Northwest Region EMS Protocols

Clallam, Mason, Kitsap & Jefferson Counties and Navy Region NW

MPD Approved December 2011
Washington State DOH approved January 2012
December 2011 (Washington State DOH approved January 2012)

The following protocols and procedures have been approved for use by pre-hospital care providers in Clallam, Mason, Kitsap, and Jefferson Counties. In addition to Navy Region Northwest.

These protocols will be reviewed and revised, as necessary to reflect the changes in standards.

Dr. Steve Churchley, MPD Clallam County

Dr. Joseph Höfman, MD, MPD Mason County

Dr. Scott Davarn, MPD Kitsap County

Dr. Sandra Smith-Poling, MD, MPD Jefferson County, Olympic National Park, West Olympic Peninsula & Navy Region Northwest

Northwest Region EMS and Trauma Care Council would like to extend a special thanks to the EMS professionals from the five different EMS councils who dedicated their time to the Northwest Regional EMS protocols. These protocol members worked with the Regional MPD’s to ensure that patient care within the Northwest Region is of the highest of standard. It is with their commitment to excellence and personal expertise in the field of EMS that we were able to produce a regional protocol.

Barbara G. Lovato, Program Manager, Kitsap County EMS and TCC
Bryan Swanberg, Captain/MSO, Clallam County Fire District #3
Cliff Wilson, Director of Operations, Olympic Ambulance, Clallam County
Dan Wagner, FF/PM/MSO, Port Ludlow Fire & rescue
Debbie Randall, Paramedic/FF, East Jefferson Fire Rescue
Jeremy Hicks, FF/Paramedic, Mason County Fire District #2
Martin A. Bennett MD FACEP, Kitsap County MPD 2008-2011.
Phillip J. Berg, Paramedic, Mason County Medic One, Mason County Training Coordinator
Rene’ Perret Williams, Executive Director, Northwest Region EMS
Ryan Tillman, LT/PM, Clallam County Fire District No. 3
Sam Neville, Paramedic/FF, East Jefferson Fire Rescue
Scott Berry Navy Region Northwest Fire And Emergency Services
Steve Engle, Captain/MSO, North Kitsap Fire and Rescue
Terry R. Anderson, Asst. Chief EMS Navy Region Northwest Fire And Emergency Services

The Executive Board of Northwest Region EMS would like to express our appreciation to their contribution. As with most altruistic contributions, their contribution is greater than can be expressed within this protocol.

Steve Engle, Chair, Northwest Region EMS
### Sections are color coded as follows:

- **Respiratory**
- **Cardiac**
- **Medical**
- **OB / GYN**

#### Introduction
- Regional Guidelines ................................................................. 8
- NW Region Patient Care Procedures ........................................... 8
- CDC National Trauma Triage Procedure ...................................... 9
- Clallam ................................................................. 10-A
- Jefferson .......................................................... 10-B
- Mason .............................................................. 10-C
- Kitsap .......................................................... 10-D
- West Olympic Penninsula ......................................................... 10-E
- Prehospital Provider Conduct .................................................. 11
- Infection Control Standards ...................................................... 11
- Patient Refusal of Medical Evaluation ......................................... 11

#### Protocols
- Universal Patient Care ............................................................ 12

#### Cardiac
- Cardiac Arrest ........................................................... 13
- Non-Traumatic Shock ........................................................ 14
- Bradycardia .............................................................. 15
- Narrow Complex Tachycardia .................................................. 16
- Wide Complex Tachycardia ..................................................... 17
- V-Fib/Pulseless V-Tac .......................................................... 18
- Asystole / PEA (no shock advised) .......................................... 19
- Chest Pain / Acute Coronary Syndrome ..................................... 20
- STEMI .............................................................. 21

#### Respiratory
- Airway (Adult) ............................................................. 22
- Failed Airway (Adult) ..................................................... 23
- Reactive Airway Disease ...................................................... 24
- Pulmonary Edema ............................................................ 25
- Post Resuscitation Management ............................................... 26

#### Medical
- Abdominal Pain ............................................................... 27
- Allergic Reaction ............................................................ 28
- Altered Mental Status / Diabetic Emergency ............................... 29
- General Illness .............................................................. 30
- Overdose / Poisoning ........................................................ 31
- Pain Management ............................................................ 32
- Psychological / Emotional Emergencies ................................... 33
- Seizure ............................................................... 34
- Stroke ............................................................... 35

#### OB / GYN
- Pregnancy Induced Hypertension ............................................. 36
- Postpartum ................................................................. 37
Environmental

Environmental .................................................. 38
Burns ................................................................. 39
SCUBA Emergencies ........................................... 40
Drowning / Near Drowning .................................... 41
Head Injury ......................................................... 42
Multi-system Trauma ............................................ 43

