's private physician, but is offering assistance in caring for the patient. The following criteria must be met for this physician to assume any responsibility for the care of the patient:</td>
</tr>
<tr>
<td>- Ideally, if no further assistance is needed, offer should be declined.</td>
</tr>
<tr>
<td>- Medical Control must be informed and give approval. Encourage physician to physician contact.</td>
</tr>
<tr>
<td>- The physician must have proof they are a physician. They should be able to show you their medical license. Notation of physician name, address and certification numbers must be documented on the run report.</td>
</tr>
<tr>
<td>- The physician should have expertise in the medical field for which the patient is being treated.</td>
</tr>
<tr>
<td>- The physician must be willing to assume responsibility for the patient until relieved by another physician, usually at the emergency department.</td>
</tr>
<tr>
<td>- The physician must not require the EMT to perform any procedures or institute any treatment that would vary from protocol and/or procedure.</td>
</tr>
<tr>
<td>- If the physician is not willing or able to comply with all the above requirements, his/her assistance must be declined.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>On-Scene Personal Care Physician:</th>
</tr>
</thead>
<tbody>
<tr>
<td>This is a physician with a current relationship to the patient, who is offering assistance in caring for the patient. The following criteria must be met for this physician to assume further responsibility for the care of the patient:</td>
</tr>
<tr>
<td>- EMS should perform its duties as usual under the supervision of Medical Control or by protocol.</td>
</tr>
<tr>
<td>- Physician to ED Physician may elect to treat the patient in his office.</td>
</tr>
<tr>
<td>- Physician to ED Physician contact is optimal.</td>
</tr>
<tr>
<td>- The physician may elect to treat the patient in his office.</td>
</tr>
<tr>
<td>- EMS should not provide any treatment under the physician's direction that varies from protocol. If asked, EMS should decline until contact is made with Medical Control.</td>
</tr>
<tr>
<td>- Once the patient has been transferred into the squad, the patient's care comes under Medical Control.</td>
</tr>
</tbody>
</table>
PURPOSE: The responsibility for quality Emergency Medical System Care is provided by Emergency Medical Technicians Paramedics (EMTP), Emergency Medical Technicians Advanced (EMTA), and Emergency Medical Technicians Basic (EMTB) and Emergency Medical Responders (EMR) as specified by chapter 47 of the ORC.

PHILOSOPHY
The EMERGENCY MEDICAL SYSTEM CARE services under the Medical Direction of SWGH will provide quality care consistent with professionally recognized standards. Quality assessment activities involve establishing, maintaining, and documenting mechanisms that demonstrate nonpunitive evaluation and correction of identified concerns.

OBJECTIVES
A. Enhance patient care through continued assessment.
B. Provide for monitoring of established protocols.
C. Provide for the correction of identified concerns.
D. Conduct selective Emergency Medical System Care Q.I. in conjunction with the Health Center and/or medical staff Q.I. process.
E. Resolve interdepartmental issues through active communications.

PROCESS
The Medical Director and members of the EMS Q.I. Committee and other appropriate personnel will identify areas of concern through:
A. Review of patient care as specified by the protocols
B. Tracking of unusual occurrences
C. Review of volume and quality indicators as developed by the Q.I. process of the Medical Staff, Health Center, and EMS Q.I. Committees
D. Patient/ Family surveys
E. Review of minutes from meetings and conferences
F. Request from EMS personnel, Health Center personnel and/or physicians
G. Patient Care follow-up and physician evaluation in the Emergency Department
H. Documentation followed by appropriate corrective intervention

ANNUAL REVIEW
Emergency Medical System Care Quality Improvement action plans will be reviewed annually for outcomes. A report will be prepared summarizing:
1. Relevant findings
2. Action taken
3. Impact on improved patient care

CONFIDENTIALITY
All Quality Improvement data gathered, analyzed, and trended with respect to EMERGENCY MEDICAL SYSTEM CARE is confidential. Quality Improvement and peer review is secure and not amenable to the laws of discovery as elaborated in ORC. SEC 2305.251
PURPOSE: To gather pertinent data in order to coordinate efforts to reach the goal of delivering Emergency Medical Care that is consistently of high quality and uniformly appropriate.

1. The Medical Director will be responsible for the overall Quality Improvement Program.

2. The Fire Chief will assign a member or members of his department to review all patient encounters (i.e., transported, non-transported, refusal of care and/or transported to another facility).

3. The EMS Advisory Board of SWGHC under the direction of the Medical Director will identify important aspects of care.

4. The EMS Advisory Board will list specifics known as indicators to monitor for appropriateness of that care.

5. The Fire Department reviewer will monitor for the indicators specified.

6. The indicators will be published for all EMS personnel prior to the monitoring.

7. The EMS Coordinator will be responsible for generating a quarterly report that will state the overall number of charts reviewed, list all the indicators specified, list the number of indicators complied with, and the number of indicators omitted and report to S.A.F.E.S. Medical Director, EMS Quality Improvement Board, EMS Advisory Board, and the Health Center Risk Manager.

8. The EMS Coordinator will list all exceptions or justifications stated.

9. The EMS Coordinator will include in the quarterly report the relevant findings.

10. The EMS Coordinator will present the information to the Medical Director, EMS Quality Improvement Board, and the EMS Advisory Board of Southwest General Health Center for appropriate actions and/or to resolve concerns.
START SYSTEM OF TRIAGE

1. INTRODUCTION
   A. Use the Simple Triage And Rapid Transport (START) method of triage to assess a large number of victims rapidly. It can be used easily and effectively by all EMS personnel. However, there are limitations to START (see section 4.12.A below).

2. PROCEDURE
   A. Initial Triage (using the START method).
      1) Utilize (Triage Ribbons [color-coded strips]). One should be tied to an upper extremity in a VISIBLE location (wrist if possible, preferably on the right.)
         a) RED – Immediate
         b) YELLOW – Delayed
         c) GREEN – Ambulatory (minor)
         d) BLACK – Deceased (non-salvageable)
      2) Independent decisions should be made for each victim. Do not base triage decisions on the perception that too many REDs, not enough GREENs, etc.
      3) If borderline decisions are encountered, always triage to the most urgent priority (e.g., GREEN/YELLOW patient, tag YELLOW). Move as quickly as possible!

   2. Secondary Triage
      1) Will be performed on all victims in the Treatment Area.
      2) Utilize the Triage Tags (METTAGs or START tags) and attempt to assess for and complete all information required on the tag (as time permits). Affix the tag to the victim and remove ribbon. This is done after patients enter the Treatment Area, not at the initial triage site!
      3) The triage priority determined in the Treatment Area should be the priority used for transport.

C. START
   A. Locate and remove all of the walking wounded into one location away from the incident, if possible. Assign someone to keep them together (e.g., PD, FD, or initially a bystander) and notify COMMAND of their location. Do not forget these victims. Someone should re-triage them as soon as possible.
   B. Loudly ask that all who can hear you wave hands.
   C. Begin assessing all non-waving and non-ambulating victims where they lie, if possible. Each victim should be triaged in 60 seconds or less, preferably much less. NOTE: Remember the mnemonic RPM (Respiration’s, Perfusion, Mental Status).
START System of Triage cont.

1) Assess **RESPIRATION’S:**
   a) If respiratory rate is 30/min. or less go to PERFUSION assessment.
   b) If respiratory rate is over 30/min., tag RED
   c) If victim is not breathing, open airway, remove obstructions if seen, and assess for (a) or (b) above.
   d) If victim is still not breathing, tag BLACK. (Depending on circumstances, you may attempt three rapid respirations before triage to BLACK).

2) Assess **PERFUSION:**
   a) Performed by palpating a radial pulse or assessing capillary refill (CR) time.
   b) If radial pulse is present or CR is two seconds or less, go to MENTAL STATUS assessment.
   c) No radial pulse or CR is greater than two seconds, tag RED. NOTE: In addition, any major external bleeding should also be controlled.

3) Assess **MENTAL STATUS:**
   a) Assess the victim’s ability to follow simple commands and their orientation to time, place and person.
   b) If the victim follows commands and is oriented x3, tag GREEN. NOTE: Depending on injuries (e.g., burns, fractures, bleeding), it may be necessary to tag YELLOW.
   c) If the victim does not follow commands, is unconscious, or is disoriented, tag RED.

4. **SPECIAL CONSIDERATIONS**
   A. The first assessment that produces a RED tag, stops further assessment.
   B. Only correction of life-threatening problems (e.g., airway obstruction or severe hemorrhage) should be managed during triage.
   C. To help speed the process, departments should consider utilizing colored (RED, YELLOW, GREEN, BLACK) {Ribbons} to initially mark patient categories. Triage Tags are then attached and filled out once the patient reaches the Treatment Area.
   D. When using Triage Tags, if the patient’s condition or the triage priority changes, the bottom portion of the tag should be removed, leaving only the injury information. Add a new tag to identify the new triage priority, and if the time permits, the reason for the change.
   E. Use Jump START procedures for pediatric patients.

RPM: 30, 2, Can Do!
   R: Respiration’s – 30
   P: Perfusion – 2
   M: Mental Status – Can Do
Under the auspices of each EMS jurisdiction and the Medical Director, termination of resuscitative efforts may apply.

PURPOSE
The purpose of this policy is to:
- Allow for discontinuation of pre-hospital resuscitation after delivery of adequate and appropriate ALS therapy.

PROCEDURE
1. Discontinuation of CPR and ALS intervention may be implemented prior to contact with Medical Control if ALL of the following criteria have been met:
   - The victim must be 18 years of age or older.
   - The victim must be in asystole and have the absence of a pulse and vital signs confirmed.
   - Adequate CPR has been administered.
   - The victim must have a properly placed endotracheal tube, King Airway, or needle cricothyrotomy.
   - The patient must have a patent intravenous access or IO.
   - The victim must not be in arrest due to hypothermia, or apparent drug overdose.
   - At least two rounds of ACLS drugs and subsequent procedures have been administered without return of spontaneous circulation (palpable pulse).
   - All EMS Paramedic personnel involved in the patient’s care agree that discontinuation of the resuscitation is appropriate.
   - If all of the above criteria are not met and discontinuation of pre-hospital resuscitation is desired, contact Medical Control. Medical Control must be contacted and the physician must speak directly with the paramedic and must give consent for the resuscitation effort to cease.
   - Document all patient care and interactions with the patient’s family, personal physician, medical examiner, law enforcement and Medical Control on EMS Patient Care Report.
Termination of Resuscitative Efforts Cont.

Patients found in cardiac arrest from trauma, medical, environmental insult, or hypothermia who present as follows:

**Trauma Arrest Patients:**
- Trauma patients should be rapidly assessed for signs of life. If the patient is apneic and pulseless but has organized ECG activity, and has a down time less than 20 minutes (less than 10 minutes for blunt trauma) then they should be treated and transported to the nearest appropriate facility. Otherwise resuscitation efforts should be withheld.
- Resuscitative efforts should be withheld if a trauma arrest patient has signs of irreversible death:
  - Decapitation
  - Rigor mortis
  - Decomposition
  - Injuries incompatible with life
  - 90% surface burns with other trauma

**Medical Patients:**
- Medical patients should be rapidly assessed for signs of life
- Resuscitative efforts should be withheld if a medical arrest patient
  - If the patient did **NOT** have a return of spontaneous pulse or respiration’s after 20 minutes of CPR, ACLS, successful ETT with confirmation by a secondary device, minimum of two rounds of medications, and all reversible causes have been identified.
  - Continuous asystole for at least 10 minutes in the adult patient, and 30 minutes in pediatric patients after CPR and successful airway management and a minimum of two rounds of medications, and no reversible causes identified.
  - Initial rhythm is asystole and signs of rigor mortis or lividity are present.
  - A valid DNR directive is present with the patient.
  - Rigor mortis
  - Decomposition

**Drowning Patients: field resuscitation efforts should be withheld if:**
- Patient has been submersed in water for more than 60 minutes and is **NOT** hypothermic.
- Any obvious lethal injury is present.

**Hypothermia Patients:**
- Known prolonged hypothermia and obvious signs of death such as lividity, rigor mortis and asystole.
### Patient Information/Categories

<table>
<thead>
<tr>
<th>Chief complaint</th>
<th>CC</th>
<th>Complains of</th>
<th>c/o</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Birth</td>
<td>DOB</td>
<td>History and Physical</td>
<td>H&amp;P</td>
</tr>
<tr>
<td>History</td>
<td>Hx</td>
<td>Impression</td>
<td>IMP</td>
</tr>
<tr>
<td>History of present illness</td>
<td>HPI</td>
<td>Newborn</td>
<td>NB</td>
</tr>
<tr>
<td>Medications</td>
<td>Meds</td>
<td>Patient</td>
<td>Pt</td>
</tr>
<tr>
<td>Past Medical History</td>
<td>PMH</td>
<td>Signs and Symptoms</td>
<td>S/S</td>
</tr>
<tr>
<td>Private Medical Doctor</td>
<td>PMD</td>
<td>Weight</td>
<td>Wt</td>
</tr>
<tr>
<td>Vital signs</td>
<td>VS</td>
<td>Year-old</td>
<td>y/o</td>
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### Body Systems

<table>
<thead>
<tr>
<th>Abdomen</th>
<th>Abd</th>
<th>Cardiovascular</th>
<th>CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central nervous system</td>
<td>CNS</td>
<td>Ear, nose, and throat</td>
<td>ENT</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>GI</td>
<td>Genitourinary</td>
<td>GU</td>
</tr>
<tr>
<td>Gynecological</td>
<td>GYN</td>
<td>Obstetrical</td>
<td>OB</td>
</tr>
<tr>
<td>Respiratory</td>
<td>Resp</td>
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</table>

### Common Complaints

<table>
<thead>
<tr>
<th>Abdominal Pain</th>
<th>Abd pn</th>
<th>Chest pain</th>
<th>CP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dyspnea on exertion</td>
<td>DOE</td>
<td>Fever of unknown origin</td>
<td>FUO</td>
</tr>
<tr>
<td>Gunshot wound</td>
<td>GSW</td>
<td>Headache</td>
<td>H/A</td>
</tr>
<tr>
<td>Lower back pain</td>
<td>LBP</td>
<td>Nausea/vomiting</td>
<td>n/v</td>
</tr>
<tr>
<td>No apparent distress</td>
<td>NAD</td>
<td>Pain</td>
<td>pn</td>
</tr>
<tr>
<td>Shortness of breath</td>
<td>SOB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Diagnoses

<table>
<thead>
<tr>
<th>Abdominal aortic aneurysm</th>
<th>AAA</th>
<th>Acute myocardial infarction</th>
<th>AMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult respiratory distress syndrome</td>
<td>ARDS</td>
<td>Alcohol</td>
<td>ETOH</td>
</tr>
<tr>
<td>Atherosclerotic heart disease</td>
<td>ASHD</td>
<td>Chronic obstructive pulmonary disease</td>
<td>COPD</td>
</tr>
<tr>
<td>Cerebral vascular attack</td>
<td>CVA</td>
<td>Chronic renal failure</td>
<td>CRF</td>
</tr>
<tr>
<td>Congestive heart failure</td>
<td>CHF</td>
<td>Coronary artery bypass graft</td>
<td>CABG</td>
</tr>
<tr>
<td>Coronary artery disease</td>
<td>CAD</td>
<td>Cystic fibrosis</td>
<td>CF</td>
</tr>
<tr>
<td>Dead on arrival</td>
<td>DOA</td>
<td>Delirium tremens</td>
<td>DTs</td>
</tr>
<tr>
<td>Deep vein thrombosis</td>
<td>DVT</td>
<td>Diabetes mellitus</td>
<td>DM</td>
</tr>
<tr>
<td>Dilation and Curettage</td>
<td>D&amp;C</td>
<td>End stage renal failure</td>
<td>ESRF</td>
</tr>
<tr>
<td>Foreign body obstruction</td>
<td>FBO</td>
<td>Hepatitis B virus</td>
<td>HBV</td>
</tr>
<tr>
<td>Hiatal hernia</td>
<td>HH</td>
<td>Hypertension</td>
<td>HTN</td>
</tr>
<tr>
<td>Inferior wall myocardial infarction</td>
<td>IWMI</td>
<td>Insulin-dependent diabetes mellitus</td>
<td>IDDM</td>
</tr>
<tr>
<td>Intracranial pressure</td>
<td>ICP</td>
<td>Mass casualty incident</td>
<td>MCI</td>
</tr>
<tr>
<td>Mitral valve prolapse</td>
<td>MVP</td>
<td>Motor vehicle crash</td>
<td>MVC</td>
</tr>
<tr>
<td>Diagnoses (cont.)</td>
<td>68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Multiple sclerosis</td>
<td>MS</td>
<td>Non insulin dependent diabetes mellitus</td>
<td>NIDDM</td>
</tr>
<tr>
<td>Otitis media</td>
<td>OM</td>
<td>Overdose</td>
<td>OD</td>
</tr>
<tr>
<td>Peptic ulcer disease</td>
<td>PUD</td>
<td>Pelvic inflammatory disease</td>
<td>PID</td>
</tr>
<tr>
<td>Pregnancies / births (gravida / para)</td>
<td>G/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pregnancy induced hypertension</td>
<td>PIH</td>
<td>Pulmonary embolism</td>
<td>PE</td>
</tr>
<tr>
<td>Rheumatic heart disease</td>
<td>RHD</td>
<td>Sexually transmitted disease</td>
<td>STD</td>
</tr>
<tr>
<td>Transient ischemic attack</td>
<td>TIA</td>
<td>Tuberculosis</td>
<td>TB</td>
</tr>
<tr>
<td>Upper respiratory infection</td>
<td>URI</td>
<td>Urinary tract infection</td>
<td>UTI</td>
</tr>
<tr>
<td>Venereal disease</td>
<td>VD</td>
<td>Wolff-Parkinson-White syndrome</td>
<td>WPW</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angiotensin-converting enzyme</td>
</tr>
<tr>
<td>Bicarbonate</td>
</tr>
<tr>
<td>Calcium</td>
</tr>
<tr>
<td>Digoxin</td>
</tr>
<tr>
<td>Diphenhydramine</td>
</tr>
<tr>
<td>Hydrochlorothiazide</td>
</tr>
<tr>
<td>Nitroglycerine</td>
</tr>
<tr>
<td>Normal saline</td>
</tr>
<tr>
<td>Sodium bicarbonate</td>
</tr>
<tr>
<td>Sodium chloride</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Anatomy / Landmarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdomen</td>
</tr>
<tr>
<td>Anterior axillary line</td>
</tr>
<tr>
<td>Anterior/posterior</td>
</tr>
<tr>
<td>Dorsalis pedis (pulse)</td>
</tr>
<tr>
<td>Intercostal space</td>
</tr>
<tr>
<td>Left lower lobe</td>
</tr>
<tr>
<td>Left upper lobe</td>
</tr>
<tr>
<td>Left ventricle</td>
</tr>
<tr>
<td>Right lower quadrant</td>
</tr>
<tr>
<td>Right upper lobe</td>
</tr>
<tr>
<td>Temporomandibular joint</td>
</tr>
<tr>
<td>Physical Exam / Findings</td>
</tr>
<tr>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>Blood pressure</td>
</tr>
<tr>
<td>Cerebrospinal fluid</td>
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<tr>
<td>Cincinnati Stroke Scale</td>
</tr>
<tr>
<td>Electrocardiogram</td>
</tr>
<tr>
<td>Heart rate</td>
</tr>
<tr>
<td>Jugular venous distention</td>
</tr>
<tr>
<td>Level of consciousness</td>
</tr>
<tr>
<td>Laceration</td>
</tr>
<tr>
<td>Nontender</td>
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<tr>
<td>Palpation</td>
</tr>
<tr>
<td>Pulse</td>
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<tr>
<td>Range of motion</td>
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**Miscellaneous Descriptors**

<table>
<thead>
<tr>
<th>After (post-)</th>
<th>P</th>
<th>Anterior</th>
<th>ant.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alert and oriented</td>
<td>A/O</td>
<td>APGAR</td>
<td>APGAR</td>
</tr>
<tr>
<td>Approximate</td>
<td></td>
<td>Celsius</td>
<td>oC</td>
</tr>
<tr>
<td>As needed</td>
<td>prn</td>
<td>Decreased</td>
<td>-</td>
</tr>
<tr>
<td>Body surface area (%)</td>
<td>BSA</td>
<td>Equal</td>
<td>=</td>
</tr>
<tr>
<td>Change</td>
<td></td>
<td>Increased</td>
<td></td>
</tr>
<tr>
<td>Emergency Medical Service</td>
<td>EMS</td>
<td>Left</td>
<td>L</td>
</tr>
<tr>
<td>Fahrenheit</td>
<td>oF</td>
<td>Motorcycle accident</td>
<td>MCA</td>
</tr>
<tr>
<td>Immediately</td>
<td>stat</td>
<td>Negative</td>
<td>-</td>
</tr>
<tr>
<td>Inferior</td>
<td>inf.</td>
<td>Not applicable</td>
<td>n/a</td>
</tr>
<tr>
<td>Moderate</td>
<td>mod.</td>
<td>Occasional</td>
<td>occ</td>
</tr>
<tr>
<td>Motor vehicle accident</td>
<td>MVA</td>
<td>Posterior</td>
<td>Post.</td>
</tr>
<tr>
<td>No, Not, None</td>
<td></td>
<td>Prior to arrival</td>
<td>PTA</td>
</tr>
<tr>
<td>Number</td>
<td>No. or #</td>
<td>Rule out</td>
<td>R/O</td>
</tr>
<tr>
<td>Positive</td>
<td>+</td>
<td>Superior</td>
<td>sup.</td>
</tr>
<tr>
<td>Right</td>
<td></td>
<td>Unequal</td>
<td></td>
</tr>
<tr>
<td>Secondary to</td>
<td>2°</td>
<td>While awake</td>
<td>WA</td>
</tr>
<tr>
<td>Times (for 3 hours)</td>
<td>X (x3h)</td>
<td>Without (sine)</td>
<td>S</td>
</tr>
<tr>
<td>Warm and dry</td>
<td>W/D</td>
<td>Zero</td>
<td>0</td>
</tr>
<tr>
<td>With (cum)</td>
<td>c</td>
<td></td>
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### Treatments / Dispositions

<table>
<thead>
<tr>
<th>Treatment / Disposition</th>
<th>Abbreviation</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Advanced cardiac life support</td>
<td>ACLS</td>
<td>Advanced life support ALS</td>
</tr>
<tr>
<td>Against medical advice</td>
<td>AMA</td>
<td>Automated external defibrillator AED</td>
</tr>
<tr>
<td>Bag-valve mask</td>
<td>BVM</td>
<td>Basic life support BLS</td>
</tr>
<tr>
<td>Cardiopulmonary resuscitation</td>
<td>CPR</td>
<td>Continuous positive airway pressure CPAP</td>
</tr>
<tr>
<td>Do not resuscitate</td>
<td>DNR</td>
<td>Endotracheal tube ET</td>
</tr>
<tr>
<td>Estimated time of arrival</td>
<td>ETA</td>
<td>External cardiac pacing ECP</td>
</tr>
<tr>
<td>Intermittent positive pressure ventilation</td>
<td>IPPV</td>
<td>Nasogastric NG</td>
</tr>
<tr>
<td>Nasal cannula</td>
<td>NC</td>
<td>Nothing by mouth NPO</td>
</tr>
<tr>
<td>Nasopharyngeal airway</td>
<td>NPA</td>
<td>Oropharyngeal airway OA</td>
</tr>
<tr>
<td>Nonrebreather mask</td>
<td>NRB</td>
<td>Physical therapy PT</td>
</tr>
<tr>
<td>Oxygen</td>
<td>$O_2$</td>
<td>Treatment Tx</td>
</tr>
<tr>
<td>Positive end-expiratory pressure</td>
<td>PEEP</td>
<td>Therapy Rx</td>
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### Medication Administration / Metrics

<table>
<thead>
<tr>
<th>Metric</th>
<th>Abbreviation</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>Centimeter</td>
<td>cm</td>
<td>Drop(s) gtt(s)</td>
</tr>
<tr>
<td>Drops per minute</td>
<td>gtts/min</td>
<td>End tidal carbon dioxide EtCO$_2$</td>
</tr>
<tr>
<td>Every</td>
<td>q</td>
<td>Fraction of inspired oxygen $F_iO_2$</td>
</tr>
<tr>
<td>Gram</td>
<td>g, gm</td>
<td>Hour hr</td>
</tr>
<tr>
<td>Hydrogen-ion concentration</td>
<td>pH</td>
<td>Intramuscular IM</td>
</tr>
<tr>
<td>Intraosseous</td>
<td>IO</td>
<td>Intravenous IV</td>
</tr>
<tr>
<td>Intravenous push</td>
<td>IVP</td>
<td>Joules j</td>
</tr>
<tr>
<td>Keep vein open</td>
<td>KVO</td>
<td>Kilogram kg</td>
</tr>
<tr>
<td>Pound</td>
<td>lb.</td>
<td>Liter L</td>
</tr>
<tr>
<td>Liters per minute</td>
<td>LPM, L/min</td>
<td>Microgram mcg</td>
</tr>
<tr>
<td>Milliequivalent</td>
<td>mEq</td>
<td>Milligram mg</td>
</tr>
<tr>
<td>Milliliter</td>
<td>mL</td>
<td>Millimeter mm</td>
</tr>
<tr>
<td>Millimeters of mercury</td>
<td>mmHg</td>
<td>Minute min</td>
</tr>
<tr>
<td>Orally</td>
<td>PO</td>
<td>Subcutaneous subcut.</td>
</tr>
<tr>
<td>Sublingual</td>
<td>SL</td>
<td>To keep open TKO</td>
</tr>
<tr>
<td>Cardiology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>AF</td>
<td>Atrial tachycardia</td>
</tr>
<tr>
<td>Atrioventricular</td>
<td>AV</td>
<td>Bundle branch block</td>
</tr>
<tr>
<td>Complete heart block</td>
<td>CHB</td>
<td>Idioventricular rhythm</td>
</tr>
<tr>
<td>Junctional rhythm</td>
<td>JR</td>
<td>Normal sinus rhythm</td>
</tr>
<tr>
<td>Paroxysmal atrial tachycardia</td>
<td>PAT</td>
<td>Paroxysmal supraventricular tachycardia</td>
</tr>
<tr>
<td>Premature atrial contraction</td>
<td>PAC</td>
<td>Premature junctional contraction</td>
</tr>
<tr>
<td>Premature ventricular contraction</td>
<td>PVC</td>
<td>Pulseless electrical activity</td>
</tr>
<tr>
<td>Supraventricular tachycardia</td>
<td>SVT</td>
<td>Ventricular fibrillation</td>
</tr>
<tr>
<td>Ventricular Tachycardia</td>
<td>VT</td>
<td>Wandering atrial pacemaker</td>
</tr>
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EMS Services

Section 3

PRE-HOSPITAL CARE

MEDICAL CONTROL

PROTOCOLS AND PROCEDURES
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<tr>
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<tr>
<td>Adult Airway</td>
<td></td>
<td>3</td>
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<tr>
<td>Adult Foreign Body Airway Obstruction (FBAO)</td>
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<td>4-5</td>
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<tr>
<td>Adult Respiratory Distress / Asthma &amp; COPD</td>
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<td>Airway Adjuncts</td>
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<td>Airway / Breathing Guidelines</td>
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<td>Congestive Heart Failure (CHF) &amp; Pulmonary Edema</td>
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<td>10-11</td>
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<td>Traumatic Breathing</td>
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<td>12</td>
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</tbody>
</table>

Southwest General Health Center/EMS Services
AIRWAY / BREATHING
AIRWAY (ADULT)

**Adequate**

Assess ABC’S
Respiratory Rate, Effort, Adequate
Supplemental OXYGEN

**Inadequate**

Basic maneuvers first -
Open airway
Nasal / Oral Airway
Bag-Valve-Mask

**Obstruction**

See Foreign Body Airway

**General Considerations**

- For this protocol, adult is defined as 8 years old or greater.
- CO₂ monitor is mandatory with all methods of intubation. Document results.
- Capnography Recommendation: Continuous quantitative waveform capnography is now recommended for intubated patients throughout the periarrest period. When quantitative waveform capnography is used for adults, applications now include recommendations for confirming and monitoring tracheal tube placement and for monitoring CPR quality and detecting ROSC based on end-tidal carbon dioxide.
- Capnography recommendation after the first minute of CPR should be above 10 mm Hg and up to 25 mm Hg. If ROSC is achieved, CO₂ range between 35-40 mm Hg.
- Capnography is to be utilized with King Airway.
- Maintain C-spine immobilization for patients with suspected spinal injury.
- Do not assume hyperventilation is psychogenic – use oxygen, not a paper bag.
- Paramedics/Advanced EMTs should consider using a King Airway when they are unable to intubate a patient.
AIRWAY / BREATHING

FOREIGN BODY AIRWAY OBSTRUCTION (FBAO) – ADULT
(Adolescent/Puberty/and older)

UNIVERSAL PATIENT CARE PROTOCOL

Head Tilt / Chin Lift / Jaw Thrust

Airway Maneuvers

Coughing

Conscious

Encourage patient to cough

Oxygen
10-15 L
Titrate to 94%-99% SpO₂

Complete Obstruction

Conscious

Abdominal Thrusts / Heimlich Maneuver / Chest thrusts for pregnant or obese patents.

Oxygen
10-15 L
Titrate to 94%-99% SpO₂

Send someone to activate emergency response system.

Lower victim to floor. If victim is unresponsive with no breathing or no normal breathing, (i.e., agonal gasps), begin CPR (no pulse check).

Before you deliver breaths, look into mouth. If you see a foreign body that can be easily removed, remove it.

Continue CPR for 5 cycles or about 2 minutes. If you are alone, activate EMS system. Return and continue CPR until more skilled rescuers arrive.

Visualize airway with laryngoscope, use Magill forceps to remove foreign body.

If unable to remove foreign body, consider Quick-Trach.

CONTACT MEDICAL CONTROL

TRANSPORT
FOREIGN BODY AIRWAY OBSTRUCTION (FBAO) - ADULT

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
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</thead>
<tbody>
<tr>
<td>Coughing</td>
<td>Witnessed Aspiration</td>
<td>Cardiac Arrest</td>
</tr>
<tr>
<td>Choking</td>
<td>Sudden Episode of Choking</td>
<td>Respiratory Arrest</td>
</tr>
<tr>
<td>Inability to speak</td>
<td>Gagging</td>
<td>Anaphylaxis</td>
</tr>
<tr>
<td>Unresponsive</td>
<td>Audible Stridor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Change in Skin Color</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Decreased LOC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increased or Decreased</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Respiratory Rate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Labored Breathing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unproductive Cough</td>
<td></td>
</tr>
</tbody>
</table>

GENERAL CONSIDERATIONS:

- With complete obstruction, positive-pressure ventilation may be successful.
- Needle cricothyrotomy will provide short term oxygenation only (not ventilation) and is used to “buy time” until other interventions can assure appropriate ventilation.
- Quicktrach kits have a larger internal diameter and thus will provide some minimal ventilation.
- Quicktrach kits are bridge devices to surgical intervention and meant only for short term use.
- Quicktrach available in 2 sizes:
  - Adult 4 mm
  - Pediatric 2 mm
AIRWAY / BREATHING

RESPIRATORY DISTRESS

ASTHMA AND COPD

UNIVERSAL PATIENT CARE PROTOCOL

Administer Oxygen / Assist with patients own Metered Dose Inhaler

IV PROTOCOL

Mild
Slight wheezing and SOB. Treat with aerosol Albuterol. Oxygen as needed.

Moderate
Tachypnea wheezing, short of breath, use of accessory muscles. Treat with Albuterol or Duoneb Aerosol

Severe
Tachypnea, short of breath, wheezing accessory muscle use, difficulty speaking. Treat with: Oxygen as needed, Pulse-ox, and Duoneb Aerosol.
(If intubated 1 Albuterol only can be given down the ET Tube)

Oxygen as needed: Follow up pulse-ox, Repeat Albuterol. x2 if needed

May repeat x1 additional Duoneb if needed.

Consider:
CPAP for severe hypoxia not responding to treatment.

If symptoms severe or not improving with Albuterol;
Epi 1:1000 IM/subcut. 0.3-0.5 mg
Contact Medical Control if age 65 or older or Cardiac History

CONTACT MEDICAL CONTROL

TRANSPORT
CPAP should be used as a last resort only in asthmatic patients. Prepare to intubate and ventilate.

SEVERE ASTHMA / STATUS ASTHMATICUS patients not moving the mist from an aerosol treatment give Epinephrine (Adrenaline) 1:1000 0.3-0.5 mg IM/SQ only if patient is under 65 years old and has no cardiac disease. If patient is over 65 of age, or has preexisting cardiac disease, contact Medical Control.

GENERAL CONSIDERATIONS:

- Exam: Mental Status, HEENT, Skin, Neck, Heart, Lungs, Abdomen, Extremities, Neuro
- Status asthmaticus - severe prolonged asthma attack unresponsive to therapy - life threatening!
- Contact Medical Control prior to administering epinephrine in patients who are:
  - greater than 65 years of age
  - have a history of cardiac disease
  - or if the patient’s heart rate is greater than 150
  Epinephrine may precipitate cardiac ischemia.
- A silent chest in respiratory distress is a pre-respiratory arrest sign.
- Be alert for respiratory depression in COPD patients on prolonged high flow oxygen administration. DO NOT withhold oxygen from hypoxic patients.
- If Albuterol and Atrovent are given, monitor the patient’s cardiac rhythm and initiate IV.
- If CPAP is used for asthma or COPD, start at 5cm H₂O; may increase up to 10cm H₂O to keep pulse ox ≥ 90%.
<table>
<thead>
<tr>
<th>ADJUNCT</th>
<th>INDICATIONS</th>
<th>CONTRAINDICATIONS</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suction</td>
<td>Indispensable for all patients with fluid or particulate debris in airway</td>
<td>NONE</td>
<td>No more than 10 seconds per attempt</td>
</tr>
<tr>
<td>Modified jaw thrust</td>
<td>Initial airway maneuver for all trauma patients</td>
<td>NONE</td>
<td>None of these adjuncts protects against aspiration in patient with depressed consciousness</td>
</tr>
<tr>
<td>Hyperextension of neck</td>
<td>Opening airway of non-trauma patient</td>
<td>Potential cervical spine injury</td>
<td>Same see above</td>
</tr>
<tr>
<td>Nasal airway</td>
<td>Obstruction by tongue with gag reflex present</td>
<td>Potential mid-face injury</td>
<td>Same see above Landmarks: Nare to tragus of ear</td>
</tr>
<tr>
<td>Oral airway</td>
<td>Obstruction due to tongue, etc.</td>
<td>Positive gag reflex</td>
<td>Same see above Landmarks: Corner of mouth to angle of jaw</td>
</tr>
<tr>
<td>Orotrachal intubation</td>
<td>Failure of above provides airway protection</td>
<td>Gag reflex</td>
<td>Difficult in patients with severe maxillofacial injuries.</td>
</tr>
<tr>
<td>King Airway</td>
<td>Failure to place ETT successfully after 2 attempts. Airway device for BLS providers</td>
<td>Positive gag reflex, ingestion of caustic agents, esophageal disease.</td>
<td>Primary salvage airway Size appropriately</td>
</tr>
<tr>
<td>Needle Cricothyrotomy “Quick – Trach” or other tracheotomy device</td>
<td>High obstructed airway (unable to clear) Unable to establish any other airway</td>
<td>Must be able to identify cricoid ring. Not best for anterior neck trauma.</td>
<td>Must have training in procedure</td>
</tr>
</tbody>
</table>
### GENERAL CONSIDERATIONS:

#### Airway Assessment
- If you don’t have an airway – you don’t have anything!
- C-Spine precautions must be considered prior to the insertion of airway adjuncts. Provide manual stabilization prior to insertion.
- See PEDIATRIC section for pediatric airway management.

#### Breathing Assessment
- Be sure that the airway is open before assessing breathing.
- When assessing breathing, observe rate, quality, depth, and equality of chest movement.
- COPD patients usually maintain on low flow oxygen (2 – 4 LPM in which keeps their O2 Sat in the 90’s%), and some patients with severe COPD may have a hypoxic drive and exhibit depressed respirations when faced with higher PaO2 levels. However, if the COPD patient needs high flow oxygen it should be given. Be prepared to support breathing with ambu-bag if needed.
- Always record vital signs when treating breathing problems.

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<table>
<thead>
<tr>
<th>General Considerations</th>
<th></th>
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<tbody>
<tr>
<td><strong>Airway Assessment</strong></td>
<td></td>
</tr>
<tr>
<td>If you don’t have an airway – you don’t have anything!</td>
<td></td>
</tr>
<tr>
<td>C-Spine precautions must be considered prior to the insertion of airway adjuncts. Provide manual stabilization prior to insertion.</td>
<td></td>
</tr>
<tr>
<td>See PEDIATRIC section for pediatric airway management.</td>
<td></td>
</tr>
<tr>
<td><strong>Breathing Assessment</strong></td>
<td></td>
</tr>
<tr>
<td>Be sure that the airway is open before assessing breathing.</td>
<td></td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>COPD patients usually maintain on low flow oxygen (2 – 4 LPM in which keeps their O2 Sat in the 90’s%), and some patients with severe COPD may have a hypoxic drive and exhibit depressed respirations when faced with higher PaO2 levels. However, if the COPD patient needs high flow oxygen it should be given. Be prepared to support breathing with ambu-bag if needed.</td>
<td></td>
</tr>
<tr>
<td>Always record vital signs when treating breathing problems.</td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Partial Obstruction</th>
<th>May include coughing with some air movement. Give 100% Oxygen and encourage the patient to cough. Transport immediately and prepare for complete obstruction.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign Body Airway Obstructions (FBAO)</td>
<td>Should be removed immediately if able. Visualize airway and either suction or sweep out liquids and other materials. Solids must be hooked with finger or instrument. A laryngoscope may be used for direct visualization of the airway. If unable to clear airway by these methods, use Heimlich maneuver and abdominal or chest thrusts as appropriate.</td>
</tr>
<tr>
<td>Stridor</td>
<td>High pitched wheeze-like sound caused by partial obstruction of the upper airway.</td>
</tr>
<tr>
<td>Wheezing</td>
<td>A whistling or sighing sound, usually involving the lower airways and typically more pronounced on expiration. Occurs due to air flowing through narrowed or constricted airways.</td>
</tr>
</tbody>
</table>
Universe Patient Care Protocol

IV Protocol

Mild

Oxygen 10-15 L
Titrate to 94%-99% SpO2

Nitroglycerin 0.4 mg SL x 3
(If BP greater than 110 Systolic)

Monitor and Reassess

Moderate / Severe

Oxygen 100%
NRB or BVM

Nitroglycerin 0.4 mg SL x 3
(If BP greater than 110 Systolic)

Consider: Furosemide
(Lasix) 40 mg. Slow IV/IM (Call Medical Control for additional med.)

Consider: Morphine Sulfate
2 mg every 4 - 5 minutes. Titrate to Response and Respiratory Status

Consider: CPAP

Monitor and Reassess

Cardiac Wheezing?
Cardiac Asthma
Albuterol Aerosol Treatment

Transport

Cardiogenic Shock

Oxygen 100%
Bag – Valve Mask

Consider Intubation

Pale, cool, clammy, hypotensive. Acute MI in progress, severe Pulmonary edema

Dopamine
2-20-mcg / kg / min
IV Titrate to BP > 90 systolic

Monitor and Reassess

Contact Medical Control
GENERAL CONSIDERATIONS:

- Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro
- Obtain 12-lead EKG to evaluate for MI. Be suspicious of “Silent MI” in the elderly, diabetic and women.
- DO NOT administer Nitroglycerin to any patient who has used erectile dysfunction medications (Viagra, Cialis, Levitra, etc.) in the past 48 / 72 hours due to possible severe hypotension.
- If patient has taken nitroglycerin without relief, consider potency of the medication.
- Nitroglycerin can be administered to a patient by EMS if the patient has already taken 3 of their own prior to your arrival.
- Document it if the patient had any changes in their symptoms or a headache after taking their own.
- Document the expiration date of the patients prescribed nitroglycerin.
- Monitor for hypotension after administration of Nitroglycerin and Morphine.
- Contraindications to Morphine include severe COPD and respiratory distress. Monitor the patient closely.
- Consider other causes of chest pain such as aortic aneurysms, pericarditis and pulmonary embolisms.
- Diabetics and geriatric patients often have atypical pain, or only generalized complaints.
- Careful monitoring of LOC, BP, and respiratory status with above interventions is essential.
- Allow the patient to be in their position of comfort to maximize their breathing effort.
- Not all “wet” lung sounds are pulmonary edema. Other causes of rales and rhonchi include: pneumonia, emphysema and bronchitis.
- Acute pulmonary edema may be a sign of acute cardiac ischemia, which may give rise to cardiovascular collapse and hypotension as well as malignant atrial and ventricular arrhythmias.
- If the patient is already on Nitroglycerin, then the paramedic can administer Nitroglycerin without an IV.
- Be alert for respiratory depression in COPD patients on prolonged high flow oxygen administration. DO NOT withhold oxygen from hypoxic patients.
- The IV dose of Furosemide (Lasix) should be the same amount as their total daily dose, up to 80 mg. A patient taking a total dose of Furosemide of 40 mg PO daily, should receive a 40 mg IV dose. Call Medical Control for dose over 40 mg.
- If CPAP is used for CHF/pulmonary edema, the minimum level is 5cm H₂O and the maximum level is 10 cm H₂O (see protocol). Maintain pulse ox at 94% or above.
AIRWAY / BREATHING

TRAUMATIC BREATHING

UNIVERSAL PATIENT CARE PROTOCOL

Evidence of Trauma – Blunt or Penetrating
Abnormal breath sounds, Inadequate Respiratory rate,
Unequal symmetry, Diminished chest excursion, Cyanosis

Jaw Thrust Airway Maneuver / Give High Flow Oxygen

Suspect Sucking Chest Wound? Apply 3-sided occlusive dressing / valved chest seal

Suspect Penetrating Object?
Immobilize Object
Apply sterile saline dressing

Suspect Tension Pneumothorax?
Confirm and Decompress Chest

CONTACT MEDICAL CONTROL

TRANSPORT

General Considerations

- These injuries involve the airway and are life threatening.
- Do not become distracted by non life-threatening injuries that appear terrible.
- A 
  sucking chest wound is when the thorax is open to the outside. The occlusive dressing may be anything such as petroleum gauze, plastic, defibrillator pad or a valved chest seal. Tape only 3 sides down so that excess intrathoracic pressure can escape, preventing a tension pneumothorax. May help respirations to place patient on the injured side, allowing unaffected lung to expand easier.
- A 
  flail chest is when there are extensive rib fractures present, causing a loose segment of the chest wall resulting in paradoxical and ineffective air movement. This movement must be stopped by applying a bulky pad to inhibit the outward excursion of the segment. Positive pressure breathing via BVM will help push the segment and the normal chest wall out with inhalation and to move inward together with exhalation, getting them working together again. Do not use too much pressure to prevent additional damage or pneumothorax.
- A 
  penetrating object must be immobilized by any means possible. If it is very large, cutting may be possible, with care taken to not move it about when making the cut. Place an occlusive and bulky dressing over the entry wound.
- A 
  tension Pneumothorax is life threatening, look for unequal breath sounds, JVD, increasing respiratory distress, decreased mental status, and lastly, tracheal displacement. The pleural space must be decompressed with a needle to provide relief. Use the midclavicular (2nd or 3rd intercostal space), going in on the topside of the rib. Use the designated needle contained in the drug box. The ARS Needle Decompression System located in the drug box (10g 3 ¼ in) or 14g. 2 inch nonretractable angiocath for pediatrics or smaller statured patient. Once the catheter is placed, watch closely for reocclusion. Repeat if needed.
EMS Services

Section 4

PRE-HOSPITAL CARE

MEDICAL CONTROL

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## CIRCULATION / SHOCK

### SHOCK GUIDELINES

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<td><strong>HYPOVOLEMIC SHOCK</strong></td>
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<td>Hypotension with narrow pulse pressure</td>
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<td>Hypotension or falling systolic BP</td>
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<td>Pale skin</td>
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<td>Clammy or dry skin</td>
</tr>
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<td>Dyspnea</td>
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<td>Altered LOC / Coma</td>
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<td>Decreased urine output</td>
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<td><strong>NEUROGENIC SHOCK</strong></td>
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<td>Normal or Bradycardiac HR</td>
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<td>Compromise in neurological function</td>
</tr>
<tr>
<td></td>
<td>Normal or flush skin color</td>
</tr>
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</table>
| SEPTIC SHOCK (DISTRIBUTIVE SHOCK) | Tachycardia  
|                                  | Hypovolemia  
|                                  | Hypotension with narrow pulse pressure  
|                                  | Dehydration  
|                                  | Altered LOC /Coma  
|                                  | Dyspnea  
|                                  | Febrile / Hx of UTI  
|                                  | Signs of Infection |
GENERAL CONSIDERATIONS:
- Exam: Mental Status, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro
- Hypotension can be defined as a systolic blood pressure of less than 100.
- Consider all possible causes of shock and treat per appropriate protocol.

Anaphylactic Shock (Distributive)
- Do not confuse epinephrine 1:1000 and 1:10,000.
- Routine assessment and supportive care of the patient’s respiratory and cardiovascular systems is required.
- Treat patients with a history of anaphylaxis aggressively.
- Call Med. Control and use caution when using epinephrine for patients over sixty-five years of age.
- Call Med. Control and use caution when using epinephrine for patients with a heart rate greater than 150 bpm or a history of ASHD.
- When possible, remove any stingers.
- Consider glucagon for elderly, pregnant and ASHD.

Cardiogenic Shock
- Circulatory failure is due to inadequate cardiac function.
- Be aware of patients with congenital defects.
- Cardiogenic shock exists in the pre-hospital setting when an MI is suspected and there is no specific indication
- of volume related shock.
- Pulmonary Edema or CHF may cause cardiogenic shock (pediatrics with congenital heart defects may rarely have pulmonary edema).
- Marked, symptomatic tachycardia and bradycardia will also cause cardiogenic shock.

Hypovolemic Shock
- Patients suffering from hemorrhagic shock secondary to trauma, should be treated under the Trauma Criteria,
- and should be rapidly transported to the nearest appropriate facility.
- Initiate a second large bore IV for all patients in hypovolemic shock.

Mechanical Shock (Obstructive)
- Caused by diminished cardiac output.
- Blood backs up into the venous system causing distended neck veins.
- Lungs are not perfused well causing cyanosis.
- Catecholamine release causes tachycardia.
- A post-trauma patient with signs of mechanical shock is near death.
- Tension pneumothorax requires immediate needle decompression.
Neurogenic Shock (Distributive)

- Cushings Reflex is a sign of increased ICP. Cushings Reflex is a high blood pressure, low pulse rate, and irregular respirations.

Septic Shock (Distributive)

- Patients with hypotension and/or signs of poor perfusion such as: Tachycardia/bradycardia, low oxygen levels and low capnography wave formation, altered level of consciousness, dizziness or fatigue, pale and diaphoresis can all be symptoms of poor perfusion.
- These patients are a priority and require aggressive intervention to preserve end organ perfusion.
- Start an IV and maintain systolic blood pressure greater than 90 mmHg and signs of adequate perfusion for end organ perfusion.
- If BP less than 90mmHg systolic and signs of poor perfusion: administer 30mL/kg IV fluid bolus.
- Repeat to maintain BP greater than 90mmHg systolic and signs of improving perfusion.
- Be prepared to support respiratory status with O\textsubscript{2}, CPAP and intubation if necessary.
- Be alert for septic shock especially in the elderly and with individuals with history of recent infection.
CIRCULATION / SHOCK / MEDICAL EMERGENCY

ANAPHYLACTIC SHOCK

UNIVERSAL PATIENT CARE PROTOCOL

IV Protocol

Apply Cardiac Monitor and Assess Vitals

B EMT-B
A EMT-A
P EMT-P
M MED CONTROL

Mild

Hives, Rash, itching, NO difficulty breathing or throat tightening, BP – normal limits

Treatment

Oxygen per cannula

Benadryl 25-50 mg IV or IM

Consider Epi if history of severe reaction

Consider assisting with Epi pen if history of severe reaction

Moderate

Rash, itching, Wheezing, Throat tightening, Swelling, face lips, BP – normal limits

Treatment

Oxygen per NRB

Assist with Epi-pen

*For patients over 65 yrs. in category mild, moderate or severe, may give Glucagon 1 mg IV/IM before EPI

Severe

Rash, itching, Airway compromise Wheezing, Swelling, Hypotension

Treatment

Oxygen per NRB

Assist with Epi-pen

Epinephrine 1:1000 0.3-0.5 mL IM/SQ

Benadryl 25-50 mg IV or IM

IV with NS Bolus 200-400 mL

Albuterol Aerosol watch airway & breathing

Consider repeat Epi after 5 min. if no improvement

(A Adult Any Age)

Impending Arrest

Severe Hypotension No response to Epi Decreased level of consciousness Airway compromise

Treatment

Epinephrine 1:10,000 0.3-0.5mg IVP

*For patients over 65 yrs. in category mild, moderate or severe, may give Glucagon 1 mg IV/IM before EPI

IV NS wide open

Control airway via BVM

Follow ACLS

CONTACT MEDICAL CONTROL

TRANSPORT
UNIVERSAL PATIENT CARE PROTOCOL

Airway Protocol
Monitor Lung Sounds for Fluid Overload
Consider Spinal Immobilization

IV / IO PROCEDURE

Apply Cardiac Monitor and Assess Vitals

Hypovolemic Shock

IV NS/LS BOLUS
500 mL
(If BP less than 90 Systolic)

Check Blood Glucose Level

IV NS/LR BOLUS
500 mL
(If BP less than 90 Systolic)

Treatment per Appropriate Trauma Protocol

Cardiogenic Shock

12 Lead Procedure

Check Blood Glucose Level

Dopamine (Intropin)
2 - 20 mcg/kg/min IV drip
Titrated to effect
(if B/P < 90 systolic)

Neurogenic Shock

IV NS TKO

Check Blood Glucose Level

IV NS BOLUS
500 mL
(If BP less than 90 Systolic)

Septic Shock

IV NS BOLUS
30 cc/kg
(If BP less than 90 Systolic and signs of poor perfusion)

12 Lead Procedure

Check Blood Glucose Level

IV NS BOLUS
500 mL
(If BP less than 90 Systolic)

Dopamine (Intropin)
2 - 20 mcg/kg/min IV drip
Titrated to effect
(if B/P < 90 systolic)

Repeat as needed

Monitor and Reassess BP

CONTACT MEDICAL CONTROL

TRANSPORT

CALL a “SEPSIS ALERT” for TWO (2) of the following and with S/S and/or history of recent infection:

*Body temp: ↑ 101° (38.3) or ↓ 96.8° (36)
*Heart Rate ↑ 90
*Resp. Rate ↑ 20
*Blood Glucose ↑ 140 - esp. non-diabetic pt
*Systolic B/P ↓ 90
EMS Services

Section 5

PRE-HOSPITAL CARE

MEDICAL CONTROL

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UNIVERSAL PATIENT CARE PROTOCOL

Oxygen
10-15 L
Titrate to 94%-99% SpO₂

Apply Cardiac Monitor

Obtain 12 – Lead EKG
(Look for ST Elevation and transmit to the hospital)

CHEST PAIN AND EKG INDICATES STEMI

Use caution with acute inferior wall MI
(II, III, AVF) – place IV prior to Nitroglycerine. Normal Saline bolus prior to Nitroglycerine strongly recommended

Use caution with acute septal wall MI
(V1,V2) – watch for AV blocks–consider placing pacing pads

IV Protocol

ASPIRIN
324 mg chew and swallow
(81 mg / tab x 4)

Hypotension / Dysrhythmias
Treat per Appropriate Protocol

NITROGLYCERIN 0.4 mg SL every 5 minutes x 3
~ Age 35 and older

If under 35 give if: significant cardiac history / EKG findings.
If older then 35: give only if significant cardiac history and/or EKG changes with stable BP, or per Medical Control
(If BP greater than 90 Systolic with IV)
(If BP greater than 110 Systolic without IV)
*Basic EMT’s may assist pt. with 1 of their own nitro.

(if no relief with a total of 3 NTG)
Morphine Sulfate
2 mg IV every 4-5 minutes titrated to respiratory status and pain (MAX = 10 mg)

Reassess and Monitor

Continued Pain?

CONTACT MEDICAL CONTROL
GENERAL CONSIDERATIONS:

- Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro
- Be suspicious of a “Silent MI” in the elderly, diabetics, and women. Diabetics and geriatric patients often have atypical pain, or only generalized complaints.
- Consider other causes of chest pain such as aortic aneurysms, pericarditis, and pulmonary embolisms.
- Oxygen administration is first, 12-Lead EKG, continuous cardiac monitoring, and an IV are indicated for patient’s who’s chest pain was relieved prior to your arrival.
- All patients complaining of chest discomfort must be administered enough O2 to maintain SPO2 of 94-99%. Administer oxygen by nasal cannula non-rebreather or assist the patient’s ventilations as indicated.
- Aspirin is administered to achieve a therapeutic dose of 324 mg (4 chewable, 81 mg tabs), unless allergic reaction or peptic ulcer disease.
- Nitroglycerin can be administered to a patient by EMS up to 3 doses. If the patient has already taken 3 of their own prior to your arrival, document if the patient had any changes in their symptoms or a headache after taking their own Nitroglycerin. **DO NOT** administer Nitroglycerin to a patient who took a phosphodiesterase inhibitor medication (Viagra, Cialis, Levitra, etc.) within the last 48 / 72 hours due to potential severe hypotension.
- If patient has taken nitroglycerin without relief, consider potency of the medication. Check and document the expiration date of the patient’s prescribed nitroglycerin.
- Nitroglycerin can be administered to a hypertensive patient complaining of chest discomfort without Medical Direction permission.
- Nitroglycerin can be administered without an IV as long as the patient takes Nitroglycerin at home and has a BP greater than 110 mmHg or BP greater than 150 mmHg if over 70 years old. **DO NOT** treat the PVC’s with Amiodarone, if the patient is bradycardic.
- If positive ECG changes, establish a second IV while en route to the hospital.
- Monitor for hypotension after administration of nitroglycerin and morphine.
- If pain continues after O₂, ASA and Nitro, administer Morphine 2 mg IV every 4-5 minutes up to 10 mg. Titrate to response and respirations.
- If the patient becomes hypotensive from Nitroglycerin administration, place the patient in the Trendelenburg position and administer a 200 - 400 mL Normal Saline bolus.
- Use nitroglycerin cautiously in patients with inferior wall MI and RV infarction.
ACLS

SINUS BRADYCARDIA

UNIVERSAL PATIENT CARE PROTOCOL

IV Protocol

Apply 12-Lead EKG
(Look for ST Elevation)
Communicate to ED

Hypotension, BP less than 90 Systolic, altered mental status, chest pain

No

UNIVERSAL PATIENT CARE PROTOCOL

Yes

ATROPINE 0.5 mg IV/IO
Repeat every 3-5 minutes
If Atropine ineffective

Consider Sedation
ATIVAN or VERSED
0.5-1.0 mg or 2.0-4.0 mg IV
IV/IO/IN or 5.0 mg IN

EXTERNAL TRANSCUTANEOUS PACING

*Consider DOPAMINE while awaiting Pacer
2 - 20 mcg/kg/min IV
Titrate to BP greater than 90 systolic

CONTACT MEDICAL CONTROL

TRANSPORT
### ACLS

#### SINUS BRADYCARDIA

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<td>Sick Sinus Syndrome</td>
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<td></td>
<td>AV blocks</td>
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<tr>
<td></td>
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<td>(1st, 2nd or 3rd degree)</td>
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</table>

### GENERAL CONSIDERATIONS:

- **Exam:** Mental Status, Neck, Heart, Lungs, Neuro
- The use of lidocaine in heart block can worsen bradycardia and lead to asystole and death.
- Pharmacological treatment of Bradycardia is based upon the presence or absence of hypotension.
- If hypotension exists, treat.
- If blood pressure is adequate, monitor only.
- Transcutaneous pacing is the treatment of choice for Type II second-degree heart blocks and third degree heart blocks.
- If the patient is **critical** and an IV is not established, initiate pacing.
- If the patient converts to another rhythm, refer to the appropriate protocol and treat accordingly.
- At lower doses dopamine has a more selective effect on inotropy and heart rate; higher doses (>10 mcg) also has vasoconstrictive effects.
- May use Dopamine drip as an alternative to TCP.
- Maximum amount of atropine to be used is 3mg.
ARRHYTHMIAS / ACLS
NARROW – COMPLEX TACHYCARDIA

UNIVERSAL PATIENT CARE PROTOCOL

IV Protocol

Stable

Perform 12 Lead EKG

Vagal Maneuvers

ADENOSINE 6 mg IV push followed by 20 mL NS rapid flush (Not for atrial fibrillation)

No Response
1 – 2 minutes

ADENOSINE 12 mg IV followed by 20 mL NS rapid flush

No Response

Monitor and Reassess

If rhythm changes, Go to Appropriate Protocol

CONTACT MEDICAL CONTROL

TRANSPORT

Unstable

May go directly to Cardioversion

Consider Sedation
ATIVAN or VERSED
0.5-1.0 mg 2.0-4.0mg IV
IV/IO/IN 5.0mg IN

CARDIOVERSION Synchronized
Narrow Regular: 50 -100 J
Narrow Irregular: 120 – 200 J

No Response
1 – 2 minutes

Repeat Synchronized CARDIOVERSION
Narrow Regular: 100-200J
Narrow Irregular: 200-300 J

CONTACT MEDICAL CONTROL

TRANSPORT

Southwest General Health Center /EMS Services
**GENERAL CONSIDERATIONS:**

- Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro
- Adenosine may not be effective in identifiable atrial flutter / fibrillation, yet is not harmful.
- Continuous pulse oximetry is required for all SVT patients.
- Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.
- If the patient converts to another rhythm, refer to the appropriate protocol and treat accordingly.
- Examples of vagal maneuvers include bearing down, coughing, or blowing into a syringe. **DO NOT** perform a carotid massage.
- If possible, the IV should be initiated in either the left or right AC.
- Consider applying the Combo patches prior to Adenosine administration.
- When administering Adenosine, raise the patient’s arm and immediately follow the bolus with 20 mL rapid bolus of normal saline.
- Record 3-Lead EKG strips during Adenosine administration.
- Perform a 12-Lead EKG prior to and after Adenosine conversion or cardioversion of any narrow rhythm.
- If the patient converts into ventricular fibrillation or pulseless ventricular tachycardia, immediately DEFIBRILLATE, refer to the appropriate protocol and treat accordingly. Be sure to switch the Life Pak to PADDLES before defibrillating.
- Give a copy of the EKGs and code summaries to the receiving facility upon arrival.
- Caution giving Adenosine to patients with asthma. May cause worse bronchospasm.