Pediatric Protocols

Pediatric Airway .................................................. 44
Pediatric Difficult Airway ....................................... 45
Pediatric Rapid Sequence Intubation ....................... 46
Pediatric Cardiac Arrest ........................................ 47
Pediatric Bradycardia ........................................... 48
Pediatric Narrow Complex Tachycardia .................... 49
Pediatric Wide Complex Tachycardia ....................... 50
Pediatric PEA / Asystole ....................................... 51
Pediatric Post Resuscitation Management .................. 52
Pediatric Anaphylaxis .......................................... 53
Pediatric Apparent Life Threatening Event (ALTE) ...... 54
Pediatric Breathing Difficulty .................................. 55
Pediatric Diabetic Ketacidosis / Hyperglycemia ....... 56
Pediatric Hypoglycemia ........................................ 57
Newborn Resuscitation ......................................... 58
Pediatric Known Toxic Exposure ............................ 59
Pediatric Pain Management .................................... 60
Pediatric Fever .................................................... 61
Pediatric Shock Non-Traumatic .............................. 62
Pediatric Seizure .................................................. 63
Pediatric Unknown Toxic Exposure / Ingestion Guideline .... 64
Pediatric Multi-System Trauma ............................... 65
Pediatric Near Drowning ....................................... 66
Pediatric Burns .................................................... 67
Pediatric Heat Related Emergency ......................... 68
Pediatric Spinal Precautions .................................. 69
Pediatric Sports Concussion .................................. 70
Pediatric START / JumpSTART Triage ....................... 71
Pediatric Suspected Child Abuse ............................ 72
Pediatric Traumatic Brain Injury ............................. 73

Pediatric Procedures

Pediatric Assessment ............................................ 74
Pediatric References ............................................ 75
Airway Needle Cricothyrotomy (Pediatric) ................ 76
APGAR Scale ....................................................... 77
AVPU Infant / Child ............................................. 77
CUPS Pediatric .................................................... 77
Neonatal Resuscitation ......................................... 78
Pain Assessment and Documentation – Pediatric ........ 79
Venous Access - Intraosseous Pediatric ...................... 80
Procedures

Airway Capnography ................................................................. 81
Airway Combitube ..................................................................... 82
Airway Cricothyotomy Needle (Adult) ........................................ 83
Airway Cricothyotomy Surgical (Adult) ....................................... 84
Airway Cricothyotomy Surgical (Adult) Bougie Assisted Cricothyotomy ......................................................... 178
Airway Difficult Airway Assessment (LEMON) ......................... 85
Airway I-gel, Supraglottic Airway ............................................... 179
Airway Intubation Confirmation End-Tidal CO2 Detector ........... 86
Airway King LTS-D™ ................................................................. 87
Airway Intubation Confirmation Esophageal Bulb ....................... 88
Airway (Alternate Airway Adjuncts AAA) Intubation Orotracheal ................................................................. 89
Airway (AAA) Intubation w/Eschmann Catheter, Tracheal Tube introducer, Gum Elastic Bougie ................... 90
Airway (AAA) Nasotracheal Intubation ..................................... 91
Airway Laryngeal Mask Airway (LMA) ....................................... 92
Airway Nebulizer Inhalation Therapy ...................................... 93
Airway Non-invasive Positive Pressure Ventilation (NIPPV) ....... 94
Airway Rapid Sequence Intubation (RSI) ................................... 95
Airway Suctioning – Advanced ................................................ 96
Airway Suctioning – Basic ......................................................... 97
Airway Tracheostomy Tube Change ........................................ 98
Airway Ventilator Operation ...................................................... 99
Cardiac 12 Lead ECG ............................................................... 100
Cardiac Cardioversion ............................................................ 101
Cardiac Defibrillation Automated .......................................... 102
Cardiac Defibrillation Manual ................................................ 103
Cardiac Transcutaneous Pacing .............................................. 104
Central Venous Device ............................................................ 105-106
Chest Decompression ............................................................. 107
Childbirth/Fundal Massage ...................................................... 108
Stroke FAST Assessment ......................................................... 109
CPR (High Density) ............................................................... 110
Discontinuation of CPR /Do Not Attempt Resuscitation/Determination of Field Death .............................. 111-112
Glucometry ............................................................................. 113
Glasgow Coma Score .............................................................. 114
Injections – Subcutaneous, Intramuscular ............................... 115
Nasogastric Tube Insertion ....................................................... 116
Orthostatic Blood Pressure Measurement ............................... 117
Pain Assessment and Documentation - Adult ......................... 118
Pelvic Fracture Stabilization ..................................................... 119
Pulse Oximetry ........................................................................ 120
Restraints ................................................................................ 121-122
Spinal Clearance ..................................................................... 123
Spinal Immobilization .............................................................. 124
Splinting ................................................................................... 125
Taser Dart Removal ................................................................. 126
Temperature Measurement ...................................................... 127
Thrombolytic Screen ............................................................... 128
Venous Access - Blood Draw .................................................. 129
Venous Access - External Jugular Access ............................... 130
Venous Access - Extremity ....................................................... 131
Venous Access - Intraosseous Adult ....................................... 132
Wound Care / Hemorrhage Control ....................................... 133
### Drug Formulary

<table>
<thead>
<tr>
<th>Drug Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen (Tylenol)</td>
<td>134</td>
</tr>
<tr>
<td>Acetylsalicylic Acid / Aspirin (Bayer/Ecotrin)</td>
<td>134</td>
</tr>
<tr>
<td>Activated Charcoal (Actidose-Aqua/Insta-Char)</td>
<td>135</td>
</tr>
<tr>
<td>Adenosine (Adenocard)</td>
<td>135</td>
</tr>
<tr>
<td>Albuterol Sulfate (Proventil, Ventolin)</td>
<td>136</td>
</tr>
<tr>
<td>Amiodarone (Cordarone)</td>
<td>137-138</td>
</tr>
<tr>
<td>Atropine (Atreza)</td>
<td>139</td>
</tr>
<tr>
<td>Calcium Chloride (CaCl2)</td>
<td>140</td>
</tr>
<tr>
<td>Clopidogrel Bisulfate (Plavix)</td>
<td>140</td>
</tr>
<tr>
<td>Dexamethasone (Decadron)</td>
<td>141</td>
</tr>
<tr>
<td>Dextrose / D50W / D25W (DGlucose)</td>
<td>141</td>
</tr>
<tr>
<td>Diazepam (Valium)</td>
<td>142</td>
</tr>
<tr>
<td>Diltiazem (Cardizem)</td>
<td>143</td>
</tr>
<tr>
<td>Diphenhydramine (Benadryl)</td>
<td>143</td>
</tr>
<tr>
<td>Dopamine (Intropin)</td>
<td>144</td>
</tr>
<tr>
<td>Droperidol (Inapsine)</td>
<td>145</td>
</tr>
<tr>
<td>Epinephrine (Adrenaline)</td>
<td>146</td>
</tr>
<tr>
<td>Etomidate (Amidate)</td>
<td>147</td>
</tr>
<tr>
<td>Fentanyl (Sublimaze)</td>
<td>148</td>
</tr>
<tr>
<td>Furosemide (Lasix)</td>
<td>148</td>
</tr>
<tr>
<td>Glucagon</td>
<td>149</td>
</tr>
<tr>
<td>Glucose Oral (Glucose Paste)</td>
<td>149</td>
</tr>
<tr>
<td>Heparin Sodium</td>
<td>150</td>
</tr>
<tr>
<td>Hydromorphone (Dilaudid)</td>
<td>150</td>
</tr>
<tr>
<td>Ipratropium (Atrovent / Ipramide)</td>
<td>151</td>
</tr>
<tr>
<td>Ketamine (Ketalar)</td>
<td>151</td>
</tr>
<tr>
<td>Ketorolac (Toradol)</td>
<td>152</td>
</tr>
<tr>
<td>Labelalol (Trandate, Normodyne)</td>
<td>152</td>
</tr>
<tr>
<td>Lidocaine (Xylocaine)</td>
<td>153</td>
</tr>
<tr>
<td>Lorazepam (Ativan)</td>
<td>154</td>
</tr>
<tr>
<td>Magnesium Sulfate (MgSO4)</td>
<td>154</td>
</tr>
<tr>
<td>Methylprednisolone (Solu-Medrol / Amethapred)</td>
<td>155</td>
</tr>
<tr>
<td>Metoprolol (Lopressor)</td>
<td>156</td>
</tr>
<tr>
<td>Midazolam (Versed)</td>
<td>157</td>
</tr>
<tr>
<td>Morphine</td>
<td>158</td>
</tr>
<tr>
<td>Naloxone (Narcan)</td>
<td>158</td>
</tr>
<tr>
<td>Nitroglycerine (NitroStat / NitroQuick)</td>
<td>159</td>
</tr>
<tr>
<td>Nitrous Oxide (Nitronox)</td>
<td>159</td>
</tr>
<tr>
<td>Norepinephrine Bitartrate (Levophed)</td>
<td>160</td>
</tr>
<tr>
<td>Ondansetron (Zofran)</td>
<td>161</td>
</tr>
<tr>
<td>Oxymetazoline (Afrin)</td>
<td>161</td>
</tr>
<tr>
<td>Oxytocin (Pitocin)</td>
<td>162</td>
</tr>
<tr>
<td>Prednisone</td>
<td>162</td>
</tr>
<tr>
<td>Procainamide (Pronestyl)</td>
<td>163</td>
</tr>
<tr>
<td>Promethazine (Phenergan)</td>
<td>164</td>
</tr>
<tr>
<td>Rocuronium (Zemuron)</td>
<td>165</td>
</tr>
<tr>
<td>Sodium Bicarbonate</td>
<td>165</td>
</tr>
<tr>
<td>Succinylcholine (Anectine)</td>
<td>166</td>
</tr>
<tr>
<td>Tenecteplase (TNKase)</td>
<td>166</td>
</tr>
<tr>
<td>Thiamine (Betalin, Biamine, Vitamin B1)</td>
<td>167</td>
</tr>
<tr>
<td>Vasopressin (Pitressin)</td>
<td>167</td>
</tr>
<tr>
<td>Vecuronium (Norcuron)</td>
<td>167</td>
</tr>
<tr>
<td>Drug Reference</td>
<td>168</td>
</tr>
</tbody>
</table>
Miscellaneous