The need for cardioversion is determined by the presence of significant symptoms or by an unstable condition resulting from tachycardia. An unstable condition includes:
- Hypotension
- Acutely altered mental status
- Signs of shock
- Ischemic chest discomfort
- Acute heart failure
**Synchronized Cardioversion** (mono and biphasic monitors)

<table>
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<tr>
<th>If:</th>
<th>Sequence:</th>
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<tr>
<td>Atrial Fibrillation</td>
<td>120 to 200 J  300 J  360 J</td>
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<tr>
<td>Unstable monomorphic VT</td>
<td>100 to 200 J  300 J  360 J</td>
</tr>
<tr>
<td>Other SVT Atrial Flutter</td>
<td>50 J  100 to 200 J  300 J  360 J</td>
</tr>
<tr>
<td>Polymorphic VT (irregular form and rate) and unstable</td>
<td>Treat as VF with high-energy shock (defibrillation doses)</td>
</tr>
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</table>
ARRHYTHMIAS / ACLS

WIDE – COMPLEX TACHYCARDIA

UNIVERSAL PATIENT CARE PROTOCOL

Ventricular Fibrillation

Palpate Pulse

Yes

IV PROTOCOL

Monitor Protocol / 12 Lead EKG

Stable / Regular

ADENOSINE 6 mg IV Push followed by 20 mL NS rapid flush (Not for atrial fibrillation)

No Response

1 – 2 minutes

ADENOSINE 12 mg IV followed by 20mL NS rapid flush

Stable

If V-Tach or uncertain rhythm AMIODARONE

150 mg IV mixed in 50 mL D5W (over 10 minutes)

No Response

1 – 2 minutes

If becomes unstable, prepare for immediate Synchronized Cardioversion

Unstable

Consider Sedation

ATIVAN or VERSED

0.5-1.0mg 2.0-4.0mg IV

IV/IO/IN 5.0mg IN

Prepare for immediate Synchronized Cardioversion

100J-200J

Repeat Synchronized CARDIOVERSION

200, 300, 360 J

May Consider AMIODARONE

150mg IV Mixed in 50 mL D5W (over 10 minutes)

If stable Torsades de pointes – give Magnesium Sulfate 2 gm in 50ml D5W. Give over 5-60 min.

CONTACT MEDICAL CONTROL

TRANSPORT
GENERAL CONSIDERATIONS:

- Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro
- For witnessed / monitored ventricular tachycardia, try having patient cough or deliver a precordial thump.
- Stable-Polymorphic V-Tach (Torsades de Pointes) may benefit from the administration of Magnesium Sulfate.
- Treat unstable polymorphic V-Tach (Torsades de Pointes) with unsynchronized defibrillation.
- If the patient converts to another rhythm, refer to the appropriate protocol and treat accordingly.
- If the patient relapses back into wide complex tachycardia / ventricular tachycardia, initiate synchronized cardioversion with the joules setting that previously cardioverted the patient.
- Record EKG strips during Amiodarone administration.
- Perform a 12-Lead EKG prior to and after Amiodarone conversion or synchronized cardioversion of wide complex tachycardia / ventricular tachycardia.
- Perform a Code Summary and attach it to the patient run report.
- Be sure to treat the patient and not the monitor.
- Magnesium Sulfate can be mixed with NS or D5W 50ml.
- Amiodarone is only compatible with D5W.

Synchronized Cardioversion (mono and biphasic monitors)

<table>
<thead>
<tr>
<th>If</th>
<th>Sequence</th>
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<tbody>
<tr>
<td>Atrial Fibrillation</td>
<td>120 to 200 J</td>
</tr>
<tr>
<td>Stable monomorphic VT</td>
<td>100 to 200 J</td>
</tr>
<tr>
<td>Other SVT Atrial Flutter</td>
<td>50 J</td>
</tr>
<tr>
<td>Polymorphic VT (irregular form and rate ) and unstable</td>
<td>Treat as VF with high-energy shock (defibrillation doses)</td>
</tr>
</tbody>
</table>

An unstable condition includes:

- Hypotension
- Acutely altered mental status
- Signs of shock
- Ischemic chest discomfort
- Acute heart failure
CARDIAC ARREST / ACLS

CARDIAC ARREST

UNIVERSAL PATIENT CARE PROTOCOL

Yes

Criteria for Death / DNR

Yes

Review DNR
Comfort Care Guidelines
Contact Medical Control

No

Withhold Resuscitation
Contact Medical Control

CPR x 5 cycles / 2 minutes or until defibrillator is available

Defibrillate patient as soon as defibrillator or AED is available

Attach Cardiac Monitor

Defibrillate patient as soon as defibrillator or AED is available

Deliver Shock x 1 if indicated

CPR x 5 cycles / 2 minutes

Airway Protocol

Deliver Shock x 1 if indicated

Maintain CPR / Airway

Follow AED Prompts (If applicable)

Continue CPR

IV / IO Protocol

CONTACT MEDICAL CONTROL

TRANSPORT

AT ANY TIME

Return of Spontaneous Circulation

GO TO POST RESUSCITATION CARDIAC CARE PROTOCOL
GENERAL CONSIDERATIONS:

- Exam: Mental Status
- Success is based on proper planning and execution. Procedures require space and patient access. Make room to work.
- Immediately resume chest compressions after defibrillation.
- Reassess airway frequently and with every patient move.
- Maternal Arrest - treat mother per appropriate protocol with immediate notification to Medical Control and rapid transport.
- If the patient converts to another rhythm, refer to the appropriate protocol and treat accordingly to Return of Spontaneous Circulation Protocol.
- Attempt to obtain patient history from family members or bystanders.
  1) estimated downtime
  2) medical history
  3) complaints prior to arrest
  4) bystander CPR prior to EMS arrival
  5) AED / CPR prior to EMS arrival
- Administer Dextrose only if the patient has a Glucose Level less than 80 with associated symptoms and is to be administered as soon as hypoglycemia is determined.
- Reassess the patient if the interventions do not produce any changes.
- If indicated, refer to the Termination of Resuscitative Efforts Protocol.

During CPR Remember: *Check pulse only at end of 2 minute cycle of CPR if an organized rhythm is present on the monitor ***Consider LUCAS Device + ResQPOD***

Endotracheal Guidelines - Adult and Peds

Medications down the endotracheal tube is to be used only if IV/EJ/IO routes cannot be established. Lidocaine, Epi., Atropine, Narcan can be given down the ET Tube.

The optimal dose of most drugs given by ET is unknown.

ET drugs deliver low blood levels. All drugs are given 2-3x's normal dose.

Instill the drug while briefly holding compressions, follow with 5 mL (smaller with neonates) of NS flush, followed by 5 positive-pressure ventilations.
CARDIAC ARREST / ACLS
ASYSTOLE / PULSELESS ELECTRICAL ACTIVITY (PEA)

UNIVERSAL PATIENT CARE PROTOCOL

Criteria for Death / DNR

Criteria for DNR

CPR for 5 cycles / 2 mins

Airway Protocol / Capnography

Apply Cardiac Monitor (AED)
Check 2 Leads

IV / IO Protocol

EPINEPHRINE
1 mg IV / IO 1:10,000 Solution Repeat every 3-5 minutes

***Meds given IV / IO when available during CPR

Resume CPR for 5 cycles / 2 mins

Treat Reversible Causes
~ Hypovolemia  ~ Hypoxia
~ Hydrogen ion (acidosis)  ~ Hypo/hyperkalemia
~ Hypothermia  ~ Tension pneumothorax
~ Tamponade, cardiac  ~ Toxins
~ Thrombosis, pulmonary  ~ Thrombosis, coronary
~ Hypoglycemia  ~ Trauma

AT ANY TIME, RETURN OF SPONTANEOUS CIRCULATION (ROSC) GO TO POST RESUSCITATION CARDIAC CARE PROTOCOL

Consider Termination if Jurisdiction Authorizes

CONTACT MEDICAL CONTROL

TRANSPORT

Review DNR Comfort Care Guidelines
Contact Medical Control
CARDIAC ARREST / ACLS

ASYSTOLE / PULSELESS ELECTRICAL ACTIVITY (PEA)

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
</table>
| • Past medical history  
  • Medications  
  • Events leading to arrest  
  • End stage renal disease  
  • Estimated downtime  
  • Suspected hypothermia  
  • Suspected overdose  
  • DNR or Living Will  
  • Tricyclics  
  • Digitalis  
  • Beta blockers  
  • Calcium channel blockers | • Pulseless  
  • Apneic  
  • No electrical activity on ECG  
  • Cyanosis | • Medical or Trauma  
  • Hypoxia  
  • Potassium (hypo / hyper)  
  • Acidosis  
  • Hypothermia  
  • Device (lead) error  
  • Death  
  • Hypovolemia  
  • Cardiac tamponade  
  • Drug overdose (Tricyclics, Digitalis, Beta blockers, calcium channel blockers)  
  • Massive Myocardial infarction  
  • Tension pneumothorax  
  • Pulmonary embolus |

CONSIDER TREATABLE / REVERSIBLE CAUSES

- Hypovolemia  
- Hypoxia  
- Hydrogen ion (acidosis)  
- Hypo-hyperkalemia  
- Hypoglycemia  
- Hypothermia  
- Tamponade, cardiac  
- Tension Pneumothorax  
- Thrombosis (coronary or pulmonary)  
- Trauma  
- Toxins

GENERAL CONSIDERATIONS:

- Exam: Mental Status  
- Always confirm asystole in more than one lead.  
- Consider each possible cause listed in the differential. Survival is based on identifying and correcting the cause!

Endotracheal Guidelines - Adult and Peds

1) Medications down the endotracheal tube is to be used only if IV/EJ/IO routes cannot be established  
2) Lidocaine, Epi., Atropine, Narcan can be given down the ET Tube  
3) The optimal dose of most drugs given by ET is unknown  
4) ET drugs deliver low blood levels. All drugs are given 2-3x’s normal dose.  
5) Instill the drug while briefly holding compressions, follow with 5 mL (smaller with neonates) of NS flush, followed by 5 positive-pressure ventilations.
CARDIAC ARREST / ACLS
VENTRICULAR FIBRILLATION (V-FIB)
PULSELESS VENTRICULAR TACHYCARDIA

UNIVERSAL PATIENT CARE PROTOCOL

Criteria for Death / DNR

Perform CPR until defibrillator is available

Apply Cardiac Monitor Defibrillator / AED

Defibrillate 360 J or biphasic equivalent

Resume effective CPR x 5 cycles / 2 minutes, then check pulse and rhythm

AIRWAY PROTOCOL

Defibrillate 360 J or biphasic equivalent

Continue effective CPR x 5 cycles / 2 minutes, then check pulse and rhythm

EPINEPHRINE 1 mg IV/IO
1:10,000 Solution
Repeat every 3 – 5 minutes

* Meds given IV / IO when available during CPR at beginning of 2 min cycle

Defibrillate 360 J or biphasic equivalent

Continue effective CPR x 5 cycles / 2 minutes, then check pulse and rhythm

Give Antiarrhythmic during CPR

Defibrillate 360 J after 5 cycles of CPR or biphasic equivalent

Continue effective CPR x 5 cycles / 2 minutes, then check pulse and rhythm

CONTACT MEDICAL CONTROL

TRANSPORT

Withhold Resuscitation and review DNR Comfort Care Guidelines

AMIODARONE
300 mg IV/IO
May repeat @ 150 mg IV/IO once in 3 – 5 minutes

OR

CONSIDER MAGNESIUM SULFATE
1-2g slow IV/IO (Torsades, ONLY)

AT ANY TIME RETURN OF SPONTANEOUS CIRCULATION (ROSC) GO TO POST RESUSCITATION CARDIAC CARE PROTOCOL

Consider Termination if Jurisdiction Authorizes

Southwest General Health Center /EMS Services
ACLs/Arrhythmias

Ventricular Fibrillation (V – FIB)
Pulseless Ventricular Tachycardia

### History
- Estimated down time
- Past medical history
- Medications
- Events leading to arrest
- Renal failure / dialysis
- DNR or Living Will

### Signs and Symptoms
- Unresponsive, apneic, pulseless
- Ventricular fibrillation or ventricular tachycardia on ECG

### Differential Diagnosis
- Asystole
- Artifact / Device failure
- Cardiac
- Endocrine / Metabolic
- Drugs
- Pulmonary

### General Considerations:
- Exam: Mental Status
- Effective CPR should be as continuous as possible with a minimum of 5 cycles or 2 minutes.
- Reassess and document at least two methods of confirming endotracheal tube placement and end tidal CO₂ frequently, after every move, and at discharge.
- Polymorphic V-Tach (Torsades de Pointes) may benefit from administration of magnesium sulfate.
- If the patient converts to another rhythm, or has a return of circulation, refer to the appropriate protocol and treat accordingly.
- If the patient converts back to ventricular fibrillation or pulseless ventricular tachycardia after being converted to ANY other rhythm, defibrillate at the previous setting used.
- Defibrillation following effective CPR is the definitive therapy for ventricular fibrillation and pulseless ventricular tachycardia.
- Resume CPR while manual defibrillator is charging.
- The pause in chest compressions to check the rhythm should not exceed 10 seconds.
- Magnesium Sulfate should be administered early in the arrest if hypomagnesium (chronic alcoholic or malnourished patients) is suspected.
- Magnesium Sulfate can be mixed with NS or D5W.
- Amiodarone is the antiarrhythmic of choice in treating VF, Pulseless VT.
- Amiodarone is only compatible with D5W.
- 1st dose of vasopressor (Epinephrine) may be given after 1st defibrillation if IV/IO access is available.
## CARDIAC ARREST / ACLS

### POST-CARDIAC ARREST CARE

#### Consider transport of resuscitated patient to facility with hypothermic resuscitation protocol where available.

**Return of Spontaneous Circulation (ROSC)**

**UNIVERSAL PATIENT CARE PROTOCOL**

- Optimize ventilation and oxygenation
  - Maintain oxygen saturation ≥ 94%
  - Consider advanced airway and waveform capnography
  - Do not hyperventilate

**IV/IO Protocol**

- Treat hypotension (SBP < 90 mm Hg)

**Apply Cardiac Monitor**

- Defibrillator / AED
- Complete 12 Lead and Transmit

**Vital Signs**

### Hypotension

- Consider Fluid Bolus 1-2 L NS or LR

- DOPAMINE 5-10 mcg / kg / min IV
  - Titrate to effect

- Consider treatable causes

### Ventricular Ectopy

- AMIODARONE 150 mg IV mixed in 50 ml D5W over 10 minutes for ventricular ectopy if not previously given

- Refer to Post-Resuscitation Cardiac Care induced Hypothermia Protocol if pt remains unresponsive

- If arrest reoccurs, revert to appropriate protocol

- CONTACT MEDICAL CONTROL

### Bradycardia

- Treat per Bradycardia Protocol

- Reversible Causes
  - Hypovolemia
  - Hypoxia
  - Hydrogen ion (acidosis)
  - Hypoglycemia
  - Hypo-/hyperkalemia
  - Hypothermia
  - Tension pneumothorax
  - Tamponade, cardiac
  - Toxins
  - Thrombosis, pulmonary
  - Thrombosis, coronary
  - Trauma

### CONTACT MEDICAL CONTROL

TRANSPORT
GENERAL CONSIDERATIONS:

- Exam: Mental Status, Neck, Skin, Lungs, Heart, Abdomen, Extremities, Neuro
- Most patients immediate post resuscitation will require ventilator assistance.
- Monitor continuous waveform capnography.
- Obtain 12-Lead ECG as soon as possible after ROSC to identify patients with STEMI or high suspicion of AMI.
- Transport patients with Acute MI to a facility capable of performing PCI.
- The condition of post-resuscitation patients fluctuates rapidly and continuously, and they require close monitoring.
- Appropriate post-resuscitation management can best be planned in consultation with Medical Control.
- This is the period of time between restoration of spontaneous circulation and the transfer of care at the emergency department. The focus is aimed at optimizing oxygenation and perfusion.
- Post resuscitation SVT should initially be left alone, but routinely monitor the patient. Follow Narrow Complex Tachycardia Protocol or contact Medical Control if the patient becomes hypotensive.
- If the patient is profoundly bradycardic, refer to the Sinus Bradycardia Protocol and treat accordingly.
- Adequate oxygenation is the key to a good outcome. Maintain SPO$_2$ > 94%.
- Amiodarone is only compatible with D5W.
- Continuous quantitative waveform capnography is now recommended for intubated patients throughout the periarrest period. When quantitative waveform capnography is used for adults, applications now include recommendations for confirming tracheal tube placement and for monitoring CPR quality and detecting ROSC based on end-tidal carbon dioxide (PETCO$_2$) or (ETCO$_2$) values.
- 12 Lead completed and transmitted.

### ACLS/ARRHYTHMIAS

#### POST-CARDIAC ARREST CARE

<table>
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<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory arrest</td>
<td>Return of pulse</td>
<td>Continue to address specific differentials associated with the original dysrhythmia</td>
</tr>
<tr>
<td>Cardiac arrest</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

West General Health Center /EMS Services
**RECEIVING HOSPITAL MUST BE ABLE TO CONTINUE COOLING!**

Use of this protocol is dependent on the ability of the receiving hospital to continue the induced hypothermia protocol. Targeted Temperature Management. Do not begin induced hypothermia if the receiving hospital is unable to continue cooling.

Use this protocol in conjunction with standard post resuscitation care. Maintain BP and heart rhythm with treatments in the *post resuscitation cardiac care* protocol. If patient loses pulses / re-arrests discontinue induced hypothermia and treat per appropriate arrest protocol.

---

**COMATOSE ADULT PATIENT WITH A RETURN OF SPONTANEOUS CIRCULATION (ROSC)**

All patients in ROSC are eligible for TTM (Targeted Temperature Management)

- Advanced airway in place?
  - Intubated, or King airway
  - Capnography Procedure – maintain CO₂ 35-40 mmHg

- Apply Cold Packs

- Patient is shivering?

  - TRANSPORT
    - Transport to facility with hypothermic resuscitation protocol/Targeted Temperature Management

  - CONTACT MEDICAL CONTROL

---

**Do not delay transport to begin hypothermia protocol**

**Place advanced Airway or treat by post resuscitation cardiac care protocol**

**MIDAZOLAM (VERSED) 2-4 mg IV / IO**

To reduce shivering
GENERAL CONSIDERATIONS:

- Exam: Mental Status, Neck, Skin, Lungs, Heart, Abdomen, Extremities, Neuro
- Most patients immediate post resuscitation will require ventilator assistance.
- The condition of post-resuscitation patients fluctuates rapidly and continuously, and they require close monitoring.
- Appropriate post-resuscitation management can best be planned in consultation with Medical Control.
- This is the period of time between restoration of spontaneous circulation and the transfer of care at the emergency department. The focus is aimed at optimizing oxygenation and perfusion.
- Post resuscitation SVT should initially be left alone, but routinely monitor the patient. Follow Narrow Complex Tachycardia Protocol or contact Medical Control if the patient becomes hypotensive.
- If the patient is profoundly bradycardic, refer to the Sinus Bradycardia Protocol and treat accordingly.
- Adequate oxygenation is the key to a good outcome. Maintain SPO$_2$ $\geq$ 94%.
- Amiodarone is only compatible with D5W.
- Continuous quantitative waveform capnography is now recommended for intubated patients throughout the periarrest period. When quantitative waveform capnography is used for adults, applications now include recommendations for confirming tracheal tube placement and for monitoring CPR quality and detecting ROSC based on end-tidal carbon dioxide (PETCO$_2$) or (ETCO$_2$) values.
- 12 Lead completed and transmitted.
EMS Services

Section 6

PRE-HOSPITAL CARE

MEDICAL CONTROL

PROTOCOLS AND PROCEDURES
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<td>Toxic Inhalation / Carbon Monoxide</td>
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</table>
MEDICAL EMERGENCIES

ABDOMINAL PAIN

Hypotensive?

Yes

Evidence of dehydration, nausea, vomiting

NO

Consider Acute Coronary Syndrome Protocol

Consider Pain Management Protocol

CONTACT MEDICAL CONTROL

TRANSPORT

Universal Patient Care Protocol

Yes

Evidence of dehydration, nausea, vomiting

Consider Acute Coronary Syndrome Protocol

Consider Pain Management Protocol

CONTACT MEDICAL CONTROL

TRANSPORT

IV Normal Saline wide open to maintain systolic BP of 90mm Hg

Consider Zofran 2 – 4 mg IM or IV over 30 seconds or Zofran 4mg ODT (orally dissolving tablets)

Yes

Consider Acute Coronary Syndrome Protocol

Consider Pain Management Protocol

CONTACT MEDICAL CONTROL

TRANSPORT

IV Normal Saline wide open to maintain systolic BP of 90mm Hg

Consider Zofran 2 – 4 mg IM or IV over 30 seconds or Zofran 4mg ODT (orally dissolving tablets)
GENERAL CONSIDERATIONS:

- Required Exam: Mental Status, Skin, HEENT, Neck, Heart, Lung, Abdomen, Back, Extremities, Neuro
- Abdominal pain in women of childbearing age should be treated as an ectopic pregnancy until proven otherwise.
- The diagnosis of abdominal aneurysm should be considered with abdominal pain in patients over 50.
- Appendicitis presents with vague, peri-umbilical pain, which migrates, to the RLQ over time. It is important to remember that abdominal pain can be caused by a large number of different disease processes. The organ systems that may be involved in abdominal pain include esophagus, stomach, intestinal tract, liver, pancreas, spleen, kidneys, male and female genital organs, bladder, as well as referred pain from the chest that can involve the heart, lungs or pleura. Abdominal pain may also be caused by muscular and skeletal problems.
- Abdominal pain emergencies are likely to lead to death due to blood or fluid loss with resultant shock. There may also be severe electrolyte abnormalities that can cause arrhythmias.
- Myocardial Infarction may present as abdominal pain especially in the diabetic and elderly.
- If the abdominal pain may be of cardiac origin, perform cardiac monitoring and a 12-Lead EKG.
- DKA may present with abdominal pain and vomiting. Check blood glucose levels.
- Zofran (Ondansetron) may be given for nausea and vomiting. Starting dose 2 – 4 mg IV/IM give deep IM or slow through a patient IV line over 30 seconds. May also give 4mg ODT.

[Table]

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Pain (location / migration)</td>
<td>Pneumonia or Pulmonary embolus</td>
</tr>
<tr>
<td>Past medical / surgical history</td>
<td>Tenderness</td>
<td>Liver (hepatitis, CHF)</td>
</tr>
<tr>
<td>Medications</td>
<td>Nausea</td>
<td>Peptic ulcer disease</td>
</tr>
<tr>
<td>Onset</td>
<td>Vomiting</td>
<td>Gastritis</td>
</tr>
<tr>
<td>Quality (crampy, constant sharp, dull, etc.)</td>
<td>Diarrhea</td>
<td>Gallbladder</td>
</tr>
<tr>
<td>Region / Radiation Referred</td>
<td>Dysuria</td>
<td>Myocardial infarction</td>
</tr>
<tr>
<td>Severity (1-10)</td>
<td>Constipation</td>
<td>Pancreatitis</td>
</tr>
<tr>
<td>Time (duration/repetition)</td>
<td>Vaginal bleeding / discharge</td>
<td>Kidney stone</td>
</tr>
<tr>
<td>Fever</td>
<td>Pregnancy</td>
<td>Abdominal aneurysm</td>
</tr>
<tr>
<td>Last meal eaten</td>
<td>Associated symptoms: (Helpful to localize source) Fever, headache, weakness, malaise, myalgias, cough, headache, mental status changes, rash</td>
<td>Appendicitis</td>
</tr>
<tr>
<td>Last bowel movement / emesis</td>
<td></td>
<td>Bladder / Prostate disorder</td>
</tr>
<tr>
<td>Menstrual history (pregnancy)</td>
<td></td>
<td>Pelvic (PID, Ectopic, pregnancy, Ovarian cyst)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Spleen enlargement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diverticulitis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bowel obstruction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gastroenteritis (infectious)</td>
</tr>
</tbody>
</table>
## MEDICAL EMERGENCIES

### ALLERGIC REACTION

#### UNIVERSAL PATIENT CARE PROTOCOL

**IV PROTOCOL**

- Apply Cardiac Monitor and Assess Vitals

#### (Adult Any Age) Impending Arrest

- Severe Hypotension
- No response to Epi
- Decreased level of consciousness
- Airway compromise

**CONTACT MEDICAL CONTROL**

**TRANSPORT**

### IV PROTOCOL

<table>
<thead>
<tr>
<th>B</th>
<th>EMT-B</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>EMT-A</td>
<td>A</td>
</tr>
<tr>
<td>P</td>
<td>EMT-P</td>
<td>P</td>
</tr>
<tr>
<td>M</td>
<td>MED CONTROL</td>
<td>M</td>
</tr>
</tbody>
</table>

#### Mild

- Hive/Rash, itching,
  - NO difficulty breathing or throat tightening,
  - BP – normal limits

- Oxygen per cannula

- Benadryl 25-50 mg IV or IM

- Consider Epi if history of severe reaction

#### Moderate

- Rash, itching,
  - Wheezing,
  - Throat tightening,
  - Swelling, face lips,
  - BP – normal limits

- Oxygen per NRB

- Assist with Epi-pen

*For patients over 65 yrs. in category mild, moderate or severe, may give Glucagon 1 mg IV/IM/IN before Epi*

#### Severe

- Rash, itching,
  - Airway compromise
  - Wheezing,
  - Swelling,
  - Hypotension

- Oxygen per NRB

- Assist with Epi-pen

*For patients over 65 yrs. in category mild, moderate or severe, may give Glucagon 1 mg IV/IM/IN before Epi*

- Epinephrine 1:1000
  - 0.3-0.5 mL subcut./IM

- Benadryl 25-50 mg IV or IM

- IV with NS-Bolus 200-400 mL

- Albuterol Aerosol
  - Watch airway & breathing

**Consider repeat Epi after 5 min. if no improvement**

**Consider Dopamine if no improvement**

- Epinephrine 1:10,000
  - 0.3-0.5 mg IVP

- IV NS wide open

- Control airway via BVM

**Follow ACLS**
GENERAL CONSIDERATIONS:

- Exam: Mental Status, Skin, Heart, Lungs
- Contact Medical Control prior to administering epinephrine in patients who are greater than 65 years of age, have a history of cardiac disease, or if the patient's heart rate is greater than 150. Epinephrine may precipitate cardiac ischemia.
- Any patient with respiratory symptoms or extensive reaction should receive IV or IM Benadryl (diphenhydramine).
- The shorter the onset from symptoms to contact, the more severe the reaction.
- Routine assessment and supportive care of the patient’s respiratory and cardiovascular systems is required.
- Treat patients with a history of anaphylaxis aggressively.
- Use caution when using epinephrine for patients over 50 years of age.
- Use caution when using epinephrine for patients with a heart rate greater than 150 bpm.
- When possible, remove any stingers.
- Apply cardiac monitor prior to administering Epinephrine IM/Subcut.

### ALLERGIC REACTION

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
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<td>Onset and location</td>
<td>Itching or hives</td>
<td>Urticaria (rash only)</td>
</tr>
<tr>
<td>Insect sting or bite</td>
<td>Coughing / wheezing or respiratory distress</td>
<td>Anaphylaxis (systemic effect)</td>
</tr>
<tr>
<td>Food allergy / exposure</td>
<td>Chest or throat constriction</td>
<td>Shock (vascular effect)</td>
</tr>
<tr>
<td>Medication allergy / exposure</td>
<td>Difficulty swallowing</td>
<td>Angioedema (drug induced)</td>
</tr>
<tr>
<td>New clothing, soap, detergent</td>
<td>Hypotension or shock</td>
<td>Aspiration / Airway obstruction</td>
</tr>
<tr>
<td>Past history of reactions</td>
<td>Edema</td>
<td>Vasovagal event</td>
</tr>
<tr>
<td>Past medical history</td>
<td></td>
<td>Asthma or COPD</td>
</tr>
<tr>
<td>Medication history</td>
<td></td>
<td>CHF</td>
</tr>
</tbody>
</table>

**MEDICAL EMERGENCIES**
MEDICAL EMERGENCIES
ALTERED LEVEL OF CONSCIOUSNESS

UNIVERSAL PATIENT CARE PROTOCOL

Spinal Immobilization Protocol

IV Protocol

Blood Glucose Analysis

If Glucose below 40
One 250mL bag of a 10% DEXTROSE solution

If Glucose between 40-60 or below 80 with symptoms
ORAL GLUCOSE 1 TUBE (If alert with no IV Access)
1/2 bag of a 250mL of a 10% DEXTROSE solution
GLUCAGON 1 mg IV/IM/IN

If Glucose between 60-250
Titrate Narcan 2-10 mg IV/IN

If Glucose greater than 250 (Signs of dehydration)
Normal Saline Bolus

Consider Other Causes:
Head Injury
Stroke
Hypoxia

*Overdose- if cardiac/respiratory arrest, consider giving maximum dose of Narcan

Return to Baseline
Yes
12 Lead EKG
CONTACT MEDICAL CONTROL

TRANSPORT

RESTRAINT MAY BE NEEDED TO PROTECT THE PATIENT AND EMS PERSONNEL. SEE RESTRAINT POLICY.
GENERAL CONSIDERATIONS:

- Exam: Mental Status, HEENT, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro
- Be aware of AMS as presenting sign of an environmental toxin or Haz-Mat exposure and protect personal safety.
- It is safer to assume hypoglycemia than hyperglycemia if doubt exists.
- Low glucose (less than 80), normal glucose (80 - 120), high glucose (greater than 250).
- Consider Restraints if necessary for patient's and / or personnel's protection per the restraint procedure.
- Protect the patient airway and support ABCs.
- Document the patient's initial Glasgow Coma Score.
- Naloxone (Narcan) administration may cause the patient to go into acute opiate withdraw, which includes vomiting, agitation, and / or combative behavior. Always be prepared for combative behavior.
- Naloxone (Narcan) may wear off in as little as 20 minutes causing the patient to become more sedate and possibly hypoventilate. All patients receiving Naloxone (Narcan) MUST be transported.

### MEDICAL EMERGENCIES

#### ALTERED LEVEL OF CONSCIOUSNESS

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Known diabetic, medic alert tag</td>
<td>Decreased mental status</td>
<td>Head trauma</td>
</tr>
<tr>
<td>Drugs, drug paraphernalia</td>
<td>Change in baseline mental status</td>
<td>CNS (stroke, tumor, seizure, infection)</td>
</tr>
<tr>
<td>Report of illicit drug use or toxic ingestion</td>
<td>Bizarre behavior</td>
<td>Cardiac (MI, CHF)</td>
</tr>
<tr>
<td>Past medical history</td>
<td>Hypoglycemia (cool, diaphoretic skin)</td>
<td>Infection</td>
</tr>
<tr>
<td>Medications</td>
<td>Hyperglycemia (warm, dry skin, fruity breath, Kussmaul resps; signs of dehydration)</td>
<td>Thyroid (hyper / hypo)</td>
</tr>
<tr>
<td>History of trauma</td>
<td></td>
<td>Shock (septic, metabolic, traumatic)</td>
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<tr>
<td></td>
<td></td>
<td>Diabetes (hyper / hypoglycemia)</td>
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<tr>
<td></td>
<td></td>
<td>Toxicologic</td>
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<td></td>
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<td>Acidosis / Alkalosis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Environmental exposure</td>
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<td></td>
<td></td>
<td>Pulmonary (Hypoxia)</td>
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<tr>
<td></td>
<td></td>
<td>Electrolyte abnormalility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Psychiatric disorder</td>
</tr>
</tbody>
</table>

Southwest General Health Center/EMS Services
Revised 03/2007, 06/2007, 10/2008, 01/2012, 06/2012, 05/2015
MEDICAL EMERGENCIES

BEHAVIORAL / PSYCHIATRIC EMERGENCIES

SCENE SAFETY
SUMMON LAW ENFORCEMENT

UNIVERSAL PATIENT CARE PROTOCOL
Remove patient from stressful environment

Verbal techniques
(reassurance, calm, establish rapport)

Treat Suspected Problems per Appropriate Protocol

Altered Mental Status
Overdose
Head Trauma
Hypoglycemia

For use in ADULT Psychosis
Only
Not for Medical Emergencies Such As Hypoxemia, Sepsis, Seizure, Encephalitis, Hypoglycemia, or Stroke

Agitation-Not Combative

If Patient Agitated Consider
LORAZEPAM (ATIVAN)
1-2 mg IV/IM/IN
Or
MIDAZOLAM (VERSED)
2 mg IV/IO or 5mg IN/IM

CAPNOGRAPHY PROCEDURE

Constant reassessment of ABC’s, personal, and patient safety

TRANSPORT to appropriate facility
CONTACT receiving facility
CONSULT Medical Direction where indicated

Combative – Threat to Self or Others

RERAINT PROCEDURE

If Patient Agitated Consider
LORAZEPAM (ATIVAN)
1-2 mg IV/IM/IN
Or
MIDAZOLAM (VERSED)
2 mg IV/IO or 5mg IN/IM

ALSO if needed: HALOPERIDOL (HALDOL)
5 mg IM ONLY
>65 years, 2.5 mg IM

Anytime after injection: If Fasciculations, Extrapyramidal Symptoms (EPS) Like Dystonia
*Benadryl to counteract reaction to Haldol

DIPHENHYDRAMINE (BENADRYL)
25-50 MG IV/IM

Do Not Mix HALOPERIDOL (HALDOL) and DIPHENHYDRAMINE (BENADRYL)

In the same syringe - Incompatible

CAPNOGRAPHY PROCEDURE

Southwest General Health Center/EMS Services
Revised 03/2007, 06/2007, 10/2008, 01/2012, 06/2012, 05/2015
MEDICAL EMERGENCIES

BEHAVIORAL/PSYCHIATRIC EMERGENCIES

ALL RESPONDERS SHOULD HAVE A HEIGHTENED AWARENESS OF SCENE SAFETY

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Situational crisis</td>
<td>• Anxiety, agitation, confusion</td>
<td>• See Protocol: Altered Mental Status differential diagnosis</td>
</tr>
<tr>
<td>• Psychiatric illness / medications</td>
<td>• Affect change, hallucinations</td>
<td>• Alcohol Intoxication</td>
</tr>
<tr>
<td>• Injury to self or threats to others</td>
<td>• Delusional thoughts, bizarre behavior</td>
<td>• Toxin / Substance abuse</td>
</tr>
<tr>
<td>• Medic alert tag</td>
<td>• Combative violent</td>
<td>• Medication effect / overdose</td>
</tr>
<tr>
<td>• Substance abuse / overdose</td>
<td>• Expression of suicidal / homicidal thoughts</td>
<td>• Withdrawal syndromes</td>
</tr>
<tr>
<td>• Diabetes</td>
<td></td>
<td>• Depression</td>
</tr>
</tbody>
</table>

Criteria for Restraint Use:
1. Patient out of control and may cause harm to self or others.
2. Necessary force required for patient control without causing harm.
3. **Position of patient must not impede airway or breathing.**
4. Restraints must not impede circulation.
5. Place mask on patient for body secretion protection.
6. May use TB mask, or Non-rebreather if patient needs oxygen.
7. Use supine or lateral positioning ONLY.
8. Frequent distal neurovascular checks are required.
9. DOCUMENT methods used.

Criteria for Chemical Restraint Use:
1. Patient out of control and may cause harm to self or others.
2. Patient is NOT a medical patient (treat underlying causes).
3. Patient is an ADULT patient.
4. Haloperidol (Haldol) IM can be given safely without harm to patient or EMS.
5. Use necessary force required for patient control without causing harm.
6. **Position of patient must not impede airway or breathing.**
7. DOCUMENT methods used.

GENERAL CONSIDERATIONS:
• Exam: Mental Status, Skin, Heart, Lungs, Neuro
• All psychiatric patients must have medical clearance at a hospital ED before transport to a mental health facility.
• Be alert for rapidly changing behaviors. Your safety first!!
• Haldol: if older than 65 yrs. of age, give 2.5 mg IM.
• Be sure to consider all possible medical / trauma causes for behavior (hypoglycemia, overdose, substance abuse, hypoxia, head injury, etc.).
• Do not irritate the patient with a prolonged exam.
• Do not overlook the possibility of associated domestic violence or child/elder abuse.
• The safety of on scene personnel is the first priority. Protect yourself and others by summoning Law Enforcement to assure everyone’s safety and if necessary, to enable you to render care. Do not approach the patient if he/she is armed with a weapon.
• Consider the medical causes of acute psychosis. Causes may include; head trauma, hypoglycemia, acute intoxication, sepsis, CNS insult and hypoxia.
• Suicide ideation or attempts must be transported for evaluation.
• Limit patient stimulation and use de-escalation techniques.
• If the patient has been placed in handcuffs by a law enforcement agency, then a member from that agency MUST ride with the patient in the ambulance to the hospital.
**MEDICAL EMERGENCIES**

**DIABETIC EMERGENCIES**

**UNIVERSAL PATIENT CARE PROTOCOL**

**IV Protocol**

**Blood Sugar Analysis**

- **If Glucose below 40**
  - One 250mL bag of a 10% DEXTROSE solution
  - Recheck Blood Glucose

- **If Glucose between 40-60 or below 80 with symptoms**
  - ORAL GLUCOSE 1 TUBE (If alert with no IV Access)
    - 1/2 bag of a 250mL of a 10% DEXTROSE solution
  - GLUCAGON 1mg IV/IM/IN (If no IV Access)
  - Recheck Blood Glucose
  - Monitor and Reassess
  - Apply Cardiac Monitor / 12 Lead
  - CONTACT MEDICAL CONTROL
  - TRANSPORT

- **If Glucose between 60-250**
  - No Treatment Monitor and Transport

- **If Glucose greater than 250 (Signs of dehydration)**
  - NORMAL SALINE, IV wide open if S/S and no contraindications

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Southwest General Health Center/EMS Services
Revised 03/2007, 06/2007, 10/2008, 01/2012, 06/2012, 05/2015, 06/2017
GENERAL CONSIDERATIONS:

Hyperglycemia:
- Diabetic Ketoacidosis (DKA) is a complication of diabetes mellitus. It can occur when insulin levels become inadequate to meet the metabolic demands of the body for a prolonged amount of time (onset can be within 12-24 hours). Without enough insulin the blood glucose increases and cellular glucose depletes. The body removes excess blood glucose by dumping it into the urine. Pediatric patients in DKA should be treated as hyperglycemic under the Pediatric Diabetic Emergency Protocol.
- Patients can have Hyperglycemia without having DKA.

Hypoglycemia:
- Always suspect Hypoglycemia in patients with an altered mental status.
- If a blood glucose analysis is not available, a patient with altered mental status and signs and symptoms consistent with hypoglycemia should receive Dextrose or Glucagon.
- Dextrose is used to elevate blood glucose but it will not maintain it. The patient will need to follow up with a meal, if not transported to a hospital.

Miscellaneous:
- If IV access is successful after Glucagon IM/IN and the patient is still symptomatic, Dextrose IV can be administered.
- Shut off wearable insulin pumps if patient is hypoglycemic.
MEDICAL EMERGENCIES
DIALYSIS / RENAL PATIENT

UNIVERSAL PATIENT CARE PROTOCOL

Airway Protocol

Monitor Vital Signs

IV PROTOCOL
Use shunt ONLY in full arrest

Apply Cardiac Monitor / 12 Lead

Breathing Difficulty

Assess Breath Sounds

See Respiratory Distress Protocol

Chest Pain

Treat with Appropriate ACLS Protocol

CONTACT MEDICAL CONTROL

Pulmonary Edema

See Pulmonary Edema Protocol

TRANSPORT
**MEDICAL EMERGENCIES**

**DIALYSIS / RENAL PATIENTS**

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renal Failure</td>
<td>Hypotension</td>
<td>Congestive Heart Failure</td>
</tr>
<tr>
<td>Dialysis Treatment</td>
<td>Bleeding</td>
<td>Pericarditis</td>
</tr>
<tr>
<td>Anemia</td>
<td>Fever</td>
<td>Diabetic Problem</td>
</tr>
<tr>
<td>Dialysis treatment schedule</td>
<td>Electrolyte Imbalances</td>
<td></td>
</tr>
<tr>
<td>Previous implications</td>
<td>Nausea</td>
<td></td>
</tr>
<tr>
<td>Long term catheter access</td>
<td>Vomiting</td>
<td></td>
</tr>
<tr>
<td>Shunt access</td>
<td>Altered Mental Status</td>
<td></td>
</tr>
<tr>
<td>Hyperkalemia</td>
<td>Seizure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dysrhythmias</td>
<td></td>
</tr>
</tbody>
</table>

**GENERAL CONSIDERATIONS:**

The Chronic Renal Dialysis patient has numerous medical problems. The kidneys help maintain electrolyte balance, acid-base balance and rid the body of metabolic waste. Kidney Failure results in a build-up of toxins within the body, which can cause many problems. Dialysis is a process, which filters out the toxins, excess fluids and restores electrolyte balance. The process may be done in two ways:

1. **Peritoneal Dialysis**
   
   Toxins are absorbed by osmosis through a solution infused into the peritoneal cavity, and then drained out. The solution is placed into the abdomen by means of a catheter, which is placed below the navel. This process must be done frequently, as much as every 12 hours for a period of 1 – 2 hours.

2. **Hemodialysis**
   
   Removes toxins by directly filtering the blood using equipment that functions like an electric kidney, circulating the blood through a Shunt that is connected to a vein and an artery. A permanent Shunt can be surgically formed as a Fistula. This process usually needs to be done every 2 - 3 days for a period of 3 - 5 hours.

**POSSIBLE COMPLICATIONS OF DIALYSIS TREATMENT**

1. **Hypotension (15-30%)**
   
   - May result in angina, MI, dysrhythmia, altered mental status, and seizure

2. **Removal of therapeutic medications**
   
   - Example: Tegretol

3. **Disequilibrium syndrome**
   
   - Cause: shift of urea and / or electrolytes
   - Signs and symptoms: Nausea and / or vomiting, altered mentation, or seizure

4. **Bleeding**
   
   - These patients are often treated with heparin and they may have a low platelet count
   - Bleeding may be at the catheter site, retroperitoneal, gastrointestinal, or subdural

5. **Equipment malfunctions**
   
   - Possible air embolus
   - Possible fever or endotoxin
   - Do not take blood pressure in arm that has the shunt. Use Shunt for IV access ONLY if Full Arrest.
   - A dialysis patient may not respond to drug therapy. A renal patient in full cardiac arrest should be treated according to current ACLS guidelines. Also consider concurrent treatment as above for hyperkalemia.
   - May only access patient’s shunt if the patient is in full arrest or near full arrest. Notify Medical Control immediately.
MEDICAL EMERGENCIES

ESOPHAGEAL FOREIGN BODY OBSTRUCTION

UNIVERSAL PATIENT CARE PROTOCOL

Airway Obstruction

↓

Difficulty Breathing
Coughing
Difficulty / Unable to Talk

To Airway Protocol

Esophageal Obstruction

↓

Salivation
Unable to Swallow
Secretions

Patient is in Distress
Evaluate Level of Obstruction

LOW (Neck Down)

IV PROTOCOL

Give 1mg Well Mixed Glucagon IV/IN
If less than 20kg give ½ mg Glucagon IV/IN
Works in 5 – 20 minutes

CONTACT MEDICAL CONTROL

TRANSPORT
GENERAL CONSIDERATIONS:

- Rule out airway obstruction first.
- Patient may be helpful in identifying location of bolus obstruction as they can feel it, point to it.
- If bolus is located in neck area, glucagon will not work just monitor and transport.
- If bolus located from neck down, proceed with glucagon treatment.
- Treat patients less than 20 kg with ½ mg dose of glucagon.
- Glucagon affect will take from 5-20 minutes.

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
</table>
| Onset during eating or swallowing pills, etc. | Salivation  
Unable to swallow secretions  
Distressed patient  
Able to breathe but may feel impaired | Airway obstruction – coughing, unable to speak, difficulty breathing |
HYPERTHERMIA / HEAT EXPOSURE

UNIVERSAL PATIENT CARE PROTOCOL

Document patient temperature

Remove patient from heat source

Apply room temperature water to patient
Skin and Increase Air Flow Around Patient

IV PROTOCOL
Heat exhaustion: IV NS wide open
Heat Stroke: IV NS TKO

Core body temperature > 104°F
Apply ice packs to patient
(Groin, Axilla & Posterior on Neck)

Monitor and Reassess

Appropriate Protocol based on patient symptoms

CONTACT MEDICAL CONTROL

TRANSPORT
GENERAL CONSIDERATIONS:

- Exam: Mental Status, Skin, HEENT, Heart, Lungs, Neuro
- Extremes of age are more prone to heat emergencies (i.e. young and old).
- Predisposed by use of: tricyclic antidepressants, phenothiazines, anticholinergic medications, and alcohol.
- Cocaine, Amphetamines, and Salicylates may elevate body temperatures.
- Sweating generally disappears as body temperature rises above 104°F (40°C).
- Intense shivering may occur as patient is cooled.
- **Heat Cramps** consists of benign muscle cramping 2° to dehydration and is not associated with an elevated temperature.
- **Heat Exhaustion** consists of dehydration, salt depletion, dizziness, fever, mental status changes, headache, cramping, nausea and vomiting. Vital signs usually consist of tachycardia, hypotension, and an elevated temperature.
- **Heat Stroke** consists of dehydration, tachycardia, hypotension, temperature greater than 104°F (40°C), and an altered mental status.
- Patients at risk for heat emergencies include neonates, infants, geriatric patients, and patients with mental illness. Other contributory factors may include heart medications, diuretics, cold medications and/or psychiatric medications.
- Heat exposure can occur either due to increased environmental temperatures or prolonged exercise or a combination of both. Environments with temperature greater than 90°F and humidity greater than 60% present the most risk.
- Heat stroke occurs when the cooling mechanism of the body (sweating) ceases due to temperature overload and/or electrolyte imbalances. Be alert for cardiac dysrhythmias for the patient with heat stroke.
- Heat stroke may involve cerebral edema and increase intracranial pressure, therefore requiring less IV fluid.
- Ice packs to groin, axilla and posterior on neck if Core body temperature > 104°F.
MEDICAL EMERGENCIES

HYPERTENSIVE EMERGENCIES

UNIVERSAL PATIENT CARE PROTOCOL

IV PROTOCOL

Apply Cardiac Monitor
Assess Neuro Status - Cincinnati Stroke / Assessment
BP in both arms (similar? recheck, notify Medical Control if not similar)

Give NITROGLYCERIN
0.4 mg SL (x 1)
ONLY IF:
Manual Systolic greater than 180
and
Diastolic greater than 120 in both arms
ALONG WITH:
signs and symptoms of:
CHF or cardiac ischemic chest pain,
headache, blurred vision, focal deficit or altered LOC, nosebleed

Monitor and Reassess

CONTACT MEDICAL CONTROL

TRANSPORT
Head elevated greater than 30 Degrees
### MEDICAL EMERGENCIES

### HYPERTENSIVE EMERGENCIES

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documented hypertension related diseases</td>
<td>Systolic BP 180 or greater</td>
<td>Hypertensive Encephalopathy</td>
</tr>
<tr>
<td>Diabetes, CVA, Renal Failure, Cardiac</td>
<td>Diastolic BP 120 or greater</td>
<td>Primary CNS Injury (Cushing’s response = bradycardia with hypertension)</td>
</tr>
<tr>
<td>Medications (compliance)</td>
<td>Along with at least one of these: headache, nosebleed, blurred vision, dizziness</td>
<td>Myocardial infarction</td>
</tr>
<tr>
<td>Viagra</td>
<td></td>
<td>Aortic dissection (aneurysm)</td>
</tr>
<tr>
<td>Pregnancy</td>
<td></td>
<td>Pre-eclampsia / Eclampsia</td>
</tr>
</tbody>
</table>

### GENERAL CONSIDERATIONS:

- Hypertensive emergencies are life-threatening emergencies characterized by an acute elevation in blood pressure AND end-organ damage to the cardiac, CNS or renal systems. These crisis situations may occur when patients have poorly controlled chronic hypertension.
- Pre-hospital treatment of hypertension is very conservative because a CVA in progress may be made worse by a drop in BP following aggressive hypertension treatment.
- Consider treatment ONLY if Diastolic is greater than 120 mm Hg (repeat bilateral BP x 2), and patient has signs and symptoms of CHF or Cardiac Ischemic Chest Pain!
- Avoid Nitroglycerin in any patient who has used Viagra or other phophodiesterase inhibitors in the past 48 hours due to potential severe hypotension.
- Nitroglycerin may be given to lower blood pressure in patients who have an elevated diastolic BP of greater than 120 mm Hg and are symptomatic with chest pain, respiratory distress, syncope, headache or mental status changes. Do not give nitro if patient presents with signs & symptoms of stroke.
- All symptomatic patients with hypertension should be transported with their head elevated.
- Evidence of neurological deficit includes: confusion, slurred speech, facial asymmetry and focal weakness, coma, lethargy, and seizure activity.
- Evidence of cardiac impairment includes: angina, jugular vein distention, chest discomfort and pulmonary edema.
- If the patient becomes hypotensive from Nitroglycerin administration, place the patient in the Trendelenburg position and administer a 200 - 400 mL Normal Saline bolus.
- Toxic ingestion such as cocaine, may present with a hypertension emergency.
- Hypertension can be a neuroprotective reflex in patients with increased intracranial pressure.
**MEDICAL EMERGENCIES**

**HYPOTHERMIA / FROSTBITE**

**UNIVERSAL PATIENT CARE PROTOCOL**

- Gently remove wet clothing

**Evidence of decreased core temperature?**

- **Yes**
  - Handle patient gently
  - Apply blankets and turn up vehicle heat

- **No**

**IV PROTOCOL**

- Appropriate Protocol
  - Based on patient Signs and Symptoms

**CONTACT MEDICAL CONTROL**
MEDICAL EMERGENCIES

HYPOTHERMIA / FROSTBITE

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past medical history</td>
<td>Cold, clammy</td>
<td>Sepsis</td>
</tr>
<tr>
<td>Medications</td>
<td>Shivering</td>
<td>Environmental exposure</td>
</tr>
<tr>
<td>Exposure to environment even in normal temperatures</td>
<td>Mental status changes</td>
<td>Hypoglycemia</td>
</tr>
<tr>
<td>Exposure to cold</td>
<td>Extremity pain or sensory abnormality</td>
<td>CNS dysfunction</td>
</tr>
<tr>
<td>Extremes of age</td>
<td>Bradycardia</td>
<td>Stroke</td>
</tr>
<tr>
<td>Drug use: Alcohol, barbituates</td>
<td>Hypotension or shock</td>
<td>Head injury</td>
</tr>
<tr>
<td>Infections / Sepsis</td>
<td></td>
<td>Spinal cord injury</td>
</tr>
<tr>
<td>Length of exposure / wetness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GENERAL CONSIDERATIONS:

- Exam: Mental Status, Heart, Lungs, Abdomen, Extremities, Neuro
- Hypothermic/drowning/near drowning patients that appear cold and dead are NOT dead until they are warm and dead, or have other signs of obvious death (putrification, traumatic injury unsustainable to life).
- Defined as core temperature less than 35° C (95° F).
- Extremes of age are more susceptible (i.e. young and old).
- Do not allow patients with frozen extremities to ambulate.
- Superficial frostbite can be treated by using the patient's own body heat.
- Do not attempt to rewarm deep frostbite unless there is an extreme delay in transport, and there is a no risk that the affected body part will be refrozen. Contact Medical Control prior to rewarming a deep frostbite injury.
- With temperature less than 31° C (88° F) ventricular fibrillation is common cause of death. Handling patients gently may prevent this (rarely responds to defibrillation).
- If the temperature is unable to be measured, treat the patient based on the suspected temperature.
- Hypothermia may produce severe bradycardia.
- Shivering stops below 32° C (90° F).
- Hot packs can be activated and placed in the armpit and groin area if available.
- Care should be taken not to place the packs directly against the patient's skin.
- Consider withholding CPR if patient has organized rhythm. Discuss with Medical Control.
- All hypothermic patients should have resuscitation performed until care is transferred, or if there are other signs of obvious death (putrification, traumatic injury unsustainable to life).
- Patients with low core temperatures will not respond to ALS drug interventions. Maintain warming procedure and supportive care. Warming procedures includes removing wet clothing, limiting exposure, and covering the patient with warm blankets if available.
- The most common mechanism of death in hypothermia is ventricular fibrillation. If the hypothermia victim is in ventricular fibrillation, CPR should be initiated. If V fib is not present, then all treatment and transport decisions should be tempered by the fact that V fib can be caused by rough handling, noxious stimuli or even minor mechanical disturbances. This means that respiratory support with 100% oxygen should be done gently, including intubation, avoiding hyperventilation.
- The heart is most likely to fibrillate between 85-88 degrees F (29-31 degrees C). Defibrillate VF / VT with one biphasic shock 120 J or monophasic equivalent.
**MEDICAL EMERGENCIES**

**SEIZURES**

**UNIVERSAL PATIENT CARE PROTOCOL**

Airway Protocol

Consider Spinal Immobilization Protocol

Loosen patient clothing / Protect Patient

**IV PROTOCOL**

**Blood Glucose Analysis and Treatment / See Diabetic Protocol**

**Status Epilepticus**

**LORAZEPAM (ATIVAN)**

0.5-1.0 mg IV/IO/IN

Or

**MIDAZOLAM (VERSED)**

2-4 mg IV/IO or 5mg IN/IM

Do not confuse **MIDAZOLAM (VERSED)** concentrations

**TRANSPORT**
GENERAL CONSIDERATIONS:

- Exam: Mental Status, HEENT, Heart, Lungs, Extremities, Neuro
- **Status epilepticus** is defined as two or more successive seizures without a period of consciousness or recovery. This is a true emergency requiring rapid airway control, treatment, and transport.
- **Grand mal seizures** (generalized) are associated with loss of consciousness, incontinence, and tongue trauma.
- **Focal seizures** (petit mal) affect only a part of the body and are not usually associated with a loss of consciousness.
- **Jacksonian seizures** are seizures which start as a focal seizure and become generalized.
- Be prepared for airway problems and continued seizures.
- Assess possibility of occult trauma and substance abuse.
- Be prepared to assist ventilations especially if Lorazepam (Ativan) is used.
- **For any seizure in a pregnant patient, follow the OB Emergencies Protocol.**
- The seizure has usually stopped by the time the EMS personnel arrive and the patient will be found in the postictal state.
- There are many causes for seizures including: epilepsy, head trauma, tumor, overdose, infection, hypoglycemia, and withdrawal. Be sure to consider these when doing your assessment.
- Routinely assess the patient’s airway.
- If the patient is combative and postical, DO NOT refer to the Restraint Procedure before assessing for / treating hypoglycemia and hypoxia.
- If the patient is actively seizing, move any objects that may injure the patient. Protect, but do not try to restrain them.
MEDICAL EMERGENCIES

STROKE / CVA

UNIVERSAL PATIENT CARE PROTOCOL

Airway Protocol
Protect airway HOB < 30° if possible
Nothing by mouth

IV PROTOCOL

Blood Glucose Analysis and Treatment / See Diabetic Protocol

Pre-hospital Stroke Screen

Facial Droop – Have patient smile
Normal – both sides equal
Abnormal – one side does not move as well

Arm Drift – Patient closes eyes and holds both arms out straight for 10 seconds
Normal – both arms move equally or not at all
Abnormal – one arm doesn’t move or drifts down compared to the other

Speech - Have patient say “you can’t teach an old dog a new trick”
Normal – patient says correctly with no slurring
Abnormal – patient slurs words, used wrong words or is unable to speak

Last time known well? 12 hours or less, notify Medical Control and activate a Stroke Alert

Maintain a high index of suspicion for any neurological emergency and activate a stroke alert.