Air Ambulance Transports ........................................................................................................ 169
Physician on Scene .................................................................................................................... 169
Emergency at Physician's Office .............................................................................................. 170
Patient Care Reports ................................................................................................................ 170
10 Critical Steps for Handling Possible Bioterrorism Events ............................................... 171-172
Medical Spanish ....................................................................................................................... 173-174
Mnemonic's ................................................................................................................................. 175-176
Phone Numbers ........................................................................................................................ 177
Additions:
Airway Cricothyrotomy Surgical (Adult) Bougie Assisted Cricothyrotomy ......................... 178
Airway I-gel, Supraglottic Airway ............................................................................................ 179
Future additions ......................................................................................................................... 180

Personal Information .................................................................................................................. 181

Any reproduction of this document must be approved by the Northwest Region Emergency Medical Services and Trauma Care Council.
## Regional Guidelines

### PREHOSPITAL PROVIDER SCOPE OF PRACTICE

<table>
<thead>
<tr>
<th>Level of Certification Washington DOH</th>
<th>Medical Control &amp; Skills Capabilities</th>
<th>Medication Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Medical Responder</td>
<td>MPD protocols, patient assessment, CPR, AED, BVM, Bandaging, splinting, trauma, triage, medical, and pediatrics.</td>
<td>0₂</td>
</tr>
<tr>
<td>Emergency Medical Technician</td>
<td>MPD protocols/ endorsements, patient assessment, CPR, AED, BVM, Bandaging, splinting, trauma, triage, medical, pediatrics, OB/GYN. ECG/12-Lead can read only.</td>
<td>Above plus aspirin, epinephrine, activated charcoal, oral glucose, assist with patient’s own Diastat, nitroglycerin and metered dose inhaler prescribed</td>
</tr>
<tr>
<td>Advanced Emergency Medical Technician</td>
<td>MPD protocols, EMT skills and knowledge, IV Therapy skills, ET, Supraglottic airway.</td>
<td>Above plus naloxone, dextrose 50/25, albuterol</td>
</tr>
<tr>
<td>Paramedic</td>
<td>MPD protocols, EMT skills and knowledge, IV Therapy skills, ET, Supraglottic airway, advanced airway control, ACLS w/ manual defibrillation, and advanced patient assessment, trauma and medical skills.</td>
<td>Above plus MPD protocol</td>
</tr>
</tbody>
</table>

### NORTHWEST REGION PATIENT CARE PROCEDURES

These procedures have been developed by the Northwest Regional EMS & Trauma council in conjunction with local councils. The Patient Care Procedures define how the EMS system operates within the Northwest Region of Washington State, by identifying the level of medical care personnel who participate in the system, their roles in the system, and participation of the hospital facilities in the system. They also address the issue of inter-hospital transfer, transfer agreements for identification, and transfer of critical care patients.

The Prehospital Trauma Triage Procedure and the Regional Patient Care Procedures outline an EMS system structure which effectively reduces morbidity and mortality. A full copy of the Northwest Regional Patient Care Procedures may be accessed on our website at [www.nwrems.org](http://www.nwrems.org).
see supplements for County specific guidelines

insert County Operating Procedures here and number as follows:

Clallam County Pg. 10-A
Jefferson County Pg. 10-B
Mason County Pg. 10-C
Kitsap County Pg. 10-D
West Olympic Peninsula Pg. 10-E
PREHOSPITAL PROVIDER CONDUCT
1. Northwest Region EMS Providers must maintain the highest standard of professional conduct.
2. Competent medical care must be provided with compassion and dignity for all persons regardless of nationality, race, creed, religion, sex or status.
3. Providers must refuse to participate in unethical activities and/or activities which may impair professional judgment and the ability to act competently.
4. Matters of disagreement between prehospital providers regarding patient care must be handled professionally without alarming anyone on the scene. Medical Control contact will be made for immediate direction. Providers should not threaten, degrade, insult or verbally abuse each other.
5. Patient Confidentiality will be maintained at all times in compliance with Health Insurance Portability and Accountability Act (HIPAA) of 1996.

INFECTION CONTROL STANDARDS
1. Infection Control Standards assume that all contact with blood, other bodily fluids and potentially infectious materials is infectious.
2. The standards of use of Universal Precautions / Body Substance Isolation, which includes safe work practices, correct use of engineering controls and personal protective equipment is mandated by WISHA, and must be adhered to.
3. EMS Providers must protect themselves at all times from "reasonably anticipated potential for exposure". The following is a list of mandated items: Gloves, Masks, Face Shields, Safety Glasses, High Efficiency Particulate Air (HEPA) Filters, Resuscitation Equipment, and Protective Clothing.