CONTACT MEDICAL CONTROL

TRANSPORT
To CT Scan Upon Arrival

Consider other protocols as indicated

Altered Mental Status Protocol
Seizure Protocol

Bring family or caregivers in with patient if possible for history
### MEDICAL EMERGENCIES

#### STROKE / CVA

<table>
<thead>
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<th><strong>Signs and Symptoms</strong></th>
<th><strong>Differential Diagnosis</strong></th>
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<tr>
<td>Previous CVA, TIA’s</td>
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<td>See Altered Mental Status</td>
</tr>
<tr>
<td>Previous cardiac / vascular surgery</td>
<td>Weakness / Paralysis</td>
<td>TIA (Transient Ischemic Attack)</td>
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<td>Associated diseases: diabetes, hypertension</td>
<td>Blindness or other sensory loss</td>
<td>Seizure</td>
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<td>Aphasia / Dysarthria</td>
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<td>Stroke</td>
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<td>Thrombotic</td>
</tr>
<tr>
<td>History of trauma</td>
<td>Vomiting</td>
<td>Embolic</td>
</tr>
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### GENERAL CONSIDERATIONS:

- **Exam:** Mental Status, HEENT, Heart, Lungs, Abdomen, Extremities, Neuro
- **Onset of symptoms** is defined as the last witnessed time the patient was symptom free (i.e. awakening with stroke symptoms would be defined as an onset time of the previous night when patient was symptom free).
- The differential listed on the Altered Mental Status Protocol should also be considered.
- Hypertension in stroke patients routinely should not be treated in the pre-hospital setting. It is not uncommon for blood pressures to be as high as 220/140 and not require intervention. Nitroglycerin should not be used unless signs and symptoms consistent with AMI cardiac ischemic chest pain, CHF, or APE are present.
- Be alert for airway problems (swallowing difficulty, vomiting). Suction and position head if necessary.
- Hypoglycemia can present as a localized neurological deficit, especially in the elderly.

### CINCINNATI STROKE SCALE:

**Facial Droop**
- **Normal:** Both sides of the face move equally
- **Abnormal:** One side of the face does not move at all

**Arm Drift**
- **Normal:** Both arms move equally or not at all
- **Abnormal:** One arm drifts more than the other

**Speech**
- **Normal:** Patient uses correct words with no slurring
- **Abnormal:** Slurred or inappropriate words, or mute

If any part of the CSS is abnormal, then it is considered a +CSS

Patients who experience Transient Ischemic Attack (TIA) develop most of the same signs and symptoms as those who are experiencing a stroke. The signs and symptoms of TIA’s can last from minutes up to one day. Thus the patient may initially present with typical signs and symptoms of a stroke, but those findings may progressively resolve. The patient needs to be transported, without delay, to the most appropriate hospital for further evaluation.

- Document the time of onset for the symptoms, or the last time the patient was seen “normal” for them.
- Reassess neurological deficit every 10 minutes and document the findings.
MEDICAL EMERGENCIES

TOXIC INGESTION / EXPOSURE / OVERDOSE

UNIVERSAL PATIENT CARE PROTOCOL

AIRWAY PROTOCOL

IV PROTOCOL

Check Blood Glucose Level

12 Lead EKG Procedure

CAUSE?

Cyanide or Carbon Monoxide
- Refer to Toxic Inhalation / Ingestion / Cyanide Protocol or Toxic Inhalation Carbon Monoxide Protocol

Hypotension
- Seizures
- Dysrhythmias
- Mental Status Changes
- Respiratory Depression

TREAT PER APPROPRIATE Protocol

Opiate or unknown cause

Beta Blocker or Calcium Channel Blocker
- Overdose (Bradyocardic)

Immediate Transcutaneous Pacing for Severe Cases
- Hypotension / AMS / Brady Cardiac

GLUCAGON (GLUCAGEN)
- 1 mg IV / IN / IM
- For mild / moderate
- Beta Blocker Bradycardia Cases Only

NORMAL SALINE
- Bolus to Maintain BP 90 Systolic

DOPAMINE (INTROPIN)
- 2 – 20 mcg/kg/min IV Drip
- For Severe Cases or Not Responding to Treatment

SODIUM BICARBONATE
- 1 amp IV, 50mEq (until the QRS complex narrows to less than 0.12msec and the patient condition improves)

Organophosphates or Carbamates (SLUDGE)
- Duo Dote up to 3 auto-injectors maybe used for one patient based on signs.

ATROPINE 1 mg IV
- Repeat every 3 – 5 minutes

Atropine is Given to:
- Dry Secretions
- Improve respirations

NO MAX DOSE – Give as needed to maintain Airway and Breathing

CONTACT MEDICAL CONTROL

TRANSPORT
# Medical Emergencies

## Toxic Ingestion / Exposure / Overdose

### History
- Ingestion or suspected ingestion of a potentially toxic substance
- Substance ingested route, quantity
- Time of ingestion
- Reason (suicidal, accidental, criminal)
- Available medications in home
- Past medical history, medications

### Signs and Symptoms
- Mental status changes
- Hypo / hypertension
- Decreased respiratory rate
- Tachycardia, dysrhythmias
- Seizures

### Differential Diagnosis
- Tricyclic antidepressants (TCAs)
- Acetaminophen (Tylenol)
- Depressants
- Stimulants
- Anticholinergic
- Cardiac medications
- Solvents, alcohols, cleaning agents
- Insecticides (organophosphates)
- Respiratory depression
- Other organophosphates
- Carbamates

### Common Beta Blockers
- Acebutolol
- Atenolol
- Betapace
- Betaxolol
- Bisoprolol
- Brevibloc
- Bystolic

### Common Calcium Channel Blockers
- Acalas
- Adalat
- Amlodipine
- Aranidipine
- Atelec
- Azelnipine
- Barnidipine
- Baylotensin
- Baymyocard
- Benidipine
- Calan
- Cadblock
- Calslot
- Carden SR

### Tricyclic

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<tr>
<th>Brand Name</th>
<th>Generic Name</th>
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<tr>
<td>Adapin</td>
<td>doxepin</td>
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<tr>
<td>Anafranil</td>
<td>clomipramine</td>
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<tr>
<td>Elavil</td>
<td>amitriptyline</td>
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<tr>
<td>Ludomiil</td>
<td>maprotine</td>
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<tr>
<td>Norpramin</td>
<td>desipramine</td>
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<tr>
<td>Pamelor</td>
<td>nortryptiline</td>
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<tr>
<td>Pertofane</td>
<td>desipramine</td>
</tr>
<tr>
<td>Sinequan</td>
<td>doxepin</td>
</tr>
<tr>
<td>Surmontil</td>
<td>trimipramine</td>
</tr>
<tr>
<td>Tofranil</td>
<td>imipramine</td>
</tr>
<tr>
<td>Vivactil</td>
<td>protriptyline</td>
</tr>
</tbody>
</table>
KEY POINTS

- Exam: Mental Status, Skin, HEENT, Heart, Lungs, Abdomen, Extremities, Neuro
- Do not rely on patient history of ingestion, especially in suicide attempts.
- Bring bottles, contents, and emesis to ED.
- **Tricyclic**: 4 major areas of toxicity: seizures, dysrhythmias, hypotension, decreased mental status or coma; rapid progression from alert mental status to death.
- **Acetaminophen**: initially normal or nausea / vomiting. If not detected and treated, causes irreversible liver failure.
- **Depressants**: decreased HR, decreased BP, decreased temperature, decreased respirations, non-specific pupils.
- **Stimulants**: increased HR, increased BP, increased temperature, dilated pupils, and seizures.
- **Anticholinergics**: increased HR, increased temperature, dilated pupils, and mental status changes.
- **Cardiac Medications**: dysrhythmias and mental status changes
- **Solvents**: nausea, vomiting, and mental status changes.
- **Insecticides**: increased or decreased HR, increased secretions, nausea, vomiting, diarrhea, pinpoint pupils.
- Consider restraints if necessary for patient’s and/or personnel’s protection per the **Restraint Procedure**.
- If it can be done safely, take whatever container the substance came from to the hospital along with readily obtainable samples of medication unless this results in an unreasonable delay of transport.
- If applicable, **DO NOT** transport a patient to the hospital until properly decontaminated.

**CARBON MONOXIDE POISONING OR CYANIDE POISONING – SEE SPECIFIC PROTOCOL**
**MEDICAL EMERGENCIES**

**TOXIC INHALATION / INGESTION CYANIDE**

### POTENTIAL EXPOSURES

- **Smoke Inhalation**
  - Intentional or unintentional poisoning or ingestion of Laetril (vitamin B17) or multiple fruit pits.

- **Industrial exposure** such as metal plating and recovery, plastics, industrial uses of hydrogen cyanide or medical complications from the use of sodium nitroprusside.

### UNIVERSAL PATIENT CARE PROTOCOL

- **Cyanide Ingestion or Inhalation**
  - Immediately Remove from Continued Exposure
  - Avoid Exertion to Limit Tissue Oxygen Demand
  - Determine Exposure Time

### APPLY HIGH FLOW OXYGEN

- Secure Airway if Comatose or Compromised Airway

### INTUBATION PROCEDURE

- **KING AIRWAY**

### CARDIAC MONITORING PROCEDURE

- **PULSE OXIMETRY**
  - **PULSE CO-OXIMETRY (If Available)**

### IV / IO PROCEDURE

- **MAINTAIN BP 90 SYSTOLIC – 2 IV’s**

- **DOPAMINE (INTROPIN)**
  - 2 – 20 mcg / kg / min
  - If Hypotension Continues

- If Seizures, Treat Per Seizure Protocol

### CONTACT MEDICAL CONTROL

### TRANSPORT

---

**Aggressive airway management with delivery of 100% oxygen can be lifesaving.** Supportive care with administration of oxygen alone has proven effective in a number of poisonings. It can also treat potential simultaneous CO exposure.
MEDICAL EMERGENCIES

TOXIC INHALATION / INGESTION CYANIDE

<table>
<thead>
<tr>
<th>HISTORY</th>
<th>SIGNS AND SYMPTOMS</th>
<th>DIFFERENTIAL DIAGNOSIS</th>
</tr>
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<tr>
<td>• Inhalation or ingestion of cyanides</td>
<td>• Malaise, fatigue, drowsiness</td>
<td>• Flu / severe cold</td>
</tr>
<tr>
<td>• Duration of exposure</td>
<td>• Reddened skin</td>
<td>• Chronic fatigue</td>
</tr>
<tr>
<td>• Reason (suicidal, accidental, criminal)</td>
<td>• Dyspnea</td>
<td>• Migraine</td>
</tr>
<tr>
<td>• Past medical history, medications</td>
<td>• Chest Pain</td>
<td>• Myocardial infarction / ACS</td>
</tr>
<tr>
<td></td>
<td>• Nausea / vomiting</td>
<td>• Encephalitis</td>
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<td></td>
<td>• Abdominal pain</td>
<td>• Anaphylaxis</td>
</tr>
<tr>
<td></td>
<td>• Dizziness / vertigo</td>
<td>• Other ingested toxins</td>
</tr>
<tr>
<td></td>
<td>• Memory disturbances</td>
<td>• Pulmonary embolism</td>
</tr>
<tr>
<td></td>
<td>• Syncope</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Seizures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Coma</td>
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</tr>
</tbody>
</table>

GREATER CLEVELAND POISON CONTROL 1-800-222-1222

KEY POINTS

• Exam: Mental Status, Skin, HEENT, Heart, Lungs, Abdomen, Extremities, Neuro
• Cyanide is generally considered to be a rare source of poisoning.
• Cyanide exposure occurs relatively frequently in patients with smoke inhalation from fires.
• Numerous forms of cyanide exist, including gaseous hydrogen cyanide (HCN), water-soluble potassium and sodium cyanide salts, and poorly water-soluble mercury, copper, gold, and silver cyanide salts.
• A number of synthesized (polyacrylonitrile, polyurethane, polyamide, urea-formaldehyde, melamine) and natural (wool, silk) compounds produce HCN when burned.
• Industry widely uses nitriles as solvents and in the manufacturing of plastics. Nitriles may release HCN during burning or when metabolized following absorption by the skin or gastrointestinal tract.
• Cyanide poisoning also may occur in other industries, particularly in the metal trades, mining, electroplating, jewelry manufacturing, and x-ray film recovery.
• Depending on its form, cyanide may cause toxicity through parenteral administration, inhalation, ingestion, or dermal absorption.
• Rapid aggressive therapy, consisting of supportive care and antidote administration, is lifesaving.
• The delay between exposure and onset of symptoms depends on type of cyanide involved, route of entry, and dose. Rapidity of symptom onset, depending on the type of cyanide exposure, occurs in the following order (most rapid to least rapid): gas, soluble salt, insoluble salt, and cyanogens.
**UNIVERSAL PATIENT CARE PROTOCOL**

Known or Suspected Carbon Monoxide Poisoning

- Immediately remove from continued exposure
- Avoid exertion to limit tissue oxygen demand
- Determine exposure time

**APPLY HIGH FLOW OXYGEN**

- Secure Airway if Comatose or Compromised Airway

**INTUBATION PROCEDURE**

- or
- KING AIRWAY

**CARDIAC MONITORING PROCEDURE**

- PULSE OXIMETRY
- PULSE CO-OXIMETRY (If Available)

**IV / IO PROCEDURE**

**CONTACT MEDICAL CONTROL**

**TRANSPORT**
### MEDICAL EMERGENCIES
#### TOXIC INHALATION / CARBON MONOXIDE

<table>
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<td>• Flu like symptoms</td>
<td>• Chronic fatigue</td>
</tr>
<tr>
<td>• Reason (suicidal, accidental, criminal)</td>
<td>• Headache</td>
<td>• Migraine</td>
</tr>
<tr>
<td>• Past medical history, medications</td>
<td>• Dyspnea</td>
<td>• Myocardial infarction</td>
</tr>
<tr>
<td></td>
<td>• Nausea / vomiting</td>
<td>• Diabetic emergencies</td>
</tr>
<tr>
<td></td>
<td>• Diarrhea</td>
<td>• Altitude sickness</td>
</tr>
<tr>
<td></td>
<td>• Abdominal Pain</td>
<td>• Ingested toxins</td>
</tr>
<tr>
<td></td>
<td>• Dizziness</td>
<td>• Meningitis</td>
</tr>
<tr>
<td></td>
<td>• Visual disturbances</td>
<td>• Hypothyroidism</td>
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<tr>
<td></td>
<td>• Memory disturbances</td>
<td></td>
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<tr>
<td></td>
<td>• Syncope</td>
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<td></td>
<td>• Seizures</td>
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<td></td>
<td>• Coma</td>
<td></td>
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<tr>
<td></td>
<td>• Incontinence</td>
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</tbody>
</table>

#### CO Levels

- < 10% Mild
- 10% - 20% Moderate
- > 20% Severe

Special Considerations for Pregnant Females and Children

### KEY POINTS

- Exam: Mental Status, Skin, HEENT, Heart, Lungs, Abdomen, Extremities, Neuro
- Consider CO poisoning with any patient exposed to products of combustion.
- Causes and exposure may include malfunctioning gas appliances, vehicle exhaust, improper use of gas burning heaters, animal dung, environmental waste and fires.
- Normal CO levels do not necessarily mean there was not CO poisoning. This is especially true if the patient has already received extensive oxygen therapy.
- Patients that show signs and symptoms at lower CO levels include: pregnant females, infants, children and elderly.
- Vitals may be normal but could be tachycardic, hypo or hypertensive.
- Cherry red skin is rarely seen. “When you’re red, your dead”!
- PREGNANT patients are special circumstances as the affinity for fetal hemoglobin to carbon monoxide is very high and therapy including hyperbaric care is considered early on.
- Patients that demonstrate altered mental status may NOT sign refusals for treatment or transport.
- Known or suspected CO poisoning patients should receive high flow oxygen despite SpO2 readings.
- The use of a pulse oximeter is not effective in the diagnosis of carbon monoxide poisoning, as patients suffering from carbon monoxide poisoning may have a normal oxygen saturation level on a pulse oximeter.
- **Pulse oximetry is still used on all CO poisonings as hypoxia in addition to the CO represents serious compounding respiratory issues possibly from other causes.**
- Pulse CO-oximeters estimate carboxyhemoglobin levels with a non-invasive finger clip similar to a pulse oximeter.
EMS Services

Section 7

PRE-HOSPITAL CARE

MEDICAL CONTROL

PROTOCOLS AND PROCEDURES
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### PEDIATRIC

#### MEDICAL PROTOCOLS

**EMERGENCIES IN CHILDREN WITH SPECIAL HEALTH CARE NEEDS**

**GENERAL CONSIDERATIONS:**

1. Treat the ABC’s first. Treat the child, not the equipment. If the emergency is due to an equipment malfunction, manage the child appropriately using your own equipment.

2. Children formerly cared for in hospitals or chronic care facilities are often cared for in homes by parents or other caretakers. These children may have self-limiting or chronic diseases. There are multitudes of underlying medical conditions that may categorize children as having special needs. Many are often unstable and may frequently involve the EMS system for evaluation, stabilization, and transport. Special needs children include technology-assisted children such as those with tracheostomy tubes with or without assisted ventilation, children with gastrostomy tubes, and children with indwelling central lines. The most serious complications are related to tracheostomy problems.

3. Children with Special Healthcare Needs (CSHCN) have many allergies. Children with spina bifida are often allergic to latex. Before treating a patient, ask the caregivers if the children are allergic to latex or have any other allergies. Stock latex-free equipment (some regularly used equipment that contains latex includes gloves, oxygen masks, IV tubing, BVM, blood pressure cuff, IV catheters, etc.).

4. Knowing which children in a given area have special needs and keeping a logbook is encouraged.

5. Parents and caretakers are usually trained in emergency management and can be of assistance to EMS personnel. Listen carefully to the caregiver and follow his/her guidance regarding the child’s treatment.

6. Children with chronic illnesses often have different physical development from well children. Therefore, their baseline vital signs may differ from normal standards. The size and developmental level may be different from age-based norms and length based tapes used to calculate drug dosages. Ask the caregiver if the child normally has abnormal vital signs (i.e., fast heart rate or a low pulse oximeter reading).

7. Some CSHCN may have sensory deficits (i.e., they may be hearing impaired or blind), yet may have age-appropriate cognitive abilities. Follow the caregivers’ lead in talking to and comforting a child during treatment and transport. Do not assume that a CSHCN is developmentally delayed.

8. When moving a special needs child, a slow careful transfer with two or more people is preferable. Do not try to straighten or unnecessarily manipulate contracted extremities as it may cause injury or pain to the child. Certain medical conditions will require special care. Again, consult the child’s caregiver.

9. Caregivers of CSHCN often carry “go bags” or diaper bags that contain supplies to use with the child’s medical technologies and additional equipment such as extra tracheostomy tubes, adapters for feeding tubes, suction catheters, etc. Before leaving the scene, ask the caregivers if they have a “go bag” and carry it with you.

10. Caregivers may also carry a brief medical information form or card. The child may be enrolled in a medical alert program whereby emergency personnel can get quick access to the child’s medical history. Ask the caregivers if they have an emergency information form or some other form of medical information for their child.

11. Caregivers of CSHCN often prefer that their child be transported to the hospital where the child is regularly followed or the “home” hospital. When making the decision as to where to transport a CSHCN, take into account, local protocols, the child’s condition, capabilities of the local hospital, caregivers’ request and the ability to transport to certain locations.
PEDIATRIC
AIRWAY / BREATHING

AIRWAY

Assess ABC’s
Respiratory Rate,
Effort and Adequacy

Inadequate with a pulse above 60

Basic maneuvers first
Open airway
Nasal / Oral Airway
suction as needed!
Bag-Valve-Mask at
1 breath every
3-5 seconds,
12 – 20 a minute

Apneic
No Gag Reflex

Orotracheal Intubation
Pediatric King Airway

Unsuccessful

Continue Bag-Valve-Mask
Ventilation

CONTACT MEDICAL CONTROL

TRANSPORT

Supplemental OXYGEN

Positive Respiration
Positive Gag Reflex

Oxygenate
Ventilate
Position
Reassess

General Considerations

Capnography is mandatory with all methods of intubation. Document results of ETCO₂
Limit intubation attempts to 2 per patient.
If unable to intubate, continue BVM ventilation’s, transport rapidly, and notify receiving hospital early.
Maintain C-spine immobilization for patients with suspected spinal injury.
Do not assume hyperventilation is psychogenic - use oxygen, not a paper bag.
Consideration of Sellick’s maneuver should be used to assist with difficult intubations.
Continuous pulse oximetry should be utilized in all patients with inadequate respirations.
Consider C-collar to help maintain ETT or King Airway placement for intubated patients.
PEDIATRIC
AIRWAY / BREATHING
FOREIGN BODY AIRWAY OBSTRUCTION (FBAO)

Infant (0-12 months)

Head Tilt / Chin Lift / Jaw Thrust / Airway Maneuver

Mild FBAO

Do not interfere. Allow victim to cough while you observe for signs of severe FBAO

Severe FBAO

Responsive

5 Back Slaps / 5 Chest Compressions Repeat until effective or victim becomes unresponsive.

Before you deliver breaths, look into mouth. If you see a foreign body that can be easily removed, remove it. Continue CPR for 5 cycles or about 2 minutes. If you are alone, activate EMS System. Return and continue CPR until more skilled rescuers arrive.

Unresponsive

Severe FBAO

1. Confirm severe airway obstruction. Check for sudden onset of severe breathing difficulty, ineffective or silent cough, weak or silent cry.

2. Give up to 5 back slaps and up to 5 chest compressions.

3. Repeat step 2.

Child (1 – 8 years)

Head Tilt / Chin Lift / Jaw Thrust / Airway Maneuvers

Mild FBAO

Encourage patient to cough

Severe FBAO

Responsive

Heimlich Maneuvers

1. Ask "Are you choking?"
2. Give abdominal thrusts/Heimlich maneuver.
3. Repeat abdominal compressions until effective or victim becomes unresponsive.

Unresponsive

1. Lower victim to floor. If victim is unresponsive with no breathing or no normal breathing (ie, agonal gasps), begin CPR (no pulse check).

2. Before you deliver breaths, look into mouth. If you see a foreign body that can be easily removed, remove it. Continue CPR for 5 cycles or about 2 minutes. If you are alone, activate EMS System. Return and continue CPR until more skilled rescuers arrive.

Consider 2mm Quick Trach for complete airway obstruction. 10-35 kg and above.

CONTACT MEDICAL CONTROL

TRANSPORT
### GENERAL CONSIDERATIONS:

- Infants 0-12 months DO NOT receive abdominal thrusts. Use chest compressions.
- NEVER perform blind finger sweeps in infants or children.
- Attempt to clear the airway should only be made if foreign body aspiration is witnessed or very strongly suspected and there is a severe airway obstruction.
- **Foreign-Body Airway Obstruction (Choking)** Epidemiology and Recognition: More than 90% of childhood deaths from foreign-body aspiration occur in children < 5 years of age; 65% of the victims are infants. Liquids are the most common cause of choking in infants whereas balloons, small objects, and foods (eg, hot dogs, round candies, nuts, and grapes) are the most common causes of foreign-body airway obstruction (FBAO) in children.
- Consider use of 2 mm Quick Trach for complete airway obstruction in children 10-35 kg.

### FOREIGN BODY AIRWAY OBSTRUCTION (FBAO)

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coughing</td>
<td>Witnessed aspiration</td>
<td>Cardiac arrest</td>
</tr>
<tr>
<td>Choking</td>
<td>A sudden onset of respiratory distress with coughing, gagging, stridor, or wheezing.</td>
<td>Respiratory arrest</td>
</tr>
<tr>
<td>Inability to speak</td>
<td>Sudden onset of a respiratory distress in the absence of fever other respiratory symptoms (eg, antecedent cough, congestion) suggests FBAO rather than an infectious cause of respiratory distress, such as croup.</td>
<td>Anaphylaxis</td>
</tr>
<tr>
<td>Unresponsive</td>
<td>Change in skin color</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Decreased LOC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increased / Decreased respiratory rate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Labored breathing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unproductive cough</td>
<td></td>
</tr>
</tbody>
</table>
UNIVERSAL PATIENT CARE PROTOCOL

Calm Patient
Sit Patient on Parent’s Lap
Position Patient Sitting Upright
Do Not Lay Patient Down

Check Pulse Oximetry

Mild – Moderate Distress

Aerosol
Cool Mist with Normal Saline

Severe Distress

Evaluate Level of Distress / Pulse Oximetry
SPO2 less than 87%
or
SPO2 greater than 87% with retraction
Accessory Muscle Use
With Severe Respiratory Distress/Impending arrest

EPINEPHRINE 0.01 mg / kg subcut / IM
1:1000 Solution Max. dose 0.5 mg

CONTACT MEDICAL CONTROL

TRANSPORT
GENERAL CONSIDERATIONS:

- Exam: Mental Status, HEENT, Skin, Neck, Heart, Lungs, Abdomen, Extremities, Neuro
- Do not force a child into a position. They will protect their airway by their body position.
- The most important component of respiratory distress is airway control.
- **Croup** typically affects children less than 2 years of age. It is viral, possible fever, gradual onset, usually not drooling.
- **Epiglottitis** typically affects children greater than 2 years of age. It is bacterial, with fever, rapid onset, possible stridor, patient wants to sit up to keep airway open, and drooling is common. Airway manipulation may worsen the condition.
- **Stridor**, gagging or choking in the breathing patient with respiratory distress may indicate upper airway obstruction.
- **Wheezing** in the breathing patient with respiratory distress usually indicates lower airway disease, which may come from a variety of causes. The patient with severe lower airway disease may have altered LOC, and be unable to talk, may have absent or markedly decreased breath sounds and severe retractions with accessory muscle use.
PEDIATRIC
AIRWAY / BREATHING
RESPIRATORY DISTRESS LOWER AIRWAY

UNIVERSAL PATIENT CARE PROTOCOL

Signs of increased work of breathing?
(Abnormal RR, retractions, accessory muscle use, inability to speak full sentences, grunting or nasal flaring.)

Yes

Adequate / patent airway?

No

Pediatric Airway Protocol

Yes

Position to patient comfort

Wheezing or decreased lung sounds?

Yes

Assist patient with personal inhaler

(Mild)

Administer O₂ to maintain pulse ox ≥ 94%

ALBUTEROL via nebulizer 1 unit dose

(Lower Airway Symptom Classification chart)

(Moderate)

ALBUTEROL 1 unit dose x1

Then Duoneb unit dose via nebulizer

If < 10kg, give ½ dose and add 3 ml NS

(Severe)

ALBUTEROL 1 unit dose x1

Then Duoneb unit dose via nebulizer

Epi 0.01 mg/kg 1:1000 solution subcut / IM

If signs and symptoms are severe, or moderate and not improving with Duoneb

IV PROTOCOL

If signs and symptoms are severe

Reassess Vital Signs, Lung Sounds and work of breathing

May repeat Duoneb AEROSOL x 1 enroute as needed to achieve adequate relief of symptoms

CONTACT MEDICAL CONTROL

TRANSPORT
**GENERAL CONSIDERATIONS:**

- **Exam:** Mental Status, HEENT, Skin, Neck, Heart, Lungs, Abdomen, Extremities, Neuro
- Do not force a child into a position. They will protect their airway by their body position.
- The most important component of respiratory distress is airway control.
- DO NOT attempt an invasive airway procedure unless absolutely necessary.
- For some patients in severe respiratory distress, wheezing may not be heard. Consider Albuterol for the known asthmatic in severe respiratory distress.
- Stridor, gagging or choking in the breathing patient with respiratory distress may indicate upper airway obstruction.
- Wheezing in the breathing patient with respiratory distress usually indicates lower airway disease, which may come from a variety of causes. The patient with severe lower airway disease may have altered LOC, be unable to talk, may have absent or markedly decreased breath sounds and severe retractions with accessory muscle use.
- If the patient has signs of respiratory failure, begin to assist ventilations with BVM, even when they are breathing.
- Contact Medical Control for patients with a cardiac history.
- Monitor continuous waveform capnography if possible.

---

### LOWER AIRWAY SYMPTOM CLASSIFICATION

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wheeze</strong></td>
<td>None or end expiratory</td>
<td>Inspiratory and expiratory</td>
<td>Breath sounds becoming inaudible or decreased with faint wheezes</td>
</tr>
<tr>
<td><strong>Air Exchange</strong></td>
<td>Equal all lobes</td>
<td>Decreased some lobes</td>
<td>Decreased all lobes</td>
</tr>
<tr>
<td><strong>Accessory Muscles</strong></td>
<td>None</td>
<td>Intercostal retractions; infants with nasal flaring or grunting</td>
<td>Intercostal retractions plus any other acc. muscle use (abdominal, suprasternal, use of neck muscles)</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>Able to speak in complete sentences, Alert with age appropriate behavior</td>
<td>Able to speak only few words at a time, alert, age appropriate behavior</td>
<td>Difficulty speaking, may appear sleepy or tired, high risk patient (previous hospital admissions for same)</td>
</tr>
</tbody>
</table>
UNIVERSAL PATIENT CARE PROTOCOL

Pediatric Airway Protocol

Poor perfusion Decreased BP

No

Monitor and Reassess

IV/IO PROTOCOL

Yes

IV/IO PROTOCOL

Heart Rate:
Neonates less than 100
Infants less than 80
Children less than 60
Begin chest compressions

EPINEPHrine
mg / kg IV/IO
1:10,000 Solution
Or
mg / kg ETT
1:1,000 Solution
Repeat every 3-5 minutes

ATROPINE (if increased vagal tone or primary AV block)
First dose – 0.02 mg/kg IV/IO (minimum dose 0.1 mg, maximum single dose of 0.5 mg for a child and 1 mg for an adolescent). Maximum total dose of 1 mg for a child and 2 mg for an adolescent.

Treat underlying cause

Reassess

Pulse

No Pulse

Consider External Transcutaneous Pacing

Pulseless Arrest Protocol

CONTACT MEDICAL CONTROL

TRANSPORT
GENERAL CONSIDERATIONS:

- Exam: Mental Status, HEENT, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro
- Heart Rate less than 100 (Neonates = after birth)
- Heart Rate less than 80 (Infants = below one year of age)
- Heart Rate less than 60 (Children greater than 1 year up to puberty)
- Most maternal medications pass through breast milk to the infant.
- The majority of pediatric arrests are due to airway problems.
- Hypoglycemia, severe dehydration and narcotic effects may produce bradycardia.
- Pediatric patients requiring external transcutaneous pacing require the use of pads appropriate for pediatric
  patients per the manufacturer's guidelines.
- Identify and treat possible causes for pediatric bradycardia:
  1. Hypoxia
  2. Hypothermia
  3. Head injury
  4. Heart block
  5. Toxic ingestion / exposure
  6. Acidosis
  7. Hypovolemia
  8. Tension Pneumothorax
  9. Tamponade, Cardiac
  10. Thrombosis, Pulmonary and Coronary
- Refer to Broselow Pediatric Tape when unsure about patient weight, age and/or drug dosage.
- The minimum dose of Atropine that should be administered to a pediatric patient is 0.1 mg. Total
  maximum dose for a child is 1 mg, for an adolescent a total maximum dose is 3 mg.
- If the rhythm changes, follow the appropriate protocol.
**PEDIATRIC**

**ARRHYTHMIA / PALS**

**TACHYCARDIA WITH A PULSE AND POOR PERFUSION ALGORITHM**

### UNIVERSAL PATIENT CARE PROTOCOL

Identify and treat underlying cause
- Cardiac monitor to identify rhythm; monitor blood pressure and oximetry
- 12-Lead ECG if available; don’t delay therapy
- Continuous Cardiac Monitor / If Sinus Tachycardia, First Attempt to Identify Treatable Causes: Assess for hypothermia, hypovolemia, fever, hypoxia, hypoglycemia and treat.

### IV/IO PROTOCOL

#### Evaluate QRS duration

- **Narrow (<0.09 sec)**
  - **Probable Sinus Tachycardia**
    - Compatible history consistent with known cause
    - P waves present/normal
    - Variable R-R; constant PR
    - Infants: rate usually <220 / min
    - Children: rate usually <180/min
  - **Probable Supraventricular Tachycardia**
    - Compatible history (vague, nonspecific); history of abrupt rate changes
    - P waves absent/abnormal
    - HR not available
    - Infants: rate usually ≥220/min
    - Children: rate usually ≥180/min

- **Wide (>0.09 sec)**
  - **Possible Ventricular Tachycardia**
    - Cardiopulmonary compromise?
      - Hypotension
      - Acutely altered mental status
      - Signs of shock

#### Search for and treat cause

- Consider vagal maneuvers (No delays)
  - If IO/IV access present, give adenosine
    - OR
    - If IO/IV access not available, or if adenosine ineffective, synchronized cardioversion

#### Consider adenosine if rhythm regular and QRS monomorphic

- Expert consultation advised
- Amiodarone 5 mg / kg IV / IO
  - Over 20 – 60 min

#### Synchronized Cardioversion

- ATIVAN 0.05 mg / kg slow IV / IN/10 (max dose 2mg)

### CONTACT MEDICAL CONTROL

Consider Electrical Conversion and sedation

**TRANSPORT**

---

**Doses/Details**

**Synchronized Cardioversion:**
- Begin with 0.5-1 J/kg; if not effective, increase to 2 J/kg.
- Sedate if needed, but don’t delay cardioversion.

**Medicate with: ATIVAN 0.05 mg/kg slow IV / IO / IN or VERSED etc**
- 0.1 mg/Kg IV / IO / IN. Max dose 4 mg

**Adenosine IV/IO Dose:**
- First dose: 0.1 mg/kg rapid bolus (max: 6mg)
- Second dose: 0.2 mg/kg rapid bolus (max: second dose: 12 mg).

**Amiodarone IV/IO Dose:**
- 5 mg/kg over 20-60 minutes
**GENERAL CONSIDERATIONS:**

- Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro
- Carefully evaluate the rhythm to distinguish Sinus Tachycardia, Supraventricular Tachycardia, and Ventricular Tachycardia.
- Separating the child from the caregiver may worsen the child's clinical condition.
- Pediatric pads should be used in children less than 10 kg or Broselow Tape color Purple.
- Monitor for respiratory depression and hypotension associated if Diazepam is used.
- Continuous pulse oximetry is required for all SVT patients if available.
- Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.
- Assess and treat possible causes of tachycardia; hypoxia, hypovolemia, fear, and pain.
- A complete medical history must be obtained.
- Do not delay cardioversion to gain vascular access for the unstable patient.
- If you are unable to get the monitor to select low enough joules, then rapid transport to the nearest appropriate facility is indicated.
- Record 3-Lead EKG strips during Adenosine administration.
- Perform a 12-Lead EKG prior to and after Adenosine conversion or cardioversion of SVT if time allows.
- If the rhythm changes, follow the appropriate protocol.
**PEDIATRIC**

**ARRHYTHMIA / PALS**

**TACHYCARDIA WITH A PULSE AND ADEQUATE PERFUSION ALGORITHM**

---

**UNIVERSAL PATIENT CARE PROTOCOL**

*Continuous Cardiac Monitor / In All Tachycardia, First Attempt to Identify Treatable Causes: Assess for hypothermia, hypovolemia, fever, hypoxia, hypoglycemia and treat*

- Maintain patient airway; assist breathing as necessary
- Oxygen
- Cardiac monitor to identify rhythm; monitor blood pressure and oximetry
- 12-Lead ECG if available; don’t delay therapy

---

**IV/IO PROTOCOL**

- **QRS normal (≤0.09 sec)**
  - Evaluate rhythm
  - **Probable Sinus Tachycardia**
    - Compatible history consistent with known cause
    - P waves present/normal
    - Variable R-R; constant PR
    - Infants: rate usually <220 / min
    - Children: rate usually <180/min
    - Search for and treat cause
  - **Probable Supraventricular Tachycardia**
    - Compatible history (vague, nonspecific); history of abrupt rate changes
    - P waves absent/abnormal
    - HR not available
    - Infants: rate usually ≥220/min
    - Children: rate usually ≥180/min
    - Consider vagal maneuvers
  - **Possible Supraventricular Tachycardia (with QRS aberrancy)**
    - RR interval regular
    - Uniform QRS morphology
  - **Probable ventricular tachycardia**
    - Expert consultation strongly recommended
    - Search for and treat reversible causes
    - Obtain 12-lead ECG
    - Consider pharmacologic conversion
    - Or
    - Consider electrical conversion
      - Consult pediatric cardiologist
      - Attempt cardioversion with 0.5 to 1 J/kg (may increase to 2 J/kg if initial dose ineffective)
      - Sedate if needed, but do not delay cardioversion, medicate with: ATIVAN 0.05 mg/kg slow IV/IO/IN. or VERSED etc 0.1 mg/Kg IV/IO/IN. Max dose 4 mg.

---

- **QRS wide (>0.09 sec)**
  - Evaluate QRS duration
  - **Probable Sinus Tachycardia**
    - Search for and treat cause
  - **Probable Supraventricular Tachycardia**
    - Establish vascular access
    - Consider adenosine 0.1 mg/kg IV (maximum first dose 6 mg) May give second dose of 0.2 mg/kg IV (maximum second dose 12 mg) Use rapid bolus technique.
  - **Possible Supraventricular Tachycardia (with QRS aberrancy)**
    - RR interval regular
    - Uniform QRS morphology
    - Attempt cardioversion with 0.5 to 1 J/kg (may increase to 2 J/kg if initial dose ineffective)
  - **Probable ventricular tachycardia**
    - Search for and treat reversible causes
    - Obtain 12-lead ECG
    - Consider pharmacologic conversion
    - Or
    - Consider electrical conversion
      - Consult pediatric cardiologist
      - Attempt cardioversion with 0.5 to 1 J/kg (may increase to 2 J/kg if initial dose ineffective)
      - Sedate if needed, but do not delay cardioversion, medicate with: ATIVAN 0.05 mg/kg slow IV/IO/IN. or VERSED etc 0.1 mg/Kg IV/IO/IN. Max dose 4 mg.

---

**CONTACT MEDICAL CONTROL**

**Amiodarone** 5 mg/kg IV over 20 to 60 minutes

---

**TRANSPORT**
### PEDIATRIC

**ARRHYTHMIA / PALS**

**TACHYCARDIA WITH A PULSE AND ADEQUATE PERFUSION ALGORITHM**

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Past medical history / medications, diet, drugs /toxins</td>
<td>• Ventricular tachycardia on ECG (runs or sustained)</td>
<td>• Artifact / device failure</td>
</tr>
<tr>
<td>• Acute hypoxemia</td>
<td>• Conscious, rapid pulse</td>
<td>• Cardiac</td>
</tr>
<tr>
<td>• Acidosis</td>
<td>• Chest pain, shortness of breath</td>
<td>• Endocrine / metabolic</td>
</tr>
<tr>
<td>• Electrolyte imbalance</td>
<td>• Dizziness / hypotension</td>
<td>• Drugs</td>
</tr>
<tr>
<td></td>
<td>• Rate usually near normal to 200 bpm for sustained V-Tach</td>
<td>• Pulmonary</td>
</tr>
<tr>
<td></td>
<td>• Diminished peripheral perfusion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Increased work of breathing</td>
<td></td>
</tr>
</tbody>
</table>

**GENERAL CONSIDERATIONS:**

- **Exam:** Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro
- If the patient converts to another rhythm, refer to the appropriate protocol and treat accordingly.
- If the patient relapses back into wide complex tachycardia / ventricular tachycardia, initiate Synchronized cardioversion with the joules setting that previously cardioverted the patient.
- Record EKG strips during Amiodarone administration.
- Perform a 12-Lead EKG prior to and after Amiodarone conversion or synchronized cardioversion of wide complex tachycardia / ventricular tachycardia.
- Perform a Code Summary and attach it to the patient run report.
- Be sure to treat the patient and not the monitor.
- **For Perfusing Supraventricular and Ventricular Arrhythmias:** Amiodarone loading dose: 5 mg/kg IV/IO over 20 to 60 minutes (maximum single dose: 300 mg). Can repeat to maximum of 15 mg/kg per day (24 hrs.).
- Amiodarone is only compatible with D5W.
- Polymorphic V-Tach (Torsades de Pointes) may benefit from the administration of Magnesium Sulfate.
- Magnesium Sulfate 25 to 50 mg/kg IV/IO over 10 to 20 minutes (max. dose 2 g) for Torsades de Pointes.
- Magnesium Sulfate and can be mixed with NS or D5W.
- Synchronized Cardioversion (mono and biphasic monitors) 0.5 to 1 J/kg; if not effective, increase to 2 J/kg.
PEDIATRIC
CARDIAC ARREST / PALS
ASYSTOLE / PULSELESS ELECTRICAL ACTIVITY (PEA)

UNIVERSAL PATIENT CARE PROTOCOL

CPR
- Push hard (≥1/3 of anterior-posterior diameter of chest) and fast (100-120/min) and allow complete chest recoil
- Minimize interruptions in compressions
- Avoid excessive ventilation
- Rotate compressor every 2 minutes
- If no advanced airway, 30:2 compressions for 1 rescuer.
- 15:2 ratio for 2 rescuers.
- If advanced airway, 10 breaths per minute continuous chest compressions

See Pediatric Airway Protocol

Apply Cardiac Monitor

Confirm Asystole / PEA

IV/IO PROTOCOL

EPINEPHRINE
mg / kg IV/IO (0.1mL/kg)
1:10,000 Solution
Or
mg / kg ETT (If no IV / IO access)
1:1,000 Solution
Repeat every 3-5 minutes

NORMAL SALINE IV BOLUS
20 mL/kg
Repeat as needed

Blood Glucose Analysis

CPR
- Organized rhythm → check pulse
- Pulse present (ROSC) → post-cardiac arrest care

CONTACT MEDICAL CONTROL

TRANSPORT

AT ANY TIME
Return of Spontaneous Circulation (ROSC)
GO TO POST RESUSCITATION PROTOCOL

Confirm Asystole in 2 Leads

Identify and Treat Possible Causes:
- Hypoxemia
- Hypovolemia
- Hypoxia
- Hydrogen Ion (acidosis)
- Hypoglycemia
- Hypo-hyperkalemia
- Hypothermia
- Tension pneumothorax
- Tamponade, cardiac
- Toxins
- Thrombosis, pulmonary
- Thrombosis, coronary

Glucose less than 80

DEXTROSE (Give age appropriate dosage)
**GENERAL CONSIDERATIONS:**

- Exam: Mental Status
- Always confirm asystole in more than one lead.
- Cardiac arrest in children is primarily due to lack of an adequate airway, resulting in hypoxia.
- If the patient converts to another rhythm or has a return of circulation, refer to the appropriate protocol and treat accordingly.
- When assessing for a pulse, palpate the brachial or femoral arteries for infants and the carotid or femoral artery for children.
- Continue BLS procedures throughout the resuscitation.
- If the patient is intubated, be sure to routinely reassess tube placement.
- If the patient has an IO, routinely reassess for patency.

**During CPR Remember:**

<table>
<thead>
<tr>
<th>Push hard and fast</th>
<th>After an advanced airway is placed, rescuers no longer deliver “cycles” of CPR. Give continuous chest compressions without pauses for breaths. Give 10 breaths / min. Check rhythm every 2 min.</th>
<th>Search for and treat possible contributing factors: Hypoxia, Hypovolemia, Hydrogen Ion (acidosis), Hypo-Hyperkalemia, Hypoglycemia, Hypothermia, Toxins, Tamponade (cardiac), Tension Pneumothorax, Thrombosis (coronary or pulmonary), Trauma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure full chest recoil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimize interruptions in chest compressions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One cycle of CPR: 30 compressions then 2 breaths 5 cycles = 2 min.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoid hyperventilation</td>
<td></td>
<td></td>
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<tr>
<td>Secure airway and confirm placement</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time of arrest</td>
<td>Pulseless</td>
<td>Ventricular Fibrillation</td>
</tr>
<tr>
<td>Medical history</td>
<td>Apneic or agonal respirations</td>
<td>Pulseless Ventricular</td>
</tr>
<tr>
<td>Medications</td>
<td>Cyanosis</td>
<td>Tachycardia</td>
</tr>
<tr>
<td>Possibility of foreign body</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypothermia</td>
<td></td>
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</tr>
</tbody>
</table>

**ET Guidelines - Adult and Peds**

1. Lidocaine, Epi, Atropine, and Narcan can be given down the ET Tube only if no IV / IO access available.
2. The optimal dose of most drugs given by ET is unknown.
3. ET drugs deliver low blood levels. All drugs except Epi are given 2-3x’s normal dose.
4. Instill the drug while briefly holding compressions, follow with 5 mL (smaller with neonates) of NS flush, followed by 5 positive-pressure ventilations.
5. IV / IO can be administered. **Dextrose administration: Neonate: D10 solution** = (250 mL bag of NS withdraw and discard 50 mL and then add 50 mL of D50 to the200 mL NS to make D10 solution, give: 5-10 mL/kg).
PEDIATRIC
CARDIAC ARREST / PALS
VENTRICULAR FIBRILLATION (V-FIB)
PULSELESS VENTRICULAR TACHYCARDIA

UNIVERSAL PATIENT CARE PROTOCOL

CPR
- Push hard (≥1/3 of anterior-posterior diameter of chest) and fast (100-120/min) and allow complete chest recoil
- Minimize interruptions in compressions
- Avoid excessive ventilation
- Rotate compressor every 2 minutes
- If no advanced airway, 30:2 compressions for one rescuer. 15:2 ratio for 2 rescuers.
- If advanced airway, 10 breaths per minute continuous chest compressions.

Apply Cardiac Monitor / AED

Defibrillate 2 J/kg

See Pediatric Airway Protocol

CPR x 5 cycles / 2 minutes

IV / IO PROTOCOL

Defibrillate 4 J/kg

EPINEPHRINE
0.01 mg/kg IV/IO (0.1 mL/kg) 1:10,000 Solution
0.1 mg/kg ETT 1:1,000 Solution
Repeat every 3-5 minutes
** When IV/IO available during CPR

CPR x 5 cycles / 2 minutes

Defibrillate ≥ 4 J/kg
Maximum 10 J/kg or adult dose

Give Antiarrhythmic during CPR

CPR x 5 cycles / 2 minutes

Defibrillate 4-10 J/kg

CONTACT MEDICAL CONTROL

TRANSPORT

AT ANY TIME

Return of Spontaneous Circulation (ROSC)

GO TO POST RESUSCITATION PROTOCOL

AMIODARONE
5 mg/kg IV / IO
May repeat x 2 up to Maximum single dose 300 mg

CONSIDER:
MAGNESIUM SULFATE
25-50 mg/kg IV / 10 (Torsades, ONLY Maximum dose 2 g)

Shock Energy for Defibrillation
First shock 2 J/kg,
Second shock 4 J/kg,
Subsequent shocks ≥4 J/kg,
Maximum 10 J/kg or adult dose
GENERAL CONSIDERATIONS:

- Exam: Mental Status
- In order to be successful in pediatric arrests, a cause must be identified and corrected.
- Airway is the most important intervention. This should be accomplished immediately. Patient survival is often dependent on airway management success.
- If the patient converts to another rhythm, follow the appropriate protocol and treat accordingly.
- If the patient converts back to ventricular fibrillation or pulseless ventricular tachycardia, defibrillate at the previously used setting.
- Defibrillation is the definitive therapy for ventricular fibrillation and pulseless ventricular tachycardia.
- Defibrillate 30-60 seconds after each medication administration.
- Monophasic and Biphasic waveform defibrillators should use the same energy levels noted:
  - (2 J/kg, 4 J/kg, 4 J/kg)
- The proper administration sequence is shock, drug, shock, and drug.
- For refractory VF, Pulseless VT: Amiodarone 5 mg/kg IV/IO bolus can repeat 5 mg/kg IV/IO bolus up to total dose of 15 mg/kg. (max single dose 300 mg).
- 1st dose of Vasopressor (Epinephrine) should be given after the 2nd defibrillation if IV / IO access is available. Epi administration is not suggested earlier (after the 1st defib) because it might not be necessary if the 1st shock is successful.
**PEDIATRIC MEDICAL EMERGENCIES**

**ABDOMINAL PAIN**

**UNIVERSAL PATIENT CARE PROTOCOL**

- **Hypotensive?**
  - Yes
    - Evidence of dehydration, nausea, vomiting
    - **IV PROTOCOL**
      - IV Normal Saline 20 mL/kg to maintain systolic BP of 90 mm Hg
      - Consider Zofran 2-4mg IM or IV over 30 seconds
      - OR
        - Zofran 1-4mg ODT (orally dissolving tablets)
  - No
    - **Refer to Pain Management Protocol**

**CONTACT MEDICAL CONTROL**

**TRANSPORT**
GENERAL CONSIDERATIONS:

- Required Exam: Mental Status, Skin, HEENT, Neck, Heart, Lung, Abdomen, Back, Extremities, Neuro
- Abdominal pain in women of childbearing age should be treated as an ectopic pregnancy until proven otherwise.
- The diagnosis of abdominal aneurysm should be considered with abdominal pain in patients over 50.
- Appendicitis presents with vague, peri-umbilical pain, which migrates, to the RLQ over time. It is important to remember that abdominal pain can be caused by a large number of different disease processes. The organ systems that may be involved in abdominal pain include esophagus, stomach, intestinal tract, liver, pancreas, spleen, kidneys, male and female genital organs, bladder, as well as referred pain from the chest that can involve heart, lungs or pleura. Abdominal pain may also be caused by muscular and skeletal problems.
- Abdominal pain emergencies are likely to lead to death due to blood or fluid loss with resultant shock. There may also be severe electrolyte abnormalities that can cause arrhythmias.
- Myocardial Infarction may present as abdominal pain especially in the diabetic and elderly.
- If the abdominal pain may be of cardiac origin, perform cardiac monitoring and a 12-Lead EKG.
- DKA may present with abdominal pain and vomiting. Check blood glucose levels.
- Zofran (Ondansetron) may be given for nausea and vomiting. Starting dose 2-4 mg IV /IM give deep IM or slow through a patient IV line over 30 seconds. May also give 1-4 mg ODT.
PEDIATRIC
MEDICAL PROTOCOLS
ALTERED LEVEL OF CONSCIOUSNESS

UNIVERSAL PATIENT CARE PROTOCOL
See Pediatric Airway Protocol
Spinal Immobilization Protocol

IV / IO PROTOCOL
Blood Glucose Analysis

Glucose < 60
or <80 with symptoms
OR
Glucose 60 - 250
Check for Hypotension,
Tachycardia,
Poor Cap Refill

Glucose > 250
Check for Hypotension,
Tachycardia,
Poor Cap Refill

Blood Glucose Analysis

Glucose < 60
or <80 with symptoms
OR
Glucose 60 - 250
Check for Hypotension,
Tachycardia,
Poor Cap Refill

Glucose > 250
Check for Hypotension,
Tachycardia,
Poor Cap Refill

OR

ORAL GLUCOSE
5-10g (1/2 Tube)
(If gag reflex with no IV
Access and no airway
compromise)

DEXTROSE
250 ml bag of DEXTROSE 10% concentration
Dextrose administration:
Neonate: Give 2ml/kg IV or IO of a D10% solution.
May repeat if necessary.
Infants and children: Give 5ml/kg IV or IO of a
D10% solution. May repeat if necessary.

GLUCAGON (GLUCAGEN)
0.5-1mg / IM / IN
If under 20 kg, give ½ mg IM
If over 20 kg, give 1 mg IM
Maximum 1 mg

IF ALTERED MENTAL STATUS AND RESPIRATORY DEPRESSION
NALOXONE (NARCAN)
mg / kg/ IV / IO / IN Atomized
Max Dose 2 mg

Monitor and Reassess

CONTACT MEDICAL CONTROL

TRANSPORT
GENERAL CONSIDERATIONS:
- Protect the patient airway and support ABCs.
- Document the patient’s initial Glasgow Coma Score.
- Naloxone (Narcan) administration may cause acute opiate withdraw, which includes vomiting, agitation, or combative behavior. Be prepared for the possibility of combative behavior to ensure crew safety.
- Naloxone (Narcan) may wear off in as little as 20 minutes causing the patient to become more sedate and possibly hypoventilate. All patients receiving Naloxone (Narcan) MUST be transported.

ONLY A FEW CAUSES CAN BE TREATED IN THE FIELD. CARE SHOULD FOCUS ON MAINTAINING AIRWAY AND RAPID TRANSPORT.

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Known diabetic, medic alert tag</td>
<td>Unresponsive</td>
<td>Head trauma</td>
</tr>
<tr>
<td>Drugs, drug paraphernalia</td>
<td>Decreased responsiveness</td>
<td>CNS (stroke, tumor, seizure)</td>
</tr>
<tr>
<td>Report of illicit drug use or toxic ingestion</td>
<td>Inadequate respirations</td>
<td>Infection</td>
</tr>
<tr>
<td>Past medical history</td>
<td>Confusion</td>
<td>Shock (septic, metabolic, traumatic)</td>
</tr>
<tr>
<td>Medications</td>
<td>Agitation</td>
<td>Diabetes (hyper / hypoglycemia)</td>
</tr>
<tr>
<td>History of trauma</td>
<td>Decreased mental status</td>
<td>Toxicologic</td>
</tr>
<tr>
<td></td>
<td>Change in baseline mental status</td>
<td>Acidosis / Alkalosis</td>
</tr>
<tr>
<td></td>
<td>Hypoglycemia (cool, diaphoretic skin)</td>
<td>Environmental exposure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pulmonary (Hypoxia)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electrolyte abnormality</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Psychiatric disorder</td>
</tr>
</tbody>
</table>
**Blood Glucose Analysis**

- **Glucose < 60**
  - **Or <80 with symptoms**
    - **ORAL GLUCOSE**
      - 5-10g (1/2 Tube)
      - (If alert with no IV Access and no airway compromise)

- **Glucose > 250**
  - **Check for Hypotension, Tachycardia, Poor Cap Refill**

**DEXTROSE**
- **250 ml bag of DEXTROSE 10% concentration**
  - **Dextrose administration:**
    - **Neonate:** Give 2ml/kg IV or IO of a D10% solution. May repeat if necessary.
    - **Infants and children:** Give 5ml/kg IV or IO of a D10% solution. May repeat if necessary.

**GLUCAGON (GLUCAGEN)**
- **0.5-1 mg IM / IN**
  - If under 20 kg, give ½ mg IM
  - If over 20 kg, give 1 mg IM
  - Maximum 1 mg

**NORMAL SALINE**
- **IV BOLUS 20 ml / kg**

**Recheck Blood Glucose**

**CONTACT MEDICAL CONTROL**

**TRANSPORT**

**Neonate = birth to 1 month**
**Infant = 1 month to 1 year**
**Child = 1 year to puberty**
### General Considerations:

**Hyperglycemia:**
- Diabetic Ketoacidosis (DKA) is a complication of diabetes mellitus. It can occur when insulin levels become inadequate to meet the metabolic demands of the body for a prolonged amount of time (onset can be within 12-24 hours). Without enough insulin, the blood glucose increases and cellular glucose depletes. The body removes excess blood glucose by dumping it into the urine. Pediatric patients in DKA should be treated as hyperglycemic under the Pediatric Diabetic Emergency Protocol.
- Patients can have Hyperglycemia without having DKA.

**Hypoglycemia:**
- Always suspect Hypoglycemia in patients with an altered mental status.
- If a blood glucose analysis is not available, a patient with altered mental status and signs and symptoms consistent with hypoglycemia should receive Dextrose or Glucagon.** Dextrose is used to elevate blood sugar but it will not maintain it. The patient will need to follow up with a meal, if not transported to a hospital.
- If the patient is alert and has the ability to swallow; consider administering oral glucose, have patient drink orange juice with sugar or a sugar – containing beverage, or have the patient eat a candy bar or meal.
- Check the patient’s blood sugar after the administration of Dextrose, Glucagon, or after any attempt to raise the patient’s blood sugar.

**Miscellaneous:**
- IV/IO can be administered.

**Dextrose administration:** 250 ml bag of DEXTROSE 10% concentration  **Neonate:** Give 2ml/kg IV or IO of a D10% solution. May repeat if necessary. **Infants and children:** Give 5ml/kg IV or IO of a D10% solution. May repeat if necessary.
PEDIATRIC
MEDICAL PROTOCOLS
ESOPHAGEAL FOREIGN BODY OBSTRUCTION

UNIVERSAL PATIENT CARE PROTOCOL

Airway Obstruction
Difficulty Breathing
Coughing
Difficulty / Unable to talk

To Pediatric Airway Protocol

VS

Esophageal Obstruction
Salivation
Unable to Swallow
Secretions

Patient is in distress
Evaluate Level of Obstruction

LOW (Neck Down)

IV/IO PROTOCOL

Support and Protect Airway

GLUCAGON (GLUCAGEN)
0.5-1 mg IM / IN / IV
If under 20 kg, give ½ mg IM / IN / IV
If over 20 kg, give 1 mg IM / IN / IV
Maximum 1 mg
May repeat if no change

PROBLEM RESOLVED?

NO

CONTACT MEDICAL CONTROL

TRANSPORT

Southwest General Health Center / EMS Services
GENERAL CONSIDERATIONS:

- Rule out airway obstruction first.
- Patient may be helpful in identifying location of bolus obstruction as they can feel it, point to it.
- If bolus is located in neck area, glucagon will not work, just monitor and transport.
- If bolus located from neck down, proceed with glucagon treatment.
HEAT ILLNESS

UNIVERSAL PATIENT CARE PROTOCOL

DOCUMENT PATIENT TEMPERATURE

REMOVE PATIENT FROM HEAT SOURCE

REMOVE PATIENT CLOTHING

Apply room temperature Water to Patient Skin And Increase Air Flow Around Patient

IV / IO PROTOCOL
- Fever: 20 mL/kg. NS Bolus
- Heat Exhaustion: IV NS Wide Open
- Heat Stroke: IV NS TKO

MONITOR AND REASSESS

Appropriate Protocol Based on Patient Symptoms

CONTACT MEDICAL CONTROL

TRANSPORT
### GENERAL CONSIDERATIONS:

- **Exam**: Mental Status, Skin, HEENT, Heart, Lungs, Neuro
- Extremes of age are more prone to heat emergencies (i.e. young and old).
- Predisposed by use of: tricyclic antidepressants, phenothiazines, anticholinergic medications, and alcohol.
- Cocaine, Amphetamines, and Salicylates may elevate body temperatures.
- Sweating generally disappears as body temperature rises above 104 degrees F (40 degrees C).
- Intensive shivering may occur as patient is cooled.