PATIENT REFUSAL OF MEDICAL EVALUATION
1. Consent
   a. The patient has responsibility to consent to or refuse treatment. If the patient is unable to do so, a responsible relative or guardian has this right.
   b. If waiting to obtain lawful consent from the authorized person would present a serious risk of death, serious impairment of health, or would prolong severe pain or suffering to the patient, treatment may be undertaken to avoid these risks without consent. In no event should legal consent procedures be allowed to delay immediately required treatment.
   c. The patient must be eighteen years of age or emancipated to legally refuse treatment.
   d. If the patient is under age, consent should be from a natural parent, adopted parent, or legal guardian only.

2. Mental competence
   a. A person is mentally competent if:
      1. Capable of understanding the nature and consequence of the proposed treatment.
      2. Sufficient emotional control, judgment, and discretion to manage their own affairs are present.
   b. A person is not mentally competent if he/she has impaired cerebral perfusion, presents in shock, is postictal, or under the influence of drugs or alcohol.
   c. Medical Control contact with the Base physician is necessary for all patients refusing transport in those counties requiring it.
   d. Nurses may speak for the Medical Control physician if the physician is unable to come to the telephone. The nurse must give the prehospital care provider the name of the Base physician who is directing the nurse.
A pediatric patient is defined by a length based tape. If the patient does not fit on the tape, they are considered adult.

Exam: Minimal exam if not noted on the specific protocol is vital signs, mental status, and location of injury or complaint.

Any patient contact which does not result in an EMS transport shall be documented.

Consider ALS Evaluation & Transport if:
- Suspected Coronary chest pain
- Shortness of breath not relieved by initial interventions
- Abdominal pain
- Altered mental status
- Abnormal vital signs
Cardiac Arrest

Notes:
- All shocks Monophasic 360 J or the Biphasic device specific equivalent. If Biphasic equivalent unknown deliver shock at 200 J.
- Consider discontinuing CPR pursuant to Procedure page 111-112
- For spontaneous resuscitation refer to Post Arrest protocol page 26
- High Density CPR page 110
### Non-Traumatic Shock

#### History:
- Cardiac ischemia (MI, CHF)
- Medications

#### Signs/Symptoms:
- Hypotension
- Rales & pulmonary edema on exam
- Altered mental status
- Weakness, dizziness
- Weak, rapid pulse
- Pale, cool, clammy skin

#### Differential:
- Dysrhythmias
- Vasovagal
- Allergic reaction
- Anaphylaxis
- Sepsis
- Neurogenic

#### Universal Patient Care Protocol

1. **ECG / 12 lead**
2. **Obtain IV/IO access**
3. **Fluid Bolus NS/LR**
   - 250cc-500cc and reevaluate lung sounds
4. **Dopamine**
   - Titrate 5–20 mcg/kg/min
   - IV/IO SBP >100
   - Or
   - **Epinephrine**
   - Titrate drip 2-10 mcg/min
   - IV/IO SBP > 100
   - Or
   - **Norepinephrine**
   - Titrate drip 7-35 mcg/min
   - IV/IO SBP > 100
5. **Contact Medical Control**
Bradycardia

**History:**
- Past medical history
- Medications
  - Beta-Blockers
  - Calcium channel blockers
  - Clonidine
  - Digitalis
  - Pacemaker

**Potential causes:**
- Acute myocardial infarction
- Sinus bradycardia
- Athletes / non pathologic
- Stroke
- Sick sinus syndrome
- Heart block

**Signs/Symptoms:**
- HR < 60/min and symptomatic
- Chest pain
- Respiratory distress
- Hypotension or Shock
- Altered mental status
- Syncope

**Universal Patient Care Protocol**

**Perfusion**

**Signs of inadequate perfusion** - acute altered mental status, ongoing chest pain, hypotension or other signs of shock

- **Adequate**
  - Observe/monitor
  - Consider TCP pads

- **Inadequate**
  - Consider fluid bolus
  - Atropine
    - 0.5-1mg IV q 3-5 min max 3mg
  - Sedation per Pain
  - Transcutaneous Pacing
  - Dopamine
    - Titrate 5–20 mcg/kg/min IV/IO SBP >100
    - Or
    - Epinephrine
      - Titrate drip 2-10 mcg/min IV/IO SBP >100

**Transport and Contact Medical Control**

**Legends**
- EMT
- AEMT
- A
- PM
- M
- MC Order

**Reminders**
- Hypovolemia
- Hypoxia
- Hydrogen ion (acidosis)
- Hypo-Hyperkalemia
- Hypoglycemia
- Hypothermia
- Toxins
- Tamponade, cardiac
- Tension pneumothorax
- Thrombosis (coronary or pulmonary)
- Trauma (hypovolemia, increased ICP)
Narrow Complex Tachycardia

Universal Patient Care Protocol

- Immediate transport
  - Call for ALS intercept

- Obtain IV/IO access

- Consider Fluid Bolus

- ECG / 12 lead

Stable at this Heart rate?