**Heat Cramps** consists of benign muscle cramping secondary to dehydration and is not associated with an elevated temperature.

**Heat Exhaustion** consists of dehydration, salt depletion, dizziness, fever, mental status changes, headache, cramping, nausea and vomiting. Vital signs usually consist of tachycardia, hypotension, and an elevated temperature.

**Heat Stroke** consists of dehydration, tachycardia, hypotension, temperature greater than 104 degrees F (40 degrees C), and altered mental status.

Patients at risk for heat emergencies include neonates, infants, geriatric patients, and patients with mental illness. Other contributory factors may include heart medications, diuretics, cold medications and/or psychiatric medications.

Heat exposure can occur either due to increased environmental temperatures or prolonged exercise or a combination of both. Environments with temperature greater than 90 degrees F and humidity greater than 60% present the most risk.

Heat stroke occurs when the cooling mechanism of the body (sweating) ceases due to temperature overload and/or electrolyte imbalances. Be alert for cardiac dysrhythmias for the patient with heat stroke.

---

### MEDICAL PROTOCOLS

#### HEAT ILLNESS

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Altered mental status or unconsciousness</td>
<td>Fever (infection)</td>
</tr>
<tr>
<td>Exposure to increased temperatures and humidity</td>
<td>Hot, dry or sweaty skin</td>
<td>Dehydration</td>
</tr>
<tr>
<td>Past medical history / medications</td>
<td>Hypotension or shock</td>
<td>Medications</td>
</tr>
<tr>
<td>Extreme exertion</td>
<td>Seizures</td>
<td>Hyperthyroidism (Storm)</td>
</tr>
<tr>
<td>Time and length of exposure</td>
<td>Nausea</td>
<td>Delirium tremens (DT’s)</td>
</tr>
<tr>
<td>Poor PO intake</td>
<td></td>
<td>Heat cramps</td>
</tr>
<tr>
<td>Fatigue and/or muscle cramping</td>
<td></td>
<td>Heat exhaustion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heat stroke</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CNS lesions or tumors</td>
</tr>
</tbody>
</table>

#### Heat Exhaustion: Dehydration

- Muscular/abdominal cramping
- General weakness
- Diaphoresis
- Febrile
- Confusion
- Dry mouth / thirsty
- Tachycardia
- BP normal or orthostatic

#### Heat Stroke: Cerebral Edema

- Confusion
- Bizarre behavior
- Skin hot, dry, febrile
- Tachycardia
- Hypotensive
- Seizure
- Coma

---
PEDIATRIC
MEDICAL PROTOCOLS
HYPOTHERMIA / FROSTBITE

UNIVERSAL PATIENT CARE PROTOCOL
- Cut / Remove wet clothing gently
- Try to obtain core temperature
- Handle patient gently
- Apply blankets and turn up vehicle heat

IV / IO PROTOCOL
- Appropriate Protocol Based on patient's Signs and Symptoms
- CONTACT MEDICAL CONTROL
- TRANSPORT
GENERAL CONSIDERATIONS:

- Exam: Mental Status, Heart, Lungs, Abdomen, Extremities, Neuro
- Hypothermic / drowning / near drowning patients that appear cold and dead are NOT dead until they are warm and dead, or have other signs of obvious death (putrification, traumatic injury unsustainable to life).
- Defined as core temperature less than 35° C (95° F).
- Extremes of age are more susceptible (i.e. young and old).
- Patients with low core temperatures will not respond to ALS drug interventions. Maintain warming procedure and supportive care. Warming procedures include: removing wet clothing, limiting exposure, and covering the patient with warm blankets if available.
- Do not allow patients with frozen extremities to ambulate.
- Superficial frostbite can be treated by using the patient’s own body heat.
- Do not attempt to rewarm deep frostbite unless there is an extreme delay in transport, and there is no risk that the affected body part will be refrozen. Contact Medical Control prior to rewarming a deep frostbite injury.
- With temperature less than 31° C (88° F) ventricular fibrillation is common cause of death. Handling patients gently may prevent this (rarely responds to defibrillation).
- If the temperature is unable to be measured, treat the patient based on the suspected temperature.
- Hypothermia may produce severe bradycardia.
- Shivering stops below 32° C (90° F).
- Hot packs can be activated and placed in the armpit and groin area if available.
- Care should be taken not to place the packs directly against the patient’s skin.
- Consider withholding CPR if patient has organized rhythm. Discuss with Medical Control.
- All hypothermic patients should have resuscitation performed until care is transferred, or if there are other signs of obvious death (putrification, traumatic injury unsustainable to life).
- The most common mechanism of death in hypothermia is ventricular fibrillation. If the hypothermia victim is in ventricular fibrillation, CPR should be initiated. If V fib is not present, then all treatment and transport decisions should be tempered by the fact that V fib can be caused by rough handling, noxious stimuli or even minor mechanical disturbances, this means that respiratory support with 100% oxygen should be done gently, including intubation, avoiding hyperventilation.
- The heart is most likely to fibrillate between 85-88 degrees F (29-31 degrees C.) Defibrillate VF / VT at 2J/kg, with affective CPR intervals. (May give a total of 1 shock.)

### PEDIATRIC MEDICAL PROTOCOLS

#### HYPOTHERMIA / FROSTBITE

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past medical history, Medications, Exposure to environment even in normal temperatures, Exposure to extreme cold, Extremes of age, Drug use: Alcohol, Barbituates, Infections / Sepsis, Length of exposure / Wetness</td>
<td>Cold, clammy, Shivering, Mental status changes, Extremity pain or sensory abnormality, Bradycardia, Hypotension or shock</td>
<td>Sepsis, Environmental exposure, Hypoglycemia, CNS dysfunction, Stroke, Head injury, Spinal cord injury</td>
</tr>
</tbody>
</table>
UNIVERSAL PATIENT CARE PROTOCOL (For Mother)

Meconium in Amniotic Fluid?

- No
  - Airway Suction Mouth Only

- Yes
  - Continue to stimulate infant and note APGAR Score

(NRP) Resuscitation O₂ Guidelines

≥35 Weeks: Start resuscitation with Room Air
<35 Weeks: Start resuscitation with 40% O₂
Adjust to achieve Minute Specific Saturation Goals

Minute Specific Preductal Saturation Goals:

<table>
<thead>
<tr>
<th>Minute of Life</th>
<th>Saturation Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60-65%</td>
</tr>
<tr>
<td>2</td>
<td>66-70%</td>
</tr>
<tr>
<td>3</td>
<td>70-75%</td>
</tr>
<tr>
<td>4</td>
<td>75-80%</td>
</tr>
<tr>
<td>5</td>
<td>80-85%</td>
</tr>
<tr>
<td>10</td>
<td>85-95%</td>
</tr>
</tbody>
</table>

First 30 seconds: Dry, warm, stimulate and position infant. Bulb syringe suction mouth and nose. O₂ as needed, per PulseOx Readings

Respiration's Present?

- No
  - Begin CPR if Heart Rate is <60

- Yes
  - Heart Rate > 100
    - Reassess Heart Rate and APGAR Score
    - Reassess Heart Rate and APGAR Score
    - BVM 30 seconds at 40-60 breaths per minute with 100% OXYGEN
    - Reassess heart rate

HR less than 60

- See Pediatric Airway Protocol
- Begin CPR
- IV / IO PROTOCOL
  - Bradycardia Protocol
  - Consider:
    - NORMAL SALINE BOLUS
    - DEXTROSE / NARCAN
    - Age Appropriate Dose

HR 60 - 100

- See Pediatric Airway Protocol
- Reassess HR
- Reassess HR
- HR greater than 100
  - Monitor and Reassess
  - HR greater than 100
  - OXYGEN Blow - By
  - Maintain Body Temperature. Continue to monitor respiratory status, heart rate, and perfusion enroute to the hospital.

CONTACT MEDICAL CONTROL

TRANSPORT
**GENERAL CONSIDERATIONS:**

- Exam: Mental Status, Skin, HEENT, Neck, Chest, Heart, Abdomen, Extremities, Neuro
- Maternal sedation or narcotics will sedate infant (Naloxone effective).
- Consider hypoglycemia in infant.
- Document 1 and 5 minute APGAR scores (see Below).
- If the patient is in distress, consider causes such as, hypovolemia. Administer a 20 mL/kg fluid bolus of normal saline.
- If the BGL less than 60 mg/dL go to the Pediatric Diabetic Protocol.
- IV/IO can be administered.
- **Dextrose administration:** **Neonate: D10 solution** = (250 mL bag of NS withdraw and discard 50 mL and then add 50 mL of D50 to the 200 mL NS to make D10 solution, give: 5-10 mL/kg).
- **Infants and children:** 2 – 4 mL/kg IV of a D25 solution. May be repeated x1 after 5 minutes **D25 solution** = (Mix D50 with 50 mL NS).
- Hypothermia is a common complication of home and field deliveries. Keep the baby warm and dry.
- If there is a history of recent maternal narcotic use, consider Naloxone (Narcan) 0.1 mg/kg every 5 minutes until patient responds. The duration of action of the narcotic often exceeds that of Naloxone. Observe closely for recurrent respiratory depression.
- Meconium may need to be suctioned several times to clear airway. It may also be necessary to visualize the trachea and suction the lower airway. Lower airway suction is achieved by intubating the infant and using the aspirator each time suctioning is done. This lower airway suction is only done when the infant is NOT vigorous.
- If drying and suction has not provided enough stimulation, try rubbing the infant’s back or flicking their feet. If the infant still has poor respiratory effort, poor tone, or central cyanosis, consider them to be distressed. Most distressed infants will respond quickly to BVM.
- **Use caution not to allow newborns to slip from grasp.**

<table>
<thead>
<tr>
<th>SIGN</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Color</strong></td>
<td>Blue / Pale</td>
<td>Pink Body, Blue Extremities</td>
<td>Completely Pink</td>
</tr>
<tr>
<td><strong>Heart Rate</strong></td>
<td>Absent</td>
<td>Below 100</td>
<td>Above 100</td>
</tr>
<tr>
<td><strong>IRRITABILITY (Response to Stimulation)</strong></td>
<td>No Response</td>
<td>Grimace</td>
<td>Cries or active withdrawal</td>
</tr>
<tr>
<td><strong>Muscle Tone</strong></td>
<td>Limp</td>
<td>Flexion of Extremities</td>
<td>Active Motion</td>
</tr>
<tr>
<td><strong>Respiratory Effort</strong></td>
<td>Absent</td>
<td>Slow and Regular/Weak Cry</td>
<td>Strong Cry</td>
</tr>
</tbody>
</table>
**UNIVERSAL PATIENT CARE PROTOCOL**

**Pediatric Airway Protocol**

**Febrile?**

**Cooling Measures**

**Blood Glucose Analysis**

**IV / IO PROTOCOL**

**Evidence of Shock or Trauma?**

**Active Seizure?**

**ORAL GLUCOSE**

5-10 g (1/2 Tube)
(If intact gag reflex with no IV access)
If no airway compromise

**GLUCAGON (GLUCAGEN)**

0.5-1 mg IM / IN
If under 20 kg, give ½ mg IM
If over 20 kg, give 1 mg IM
Maximum 1 mg

**DEXTROSE**

250 ml bag of DEXTROSE 10% concentration

**Dextrose administration:**

**Neonate:** Give 2 ml/kg IV or IO of a D10% solution. May repeat if necessary.

**Infants and children:** Give 5 ml/kg IV or IO of a D10% solution. May repeat if necessary.

**LORAZEPAM (ATIVAN)**

0.05 mg / kg slow IV / IN / IO (max dose 2 mg)

**OR**

**MIDAZOLAM (VERSED)**

0.1 mg / kg slow
(2 mg / 2 ml concentration)
Max dose 4 mg

**OR**

**MIDAZOLAM (VERSED)**

Atomized IN 0.1 mg / kg
Use: (5 mg / 1 ml concentration)
Max dose 5 mg
Administer half of the total volume in each nostril

**CONTACT MEDICAL CONTROL**

**TRANSPORT**
GENERAL CONSIDERATIONS:

- **Exam**: Mental Status, HEENT, Heart, Lungs, Extremities, Neuro
- **Status Epilepticus** is defined as two or more successive seizures without a period of consciousness or recovery. This is a true emergency requiring rapid airway control, treatment, and transport.
- **Partial seizures** involve only a part of the brain and therefore only a part of the body:
  - **Simple partial (Jacksonian) seizures** have a motor (movement) component that is located in one portion of the body. Children with these seizures remain awake and alert. Movement abnormalities can “march” to other parts of the body as the seizure progresses.
  - **Complex partial seizures** are similar, except that the child is not aware of what is going on. Frequently, children with this type of seizure repeat an activity, such as clapping, throughout the seizure. They have no memory of this activity. After the seizure ends, the child is often disoriented in a state known as the postictal period.
- **Generalized seizures** involve a much larger portion of the brain. They are grouped into 2 types: convulsive (muscle jerking) and nonconvulsive with several subgroups:
  - **Convulsive seizures** are noted by uncontrollable muscle jerking lasting for a few minutes—usually less than 5—followed by a period of drowsiness that is called the postictal period. The child should return to his or her normal self except for fatigue within around 15 minutes. Often the child may have incontinence (lose urine or stool), and it is normal for the child not to remember the seizure. Sometimes the jerking can cause injury, which may range from a small bite on the tongue to a broken bone.
  - **Tonic seizures** result in continuous muscle contraction and rigidity, while tonic-clonic seizures involve alternating tonic activity with rhythmic jerking of muscle groups.
  - **Infantile spasms** commonly occur in children younger than 18 months. They are often associated with mental retardation and consist of sudden spasms of muscle groups, causing the child to assume a flexed stature. They are frequent upon awakening.

<table>
<thead>
<tr>
<th>Categories of Seizures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complex – Unconscious</td>
</tr>
<tr>
<td>Focal – Partial, Localized</td>
</tr>
<tr>
<td>Simple – Conscious</td>
</tr>
<tr>
<td>Generalized – All Body</td>
</tr>
<tr>
<td>Complex Focal</td>
</tr>
<tr>
<td>Simple Focal</td>
</tr>
<tr>
<td>Complex Generalized</td>
</tr>
<tr>
<td>Simple Generalized</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>History</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever</td>
</tr>
<tr>
<td>Prior history of seizures</td>
</tr>
<tr>
<td>Seizure medications</td>
</tr>
<tr>
<td>Reported seizure activity</td>
</tr>
<tr>
<td>History of recent head trauma</td>
</tr>
<tr>
<td>Congenital anomaly</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signs and Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed seizure activity</td>
</tr>
<tr>
<td>Altered mental status</td>
</tr>
<tr>
<td>Hot, dry skin or elevated body temperature</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever</td>
</tr>
<tr>
<td>Infection</td>
</tr>
<tr>
<td>Head trauma</td>
</tr>
<tr>
<td>Medication or Toxin</td>
</tr>
<tr>
<td>Hypoxia or Respiratory failure</td>
</tr>
<tr>
<td>Hypoglycemia</td>
</tr>
<tr>
<td>Metabolic abnormality / acidosis</td>
</tr>
<tr>
<td>Tumor</td>
</tr>
</tbody>
</table>
- **Absence seizures**, also known as **petit mal seizures**, are short episodes during which the child stares or eye blinks, with no apparent awareness of their surroundings. These episodes usually do not last longer than a few seconds and start and stop abruptly: however, the child does not remember the event at all. These are sometimes discovered after the child’s teacher reports daydreaming, if the child loses his or her place while reading or misses instructions for assignments.

- **Status epilepticus** is either a seizure lasting **longer than 30 minutes** or repeated seizures without a return to normal in between them. It is most common in children younger than 2 years, and most of these children have generalized tonic-clonic seizures. Status epilepticus is very serious. With any suspicion of long seizure, you should call 911.

  - Be prepared to assist ventilations especially if a Benzodiazepine such as valium or versed is used.
  - If evidence or suspicion of trauma, spine should be immobilized.
  - If febrile, remove clothing and sponge with room temperature water.
  - **In an infant, a seizure may be the only evidence of a closed head injury.**
**PEDIATRIC MEDICAL PROTOCOLS**

**SHOCK (NON-TRAUMATIC)**

---

**UNIVERSAL PATIENT CARE PROTOCOL**

- **Pediatric Trauma Protocol**
  - Yes: Evidence or history of trauma
  - No:

---

**IV / IO PROTOCOL**

- **Anaphylaxis**
  - **ASSIST PATIENT WITH PERSONAL EPI PEN**

- **Respiratory Distress**
  - **EPINEPHRINE**
    - mg/kg subcut. / IM 1:1000 Solution
    - Maximum Dose 0.5 mg

- **BENADRYL**
  - 1 mg/kg slow IV / IM / IO

- **Wheezes**
  - **ALBUTEROL (if wheezing)**
    - 2.5 mg Nebulized @ 6 L O₂ Give ½ dose if less than 10 kg wt.

- **FLUID BOLUS**
  - For Perfusion if needed

- **DOPAMINE**
  - 2-20 mcg/kg/min
  - Consider titrate to effect for neurogenic, cardiogenic, septic, or anaphylactic

---

- **Hypovolemic / Septic / Neurogenic**
  - **NORMAL SALINE BOLUS 20 ml/kg**

  - **Monitor and Reassess**

  - **Blood Glucose Analysis**

  - **Glucose less than 60**
    - **ORAL GLUCOSE**
      - 5-10 g (1/2 Tube)
      - (If intact gag reflex with no IV access)
      - If no airway compromise

    - **GLUCAGON (GLUCAGEN)**
      - 0.5-1 mg IM / IV / IN

      - If under 20 kg, give ½ mg IM
      - If over 20 kg, give 1 mg IM
      - Maximum 1 mg

      - May repeat if no change.

---

- **DEXTROSE**
  - 250 ml bag of DEXTROSE 10% concentration

  - **Dextrose administration:**
    - **Neonate:** Give 2ml/kg IV or IO of a D10% solution.
    - May repeat if necessary.
    - **Infants and children:** Give 5ml/kg IV or IO of a D10% solution. May repeat if necessary.

---

**CONTACT MEDICAL CONTROL**

**TRANSPORT**
### GENERAL CONSIDERATIONS:

- **Exam:** Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Extremities, Back, Neuro
- Consider all possible causes of shock and treat per appropriate protocol.
- Decreasing heart rate is a sign of impending collapse.
- Most maternal medications pass through breast milk to the infant. Examples: Narcotics, Benzodiazepines.
- Be sure to use the appropriate sized BP cuff.
- Findings in the primary assessment should alert you that the patient is in shock. Pay particular attention to the patient’s mental status, tachycardia, skin color, and capillary refill.
- Shock is not only caused by blood loss. The EMT must evaluate for fluid loss from other causes such as excessive vomiting and/or diarrhea, heat exposure and malnutrition.
- Do not use only the patient’s blood pressure in evaluating shock; also look for lower body temperature, poor capillary refill, decreased LOC, increased heart rate and/or poor skin color or turgor.
- Routinely reassess the patient and provide supportive care.
- Use caution when using Epinephrine for patients with a cardiac history.

### PEDIATRIC MEDICAL PROTOCOLS

#### SHOCK (NON-TRAUMATIC)

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood loss</td>
<td>Restlessness, confusion, weakness</td>
<td>Trauma</td>
</tr>
<tr>
<td>Fluid loss</td>
<td>Dizziness</td>
<td>Infection</td>
</tr>
<tr>
<td>Vomiting</td>
<td>Increased HR, rapid pulse</td>
<td>Dehydration</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>Decreased BP</td>
<td>Vomiting</td>
</tr>
<tr>
<td>Fever</td>
<td>Pale, cool, clammy skin</td>
<td>Diarrhea</td>
</tr>
<tr>
<td>Infection</td>
<td>Delayed capillary refill</td>
<td>Fever</td>
</tr>
</tbody>
</table>

#### ALLERGIC REACTION / ANAPHYLAXIS

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset and location</td>
<td>Warm, burning feeling</td>
<td>Urticaria (rash only)</td>
</tr>
<tr>
<td>Insect sting or bite</td>
<td>Itching</td>
<td>Anaphylaxis (systemic effect)</td>
</tr>
<tr>
<td>Food allergy / exposure</td>
<td>Rhinorrhea</td>
<td>Shock (vascular effect)</td>
</tr>
<tr>
<td>Medication allergy / exposure</td>
<td>Hoarseness</td>
<td>Angioedema (drug induced)</td>
</tr>
<tr>
<td>New clothing, soap, detergent</td>
<td>Stridor</td>
<td>Aspiration / Airway obstruction</td>
</tr>
<tr>
<td>Past history of reactions</td>
<td>Wheezing</td>
<td>Vasovagal event</td>
</tr>
<tr>
<td>Past medical history</td>
<td>Respiratory distress</td>
<td>Asthma</td>
</tr>
<tr>
<td>Medication history</td>
<td>Altered LOC / Coma</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cyanosis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pulmonary Edema</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Facial / Airway Edema</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Urticaria / Hives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dyspnea</td>
<td></td>
</tr>
</tbody>
</table>
PEDIATRIC
MEDICAL PROTOCOLS
TOXIC INGESTION / EXPOSURE / OVERDOSE

UNIVERSAL PATIENT CARE PROTOCOL

See Pediatric Airway Protocol

IV / IO PROTOCOL

Check Blood Glucose Level

Cardiac Monitor

CAUSE?

Respiratory Depression
NARCAN
0.1 mg / kg IV / IM / IO / IN

Beta Blocker or Calcium Channel Blocker Overdose (Bradycardic)

Immediate Transcutaneous Pacing for Severe Cases Hypotension / AMS

GLUCAGON (GLUCAGEN)
0.5-1mg / IV / IN / IM
For Mild / Moderate Beta Blocker Bradycardia
Cases Only
Max Dose 3 mg

NORMAL SALINE Bolus to Maintain SBP 90

DOPAMINE (INTROPIN)
2-20 mcg /kg / min IV Drip
For Severe Cases or Not Responding to Treatment

Tricyclic Ingestion (Wide QRS)

Patient noted to be on any TRICYCLIC listed below and QRS complex wider than 0.12 msec

Brand Name
Adapin
Anafranil
Elavil
Endep
Ludomil
Norpramin
Pamelor
Pertofrane
Sinequan
Surmontil
Tofranil
Vivactil

Generic Name
doxepin
clomipramine
amitriptyline
amitriptyline
maprotiline
desipramine
nortryptiline
desipramine
doxepin
trimipramine
imipramine
protriptyline

SODIUM BICARBONATE 1 mEq / kg IV/IO
Diluted 1:1 in Normal Saline (until the QRS complex narrows to less than 0.12 msec and the patient condition improves)

CONTACT MEDICAL CONTROL

TRANSPORT

ATROПINE mg / kg IV / IO
Repeat every 3-5 minutes

Atropine is Given to:
- Dry Secretions
- Improve respirations

NO MAX DOSE – Give As Needed to Maintain
## TOXIC INGESTION / EXPOSURE / OVERDOSE

### History
- Ingestion or suspected ingestion of a potentially toxic substance
- Substance ingested, route, quantity
- Time of ingestion
- Reason (suicidal, accidental, criminal)
- Available medications in home
- Past medical history, medications

### Signs and Symptoms
- Mental status changes
- Hypo / Hypertension
- Decreased respiratory rate
- Tachycardia, dysrhythmias
- Seizures

### Differential Diagnosis
- Tricyclic antidepressants (TCAs)
- Acetaminophen (Tylenol)
- Depressants
- Stimulants
- Anticholinergic
- Cardiac medications
- Solvents, Alcohols, cleaning agents
- Insecticides (organophosphates)
- Respiratory depression
- Other Organophosphates
- Carbamates

### COMMON BETA BLOCKERS
- Acebutolol
- Atenolol
- Betaxolol
- Bisoprolol
- Brevibloc
- Bystolic

### COMMON CALCIUM CHANNEL BLOCKERS
- Acalas
- Adalat
- Amlodipine
- Arandipine
- Atelac
- Azelnidipine
- Barnidipine
- Baylotensin
- Baymycard
- Benidipine
- Calan
- Calblock
- Calslot
- Carden SR

### Reference
Greater Cleveland Poison Control Center 1-800-222-1222

### KEY POINTS
- Exam: Mental Status, Skin, HEENT, Heart, Lungs, Abdomen, Extremities, Neuro
- Do not rely on patient history of ingestion, especially in suicide attempts.
- Bring bottles, contents, and emesis to ED.
- Tricyclic: 4 major areas of toxicity: seizures, dysrhythmias, hypotension, decreased mental status or coma; rapid progression from alert mental status to death.
- Acetaminophen: initially normal or nausea / vomiting. If not detected and treated, causes irreversible liver failure.
- Depressants: decreased HR, decreased BP, decreased temperature, decreased respirations, non-specific pupils.
- Stimulants: increased HR, increased BP, increased temperature, dilated pupils, and seizures
- Anticholinergics: increased HR, increased temperature, dilated pupils, and mental status changes.
- Cardiac Medications: dysrhythmias and mental status changes
- Solvents: nausea, vomiting, and mental status changes
- Insecticides: increased or decreased HR, increased secretions, nausea, vomiting, diarrhea, pinpoint pupils.
- Consider restraints if necessary for patient's and/or personnel's protection per the Restraint Procedure.
- If it can be done safely, take whatever container the substance came from to the hospital along with readily obtainable samples of medication unless this results in an unreasonable delay of transport.
- If applicable, DO NOT transport a patient to the hospital until proper decontamination.
- Medical Direction may order antidotes.

**Note:** DO NOT use syrup of ipecac.
The Golden Period

THE GOLDEN PERIOD FOR THE PATIENT BEGINS WHEN THE TRAUMA HAPPENS. DO NOT WASTE VALUABLE TIME ON SCENE.

International Trauma Life Support (ITLS)

GUIDELINES FOR LOAD AND GO TRAUMA TRANSPORTS:

Initial Assessment reveals:
- Altered mental status
- Abnormal respirations
- Abnormal circulation

Signs discovered during the Rapid Trauma Survey of conditions that rapidly lead to shock:
- Abnormal chest exam (flail, open, tension, pneumothorax)
- Tender, distended abdomen
- Pelvic instability
- Bilateral femur fractures
- Significant mechanism of injury and/or poor general health of patient.

GENERAL CONSIDERATIONS:
- A trauma victim is considered to be a pediatric patient if they are 15 years old or younger.
- Once the patient is determined to be an actual or potential major trauma / multiple system patient, personnel on scene and/or Medical Control must quickly determine the appropriate course of action including:
  2. Ground transportation directly to an appropriate facility.
- Major Trauma patients are to be transported to the closest Trauma Center.
- Contact the receiving hospital for all major trauma or critical patients.
- Cover open wounds, burns, and eviscerations.
- With the exception of airway control, initiate ALS enroute when transporting major trauma patients.
- If the EMT is unable to establish an airway and ventilate, transport to the closest facility for airway stabilization.
- The on-scene time for major trauma patients should not exceed 10 minutes without a documented, acceptable reason for the delay.
- All major trauma patients should receive oxygen administration; large bore IV(s), cardiac monitoring and capnography.
- Provide a documented reason if an intervention could not be performed.

Mass Casualty Incidents (MCI)
- Upon arrival at a MCI, the first arriving unit should notify their dispatch of the need to implement the Mass Casualty Plan, call for additional resources, establish a safe staging area, and estimate the total number of victims.
- If nerve agent / terrorist incident is suspected, consider use of the DuoDoteâ.
- Each EMS service has a pre-defined coordinating hospital based on their county’s mass casualty plan. It is the responsibility of the responding jurisdiction to notify their appropriate coordinating hospital as soon as possible, giving a brief description of the incident and the estimated number of victims. The coordinating hospital will then notify the receiving hospitals of the MCI. The transportation officer should maintain a constant contact with the coordinating hospital until the scene has been cleared of salvageable victims.
Emergency medical service personnel shall use the following criteria, consistent with their certification, to evaluate whether an injured person qualifies as an adult trauma victim or pediatric trauma victim, in conjunction with the definition of trauma according to the State of Ohio Trauma Triage Guidelines.

An Adult Trauma Victim is a person 16 years of age or older exhibiting one or more of the following physiologic or anatomic conditions:

<table>
<thead>
<tr>
<th>Physiologic conditions</th>
<th>Anatomic conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Glasgow Coma Scale less than 13</td>
<td>• Penetrating trauma to the head, neck, or torso</td>
</tr>
<tr>
<td>• Loss of consciousness greater than 5 minutes</td>
<td>• Significant, penetrating trauma to extremities proximal to the knee or elbow with evidence of neurovascular compromise</td>
</tr>
<tr>
<td>• Deterioration in level of consciousness at the scene or during transport</td>
<td>• Injuries to the head, neck, or torso where the following physical findings are present:</td>
</tr>
<tr>
<td>• Failure to localize to pain</td>
<td>• Visible crush injury</td>
</tr>
<tr>
<td>• Respiratory rate less than 10 or greater than 29</td>
<td>• Abdominal tenderness, distention, or seatbelt sign</td>
</tr>
<tr>
<td>• Requires endotracheal intubation</td>
<td>• Pelvic fracture</td>
</tr>
<tr>
<td>• Requires relief of tension pneumothorax</td>
<td>• Flail chest</td>
</tr>
<tr>
<td>• Pulse greater than 120 in combination with evidence of hemorrhagic shock</td>
<td>• Injuries to the extremities where the following physical findings are present:</td>
</tr>
<tr>
<td>• Systolic blood pressure less than 90, or absent radial pulse with carotid pulse present</td>
<td>• Amputations proximal to the wrist or ankle</td>
</tr>
<tr>
<td></td>
<td>• Visible crush injury</td>
</tr>
<tr>
<td></td>
<td>• Fractures of proximal long bones</td>
</tr>
<tr>
<td></td>
<td>• Evidence of neurovascular compromise</td>
</tr>
<tr>
<td></td>
<td>• Signs or symptoms of spinal cord injury</td>
</tr>
<tr>
<td></td>
<td>• 2nd or 3rd degree greater than 10% total BSA, or other significant burns involving the face, feet, hands, genitalia, or airway</td>
</tr>
<tr>
<td></td>
<td>• Injury sustained in two or more body regions</td>
</tr>
</tbody>
</table>

Field Trauma Triage Criteria: Mechanism of Injury (MOI) & Special Considerations

<table>
<thead>
<tr>
<th>Co-Morbid Diseases and Special Considerations:</th>
<th>Mechanisms of Injury (MOI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Age less than 5 or greater than 55</td>
<td>• High speed MVC</td>
</tr>
<tr>
<td>• Cardiac disease</td>
<td>• Ejection from vehicle</td>
</tr>
<tr>
<td>• Respiratory disease</td>
<td>• Vehicle rollover</td>
</tr>
<tr>
<td>• Diabetes</td>
<td>• Death in same passenger compartment</td>
</tr>
<tr>
<td>• Immunosuppression</td>
<td>• Extrication time greater than 20 minutes</td>
</tr>
<tr>
<td>• Morbid obesity</td>
<td>• Falls greater than 20 feet</td>
</tr>
<tr>
<td>• Pregnancy</td>
<td>• Vehicle versus bicycle / pedestrian</td>
</tr>
<tr>
<td>• Substance abuse / intoxication</td>
<td>• Pedestrian struck, thrown or run over</td>
</tr>
<tr>
<td>• Liver disease</td>
<td>• Motorcycle crash greater than 20 mph with separation of rider from bike</td>
</tr>
<tr>
<td>• Renal disease</td>
<td>• Fall from any height, including standing with signs of traumatic brain injury</td>
</tr>
<tr>
<td>• Bleeding disorder / anticoagulation</td>
<td></td>
</tr>
</tbody>
</table>
GENERAL CONSIDERATIONS:

Exceptions to Mandatory Transport to a Trauma Center:
Emergency medical service personnel shall transport a trauma victim directly to an adult or pediatric trauma center that is qualified to provide appropriate adult or pediatric care, unless one or more of the following exceptions apply:

1. It is medically necessary to transport the victim to another hospital for initial assessment and stabilization before transfer to an adult or pediatric trauma center.
2. It is unsafe or medically inappropriate to transport the victim directly to an adult or pediatric trauma center due to adverse weather or ground conditions or excessive transport time.
3. Transporting the victim to an adult or pediatric trauma center would cause a shortage of local emergency medical service resources.
4. No appropriate adult or pediatric trauma center is able to receive and provide adult or pediatric trauma care to the trauma victim without undue delay.
5. Before transport of a patient begins, the patient requests to be taken to a particular hospital that is not a trauma center or, if the patient is less than eighteen years of age or is not able to communicate, such a request is made by an adult member of the patient's family or a legal representative of the patient.

TRAUMA ALERT PROCEDURE

1. EMS Pre-hospital response – verbalize “trauma” initially when placing call
2. EMS Notifies ED of Potential Trauma Victim(s)
3. EMS Notifies ED - Trauma patient(s) Report / GCS given / destination decided
4. ED Charge Nurse notifies ED Doctor activates “Trauma Alert”
5. Patient Enroute to Hospital - ETA given
6. Arrival of patient(s)
7. Team Care / treatment

Glasgow Coma Scale

<table>
<thead>
<tr>
<th>INFANT \ Birth to age 4</th>
<th>ADULT \ Age 4 to Adult</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Spontaneously</td>
</tr>
<tr>
<td>3</td>
<td>To speech</td>
</tr>
<tr>
<td>2</td>
<td>To pain</td>
</tr>
<tr>
<td>1</td>
<td>No response</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Coos, babbles</td>
</tr>
<tr>
<td>4</td>
<td>Irritable cries</td>
</tr>
<tr>
<td>3</td>
<td>Cries to pain</td>
</tr>
<tr>
<td>2</td>
<td>Moans, grunts</td>
</tr>
<tr>
<td>1</td>
<td>No response</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Spontaneous</td>
</tr>
<tr>
<td>5</td>
<td>Localizes pain</td>
</tr>
<tr>
<td>4</td>
<td>Withdraws from pain</td>
</tr>
<tr>
<td>3</td>
<td>Flexion (decorticate)</td>
</tr>
<tr>
<td>2</td>
<td>Extension (decerebrate)</td>
</tr>
<tr>
<td>1</td>
<td>No response</td>
</tr>
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</tbody>
</table>

Eye Opening

<table>
<thead>
<tr>
<th>Eye Opening</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

Best Verbal Response

<table>
<thead>
<tr>
<th>Best Verbal Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oriented</td>
</tr>
<tr>
<td>Confused</td>
</tr>
<tr>
<td>Inappropriate words</td>
</tr>
<tr>
<td>Incomprehensible</td>
</tr>
<tr>
<td>No response</td>
</tr>
</tbody>
</table>

Best Motor Response

<table>
<thead>
<tr>
<th>Best Motor Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obey commands</td>
</tr>
<tr>
<td>Localizes pain</td>
</tr>
<tr>
<td>Withdraws from pain</td>
</tr>
<tr>
<td>Flexion (decorticate)</td>
</tr>
<tr>
<td>Extension (decerebrate)</td>
</tr>
<tr>
<td>No response</td>
</tr>
</tbody>
</table>

TOTAL = GCS less than 8? Intubate!
PEDIATRIC

TRAUMA

ABDOMINAL TRAUMA

SCENE SAFETY

UNIVERSAL PATIENT CARE PROTOCOL

Airway Protocol

Spinal Immobilization Protocol

Determine if Load & Go

Control Bleeding/ hemorrhage
Dress wounds

Evisceration: Cover, clean saline dressing to loosely stabilize

Penetrating Object: Cover, clean saline dressing – Immobilize Object. If too large to transport – attempt to cut with care not to further injure tissue.

Penetrating Wounds: Cover, clean saline dressing. Look for exit wound.

Blunt Trauma: Assess for change – distention. Note mechanism.

Shock Protocol

Monitor and Reassess

CONTACT MEDICAL CONTROL

Initial Trauma Alert if indicated

TRANSPORT

Multiple Trauma Protocol

EMT-B

EMT-A

EMT-P

MED CONTROL

IV / IO PROCEDURE
NS / LR 20 mL/Kg Bolus repeat to maintain the BP of 90 systolic
PEDIATRIC

TRAUMA

ABDOMINAL TRAUMA

<table>
<thead>
<tr>
<th>MECHANISM</th>
<th>SIGNS &amp; SYMPTOMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Blunt</td>
<td>• Altered mental status</td>
</tr>
<tr>
<td></td>
<td>• Shock</td>
</tr>
<tr>
<td></td>
<td>• Distention</td>
</tr>
<tr>
<td></td>
<td>• Swelling</td>
</tr>
<tr>
<td></td>
<td>• Bulging</td>
</tr>
<tr>
<td></td>
<td>• Nausea and vomiting</td>
</tr>
<tr>
<td>• Penetrating</td>
<td>• Altered mental status</td>
</tr>
<tr>
<td></td>
<td>• Bleeding</td>
</tr>
<tr>
<td></td>
<td>• Tenderness</td>
</tr>
<tr>
<td></td>
<td>• Pain</td>
</tr>
<tr>
<td></td>
<td>• Distention</td>
</tr>
<tr>
<td></td>
<td>• Evisceration</td>
</tr>
<tr>
<td></td>
<td>• Discoloration</td>
</tr>
<tr>
<td></td>
<td>• Entrance / exit wounds</td>
</tr>
<tr>
<td></td>
<td>• Nausea &amp; vomiting</td>
</tr>
</tbody>
</table>

KEY POINTS

Trauma to the abdomen is either Blunt or Penetrating. Blunt injuries are harder to detect and diagnose, and have a death rate twice that of penetrating wounds. Key signs and symptoms of blunt trauma include a patient in shock with no obvious injuries. Distention of the abdomen is an indication of internal hemorrhage. Pain may not be a significant factor. Many abdominal trauma injuries are Load & Go cases.

- Look for both an entrance and exit wound for all penetrating trauma, and treat accordingly.
- For all major trauma patients, the on scene time should be less than ten minutes.
PEDIATRIC

TRAUMA

BURNS

UNIVERSAL PATIENT CARE PROTOCOL

See Airway Protocol

Consider Spinal Immobilization

Remove rings, bracelets, and other constricting items

Thermal

Stop the burning process
Cool down wound with NORMAL SALINE/tepid water

Cover burn with dry sterile sheet dressings

IV / IO PROTOCOL

NORMAL SALINE IV BOLUS
20 mL/kg if prolonged transport

Chemical

Flush areas with NORMAL SALINE/ tepid water for 10 – 15 minutes

Flush eyes with NORMAL SALINE/ tepid water for 10 – 15 minutes

Eye Injury, Tetracaine eye drops then continuous flushing with Normal Saline/Tepid Water

Remove clothing and/or expose area. Cover burn with dry sterile sheet or dressing

SEE PAIN CONTROL PROTOCOL

CONTACT MEDICAL CONTROL

TRANSPORT
5. Inhalation Burns:

- Always suspect inhalation burns when the patient is found in a closed smokey environment and/or exhibits any of the following: burns to face, neck, singed nasal hairs, cough and/or stridor, soot in sputum.

- Provide oxygen therapy, contact Medical Control and transport.
  - Handle patient gently to avoid further damage of the patient’s skin.
  - If the patient is exposed to a chemical, whenever possible, get the name of the chemical, and document it on the patient run report. **DO NOT** transport any hazardous materials with the patient.
  - Look for signs of dehydration and shock.
  - Initiate early intubation for symptomatic patients with inhalation burns.
  - Patients with major burns should be transported to the MetroHealth Medical Regional Burn Center.
  - Patients with unstable airway or who are rapidly deteriorating should be transported to the closest appropriate facility.
  - Patients with large surface burns lose the ability to regulate their body temperature. Avoid heat loss by covering the patient.

**GENERAL CONSIDERATIONS:**

- **Exam:** Mental Status, HEENT, Neck, Heart, Lungs, Abdomen, Extremities, Back, Neuro
- **Critical Burns:** greater than 25% body surface area (BSA), full thickness burns greater than 10% BSA, partial thickness superficial partial thickness, deep partial thickness and full thickness burns to face, eyes, hand or feet, genitals, joints, electrical burns, respiratory burns, deep chemical burns, burns with extremes of age or chronic disease, and burns with associated major traumatic injury. These burns may require hospital admission or transfer to a burn center.
- **Early intubation is required in significant inhalation injuries; also apply cardiac monitor and treat arrhythmia, especially with electrical burns.**
- **Potential CO exposure should be treated with 100% oxygen.** Provide endotracheal intubation per procedure protocol.
- **Circumferential burns to extremities are dangerous due to potential vascular compromise.**
- **Burn patients are prone to hypothermia** – Never apply ice or cool burns that involve greater than 10% body surface area.
- **Do not overlook the possibility of multiple system trauma.**
- **Do not overlook the possibility of child abuse with children and burn injuries.**
- **Pediatric Dose:** Morphine 0.1mg/Kg every 5 minutes until pain relieved. (Maximum dose of 10mg in the field.) See appendix for rule of nines.
- **Administer IV fluids per the Parkland Burn Formula:** Fluid for the first 24 hours (mL) = 4x patient’s weight in kg x %BSA (only if transport time is > 30 minutes).

1. **Thermal (dry and moist):**
   a. Stop burning process: i.e., remove patient from heat source, cool skin, remove clothing
   b. If patient starts to shiver or skin is cool, stop cooling process
   c. Estimate extent (%) and depth of burn (see chart). Determine seriousness (see chart) of burn. Contact Medical Control, transport accordingly.
   - Cover burn areas with sterile dressing.

2. **Radiation Burns:**
   a. Treat as thermal burns except when burn is contaminated with radioactive source, then treat as chemical burn.
   b. Wear appropriate protective clothing when dealing with contamination.
   c. Contact Haz Mat Team for assistance in contamination cases.

3. **Chemical Burns:**
   a. Wear appropriate protective clothing and respirators.
   b. Remove patient from contaminated area to decontamination site (NOT SQUAD).
   c. Determine chemicals involved; contact appropriate agency for chemical information.
   d. Remove patient’s clothing and flush skin.
   e. Leave contaminated clothes at scene. Cover patient over and under before loading into squad.
   f. Patient should be transported by personnel not involved in decontamination process.
   g. Determine severity (see chart), contact Medical Control and transport accordingly.
   h. Relay type of substance involved to Medical Control.

4. **Electrical Burns:**
   a. Shut down electrical source; do not attempt to remove patient until electricity is CONFIRMED to be shut off.
   b. Assess for visible entrance and exit wounds and treat as thermal burns.
   c. Assess for internal injury, i.e., vascular damage, tissue damage, fractures, and treat accordingly.
   d. Determine severity of burn, contact Medical Control and transport accordingly.

5. **Inhalation Burns:**
   a. Always suspect inhalation burns when the patient is found in a closed smokey environment and/or exhibits any of the following: burns to face, neck, singed nasal hairs, cough and/or stridor, soot in sputum.
   b. Provide oxygen therapy, contact Medical Control and transport.
   - Handle patient gently to avoid further damage of the patient’s skin.
   - If the patient is exposed to a chemical, whenever possible, get the name of the chemical, and document it on the patient run report. **DO NOT** transport any hazardous materials with the patient.
   - Look for signs of dehydration and shock.
   - Initiate early intubation for symptomatic patients with inhalation burns.
   - Patients with major burns should be transported to the MetroHealth Medical Regional Burn Center.
   - Patients with unstable airway or who are rapidly deteriorating should be transported to the closest appropriate facility.
   - Patients with large surface burns lose the ability to regulate their body temperature. Avoid heat loss by covering the patient.
**PEDIATRIC**

**TRAUMA BURNS**

**RULE OF NINES**

1% is equal to the surface of the palm of the patient’s hand. If unsure of %, describe injured area.

**SERIOUSNESS OF BURNS**

**MINOR**
- 1st degree < 70%
- 2nd degree < 10%
- +3rd degree < 2%

**MODERATE**
- 1st degree > 70%
- +2nd degree 10-30%

**CRITICAL**
- 2nd degree > 30%
- 3rd degree > 2%
- Any burns with trauma.
- Any burns with head, face, feet, genitalia involved.

+ Only if hands, face, feet or genitalia are NOT involved

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**MAJOR BURN CRITERIA**

- 2° and 3° burns more than 10% surface area
- Burns of the face, hands, feet, genitalia
- Electrical shock with burn injury
- Burn with inhalation injury
- Any burn with potential functional or cosmetic impairment
PEDIATRIC

TRAUMA

CHEST TRAUMA

UNIVERSAL PATIENT CARE PROTOCOL
C-Spine Immobilization
Evidence of Trauma – Blunt or Penetrating
Abnormal breath sounds, inadequate respiratory rate, Unequal symmetry.
Diminished chest excursion. Cyanosis.

B EMT-B
A EMT-A
P EMT-P
M MED CONTROL

PEDIATRIC AIRWAY PROTOCOL

Jaw Thrust Airway Maneuver
Give High Flow Oxygen

CERVICAL SPINE IMOBILIZATION PROCEDURE

IF S&S of Tension Pneumothorax
(No lung sounds on affected side, Hypotension, JVD)
NEEDLE CHEST DECOMPRESSION PROCEDURE

IV / IO PROCEDURE
Normal Saline Bolus to maintain BP of 90 systolic

APPLY CARDIAC MONITOR

Cardiac Tamponade: Assess for + Beck's Triad (Hypotension, +JVD and muffled heart sounds). Paradoxical Pulse (no radial pulse when breathing in) is likely.
EKG monitor. Load & Go.

Massive Hemothorax: Shock, then difficulty breathing. No JVD, decreased breath sounds, dull to percussion. True Load & Go. IV to keep BP @ 90 systolic.
Load and Go.

Open Pneumothorax: Close wound with occlusive dressing secured on THREE SIDES, allowing air escape. (Asherman Chest Sealâ). Load and Go.

Flail Chest: Stabilize flail segment with manual pressure then apply bulky dressing and tape. Load and Go.

Suspected: Traumatic Aortic Rupture, Tracheal or Bronchial Tree Injury, Myocardial Contusion, Diaphragmatic Tears, Esophageal Injury, Pulmonary Contusion: Ensure an Airway, Administer Oxygen, Load & Go to a Trauma Center / Call Med Control. Load and Go.

CONTACT MEDICAL CONTROL
Initiate Trauma Alert

TRANSPORT
Southwest General Health Center / EMS Services


GENERAL CONSIDERATIONS:

Thoracic injuries have been called the deadly dozen. The first six are obvious at the primary assessment:

1. Airway Obstruction
2. Flail Chest
3. Cardiac Tamponade
4. Massive Hemorthorax
5. Open Pneumothorax
6. Tension Pneumothorax

The second six injuries may be more subtle and not easily found in the field:

7. Traumatic Aortic Rupture
8. Esophageal Injury
9. Myocardial Contusion
10. Diaphragmatic Tears
11. Tracheal / Bronchial Tree Injury
12. Pulmonary Contusion

- **A sucking chest wound** is when the thorax is open to the outside. The occlusive dressing may be anything built in such as, petroleum gauze, plastic, or a defibrillator pad. Asherman Chest Seal Æ. May help respirations to place patient on the injured side, allowing unaffected lung to expand easier.

- **A flail chest** is when there are extensive rib fractures present, causing a loose segment of the chest wall resulting in paradoxical and ineffective air movement. This movement must be stopped by applying a bulky pad to inhibit the outward excursion of the segment. Positive pressure breathing via BVM will help push the segment and the normal chest wall out with inhalation and to move inward together with exhalation, getting them working together again. Do not use too much pressure to prevent additional damage or pneumothorax.

- **A Penetrating Object** must be immobilized by any means possible. If it is very large, cutting may be possible, with care taken not to move it about when making the cut. Place an occlusive and bulky dressing over the entry wound.

- **A Tension Pneumothorax** is life threatening, look for hypotension and unequal breath sounds, JVD, increasing respiratory distress, decrease mental status, and lastly, tracheal displacement. The pleura must be decompressed with a needle to provide relief. * Use #14 gauge decompression needle for under 50 kg / 100 lbs. Use either the mid-clavicular (2nd or 3rd intercostals space) or the midaxillary (5th or 6th space) landmarks, going in on the top side of the rib. Once the catheter is placed, watch closely for reocclusion. Repeat if needed.
**PEDIATRIC TRAUMA**

**DROWNING / NEAR DROWNING**

**UNIVERSAL PATIENT CARE PROTOCOL**

Airway Protocol – Initiate ventilation while patient is still in water if not breathing. Provide high flow oxygen ASAP.

Spinal Immobilization Protocol
Place backboard while still in water if able.

**IV / IO PROTOCOL**

Apply Cardiac Monitor
If V-Fib – defibrillate per ACLS (AED)

IF HYPOTHERMIC – Refer to Protocol
If Cardiac Arrest – May attempt Defib. BLS only for all else

DECOMPRESSION – give oxygen – no positive pressure unless NOT breathing. Position on L side with head down.

Monitor and reassess

**CONTACT MEDICAL CONTROL**

**TRANSPORT**
To appropriate facility
GENERAL CONSIDERATIONS:

- Exam: Trauma Survey, Head, Neck, Chest, Abdomen, Pelvis, Back, Extremities, Skin, Neuro
- Drowning due to suffocation from submersion in water.
- 2 causes – breath holding which leads to aspiration of water, and laryngospasm which closes the glottis.
- Both causes lead to profound hypoxia and death.
- Fresh water drowning ventricular fibrillation may be likely.
- Salt water drowning may cause pulmonary edema in time.
- Pulmonary edema can develop within 24-48 hours after submersion.
- All victims should be transported for evaluation due to potential for worsening over the next several hours.
- Drowning is a leading cause of death among would-be rescuers.
- Allow appropriately trained and certified rescuers to remove victims from areas of danger.
- With pressure injuries (decompression / barotrauma), consider transport for availability of a hyperbaric chamber.
- All hypothermic / near-drowning patients should have resuscitation performed until care is transferred, or if there are other signs of obvious death (putrification, traumatic injury unsustainable to life).
- Consider a c-spine injury in all drowning cases. Always immobilize a drowning patient.
- In the absence of hypothermia, ACLS protocols are to be followed for drowning patients in cardiac arrest after the submersion.
- Patients with low core temperatures will not respond to ALS drug interventions. Maintain warming procedure and supportive care.
- DO NOT perform the Heimlich maneuver to remove water from the lungs prior to resuscitation.

**PEDIATRIC TRAUMA**

**DROWNING / NEAR DROWNING**

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submersion in water regardless of depth</td>
<td>Period of unconsciousness</td>
<td>Trauma</td>
</tr>
<tr>
<td>Possible trauma i.e., fall, diving board</td>
<td>Unresponsive</td>
<td>Pre-existing medical problem</td>
</tr>
<tr>
<td>Duration of immersion</td>
<td>Mental status changes</td>
<td>Barotrauma (diving)</td>
</tr>
<tr>
<td>Temperature of water</td>
<td>Decreased or absent vital signs</td>
<td>Decompression sickness</td>
</tr>
<tr>
<td>Salt or fresh water</td>
<td>Vomiting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coughing</td>
<td></td>
</tr>
</tbody>
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**History**
- Submersion in water regardless of depth
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- Duration of immersion
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**Signs and Symptoms**
- Period of unconsciousness
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- Vomiting
- Coughing

**Differential Diagnosis**
- Trauma
- Pre-existing medical problem
- Barotrauma (diving)
- Decompression sickness
**PEDIATRIC TRAUMA**

**EXTREMITY / AMPUTATION TRAUMA**

**UNIVERSAL PATIENT CARE PROTOCOL**

**Wound Care / Control Bleeding with Hemorrhage Control**

*bandage and direct pressure.*

**Multiple Trauma Pediatric Protocol**

**Life or Limb Threatening Event?**

**Wound Care / Bleeding Control / Splinting**

*Risk of Exsanguination?*  
*Internally or Externally?*

*Apply tourniquet around the injured appendage above the level of bleeding. *LABEL/DATETIME/direct verbal report to receiving hospitals physician as to: TIME/LOCATION of tourniquet application.*

**IV / IO PROTOCOL**

**Pain Management Protocol**

*Morphine Sulfate 0.1 mg/Kg every 4-5 min IVP Titrated to response and resp. rate*  
*Call Medical Control if child is < 12 years old*

**Amputation?**

*Clean amputated part with NS or sterile water. Wrap part in Sterile Dressing and place in plastic bag if able. Place on Ice if available – no direct contact to tissue*

**CONTACT MEDICAL CONTROL**

**TRANSPORT**
GENERAL CONSIDERATIONS:

- Exam: Mental Status, Extremity, Neuro
- In amputations, time is critical. Transport and notify Medical Control immediately, so that the appropriate destination can be determined.
- Hip dislocations and knee and elbow fracture / dislocations have a high incidence of vascular compromise.
- Urgently transport any injury with vascular compromise.
- Blood loss may be concealed or not apparent with extremity injuries.
- Lacerations must be evaluated for repair within 6 hours from the time of injury.
- If a tourniquet is applied, give a direct verbal report to receiving hospital as to time and location of tourniquet application and document.

Extremity Trauma:

- In cases of major trauma, the backboard can work as a whole body splint.
- DO NOT take the time to splint injured extremities in major trauma patients unless it does not delay the scene time or prevents you from performing more pertinent patient care.
- Splint the extremity if the patient has signs and symptoms of a fracture or dislocation.
- Treat all suspected sprains or strains as fractures until proven otherwise.
- Splint the joint above and below for all suspected fractures.
- Splint the bone above and below for all suspected joint injuries.
- Check and document the patient’s MPS before and after splinting.
- A traction splint with a backboard is the preferred splint to use for femur fractures.