Yes

No

Atrial Fib/Flutter

Mild Symptoms

SVT

- Vagal maneuvers

- Adenosine
  - 6 mg rapid IV/IO push. If no conversion 12 mg rapid IV/IO

Conversion

Contact Medical Control

Notes:
- Use β-blockers with caution in pulmonary disease or CHF
- If patient already on a β-blocker, give Metoprolol
- WPW (Wolf Parkinson White)

Legend
- E: EMT
- A: AEMT
- P: PM
- M: MC Order

Legend
- E: EMT
- A: AEMT
- P: PM
- M: MC Order

Legend
- E: EMT
- A: AEMT
- P: PM
- M: MC Order

Legend
- E: EMT
- A: AEMT
- P: PM
- M: MC Order

Legend
- E: EMT
- A: AEMT
- P: PM
- M: MC Order

Legend
- E: EMT
- A: AEMT
- P: PM
- M: MC Order
Wide Complex Tachycardia

Universal Patient Care Protocol

Immediate transport
Call for ALS intercept

Obtain IV/IO access

ECG / 12 lead

Stable

Unstable

Ventricular Tachycardia or uncertain rhythm

SVT with aberrancy

A-Fib

Adenosine
6 mg rapid IV/IO push. If no conversion 12 mg rapid IV/IO

Amiodarone
150 mg IV/IO infusion over 10 mins, may repeat once, consider 1 mg/min drip
OR
Lidocaine
Initial bolus 1-1.5 mg/kg IV/IO repeat bolus 0.5 - 0.75 mg/kg q 5 min to max 3 mg/kg Followed by 2-4 mg/min
OR
Procainamide for WPW
20 mg/min IV push up to 17 mg/kg followed by drip of 1-4 mg/min IV/IO

Go to Narrow complex tachycardia Protocol Pg. 16

Etomidate
0.1-0.3 mg/kg IV/IO over 15-30 seconds
OR
Midazolam
2.5-10mg IV/ IO

Synchronized Cardioversion per AHA Guidelines

Amiodarone
150 mg IV/IO infusion over 10 mins, may repeat once, consider 1 mg/min drip
OR
Lidocaine
Initial bolus 1-1.5 mg/kg IV/IO repeat bolus 0.5 -0.75 mg/kg q 5 min to max 3 mg/kg Followed by 2-4 mg/min
OR
Procainamide for WPW
20 mg/min IV push up to 17 mg/kg followed by drip of 1-4 mg/min IV/IO

Contact Medical Control

Legend

E E
EMT
A A
AEMT
P P
PM
M MC Order

Legend

E E
EMT
A A
AEMT
P P
PM
M MC Order

Legend

E E
EMT
A A
AEMT
P P
PM
M MC Order
V-Fib/Pulseless V-Tach (shock advised)

Arrive here from Cardiac Arrest Protocol Pg. 113

Defibrillate once

High Density CPR Pg. 110
Airway Management and confirm effective oxygenation and ventilation

Obtain IV/IO access

Assess Rhythm

Asystole
Or PEA (No Shock Advised)

Go to Asystole or PEA (NSA) Protocol Pg. 19

Reminders
- Hypovolemia
- Hypoxia
- Hydrogen ion (acidosis)
- Hypo-Hyperkalemia
- Hypoglycemia
- Hypothermia
- Toxins
- Tamponade, cardiac
- Tension pneumothorax
- Thrombosis (coronary or pulmonary)
- Trauma (hypovolemia, increased ICP)

Notes:
- Guidelines for Discontinuation of Resuscitation Pg. 111-112
Asystole / PEA (no shock advised)

Arrive here from Cardiac Arrest protocol Pg. 13

High Density CPR Pg. 110
Airway Management and confirm effective oxygenation and ventilation

A Obtain IV/IO access A

Search for at treat possible causes:
- Hypovolemia
- Hypoxia
- Hydrogen ion (acidosis)
- Hypo-/Hyperkalemia
- Hypoglycemia
- Hypothermia
- Toxins
- Tamponade, cardiac
- Tension pneumothorax
- Thrombosis (coronary or pulmonary)
- Trauma (hypovolemia, increased ICP)

Epinephrine
1 mg IV/IO repeat q 3-5 min. AND/OR

Vasopressin
40 Units IV/IO once
Effect lasts approx 15 min.
may then resume Epinephrine

Atropine PRN
for slow (<60 bpm) PEA
1 mg IV/IO
repeat PRN to 3 mg max

Assess Rhythm

VF/VT (Shock Advised)
See VF/Pulseless VT (SA) Protocol Pg. 18

Asystole or PEA (No Shock Advised)
Consider Sodium Bicarbonate
1 mEq/kg IV/IO
if preexisting hyperkalemia (renal failure), TCA or ASA OD
Consider TCP for Bradicardic rhythms

Notes:
- Guidelines for Discontinuation of Resuscitation Pg. 111-112

Contact Medical Control
# Chest Pain / Acute Coronary Syndrome

**Universal Patient Care Protocol**

**Suspect Acute Coronary Syndrome**

- **Aspirin**
  - 325 mg chewable PO

- **Nitroglycerin**
  - If BP > 100 systolic per patient Rx, 0.4 mg SL q 3-5 min

- **Obtain IV/IO access**

- **Interpret ECG / 12 Lead**

- **M** *Metroprolol*
  - 2.5 - 5 mg IV, over 2 mins q 3-5 mins to max 15 mg
  - Hold if SBP < 100 or Heart rate < 60

  - **M** consider
  - **M** Morphine
    - 2 mg IV q 3-5 min to 20mg max OR
  - **M** Fentanyl
    - 25 mcg IV q 3-5 min to 200 mcg max OR
  - **M** Hydromorphone
    - 0.5mg IV q 3-5 min to 4mg max

- **Consider repeat ECG / 12 lead**

- **Contact Medical Control**

**Cardiac Risk Factors:**
- Previous MI / Known Cardiac disease
- Hypotension
- Diabetes
- Smoking tobacco use
- Family History
- High Cholesterol
- Hyperlipidemia

**History:**
- Viagra, Cialis, Levitra (Male or Female)
- Onset
- Palliation / Provocation
- Quality (crampy, constant, sharp, dull, etc.)
- Region / Radiation / Referred
- Severity (1-10)
- Time (duration / repetition)

**Signs/Symptoms:**
- **CP** (pain, pressure, aching, tightness)
- **Radiation of pain**
- **Palliation**
- **Provocation**
- **Quality** (crampy, constant, sharp, dull, etc.)
- **Region / Radiation / Referred**
- **Severity** (1-10)
- **Time** (duration / repetition)

**Differential:**
- Aortic dissection or aneurysm
- Trauma vs. Medical
- Pericarditis
- Pulmonary embolism
- Asthma / COPD
- Pneumothorax
- GE reflux or Hiatal hernia
- Esophageal spasm
- Chest wall injury or pain
- Pleural pain

**Notes:**
- If positive ECG changes, establish a second IV while en route to the hospital.
- Monitor for hypotension after administration of nitroglycerin and morphine.
- *Metroprolol* - contraindicated with CNS stimulant.
  - consider ½ doses for elderly, asthma & COPD
STEMI

Patient has onset of symptoms  
*See Triage tool for definition

From ACS Protocol

Start stopwatch on arrival

Transmit the 12 Lead ECG to Base Station

Dx STEMI LBBB

(+) Refer back to Chest Pain / ACS Protocol Pg. 20

(-) See STEMI Follow County Operating Procedure Clallam Pg. 10-A Jefferson Pg. 10-B Mason Pg. 10-C Kitsap Pg. 10-D West Olympic Peninsula Pg. 10-E

Legend

E EMT E
A AEMT A
P PM P
M MC Order M
Notes:
- Capnometry or capnography is mandatory with all methods of intubation. Document results.
- For this protocol, adult is defined any person who does not fit the length based tape
- EMT’s must have multi-lumen airway training to use Supraglottic Airway Adjuncts.
- Maintain C-spine immobilization for patients with suspected spinal injury
- Paramedics should consider Supraglottic Airway Adjuncts.
- Reconfirm ETT placement each time patient is moved
- Continuous pulse oximetry should be utilized in all patients with compromised respiratory function
Airway, Adult Failed

Two (2) failed intubation attempts
By most proficient technician on scene

**NO MORE THAN THREE (3) ATTEMPTS TOTAL**

- Continue BVM
- SPO2 > 90%
  - With BVM ventilation?
    - No
      - If SPO2 drops < 90% or it becomes difficult to ventilate with BVM
      - Facial Trauma, obstruction or Swelling?
        - No
        - Alternate Airway Adjuncts Pg. 89-91
          - SPO2 > 90%?
            - No
              - Continue ventilation with Alternate Airway Adjuncts
            - Yes
              - Surgical Airway
- Yes
  - Contact Medical Control

Notes:
- **Difficult Airway Assessment Pg. 85**
- If first intubation attempt fails, make an adjustment and then try again:
  - Different laryngoscope blade
  - Different ETT size
  - Eschmann Catheter Pg. 91
  - Change cricoid pressure
  - Apply BURP manuever (push trachea Back [posterior], Up, and to patient’s Right)
  - Change head positioning
  - Continuous Pulse Oximetry should be utilized in all patients with inadequate respiratory function
- **Notify Medical Control AS EARLY AS POSSIBLE about the patients difficult/failed airway.**
Reactive Airway Disease

**Consider ALS Transport if:**

<table>
<thead>
<tr>
<th><strong>History:</strong></th>
<th><strong>Signs and Symptoms:</strong></th>
<th><strong>Differential:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Asthma</td>
<td>- Shortness of breath</td>
<td>- Asthma</td>
</tr>
<tr>
<td>- COPD- emphysema, chronic bronchitis</td>
<td>- Pursed-lip breathing</td>
<td>- Anaphylaxis</td>
</tr>
<tr>
<td>- Congestive heart failure</td>
<td>- Decreased ability to speak</td>
<td>- Aspiration</td>
</tr>
<tr>
<td>- Home treatment ($O_2$, nebulizer)</td>
<td>- Increased respiratory rate and effort</td>
<td>- COPD (Emphysema, Bronchitis)</td>
</tr>
<tr>
<td>- Medications (theophylline, steroids, inhalers)</td>
<td>- Wheezing, rhonchi, rales</td>
<td>- Pulmonary Embolus</td>
</tr>
<tr>
<td>- Toxic exposure</td>
<td>- Use of accessory muscles</td>
<td>- Pneumonia</td>
</tr>
<tr>
<td>- Smoking</td>
<td>- Fever, cough</td>
<td>- Pulmonary Embolus</td>
</tr>
<tr>
<td>- No improvement with initial treatment</td>
<td>- Tachycardia</td>
<td>- Cardiac (MI or CHF)</td>
</tr>
<tr>
<td></td>
<td>- Suspected PE</td>
<td>- Pericardial Tamponade</td>
</tr>
</tbody>
</table>