Traumatic Amputation:

- Care of the amputated extremity include:
  1. Cleanse an amputated extremity with normal saline.
  2. DO NOT place any amputated tissue directly on ice or cold pack. Instead, wrap amputated limb in moistened sterile dressing with normal saline and place in plastic bag. Put the bag into a container of cool water / ice.
- Contact the receiving hospital with the patient information, and include the status of the amputated limb.
- Focus on patient care and not on the amputated extremity.
- Tourniquets are a life vs. limb decision.
- Remember to calm and reassure the patient. Do not give the patient or their family members false hope of re-attachment of the affected limb. A medical team at the receiving hospital makes this decision.
- Delegate someone to do an on scene search for the amputated part when it cannot be readily found and continue with patient care.
**PEDIATRIC**

**TRAUMA**

**HEAD TRAUMA**

**UNIVERSAL PATIENT CARE PROTOCOL**

**Isolated Head Trauma?**

**Yes**

**IV / IO PROTOCOL**

**Does patient respond to verbal?**

**No**

**None or Extension**

**Intubate Ventilate**

**OR**

**Response to Pain?**

**Localizes, Flexes or Withdraws**

**Pupils Equal and Reactive?**

**Maintain Pulse Oximetry greater than 90%, use waveform capnography and maintain CO\(_2\) 35-45. If signs of herniation, keep CO\(_2\) 30-35.**

**Seizure?**

**Yes**

**Pediatric Seizure Protocol**

**Blood Glucose Analysis**

**Glucose less than 60**

**Monitor and Reassess**

**Consider NARCAN if decreased LOC 0.1 mg / kg IV / IM / IN**

**CONTACT MEDICAL CONTROL**

**TRANSPORT**

**GLUCAGON (GLUCAGEN)**

0.5-1 mg / IM / IN / IO

If under 20 kg, give ½ mg IM

If over 20 kg, give 1 mg IM

Maximum 1 mg

May repeat if no change

**DEXTROSE**

250 ml bag of DEXTROSE 10% concentration

**Dextrose administration:**

**Neonate:** Give 2ml/kg IV or IO of a D10% solution. May repeat if necessary.

**Infants and children:** Give 5ml/kg IV or IO of a D10% solution. May repeat if necessary.
GENERAL CONSIDERATIONS:

- Exam: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremities, Back, Neuro
- If GCS less than 13 consider air / rapid transport and if GCS less than 8, intubation should be anticipated.
- Hyperventilate the patient only if evidence of herniation (blown pupil, decorticate / decerebrate posturing, bradycardia).
- If hyperventilation is needed maintain ETCO$_2$ = 30-35
- Increased intracranial pressure (ICP) may cause hypertension and bradycardia (Cushing's Response).
- Hypotension usually indicates injury or shock unrelated to the head injury.
- The most important item to monitor and document is a change in the level of consciousness.
- Concussions are periods of confusion or LOC associated with trauma, which may have resolved by the time EMS arrives. A physician should evaluate ASAP any prolonged confusion or mental status abnormality, which does not return to normal within 15 minutes or any documented loss of consciousness.
PEDIATRIC

TRAUMA PROTOCOLS

MULTIPLE TRAUMA

UNIVERSAL PATIENT CARE PROTOCOL

Rapid Trauma Assessment

See Pediatric Airway Protocol

Spine Motion Restriction Protocol

Rapid Transport to Most Appropriate Facility

Determine Load and Go Situation

Consider rapid / air transport

IV / IO PROTOCOL

Vital Signs / Perfusion?
Control Bleeding

Abnormal

NORMAL SALINE IV BOLUS
20 mL / kg
Repeat as needed

Reassess Airway Protocol
Check tube placement / hyper-ventilate. (Only if S+S of herniation syndrome)

Normal

Ongoing Assessment

Appropriate Protocol

CONTACT MEDICAL CONTROL

TRANSPORT
# Pediatric Trauma Protocols / Multiple Trauma

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time and mechanism of injury</td>
<td>Pain, swelling</td>
<td>Life Threatening:</td>
</tr>
<tr>
<td>Damage to structure or vehicle</td>
<td>Deformity, lesions, bleeding</td>
<td>Chest Tension pneumothorax</td>
</tr>
<tr>
<td>Location in structure or vehicle</td>
<td>Altered mental status</td>
<td>Flail chest</td>
</tr>
<tr>
<td>Others injured or dead</td>
<td>Unconscious</td>
<td>Pericardial tamponade</td>
</tr>
<tr>
<td>Speed and details of MVC</td>
<td>Hypotension or shock</td>
<td>Open chest wound</td>
</tr>
<tr>
<td>Restraints/Protective equipment, car seat</td>
<td>Arrest</td>
<td>Hemothorax</td>
</tr>
<tr>
<td>Helmet</td>
<td></td>
<td>Intra-abdominal bleeding</td>
</tr>
<tr>
<td>Pads</td>
<td></td>
<td>Pelvis / Femur fracture</td>
</tr>
<tr>
<td>Ejection</td>
<td></td>
<td>Spine fracture / Cord injury</td>
</tr>
<tr>
<td>Past medical history</td>
<td></td>
<td>Head injury (see Head Trauma)</td>
</tr>
<tr>
<td>Medications</td>
<td></td>
<td>Extremity fracture / dislocation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HEENT (Airway obstruction)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hypothermia</td>
</tr>
</tbody>
</table>

A Pediatric Trauma Victim is a person less than 16 years of age exhibiting one or more of the following physiologic or anatomic conditions:

### Physiologic conditions:
- Glasgow Coma Scale <13
- Loss of consciousness greater than 5 minutes
- Deterioration in level of consciousness at the scene or during transport
- Failure to localize to pain
- Respiratory rate <10 or > 29
- Requires endotracheal intubation
- Requires relief of tension pneumothorax
- Plus > 1.20 in combination with evidence of hemorrhagic shock
- Systolic blood pressure <90, or absent radial pulse with carotid pulse present

### Anatomic conditions:
- Penetrating trauma to head, neck, or torso
- Significant, penetrating trauma to extremities proximal to the knee or elbow with evidence of neurovascular compromise
  - Injuries to the head, neck, or torso where the following physical findings are present:
    - Visible crush injury
    - Abdominal tenderness, distention, or seatbelt sign
    - Pelvic fracture
    - Flail chest
  - Injuries to the extremities where the following physical findings are present:
    - Amputations proximal to the wrist or ankle
    - Visible crush injury
    - Fractures of proximal long bones
  - Evidence of neurovascular compromise
    - Signs or symptom of spinal cord injury
    - 2nd or 3rd degree > 10% total BSA, or other significant burns involving the face, feet, hands, genitalia, or airway
  - Injury sustained in two or more body regions

### General Considerations:
- Exam: Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Extremities, Back, Neuro
- Mechanism is the most reliable indicator of serious injury. Examine all restraints / protective equipment for damage.
- In prolonged extrications or serious trauma consider air transportation for transport times and the ability to give blood.
- Do not overlook the possibility for child abuse.
- A trauma victim is considered to be a pediatric patient if they are 15 years old or younger.
- The proper size equipment is very important to resuscitation care. Refer to length based drug treatment guide (e.g. BROSELOW PEDIATRIC EMERGENCY TAPE OR SIMILAR GUIDE) when unsure about patient weight, age and/or drug dosage and when choosing equipment size.
- With the exception of airway control, initiate ALS enroute when transporting major trauma patients.
- If unable to access patient airway and ventilate, then transport to the closest facility for airway stabilization.
- The on scene time for major trauma patients should not exceed 10 minutes without documented, acceptable reason for the delay.
- All major trauma patients should receive oxygen administration, an IV(s), and cardiac monitoring.
- Provide a documented reason if an intervention could not be performed.
- Contact Medical Control as the recommendation might be to transport major trauma pediatric patients to the closest Pediatric Trauma Center. (Pediatric Level I Trauma Centers are: Rainbow Babies and Children’s, Akron Children’s Hospital, MetroHealth Medical Center is a level 11)
PEDIATRIC

TRAUMA

PAIN MANAGEMENT PROTOCOL

TRAUMA:
- Burns
- Dislocation
- Blunt Trauma
- Musculoskeletal / Fracture Pain

MEDICAL:
- Intractable Flank Pain
- Musculoskeletal
- Sickle Cell Pain Crisis (Use Supplemental O₂)

MORPHINE SULFATE 0.1 mg / kg IV/IM titrated to pain and respirations
  Under age 12: call Medical Control
  Repeat in 5 minutes if pain persists and vital signs remain stable.
  Not for: Altered Mentation, Head Trauma and Hypovolemia

ONDANSETRON (ZOFRAN) as Needed
  4 mg IM/IV over 2-4 minutes
  May Repeat x1 if Needed in 15 minutes
  OR
  ONDANSETRON (ZOFRAN) Dissolving Tabs
  4 mg Oral

Monitor and Reassess
Monitor: Airway, Breathing, Vitals

CONTACT MEDICAL CONTROL

TRANSPORT
PEDIATRIC

TRAUMA

PAIN MANAGEMENT PROTOCOL

<table>
<thead>
<tr>
<th>HISTORY</th>
<th>SIGNS AND SYMPTOMS</th>
<th>DIFFERENTIAL DIAGNOSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age / onset</td>
<td>Severity (pain scale)</td>
<td>Per the specific protocol</td>
</tr>
<tr>
<td>Location</td>
<td>Quality (sharp, dull, etc.)</td>
<td>Musculoskeletal</td>
</tr>
<tr>
<td>Duration</td>
<td>Radiation</td>
<td>Visceral (abdominal)</td>
</tr>
<tr>
<td>Severity (0-10)</td>
<td>Relation to movement, respiration</td>
<td>Cardiac</td>
</tr>
<tr>
<td>Past medical history</td>
<td>Increased with palpation of area</td>
<td>Pleuritic (respiratory)</td>
</tr>
<tr>
<td>Medications</td>
<td></td>
<td>Neurogenic</td>
</tr>
<tr>
<td>Drug allergies</td>
<td></td>
<td>Renal (colic)</td>
</tr>
</tbody>
</table>

The Wong-Baker Faces Pain Rating Scale

Designed for children aged 3 years and older, the Wong-Baker Faces Pain Rating Scales is also helpful for elderly patients who may be cognitively impaired. If offers a visual description for those who don't have the verbal skills to explain how their symptoms make them feel.

To use this scale, your doctor should explain that each face shows how a person in pain is feeling. That is, a person may feel happy because he or she has no pain (hurt), or a person may feel sad because he or she has some or a lot of pain.

A Numerical Pain Scale

A numerical pain scale allows you to describe the intensity of your discomfort in numbers ranging from 0 to 10 (depending on the scale). Rating the intensity of sensation is one way of helping your doctor determine treatment. Numerical pain scales may include words or descriptions to better label your symptoms, from feeling no pain to experiencing excruciating pain. Some researchers believe that this type of combination scale may be most sensitive to gender and ethnic differences in describing pain.

KEY POINTS

- Exam: Mental Status, Area of Pain, Neuro
- Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage.
- Pain is subjective (whatever the patient says it is).
- Pain severity (0-10) is a vital sign to be recorded pre and post medication delivery and at disposition.
- Use Morphine for suspected cardiac chest pain within the ACLS Protocol.
- Abdominal pain patients must have a 12 lead EKG to rule out cardiac involvement.
- Vital signs should be obtained pre, 10 minutes post, and at disposition with all pain medications.
- Contraindications to Morphine use included hypotension, head injury, respiratory distress, or severe COPD
- All patients should have drug allergies documented prior to administering pain medications.
- All patients who receive pain medications must be observed 15 minutes for drug reaction.
- All patients who receive medication for pain must have continuous ECG monitoring, pulse oximetry, and oxygen administration.
- The patient’s vital signs must be routinely reassessed.
- Routine assessments and reassessments must be documented on the run report.
- Have Naloxone (Narcan) on hand if the patient has respiratory depression or hypotension after Morphine administration. Be prepared to ventilate.
- DO NOT administer narcotic analgesics if there is any suspicion of a head injury.
- Toradol (Ketoralac) 30 – 60 mg IM / 30 mg IV. Indicated for short term management of moderate to severe pain. **Caution:** kidney stones, muscle sprains, hip and extremity injuries. **Not for:** children under 12 yrs of age, HX of asthma, aspirin or non-steroidal anti-inflammatory allergies, bleeding disorders, renal disorders/failure hypotension, pregnancy. Adults over 65 yrs and older, call Medical Control first.
- Morphine Sulfate: 2 mg every 4-5 minutes IV, titrated to pain and respirations. **Not for:** Altered Mentation, Head Trauma and Hypovolemia.
- **Call Medical Control for all Pediatric Pain Management under the age of 12.**
**PEDIATRIC TRAUMA**

**TRAUMA ARREST**

**UNIVERSAL PATIENT CARE PROTOCOL**

- Administer CPR as indicated

**PEDIATRIC AIRWAY PROTOCOL**

**SPINAL PROTOCOL**

**IV / IO PROTOCOL**

- Appropriate Protocol based on Signs and Symptoms

- Apply Cardiac Monitor

- CONTACT MEDICAL CONTROL

### HISTORY

- Time of injury
- Mechanism: blunt / penetrating
- Loss of consciousness
- Bleeding
- Medications
- Evidence of multi-trauma

### SIGNS AND SYMPTOMS

- Excessive bleeding
- Unresponsive; not breathing
- Cardiac Arrest
- Significant mechanism of injury

### DIFFERENTIAL DIAGNOSIS

- Obvious DOA
- Death

### General Considerations

- Immediately transport traumatic cardiac arrest patients.
- With the exception of endotracheal intubation, traumatic cardiac arrests are “load and go” situations.
- Resuscitation should not be attempted in cardiac arrest patients with hemicorporectomy, decapitation, or total burns, nor in patients with obvious, severe blunt trauma that are without vital signs, pupillary response, or an organized or shockable cardiac rhythm at the scene. Patients in cardiac arrest with deep penetrating cranial injuries and patients with penetrating cranial or truncal wounds associated with asystole and a transport time of more than 15 minutes to a definitive care facility are unlikely to benefit from resuscitative efforts.
- Extensive, time-consuming care of trauma victims in the field is usually not warranted. Unless the patient is trapped, they should be enroute to a Medical Facility within 10 minutes after arrival of the ambulance on the scene.
# GLASGOW COMA SCALE

<table>
<thead>
<tr>
<th>EYE OPENING</th>
<th>CHILD (Age 4 and up)</th>
<th>Infant (Birth to Age 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spontaneous</td>
<td>Spontaneous</td>
<td>4</td>
</tr>
<tr>
<td>To voice</td>
<td>To voice</td>
<td>3</td>
</tr>
<tr>
<td>To pain</td>
<td>To pain</td>
<td>2</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
<td>1</td>
</tr>
</tbody>
</table>

## VERBAL RESPONSE

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oriented</td>
<td>Coos, babbles</td>
<td>5</td>
</tr>
<tr>
<td>Confused</td>
<td>Irritable cry, insconsolable</td>
<td>4</td>
</tr>
<tr>
<td>Inappropriate</td>
<td>Cries to pain</td>
<td>3</td>
</tr>
<tr>
<td>Garbled speech</td>
<td>Moans to pain</td>
<td>2</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
<td>1</td>
</tr>
</tbody>
</table>

## MOTOR RESPONSE

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Obeys commands</td>
<td>Normal movements</td>
<td>6</td>
</tr>
<tr>
<td>Localizes pain</td>
<td>Withdraws to touch</td>
<td>5</td>
</tr>
<tr>
<td>Withdraws to pain</td>
<td>Withdraws to pain</td>
<td>4</td>
</tr>
<tr>
<td>Flexion</td>
<td>Flexion</td>
<td>3</td>
</tr>
<tr>
<td>Extension</td>
<td>Extension</td>
<td>2</td>
</tr>
<tr>
<td>Flaccid</td>
<td>Flaccid</td>
<td>1</td>
</tr>
</tbody>
</table>

**NOTE:** MOTOR RESPONSE IS MOST INDICATIVE OF LEVEL OF INJURY

## PEDIATRIC ASSESSMENT CHARTS

### PEDIATRIC

<table>
<thead>
<tr>
<th>AGE</th>
<th>HEART RATE</th>
<th>RESPIRATIONS</th>
<th>SYSTOLIC BLOOD PRESSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preterm, 1 kg</td>
<td>120-160</td>
<td>30-60</td>
<td>36-66</td>
</tr>
<tr>
<td>Preterm 2 kg</td>
<td>120-160</td>
<td>30-60</td>
<td>50-72</td>
</tr>
<tr>
<td>Newborn</td>
<td>126-160</td>
<td>30-60</td>
<td>60-70</td>
</tr>
<tr>
<td>Up to 1 yr</td>
<td>100-140</td>
<td>30-60</td>
<td>70-80</td>
</tr>
<tr>
<td>1-3 yr</td>
<td>100-140</td>
<td>20-40</td>
<td>76-90</td>
</tr>
<tr>
<td>4-6 yr</td>
<td>80-120</td>
<td>20-30</td>
<td>80-100</td>
</tr>
<tr>
<td>7-9 yr</td>
<td>80-120</td>
<td>16-24</td>
<td>84-110</td>
</tr>
<tr>
<td>10-12 yr</td>
<td>60-100</td>
<td>16-20</td>
<td>90-120</td>
</tr>
<tr>
<td>13-14 yr</td>
<td>60-90</td>
<td>16-20</td>
<td>90-120</td>
</tr>
<tr>
<td>15 + yr</td>
<td>60-90</td>
<td>14-20</td>
<td>90-130</td>
</tr>
</tbody>
</table>

**Blood pressure is a late and unreliable indicator of shock in children.**
# Pediatric Pharmacology Review

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
<th>Route</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adenosine</td>
<td>mg/kg 1st dose</td>
<td>IV, IO</td>
<td>Indicated for SVT. First dose up to 6mg, second dose up to 12mg. Max dose 12mg.</td>
</tr>
<tr>
<td></td>
<td>mg/kg 2nd dose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Albuterol</td>
<td>2.5 mg</td>
<td>Aerosol</td>
<td>Indicated for wheezing as per protocol. ½ dose if weight &lt;10kg. Can be mixed with Atrovent.</td>
</tr>
<tr>
<td>Amiodarone</td>
<td>5mg/kg</td>
<td>IV, IO</td>
<td>Over 20-60 minutes, maximum 15 mg/kg per day. For shock-refractory pulseless VT/VF: 5 mg/kg rapid IV/IO. Contact Medical Control.</td>
</tr>
<tr>
<td>Atropine</td>
<td>0.02 mg/kg</td>
<td>IV, IO, ET</td>
<td>First dose - 0.02 mg/kg IV/IO (minimum dose 0.1 mg, maximum single dose of 0.5 mg for a child and 1 mg for an adolescent). May repeat dose every 3 – 5 minutes. (maximum total dose of 1 mg for a child and 2 mg for an adolescent).</td>
</tr>
<tr>
<td>Duoneb (Atrovent (Ipratropium)) (Albuterol)</td>
<td>0.5 mg In 3 ml unit dose</td>
<td>Aerosol</td>
<td>Indicated for respiratory distress, lower airway, wheezing, bronchospasm.</td>
</tr>
<tr>
<td></td>
<td>2.5 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dextrose 10% Child: (1 mo – 8 yrs age)</td>
<td>5ml/kg</td>
<td>IV, IO</td>
<td>Give 5ml/kg IV or IO of a D10% solution. May repeat if necessary.</td>
</tr>
<tr>
<td>Dextrose 10% Neonate: (birth – 1 mo)</td>
<td>2ml/kg</td>
<td>IV, IO</td>
<td>Give 2ml/kg IV or IO of a D10% solution. May repeat if necessary.</td>
</tr>
<tr>
<td>Diphenhydramine (Benadryl)</td>
<td>1 mg/kg</td>
<td>IV</td>
<td>Useful in allergic reactions and anaphylaxis. Max. dose 50 mg</td>
</tr>
<tr>
<td>Epinephrine (1:10,000) (0.1 mg/mL solution)</td>
<td>0.01 mg/kg (0.01 mL/kg)</td>
<td>IV, IO</td>
<td>Use for: VF/VT, Asystole, PEA, Symptomatic Bradycardia Every 3-5 minutes. Max dose 1 mg.</td>
</tr>
<tr>
<td>Epinephrine (1:1000) (1 mg/mL solution)</td>
<td>0.1 mg/kg (0.1 mL/kg)</td>
<td>ET</td>
<td>*The ET route has limited absorption, use IV/IO route whenever possible. Every 3-5 minutes.</td>
</tr>
<tr>
<td>Glucagon (Glucagen)</td>
<td>0.5 mg – 1 mg</td>
<td>1M, IN, IV, IO</td>
<td>Hypoglycemia without vascular access: 0.5-1 mg IM, IN Esophageal foreign body obstructions. &gt; 20 kg give 1 mg, &lt;20 kg give ½ mg.</td>
</tr>
<tr>
<td>Lidocaine</td>
<td>0.5 mg/kg</td>
<td>IO</td>
<td>I.O. 0.5mg/kg IO slow push slow IV prior to fluid/medication administration.</td>
</tr>
<tr>
<td>Lorazepam (Ativan)</td>
<td>0.05 mg / kg slow (max dose 2mg)</td>
<td>IV/IN</td>
<td>Sedation, Anticonvulsant, Amnestic (induces amnesia) Status epilepticus, Sedation prior to transcutaneous pacing and synchronized cardioversion.</td>
</tr>
</tbody>
</table>
### Pediatric Pharmacology Review Continued

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
<th>Route</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine (Medical Control)</td>
<td>0.1 mg/kg</td>
<td>IV/IM</td>
<td>Useful for moderate pain, may cause respiratory depression. Hypotension and reflex bradycardia may develop from histamine release. Max dose 10 mg.</td>
</tr>
<tr>
<td>Naloxone (Narcan)</td>
<td>0.1 mg/kg</td>
<td>IV, IO, ET, IN, IM</td>
<td>Useful for unknown unconscious, known narcotic overdoses.</td>
</tr>
</tbody>
</table>
| Versed (Midazolam)       | 0.1 mg/kg       | IV, IN | Seizure (WITH VASCULAR ACCESS): 0.1 mg/kg IV maximum dose 4 mg. Use 2 mg/2 mL solution.  
Seizure (WITHOUT VASCULAR ACCESS): 0.3 mg/kg IN (Use high concentration Versed 5 mg/1 mL – (1/2 dose up each nostril)  
See PEDIATRIC DRUG ADMINISTRATION CHART for weight based administration  
Hypnotic and sedative: monitor respirations status closely. Effective for status epilepticus given IntraNasel if no IV access. |
| ZOFTRAN (Ondansetron Hydrochloride) | 0.15 mg/kg   | Sub. L IV/IM | Antiemetic, nausea and vomiting  
4-12 yrs (greater than 40 kg) 2-4 mg IV / IM or  
4-12 yrs (greater than 40 kg) 1-4 mg tablet ODT (orally dissolving tablet) |
EMS Services

Section 8

PRE-HOSPITAL CARE

MEDICAL CONTROL

PROTOCOLS AND PROCEDURES
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<tr>
<td>Table of Contents</td>
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<td>Trauma Emergencies</td>
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<td>Ohio Pre-Hospital Trauma Triage Decision Tree – 2014 Update</td>
<td>4</td>
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<td>Trauma Guidelines</td>
<td>5-6</td>
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<tr>
<td>Abdominal Trauma</td>
<td>7-8</td>
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<tr>
<td>Burns</td>
<td>9-11</td>
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<tr>
<td>Chest Trauma</td>
<td>12-13</td>
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<td>Drowning / Near Drowning</td>
<td>14-15</td>
</tr>
<tr>
<td>Extremity / Amputation Trauma</td>
<td>16-17</td>
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<td>Eye Injury</td>
<td>18-19</td>
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<td>Head Trauma</td>
<td>20-21</td>
</tr>
<tr>
<td>Multiple Trauma</td>
<td>22-23</td>
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<tr>
<td>Pain Management</td>
<td>24-25</td>
</tr>
<tr>
<td>Trauma Arrest</td>
<td>26-27</td>
</tr>
</tbody>
</table>
The Golden Period
THE GOLDEN HOUR FOR THE PATIENT BEGINS WHEN THE TRAUMA HAPPENS.
DO NOT WASTE VALUABLE TIME ON SCENE.

International Trauma Life Support (ITLS)

GUIDELINES FOR LOAD AND GO TRAUMA TRANSPORTS:

Initial Assessment reveals:
- Altered mental status
- Abnormal respirations
- Abnormal circulation

Signs discovered during the Rapid Trauma Survey of conditions that rapidly lead to shock:
- Abnormal chest exam (flail, open, tension, pneumothorax)
- Tender, distended abdomen
- Pelvic instability
- Bilateral femur fractures
- Significant mechanism of injury and/or poor general health of patient.

GENERAL CONSIDERATIONS:
- A trauma victim is considered to be a pediatric patient if they are 15 years old or younger.
- Once the patient is determined to be an actual or potential major trauma / multiple system patient, personnel on scene and/or Medical Control must quickly determine the appropriate course of action including:
  2. Ground transportation directly to an appropriate facility.
- Major Trauma patients are to be transported to the closest Trauma Center.
- Contact the receiving hospital for all major trauma or critical patients.
- Cover open wounds, burns, and eviscerations.
- With the exception of airway control, initiate ALS enroute when transporting major trauma patients.
- If the EMT is unable to establish an airway and ventilate, transport to the closest facility for airway stabilization.
- The on scene time for major trauma patients should not exceed 10 minutes without a documented, acceptable reason for the delay.
- All major trauma patients should receive oxygen administration; large bore IV(s), cardiac monitoring and capnography.
- Provide a documented reason if an intervention could not be performed.

Mass Casualty Incidents (MCI)
- Upon arrival at a MCI, the first arriving unit should notify their dispatch of the need to implement the Mass Casualty Plan, call for additional resources, establish a safe staging area, and estimate the total number of victims.
- If nerve agent / terrorist incident is suspected, consider use of the DuoDote.
- Each EMS service has a pre-defined coordinating hospital based on their county’s mass casualty plan. It is the responsibility of the responding jurisdiction to notify their appropriate coordinating hospital as soon as possible, giving a brief description of the incident and the estimated number of victims. The coordinating hospital will then notify the receiving hospitals of the MCI. The transportation officer should maintain a constant contact with the coordinating hospital until the scene has been cleared of salvageable victims.
**Pediatric**
- GCS <=13
- Failure to localize pain
- Loss of consciousness > 5 mins
- Poor perfusion
- Resp distress / failure
- Resp <20, age <1

**Adult**
- GCS <=13
- Failure to localize pain
- Loss of consciousness > 5 mins
- Sys B/P <90
- Pulse > 120 w/shock
- Resp <10 or >29
- Tension PTX
- Needs ventilatory support

**Geriatric**
- GCS <=14
- Failure to localize pain
- Loss of consciousness > 5 mins
- Sys B/P <100
- Pulse > 120 w/shock
- Resp <10 or >29
- Tension PTX
- Needs ventilatory support
- GCS <15 w/TBI

---

**Assess vital signs and level of consciousness**

**YES**

**NO**

---

**Assess anatomy of injury**

---

**Transport to a trauma center**

---

**Consider special circumstances**

These may include:
- Falls >20’ (10’ or 2-3 x body ht. for peds)
- Motorcycle crash >20mph
- High-risk auto crash:
  - Ejection
  - Death in same compartment
- Vehicle telemetry data shows high risk of injury
- Auto vs. pedestrian/bicycle: thrown, run over, >20mph
- Co-morbid conditions:
  - Pregnant
  - Bleeding disorder or anticoagulants
  - Dialysis
  - Diabetes
- Immune comprised

---

**When in doubt, transport to a trauma center!**

Emergency medical service personnel shall use the following criteria, consistent with their certification, to evaluate whether an injured person qualifies as an adult trauma victim or pediatric trauma victim, in conjunction with the definition of trauma according to the State of Ohio Trauma Triage Guidelines.

**An Adult Trauma Victim** is a person 16 years of age or older exhibiting one or more of the following physiologic or anatomic conditions:

<table>
<thead>
<tr>
<th>Physiologic conditions</th>
<th>Anatomic conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Glasgow Coma Scale less than 13</td>
<td>• Penetrating trauma to the head, neck, or torso</td>
</tr>
<tr>
<td>• Loss of consciousness greater than 5 minutes</td>
<td>• Significant, penetrating trauma to extremities proximal to the knee or elbow with evidence of neurovascular compromise</td>
</tr>
<tr>
<td>• Deterioration in level of consciousness at the scene or during transport</td>
<td>• Injuries to the head, neck, or torso where the following physical findings are present:</td>
</tr>
<tr>
<td>• Failure to localize to pain</td>
<td>• Visible crush injury</td>
</tr>
<tr>
<td>• Respiratory rate less than 10 or greater than 29</td>
<td>• Abdominal tenderness, distention, or seatbelt sign</td>
</tr>
<tr>
<td>• Requires endotracheal intubation</td>
<td>• Pelvic fracture</td>
</tr>
<tr>
<td>• Requires relief of tension pneumothorax</td>
<td>• Flail chest</td>
</tr>
<tr>
<td>• Pulse greater than 120 in combination with evidence of hemorrhagic shock</td>
<td>• Injuries to the extremities where the following physical findings are present:</td>
</tr>
<tr>
<td>• Systolic blood pressure less than 90, or absent</td>
<td>• Amputations proximal to the wrist or ankle</td>
</tr>
<tr>
<td>• radial pulse with carotid pulse present</td>
<td>• Visible crush injury</td>
</tr>
<tr>
<td></td>
<td>• Fractures of proximal long bones</td>
</tr>
<tr>
<td></td>
<td>• Evidence of neurovascular compromise</td>
</tr>
<tr>
<td></td>
<td>• Signs or symptoms of spinal cord injury</td>
</tr>
<tr>
<td></td>
<td>• 2nd or 3rd degree greater than 10% total BSA, or other significant burns involving the face, feet, hands, genitalia, or airway</td>
</tr>
<tr>
<td></td>
<td>• Injury sustained in two or more body regions</td>
</tr>
</tbody>
</table>

**Field Trauma Triage Criteria: Mechanism of Injury (MOI) & Special Considerations**

<table>
<thead>
<tr>
<th>Co-Morbid Diseases and Special Considerations:</th>
<th>Mechanisms of Injury (MOI):</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Age less than 5 or greater than 55</td>
<td>• High speed MVC</td>
</tr>
<tr>
<td>• Cardiac disease</td>
<td>• Ejection from vehicle</td>
</tr>
<tr>
<td>• Respiratory disease</td>
<td>• Vehicle rollover</td>
</tr>
<tr>
<td>• Diabetes</td>
<td>• Death in same passenger compartment</td>
</tr>
<tr>
<td>• Immunosuppression</td>
<td>• Extrication time greater than 20 minutes</td>
</tr>
<tr>
<td>• Morbid obesity</td>
<td>• Falls greater than 20 feet</td>
</tr>
<tr>
<td>• Pregnancy</td>
<td>• Vehicle versus bicycle / pedestrian</td>
</tr>
<tr>
<td>• Substance abuse / intoxication</td>
<td>• Pedestrian struck, thrown or run over</td>
</tr>
<tr>
<td>• Liver disease</td>
<td>• Motorcycle crash greater than 20 mph with separation of rider from bike</td>
</tr>
<tr>
<td>• Renal disease</td>
<td>• Fall from any height, including standing with signs of traumatic brain injury</td>
</tr>
<tr>
<td>• Bleeding disorder / anticoagulation</td>
<td></td>
</tr>
</tbody>
</table>
GENERAL CONSIDERATIONS:

Exceptions to Mandatory Transport to a Trauma Center:

Emergency medical service personnel shall transport a trauma victim directly to an adult or pediatric trauma center that is qualified to provide appropriate adult or pediatric care, unless one or more of the following exceptions apply:

1. It is medically necessary to transport the victim to another hospital for initial assessment and stabilization before transfer to an adult or pediatric trauma center.
2. It is unsafe or medically inappropriate to transport the victim directly to an adult or pediatric trauma center due to adverse weather or ground conditions or excessive transport time.
3. Transporting the victim to an adult or pediatric trauma center would cause a shortage of local emergency medical service resources.
4. No appropriate adult or pediatric trauma center is able to receive and provide adult or pediatric trauma care to the trauma victim without undue delay.
5. Before transport of a patient begins, the patient requests to be taken to a particular hospital that is not a trauma center or, if the patient is less than eighteen years of age or is not able to communicate, such a request is made by an adult member of the patient’s family or a legal representative of the patient.

TRAUMA ALERT PROCEDURE

1. EMS Pre-hospital response – verbalize “trauma” initially when placing call
2. EMS Notifies ED of Potential Trauma Victim(s)
3. EMS Notifies ED - Trauma patient(s) Report / GCS given / destination decided
4. ED Charge Nurse notifies ED Doctor activates “Trauma Alert”
5. Patient Enroute to Hospital - ETA given
6. Arrival of patient(s)
7. Team Care / treatment

<table>
<thead>
<tr>
<th>Infant (Birth to age 4)</th>
<th>Adult (Age 4 to Adult)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye Opening</strong></td>
<td></td>
</tr>
<tr>
<td>4 Spontaneously</td>
<td>Spontaneously</td>
</tr>
<tr>
<td>3 To speech</td>
<td>To command</td>
</tr>
<tr>
<td>2 To pain</td>
<td>To pain</td>
</tr>
<tr>
<td>1 No response</td>
<td>No Response</td>
</tr>
</tbody>
</table>

| Best Verbal Response   |                        |
| 5 Coos, babbles        | Oriented               |
| 4 Irritable cries      | Confused               |
| 3 Cries to pain        | Inappropriate words    |
| 2 Moans, grunts        | Incomprehensible       |
| 1 No response          | No Response            |

| Best Motor Response    |                        |
| 6 Spontaneous         | Obeys commands         |
| 5 Localizes pain       | Localizes pain         |
| 4 Withdraws from pain  | Withdraws from pain    |
| 3 Flexion (decorticate)| Flexion (decorticate)  |
| 2 Extension (decerebrate)| Extension (decerebrate)|
| 1 No response          | No response            |

GCS less than 8? Intubate! TOTAL =
TRAUMA

ABDOMINAL TRAUMA

Multiple Trauma Protocol

UNIVERSAL PATIENT CARE PROTOCOL

Airway Protocol

Spinal Motion Restriction Protocol

SCENE SAFETY

Determine if Load & Go

Control Bleeding / Direct Pressure with Hemorrhage Control Bandage and/or Device

Evisceration: Cover, clean saline dressing to loosely stabilize

Penetrating Object: Cover, clean saline dressing – Immobilize Object. If too large to transport – attempt to cut with care not to further injure tissue.

Penetrating Wounds: Cover, clean saline dressing. Look for exit wound.

Blunt Trauma: Assess for change – distention. Note mechanism.

Shock Protocol

Monitor and Reassess

CONTACT MEDICAL CONTROL

Initial Trauma Alert if indicated

TRANSPORT

IV / IO PROCEDURE

NS / LR Bolus to maintain BP of 90 systolic

**GENERAL CONSIDERATIONS:**

Trauma to the abdomen is either Blunt or Penetrating. Blunt injuries are harder to detect and diagnose, and have a death rate twice that of penetrating wounds. Key signs and symptoms of blunt trauma include a patient in shock with no obvious injuries. Distention of the abdomen is an indication of internal hemorrhage. Pain may not be a significant factor. Many abdominal trauma injuries are Load & Go cases.

- Look for both an entrance and exit wound for all penetrating trauma, and treat accordingly.
- For all major trauma patients, the on scene time should be less than ten minutes.

<table>
<thead>
<tr>
<th>Mechanism</th>
<th>Signs and Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blunt</td>
<td>Altered mental status, Shock, Distention, Swelling, Bulging, Nausea and vomiting</td>
</tr>
<tr>
<td>Penetrating</td>
<td>Altered mental status, Bleeding, Tenderness, Pain, Distention, Evisceration, Discoloration, Entrance / Exit wounds, Nausea and vomiting</td>
</tr>
</tbody>
</table>
TRAUMA

BURNS

UNIVERSAL PATIENT CARE PROTOCOL

See Airway Protocol

Consider Spinal Motion Restriction Protocol

Remove rings, bracelets, and other constricting items

Thermal

If burn less than 10% body surface area (using rule of nines)
Cool down wound with NORMAL SALINE/Tepid Water

Cover burn with dry sterile sheet dressings

IV / IO PROTOCOL
NORMAL SALINE IV BOLUS 20 mL / kg

Pain Control Protocol

CONTACT MEDICAL CONTROL

TRANSPORT

Chemical

Eye Injury, Tetracaine eye drops then continuous flushing with Normal Saline/Tepid Water

Remove clothing and/or expose area

Flush area with NORMAL SALINE/Tepid Water for 10 – 15 minutes.
Cover burn with dry sterile dressing or sterile sheets.
TRAI MA
BURNS

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of exposure (heat, gas, chemical)</td>
<td>Burns, pain, swelling</td>
<td>Superficial (1°) red and painful</td>
</tr>
<tr>
<td>Inhalation injury</td>
<td>Dizziness</td>
<td>Partial thickness (2°) superficial partial thickness, deep partial thickness, blistering</td>
</tr>
<tr>
<td>Time of injury</td>
<td>Loss of consciousness</td>
<td>Full thickness (3°) painless and charred or leathery skin</td>
</tr>
<tr>
<td>Past medical history</td>
<td>Hypotension / shock</td>
<td>Chemical</td>
</tr>
<tr>
<td>Medications</td>
<td>Airway compromise / distress</td>
<td>Thermal</td>
</tr>
<tr>
<td>Other trauma</td>
<td>Singed facial or nasal hair</td>
<td>Electrical</td>
</tr>
<tr>
<td>Loss of consciousness</td>
<td>Hoarseness / wheezing</td>
<td>Radiation</td>
</tr>
<tr>
<td>Tetanus / Immunization status</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GENERAL CONSIDERATIONS:

- Exam: Mental Status, HEENT, Neck, Heart, Lungs, Abdomen, Extremities, Back, Neuro
- Critical Burns: greater than 25% body surface area (BSA), full thickness burns greater than 10% BSA, partial thickness superficial partial thickness, deep partial thickness and full thickness burns to face, eyes, hand or feet, genitals, joints, electrical burns, respiratory burns, deep chemical burns, burns with extremes of age or chronic disease, and burns with associated major traumatic injury. These burns may require hospital admission or transfer to a burn center.

- Early intubation is required in significant inhalation injuries; also apply cardiac monitor and treat arrhythmia, especially with electric burns.
- Potential CO exposure should be treated with 100% oxygen. Provide endotracheal intubation per procedure protocol.
- Circumferential burns to extremities are dangerous due to potential vascular compromise partial thickness to soft tissue swelling.
- Burn patients are prone to hypothermia – Never apply ice or cool burns that involve greater than 10% body surface area.
- Do not overlook the possibility of multiple system trauma.
- Do not overlook the possibility of child abuse with children and burn injuries.
- Morphine 2mg IVP every 5 minutes until pain relieved. (Maximum dose of 10mg in the field.) See appendix for rule of nines.
- Administer IV fluids per the Parkland Burn Formula: Fluid for first 24 hours (mL) = 4x patient’s weight in kg x %BSA – Only if transport time > 30 minutes, otherwise give 20 ml / kg.

1. Thermal (dry and moist):
   a. Stop burning process: i.e., remove patient from heat source, cool skin, remove clothing
   b. If patient starts to shiver or skin is cool, stop cooling process
   c. Estimate extent (%) and depth of burn (see chart). Determine seriousness (see chart) of burn. Contact Medical Control, transport accordingly.
      - Cover burn areas with sterile dressing.

2. Radiation Burns:
   a. Treat as thermal burns except when burn is contaminated with radioactive source, then treat as chemical burn.
   b. Wear appropriate protective clothing when dealing with contamination.
   c. Contact HAZ MAT TEAM for assistance in contamination cases.

3. Chemical Burns:
   a. Wear appropriate protective clothing and respirators.
   b. Remove patient from contaminated area to decontamination site (NOT SQUAD).
   c. Determine chemicals involved; contact appropriate agency for chemical information.
   d. Remove patient’s clothing and flush skin.
   e. Leave contaminated clothes at scene. Cover patient over and under before loading into squad.
   f. Patient should be transported by personnel not involved in decontamination process.
   g. Determine severity (see chart), contact Medical Control and transport accordingly.
   h. Relay type of substance involved to Medical Control.

4. Electrical Burns:
   a. Shut down electrical source; do not attempt to remove patient until electricity is CONFIRMED to be shut off.
   b. Assess for visible entrance and exit wounds and treat as thermal burns.
   c. Assess for internal injury, i.e., vascular damage, tissue damage, fractures, and treat accordingly.
   d. Determine severity of burn, contact Medical Control and transport accordingly.

5. Inhalation Burns:
   a. Always suspect inhalation burns when the patient is found in closed smokey environment and/or exhibits any of the following: burns to face/neck, singed nasal hairs, cough and/or stridor, soot in sputum.
   b. Provide oxygen therapy, contact Medical Control and transport.
      - Handle patient gently to avoid further damage of the patient’s skin.
      - If the patient is exposed to a chemical, whenever possible, get the name of the chemical, and document it on the patient run report.
      - DO NOT transport any hazardous materials with the patient.
      - Look for signs of dehydration and shock.
      - Initiate early intubation for symptomatic patients with inhalation burns.
      - Patients with major burns should be transported to the MetroHealth Medical Regional Burn Center.
      - Patients with unstable airway or who are rapidly deteriorating should be transported to the closest appropriate facility.
      - Patients with large surface burns lose the ability to regulate their body temperature. Avoid heat loss by covering the patient.
TRAUMA

BURNS

RULE OF NINES

1% is equal to the surface of the palm of the patient’s hand. If unsure of %, describe injured area.

SERIOUSNESS OF BURNS

MINOR
1st degree < 70%
2nd degree < 10%
+3rd degree < 2%

MODERATE
1st degree > 70%
+2nd degree 10-30%

CRITICAL
2nd degree > 30%
3rd degree > 2%
Any burns with trauma
Any burns with head, face, feet, genitalia involved.

+ Only if hands, face, feet or genitalia are NOT involved

MAJOR BURN CRITERIA

- 2° and 3° burns more than 10% surface area
- burns of the face, hands feet genitalia
- electrical shock with burn injury
- burn with inhalation injury any burn with potential functional or cosmetic impairment
TRAUMA
CHEST TRAUMA

UNIVERSAL PATIENT CARE PROTOCOL
Spinal Motion Restriction Protocol
Evidence of Trauma – Blunt or Penetrating
Abnormal breath sounds, inadequate respiratory rate, Unequal

Jaw Thrust Airway Maneuver
Give High Flow Oxygen

Quick Trach procedure if needed. Load and Go.

Flail Chest: Stabilize flail segment with manual pressure then apply bulky
dressing and tape. Load and Go.

Consider Intubation. Watch for Tension Pneumothorax to develop.

Cardiac Tamponade: Assess for + Beck’s Triad (Hypotension, +JVD and muffled
heart sounds). Paradoxical Pulse (no radial pulse when breathing in) is likely.
EKG monitor. Load & Go.

Massive Hemothorax: Shock, then difficulty breathing. No JVD, decreased
breath sounds, dull to percussion. True Load & Go. IV to keep BP @ 90 systolic.
Load and Go.

Open Pneumothorax: Close wound with occlusive dressing secured on THREE
SIDES, allowing air escape. (Ashermen Chest Seal®). Load and Go.

Tension Pneumothorax: Patient is decompensated (cyanotic, respiratory dis-
tress, no radial pulse, decreasing LOC). Decompress affected side of chest wall.
Load and Go.

Suspected: Traumatic Aortic Rupture, Tracheal or Bronchial Tree Injury, Myo-
cardial Contusion, Diaphragmatic Tears, Esophageal Injury, Pulmonary Contu-
sion: Ensure an Airway, Administer Oxygen, Load & Go to a Trauma Center / Call
Med Control. Load and Go.

Establish IV access NS/LR to maintain BP @ 90 systolic, monitor EKG.

CONTACT MEDICAL CONTROL
Initiate Trauma Alert

TRANSPORT
**GENERAL CONSIDERATIONS:**

Thoracic injuries have been called the deadly dozen. The first six are obvious at the primary assessment:

1. Airway Obstruction
2. Flail Chest
3. Cardiac Tamponade
4. Massive Hemorthorax
5. Open Pneumothorax
6. Tension Pneumothorax

The second six injuries may be more subtle and not easily found in the field:

7. Traumatic Aortic Rupture
8. Esophageal Injury
9. Myocardial Contusion
10. Diaphragmatic Tears
11. Tracheal / Bronchial Tree Injury
12. Pulmonary Contusion

- **A sucking chest wound** is when the thorax is open to the outside. The occlusive dressing may be anything such as petroleum gauze, plastic, or a defibrillator pad. Asherman Chest SealÔ Tape only 3 sides down so that excess intrathoracic pressure can escape, preventing a tension pneumothorax. May help respirations to place patient on the injured side, allowing unaffected lung to expand easier.

- **A flail chest** is when there are extensive rib fractures present, causing a loose segment of the chest wall resulting in paradoxical and ineffective air movement. This movement must be stopped by applying a bulky pad to inhibit the outward excursion of the segment. Positive pressure breathing via BVM will help push the segment and the normal chest wall out with inhalation and to move inward together with exhalation, getting them working together again. Do not use too much pressure to prevent additional damage or pneumothorax.

- **A Penetrating Object** must be immobilized by any means possible. If it is very large, cutting may be possible, with care taken not to move it about when making the cut. Place an occlusive and bulky dressing over the entry wound.

- **A Tension Pneumothorax** is life threatening, look for hypotension and unequal breath sounds, JVD, increasing respiratory distress, decrease mental status, and lastly, tracheal displacement. The pleura must be decompressed with a needle to provide relief. Use either the mid-clavicular (2nd or 3rd intercostals space) or the midaxillary (5th or 6th space) landmarks, going in on the top side of the rib. Once the catheter is placed, watch closely for reocclusion. Repeat if needed.
UNIVERSAL PATIENT CARE PROTOCOL

Airway Protocol – Initiate ventilation while patient is still in water if not breathing.
Provide high flow oxygen ASAP.

Spinal Motion Restriction Protocol

IV / IO PROTOCOL

Apply Cardiac Monitor

IF HYPOTHERMIC – Refer to Protocol
If Cardiac Arrest – May attempt Defib.
BLS only for all else.

DECOMPRESSION – give oxygen – no positive pressure unless NOT breathing.
Position on L side with head down.

Monitor and Reassess

CONTACT MEDICAL CONTROL

TRANSPORT
To appropriate facility
# Trauma

## Drowning / Near Drowning

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Submersion in water regardless of depth</td>
<td>- Period of unconsciousness</td>
<td>- Trauma</td>
</tr>
<tr>
<td>- Possible trauma i.e., fall, diving board</td>
<td>- Unresponsive</td>
<td>- Pre-existing medical problem</td>
</tr>
<tr>
<td>- Duration of immersion</td>
<td>- Mental status changes</td>
<td>- Barotrauma (diving)</td>
</tr>
<tr>
<td>- Temperature of water</td>
<td>- Decreased or absent vital signs</td>
<td>- Decompression sickness</td>
</tr>
<tr>
<td>- Salt or fresh water</td>
<td>- Vomiting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Coughing</td>
<td></td>
</tr>
</tbody>
</table>

**General Considerations:**

- Exam: Trauma Survey, Head, Neck, Chest, Abdomen, Pelvis, Back, Extremities, Skin, Neuro
- Drowning due to suffocation from submersion in water.
- 2 causes – breath holding which leads to aspiration of water, and laryngospasm which closes the glottis.
- Both causes lead to profound hypoxia and death.
- Fresh water drowning ventricular fibrillation may be likely.
- Salt water drowning may cause pulmonary edema in time.
- Pulmonary edema can develop within 24-48 hours after submersion.
- All victims should be transported for evaluation due to potential for worsening over the next several hours.
- Drowning is a leading cause of death among would-be rescuers.
- Allow appropriately trained and certified rescuers to remove victims from areas of danger.
- With pressure injuries (decompression / barotrauma), consider transport for availability of a hyperbaric chamber.
- All hypothermic / near-drowning patients should have resuscitation performed until care is transferred, or if there are other signs of obvious death (putrification, traumatic injury unsustainable to life).
- Consider a c-spine injury in all drowning cases. Always immobilize a drowning patient.
- In the absence of hypothermia, ACLS protocols are to be followed for drowning patients in cardiac arrest after the submersion.
- Patients with low core temperatures will not respond to ALS drug interventions. Maintain warming procedure and supportive care.
- DO NOT perform the Heimlich maneuver to remove water from the lungs prior to resuscitation.
UNIVERSAL PATIENT CARE PROTOCOL

Wound Care / Control Bleeding with Hemorrhage Control bandage/or device and direct pressure.

Multiple Trauma Protocol

Life or Limb Threatening Event?

Wound Care / Bleeding Control / Splinting

Risk of Exsanguination?

Internally or Externally?

Apply tourniquet around the injured appendage above the level of bleeding. Tighten tourniquet until all bleeding stops and no detectable distal pulse. *LABEL/DATE/TIME/direct verbal report to receiving hospitals physician as to: TIME/LOCATION of tourniquet application.

IV / IO PROTOCOL

Pain Management Protocol

Morphine Sulfate 2 mg every 4-5 min IVP Titrated to response and resp. rate

Amputation?
Clean amputated part with NS or sterile water. Wrap part in Sterile Dressing and place in plastic bag if able. Place on Ice if available - no direct contact to tissue

CONTACT MEDICAL CONTROL

TRANSPORT
GENERAL CONSIDERATIONS:
- Exam: Mental Status, Extremity, Neuro
- In amputations, time is critical. Transport and notify Medical Control immediately, so that the appropriate destination can be determined.
- Hip dislocations and knee and elbow fractures/dislocations have a high incidence of vascular compromise.
- Urgently transport any injury with vascular compromise.
- Blood loss may be concealed or not apparent with extremity injuries.
- Lacerations must be evaluated for repair within 6 hours from the time of injury.
- If a tourniquet is applied, give a direct verbal report to receiving hospital as to time and location of tourniquet application and document.

Extremity Trauma:
- In cases of major trauma, the backboard can work as a whole body splint.
- DO NOT take the time to splint injured extremities in major trauma patients unless it does not delay the scene time or prevents you from performing more pertinent patient care.
- Splint the extremity if the patient has signs and symptoms of a fracture or dislocation.
- Treat all suspected sprains or strains as fractures until proven otherwise.
- Splint the joint above and below for all suspected fractures.
- Splint the bone above and below for all suspected joint injuries.
- Check and document the patient's MSP's before and after splinting.
- A traction splint with a backboard is the preferred splint to use for femur fractures.

Traumatic Amputation:
- Care of the amputated extremity include:
  1. Cleanse an amputated extremity with normal saline.
  2. DO NOT place any amputated tissue directly on ice or cold pack. Instead, wrap amputated limb in moistened sterile dressing with normal saline and place in plastic bag. Put the bag into a container of cool water/ice.
- Contact the receiving hospital with the patient information, and include the status of the amputated limb.
- Focus on patient care and not on the amputated extremity.
- Tourniquets are a life vs. limb intervention.
- Remember to calm and reassure the patient. Do not give the patient or their family members false hope of re-attachment of the affected limb. A medical team at the receiving hospital makes this decision.
- Delegate someone to do an on-scene search for the amputated part when it cannot be readily found and continue with patient care.

### General Considerations

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of injury</td>
<td>Pain, swelling</td>
<td>Abrasion</td>
</tr>
<tr>
<td>Mechanism: crush / penetrating / amputation</td>
<td>Deformity</td>
<td>Contusion</td>
</tr>
<tr>
<td>Time of injury</td>
<td>Altered sensation / motor function</td>
<td>Laceration</td>
</tr>
<tr>
<td>Open vs closed wound / fracture</td>
<td>Diminished pulse / capillary refill</td>
<td>Sprain</td>
</tr>
<tr>
<td>Wound contamination</td>
<td>Decreased extremity temperature</td>
<td>Dislocation</td>
</tr>
<tr>
<td>Medical history</td>
<td></td>
<td>Fracture</td>
</tr>
<tr>
<td>Medications</td>
<td></td>
<td>Amputation</td>
</tr>
</tbody>
</table>
TRIUMA
EYE INJURY

UNIVERSAL PATIENT CARE PROTOCOL

Determine type of injury

Remove Contact Lenses (If Applicable)

Trauma

- Non-Penetrating
  - Soft Tissue
    - Apply Dressing
  - Dust Dirt
    - Tetracaine Eye Drops several drops to eyes prior to and every few minutes during flush
    - Flush with Normal Saline
  - Secure Object (Do Not Remove)

- Penetrating
  - Flush areas with NORMAL SALINE for 10 - 15 minutes
  - Flush eyes with NORMAL SALINE for 10 - 15 minutes
  - Eye Injury, Tetracaine eye drops then continuous flushing with Normal Saline.
  - Remove clothing and/or expose area

Burn

- Eye extractions cover with sterile 4 x 4, normal saline and stabilize

CONTACT MEDICAL CONTROL

TRANSPORT
GENERAL CONSIDERATIONS:
- If unsure if something can be flushed with water, contact Medical Control.
- A garden hose can be used to help flush the patient's eye(s) if available. DO NOT use a high-pressure hose or flush at a high force. If needed, irrigate the patient's eyes for approximately 5-15 minutes.
- Begin irrigating immediately, because irreversible damage can occur in a few minutes.
- Apply Tetracaine, a few drops to eyes every 4-5 minutes before irrigation.

TRAUMA:
- Do not allow eye injury to distract you from the basics of trauma care.
- Do not remove any foreign body imbedded in the eye or orbit. Stabilize any large protruding foreign bodies.
- With blunt trauma to the eye, if time permits, examine the globe briefly for gross laceration as the lid may be swollen tightly shut later. Sclera rupture may lie beneath an intact conjunctiva.
- Covering both eyes when only one eye is injured may help to minimize trauma to the injured eye, but in some cases the patient is too anxious to tolerate this.
- Transport patient sitting supine unless other life threats prohibit this from being done (this is based on physics, the goal of not letting the fluid within the eye drain out of the eye).

CHEMICAL BURNS:
- When possible, determine type of chemical involved first. The eye should be irrigated with copious amounts of water or saline, using IV tubing wide open for a minimum of 15 minutes started as soon as possible. Any delay may result in serious damage to the eye.
- Always obtain name and, if possible, a sample of the contaminant or ask that they be brought to the hospital as soon as possible.

CONTACT LENSES:
- If possible, contact lenses should be removed from the eye; be sure to transport them to the hospital with the patient. If the lenses cannot be removed, notify the ED personnel as soon as possible.
- If the patient is conscious and alert, it is much safer and easier to have the patient remove their lenses.

ACUTE, UNILATERAL VISION LOSS:
- When a patient suddenly loses vision in one eye with no pain, there may be a central retinal artery occlusion. Urgent transport and treatment is necessary.
- Patient should be transported flat.

---

### Eye Injuries

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trauma of any type that results in injury to one or both eyes.</td>
<td>Irritation to Eye, Visual Disturbances, Obvious Penetrating Injury, Burn (Chemical, Thermal), Loss of Vision, Dizziness, Loss of Consciousness, Nausea</td>
<td>Hypertension, Contact Lens Problem</td>
</tr>
</tbody>
</table>
**TRAUMA**

**HEAD TRAUMA**

**UNIVERSAL PATIENT CARE PROTOCOL**
- Oxygen for all head traumas

**Spinal Motion Restriction Protocol**

**Control Bleeding/ Apply Hemorrhage Control Bandage/Device**

**Determine and Trend GCS**

**Multiple Trauma Protocol**
- If not isolated head trauma

**Consider altered mental status protocol**

**Seizure Protocol if seizure activity**

**Isolated Uncomplicated Head Trauma**
- Airway Protocol – Do not hyperventilate
- IV PROTOCOL
  - Limit IV fluids due to cerebral edema
  - Maintain BP 90 systolic

**Evidence of or Suspect Traumatic Brain Injury (TBI)**
- Airway Protocol
  - Do not allow patient to become hypoxic during ANY airway management. Maintain SpO2 greater than 94% at all times. Apply EtCO2 if advanced airway used and Capnography
  - Herniation = Unilateral or bilateral dilation of pupils, posturing
    - If Herniation: Ventilate to maintain CO2 30-35mm Hg or 12-20 breaths / minute
    - If Non-Herniation: Ventilate to maintain CO2 35-45 mm Hg or 10-12 breaths / minute

**IV / IO PROCEDURE**
- Normal Saline Bolus to maintain BP of 90 systolic
  - Do Not allow patient to become hypotensive

**Monitor and Reassess**

**CONTACT MEDICAL CONTROL**

**TRANSPORT to a Trauma Center**
The most important item to monitor, trend and document is a change in the level of consciousness / GCS.

Co2 monitoring is critical! Maintain the Co2 ranges indicated in protocol, 1 point of Co2 change = 3% decrease in cerebral perfusion.

Any decrease in GCS suggests a TBI surgical emergency, transport to trauma center.

Continually reassess the patient, including pupils, LOC and neurological status.

DO NOT attempt to lower the blood pressure in hypertensive head injured patients.

Hypotension usually indicates injury or shock unrelated to the head injury and should be aggressively treated.

DO NOT allow patients to become hypoxic, maintain SpO2 greater than 94%, abandon intubation attempts if this cannot be maintained.

Hyperventilation is critical! Ventilate at 12 breaths with high flow Oxygen.

Hyperventilation patients with head injuries only if: evidence of brain herniation. Hyperventilation pt ongoing. (adult: 20 breaths/min, child: 30, infant: 35)

Herniation may occur. Signs are:
- Cushing's response. Bradycardia, widen pulse pressure (look for widened pulse pressure), altered mentation
- Decreasing level of consciousness progressing towards coma
- Dilation and outward—downward deviation of the pupil on the affected side.
- Paralysis of the arm and leg on the opposite side of the injury or decerebrate posturing (arms and legs extended).
- Be alert for c-spine injuries with head trauma.
- Continually reassess the patient, including eyes, LOC, and neurological capabilities
- DO NOT allow patients to become hypoxic, maintain SpO2 greater than 94%, abandon intubation attempts if this cannot be maintained. Secure airway by other means.
- Hypotension usually indicates injury or shock unrelated to the head injury and should be aggressively treated.
- DO NOT attempt to lower the blood pressure in hypertensive head injured patients.
- Be alert for C-spine injuries with head trauma.
- Continually reassess the patient, including pupils, LOC and neurological status.
- Any decrease in GCS suggests a TBI surgical emergency, transport to trauma center.
- CO2 monitoring is critical! Maintain the CO2 ranges indicated in protocol, 1 point of CO2 change = 3% decrease in cerebral perfusion.

The most important item to monitor, trend and document is a change in the level of consciousness / GCS.
TRAUMA
MULTIPLE TRAUMA

UNIVERSAL PATIENT CARE PROTOCOL

Consider Rapid Air Transport if Delay Due to Extrication

Rapid Trauma Assessment
Call Medical Control

See Airway Protocol

Spinal Motion Restriction Protocol

IV / IO PROTOCOL

Assess Vital Signs / Perfusion & Control Bleeding

Attach Cardiac Monitor

Abnormal Findings

NORMAL SALINE IV/LR BOLUS
Titrate to maintain perfusion
(If BP less than 90 Systolic or HR greater than 120)

Reassess Airway Protocol
Monitor Intubation / King Airway
Ventilate Appropriately
Go to appropriate algorithms upon abnormal findings

Monitor and Reassess

Stable Findings

Ongoing Assessment

Monitor and Reassess

Treat per Appropriate Protocol

CONTACT MEDICAL CONTROL

TRANSPORT

Consider DOA / Termination of Efforts

Call Trauma Alert If Necessary
GENERAL CONSIDERATIONS:

- Exam: Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Extremities, Back, Neuro
- Mechanism is the most reliable indicator of serious injury.
- In prolonged extrications or serious trauma, consider air transportation for transport times and the ability to give blood.
- Consider MAST in "load and go" situations with suspected pelvic or femur fractures.
- Do not overlook the possibility of associated domestic violence or abuse.
- Fluid administration sufficient to maintain peripheral perfusion

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time and mechanism of injury</td>
<td>Pain, swelling</td>
<td>(Life threatening):</td>
</tr>
<tr>
<td>Damage to structure or vehicle</td>
<td>Deformity, lesions, bleeding</td>
<td>Chest Tension pneumothorax</td>
</tr>
<tr>
<td>Location in structure or vehicle</td>
<td>Altered mental status or unconscious</td>
<td>Flail chest</td>
</tr>
<tr>
<td>Others injured or dead</td>
<td>Hypotension or shock</td>
<td>Pericardial tamponade</td>
</tr>
<tr>
<td>Speed and details of MVC</td>
<td>Arrest</td>
<td>Open chest wound</td>
</tr>
<tr>
<td>Restraints / protective equipment</td>
<td></td>
<td>Hemothorax</td>
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<tr>
<td>Past medical history</td>
<td></td>
<td>Intra-abdominal bleeding</td>
</tr>
<tr>
<td>Medications</td>
<td></td>
<td>Pelvis / Femur fracture</td>
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<tr>
<td></td>
<td></td>
<td>Spine fracture / Cord injury</td>
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<tr>
<td></td>
<td></td>
<td>Head injury (see Head Trauma)</td>
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<tr>
<td></td>
<td></td>
<td>Extremity fracture / dislocation</td>
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<tr>
<td></td>
<td></td>
<td>HEENT (Airway obstruction)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hypothermia</td>
</tr>
</tbody>
</table>
TRAUMA:
- Burns
- Dislocation
- Blunt Trauma
- Musculoskeletal / Fracture Pain

MORPHINE SULFATE 2-4 mg IV/IM titrated to pain and respirations
Under age 12: call Medical Control
Not for: Altered Mentation, Head Trauma and Hypovolemia

ONDANSETRON (ZOFRAN) as Needed
4 mg IM/IV over 2-4 minutes
May Repeat x1 if Needed in 15 minutes
OR
ONDANSETRON (ZOFRAN) Dissolving Tabs
4 mg Oral

Repeat in 5 minutes if pain persists and vital signs remain stable
MORPHINE 2-4 mg IV/IM

MORPHINE SULFATE:
2-4 mg every 4 – 5 minutes IV / IM titrated to pain and respirations
Not for: Altered Mentation, Head Injury Trauma and Hypovolemia

ONDANSETRON (ZOFRAN) as Needed
4 mg IM/IV over 2-4 minutes
May Repeat x1 if Needed in 15 minutes
OR
ONDANSETRON (ZOFRAN) Dissolving Tabs
4 mg Oral

TORADOL (Ketorolac):
30-60 mg IM / 30 mg IV
Not for: children under 12 yrs of age. CAUTION:
HX of asthma, aspirin or non-steroidal anti-inflammatory allergies, bleeding disorders, renal failure or hypotension, suspected AAA and pregnancy
Adults over 65 yrs and older – Call Medical Control

USE MORPHINE FOR CARDIAC CHEST PAIN
REFER TO ACLS PROTOCOL
TRAUMA
PAIN MANAGEMENT PROTOCOL

<table>
<thead>
<tr>
<th>HISTORY</th>
<th>SIGNS AND SYMPTOMS</th>
<th>DIFFERENTIAL DIAGNOSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age / onset</td>
<td>Severity (pain scale)</td>
<td>Per the specific protocol</td>
</tr>
<tr>
<td>Location</td>
<td>Quality (sharp, dull, etc.)</td>
<td>Musculoskeletal</td>
</tr>
<tr>
<td>Duration</td>
<td>Radiation</td>
<td>Visceral (abdominal)</td>
</tr>
<tr>
<td>Severity (0-10)</td>
<td>Relation to movement, respiration</td>
<td>Cardiac</td>
</tr>
<tr>
<td>Past medical history</td>
<td>Increased with palpation of area</td>
<td>Pleuritic (respiratory)</td>
</tr>
<tr>
<td>Medications</td>
<td></td>
<td>Neurogenic</td>
</tr>
<tr>
<td>Drug allergies</td>
<td></td>
<td>Renal (colic)</td>
</tr>
</tbody>
</table>

The Wong-Baker Faces Pain Rating Scale
Designed for children aged 3 years and older, the Wong-Baker Faces Pain Rating Scales is also helpful for elderly patients who may be cognitively impaired. It offers a visual description for those who don’t have the verbal skills to explain how their symptoms make them feel.

To use this scale, your doctor should explain that each face shows how a person in pain is feeling. That is, a person may feel happy because he or she has no pain (hurt), or a person may feel sad because he or she has some or a lot of pain.

A Numerical Pain Scale
A numerical pain scale allows you to describe the intensity of your discomfort in numbers ranging from 0 to 10 (depending on the scale). Rating the intensity of sensation is one way of helping your doctor determine treatment. Numerical pain scales may include words or descriptions to better label your symptoms, from feeling no pain to experiencing excruciating pain. Some researchers believe that this type of combination scale may be most sensitive to gender and ethnic differences in describing pain.

KEY POINTS

- Exam: Mental Status, Area of Pain, Neuro
- Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage.
- Pain is subjective (whatever the patient says it is).
- Pain severity (0-10) is a vital sign to be recorded pre and post medication delivery and at disposition.
- Use Morphine for suspected cardiac chest pain within the ACLS Protocol.
- Abdominal pain patients must have a 12 lead EKG to rule out cardiac involvement.
- Vital signs should be obtained pre, 10 minutes post, and at disposition with all pain medications.
- Contraindications to Morphine use included hypotension, head injury, respiratory distress or severe COPD.
- All patients should have drug allergies documented prior to administering pain medications.
- All patients who receive pain medications must be observed 15 minutes for drug reaction.
- All patients who receive medication for pain must have continuous ECG monitoring, pulse oximetry, and oxygen administration.
- The patient’s vital signs must be routinely reassessed.
- Routine assessments and reassessments must be documented on the run report.
- Have Naloxone (Narcan) on hand if the patient has respiratory depression or hypotension after Morphine administration. Be prepared to ventilate.
- DO NOT administer narcotic analgesics if there is any suspicion of a head injury.
- Toradol (Ketoralac) 30 – 60 mg IM / 30 mg IV. Indicated for short term management of moderate to severe pain. **Caution:** kidney stones, muscle sprains, hip and extremity injuries. **Not for:** children under 8 yrs of age, HX of asthma, aspirin or non-steroidal anti-inflammatory allergies, bleeding disorders, renal disorders/failure or hypotension, pregnancy. Adults over 65 yrs and older, call Medical Control first.
- Morphine Sulfate: 2 mg every 4-5 minutes IV, titrated to pain and respirations. **Not for:** Altered Mentation, Head Trauma and Hypovolemia.
GENERAL CONSIDERATIONS:

- Immediately transport traumatic cardiac arrest patients.
- Resuscitation should not be attempted in cardiac arrest patients with hemicorporectomy, decapitation, or total body burns, nor in patients with obvious, severe blunt trauma that are without vital signs, papillary response, or an organized or shockable cardiac rhythm at the scene. Patients in cardiac arrest with deep penetrating cranial injuries and patients with penetrating cranial or truncal wounds associated with asystole and a transport time of more than 15 minutes to a definitive care facility are unlikely to benefit from resuscitative efforts.
- Extensive, time-consuming care of trauma victims in the field is usually not warranted. Unless the patient is trapped, they should be enroute to a Medical Facility within 10 minute after arrival of the ambulance on the scene.

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Time of injury</td>
<td>• Excessive bleeding</td>
<td>• Obvious DOA</td>
</tr>
<tr>
<td>• Mechanism: blunt/penetrating</td>
<td>• Unresponsive; not breathing</td>
<td>• Death</td>
</tr>
<tr>
<td>• Loss of consciousness</td>
<td>• Cardiac Arrest</td>
<td></td>
</tr>
<tr>
<td>• Bleeding</td>
<td>• Significant mechanism of injury</td>
<td></td>
</tr>
<tr>
<td>• Medications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Evidence of multi-trauma</td>
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Trauma Assessment Charts

REvised Trauma Score

<table>
<thead>
<tr>
<th>GLASGOW COMA SCALE</th>
<th>13 – 15</th>
<th>4</th>
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<tr>
<td></td>
<td>9 – 12</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>6 – 8</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>4 – 5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>0 – 3</td>
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<table>
<thead>
<tr>
<th>RESPIRATORY RATE</th>
<th>10 – 29</th>
<th>4</th>
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<tbody>
<tr>
<td></td>
<td>GREATER THAN 29</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>6 – 9</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>1 – 5</td>
<td>1</td>
</tr>
<tr>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>SYSTOLIC BLOOD PRESSURE</th>
<th>GREATER THAN 89</th>
<th>4</th>
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<tr>
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<td>76 – 89</td>
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<td></td>
<td>50 – 75</td>
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<td>1 – 49</td>
<td>1</td>
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EMS Services

Section 9

PRE-HOSPITAL CARE

MEDICAL CONTROL

PROTOCOLS AND PROCEDURES
<table>
<thead>
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<th>TABLE OF CONTENTS</th>
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</tr>
<tr>
<td>Cover Page</td>
<td>1</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>2</td>
</tr>
<tr>
<td>Uncomplicated / Imminent Delivery</td>
<td>3-4</td>
</tr>
<tr>
<td>Neonatal Resuscitation</td>
<td>5-6</td>
</tr>
<tr>
<td>Abnormal Birth Emergencies</td>
<td>7-8</td>
</tr>
<tr>
<td>Obstetrical Emergencies</td>
<td>9-10</td>
</tr>
</tbody>
</table>
CHILDBIRTH / OBSTETRICAL EMERGENCIES

UNCOMPPLICATED DELIVERY

Contact Medical Control to Notify of Delivery

Observe Head Crowning

UNIVERSAL PATIENT CARE PROTOCOL

Prepare Patient for Delivery
Set-up Equipment / administer 100% O₂ IV Protocol if time

Run Normal Saline at 150 mL/hr

Delivery of Head
Firm, gentle pressure with flat of hand to slow expulsion
Allow head to rotate normally, check for cord around neck, wipe face free of debris
*Suction mouth and nose with bulb syringe

Delivery of Body
Place one palm over each ear. With next contraction, gently move head downward until upper shoulder appears. Then lift up gently to ease out lower shoulder.
Support the head and neck with one hand and buttocks with other.
REMEMBER THE NEWBORN IS SLIPPERY!

Newborn and Cord
Keep newborn at level of vaginal opening. Keep warm and dry. After 10 seconds, clamp cord in two places with sterile equipment at least 6 – 8” from newborn. Cut between clamps.
DO NOT PULL ON THE CORD TO DELIVER the placenta. Allow placenta to deliver itself, do not delay transport. Take the placenta to the hospital with the patient.

Care of the Newborn (Refer to Neonatal Resuscitation)

Temperature: (warm and dry)
Airway: (position and suction)
Breathing: (stimulate to cry)
Circulation: (heart rate and color)

1) Assess babies response to birth and administer care as needed.
2) Position, clear airway, stimulate to breathe by drying and give O₂ as indicated in the NPR Resuscitation Guidelines.
3) Establish effective ventilation with BVM and then, intubation as needed.
4) Provide chest compression if indicated by heart rate.
5) Administer medications as needed.
6) Assign APGAR score 1 min and 5 min after birth.

CONTACT MEDICAL CONTROL

TRANSPORT

NPR Resuscitation O₂ Guidelines

35 Weeks or Greater: Start Resuscitation with Room Air
Less than 35 Weeks: Start Resuscitation with 40% O₂
Adjust to achieve Minute Specific Saturation Goals.

Minute Specific Saturation Goals:

<table>
<thead>
<tr>
<th>Minute of Life</th>
<th>Saturation Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60-65%</td>
</tr>
<tr>
<td>2</td>
<td>66-70%</td>
</tr>
<tr>
<td>3</td>
<td>70-75%</td>
</tr>
<tr>
<td>4</td>
<td>75-80%</td>
</tr>
<tr>
<td>5</td>
<td>80-85%</td>
</tr>
<tr>
<td>10</td>
<td>85-95%</td>
</tr>
</tbody>
</table>
GENERAL CONSIDERATIONS:

- Exam (of Mother): Mental Status, Heart, Lungs, Abdomen, Neuro
- Document all times (delivery, contraction frequency, and length).
- If maternal seizures occur, refer to the Obstetrical Emergencies Protocol.
- After delivery, massaging the uterus (lower abdomen) will promote uterine contraction and help to control post-partum bleeding.
- Some perineal bleeding is normal with any childbirth. Large quantities of blood or free bleeding are abnormal.
- If delivery becomes imminent, prepare to deliver and protect mother’s privacy if possible (stop the squad and prepare for delivery).
- Newborns are very slippery, so be careful not to drop the baby.
- There is no need to wait on scene to deliver the placenta.
- If possible, transport between deliveries if the mother is expecting twins.
- Allow the placenta to deliver, but DO NOT delay transport while waiting.
- DO NOT PULL ON THE UMBILICAL CORD WHILE PLACENTA IS DELIVERING.

### APGAR SCORING

<table>
<thead>
<tr>
<th>SIGN</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLOR</td>
<td>Blue / Pale</td>
<td>Pinnk Body, Blue Extremities</td>
<td>Completely Pink</td>
</tr>
<tr>
<td>HEART RATE</td>
<td>Absent</td>
<td>Below 100</td>
<td>Above 100</td>
</tr>
<tr>
<td>IRRITABILITY (response to stimulation)</td>
<td>No Response</td>
<td>Grimace</td>
<td>Cries</td>
</tr>
<tr>
<td>MUSCLE TONE</td>
<td>Limp</td>
<td>Flexion of Extremities</td>
<td>Active Motion</td>
</tr>
<tr>
<td>RESPIRATORY EFFORT</td>
<td>Absent</td>
<td>Slow and Regular</td>
<td>Strong Cry</td>
</tr>
</tbody>
</table>
UNIVERSAL PATIENT CARE PROTOCOL
(For Mother)

Meconium in Amniotic fluid?
No

First 30 seconds:
Dry, warm, stimulate and position infant.
Bulb syringe suction mouth and nose. O₂ as needed per pulse OX readings.

Continue to stimulate infant and note APGAR

Respiration’s Present?

Yes

NPR Resuscitation O₂ Guidelines
≥35 Weeks: Start Resuscitation with Room Air
<35 Weeks: Start Resuscitation with 40% O₂
Adjust to achieve Minute Specific Saturation Goals.

Minute Specific Saturation Goals:

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<tr>
<td>10</td>
<td>85-95%</td>
</tr>
</tbody>
</table>

Continue CPR if Heart Rate < 60

Heart Rate >100

Reassess Heart Rate and APGAR Score

No

HR less than 60

See Pediatric Airway Protocol

Begin CPR

IV/IO PROTOCOL

Bradycardia Protocol

Consider:
NORMAL SALINE BOLUS
DEXTROSE / NARCAN
Age appropriate Dose

HR 60 - 100

See Pediatric Airway Protocol

Reassess HR

HR greater than 100

OXYGEN Blow - By

Contact Medical Control

Maintain Body Temperature. Continue to monitor respiratory status, heart rate, and perfusion enroute to the hospital.

HR 60 -100

IV/IO PROTOCOL

Bradycardia Protocol

CONTACT MEDICAL CONTROL

TRANSPORT

M ED CONTROL

EMT-P

EMT-A

EMT-B
**GENERAL CONSIDERATIONS:**

- **Exam:** Mental Status, Skin, HEENT, Neck, Chest, Heart, Abdomen, Extremities, Neuro
- **Maternal sedation or narcotics will sedate infant (Naloxone effective).**
- **Consider hypoglycemia in infant.**
- **Document 1 and 5 minute APGAR scores (see Appendix).**
- **If the patient is in distress, consider causes such as, hypovolemia. Administer a 10 mL/kg fluid bolus of normal saline.**
- **If the BGL less than 60 mg/dl go to the Pediatric Diabetic Protocol.**
  - IV/IO can be administered.
  - **Dextrose administration:**
    - **Neonate:** Give 2ml/kg IV or IO of a D10% solution. May repeat if necessary.
    - **Infants and children:** Give 5ml/kg IV or IO of a D10% solution. May repeat if necessary.
- **Hypothermia is a common complication of home and field deliveries. Keep the baby warm and dry.**
- **If there is a history of recent maternal narcotic use, consider Naloxone (Narcan) 0.1 mg/kg every minute until patient responds.**
- **Meconium Present:**
  - **Vigorous Baby** – If the baby born with meconium-stained fluid has a normal respiratory effort, normal muscle tone, and a heart rate greater than 100 bpm, simply use a bulb syringe or large-bore suction catheter to clear secretions and any meconium from the mouth and nose as needed.
  - **Non-Vigorous Baby** – If the baby is born through meconium-stained amniotic fluid, has depressed respirations, has depressed muscle tone, and/or has a heart rate below 100 bpm, direct suctioning of the trachea is indicated.
- **If drying and suction has not provided enough stimulation, try rubbing the infant’s back or flicking their feet. If the infant still has poor respiratory effort, poor tone, or central cyanosis, consider them to be distressed. Most distressed infants will respond quickly to BVM.**
- **Use caution not to allow newborns to slip from grasp.**

### APGAR SCORING

<table>
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</tr>
</tbody>
</table>
CORD AROUND NECK
- Loosen cord or clamp and cut if too tight
- Continue Delivery

PROLAPSED CORD
- Transport Mother with hips elevated and knees to chest
- Insert fingers to relieve pressure on cord if presenting part of the infant is compressing the cord

BREECH BIRTH
- Transport unless delivery is imminent
- Do not encourage mother to push
- Support but do not pull presenting parts

SHOULDER DYSTOCIA
- Transport Mother with knees to chest
- If delivery does not occur, transport immediately
- Place pressure on symphysis pubis

If delivery is in process and the head is clamped inside vagina, create air passage by supporting body of infant and placing 2 fingers along sides of nose, and push away from face to facilitate an airway passage.

If unable to deliver, transport mother with knees to chest.

CONTACT MEDICAL CONTROL

TRANSPORT
# Childbirth / Obstetrical Emergencies

## Abnormal Birth Emergencies

**Contact Medical Direction Immediately When Any Abnormal Birth Presentation Is Discovered**

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Past medical history</td>
<td>- Frank Breech (buttocks presents first)</td>
<td>- Miscarriage</td>
</tr>
<tr>
<td>- Hypertension meds</td>
<td>- Footing Breech (one foot or both feet presenting)</td>
<td>- Stillbirth</td>
</tr>
<tr>
<td>- Prenatal care</td>
<td>- Transverse Lie (fetus is on his/her side with possible arm or leg presenting)</td>
<td></td>
</tr>
<tr>
<td>- Prior pregnancies / births</td>
<td>- Face First Presentation</td>
<td></td>
</tr>
<tr>
<td>Gravida / Para</td>
<td>- Prolapsed Cord (umbilical cord presents first)</td>
<td></td>
</tr>
<tr>
<td>- Ultrasound Findings in Prenatal Care</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### General Considerations:
- DO NOT pull on any presenting body parts.
- These patients will most likely require a c-section, so immediate transport is needed.
- Prolonged, non-progressive labor distresses the fetus and mother. Be sure to reassess mother’s vital signs continuously.

### Cord Around Baby’s Neck:
- As baby’s head passes out the vaginal opening, feel for the cord. Initially try to slip cord over baby’s head; if too tight, clamp cord in two places and cut between clamps.

### Breech Delivery:
- Footling Breech, which is one or both feet delivered first
- Frank Breech, which is the buttocks first presentation
- Feet or buttocks first become visible, there is normally time to transport patient to nearest facility.
- If upper thighs or the buttock have come out of the vagina, delivery is imminent.
- If the child’s body has delivered and the head appears caught in the vagina, the EMT must support the child’s body and insert two fingers into the vagina along the child’s neck until the chin is located. At this point, the two fingers should be placed between the chin and the vaginal canal and then advanced past the mouth and nose.
- After achieving this position, a passage for air must be created by pushing the vaginal canal away from the child’s face. This air passage must be maintained until the child is completely delivered.

### Excessive Bleeding Pre-Delivery:
- If bleeding is excessive during this time and delivery is imminent, in addition to normal delivery procedures, the EMT should use the hypovolemic shock protocol.
- If delivery is not imminent, patient should be transported on her left side and shock protocol followed.

### Excessive Bleeding Post-Delivery:
- If bleeding appears to be excessive, start IV of saline. Follow HYPOVOLEMIC SHOCK PROTOCOL.
- If placenta has been delivered, massage uterus and put baby to mother’s breast.

### Prolapsed Cord:
- When the umbilical cord passes through the vagina and is exposed, the EMT should check cord for a pulse.
- The patient should be transported with hips elevated or in the knee chest position and a moist dressing around cord.
- If umbilical cord prolapsed, insert two fingers to elevate presenting part away from cord, distribute pressure evenly when occiput presents.
- DO NOT attempt to push the cord back. High flow oxygen and transport IMMEDIATELY.

### Shoulder Dystocia:
- Following delivery of the head, the shoulder(s) become "stuck" behind the symphysis pubis or sacrum of the mother.
- Occurs in approximately 1% of births.
OBSTETRICAL EMERGENCIES

UNIVERSAL PATIENT CARE PROTOCOL

MONITOR / IV PROTOCOL

Vaginal Bleeding / Abdominal Pain?

No

Yes

Hypertension?

Known Pregnancy / Missed Period?

Yes

No

Mild Pre-eclampsia – (BP greater than 140/90, Peripheral Edema)
Severe Pre-eclampsia – (BP greater than 140/90, Edema, Headache, Visual Disturbances)

Eclampsia – Seizures – other signs absent

If patient actively seizing, give 4 grams of Magnesium Sulfate in 10 mL NS IV over 2 – 3 minutes

Call Medical Control for Valium Order

Quiet Rapid transport

CONTACT MEDICAL CONTROL

TRANSPORT

1st Trimester –
Miscarriage, Ectopic Pregnancy
2nd & 3rd Trimester –
Placenta Previa
Abruptio Placenta

Other Abdominal Pain?

Yes

No

NORMAL SALINE IV, as needed

Pad bleeding, save and bring with patient

Childbirth / Imminent Delivery Protocol

Rapid Transport

CONTACT MEDICAL CONTROL

TRANSPORT

Southwest General Health Center / EMS Services
Revised 03/2007, 06/2007, 01/2012, 05/2015, 06/2016
## GENERAL CONSIDERATIONS:

- **Exam:** Mental Status, Abdomen, Heart, Lungs, Neuro

### General Information:

- May place patient in a left lateral position to minimize risk of supine hypotensive syndrome.
- Ask patient to quantify bleeding - number of pads used per hour.
- Pregnant patients if transported with a C-Collar and backboard must be strapped securely on board and tilted 20 degrees on left side relieving compression on vena cava.
- DO NOT apply packing to the vagina.
- Be alert for fluid overload when administering fluids.
- Consider starting a second IV if the patient is experiencing excessive vaginal bleeding or hypotension.
- Transport to an appropriate OB facility if the patient is pregnant.

## CHILDBIRTH / OBSTETRICAL EMERGENCIES

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Past medical history</td>
<td>Vaginal bleeding</td>
<td>Pre-eclampsia / Eclampsia</td>
</tr>
<tr>
<td>Hypertension meds</td>
<td>Abdominal pain</td>
<td>Placenta previa</td>
</tr>
<tr>
<td>Prenatal care</td>
<td>Edema of hands and face</td>
<td>Placenta abruptio</td>
</tr>
<tr>
<td>Prior pregnancies / births</td>
<td>Seizures / Hypertension</td>
<td>Spontaneous abortion</td>
</tr>
<tr>
<td>Gravida / Para</td>
<td>Severe headache</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Visual changes</td>
<td></td>
</tr>
</tbody>
</table>

### Abortion / Miscarriage:

- The patient may be complaining of cramping, nausea, and vomiting.
- Be sure to gather any expelled tissue and transport it to the receiving facility.
- Signs of infection may not be present if the abortion / miscarriage was recent.
- An abortion is any pregnancy that fails to survive over 20 weeks. When it occurs naturally, it is commonly called a “miscarriage”.

### Post Partum Hemorrhage:

- Post partum blood loss greater than 300-500 mL
- Bright red vaginal bleeding
- Be alert for shock and hypotension

### Abruptio Placenta:

- Usually occurs after 20 weeks.
- Dark red vaginal bleeding.
- May only experience internal bleeding.
- May complain of a “tearing” abdominal pain.

### Uterine Inversion:

- The uterine tissue presents from the vaginal canal
- Be alert for vaginal bleeding and shock

### Ectopic Pregnancy:

- The patient may have missed a menstrual period or had a positive pregnancy test.
- Acute unilateral lower abdominal pain that may radiate to the shoulder.
- Any female of childbearing age complaining of abdominal pain is considered to have an ectopic pregnancy until proven otherwise.

### Pre-Eclampsia / Eclampsia:

- Severe headache, vision changes, or RUQ pain may indicate pre-eclampsia.
- In the setting of pregnancy, hypertension is defined as a BP greater than 140 systolic and greater than 90 diastolic, or a relative increase of 30 systolic and 20 diastolic from the patient’s normal (pre-pregnancy) blood pressure.

### Pelvic Inflammatory Disease:

- Be tactful when questioning the patient to prevent embarrassment.
- Diffuse back pain.
- Possibly lower abdominal pain.
- Pain during intercourse.
- Nausea, vomiting, or fever.
- Vaginal discharge.
- May walk with an altered gait due to abdominal pain.

### Uterine Rupture:

- Often caused by prolonged, obstructed, or non-progressive labor
- Severe abdominal pain

### Placenta Previa:

- Usually occurs during the last trimester.
- Painless bright red vaginal bleeding.

### Vaginal Bleeding:

- If the patient is experiencing vaginal bleeding, DO NOT pack the vagina, pad on outside only.
Section 10

PRE-HOSPITAL CARE

MEDICAL CONTROL

PROTOCOLS AND PROCEDURES
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</table>
1. ACTIONS OF DRUGS
   1. Local effects
   2. Systemic effects

2. EFFECTS DEPENDS UPON
   1. Age of patient
   2. Condition of patient
   3. Dosage
   4. Route of administration

3. ROUTE OF ADMINISTRATION
   1. Intravenous (IV)
      • Most rapidly effective
      • Most dangerous
      • Give SLOWLY through an established IV line
      • I.O. to be given only if IV is unobtainable.
   2. Intramuscular (IM)
      • Takes longer to act
      • Longer duration of action
      • Deltoid or Ventrogluteal site
      • Absorption VERY dependent on blood flow
   3. Subcutaneous (subcut)
      • Slower and more prolonged absorption
      • Under skin of upper arms, thigh, abdomen
   4. Intranasal (IN, Mucosal Atomization Device)
      • High medication concentration
      • Atomized to be absorbed by mucus membranes
   5. Inhalation (Aerosols)
      • Bronchodilators
      • Steroids
   6. Endotracheal (only administer through ET as a last resort)
      • Epinephrine, Atropine, Lidocaine, Narcan, Vasopressin
      • The optimal dose of most drugs given by ET is unknown
      • ET drugs deliver low blood levels. All drugs except Epi are given 2-3x's normal dose.
      • Epi in low levels may produce transient, detrimental vasodilatation thus...
        Epi down the ET Tube is given 10 x's the normal dose.
      • Instill the drug while briefly holding compressions, follow with 5mL (smaller with neonates) of NS
        flush, followed by 5 positive-pressure ventilations.
   7. Sublingual (SL)
      • Rapid absorption
   8. Oral
      • Instant Glucose
      • Baby Aspirin
   9. Rectal
      • Rapid but unpredictable absorption
   10. Intranasal (IN)
       • Must use specific device to aerosolize medication
       • Used with specific medications only (Midazolam (Versed), Naloxone (Narcan), or Glucagon (Glucagen)
   11. Intraosseous (IO)
       • IO is only to be used only if IV is unobtainable, IO to be used when unable to obtain vascular access.
       • Nearly as fast as IV route

4. RATES OF ABSORPTION
   1. "Directly Related to Route of Administration"
      • IV (Fastest)
      • IO (Intraosseous)
      • Inhalation
      • ET (Endotracheal)
      • IM (Intramuscular)
      • SL (Sublingual)
      • IN (Intranasal)
      • PR (Rectal)
      • SQ (Subcutaneous)
      • Oral (Slowest)
      • ODT (Orally Dissolving Tablets)

5. ELIMINATION
   1. Many methods
   2. Usually metabolized by the liver
   3. Eliminated by the kidneys, lungs, skin
6. TERMS
1. Indications – conditions drugs used for
2. Contraindications – conditions drugs not used for
3. Depressants - lessens / decreases activity
4. Stimulant - increases activity
5. Physiologic action - action from normal body amounts of drug
6. Therapeutic action - beneficial action expected
7. Untoward reaction - harmful side effect
8. Irritation - damage to tissue
9. Antagonism - opposition between effects of drugs
10. Cumulative action - increased action after several doses
11. Tolerance - decreased effects after repeated doses
12. Synergism - combined effects greater than sum of parts
13. Potentiation - enhancement of one drug by another
14. Habituation - drug necessary for feeling of "well being"
15. Idiosyncrasy - unexpected, abnormal response to a drug
16. Hypersensitivity - exaggerated response, allergy

7. AUTONOMIC NERVOUS SYSTEM
1. Parasympathetic - controls vegetative functions
2. Sympathetic - "flight or fight"

8. PARASYMPATHETIC NERVOUS SYSTEM
1. Mediated by vagus nerve
2. Acetylcholine is transmitter (cholinergic)
3. Atropine is Acetylcholine Blocker

9. SYMPATHETIC NERVOUS SYSTEM
1. Mediated by nerves from sympathetic chain
2. Norepinephrine is transmitter (adrenergic)
3. Epinephrine is released from adrenals

10. SYMPATHETIC RECEPTORS
1. Alpha (a)
2. Beta (b)

11. COMMON SYMPATHETIC AGENTS
1. Epinephrine (Adrenalin) - predominately BETA
2. Dopamine (Intropin) - BETA at low dose: ALPHA at high dose

12. DRUG ADMINISTRATION
Appropriate:
1. Medication selection based on protocol
2. Visually examine medication for particulates or discoloration and that the medication has not expired
3. Contraindications are reviewed prior to administration
4. Route is determined by protocol
5. Dose selection based on protocol
6. Dilution is per protocol
7. Rate is per protocol
## MEDICATIONS

### ADENOSINE (Adenocard)

| ACTIONS          | 1. Slows conduction time and can interrupt re-entrant pathways through the AV node.  
                  | 2. Slows the sinus rate. |
|------------------|---------------------------------------------------------------|
| INDICATIONS      | 1. Supra Ventricular Tachycardia  
                  | 2. Paroxysmal Supra Ventricular Tachycardia  
                  | 3. Wide Complex Monomorphic Ventricular Tachycardia |
| CONTRA-INDICATIONS | 1. 2nd or 3rd degree heart block  
                           | 2. Sick Sinus Syndrome  
                           | 3. Poison / drug induced tachycardia  
                           | 3. Wolf Parkinson’s White |
| PRECAUTIONS      | It is helpful to inform the patient of likely side effects prior to medication administration. |
| SIDE EFFECTS     | 1. Facial flushing  
                  | 2. Shortness of breath / dyspnea  
                  | 3. Chest discomfort  
                  | 4. Brief period of sinus arrest  
                  | 5. Headache  
                  | 6. Dizziness  
                  | 7. Hypotension |
| SUPPLIED         | 6mg / 2mL and 12mg / 4mL vials or Pre-filled syringes. |
| ADULT DOSAGE     | **Initial Dose:** 6mg rapid IVP (over 1-3 sec.) immediately followed with a 20 mL saline flush. **Repeat Dose:** If no response is observed after 1 min., administer 12mg rapid IVP (over 1-3 sec.) immediately followed with a 20 mL saline flush. May repeat a 3rd 12mg dose. |
| PEDIATRIC DOSAGE (Per Broselow Tape) | **Initial Dose:** 0.1 mg/kg rapid IVP followed with a 10 mL saline flush. **Repeat Dose:** If no response is observed after 1-2 min., administer 0.2mg/kg rapid IVP followed with a 10 mL saline flush. |
| GENERAL CONSIDERATIONS | • Adenosine has a short half life, and should be administered rapidly followed by a rapid IV flush.  
                           • Reassess after each medication administration and refer to the appropriate protocol and treat accordingly.  
                           • Perform a 12 Lead EKG prior to the administration of Adenosine and after the rhythm converts.  
                           • Use caution when administering to patients with history of asthma, because it can cause bronchospasms. |
**MEDICATIONS**

**ALBUTEROL (Proventil / Ventolin)**

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>Acts directly on the beta 2 adrenergic receptors to relax bronchial smooth muscle, resulting in reduced airway resistance and relief of bronchospasm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDICATIONS</td>
<td>To reverse bronchospasm (wheezing).</td>
</tr>
<tr>
<td>CONTRAINDICATIONS</td>
<td>Known hypersensitivity.</td>
</tr>
<tr>
<td>PRECAUTIONS</td>
<td>Use precaution when administering to pregnant women or patients with cardiac history.</td>
</tr>
</tbody>
</table>
| SIDE EFFECTS                                          | 1. Headache  
2. Drowsiness  
3. Dizziness  
4. Restlessness  
5. Nausea / Vomiting  
6. Tachycardia  
7. Palpitations  
8. Peripheral vasodilatation  
9. Tremors  
10. PVCs |
| SUPPLIED                                              | Unit dose 2.5 mg in 3 mL of NS (EMT-B may assist patient with their own Albuterol inhaler)                                                     |
| ADULT DOSAGE                                          | 2.5 mg in 3 mL via unit dose nebulizer and 6 lpm oxygen (10 lpm if using a face mask).                                                          |
| PEDIATRIC DOSAGE                                      | 2.5 mg in 3 mL via unit dose nebulizer and 6 lpm oxygen (10 lpm if using a face mask)  
½ dose if weight is less than 10 kg add additional 3cc NS |
| GENERAL CONSIDERATIONS                                | May repeat treatment if relief is obtained                                                                                                  |
### AMIODARONE (Cordarone)

#### ACTIONS
Prolongs the refractory period and action potential duration.

#### INDICATIONS
1. Ventricular fibrillation  
2. Pulseless Ventricular Tachycardia  
3. Supra Ventricular Tachycardia  
4. Atrial fibrillation (refractory to cardioversion)  
5. Atrial flutter (refractory to cardioversion)  
6. Or VTach with a pulse

#### CONTRAINDICATIONS
1. Known hypersensitivity  
2. Renal failure  
3. If Lidocaine is used, **DO NOT** use Amiodarone

#### PRECAUTIONS
Second and Third degree AV block

#### SIDE EFFECTS
1. Vasodilatation  
2. Hypotension  
3. Prolonged QT interval

#### SUPPLIED
150 mg/mL vial injectable

#### ADULT DOSAGE
**Ventricular Fibrillation and Pulseless Ventricular Tachycardia:**  
300 mg IO / IV push  
(May be repeated one time at 150 mg IV/IO push)  
**Wide Complex Tachycardia with a pulse:**  
150 mg IV mixed in 50 mL D5W over 10 minutes

#### PEDIATRIC DOSAGE (PER Broselow Tape)
**Ventricular Fibrillation and Pulseless Ventricular Tachycardia:**  
5 mg/kg IV/IO bolus can repeat up to total dose of 15mg/kg  
If the rhythm converts to a perfusing rhythm, then administer 2.5 mg/kg IV/IO over 2-3 minutes (Wide Complex Tachycardia per Medical Control).

#### GENERAL CONSIDERATIONS
- Amiodarone is the preferred antiarrhythmic medication to treat ventricular arrhythmias.  
- Avoid excessive movement and shaking of the medication.  
- Amiodarone is mixed in D5W (not NS)
## MEDICATIONS

### ASPIRIN (ASA)

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>Blocks platelet aggregation</th>
</tr>
</thead>
</table>
| INDICATIONS | 1. Chest pain suggestive of an MI  
2. 12-Lead EKG indicating a possible MI |
| CONTRAINDICATIONS | 1. Hypersensitivity  
2. Active ulcer disease |
| PRECAUTIONS | 1. GI bleeding  
2. Upset stomach |
| SIDE EFFECTS | 1. Heartburn  
2. Nausea and vomiting |
| SUPPLIED | 81 mg per chewable tablet |
| ADULT DOSAGE | 324 mg 4 tablets |
| PEDIATRIC DOSAGE | Not recommended |
| GENERAL CONSIDERATIONS | |

Southwest General Health Center / EMS Services  
| ACTIONS | 1. Increases sinus node firing  
2. Increases conduction through the AV node by blocking activity  
3. Increases cardiac output  
4. Decreases ectopic beats or fibrillation of the ventricles |
| INDICATIONS | 1. Symptomatic sinus bradycardia  
2. Maybe beneficial in presence of AV Nodal Block  
3. Will not be effective for Infranodal (Mobitz Type II) Block  
4. Organophosphate Poisoning |
| CONTRAINDICATIONS | 1. Known hypersensitivity |
| PRECAUTIONS | 1. May increase myocardial oxygen demand  
2. May trigger tachy-dysrhythmias  
3. Use with caution in presence of myocardial ischemia and hypoxia. |
| SIDE EFFECTS | 1. Dry mouth  
2. Blurred vision  
3. Flushed skin  
4. Urinary retention  
5. Headache  
6. Tachycardia  
7. Pupillary dilation |
| SUPPLIED | Pre-filled syringes containing 1mg in 10 mL |
| ADULT DOSAGE | Bradycardia:  
0.5-1 mg IV/IO every 3-5 minutes  
(max dose 0.04 mg/kg)  
Organophosphate Poisoning:  
2-5 mg IV, repeat every 15-30 minutes until symptoms improve |
| PEDIATRIC DOSAGE (PER Broselow Tape) | Bradycardia: First dose - 0.02 mg/kg IV/IO (minimum dose 0.1 mg/kg, maximum single dose of 0.5 mg for a child and 1 mg for an adolescent). May repeat dose once. (maximum total dose of 1 mg for a child and 2 mg, for an adolescent).  
Organophosphate Poisoning: 0.05 mg/kg IV until vitals improve |
| GENERAL CONSIDERATIONS |  |
# MEDICATIONS

## DEXTROSE 10%

### ACTIONS
Restores circulating blood sugar

### INDICATIONS
1. Correction of altered mental status due to hypoglycemia
2. Adult Blood Glucose less than 60 mg/dL or with S&S below 80,
   Child Blood Glucose less than 60 mg/dL,
   Newborn Blood Glucose less than 60 mg/dL
3. Coma with associated hypoglycemia
4. Delirium tremens with associated hypoglycemia
5. Seizure or status epilepticus with associated hypoglycemia

### CONTRAINDICATIONS
1. Known hyperglycemia
2. No contraindications for hypoglycemic patients with altered mental status

### PRECAUTIONS
1. A blood sample should be collected prior to dextrose administration (half / quarter dose might be sufficient dependent on blood sugar and patient symptoms and or circumstances)
2. Use with caution for stroke patients

### SIDE EFFECTS
1. Extravasation of Dextrose may cause necrosis
2. Hyperglycemia

### SUPPLIED
250 ml bag of Dextrose 10% concentration

### ADULT DOSAGE
- If Glucose is less than 40, give 250ml of D10% IV or IO macro drip tubing
- If Glucose is between 40-60 or < 80 with symptoms, give 1/2 bag (125ml) of D10% IV or IO macro drip tubing

### PEDIATRIC DOSAGE (PER Broselow Tape)
- **Neonate:** Give 2ml/kg IV or IO of a D10% solution. May repeat if necessary.
- **Infant and Child:** Give 5ml/kg IV or IO of a D10% solution. May repeat if necessary.

### GENERAL CONSIDERATIONS
### MEDICATIONS

**DUONEB (IPTRATROPIUM) Atrovent & Albuterol (Proventil / Ventolin)**

| Pregnancy Category B |

| ACTIONS | 1. Blocks action of acetylcholine at receptor sites on bronchial smooth muscle, resulting in bronchodilation  
2. Dries bronchial secretions  
3. Acts directly on the beta 2 adrenergic receptors to relax bronchial smooth muscle, resulting in reduced airway resistance and relief of bronchospasm. |
| INDICATIONS | Treatment of bronchospasm in patients with COPD and asthma |
| CONTRAINDICATIONS | Known hypersensitivity |
| PRECAUTIONS | Use precaution when administering to pregnant women or patients with cardiac history. |
| SIDE EFFECTS | 1. Dry nose, mouth  
2. Paradoxical bronchospasm  
3. Nausea/Vomiting  
4. Chest pain  
5. Palpitations/Tachycardia/PVCs  
6. Headache  
7. Dizziness  
8. Drowsiness  
9. Restlessness  
10. Peripheral Vasodilation  
11. Tremors |
| SUPPLIED | Single unit dose: Albuterol 2.5 mg / Atrovent 0.5mg 3ml unit dose Nebulizer and 6 1pm O₂ |
| ADULT DOSAGE | One unit may repeat x1 |
| PEDIATRIC DOSAGE | One unit dose – may repeat x1. If less than 10kg ½ dose and add additional 3ml of normal saline. |
| PROTOCOL USE | • Adult Respiratory Distress – Asthma and COPD  
• Pediatric Respiratory Distress – Lower Airway |
## MEDICATIONS

### Diphenhydramine (Benadryl)

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<th>ACTIONS</th>
<th>Blocks effects of histamine at H1-receptor sites.</th>
</tr>
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<td>Allergic reactions</td>
</tr>
<tr>
<td>CONTRAINDICATIONS</td>
<td>Hypersensitivity to drug</td>
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<tr>
<td>PRECAUTIONS</td>
<td>Assure IV site is patent, will cause tissue irritation</td>
</tr>
</tbody>
</table>
| SIDE EFFECTS  | 1. drowsiness  
|               | 2. sedation  
|               | 3. seizures  
|               | 4. nausea  
|               | 5. dry mouth  
|               | 6. thickening of bronchial secretions          |
| SUPPLIED      | 50 mg / 1 mL vial                                |
| ADULT DOSAGE  | 25-50 mg IV/IM/IO                                |
| PEDIATRIC DOSAGE | 1 mg/kg IV/IM/IO                             |
| GENERAL CONSIDERATIONS |                                  |
# MEDICATIONS

## DOPAMINE (Intropin)

| ACTIONS | 1. Alpha and beta adrenergic receptor stimulator  
2. Dopaminergic receptor stimulator  
3. Dilates renal and mesenteric blood vessels  
4. Vasoconstriction  
5. Arterial resistance  
6. Increase cardiac output  
7. Increase preload |
| --- | --- |
| INDICATIONS | 1. Bradycardia  
2. Cardiogenic shock  
3. Anaphylactic shock  
4. Hypovolemic shock (refractory to volume replacement therapy) |
| CONTRAINDICATIONS | 1. Known hypersensitivity  
2. Hypovolemia without fluid replacement therapy  
3. Pheochromocytoma |
| PRECAUTIONS | Extravasation may cause tissue necrosis |
| SIDE EFFECTS | 1. Ectopic beats  
2. Nausea / Vomiting  
3. Tachycardia  
4. Palpitations  
5. Dyspnea  
6. Headache  
7. Angina  
8. Hypertension |
| SUPPLIED | Mix solution 400 mg in 250 mL NS or D5W |
| ADULT DOSAGE | 2 - 20 micrograms/kg/minute IV/IO infusion titrate to effect |
| PEDIATRIC DOSAGE | 2 - 20 micrograms/kg/minute IV/IO infusion titrate to effect |
| GENERAL CONSIDERATIONS |  |
## MEDICATIONS

### EPINEPHRINE (Adrenaline)

| ACTIONS | 1. Alpha and Beta adrenergic agonist  
| 2. Bronchodilation  
| 3. Increase heart rate and automaticity  
| 4. Increases cardiac contractility  
| 5. Increases myocardial electrical activity  
| 6. Increases systemic vascular resistance  
| 7. Increases blood pressure |

### INDICATIONS

1. Cardiac arrest  
2. Allergic reaction / Anaphylaxis  
3. Respiratory distress

### CONTRAINDICATIONS

Known hypersensitivity

### PRECAUTIONS

Blood pressure, pulse, and ECG must be routinely monitored for all patients receiving Epinephrine  
Use caution in patients with anaphylaxis with HR > 150 and/or age > 65

### SIDE EFFECTS

1. Palpitations  
2. Anxiousness  
3. Headache  
4. Tremor  
5. Nausea / Vomiting

### SUPPLIED

Pre-filled syringes containing 1 mg in 10 mL (1:10,000 solution)  
Ampules containing 1 mg in 1 mL (1:1000 solution)  
Use filter needle to draw up medication  
(EMT-B may assist a patient with their own Epi Pen)

### ADULT DOSAGE

**Cardiac Arrest:**  
1:10,000, 1 mg IV/IO every 3-5 minutes  
(Epinephrine 1:10,000, 2 - 2.5 mg ETT every 3-5 minutes)  
**Anaphylaxis:**  
1:1000, 0.3 - 0.5 mg subcut/IM  
**Respiratory Distress Due to Status Asthmaticus:**  
1:1000, 0.3 - 0.5 mg subcut/IM

### PEDIATRIC DOSAGE (Per Broselow Tape)

**Cardiac Arrest:**  
1:10,000, 0.01 mg/kg IV/IO every 3-5 minutes  
(Epinephrine 1:1000, 0.1 mg/kg ETT every 3-5 minutes)  
**Anaphylaxis:**  
1:1000, 0.01 mL/kg subcut/IM (max dose 0.5 mg)

### GENERAL CONSIDERATIONS
## MEDICATIONS
### FUROSEMIDE (Lasix)

| ACTIONS | 1. Potent diuretic  
| 2. Inhibits renal sodium reabsorption  
| 3. Vasodilation, especially of the pulmonary veins |
| INDICATIONS | 1. Acute pulmonary edema secondary to CHF  
| 2. Acute pulmonary edema secondary to hypertension |
| CONTRAINDICATIONS | 1. Known hypersensitivity  
| 2. Known allergy to sulfamides  
| 3. Dehydrated patient  
| 4. Pregnant patient |
| PRECAUTIONS | 1. May cause dehydration  
| 2. May cause hypovolemia  
| 3. May cause hypotension  
| 4. May cause hypokalemia |
| SIDE EFFECTS | 1. Urination  
| 2. Hypotension  
| 3. Nausea and vomiting  
| 4. Dehydration  
| 5. Depletion of potassium |
| SUPPLIED | Vial of 4 mL in a concentration of 10 mg/mL |
| ADULT DOSAGE | 40 mg slow IV/IM  
| If the patient is already prescribed Furosemide and is compliant, give double their usual dose up to 80 mg |
| PEDIATRIC DOSAGE | Per Medical Control |
| GENERAL CONSIDERATIONS | Medical Control to be consulted for doses greater than 40 mg |
## MEDICATIONS
### GLUCAGON

| ACTIONS | 1. Causes breakdown of glycogen to glucose  
2. Inhibits glycogen synthesis  
3. Elevates blood glucose level |
| --- | --- |
| INDICATIONS | 1. Correction of hypoglycemia when an IV/IO is not able to be established and oral glucose is contraindicated  
2. Elderly with severe CVD, ACS or pregnancy in anaphylaxis (possible option prior to epinephrine administration)  
3. Esophageal obstructions  
4. Beta blocker or Calcium Channel blocker overdose. |
| CONTRAINDICATIONS | Known hypersensitivity |
| PRECAUTIONS | 1. Glucagon is only effective in patients with sufficient stores of glycogen  
2. Use caution in patients with renal or cardiovascular disease  
3. Glucagon can be administered on scene but do not wait for it to take effect |
| SIDE EFFECTS | 1. Nausea and vomiting |
| SUPPLIED | Vials of 1 mg Glucagon with 1 mL of diluting solution |
| ADULT DOSAGE | 1 mg IM / IV / IN |
| PEDIATRIC DOSAGE (PER Broselow Tape) | Less than 20 kg ½ mg IM/IV/IN  
Greater than 20 kg 1 mg IM/IV/IN |
| GENERAL CONSIDERATIONS | Response is usually noticed in 5-20 minutes. If response is delayed, dose may be repeated 1 to 2 times. Will not work if no glycogen stores. |
### MEDICATIONS

#### HALOPERIDOL (Haldol)

**Pregnancy Category B**

---

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>Chemical restraint of acute psychosis or agitated patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDICATIONS</td>
<td>Aggressive, violent, or severely agitated patients in the setting of psychosis.</td>
</tr>
</tbody>
</table>

**CONTRAINDICATIONS**

1. *Not for use in combative or violent reactions resulting from treatable medical emergencies*
2. Dementia related psychosis
3. Known hypersensitivity
4. Parkinson’s disease
5. CNS depression
6. Severe cardiac disease
7. Hepatic disease

**PRECAUTIONS**

1. Elderly patients
2. Prolonged QT interval on EKG
3. Renal patients
4. Respiratory diseases
5. Seizure disorder

**SIDE EFFECTS**

1. Sedation
2. Extrapyramidal symptoms (EPS) / dystonic reactions
3. Orthostatic Hypotension

**SUPPLIED**

5 mg / 1 ml vial

**ADULT DOSAGE**

5 mg IM ONLY
Over age 65: 2.5 mg IM ONLY

**PEDIATRIC DOSAGE**

Not indicated in the pre-hospital setting

**KEY POINTS**

- If administration causes extrapyramidal symptoms (EPS) give Diphenhydramine (Benadryl) 25 mg – 50 mg IV / IM
- EPS symptoms are: Involuntary purposeless movements of body, usually of the face such as grimacing, tongue protrusion, lip smacking, lip puckering, or eye blinking.
- DO NOT mix Haloperidol (Haldol) and Diphenhydramine (Benadryl) in the same syringe.

**PROTOCOL USE**

- Behavioral / Psychiatric Emergencies
## MEDICATIONS

### KETOROLAC (TORADOL)

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>1. Nonsteroidal anti-inflammatory / analgesic</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDICATIONS</td>
<td>Short term management of moderate to severe pain (extremity pain, renal colic)</td>
</tr>
</tbody>
</table>
| CONTRAINDICATIONS | 1. Known hypersensitivity  
2. Head injury or head trauma  
3. Seizure / Altered LOC  
4. Asthma  
5. Undiagnosed abdominal, head or back pain  
6. Patients with hypotension secondary to volume depletion  
7. Multiple trauma patients / hemorrhage bleeding disorders  
8. Advanced renal impairments |
| PRECAUTIONS | 1. If given IM, give deep IM injection and hold pressure over site for 30 sec.  
2. Toradol may mask pain, so conduct a complete assessment prior to administration |
| SIDE EFFECTS | 1. Headache, dizziness  
2. Tinnitus  
3. SOB |
| SUPPLIED | 30 mg mL vials |
| ADULT DOSAGE | 30-60 mg IM or 30 mg IV  
Elderly (over age 65 yrs.) call medical control |
| PEDIATRIC DOSAGE | If over 12 years of age. Consult Medical Control if under 12 years of age. |
| GENERAL CONSIDERATIONS | May take 15 – 30 minutes to take effect. Consult Medical Control for patients over 65 years of age. |
### MEDICATIONS

**LIDOCAINE (Xylocaine) 2%**

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>1. Anesthetizes the intraosseous space during fluid administration to increase pain tolerance.</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDICATIONS</td>
<td>1. Anesthetizes the intraosseous space prior to or during IO fluid/medication administration.</td>
</tr>
<tr>
<td>CONTRAINDICATIONS</td>
<td>1. Known hypersensitivity</td>
</tr>
<tr>
<td>PRECAUTIONS</td>
<td>1. A reduced dose should be administered if the patient is over 70 years old or has a history of liver failure, or CHF if known.</td>
</tr>
</tbody>
</table>
| SIDE EFFECTS | 1. Dizziness, Numbness, Drowsiness, Confusion  
2. Seizure, respiratory depression |
| SUPPLIED | Pre-filled syringes containing 100 mg in 5 mL (20 mg/mL) |
| ADULT DOSAGE | **IO Insertion**: 20-60mg slow IV push prior to fluid/medication administration. |
| PEDIATRIC DOSAGE (PER Broselow Tape) | **IO Insertion**: 0.5 mg / kg up to 60mg IO push slow IV push prior to fluid/medication administration. |
| GENERAL CONSIDERATIONS | Dose for Intraossaesous for pain control:  
Adult: 20 – 60 mg IO  
Pediatric: 0.5 mg/kg IO |
### MEDICATIONS

**LORAZEPAM (Ativan)**

#### ACTIONS
1. Sedation
2. Anticonvulsant
3. Amnestic (induces amnesia)

#### INDICATIONS
1. Status epilepticus
2. Sedation prior to transcutaneous pacing and synchronized cardioversion in the conscious patient
3. Aggressive, violent or severely agitated patient in the setting of Psychosis.

#### CONTRAINDICATIONS
1. Known hypersensitivity
2. Altered mental status of unknown origin
3. Head injury
4. Respiratory insufficiency

#### PRECAUTIONS
1. May cause respiratory depression, respiratory effort must be continuously monitored with Capnography
2. Should be used with caution with hypotensive patients and patients with altered mental status
3. Lorazepam (Ativan) potentiates alcohol or other CNS depressants

#### SIDE EFFECTS
1. Respiratory depression
2. Hypotension
3. Lightheadedness
4. Confusion
5. Slurred speech
6. Amnesia

#### SUPPLIED
2 mg / 1 ml

#### ADULT DOSAGE
**Status Epilepticus:**
0.5-1 mg IV/IN.IO (max dose 2mg).
May repeat in 5-10 min, if seizure persists and patient SBP is greater than 90mm Hg

**Procedural Sedation** (Transcutaneous Pacing and Cardioversion):
0.5-1 mg IV/IO/IN (max dose 2 mg)

**Combative Psych Patient:**
1-2 mg IM/IV/IN
Half dose > 65 /Liver disease

#### PEDIATRIC DOSAGE
(PER Broselow Tape)
**Status Epilepticus IV:**
0.05 mg / kg slow IV /IN /IO (max dose 2mg)

**Procedural Sedation:**
0.05 mg / kg slow IV /IN /IO (max dose 2mg)
### MEDICATIONS

**MAGNESIUM SULFATE**

#### ACTIONS
1. Central Nervous System Depressant
2. Anticonvulsant
3. Antiarrhythmic

#### INDICATIONS
1. Eclampsia
2. Severe refractory ventricular fibrillation / pulseless ventricular tachycardia
3. Torsades de pointes

#### CONTRAINDICATIONS
1. Shock
2. Heart block

#### PRECAUTIONS
1. Patients who are receiving digitalis
2. Hypotension
3. Patients with renal failure

#### SIDE EFFECTS
1. Flushing
2. Respiratory depression
3. Drowsiness

#### SUPPLIED
50% solution, 1 gram in 1 mL vial, injectable

#### ADULT DOSAGE
- **Cardiac Arrest / Torsades or Hypomagnesia:** 1-2 g IV diluted in 50 ml of D5W given over 5-60 minutes.
- **Eclampsia:** 4 g in 10 mL of Normal Saline IV over 2-3 minutes

#### PEDIATRIC DOSAGE (PER Broselow Tape)
25 – 50 mg /kg IV for Torsades only

#### GENERAL CONSIDERATIONS
### MEDICATIONS

**DUO-DOTE (Atropine and Pralidoxime Chloride)**

<table>
<thead>
<tr>
<th>Pregnancy Category</th>
<th>B EMT-B</th>
<th>B EMT - A</th>
<th>B EMT - P</th>
</tr>
</thead>
</table>

#### ACTIONS

**DuoDote:**
- Blocks nerve agents effects and relieves airway constriction and secretions in the lungs and gastrointestinal tract.
- Acts to restore normal functions at the nerve ending by removing the nerve agent and reactivating natural function.

**Ativan:**
- Given to treat seizures caused by exposure to nerve agents

#### INDICATIONS

Suspected or confirmed nerve agent exposure

#### CONTRAINDICATIONS

Medications in the kit should be used with caution (but not withheld) in patients with preexisting cardiac disease, HTN, or CVA history.

#### PRECAUTIONS

1. Chest pain
2. Exacerbation of angina
3. Myocardial infarction
4. Blurred vision
5. Headache
6. Drowsiness
7. Nausea
8. Tachycardia
9. Hypertension
10. Hyperventilation

#### SIDE EFFECTS

- Chest pain
- Exacerbation of angina
- Myocardial infarction
- Blurred vision
- Headache
- Drowsiness
- Nausea
- Tachycardia
- Hypertension
- Hyperventilation

#### SUPPLIED

DUODOTE – Each auto injector contains **BOTH:**
Atropine 2.1 mg and Pralidoxime 600 mg

#### ADULT DOSAGE

**For Nerve Agent Exposure (SLUDGE symptoms):**
Up to 3 auto injectors may be used for one patient based on signs (1-2 kits for self treatment – up to 3 for buddy treatment with severe symptoms)

**For Seizures Associated with Nerve Agent Exposure:**
Ativan 0.5-1.0 mg IM/IV/IN/IO

#### PEDIATRIC DOSAGE

DuoDotes are not authorized for the use of children under the age of 9 years

#### KEY POINTS

- DuoDotes are reserved for treatment of public service personnel exposed to nerve agents

#### PROTOCOL USE

- **Nerve Agent Exposure**
## MEDICATIONS

### MORPHINE SULFATE

| ACTIONS          | 1. Increases venous capacity reducing venous return  
|                  | 2. Mild vasodilatation  
|                  | 3. Decreases sensitivity to pain  |
| INDICATIONS      | 1. Cardiac chest discomfort and acute MI  
|                  | 2. Pain management  |
| CONTRAINDICATIONS| 1. Known hypersensitivity  
|                  | 2. Head injury or head trauma  
|                  | 3. Seizure  
|                  | 4. Altered LOC  
|                  | 5. Patients with hypotension secondary to volume depletion  
|                  | 6. Multiple trauma patients  |
| PRECAUTIONS      | 1. If the patient responds with respiratory depression or hypotension, then administer Narcan to reverse the effects  
|                  | 2. Routinely monitor the patient’s respiratory effort  
|                  | 3. All patients **MUST** have pulse ox monitoring in place  
|                  | 4. Morphine may mask pain, so conduct a complete assessment prior to administration  
|                  | 5. Administer supplemental O₂ as needed  |
| SIDE EFFECTS     | 1. Respiratory depression  
|                  | 2. Altered LOC  
|                  | 3. Bradycardia  
|                  | 4. Nausea and vomiting  
|                  | 5. Constricted pupils  |
| SUPPLIED         | Pre-filled (tubex) 5 syringes containing 2 mg/mL 10mg.  |
| ADULT DOSAGE     | **Cardiac Chest Discomfort and Acute Pain Management and MI:**  
|                  | 2 mg every 4-5 min IV/IM titrate to response and resp. status (max dose 10 mg)  |
| PEDIATRIC DOSAGE | **Pain Management:**  
|                  | 0.05-0.1 mg/kg slow IV (max dose 2 mg).  
|                  | Under age 12 – call medical control.  |
| GENERAL CONSIDERATIONS | Give morphine to patient’s with chest pain only after all three nitroglycerin have been administered.  |
### MEDICATIONS

**NALOXONE (Narcan)**

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>Reverses all effects from opioid agents such as respiratory depression and all central and peripheral nervous system effects.</th>
</tr>
</thead>
</table>
| INDICATIONS      | 1. Respiratory depression due to opioids  
2. Altered mental status of unknown origin |
| CONTRAINDICATIONS| 1. Known hypersensitivity  
2. Caution when using on heroin overdose patients |
| PRECAUTIONS      | 1. Naloxone may induce acute opiate withdrawal in patients who are physically dependent. Be prepared for a potentially combative patient.  
2. Should be used and titrated to desired respiratory effect and not intended to restore full consciousness.  
3. The effects of Naloxone do not usually last as long as the effects of opiates, therefore subsequent doses may need to be administered.  
4. ***Basic EMT – give Narcan IN only*** |
| SIDE EFFECTS     | Tachycardia, seizures, vomiting |
| SUPPLIED         | 2 mg in 2 mL pre-filled syringe |
| ADULT DOSAGE     | 2 - 4 mg IV/IM/IO/IN/ aerosol may be repeated every 5 minutes to maintain respiratory effect or IN – 1mg atomized each nostril  
**Overdose**  
*Overdose*: if cardiac/respiratory arrest, consider giving maximum dose of Narcan  
2 - 10 mg IV/IM/IO/IN/ aerosol may be repeated every 5 minutes to maintain respiratory effect or IN – 1mg atomized each nostril |
| PEDIATRIC DOSAGE | 0.1 mg/kg IV/IM/IO may be repeated every 5 minutes to maintain respiratory effect |
| GENERAL CONSIDERATIONS |                                                                 |
### MEDICATIONS

#### NITROGLYCERIN

| ACTIONS | 1. Vasodilatation  
2. Coronary artery dilation  
3. Decreases myocardial oxygen demand  
4. Decreases vascular resistance |
|---------|---|
| INDICATIONS | 1. Cardiac chest discomfort, angina and acute MI  
2. Pulmonary edema  
3. Hypertension |
| CONTRAINDICATIONS | 1. Known hypersensitivity  
2. Hypotension |
| PRECAUTIONS | 1. Avoid use in patients with intracranial pressure, glaucoma, hypotension  
2. If the patient becomes hypotensive after Nitro administration, then place the patient in a semi-reclined position with legs elevated  
2. Consult Medical Control for use with patients taking phosphodiesterase inhibitors for erectile dysfunction or pulmonary hypertension. |
| SIDE EFFECTS | 1. Throbbing headache  
2. Hypotension  
3. Dizzy  
4. Weakness |
| SUPPLIED | Many forms, including ointment, spray, tablets, sustained release capsules  
*** Basic EMT's may assist a patient with their own nitro.  
For use in the field, tablets of 0.4mg |
| ADULT DOSAGE | **Cardiac Chest Discomfort:**  
0.4 mg SL every 5 minutes x 3 if BP greater than 90 with IV started, 110 without IV.  
**Pulmonary Edema:**  
0.4 mg SL every 5 minutes x 3 if BP greater than 110  
**Hypertensive Crisis:**  
.04 mg SL x 1 ONLY IF:  
BP greater than 120 Diastolic  
Repeat BP x 2 in both arms  
**ALONG WITH:**  
signs and symptoms of CHF or Cardiac Ischemic chest pain  
**ALONG WITH:**  
headache, blurred vision, focal deficit or altered LOC |
| PEDIATRIC DOSAGE | Not recommended in pre-hospital setting |
| GENERAL CONSIDERATIONS | May repeat up to 3 doses if BP systolic greater than 90 with IV established or 110 without IV established. |
# MEDICATIONS

## ORAL INSTANT GLUCOSE

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>Elevates blood glucose level</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDICATIONS</td>
<td>Correction of hypoglycemia</td>
</tr>
<tr>
<td>CONTRAINDICATIONS</td>
<td>1. Known hypersensitivity</td>
</tr>
<tr>
<td></td>
<td>2. Absents of a gag reflex</td>
</tr>
<tr>
<td>PRECAUTIONS</td>
<td>1. Patient must be alert and able to sufficiently swallow</td>
</tr>
<tr>
<td></td>
<td>2. Be alert for difficulty swallowing or choking due to the thick consistency</td>
</tr>
<tr>
<td>SIDE EFFECTS</td>
<td>Nausea and vomiting</td>
</tr>
<tr>
<td>SUPPLIED</td>
<td>One complete tube (15-25 g)</td>
</tr>
<tr>
<td>ADULT DOSAGE</td>
<td>One half to one complete tube (15-25 g)</td>
</tr>
<tr>
<td>PEDIATRIC DOSAGE</td>
<td>Half a tube</td>
</tr>
<tr>
<td>GENERAL CONSIDERATIONS</td>
<td>The patient must be alert and have the ability to swallow</td>
</tr>
</tbody>
</table>

Southwest General Health Center / EMS Services
# MEDICATIONS
## OXYGEN (O₂)

### ACTIONS
1. Increases oxygen content of blood
2. Improves tissue oxygenation
3. Decreases energy expended for respirations

### INDICATIONS
1. Cardiac chest discomfort
2. Hypoxemia
3. Cardiopulmonary arrest
4. Trauma
5. Shortness of breath / dyspnea
6. Sedative drug administrations

### CONTRAINDICATIONS
None in the pre-hospital setting

### PRECAUTIONS
1. Never withhold oxygen to those who need it
2. Be aware for respiratory depression in COPD patients on prolonged high flow oxygen
3. All sedative medication administration must have oxygen administration
4. Simple or partial rebreather face masks must be supplied with a minimum 10 L per minute
5. Non-rebreather face masks must be supplied with a minimum 12 L per minute
6. T-Piece Nebulizers must be supplied with 6 lpm

### SIDE EFFECTS
High concentrations of oxygen may reduce the respiratory drive in some COPD patients; these patients should be carefully monitored.

### SUPPLIED
As a compressed gas in cylinders of varying sizes

### ADULT DOSAGE
12-15 lpm via NRB mask or 2-6 lpm via nasal cannula, 6-10 lpm via small volume nebulizer, unless otherwise indicated.

### PEDIATRIC DOSAGE
12-15 lpm via NRB mask or 2-6 lpm via nasal cannula, or 6-10 lpm via unit dose nebulizer, unless otherwise indicated.

### GENERAL CONSIDERATIONS
Scheduled hydrostatic tank checks
## SODIUM BICARBONATE

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>Restores buffering capacity of the body and neutralizes excess acid.</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDICATIONS</td>
<td>Cardiac arrest, metabolic acidosis</td>
</tr>
<tr>
<td>CONTRAINDICATIONS</td>
<td>Metabolic or respiratory alkalosis</td>
</tr>
<tr>
<td>PRECAUTIONS</td>
<td>Use caution in patients with renal insufficiency. Heart failure, or edematous or sodium retaining condition.</td>
</tr>
<tr>
<td>SIDE EFFECTS</td>
<td>Tetany, edema, metabolic alkalosis</td>
</tr>
<tr>
<td>SUPPLIED</td>
<td>50 mEq pre-filled syringe</td>
</tr>
<tr>
<td>ADULT DOSAGE</td>
<td>1 mEq/kg IV/IO</td>
</tr>
<tr>
<td>PEDIATRIC DOSAGE (PER Broselow Tape)</td>
<td>1 mEq/kg IV/IO</td>
</tr>
</tbody>
</table>

### GENERAL CONSIDERATIONS
- Not routinely recommended for cardiac arrest because it may produce paradoxical acidosis from carbon dioxide production.
- **DO NOT** administer through same IV line as Dopamine because it inactivates the Catecholamine effect.
- Call Medical Control prior to administration of Sodium Bicarb
<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>Topical ophthalmic anesthetic</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDICATIONS</td>
<td>1. Application prior to eyes irrigation for anesthetic / pain management</td>
</tr>
<tr>
<td>CONTRAINDICATIONS</td>
<td>Hypersensitivity to “caine” family</td>
</tr>
<tr>
<td>PRECAUTIONS</td>
<td>Eye infections</td>
</tr>
<tr>
<td>SIDE EFFECTS</td>
<td>Local irritation</td>
</tr>
<tr>
<td>SUPPLIED</td>
<td>1 single dose bottle</td>
</tr>
<tr>
<td>ADULT DOSAGE</td>
<td>2 drops instilled in both eyes 30 seconds before eye irrigation and every 5 minutes during irrigation</td>
</tr>
<tr>
<td>PEDIATRIC DOSAGE</td>
<td>2 drops instilled in both eyes 30 seconds before eye irrigation and every 5 minutes during irrigation</td>
</tr>
<tr>
<td>GENERAL CONSIDERATIONS</td>
<td></td>
</tr>
</tbody>
</table>

Southwest General Health Center / EMS Services
### MEDICATIONS

#### MIDAZOLAM (Versed)

<table>
<thead>
<tr>
<th>Pregnancy Category</th>
<th>EMT-P</th>
<th>EMT-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>A</td>
<td>A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>Hypnotic and sedative effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDICATIONS</td>
<td>Premedication before cardioversion or transcutaneous pacing</td>
</tr>
<tr>
<td></td>
<td>Status epilepticus</td>
</tr>
<tr>
<td></td>
<td>Aggressive, violent or severely agitated patient in the setting of psychosis</td>
</tr>
<tr>
<td>CONTRAINDICATIONS</td>
<td>Known hypersensitivity to the drug</td>
</tr>
<tr>
<td></td>
<td>Hypotension</td>
</tr>
<tr>
<td></td>
<td>Respiratory Depression</td>
</tr>
<tr>
<td></td>
<td>Allergy to Benzodiazepines</td>
</tr>
<tr>
<td></td>
<td>Caution with CHF and COPD</td>
</tr>
<tr>
<td>PRECAUTIONS</td>
<td>Use lower initial doses in elderly or debilitated patients</td>
</tr>
<tr>
<td></td>
<td>Avoid rapid injection</td>
</tr>
<tr>
<td>SIDE EFFECTS</td>
<td>Drowsiness</td>
</tr>
<tr>
<td></td>
<td>Hypotension</td>
</tr>
<tr>
<td></td>
<td>Amnesia</td>
</tr>
<tr>
<td></td>
<td>Respiratory Depression</td>
</tr>
<tr>
<td></td>
<td>CNS Depression</td>
</tr>
<tr>
<td></td>
<td>Nausea</td>
</tr>
<tr>
<td></td>
<td>Vomiting</td>
</tr>
<tr>
<td>SUPPLIED</td>
<td>2 mg / 2 ml vial (for IV use)</td>
</tr>
<tr>
<td></td>
<td>5 mg / 1 ml vial (for Intranasal use ONLY)</td>
</tr>
<tr>
<td>ADULT DOSAGE</td>
<td>Seizure – With Vascular Access:</td>
</tr>
<tr>
<td></td>
<td>2 – 4 mg IV (2mg / 2 ml)</td>
</tr>
<tr>
<td></td>
<td>Seizure – Without Vascular Access:</td>
</tr>
<tr>
<td></td>
<td>5 mg IN Atomized (5 mg / 1 ml) – (1/2 dose up each nostril)</td>
</tr>
<tr>
<td></td>
<td>Procedural Sedation (Cardioversion, Pacing) With Vascular Access:</td>
</tr>
<tr>
<td></td>
<td>2 – 4 mg IV (1 minute prior to procedure)</td>
</tr>
<tr>
<td></td>
<td>Procedural Sedation (Cardioversion, Pacing,) No Vascular Access:</td>
</tr>
<tr>
<td></td>
<td>5 mg IN Atomized (5 mg / 1 ml) – (1/2 dose up each nostril – 1ml for each nostril)</td>
</tr>
<tr>
<td></td>
<td>Combative Psych Patient:</td>
</tr>
<tr>
<td></td>
<td>2 mg IV/IO or</td>
</tr>
<tr>
<td></td>
<td>5 mg IN/IM</td>
</tr>
<tr>
<td>PEDIATRIC DOSAGE (PER Broselow Tape)</td>
<td>Seizure (WITH VASCULAR ACCESS):</td>
</tr>
<tr>
<td></td>
<td>mg / kg IV max dose 4 mg</td>
</tr>
<tr>
<td></td>
<td>Seizure (WITHOUT VASCULAR ACCESS):</td>
</tr>
<tr>
<td></td>
<td>mg / kg IN (Use high concentration Versed 5 mg / 1 ml – (1/2 dose up each nostril)</td>
</tr>
<tr>
<td></td>
<td>See PEDIATRIC DRUG ADMINISTRATION CHART for weight based administration</td>
</tr>
<tr>
<td>KEY POINTS</td>
<td>Monitor respiratory status continuously</td>
</tr>
<tr>
<td></td>
<td>Do Not Confuse Versed Concentrations. Use 2 mg / 2 ml for IV and 5 mg / 1 ml for IN (Intranasal) ATOMIZED ONLY</td>
</tr>
<tr>
<td>PROTOCOL USE</td>
<td>• Adult Narrow Complex Tachycardia</td>
</tr>
<tr>
<td></td>
<td>• Adult Seizures</td>
</tr>
<tr>
<td></td>
<td>• Adult Wide Complex Tachycardia</td>
</tr>
<tr>
<td></td>
<td>• Pediatric Seizures</td>
</tr>
</tbody>
</table>
## MEDICATIONS

### ZOFRAN (Ondansetron Hydrochloride)

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>1. Antiemetic</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDICATIONS</td>
<td>1. Nausea</td>
</tr>
<tr>
<td></td>
<td>2. Vomiting</td>
</tr>
<tr>
<td>CONTRAINDICATIONS</td>
<td>1. Hypersensitivity</td>
</tr>
<tr>
<td></td>
<td>2. Hepatic impairment</td>
</tr>
<tr>
<td>PRECAUTIONS</td>
<td>1. Renal and hepatic disease</td>
</tr>
<tr>
<td></td>
<td>2. Pregnancy</td>
</tr>
<tr>
<td></td>
<td>3. Breast-feeding women</td>
</tr>
<tr>
<td>SIDE EFFECTS</td>
<td>1. Headache</td>
</tr>
<tr>
<td></td>
<td>2. Dizziness</td>
</tr>
<tr>
<td></td>
<td>3. Drowsiness</td>
</tr>
<tr>
<td></td>
<td>4. Fatigue</td>
</tr>
<tr>
<td></td>
<td>5. Diarrhea</td>
</tr>
<tr>
<td>SUPPLIED</td>
<td>2 - 2mg/mL vial</td>
</tr>
<tr>
<td></td>
<td>2- 4.0 mg ODT</td>
</tr>
<tr>
<td></td>
<td>(Ondansetron Orally Dissolving Tablets)</td>
</tr>
<tr>
<td>ADULT DOSAGE</td>
<td>Starting dose 2-4 mg slow IV / IM (0.15 mg/kg)</td>
</tr>
<tr>
<td></td>
<td>or 1-4 mg Tablet Sub. L</td>
</tr>
<tr>
<td>PEDIATRIC DOSAGE</td>
<td>2-12 yrs (greater than 40 kg) (0.15 mg/kg)</td>
</tr>
<tr>
<td></td>
<td>or 4-12 yrs (greater than 40 kg) 1-4 mg Tablet Sub. L</td>
</tr>
<tr>
<td>GENERAL CONSIDERATIONS</td>
<td>IV route / assure patent IV in a large / patent vein,</td>
</tr>
<tr>
<td></td>
<td>monitor for infiltrates</td>
</tr>
<tr>
<td></td>
<td>IM route, give deep IM (not subcut.)</td>
</tr>
<tr>
<td></td>
<td>May give undiluted IM</td>
</tr>
<tr>
<td>TABLE OF CONTENTS</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>--</td>
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INDICATIONS:

- Any patient requesting a medical evaluation that is too large to be measured with a Broselow - Luten Resuscitation (weight/length based tape) Tape.

PROCEDURE:

1. Scene size-up, including universal precautions, scene safety, environmental hazards assessment, need for additional resources, by-stander safety, and patient / caregiver interaction.
2. Assess need for additional resources.
3. Initial assessment includes a general impression as well as the status of a patient’s airway, breathing, and circulation.
4. Assess mental status (e.g., AVPU) and disability (e.g., GCS).
5. Control major hemorrhage and assess overall priority of patient.
6. Perform a focused history and physical based on patient’s chief complaint.
7. Assess need for critical interventions.
8. Complete critical interventions and perform a complete secondary exam to include a baseline set of vital signs as directed by protocol.
9. Maintain an on-going assessment throughout transport, to include patient response / possible complications of interventions, need for additional interventions, and assessment of evolving patient complaints / conditions.

GENERAL CONSIDERATIONS:

Dealing with the family:

- REMAIN CALM. Show efficiency and competence, even if you don’t really feel it.
- Show a caring and concerned manner for both the family and the patient. If you have negative feelings about the situation (for example, if it is an injury as a result of neglect or abuse), try not to let them show. This will only increase hostility between yourself and the family.
- Honestly inform them of what you are doing and what you think is wrong with the patient.
- Reassurance is important for the family as well. Involve them in the care (for example, holding the oxygen or talking to the patient to calm them). This will help develop some trust between you and the family.
**MEDICAL PROCEDURES**

**PEDIATRIC PATIENT ASSESSMENT**

**INDICATIONS:**
- Any child that can be measured with the Broselow – Luten (weight/length based tape) Resuscitation Tape.

**PROCEDURE:**
1. Scene size-up, including universal precautions, scene safety, environmental hazards assessment, need for additional resources, by-stander safety, and patient / caregiver interaction.
2. Assess patient using the pediatric triangle of ABCs:
   - Airway and appearance: speech / cry, muscle tone, inter-activeness, look / gaze, movement of extremities
   - Work of breathing: absent or abnormal airway sounds, use of accessory muscles, nasal flaring, body positioning
   - Circulation to skin: pallor, mottling, cyanosis
3. Establish spinal immobilization if suspicion of spinal injury.
4. Establish responsiveness appropriate for age (AVPU, GCS, etc.).
6. Perform a focused history and physical exam. Recall that pediatric patients easily experience hypothermia and thus should not be left uncovered any longer than necessary to perform an exam.
7. Record vital signs (BP greater than 3 years of age, cap refill less than 3 years of age).
8. Include Immunizations, Allergies, Medications, Past Medical History, last meal, and events leading up to injury or illness where appropriate.
9. Treat chief complaint as per protocol.

**GENERAL CONSIDERATIONS:**
- Illness and injuries in children can cause significant anxiety for pre-hospital personnel as well as panic in the patient, family, and bystanders. It is important for the EMT to remain calm and take control of the patient and situation.

**Dealing with the child:**
- Tell them what’s happening. It is important to remember to communicate with the child.
- Relate and speak on their developmental level.
- Be honest with them. Don’t say, this won’t hurt if it will. Explain your actions.
- Try to enlist their cooperation, if possible.
- Do not separate child from the parent unless they are ill enough to require significant interventions like airway positioning and ventilation.
- Reassure the child frequently.

**Dealing with the family:**
- REMAIN CALM. Show efficiency and competence, even if you don’t really feel it.
- Show a caring, concerned manner for both the family and the patient. If you have negative feelings about the situation (for example if it is an injury as a result of neglect or abuse), try not to let them show. This will only increase hostility between yourself and the family.
- Honestly inform them of what you are doing and what you think is wrong with the patient.
- Reassurance is important for the family as well. Involve them in the care (for example, holding the oxygen or talking to the patient to calm them). This will help develop some trust between you and the family.
PROCEDURE:
1. Initial and ongoing assessment of pain intensity and character is accomplished through the patient’s self report.
2. Pain should be assessed and documented during initial assessment, before starting pain control treatment, and with each set of vitals.
3. Pain should be assessed using the appropriate approved scale.
4. Two pain scales are available:
   - **0-10 Scale**: the most familiar scale used by EMS for rating pain with patients. It is primarily for adults and is based on the patient being able to express their perception of the pain as related to numbers. Avoid coaching the patient; simply ask them to rate their pain on a scale from 0 to 10, where 0 is no pain at all and 10 is the worst pain ever.
   - **Wong-Baker “faces” scale**: this scale is primarily for use with pediatrics but may also be used with geriatrics or any patient with a language barrier. The faces correspond to numeric values from 0-5. This scale can be documented with the numeric value or pain description.

### MEDICAL PROCEDURES
**PAIN ASSESSMENT**

<table>
<thead>
<tr>
<th>INDICATIONS</th>
<th>SIGNS AND SYMPTOMS</th>
<th>CONTRAINdicATIONS</th>
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<tr>
<td>Injury or illness with associated pain.</td>
<td>Abdominal pain</td>
<td>Absence of pain.</td>
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<tr>
<td>Pediatric patients under 12 years of age (use the Wong-Baker “Faces” Scale)</td>
<td>Chest pain secondary to infarction or angina</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acute urinary retention</td>
<td></td>
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<tr>
<td></td>
<td>Fractures</td>
<td></td>
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<tr>
<td></td>
<td>Severe burns</td>
<td></td>
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<tr>
<td></td>
<td>Kidney stones</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Musculoskeletal trauma</td>
<td></td>
</tr>
</tbody>
</table>

**KEY POINTS**

*Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage.
*Pain is subjective (whatever the patient says it is).

**The Wong-Baker Faces Pain Rating Scale**
Designed for children aged 3 years and older, the Wong-Baker Faces Pain Rating Scale is also helpful for elderly patients who may be cognitively impaired. It offers a visual description for those who don’t have the verbal skills to explain how their symptoms make them feel.

![Wong-Baker Faces Pain Rating Scale Image]

To use this scale, your doctor should explain that each face shows how a person in pain is feeling. That is, a person may feel happy because he or she has no pain (hurt), or a person may feel sad because he or she has some or a lot of pain.

**A Numerical Pain Scale**
A numerical pain scale allows you to describe the intensity of your discomfort in numbers ranging from 0 to 10 (or greater, depending on the scale). Rating the intensity of sensation is one way of helping your doctor determine treatment. Numerical pain scales may include words or descriptions to better label your symptoms, from feeling no pain to experiencing excruciating pain. Some researchers believe that this type of combination scale may be most sensitive to gender and ethnic differences in describing pain.
MEDICAL PROCEDURES
PAIN MANAGEMENT PROTOCOL

TRAUMA:
- Burns
- Dislocation
- Blunt Trauma
- Musculoskeletal / Fracture Pain

**MORPHINE SULFATE** 2-4 mg IV/IM titrated to pain and respirations
Under age 12: call Medical Control
*Not for: Altered Mentation, Head Trauma, and Hypovolemia*

**ONDANSETRON (ZOFRAN)** as Needed
4 mg IM/IV over 2-4 minutes
May Repeat x1 if Needed in 15 minutes
*OR*
**ONDANSETRON (ZOFRAN)** Dissolving Tabs
4 mg Oral

Repeat in 5 minutes if pain persists and vital signs remain stable

**MORPHINE** 2-4 mg IV/IM

**CONTACT MEDICAL CONTROL**
TRANSPORT

MEDICAL:
- Intractable Flank Pain
- Musculoskeletal
- Sickle Cell Pain Crisis (Use Supplemental O₂)

**TORADOL** (Ketorolac):
30-60 mg IM / 30 mg IV
*Not for: children under 12 yrs of age. CAUTION: HX of asthma, aspirin or non-steroidal anti-inflammatory allergies, bleeding disorders, renal failure or hypotension, suspected AAA and pregnancy*

**Adults over 65 yrs and older** -
*Call Medical Control*

**MORPHINE SULFATE**: 2-4 mg every 4 – 5 minutes IV / IM titrated to pain and respirations
*Not for: Altered Mentation, Head Trauma, And Hypovolemia*

**ONDANSETRON (ZOFRAN)** as Needed
4 mg IM/IV over 2-4 minutes
May Repeat x1 if Needed in 15 minutes
*OR*
**ONDANSETRON (ZOFRAN)** Dissolving Tabs
4 mg Oral
MEDICAL PROCEDURES

PAIN MANAGEMENT PROTOCOL

<table>
<thead>
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<th>SIGNS AND SYMPTOMS</th>
<th>DIFFERENTIAL DIAGNOSIS</th>
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<td>• Severity (pain scale)</td>
<td>• Per the specific protocol</td>
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<tr>
<td>• Location</td>
<td>• Quality (sharp, dull, etc.)</td>
<td>• Musculoskeletal</td>
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<tr>
<td>• Duration</td>
<td>• Radiatio</td>
<td>• Visceral (abdominal)</td>
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<tr>
<td>• Severity (0-10)</td>
<td>• Relation to movement, respiration</td>
<td>• Cardiac</td>
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<td>• Past medical history</td>
<td>• Increased with palpation of area</td>
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<td>• Medications</td>
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<td>• Neurogenic</td>
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<tr>
<td>• Drug allergies</td>
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<td>• Renal (colic)</td>
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PAIN SCALE

The Wong-Baker Faces Pain Rating Scale
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To use this scale, your doctor should explain that each face shows how a person in pain is feeling. That is, a person may feel happy because he or she has no pain (hurt), or a person may feel sad because he or she has some or a lot of pain.

A Numerical Pain Scale
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KEY POINTS

- Exam: Mental Status, Area of Pain, Neuro
- Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage.
- Pain is subjective (whatever the patient says it is).
- Pain severity (0-10) is a vital sign to be recorded pre and post medication delivery and at disposition.
- Use Morphine for suspected cardiac chest pain within the ACLS Protocol.
- Abdominal pain patients must have a 12 lead EKG to rule out cardiac involvement.
- Vital signs should be obtained pre, 10 minutes post, and at disposition with all pain medications.
- Contraindications to Morphine use included hypotension, head injury, respiratory distress, or severe COPD.
- All patients should have drug allergies documented prior to administering pain medications.
- All patients who receive pain medications must be observed 15 minutes for drug reaction.
- All patients who receive medication for pain must have continuous ECG monitoring, pulse oximetry, and oxygen administration.
- The patient’s vital signs must be routinely reassessed.
- Routine assessments and reassessments must be documented on the run report.
- Have Naloxone (Narcan) on hand if the patient has respiratory depression or hypotension after Morphine administration. Be prepared to ventilate.
- DO NOT administer narcotic analgesics if there is any suspicion of a head injury.
- Toradol (Ketoralac) 30 – 60 mg IM / 30 mg IV. Indicated for short term management of moderate to severe pain. Caution: kidney stones, muscle sprains, hip and extremity injuries. Not for: children under 12 yrs of age, HX of asthma, aspirin or non-steroidal anti-inflammatory allergies, bleeding disorders, renal disorders/failure or hypotension. Adults over 65 yrs and older, call Medical Control first.
- Morphine Sulfate: 2 mg every 4-5 minutes IV, titrated to pain and respirations. Not for: Altered Mentation, Head Trauma and Hypovolemia
AEROSOL TREATMENT

**INDICATIONS**
- Patients experiencing bronchospasm

**SIGNS AND SYMPTOMS**
- Shortness of breath
- Wheezing
- History of COPD / Asthma
- Unable to complete full sentences
- Accessory muscle use
- Nasal flaring
- Fatigue

**CONTRAINDICATIONS**
- Allergy to medication
- Arrhythmias

**PROCEDURE:**
1. Gather the necessary equipment.
2. Assemble the nebulizer kit.
3. Instill the premixed Albuterol or Duoneb into the reservoir well of the nebulizer.
4. Connect the nebulizer device to oxygen at 4 - 6 liters per minute or adequate flow to produce a steady, visible mist.
5. Instruct the patient to inhale normally through the mouthpiece of the nebulizer. The patient needs to have a good lip seal around the mouthpiece.
6. The treatment should last until the solution is depleted. Tapping the reservoir well near the end of the treatment will assist in utilizing all of the solution.
7. Monitor the patient for medication effects. This should include the patient’s assessment of his/her response to the treatment and reassessment of vital signs, ECG, and breath sounds.
8. EMT-B can assist patient with their own inhalers.
9. Document the treatment, dose, and route on/with the patient care report.

PERSONAL INHALER TREATMENT

**INDICATIONS**
- Patients experiencing bronchospasm

**SIGNS AND SYMPTOMS**
- Shortness of breath
- Wheezing
- Patient has own prescribed inhaler

**CONTRAINDICATIONS**
- Medication is not prescribed to patient
- Medication has expired
- Patient has received maximum dose

**PROCEDURE:**
- Make sure that personal inhaler is at room temperature or warmer.
- Follow the instructions for either gentle or vigorous shaking.
- Instruct patient to seal lips around opening of inhaler, using spacer if present.
- Instruct patient to inhale deeply while depressing the inhaler.
- Instruct patient to hold breath as long as possible.
- Follow Airway Protocol.

**GENERAL CONSIDERATIONS:**
- Use mouthpiece if patient is able to hold nebulizer effectively.
- Use nebulizer mask if patient is unable to hold nebulizer effectively.
**PROCEDURE: For Quantitative Waveform Capnography**

1. Turn LIFEPAK® on. If CO2 is not displayed, select channel 2 or 3 (go to Lead option scroll to CO2 monitor).
2. Ensure FilterLine® is firmly seated and tight. Attach the FilterLine® to the monitor and turn clockwise until Filterline® is firmly seated.
3. Attach the FilterLine® to the patient (either nasal cannula, ET.Tube or King Airway)
4. Allow machine to register level and monitor
5. Record time and initial wave
6. Maintaining the ETCO2 between the range of 35-45mmHG is the normal range.

7. A waveform is displayed when any CO2 is detected, but CO2 must be > 3mmHG for a numerical value to be displayed and the CO2 must be > 8mmHG for a valid breath and respiratory rate (RR) to be detected and the apnea alarm to function.

8. Verify the respiratory rate on machine with actual respiratory rate of the patient.

9. Monitor waveform on critical patients continuously until arrival at the hospital. Adjust compressions and ventilations as needed.

10. Document waveform every time vital signs are recorded and in response to therapy to correct hypoxemia.

11. Use capnography as an added tool for patient evaluation. Treat the patient, not the data provided by the device.

12. Capnography 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.

13. The CO2 waveform is compressed (displayed at 12.5/mm/sec sweep speed) to provide more data in the 4 second screen. There is a slight delay between when the breath occurs and when it appears on the screen. Printouts are at 25mm/sec. Continuous print may be changed to 12.5/sec if desired.

14. The monitor shows the maximum CO2 value over the last 20 seconds. If the ETCO2 values are increasing, the change can be seen with every breath. However, if the values are continually decreasing, it will take up to 20 seconds for a lower numerical value to be displayed in the CO2 area. As such, the ETCO2 value may not always match the CO2 waveform.

15. The capnography module performs self maintaince within the first half hour of monitoring and once an hour continuous monitoring. This self-maintaince includes “auto-zeroing”. Self maintaince is also initiated if the surrounding temperature changes 8°C or more the surrounding pressure changes > 20 mmHg.

16. The CO2 module is reset after a shock and the CO2 waveform reappears in less than 20 seconds.

17. The CO2 function is activated when the gold ring of the FilterLine connector contacts the device CO2 port. It is possible for the FilterLine to become loose and still have an ETCO2 value and CO2 waveform, but they maybe invalid. Make sure the FilterLine is firmly sealed tight.

18. Maintain ETCO2 greater than 10mmHg during CPR.

End Tidal CO2 Detector
A device utilizing gas sensitive paper to reveal the presence of CO2 during respiration of the intubated patient. Assists in assuring proper tube placement and assessing pulmonary perfusion. The time for effectiveness is up to two hours. If it is not in an air-tight seal, it will not work. If the patient has been apneic for a long time, the detector may not register CO2.

PROCEDURE: (For End Tidal CO2 Detector)
1. Intubation has been successfully completed and verified.
2. The end-tidal CO2 detector is in place by placing it on end of tube.
3. Observe change in color of paper following 6 breaths during exhalation.
   - YELLOW = normal level of CO2 (2-5%, 15 – 35 mmHg).
   - TAN = moderately low (0.5 – less than 2 %, 4-15 mmHg).
   - PURPLE = little or no CO2 present.

Remember, the CO2 detector and waveform capnography is a tool adjunct. Rely on Breath Sounds, Visualizing the chords during placement, patients color, etc.
**Table 1: Factors Affecting EtCO₂**

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<th>Causes of Decreased EtCO₂</th>
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<td><strong>Metabolism</strong></td>
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<td>Hypothermia</td>
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<td>Hyperthermia</td>
<td>Metabolic acidosis</td>
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<tr>
<td>Shivering</td>
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<tr>
<td><strong>Respiratory System</strong></td>
<td><strong>Respiratory System</strong></td>
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<tr>
<td>Respiratory insufficiency</td>
<td>Alveolar hyperventilation</td>
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<tr>
<td>Respiratory depression</td>
<td>Bronchospasm</td>
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<tr>
<td>COPD</td>
<td>Mucus plugging</td>
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<tr>
<td>Analgesia/sedation</td>
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<tr>
<td><strong>Circulatory System</strong></td>
<td><strong>Circulatory System</strong></td>
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<tr>
<td>Increased cardiac output</td>
<td>Hypotension</td>
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<td></td>
<td>Sudden hypovolemia</td>
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<tr>
<td></td>
<td>Cardiac arrest</td>
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<td></td>
<td>Pulmonary emboli</td>
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<td><strong>Medications</strong></td>
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<td>Bicarbonate administration</td>
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**Diagram:**

- Dashed line: Capnograph indicating Bronchospasm
- Solid line: EtCO₂
- Expiratory Plateau
- Phase III
- Phase IV
- Expiratory Downstroke
- Inspiratory Baseline
- End Expiration
Sudden loss of waveform

- ET tube disconnected, dislodged, kinked or obstructed
- Loss of circulatory function

Decreasing ETCO₂

- ET tube cuff leak
- ET tube in hypopharynx
- Partial obstruction

CPR Assessment

- Attempt to maintain minimum of 10mmHg

Sudden increase in ETCO₂

- Return of spontaneous circulation (ROSC)

Bronchospasm ("Shark-fin" appearance)

- Asthma
- COPD

Hypoventilation

Hyperventilation

Decreased ETCO₂

- Apnea
- Sedation

---

Capnography Waveform

Normal Waveform

Normal range is 35-45mm Hg

- Shape will always be the same for all humans with healthy lungs
PROCEDURE:

1. Treat underlying conditions as needed. (see appropriate protocol)
2. Assess for indications and contraindications (especially suspected pneumothorax)
3. Place patient in upright or sitting position.
4. Assess and monitor the patient:
   - Vital signs every 5 minutes
   - Lung sounds before and after CPAP, and as feasible thereafter
   - Attach EKG monitor and pulse oximeter
   - Contact Medical Control prior to application of CPAP if systolic BP less than 90.
5. Explain the procedure to the patient.
6. Anticipate anxiety and offer verbal coaching as needed.
7. Assemble CPAP:
   a. Connect O2 tubing nipple to an O2 regulator capable of 25/LPM.
   b. Place the face mask securely to the patient’s face using head harness.
   c. With nebulizer in the OFF position, slowly increase gas flow to 6 or 8 LPM. Check face mask fit to patient and device connections for leaks.
   d. Adjust the flowmeter until desired pressure is obtained. Flow of 12-14 LPM is required to reach CPAP pressure of 8.5-10 cm H2O.
   e. Do not exceed 30 LPM.
   f. Patient SaO2 should be monitored using pulse oximeter.
   g. To activate nebulizer rotate knob to ON position.
   h. If necessary, readjust flowmeter to obtain desired CPAP pressure. Up to 25 LPM may be required.
8. Continue to coach patient to keep mask in place and readjust as needed.
9. Treatment should be given continuously throughout transport to ED.
10. If respiratory status deteriorates, remove devices and consider positive pressure ventilation with or without intubation.
GENERAL CONSIDERATIONS:

- **Removal of CPAP:** CPAP therapy needs to be continuous and should not be removed unless the patient cannot tolerate the mask, requires suctioning or airway intervention, is experiencing nausea, has continued or worsening respiratory failure, or a pneumothorax is suspected. Positive pressure ventilation with BVM and/or intubation should be considered if patient is removed from CPAP therapy.

- **Intubation considerations:** These patients are often in a state of crisis and progressing towards respiratory failure. Intubation will be inevitable in some patients regardless of the use of CPAP, and the paramedic must be prepared for rapid intervention. Indications to proceed to ET placement are (not all inclusive):
  1. Deterioration of mental status
  2. Decline of pulse ox
  3. Progressive fatigue
  4. Ineffective tidal volume
  5. Respiratory or cardiac arrest

**Documentation:** In addition to standard documentation, the patient care record should include:

1. Starting CPAP level and any titration (in cmH2O)
2. Vital signs including pulse ox every 5 minutes while CPAP is in use
3. Response to treatment
4. Any adverse reactions
5. Justification for discontinuation of CPAP or subsequent intubation.

**Special Notes:**

1. This procedure is specific to the Flow Safe Device. Do not apply it to other manufacture’s devices.
2. Advise receiving hospital as soon as possible so they can prepare for the patient’s arrival.
3. Do not remove CPAP until hospital therapy is ready to be placed on the patient.
4. Monitor patient for gastric distension which may lead to vomiting. Consider use of Zofran if patient c/o nausea.
5. For CHF or pulmonary edema patients, initial SL Nitro should be administered prior to placement of CPAP mask.
6. Success is highly dependent upon patient tolerance and EMT-P ability to coach patient.
7. Monitor closely for development of pneumothorax and/or hypotension.
8. In line nebulization of Albuterol and Duoneb may be used with CPAP in place.
9. Most patients will improve within 5-10 minutes. If no improvement is seen within this time, assess for other causes and problems. Reevaluate need for positive pressure ventilation or intubation.
10. CPAP is an acceptable treatment option for a patient with a DNR/DNI order who is in respiratory failure.
MEDICAL PROCEDURES
AIRWAY / BREATHING
KING AIRWAY LTS-D DEVICE

INDICATIONS
- In an apneic patient when endotracheal intubation is not possible or not available.
- **King Size 2** for patients 12-25 kg
- **King Size 3** for 4ft-5ft5in in height
- **King Size 4** for 5ft-6ft
- **King Size 5** for individuals >6ft
- Patient must be unconscious

SIGNS AND SYMPTOMS
- Respiratory and/or cardiac arrest
- Respiratory insufficiency when the patient is totally unconscious and unresponsive to outside stimuli.
- After attempts at endotracheal intubation have not been successful.
- EMT-B’s and EMT-A’s may use the Esophageal Airway as a primary airway in the above stated situations.

CONTRAINDICATIONS
- Responsive victims (gag reflex present)
- Known esophageal disease or cirrhosis
- Caustic poison ingestion
- Foreign body in the trachea
- History of esophageal trauma or injury
- Presence of a tracheostomy or laryngectomy
- Suspected narcotic overdose or hypoglycemia prior to the administration of Narcan and/or Glucose

PROCEDURE:
1. Hold the King Airway at the connector, using the dominant hand.
2. With non-dominant hand, hold mouth open and apply chin lift.
3. Using a lateral approach, introduce device into corner of mouth.
4. Advance 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.
5. Without exerting excessive force, advance tube until base of connector is aligned with teeth or gums.
6. Attach the syringe and inflate the cuffs to the appropriate volume:
   - SIZE 2 = 25-35 ml
   - SIZE 3 = 45-60 ml
   - SIZE 4 = 60-80 ml
   - SIZE 5 = 70-90 ml
7. Attach a bag-valve device to the connector. While gently bagging the patient to assess ventilation, gently withdraw the tube until ventilation is easy and free flowing (large tidal volume with minimal airway pressure).
8. Adjust cuff inflation, if necessary, to obtain a seal of the airway.
9. After placement, perform standard checks for breath sounds and utilize an appropriate carbon dioxide (ETCo₂) detection device or quantitative waveform capnography as required by protocol.
10. An optional device after the King Airway tube placement is confirmed, is the nasal gastric tube. A #18 french nasal gastric tube can be inserted in the posterior port of the tube to relieve gastric distension / secretions.

REMOVAL OF DEVICE (if indicated):
1. Confirm need for removal of the device.
2. Suction above cuffs in the oral cavity.
3. FULLY deflate both cuffs before removal of the device. (may require multiple attempts of air removal with syringe to fully evacuate air) **DO NOT FORCE THE KING AIRWAY INTO POSITION.** If the tube does not advance easily, redirect it or withdraw and attempt one more insertion and if unsuccessful, continue ventilation with an oral airway and BVM or demand valve.
4. Remove the device when protective reflexes have returned.
KEY POINTS

1. The key to insertion is to get the distal tip of KING LTS-D around the corner in the posterior pharynx, under the base of the tongue. Experience has indicated that a lateral approach, in conjunction with a chin lift, facilitates placement of the KING LTS-D. Alternatively, a laryngoscope or tongue depressor can be used to lift the tongue anteriorly to allow easy advancement of the KING LTS-D into position.

2. Insertion can also be accomplished via a midline approach by applying a chin lift and sliding the distal tip along the palate and into position in the hypopharynx. In this instance, head extension may also be helpful.

3. As the KING LTS-D is advanced around the corner in the posterior pharynx, it is important that the tip of the device is maintained at the midline. If the tip is placed or deflected laterally, it may enter the piriform fossa and the tube will appear to bounce back upon full insertion and release. Keeping the tip at the midline assures that the distal tip is placed properly in the hypopharynx / upper esophagus.

4. Depth of insertion is key to providing a patent airway. Ventilatory openings of the KING LTS-D must align with the laryngeal inlet for adequate oxygenation / ventilation to occur. Accordingly, the insertion depth should be adjusted to maximize ventilation. Experience has indicated that initially placing the KING LTS-D deeper (proximal opening of gastric access lumen aligned with teeth or gums), inflating the cuffs and withdrawing until ventilation is optimized results in the best depth of insertion for the following reasons:
   - It ensures that the distal tip has not been placed laterally in the piriform fossa (see item #3 above).
   - With a deeper initial insertion, only withdrawal of the tube is required to realize a patent airway. A shallow insertion will require deflation of the cuffs to advance the tube deeper.
   - As the KING LTS-D is withdrawn, the initial ventilation opening exposed to or aligned with laryngeal inlet is the proximal opening. Since the proximal opening is closest to and is partially surrounded by the proximal cuff, airway obstruction is less likely, especially when spontaneous ventilation is employed.
   - Withdrawal of the KING LTS-D with the balloons inflated results in a retraction of tissue away from the laryngeal inlet, thereby encouraging a patent airway.

5. Ensure that the cuffs are not over-inflated. If a cuff pressure gauge is not available, inflate cuffs with the minimum volume necessary to seal the airway at the peak ventilatory pressure employed. (just seal volume)

6. Removal of the KING LTS-D is well tolerated until the return of protective reflexes. For later removal, it may be helpful to remove some air from the cuffs to reduce the stimulus during wake-up.

7. King Airway LTS-D Kit includes:
   - King LTS-D Airway
   - 60-80 cc Syringe
   - Lubricant
   - Instructions for use
**MEDICAL PROCEDURES**

**AIRWAY / BREATHING**

**INTUBATION BY NASOTRACHEAL**

<table>
<thead>
<tr>
<th>INDICATIONS</th>
<th>SIGNS AND SYMPTOMS</th>
<th>CONTRAINDICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients with spontaneous breathing when all other methods of airway control are inadequate</td>
<td>Unstable airway</td>
<td>Nasotracheal intubation is not indicated for patients with suspected fractures in the base of the skull or face.</td>
</tr>
<tr>
<td>Trauma patients when c-spine manipulation must be kept to a minimum</td>
<td>Unmaintainable airway</td>
<td>Nasotracheal intubation is not indicated for patients who are apneic</td>
</tr>
<tr>
<td>Nasotracheal intubation is an option when an adult airway cannot be maintained due to clenched jaw or unable to ventilate by other means</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PROCEDURE:**

1. Begin with basic airway control and oxygenation.
2. Determine tube size based on size of nasal opening.
3. Check the cuff for leaks and lubricate.
4. With tube against the floor or septum of the nasal cavity, slip the tube distally through the largest naris.
5. Insert along the floor of the nasal cavity (90 degree angle to the face).
6. When the tube reaches the posterior pharyngeal wall, take great care on “rounding the bend”. Advance tube gradually anterior to posterior, direct the tube toward the glottic opening.
7. As the tube enters the pharynx, listen for breath. When the patient takes a breath, advance the tube into the trachea.
8. Listen for lung sounds, inflate the tube’s cuff, and maintain ventilation and oxygenation. Confirmation of tube placement with breath sounds.
9. Watch the neck at the laryngeal prominence.

**GENERAL CONSIDERATIONS:**

- Nasotracheal intubation is a blind procedure that requires skill and training.
- The attempt should not take longer then 30 seconds.
- If any resistance is encountered, abandon procedure.
PROCEDURE:
1. Cervical immobilization should be applied to the patient when indicated by mechanism of injury or when it is deemed necessary.
2. Prepare all equipment and have suction ready.
3. Hyperventilate the patient (one breath every two seconds) for at least one minute before attempting endotracheal intubation, if possible.
4. Suction the pharynx as needed.
5. Open the patient’s airway and holding the laryngoscope in the left hand, insert the blade into the right side of the mouth and sweep the tongue to the left.
6. Use the blade to lift the tongue and epiglottis (either directly with the straight blade or indirectly with the curved blade).
7. Once the glottic opening is visualized, slip the tube through the chords and continue to visualize until the cuff is past the chords.
8. No more than 30 seconds may be used per attempt.
   • Re-ventilation for at least 30 seconds after each attempt.
   • Some situations such as copious vomiting or bleeding may require suction attempts longer than 30 seconds. These are the exception; not the norm.
9. Remove the stylet.
10. Inflate the cuff of the endotracheal tube with 10 mL of air.
11. Attach the bag-valve device to the ET tube and ventilate the patient.
12. Assess for tube placement:
   • Confirmation of lung sounds bilaterally and in both bases.
   • Absence of epigastric sounds.
   • Good compliance with bag-valve ventilation.
   • Quantitative waveform capnography
   • Color change of end tidal CO₂ detector (purple to yellow) not reliable in cardiac arrest with a long down time. Observe for color change after 6 ventilations.
   • Chest rise with ventilation.
13. If placement cannot be confirmed or obtained, the ETT shall be removed, an oral airway placed, and the patient shall be ventilated with a bag-valve-mask.
   • If there is any doubt about proper placement, the tube shall be removed.
14. If proper placement is confirmed, the cm markings on the tube at the level of the teeth shall be noted and secure the tube with a commercial tube holder.
15. Document ETT size, time, result (success), and placement location by the centimeter marks either at the patient's teeth or lips on/with the patient care report. Document all devices used to confirm initial tube placement. Also, document positive or negative breath sounds before and after each movement of the patient.

16. Routinely reassess for proper tube placement. The initial tube placement and all reassessments must be documented.

GENERAL CONSIDERATIONS:

- It is essential to have complete and detailed documentation concerning the placement of the endotracheal tube. The documentation MUST include:
  1. **Placement:** direct visualization of the tube passing through the vocal chords.
  2. **Confirmation:** equal lung sounds, no sounds over the epigastric area, positive color change in the CO₂ detector, and chest wall movement with ventilations. Also, consider changes in the patient's SpO₂, and condensation in the tube. Quantitative waveform capnography.
- Applying c-collar may assist in minimizing ETT movement.
- It is the paramedic's responsibility to be familiar with the proper technique of using the different laryngoscope blades.
- Tube placement must be confirmed, after it was initially placed, after every movement, any significant change in patient status, and prior to entering the emergency department.
- Continually monitor the patient's SpO₂, ease of ventilation, heart rate, and presence of JVD.
- A common complication of endotracheal intubation and/or manual ventilation is a pneumothorax and tension pneumothorax. Refer to the Chest Decompression Protocol.
- Only functioning paramedics/EMT-I can intubate.
- Intubation does NOT have to be attempted in pediatric patients if their airway can be effectively managed with BVM ventilations.

TUBE REMOVAL:

- If the patient begins to breathe spontaneously and effectively and is resisting the presence of the tube, removal of the tube may be necessary. The following procedures will be followed:
  1. Explain procedure to victim.
  2. Prepare suction equipment with large-bore catheter and suction secretions from endotracheal tube, mouth and pharynx.
  3. The lungs should be completely inflated so that the patient will initially cough or exhale as the tube is taken from the larynx. This is accomplished in 2 ways:
     a. The patient is asked to take the deepest breath they possibly can and, at the very peak of the inspiratory effort, the cuff is deflated and the tube removed rapidly;
  4. Prepare to suction secretions and gastric content if vomiting occurs.
  5. Appropriate oxygen is then administered.
  6. The patient’s airway is immediately evaluated for signs of obstruction, stridor or difficulty breathing. The patient should be encouraged to take deep breaths and to cough.
TUBE SIZING:
- The size of tube that can be passed easily into most adults is 7-8 mm (id). Therefore this tube should be tried first on the average adult. The size of tube is judged by the size of the adult, not by age.
- For children, the proper tube is usually equal to the size of the child's little finger.

The following guide will also help in determining the proper size tube:

<table>
<thead>
<tr>
<th>Premature</th>
<th>3mm (id)</th>
<th>18-24 months</th>
<th>5-6mm (id)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-24 weeks</td>
<td>4mm (id)</td>
<td>2-4 years</td>
<td>6mm (id)</td>
</tr>
<tr>
<td>6-12 months</td>
<td>4-5mm (id)</td>
<td>4-7 years</td>
<td>6-7mm (id)</td>
</tr>
<tr>
<td>12-18 months</td>
<td>5mm (id)</td>
<td>7-10 years</td>
<td>7mm (id)</td>
</tr>
</tbody>
</table>

GENERAL CONSIDERATIONS:
- All the above tube sizes are still dependent on the child's size rather than consideration of age.
- Children before puberty should have a cuffless tube, or if the tube has a cuff it should not be inflated after insertion.

ADMINISTRATION OF MEDICATION THROUGH ET TUBE:
- In the event an intravenous or interosseous route for administration of medication cannot be established, but an endotracheal tube has been properly put in place.

Endotrachael Guidelines - Adult and Peds
1. Lidocaine, Epi, Atropine, Narcan and Vasopressin can be given down the ET Tube.
2. The optimal dose of most drugs given by ET is unknown.
3. ET drugs deliver low blood levels. All drugs are to be given 2-3x's normal dose.
4. Epi in low levels may produce transient, detrimental vasodilatation thus Epi down he ET Tube are given 10 x's the normal dose.
5. Instill the drug while briefly holding compressions, follow with 5 mL (smaller with neonates) of NS flush, followed by 5 positive-pressure ventilations.

PROCEDURE:
1. If applicable, remove needle from syringe.
2. Hyperventilate patient and make sure ET tube and airway are clear of mucous.
3. With medication syringe lur- lock end connect to lur-lock port on side of AMBU bag and deliver the medications.
4. Ventilate patient to assure passage of medications down the tube and airway.

Do not take longer than 15 seconds to administer medication in order to prevent hypoxia of the patient.

REMEMBER, PULSE OXIMETRY AND CAPNOGRAPHY IS AN ESSENTIAL MONITORING TOOL. RELY ALSO ON BREATH SOUNDS, VISUALIZATION OF THE VOCAL CORDS DURING PLACEMENT, AND SKIN COLOR.
**MEDICAL PROCEDURES**

**AIRWAY / BREATHING**

**NEEDLE CRICOTHYROTOMY**

<table>
<thead>
<tr>
<th>INDICATIONS</th>
<th>SIGNS AND SYMPTOMS</th>
<th>CONTRAINDICATIONS</th>
</tr>
</thead>
</table>
| • Failed Airway Protocol  
• Complete upper airway obstruction  
• Management of an airway when standard airway procedures, cannot be accomplished or have failed in a patient greater than 10 kg  
• Unable to intubate by another route  
• Cervical spine injuries  
• Maxillo- facial trauma  
• Laryngeal trauma | **Oropharyngeal obstruction from:**  
• Edema from infection, caustic, ingestion, allergic reaction and/or inhalation injuries  
• Foreign body  
• Mass Lesion | • Postoperative bleeding  
• Late bleeding  
• Abscess behind packing  
• Cellulitis of neck  
• Subcutaneous emphysema  
• Voice change  
• Feeling of lump in throat  
• Persistent stoma  
• Obstructive problems  
• Misplacement of the airway |

**PROCEDURE:**

1. With patient supine, neck hyperextended, prep site with appropriate antiseptic solution.
2. Have suction supplies available and ready.
3. Locate the cricothyroid membrane utilizing anatomical landmarks.
4. Secure larynx laterally between thumb and forefinger.
5. Hold the device and puncture the cricothyroid membrane (in the midline between thyroid cartilage and cricoid cartilage at a 90 degree angle).
6. Confirm entry of needle in trachea by aspirating air through the attached syringe.
7. If air is present, change the angle of insertion to 60 degrees.
8. Advance the device to the level of the stop guide.
9. Slide the plastic cannula along the needle into the trachea until the flange rest against the neck.
10. Carefully remove the needle and syringe.
11. Secure the cannula with the provided anchoring device.
12. Attach the connecting tube to the 15 mm connection.
13. Attach a BVM to the connecting tube.
14. Confirm placement by auscultation and observing patient for adequate chest rise. Make certain ample time is used not only for inspiration but expiration as well.
15. If unable to obtain an adequate airway, resume basic airway management and transport the patient as soon as possible.
16. Regardless of success or failure of needle cricothyrotomy, notify the receiving hospital at the earliest possible time of a surgical airway emergency.

**GENERAL CONSIDERATIONS:**

• (4 mm) Quick Trach: Any patient greater than 35 kg
• (2 mm) Quick Trach: Patients between 10-35 kg
**MEDICAL PROCEDURES**

**AIRWAY / BREATHING**

**NEEDLE CHEST DECOMPRESSION**

**PROCEDURE:**

1. Confirm presence of a tension pneumothorax or identify strong clinical evidence in a rapidly deteriorating patient in the setting of major trauma. Consider in the setting of refractory PEA.
2. Locate the insertion site at the second intercostal space, midclavicular line on the affected side of the chest.
3. Prep the insertion site. Use sterile gloves and utilize an aseptic procedure to the fullest extent possible under the circumstances.
4. Insert the 3.25 inch 10 gauge angiocath (1 ¾ inch 14 gauge angiocath in patients with small stature) directing the needle just over the top of the third rib (2nd intercostal space) to avoid intercostal nerves and vessels which are located on the inferior rib borders.
5. Advance the catheter 1 - 2 inches (3/4 - 1 inch in smaller patients) through the chest wall. Tension should be felt until the needle enters the pleural space. A "pop" or "give" may also be felt. Do not advance the needle any further. **In a tension pneumothorax, air under pressure should be released when the needle enters the pleural cavity. This will be heard as a rush of air through an open catheter-over-the-needle. (Remember these needles are in the drug box).**
6. Withdraw the needle and advance the catheter until flush with the skin. Listen for a gush or a "hiss" of air which confirms placement and diagnosis. **Caution:** this is frequently missed due to ambient noise.
7. Dispose of the needle properly and never reinsert into the catheter.
8. Once the presence of a tension pneumothorax has been confirmed:
   - Remove the needle, leaving the catheter in place.
   - Tape the catheter in place.
9. Secure the catheter and rapidly transport the patient providing appropriate airway assistance.

**GENERAL CONSIDERATIONS:**

- A tension pneumothorax can occur in any situation in which a simple pneumothorax occurs.
- A tension pneumothorax can occur WITHOUT trauma.
- Some patients who are at risk of developing a tension pneumothorax; include those receiving positive pressure ventilation, or any patient with blunt or penetrating trauma, and those with pre-existing lung diseases such as COPD.
- Cover all penetrating chest trauma with an occlusive dressing taped on three sides (Asherman Chest Seal).
- In some cases of penetrating chest trauma, placing an occlusive dressing on the wound will convert an open pneumothorax to a closed tension pneumothorax. In these cases, treatment consists of removing the dressing and converting the wound back to an open pneumothorax. This may be the only treatment needed.
- **DO NOT** perform a chest decompression, if the patient is not in significant respiratory distress and is otherwise stable.
- Major trauma victims should have catheter-over-the-needles placed on both sides of the chest with or without one-way valve devices, if all of the following are present:
  1. Obvious chest trauma.
  2. Patient intubated.
  3. Difficulty bagging, tracheal deviation, or absent breath sounds on one / both sides.
PROCEDURE:
1. Turn the machine on and allow for self-tests.
2. Apply probe to patient's finger or any other digit as recommended by the device manufacturer.
3. Allow machine to register saturation level.
4. Record time and initial saturation percent on room air if possible on/with the patient care report.
5. Verify pulse rate on machine with actual pulse of the patient.
6. 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.
7. Document percent of oxygen saturation every time vital signs are recorded and in response to therapy to correct hypoxemia.
8. In general, normal saturation is 94-99%. Below 94%, suspect a respiratory compromise.
9. Use the pulse oximetry as an added tool for patient evaluation. Treat the patient, not the data provided by the device.
10. 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.
11. 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

All patients who require vital signs to be taken should have oxygen saturation measured and recorded as part of the vital signs. Measure oxygen saturation before applying oxygen and repeat the measurement after oxygen has been applied. Do not delay oxygen administration in patients experiencing severe respiratory distress.
GENERAL CONSIDERATIONS:

- 100% oxygen should be administered to all patients despite a good SpO₂ if they are hypoxic.
- Make sure that all dirt and nail polish or any obstructive covering is removed to prevent the unit from giving a false reading.
- Attempt to obtain a room air reading and a reading with supplemental oxygen.
- DO NOT read while BP being taken. May give false readings.
- Oxygen saturation measurements must routinely be recorded as part of the run report.
- Include those measurements taken as part of routine vital signs and those measurements taken before and after oxygen administration.
- Although the pulse oximeter displays the heart rate, the unit should not be used in place of the cardiac monitor and a physical assessment of the heart rate.
- Oxygen saturation readings may be inaccurate in any situation where the flow of blood through the finger is impaired, such as:
  a. hypotension or shock with poor peripheral perfusion
  b. peripheral vascular disease
  c. extremity injury with restriction of peripheral perfusion
  d. cold extremities
- Oxygen saturation readings may be incorrectly high in situations such as carbon monoxide poisoning.
- Many patients with COPD have chronic low oxygen readings and may lose their respiratory drive if administered prolonged high oxygen therapy. Routinely assess pulse oximetry as well as respiratory drive when administering oxygen to these patients. Do not withhold oxygen from any patient that requires it.
- The room air pulse oximetry reading is NOT required if the patient has been placed on supplemental oxygen prior to EMS arrival.

REMEMBER, PULSE OXIMETRY IS A TOOL ADJUNCT. RELY ALSO ON BREATH SOUNDS, VISUALIZATION OF THE VOCAL CORDS DURING PLACEMENT, AND SKIN COLOR.
PROCEDURE:

ORAL SUCTIONING
1. Body substance isolation procedures must be used.
2. Assess the need for suctioning.
3. If the patient requires artificial ventilations, hyperoxygenate the patient for 30 seconds prior to suctioning.
4. Select an appropriate size suction catheter:
   a. A soft flexible suction catheter can be used if only fluids need to be removed.
   b. A Yankaur or “Tonsil Tip” should be used for thick fluids, small particles, or large volumes.
5. Prepare a cup of sterile water or saline to flush the catheter after suctioning and in between attempts.
6. While maintaining aseptic technique, quickly insert the catheter into the patient’s mouth until it is at the desired depth.
7. Apply suction and withdraw the catheter. Suction no more than 10 seconds per attempt.
8. Immediately after each suction attempt, hyperoxygenate the patient (one breath every two seconds) for 30-60 seconds with 100% oxygen if the patient’s ventilations require assistance.
9. Repeat this procedure as needed until the airway is clear.
10. If a patient vomits, turn the patient on its side and then suction.

TRACHEAL SUCTIONING:
1. Body substance isolation procedures must be used.
2. Assess the need for suctioning.
3. Hyperoxygenate the patient prior to suctioning.
4. Select an appropriate size suction catheter
   a. A soft flexible suction catheter should be used.
   b. A Yankaur or Tonsil Tip should NOT be used.
5. Prepare a cup of sterile water or saline to flush the catheter after suctioning and in between attempts.
6. While maintaining aseptic technique, quickly insert the catheter into the endotracheal or tracheal tube until it is at the desired depth.
7. Apply suction and withdraw the catheter using a gentle rotating motion. Suction no more than 10 seconds per attempt.
8. Immediately after each suction attempt, hyperoxygenate the patient for 30-60 seconds with 100% oxygen.
9. Repeat this procedure as needed until the airway is clear.
10. If tracheal secretions are extremely thick & unable to be removed, administer 2-3mL of sterile saline followed by 2 BVM ventilations & then perform suctioning.
## PROCEDURE:

1. Place the patient in a supine head down position. This helps distend the vein and prevents air embolism.
2. Turn the patient's head toward the opposite side if no risk of cervical injury exists.
3. Position yourself at patient's head.
4. Locate external jugular vein.
5. Prep the site as per peripheral IV site.
6. Align the catheter with the vein and aim toward the same side shoulder.
7. Select IV catheter
   a. On adults, a large bore (16ga or 18ga) may be used
   b. Use 2" IV catheter when available
8. “Tourniqueting” the vein lightly with one finger above the clavicle, puncture the vein midway between the angle of the jaw and the clavicle and cannulate the vein in the usual method.
9. Attach the IV and secure the catheter avoiding circumferential dressing or taping.
10. Secure IV using appropriate measures to insure stability of the line.
11. Check for signs of infiltration
    - Adjust flow rate.
    - Document the procedure, time, and result (success) on/with the patient care report.

**ONLY (1) ATTEMPT SHOULD BE MADE DURING EXTERNAL JUGULAR IV. DO NOT ATTEMPT AN IV ON THE OTHER SIDE OF THE NECK.**
MEDICAL PROCEDURES
CIRCULATION / SHOCK
INTRAOSSEOUS INFUSION

ADULT and PEDIATRIC INTRAOSSEOUS INFUSION / EZ-IO SYSTEM:

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<thead>
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<th>SIGNS AND SYMPTOMS</th>
<th>CONTRAINDICATIONS</th>
</tr>
</thead>
</table>
| • Inability to obtain peripher- al access in a patient that requires access in an emergency manner.  
• May administer all medication and dose the same as a peripheral IV. | • GCS less the 8 and or Unresponsive  
• Cardiopulmonary arrest  
• Decompensated shock | • Vascular access is  
• prophylactic and is not emer- gently required  
• Patient has an infection or  
• injury overlying the point of insertion  
• Inability to accurately determine the landmarks required for placement  
• Visible scar from previous orthopedic procedure  
• Extremity with possible fracture |

PROCEDURE: EZ-IO SYSTEM:

1. Explain procedure to patient and family if possible
2. Choose appropriate intraosseous needle set and assemble needed equipment  
   (pink package = Pediatric patient/ EZ-IO PD® (3 – 39 kg) and Blue package = Adult patient (over 39kg) EZ-IO AD®  
   and Yellow package = bariatric size (EZ-IO LD® patients with excessive tissue, edema, obesity over site.)
3. Use universal precautions and prep site with appropriate solution prior to procedure.
4. Prepare two (2), 10 ml syringes with normal saline flush
5. Inspect needle set cartridge to ensure intact paper seal
6. Attach 10 ml syringe to EZ-Connect® extension tubing, prime tubing with normal saline. Leave syringe attached to EZ-Connect.

   **Note:** For patients that respond to pain who are greater than 40 kgs, prime the EZ-Connect with 20-60 mg of 2% lidocaine (preservative free). For patients 39 kgs and less, we recommend 0.5 mg/kg.
8. Position patient and palpate site(s) to identify appropriate anatomical landmarks and needle set suitability
9. Locate and stabilize appropriate site

   • **Proximal Tibia** – Insertion site is one finger width (2 cm) medial to the tibial tuberosity.
   • **Distal Tibia** - Insertion site is located two finger widths (4 cm) proximal to the most prominent aspect of the medial malleolus.
   • **Proximal Humerus** – Insertion site is located directly on the most prominent aspect of the greater tubercle.

   ◊ **Ensure that the patient’s hand is resting on the umbilicus and that the elbow is adducted and secured in position to prevent arm movement.**

10. Connect appropriate needle set to driver and remove needle set safety cap.
11. Position driver at insertion site with needle set at 90-degree angle to bone surface. Gently pierce the skin with needle set until needle tip touches bone.

12. Check to ensure that at least 5 mm of catheter is visible as indicated by the proximal depth indicator (black line). If less than 5 mm of the catheter is visible (no black), patient may have excessive soft tissue over selected insertion site and needle set may not reach the medullary space. Consider an alternative site for insertion or a longer needle.

13. Insert the EZ-IO needle set into selected site (keep hand and fingers away from needle set rotation) penetrate the bone cortex by squeezing driver’s trigger and applying gentle, consistent, steady downward pressure (allow the driver to do the work).

FOR PEDIATRIC PATIENTS: Allow drill to penetrate the bone – steady and minimal manual pressure is needed.

14. Release driver’s trigger and stop insertion process when: A sudden “give” or “pop” is felt upon entry into medullary space the desired depth is obtained.

15. Remove EZ-IO Power Driver from needle set while stabilizing the catheter hub, remove stylet from needle set and immediately dispose of stylet in appropriate biohazard sharps container.

   * NEVER return used stylet or shuttle to EZ-IO kit or drug box.

16. Apply commercial stabilizing device.

17. Connect the primed EZ-Connect to exposed Luer-lock hub.

18. If patient is responsive to pain, consider using the appropriate dose of 2% (preservation free) lidocaine syringe bolus or flush the EZ-IO catheter with 10 ml of normal saline.

19. Confirm placement and attach primed IV tubing to the EZ-Connect.

20. Begin infusion utilizing a pressure delivery system and secure tubing and catheter.

21. Monitor the extremity for signs of complications and place EZ-IO wristband on patient.

22. Document time, date and person placing catheter or beginning infusion

**CATHETER REMOVAL:**

1. Remove EZ-Connect extension tubing from catheter hub

2. Attach a 5 or 10 ml sterile syringe to the catheter hub and grasp syringe and rotate clockwise while gently pulling the catheter out (maintain a 90-degree angle to the bone).

   ** DO NOT ROCK OR BEND DURING REMOVAL

3. Dispose of catheter in approved biohazard sharps container and apply pressure to site as needed.

**PEARLS:**

** During the EZ-IO needle set insertion use gentle-steady pressure. Do not use excessive force on the needle set. Allow the needle set’s tip rotation and gentle downward pressure to provide the penetrating action. “STOP WHEN YOU FEEL THE POP.”

** Note: Excessive pressure may cause the driver to function at less than optimal performance – remember gentle steady pressure and “EZ-does it.”

** CAUTION: If the needle set insertion cannot be properly completed, remove and dispose of the needle set in appropriate sharps biohazard container. Repeat the procedure in the patient’s opposite extremity or appropriate site with a new needle set. Ensure documentation of failed attempt.

** NO FLUSH = NO FLOW: Failure to appropriately flush the IO catheter may result in limited or no flow

** The initial flush may feel like you are pushing D50 through a 22g or 24g catheter needle – push through this resistance.
PROCEDURE:
2. Prepare equipment.
3. Inspect the IV solution for expiration date, cloudiness, discoloration, leaks, or the presence of particles.
4. Connect saline lock and IV tubing to the solution in a sterile manner. Fill the drip chamber half full and then flush the tubing bleeding all air bubbles from the line and the saline lock.
5. Place a tourniquet around the patient’s extremity to restrict venous flow only.
6. Select a vein and an appropriate gauge catheter for the vein and the patient’s condition. The initial attempt should be the antecubital fossa.
7. To prevent infection, prep the skin with an antiseptic solution as thoroughly as possible.
8. Insert the needle with the bevel up into the skin in a steady, deliberate motion until the bloody flashback is visualized in the catheter.
9. Advance the catheter into the vein. Never reinsert the needle through the catheter. Dispose of the needle into the proper container without recapping.
10. Remove the tourniquet and connect the IV tubing with a saline lock or primed saline lock alone.
11. Open the IV to assure free flow of the fluid and then adjust the flow rate as per protocol or as clinically indicated.
12. Secure IV using appropriate measures to insure stability of the line.
13. Check for signs of infiltration.
15. Document the procedure, time and result (success) on/with the patient care report.

GENERAL CONSIDERATIONS:
- IVs will be started by the EMT-Intermediate / Paramedic as allowed by each patient care Protocol.
- IV placement must not delay transport of any critical patient involved in trauma.
- Generally, no more than two (2) attempts or more than two minutes should be spent attempting an IV. If unable to initiate
- IV line, transport patient and notify hospital IV was not able to be started or insert an IO if indicated.
- Any pre-hospital fluids or medications approved for IV use, may be given through an intraosseous IV.
- All IV rates should be at KVO (minimal rate to keep vein open) unless administering fluid bolus.
- Use microdrips for all patients 6 years old or less.
- Extreme care should be made to discard all IV sharps in the appropriate sharps container immediately after cannulation.
- Any venous catheter which has already been accessed prior to EMS arrival may be used after checking patency & withdrawing 5 mL.
- Upper extremity IV sites are preferable to lower extremity sites.
- Lower extremity IV sites are contraindicated in patients with vascular disease or diabetes, unless IO is necessary.
- In post-mastectomy patients, avoid IV, blood draw, injection, or blood pressure in arm on affected side.

First attempt at insertion on an adult patient should be largest bore possible.
Ventricular assist device patients (VAD) are special care situations. Unless these patients are in cardiac arrest they need to be transported to their VAD implantation center. Local or regional hospitals are not equipped to handle these patients.

**UNIVERSAL PATIENT CARE PROTOCOL**

**Determine if VAD is functioning**
Auscultate chest and upper abdominal quadrants – Continuous Humming sound = pump is working

⇒ Many pumps are non-pulsatile; patient may not have palpable pulses, measurable BP, or Pulse Oximetry.
⇒ Use other indicators of perfusion such as skin signs, mental status, and Capnography.

**Not functioning / Alarming**
Find Accompanying Instructions for Device
1. Page / call VAD team
2. Check that all Wires / Leads Connected to Controller / Power
3. Check Power Sources
4. Change Power Sources (Only change 1 battery at a time)
5. Attempt Re-Start or Start in Backup Mode
6. Switch to Back-Up Controller (If Instructed by VAD Coordinator)

**If unable to Maintain Pump Operation**
Follow VAD team instructions
- Treat for Cardiogenic Shock
- Rapid Transport

**Contact Appropriate VAD team**
- Cleveland Clinic
  216-444-2200 Pager 23400
- University Hospital
  216-207-7244 Pager 32343

The patient should have a companion (Family member, friend, caretaker, etc) who is knowledgeable in the function of the VAD. Utilize this resource regarding specifics of each type of VAD system.

Keep the companion with the patient
Keep all equipment with the patient

**Functioning**
Do not ever shut off

**Patient Unstable**
- Treat Per Standard ACLS Protocols
- Pacing OK
- Defibrillation OK
- ACLS Drugs OK
- NO Chest Compressions

**Patient Stable**
- Treat Per Standard Medical Protocols

Transport to appropriate facility (Air Transport OK for VAD patients)
CONTACT receiving facility
CONSULT Medical Direction where indicated
PROCEDURE: Lifepak
1. Follow the Universal Patient Care Protocol.
2. Place the patient in a position of comfort and explain the procedure.
3. Apply the Limb and V Leads to the patient, protecting patient privacy.
4. Enter patient information.
5. Avoid patient movement and disturbance of EKG Leads.
6. Press 12 – LEAD button. Allow monitor to analyze, interpret, and print rhythm strip.
7. Make appropriate connections to transmitting device and press TRANSMIT button to send EKG rhythm strip to hospital via telemetry.

GENERAL CONSIDERATIONS:
- Standard pre-hospital EKG monitoring should be done using Lead II.
- A (6) second strip should be recorded and placed with the EMS run report or attached electronically to EMR.
- A 12-Lead EKG should be performed on any patient with a complaint that may be cardiac in origin.
- Protect the patient’s modesty.
- The 12-Lead ECG should be acquired prior to medication administration (except oxygen) and extricating the patient.
- If the patient is having an acute MI, contact the receiving hospital as soon as possible.
- The paramedic should give one copy of the 12-Lead EKG to the ED physician / nurse and/or transmit via cell phone immediately. Attach a second copy to the run report.
- EKG adhesive patches should remain on the patient for consistent lead placement with follow up EKGs, but should be removed before the D-Fib patches are applied.
- The monitor should remain on the patient for continuous cardiac monitoring enroute.
- Label all EKG’s with the patients last name, date of birth, and transmit to hospital.

### Placement of the “V” Leads
- V1: 4th ICS – right of the sternum
- V2: 4th ICS – left of the sternum
- V3: Between V2 and V4
- V4: 5th ICS midclavicular
- V5: Between V4 and V6
- V6: Even with V4 midaxillary

<table>
<thead>
<tr>
<th>INDICATIONS</th>
<th>SIGNS AND SYMPTOMS</th>
<th>CONTRAINDICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suspected cardiac patient</td>
<td>Chest pain / tightness</td>
<td>Insufficient training.</td>
</tr>
<tr>
<td>Suspected tricyclic overdose</td>
<td>Chest discomfort</td>
<td>(Basic and Intermediate EMT’s are to apply leads, do the 12 lead and transmit. However they are not to interpret).</td>
</tr>
<tr>
<td>Electrical injuries</td>
<td>Chest discomfort relieved prior to arrival</td>
<td></td>
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<tr>
<td>Chest Pain</td>
<td>Pulmonary edema</td>
<td></td>
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<tr>
<td>Dizziness</td>
<td>Palpitations</td>
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<tr>
<td>Any suspected cardiac problems</td>
<td>Irregular heartbeat</td>
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<tr>
<td>Electrical injuries</td>
<td>Syncope</td>
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<td></td>
<td>Dizziness</td>
<td></td>
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<tr>
<td></td>
<td>Unexplained diaphoresis</td>
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<td></td>
<td>Dyspnea not related to Asthma / COPD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Weakness / Numbness</td>
<td></td>
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<tr>
<td></td>
<td>ABD pain (of possible cardiac origin)</td>
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<tr>
<td></td>
<td>Tingling / discomfort to extremity / jaw</td>
<td></td>
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<tr>
<td></td>
<td>HR less than 50 or greater than 120 (unknown cause)</td>
<td></td>
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<tr>
<td></td>
<td>Hypotension / Hypertension</td>
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<td></td>
<td>Medical Control orders</td>
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</tbody>
</table>
MEDICAL PROCEDURES

CARDIAC / ACLS

AUTOMATED EXTERNAL DEFIBRILLATOR (AED)

<table>
<thead>
<tr>
<th>INDICATIONS</th>
<th>SIGNS AND SYMPTOMS</th>
<th>CONTRAINDICATIONS</th>
</tr>
</thead>
</table>
| • Non-traumatic cardiac arrest. | The patient must meet ALL of the following criteria:  
  • Unresponsive  
  • Apneic (not breathing)  
  • Pulseless  
  • All pediatric patients (pediatric pads are preferred, but if not available, adult pads can be used.) | • If patient is found in water, remove from water and dry patient thoroughly. Do not use an AED in an explosive atmosphere, extremely wet atmosphere, or on a metal surface.  
  • If Medication patch found, remove patch and wipe clean before applying EKG Patches.  
  • Do not place EKG Patch directly over patient’s implanted defibrillator.  
  • Patients less than 8 years of age require specific pediatric monitoring equipment. |

PROCEDURE:
1. Perform rapid Universal Patient Care Protocol, establish no breathing and no pulse.
2. Perform CPR until AED is available.
3. Turn on AED and then attach the defibrillation pads to the patient’s chest and connect the cords to the AED.
   a. The sternum pad is to be attached to the patient’s upper right chest, to the right of the sternum / cables on the mid-clavicular line.
   b. The apex pad is to be attached to the patient’s lower left rib cage, laterally and beneath the left nipple.
4. Follow the voice prompts.
5. Rhythm analysis:
   a. Do not have any patient contact while the AED analyzes.
   b. Rhythm analysis should take approximately 9-13 seconds.
6. If the AED unit’s voice prompts advise that ‘no shock is advised’:
   a. Check for a pulse
   b. If no pulse, continue CPR.
   c. The unit will reanalyze.
7. Visually check that no one is in contact with the patient and announce CLEAR.
8. Press the SHOCK button when advised to by the unit’s voice prompts.
9. Continue CPR for 2 minutes.
10. If the patient’s pulse has returned:
    a. Insure that the patient has a patent airway and treat accordingly.
11. If the patient remains pulseless, continue use of CPR and AED.

GENERAL CONSIDERATIONS:
• Resuscitation should be withheld in all cases where such efforts would be futile. Patients should be considered DOA and resuscitation should not be attempted in the following situations:
  a. Refer to the Dead on Arrival (DOA) Policy.
  b. A valid (within the last 2 years) Do Not Resuscitate (DNR). Refer to the Advanced Directives – Do Not Resuscitate (DNR) Policy.
• Defibrillation cables should be inspected for damage and/or wear.
## MEDICAL PROCEDURES

### CARDIAC / ACLS

#### CARDIAC DEFIBRILLATION (MANUAL)

<table>
<thead>
<tr>
<th>INDICATIONS</th>
<th>SIGNS AND SYMPTOMS</th>
<th>CONTRAINDICATIONS</th>
</tr>
</thead>
</table>
| - Cardiac arrest with ventricular fibrillation or pulseless ventricular tachycardia | The patient must meet ALL of the following criteria:  
  - Unresponsive  
  - Apneic (not breathing)  
  - Pulseless |  - If patient is found in water, remove from water and dry patient thoroughly. Do not use a defibrillator in an explosive atmosphere, extremely wet atmosphere, or on a metal surface.  
  - If Medication patch found, remove patch and wipe clean before applying EKG Patches.  
  - Do not place EKG Patch directly over patient's implanted defibrillator. |

### PROCEDURE:

**Lifepak**

1. Follow the Universal Patient Care Protocol. Establish no breathing and no pulse.
2. Provide CPR until a defibrillator is available.
3. Attach EKG Fast Patches and cords. Plug cords into EKG monitor.
4. Recognize EKG findings as ventricular fibrillation or pulseless ventricular tachycardia.
5. Monophasic: charge device to 360J or deliver escalating energy amounts of 200J, 300J, or 360J  
   Biphasic: charge device to 200J or deliver escalating energy amounts of 120J, 150J, or 200J
6. Visually check that no one is in contact with the patient and announce CLEAR.
7. Press the SHOCK button and deliver the shock.
8. Resume CPR for (2) minutes.
9. Check monitor for changes in rhythm. Check pulse, only if organized rhythm is visualized on the monitor.  
   If no change in rhythm, repeat steps 5 - 8.
10. If EKG reveals change in findings, treat with the appropriate ACLS Protocol.
PROCEDURE: Life Pak:

1. Consider sedation with Ativan or Versed, prior to administering transcutaneous pacing.
2. Attach pacing cables to the monitor.
3. Apply the electrodes to the patient.
   a. Place the pacing patches anterior-posterior or anterior-lateral.
   b. Do not place the pacing patches over the sternum, spine or nipple.
4. Turn the monitor to Pacing Mode.
5. Start at default rate (60-80bpm)
6. Increase the milliamps until you reach electrical and mechanical capture (assess the radial or femoral pulses to confirm mechanical capture.)
7. Push the **EVENT** button to quick log CPR, medication administration, ETT placement etc.
8. Hold the **PAUSE** button to stop the pacing so you can assess the patient’s underlying rhythm.

GENERAL CONSIDERATIONS:

- The Life Pak will begin pacing immediately once the pacer is turned on.
- Monitor the patient for ventricular fibrillation.
- Set the current milliamperes output 2mA above the dose at which consistent capture is observed.
MEDICAL PROCEDURES

CARDIAC / ACLS

The Lucas Device

PROCEDURE:
1. The Fire Departments will place the Lucas Device on the patient.
2. Once in the ED and at the appropriate time in the ACLS/BLS cycle, the Lucas Device will be switched and replaced with the hospital Lucas Device. It can be quickly snapped off/on while the back cradle and neck strap can be left in place.
3. The Fire Departments are responsible to remove, clean and place the Lucas Device back in-service for the Fire Department. The spare back cradle and neck strap with the ED unit is given to the Fire Department.
4. The Hospital Medics will remove, clean and return the Lucas Device, back cradle and neck strap and return to the designated bag and plugged in.
5. The Lucas Device and the spare battery are to be plugged in/charging at all times and ready for use.
6. The Lucas Device is to be cleaned using the manufactures directions: standard hospital cleaning products after every use.

PLACEMENT:
1. All therapies related to the management of cardiopulmonary arrest should be continued as currently defined.
2. Initiate resuscitative measures following standing orders, protocols and ACLS Guidelines.
   a. Early defibrillation should be considered and provided as indicated based on clinical presentation.
   b. Manual chest compressions should be initiated immediately while the LUCAS device is being placed on the patient.
   c. Limit interruptions in chest compressions to 10 seconds or less.

INDICATIONS | SIGNS AND SYMPTOMS | CONTRAINDICATIONS
--- | --- | ---
- An unconscious apneic and pulseless patient.  
- This device will be used anytime CPR will be preformed. | Cardiac Arrest | - Patients who do not fit within the device.  
- Patients who are too large and with whom you cannot press the pressure pad down 2 inches.  
- Patients who are too small and with whom you cannot pull the pressure pad down to touch the sternum. |
d. **Do not delay manual CPR for the LUCAS. Continue manual CPR until the device can be placed.**

3. While resuscitative measures are initiated, the LUCAS device should be removed from its carrying device and placed on the patient in the following manner.

**Backplate Placement:**

- The backplate should be centered on the nipple line and the top of the backplate should be located just below the patient's armpits.

- In cases for 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 [e.g., after five cycles of 30:2 or two minutes of uninterrupted compressions].**)

**Position the Compressor:**

- Remove the LUCAS device from its carrying case using the handles provided on each side.
- Turn the LUCAS Device on (the device will perform a 3 second self test).
- 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 remove your index finger from the trigger loop.

- **Approach the patient from the side opposite the person performing manual chest compressions.**

- Attach the claw hook to the backplate on the side of the patient opposite that where compressions are being provided.
• Place the LUCAS device across the patient, between the staff member’s arms who is performing manual CPR.

• At this point the staff member performing manual CPR stops and assists attaching the claw hook to the backplate on their side.

• Pull up once to make sure that the parts are securely attached.

**Adjust the Height of the Compression Arm:**

• Use 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.

• Press the Adjust Mode Button on the control pad labeled #1 (This will allow you to easily adjust the height of the compression arm).

• 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).

• **Placement** - Correct placement is critical. - The lower edge of the suction cup is placed immediately above the sternum, **outline the lower edge of the suction cup with a ballpoint pen on the patient’s chest to ensure correct placement during chest compressions**.

• Once the position of the compression arm is satisfactory, push the green PAUSE button labeled #2 (This will lock the arm in this position), then remove your fingers from the SUCTION CUP.

• If the position is incorrect, press the ADJUST MODE BUTTON and repeat the steps.

**Start Compressions:**

• If the patient is not intubated and you will be providing compression to ventilation ratio of 30:2 push ACTIVE (30:2) button to start.

• If the patient is intubated and you will be providing continuous compressions push ACTIVE (continuous) button.
Patient Adjuncts:

- The neck stabilization strap is applied to back plate to prevent device migration.
- This will prevent the LUCAS from migrating toward the patient’s feet.
  - Place the patient’s arms in the straps provided.

**Using the LUCAS during the Resuscitation**

**Defibrillation:**

- Defibrillation can and should be performed with the LUCAS device in place and in operation.
- One may apply the defibrillation electrodes either before or after the LUCAS device has been put in position.
- The defibrillation pads and wires should not be underneath the suction cup.
- If the electrodes are already in an incorrect position when the LUCAS is placed, you must apply new electrodes.
- Defibrillation should be performed according to standing orders, protocols and ACLS Guidelines and following the instructions of the defibrillator manufacturer.
- If the rhythm strip cannot be assessed during compressions, one may stop the compressions for analysis by pushing the PAUSE BUTTON (The duration of interruption of compressions should be kept as short as possible and should not be > 10 seconds. There is no need to interrupt chest compressions other than to analyze the rhythm).
- Once the rhythm is determined to require defibrillation, the appropriate ACTIVE BUTTON should be pushed to resume compressions while the defibrillator is charging. Defibrillation can be performed while LUCAS operates.

**Pulse Checks/Return of Spontaneous Circulation (ROSC):**

- Pulse checks should occur intermittently while compressions are occurring.
- If the patient moves or is obviously responsive, the LUCAS Device should be paused and the patient evaluated.

- If there is a change in rhythm, but no obvious indication of responsiveness or ROSC, a pulse check while compressions are occurring should be undertaken. If the palpated pulse is asynchronous, one may consider pausing the LUCAS Device. If the pulse remains, reassess the patient. If the pulse disappears, one should immediately restart the LUCAS Device.

Disruption or Malfunction of Lucas Device:

- If disruption or malfunction of the LUCAS device occurs, immediately revert to manual CPR.

Device Management:

**Power Supply**

- Battery Operation - when fully charged, the Lithium Polymer battery should allow 45 minutes of uninterrupted operation.
- There is an extra battery in the Lucas Device bag.
- The battery is automatically charged when the device is plugged into a wall outlet and not in operation. The device should be stored with the Lucas Device plugged into a wall outlet **(When detaching from the wall outlet, make sure that the cord is always with the LUCAS Device)**.
- When the orange Battery LED shows an intermittent light, one should replace the battery or connect to a wall outlet
- One may connect the LUCAS Device to wall power in all operational modes (One must always keep the battery installed in order for the LUCAS Device to remain operational).

Care of the LUCAS Device after use:

- Remove the Suction cup and the Stabilization Strap (if used, remove the Patient Straps).
- Clean all surfaces and straps with a cloth and warm water with an appropriate cleaning agent.
- Let the device and parts dry.
- Replace the used Battery with a fully-charged Battery.
- Remount (or replace) the Suction Cup and straps.
- Repack the device into the carrying bag.
- Make sure that the Charging Cord is plugged into the LUCAS Device.
- The LUCAS Device in the carrying bag should be charging on and secure while in rescue.
**ResQPOD Circulatory Enhancer:**

A. The ResQPOD is an impedance threshold device that prevents unnecessary air from entering the chest during the compression phase of CPR. When air is prevented from rushing into the lungs as the chest wall recoils, the vacuum (negative pressure) in the thorax pulls more blood back to the heart, resulting in:

1. Doubling of blood flow to the heart.
2. 50% increase in blood flow to the brain.
3. Doubling of systolic blood pressure.

**PROCEDURE:**

A. Confirm absence of pulse and begin CPR immediately. Assure that the chest wall recoils completely after each compression.

B. **Using the ResQPOD to the facemask:**

1. Connect ResQPOD to the facemask.
2. Connect ventilation source (BVM) to top of ResQPOD.
3. Establish and maintain a tight face seal with mask throughout chest compressions. Use a two-handed technique or head strap.
4. Do not use the ResQPOD’s timing lights during CPR utilizing a facemask for ventilation.
5. Perform ACLS interventions as appropriate.
6. Prepare for endotracheal intubation.

C. **Using the ResQPOD on an endotracheal tube or King Airway:**

1. Endotracheal intubation is the preferred method of managing the airway when using the ResQPOD.
2. Place the endotracheal tube or King Airway and confirm placement. Secure the tube.
3. Move the ResQPOD from the facemask to the advanced airway and turn on timing assist lights (remove clear tab).
4. Continue CPR with minimal interruptions:
   a. Provide continuous (no pauses) chest compressions (approximately 10 per light flash) and ventilate asynchronously over 1 second when light flashes (10/min).
5. Perform ACLS interventions as appropriate.
6. If a pulse is obtained, remove the ResQPOD and assist ventilations as needed.

**SPECIAL NOTES:**

A. Always place ETCO₂ detector between the ResQPOD and ventilation source.
B. Do not interrupt CPR unless absolutely necessary.
C. If a pulse returns, discontinue CPR and the ResQPOD. If the patient rearrests, resume CPR with the ResQPOD.
D. Do not delay compressions if the ResQPOD is not readily available.
PROCEDURE: Life Pak

1. Apply 3-Lead EKG.
2. Consider sedation with Ativan or Versed, prior to administering synchronized cardioversion.
3. Attach EKG Fast Patches to the patient and monitor.
   a. Push the **PADDLES** button to monitor the patient’s rhythm through the FAST Patches.
4. Push the **SYNC** button. Confirm that the Sync LED blinks with each detected QRS complex.
   a. Observe the EKG rhythm. Confirm that the triangle sense marker appears near the middle of each QRS complex.
   b. If the sense markers do not appear or they are displayed in the wrong location adjust the EKG size or select another lead.
   c. The location of the sense marker may vary slightly with each QRS complex.
5. Rotate the **ENERGY SELECT** dial and select the proper setting as required by the protocol.
6. Push the **CHARGE** button.
7. Make sure that everyone is clear of the patient.
8. After confirming that the monitor is still in SYNC mode, push and hold the **SHOCK** button until it discharges.
9. Reassess the patient and the cardiac rhythm. Repeat steps 4-9 as indicated by the protocol.

GENERAL CONSIDERATIONS:

- When attempting to cardiovert, double check to make sure that the SYNC button is ON.
- Monitor the patient for V-Fib.
- If the patient converts into V-Fib or pulseless V- Tach, reassess the patient. Immediately defibrillate the patient at 360 J or biphasic equivalent and refer to the Ventricular Fibrillation / Pulseless Ventricular Tachycardia Algorhythm. Be sure to switch the Life Pack to paddles mode prior to defibrillating.
- Tachycardia Protocol and treat accordingly.
- When using the Life Pak, apply the EKG Fast patches in the anterior / lateral position.
- When using the Lif Pak, if the **SHOCK** button is not pushed within 60 seconds, the energy will be internally removed. It will be necessary to recharge to the indicated energy setting.
- When synchronized cardioverting a patient, there may be a delay from when the button is depressed to when the shock is delivered.

**Synchronized Cardioversion** (mono and biphasic monitors)

<table>
<thead>
<tr>
<th>If:</th>
<th>Sequence:</th>
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<tbody>
<tr>
<td>Atrial Fibrillation</td>
<td>120 to 200 J</td>
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<tr>
<td></td>
<td>300 J</td>
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<tr>
<td></td>
<td>360 J</td>
</tr>
<tr>
<td>Unstable monomorphic VT</td>
<td>100 to 200 J</td>
</tr>
<tr>
<td></td>
<td>300 J</td>
</tr>
<tr>
<td></td>
<td>360 J</td>
</tr>
<tr>
<td>Other SVT Atrial Flutter</td>
<td>50 J</td>
</tr>
<tr>
<td></td>
<td>100 to 200 J</td>
</tr>
<tr>
<td></td>
<td>300 J</td>
</tr>
<tr>
<td>Polymorphic VT (irregular form and rate ) and unstable</td>
<td>Treat as VF with high-energy shock (defibrillation doses)</td>
</tr>
</tbody>
</table>
**PROCEDURE:**

1. Gather and prepare equipment.
2. Blood samples for performing glucose analysis may be obtained simultaneously with intravenous access.
3. Place correct amount of blood on reagent strip or site on glucometer per the manufacturer’s instructions.
4. Time the analysis as instructed by the manufacturer.
5. Document the glucometer reading and treat the patient as indicated by the analysis and protocol.
6. Repeat glucose analysis as indicated for reassessment after treatment and as per protocol.

**GENERAL CONSIDERATIONS:**

- Exam: Mental Status, HEENT, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro
- Be aware of AMS as presenting sign of an environmental toxin or Haz-Mat exposure and protect personal safety.
- It is safer to assume hypoglycemia than hyperglycemia if doubt exists.
- Do not let alcohol confuse the clinical picture. Alcoholics frequently develop hypoglycemia.
- Low glucose (less than 80 with symptoms), normal glucose (80 - 120), high glucose (greater than 200).
- Consider restraints if necessary for patient’s and/or personnel’s protection per the restraint procedure.
- Conduct and document weekly (or manufacturer’s recommendations) Q.I. checks for glucometers.
INIDICATIONS

- Used for atomizing topical solutions across the nasopharyngeal and oropharyngeal mucous membranes.
- For use when administering the following medications:
  - **Midazolam** (Versed) for seizures or sedation.
  - **Naloxone** (Narcan) for opiate overdoses.
  - **Glucagon** (Glucagen) for hypoglycemia.

PROCEDURE

1. Disconnect MAD from the included syringe and/or retrieve a needless syringe.
2. Can use a prefilled syringe with Lurlock Connection
3. Attach needle to syringe.
4. If not prefilled syringe.
5. Fill syringe with the desired volume of solution and eliminate remaining air.
6. Remove needle and dispose of appropriately.
7. Connect the MAD to the syringe.
8. Place the MAD tip in the nostril & occlude the other nares. The oropharyngeal or sublingual routes can be used. Instill no more then 1ml in each nostril.
9. Fast and forcefully compress the syringe plunger to release atomized solution.
10. Re-use the MAD on the same patient as needed, then discard

KEY POINTS

The following are some of the benefits of IN (Atomized) drug delivery for the patient and provider:

- Eliminated the risk of a contaminated needlestick to the EMS provider.
- Simple and convenient for the EMS provider.
- Less frightening for children.
- Disposable.
- Discomfort is minimized for the patient.
- Serum levels of many IN administered medications are comparable to injected medications and much improved over rectal and oral routes.
- Narcan may have already been administered by police or bystander.

Studies have shown that the most effective method to deliver a medication through the IN route is to atomize it across the nasal mucosa. Atomized particles (10 to 50 microns) adhere to the nasal mucosa over a large surface area, preventing waste and improving absorption of the medication. Administer half the dose in each nostril to increase the surface area, and further improve absorption.
PROCEDURE:

GENERAL CONSIDERATIONS:
• Soft restraints are to be used only when necessary in situations where the patient is potentially violent and may be of danger to themselves or others. EMS providers must remember that aggressive violent behavior may be a symptom of a medical condition.
• Patient health care management remains the responsibility of the EMS provider. The method of restraint shall not restrict the adequate monitoring of vital signs, ability to protect the patient’s airway, compromise peripheral neurovascular status or otherwise prevent appropriate and necessary therapeutic measures. It is recognized that evaluation of many patient parameters, requires patient cooperation and thus may be difficult or impossible.
• All restraints should have the ability to be quickly released, if necessary.
• Restraints applied by law enforcement (i.e., handcuffs) require a law enforcement officer to remain available to adjust restraints as necessary for the patient’s safety. This policy is not intended to negate the need for law enforcement personnel to use appropriate restraint equipment to establish scene control.
• Patients shall not be transported in a face down prone position to endure adequate respiratory and circulatory monitoring and management. Frequent distal neurovascular checks are required.
• Restrained extremities should be monitored for color, nerve and motor function, pulse quality.
• Place mask on patient for body secretion protection. May use N95 mask, or Non-rebreather if patient needs oxygen.
• Use supine or lateral positioning ONLY and DOCUMENT methods used.
• Use of spit hood can be considered.
MEDICAL PROCEDURES

TRAUMA

SPINE MOTION RESTRICTION (SMR)

Penetrating OR Blunt Trauma Mechanism – Age 16 and Above
(If under the Age of 16, apply FULL Spine Motion Restriction)

Maintain Manual In-Line Stabilization
Complete Physical Exam

| B | EMT - B | B |
| A | EMT - A | A |
| P | EMT - P | P |

NO Findings during Assessment

Patient has:
- **NO** cervical or thoracic spine pain or anatomic abnormalities or tenderness
- **NO** alteration in mental status for any reason (A&Ox4)
- **NO** abnormal findings during motor and sensory exam
- **NO** distracting injuries
- Drug/alcohol intox or communication barriers

Abnormal Findings during Assessment

Patient has:
- **POSITIVE** cervical or thoracic spine pain or tenderness
- **NO** alteration in mental status for any reason (MUST BE A&Ox4)
- **NO** abnormal findings during motor and sensory exam
- **NO** distracting injuries

MAJOR Findings during Assessment or provider has any doubt about findings

Patient has:
- **POSITIVE** distracting injury
- **POSITIVE** alteration in mental status for any reason (NOT A&Ox4)
- Unable to communicate
- **POSITIVE** abnormal findings during motor and sensory exam c/o numbness, tingling, motor weakness

No Collar OR Backboard Required for Transport

Transport in a Neutral Position or Semi-Fowlers depending on patient needs

Cervical Collar Only Required for Transport

Transport in a Neutral Position or Semi-Fowlers depending on patient needs

Cervical Collar AND Backboard or Vacuum Mattress/Reeves Required for Transport

Key Points

- Penetrating trauma does not require cervical motion restriction unless there is evidence of focal neurological deficits
- Never leave patients alone if they are back boarded. Be prepared to turn the long board while maintaining manual in line stabilization of the spine if the patient begins to vomit to maintain their airway
- Document thoroughly the decision process and the assessment findings for treatment decision(s)
- Backboards and KED’s can be used for extrication, but removed if the patient does not meet criteria for a backboard
- Patients shall not be aided to stand then sit on a backboard during extrication. Non-ambulatory patients shall be properly extricated to a backboard or with the use of a KED
- If a backboard is used for extrication but the patient does not meet criteria for its use, the patient may be left on the board during transport as situationally required
- Reeves Stretcher and vacuum mattresses alone or in conjunction with a backboard are recommended if the patient requires a backboard
- If a Reeves Stretcher and/or vacuum mattress is used, place a sheet over the mattress prior to placement of the patient on the device
- Mental Status (AVPU), Glasgow Coma Scale (GCS), and thorough documentation of Motor, Sensory, and Pulses (MSP’S) are required to support treatment decisions
- Mental status defects despite origin will be treated as equal, whether drug, alcohol, traumatic, chronic brain dysfunction, or otherwise
**Appropriate full spinal motion restriction can be achieved using one of the following options:**
- Cervical collar or towels and blankets minimizing the movement of the cervical spine can be used
- A long backboard or Reeves stretcher (with sheet under the patient) with voids padded appropriately secured with a minimum of three straps can be used
- A vacuum mattress molded to a patient’s body to minimize motion
- In cases where full SMR increases pain or symptoms, secure in a position of comfort

**HIGH RISK/SUSPICION**
- Document pertinent findings to support the need for full motion restriction
- If clinical indications warrant (i.e. respiratory distress), may place patient with longboard or Reeves in reverse Trendelenberg position up to 30 degrees. Pad voids below device.

**Appropriate cervical motion restriction can be achieved using one of the following options:**
- Cervical collar or towels and blankets minimizing the movement of the cervical spine
- Patient’s may be transported in a supine or semi-fowler’s position depending on the individual patient need

**MODERATE/LOW RISK/SUSPICION**
- Document pertinent negatives eliminating the need for full spinal motion restriction

**Consider High Risk Factors:**
- Patients ≥ 65 years of age, specifically patients with obvious head trauma (hematoma, lacerations, abrasions, etc.), consider cervical motion restriction
- Osteoporosis or ankylosing spondylitis (inflammatory disease which can fuse the spine, reducing flexibility)
- Chronic steroid use
- Axial loading

**EMS PROVIDER JUDGEMENT**
- If unsure of appropriate level of SMR, always make determination to protect the patient
- Evaluate SMR patients before and after restriction document
- Providers must document findings and/or pertinent findings supporting the above decision

**Pediatric Considerations:**
Small children (less than 7 years of age) have relatively large heads. Use of standard cervical immobilization and backboards will result in cervical flexion. Use an immobilization method that avoids flexion of the neck. Current approved methods include, but are not limited to:
- Devices which have a recess for the child’s occiput (Pedipak with padding applied)
- Placing the patient into the sniffing position by placing padding under the shoulders and lower back.
- Cervical collars should be used along with any of these modifications, unless there is not an appropriate size c-collar. If a circumstance prevents the use of a c-collar, other approved methods of immobilization include:
  - Manual immobilization
  - Blanket or towel rolls immobilization
  - Tape immobilization
### MEDICAL PROCEDURES

#### TRAUMA

#### SPINE MOTION RESTRICTION (SMR) ASSESSMENT PROCEDURE

**Maintain Manual In-Line Stabilization While Completing Physical Exam**

<table>
<thead>
<tr>
<th>Method</th>
<th>Image</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>While maintaining C-spine alignment</td>
<td><img src="image" alt="C-spine alignment" /></td>
<td>Palpate vertebral column</td>
</tr>
<tr>
<td>Assessing:</td>
<td></td>
<td>for pain, tenderness, or any abnormality (step-off) watch the pt.'s facial expressions.</td>
</tr>
<tr>
<td>If any deficit/injury is noted, the SMR protocol is to be followed.</td>
<td><em>The Spine Motion Restriction (SMR) Assessment Procedure is to be conducted on any patient suspected to have a spinal injury.</em></td>
<td></td>
</tr>
<tr>
<td>Start with both arms down and have patient bend both elbows at shoulder level</td>
<td><img src="image" alt="Flexion and Extension" /></td>
<td>Assessing: C6 motor tracts R &amp; L C7 motor tracts R &amp; L</td>
</tr>
<tr>
<td>Both arms extended straight out, have patient fan all fingers testing adduction and abduction</td>
<td><img src="image" alt="Adduction and Abduction" /></td>
<td>Assessing: T1 motor tract R &amp; L</td>
</tr>
<tr>
<td>While keeping arms extended out, push down and up on both of the patient’s hands, instructing patient to resist (Support wrists if necessary to avoid testing arm function)</td>
<td><img src="image" alt="C7 root" /></td>
<td>Assessing: C7 root tract R &amp; L</td>
</tr>
<tr>
<td>Have patient pull his toes up/weight on heels and then lift heel up/weight on ball of foot</td>
<td><img src="image" alt="L5, S1, S2" /></td>
<td>Assessing: L5 motor tracts R &amp; L S1 motor tracts R &amp; L S2 motor tracts R &amp; L</td>
</tr>
<tr>
<td><em>Gently touch all 4 extremities</em></td>
<td><img src="image" alt="Gently touch all 4 extremities" /></td>
<td>Assessing: Both light touch and pain spinal sensory tracts</td>
</tr>
</tbody>
</table>

**Documentation:**

*SMR Assessment Procedure was conducted

*Any deficits or injuries found

*Treatment decisions

---

Southwest General Health Center / EMS Services
**Helmet Types:**

**Sport B** (Football, Ice Hockey, Field Hockey, Fencing, Baseball)

- Typically open anteriorly
- Easier to access airway
- If shoulder pads are used in conjunction with helmet and helmet is removed, then shoulder pads need to be removed simultaneously for proper C-spine alignment.

**Motorcycle / Bike / Skateboarding**

- When full-faced, airway is harder to access and maintain.
- Face shield may be removed for airway access.

**SPORTS HELMETS PROCEDURE:**

- Most fit athlete tightly, especially football. They should be left in place.
- All are equipped to have face piece removed separate from helmet. In most cases, removal of facemask is all that is needed, as the alignment of c-spine can be done with shoulder pads and helmet in place.
- Removal of facemask may be done by cutting rubber straps that hold it in place to access airway.

---

**MEDICAL PROCEDURES**

**TRAUMA**

**HELMET REMOVAL**

<table>
<thead>
<tr>
<th>INDICATIONS</th>
<th>SIGNS AND SYMPTOMS</th>
<th>CONTRAINDICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Need for spinal immobilization as determined by protocol</td>
<td>• Traumatic Injury</td>
<td>• Insufficient training</td>
</tr>
<tr>
<td>• Improperly fitted helmet allowing for excessive head movement within helmet.</td>
<td>• Suspected Traumatic Injury</td>
<td></td>
</tr>
<tr>
<td>• Proper C-spine alignment and immobilization cannot be achieved.</td>
<td>• Unresponsive / Altered LOC of Unknown Origin</td>
<td></td>
</tr>
<tr>
<td>• Cardiac arrest.</td>
<td>• Mechanism of Injury</td>
<td></td>
</tr>
<tr>
<td>• EMTs are trained in technique.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMOVAL OF HELMET**

- Inability to access, assess and maintain airway and breathing.
- Improperly fitted helmet allowing for excessive head movement within helmet.
- Proper C-spine alignment and immobilization cannot be achieved.
- Cardiac arrest.
- EMTs are trained in technique.

**LEAVE HELMET IN PLACE**

- Helmet fits well with little or no movement of head in helmet.
- No impending airway or breathing problems.
- Removal may cause further injury.
- Proper C-spine alignment and immobilization can be achieved with helmet in place.
- There is no interference with the ability to assess and reassess airway and breathing.
Removal:
- If helmet must be removed due to unusual circumstances, at least 2 people are needed.
- Shoulder pads need to simultaneously be removed (when shoulder pads are involved, use forearms to stabilize helmet and place hands at base of neck grasping the shoulder area).
- While maintaining manual c-spine, helmet’s inside face pads may be loosened by use of a tongue blade to unsnap them with a twisting motion. Then cut the shoulder pads laces and straps and all shirts and jerseys from end of sleeve to center to allow for quick removal.
- Lift patient flat up for removal of equipment. Helmet should be grasped and tilted slightly to remove.
- MAY NEED TO SPREAD SIDES OR BACK EDGE OF HELMET, TAKE CAUTION NOT TO IMPINGE UPON NECK.
- At the same time, lift and pull off shoulder pads and clothing.
- Lower patient down and apply c-collar.

**MOTORCYCLE / BIKE / SKATEBOARDING PROCEDURE:**
1. Some have separate face piece that can be moved for airway access.
2. Some have full face design that is not moveable where chin section is a rigid continuation of the helmet.
4. C-spine alignment difficult due to no shoulder padding. Must create pad to form straight alignment.
5. If unable to secure c-spine of airway, the helmet should be removed at the scene.

Removal:
- Take eyeglasses off before removal of the helmet.
- One EMT stabilizes the helmet by placing hands on each side of the helmet with fingers on mandible to prevent movement.
- Second EMT removes any straps by cutting them.
- Second EMT places one hand on the mandible at the angle of the jaw and the other hand posteriorly at the occipital region.
- The EMT holding the helmet pulls the sides of the helmet outwards away from the head and gently slips the helmet halfway off and stops.
- The EMT maintaining stabilization of the neck, repositions hold by sliding the posterior hand superiorly to secure the head from falling back after complete helmet removal.
- Helmet is then completely removed.
INDICATIONS
- The tourniquet is a device which is used for life threatening appendage hemorrhage that cannot be controlled with direct pressure and conventional bandaging techniques.

PROCEDURE
1. Place the device around the injured appendage above the level of bleeding. Two tourniquets may be needed around lower extremities, one above the other.
2. Pull strap tight.
3. Turn windlass rod or knob to tighten to control bleeding.
4. Monitor the site: Distal pulses and all bleeding should be absent should if properly tightened. This will be painful for the patient. Medicate per protocol for pain.
5. Expose and clearly mark tourniquet site.
6. Report tourniquet application to receiving hospital and directly to physician assuming patient care.

KEY POINTS
- Apply directly to the skin 2-3 inches above wound.
- A distal pulse check should be accomplished. If a distal pulse is still present, additional tightening of the tourniquet or the use of a second tourniquet side by side and proximal to the first will be needed to eliminate the distal pulse.
- Tourniquets that are applied too loosely can actually worsen bleeding. If the tourniquet only stops venous blood return, but does not stop blood flow in the artery, bleeding gets more severe below the tourniquet. Tourniquets should not be removed by rescuers without training. Leaving a tourniquet in place too long may lead to tissue damage, but removal may lead to more severe bleeding. The potential for loss of limb is outweighed by the potential for loss of life.
- Expose and clearly mark all tourniquet sites with the time of tourniquet application.
- Use tourniquets to control life-threatening external hemorrhage that is possible to apply a tourniquet to for any traumatic amputation.
PROCEDURE:
1. Delivery should be controlled so as to allow a slow controlled delivery of the infant. This will prevent injury to the mother and infant.
2. Support the infant's head as needed.
3. Check the umbilical cord surrounding the neck. If it is present, slip it over the head. If unable to free the cord from the neck, double clamp the cord and cut between the clamps.
4. Suction the airway with a bulb syringe. Mouth then nose.
5. Grasping the head with hands over the ears, gently pull down to allow delivery of the anterior shoulder.
6. Gently pull up on the head to allow delivery of the posterior shoulder.
7. Slowly deliver the remainder of the infant.
8. Clamp the cord 2 inches from the abdomen with 2 clamps and cut the cord between the clamps.
9. Record APGAR scores at 1 and 5 minutes.
11. The placenta will deliver spontaneously, within 5-15 minutes of the infant. Do not force the placenta to deliver. Contain all tissue in plastic bag and transport.
12. Massaging the uterus may facilitate delivery of the placenta and decrease bleeding by facilitating uterine contractions.
13. Continue rapid transport to the hospital.
GENERAL CONSIDERATIONS:

- If Triage / MCI issues exhaust supply of Duo Dote kits, use Atropine. Give 2 mg dose for patients greater than 90 pounds (greater than 40kg).
- Follow local HAZMAT protocols for decontamination and use of personal protective equipment.
- For patients with major symptoms, there is no limit for atropine dosing.
- Carefully evaluate patients to ensure they are not from other agents (e.g., narcotics, vesicants, etc.).
- Each Duo Dote kit contains 600 mg of Pralidoxime (2-PAM) and 2 mg of Atropine.
- If the presence of a nerve agent is suspected by presentation of symptoms of large numbers of patients, personnel should immediately contact dispatch to notify other responding units and command staff.
- The patient and/or crew must be decontaminated prior to transport. DO NOT transport a contaminated patient to a treatment facility.
- SLUDGEM: Salivation, Lacrimination, Urination, Defication Gastrointestinal upset, Emesis, Muscle twitching.
- When the nerve agent has been ingested, exposure may continue for some time due to slow absorption from the lower bowel, and fatal relapses have been reported after initial improvement.
- If dermal exposure has occurred, decontamination is critical and should be done with standard decontamination procedures. Patient monitoring should be directed to the same signs and symptoms as with all nerve or organophosphate exposures.
- Continued medical monitoring and transport is mandatory.
MEDICAL PROCEDURES

SPECIAL OPERATIONS

NERVE AGENT EXPOSURE – DUO DOTE

ENSURE SCENE SAFETY AND PROPER PPE

UNIVERSAL PATIENT CARE PROTOCOL

Obtain history of exposure
Observe for specific toxidromes
Initiate triage and/or decontamination as indicated

Minor Symptoms

SELF TREATMENT:
- Salivation
- Lacrimation
- Visual Disturbances

DUO DOTE x 1-2 Sets, IM Rapidly

ATROPINE 2 mg IV/IM
Every 15 minutes until symptoms resolve

Monitor for appearance

CONTACT MEDICAL CONTROL

TRANSPORT

Major Symptoms

BUDDY TREATMENT:
- Altered LOC
- Seizures
- SOB
- Respiratory Arrest

DUO DOTE x 3 Sets, IM Rapidly

If Seizures:
- Ativan 0.5-1 mg IM/IV/IN/IO

ATROPINE 2 mg IV/IM
Every 5 minutes until symptoms resolve
PROCEDURE

1. In coordination with Hazardous Materials and other Emergency Management personnel, establish hot, warm and cold zones of operation.

2. Ensure that personnel assigned to operate within each zone have proper personal protective equipment.

3. In coordination with other public safety personnel, assure each patient from the hot zone undergoes appropriate initial decontamination. This is specific to each incident; such decontamination may include:
   - Removal of patients from Hot Zone
   - Simple removal of clothing
   - Irrigation of eyes
   - Passage through high-volume water bath (e.g., between two fire apparatus) for patients contaminated with liquids or certain solids. Patients exposed to gases, vapors, and powders often will not require this step as it may unnecessarily delay treatment and/or increase dermal absorption of the agent(s).

4. Initial triage of patients should occur after step #3. Immediate life threats should be addressed prior to technical decontamination.

5. Assist patients with technical decontamination (unless contraindicated based on #3 above). This may include removal of all clothing and gentle cleansing with soap and water. All body areas should be thoroughly cleansed, although overly harsh scrubbing which could break the skin should be avoided.

6. Place triage identification on each patient. Match triage information with each patient’s personal belongings, which were removed during technical decontamination. Preserve these personnel affects for law enforcement.

7. Monitor all patients for environmental illness.

8. Transport patients per local protocol.

Notify Hospital EARLY of contaminated patients; assure time for mobilization of Hospital Emergency Response Team (H.E.R.T.) or other resources.
INDICATIONS:

- Any patient that was subjected to taser use.

PROCEDURE:

1. Follow Universal Patient Care Protocol.
2. Confer with Law Enforcement Officer regarding the patient’s behavior prior to EMS arrival.
3. Refer to the appropriate medical protocol if the patient has a life-threatening injury or medical illness or continues to be combative.
4. Determine the location of the Taser probes. Do not remove probes unless they interfere with patient care.
5. Perform a 12-Lead EKG and continuously monitor the patient’s EKG. If the patient has a dysrhythmia, refer to the appropriate protocol.

GENERAL CONSIDERATIONS:

- With the increased use and deployment of TASER’s by our area’s local law enforcement agencies, EMS providers must be aware of the appropriate medical assessment of the tasered patient. The TASER is designed to transmit electrical impulses that temporarily disrupt the body’s central nervous system. Its Electro-Muscular Disruption (EMD) technology causes an uncontrollable contraction of the muscle tissue, allowing the TASER to physically debilitate a target regardless of pain tolerance or mental focus.
- All patients subjected to taser use must be assessed for trauma and medical causes for the combative behavior.
- Always apply the cardiac monitor and obtain a strip for patients with irregular / abnormal pulse, elderly, pacer, ASHD, known CAD, and Excited Delirium.
- The patient’s vital signs must be reassessed every 5 minutes.
- Determine if the patient used any mind altering stimulants, has a cardiac history, and the date of their last Tetanus shot.
- The cord or wire may be cut, but leave the probes embedded in the patient.
- Removal of the probe (remove one at a time).
- Stabilize the skin surrounding the puncture site by placing one hand by where the probe is embedded.
- Pull the probe straight out from the puncture site in one fluid motion.
- TASER barbs that do penetrate the skin and are removed in the field are to be treated as “contaminated” sharps and are to be placed in an appropriate sharps container. Use small single use containers as law enforcement may wish to hold custody of the barbs after removal.