**Notes:**
- Barotrauma is often caused by the over-ventilation of Reactive airway patients
- Consider NIPPV if available

---

**Universal Patient Care Protocol**

- **Pt’s MDI per prescription**
- **Albuterol** 2.5 mg SVN
- **Ipratropium** 0.5 mg SVN
- **Obtain IV/IO access**
- **12 Lead / ECG** Consider Capnography
- **Methyprednisolone** 125 mg IV/IO Or **Prednisone** 60 mg PO
  - **Consider Magnesium Sulfate** 2 g/100ml NS over 5-10 min
  - **Consider Epinephrine** 1:1,000 0.1-0.3 mg IM

**Legend**
- E - EMT
- A - AEMT
- P - PM
- M - MC Order

** fluid bolus Normal Saline**
## History:
- Congestive heart failure
- Past medical history
- Medications (digoxin, lasix, HCTZ)
- Viagra, Levitra, Cialis
- Cardiac history - past myocardial infarction

## Signs/Symptoms:
- Respiratory distress, crackles
- Apprehension, orthopnea
- Jugular vein distention
- Pink, frothy sputum
- Peripheral edema, diaphoresis
- Hypotension, shock
- Chest pain

## Differential:
- Myocardial infarction
- Congestive heart failure
- Asthma
- Anaphylaxis
- Aspiration
- COPD
- Pleural effusion
- Pneumonia
- Pulmonary Embolus
- Pericardial tamponade

### Notes:
- Avoid Nitroglycerin in any patient (man or woman) who has used sexual performance enhancement drugs (ie Viagra, Levitra, etc.) in the past 24 hours due to possible severe hypotension.
- If patient has taken nitroglycerin without relief, consider potency of the medication.
- Consider myocardial infarction in all these patients.
- Allow the patient to be in their position of comfort to maximize their breathing effort.
Post Resuscitation Management

**ALS Transport if Available**

<table>
<thead>
<tr>
<th>History:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Respiratory arrest</td>
</tr>
<tr>
<td>• Cardiac arrest</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signs/Symptoms:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Return of Spontaneous Circulation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Differential:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Continue to address specific differentials associated with the original dysrhythmia</td>
</tr>
</tbody>
</table>

**Repeat Primary Assessment**

- Continue ventilatory support with 100% oxygen

**A** Obtain IV/IO access **A**

- Monitor / 12 Lead ECG / Capnography
- Vital Signs / Pulse oximetry

**P**

- Hypotension → Consider fluid bolus
- Bradycardia → Treat per Bradycardia Protocol Pg. 15

**Stable**

If arrest reoccurs, revert to appropriate protocol and/or initial successful treatment

Midazolam **PRN**

2.5-10mg IV/IO/IM

Or

Lorazepam **PRN**

1 - 2 mg IV/IO/IM.

Or

Diazepam **PRN**

2-5 mg IV/IO/IM

**M** Contact Medical Control **M**

**Notes:**
- Sedate as needed
- Continue antiarrhythmic infusions from previous resuscitation protocol **PRN**
Abdominal Pain

### History:
- Age
- Past medical / surgical history
- Medications
- Onset
- Palliation / Provocation
- Quality (crampy, constant, sharp, dull, etc.)
- Region / Radiation / Referred
- Severity (1-10)
- Time (duration / repetition)
- Fever
- Last meal eaten
- Last bowel movement / emesis
- Menstrual history (pregnancy)

### Signs/Symptoms:
- Pain (location / migration)
- Tenderness
- Nausea
- Vomiting
- Diarrhea
- Dysuria
- Constipation
- Vaginal bleeding
- Pregnancy
- Pulsating mass
- Chest pain
- Shortness of breath
- Abnormal vital signs

### Differential:
- AAA
- Ectopic pregnancy
- Bowel obstruction
- Cardiac
- Pregnancy (ectopic?)
- GI bleed
- Appendicitis
- Cholecystitis
- Pancreatitis
- Kidney stones

### Universal Patient Care Protocol

**Obtain IV/IO access**

**Nausea/Vomiting?**

- **Yes**
  - Consider **Chest Pain protocol** Pg. 20
  - **Ondansetron**
    - 4-8 mg IV/IM/SL
    - Or
    - **Promethazine**
      - 6.25-25 mg IV/IM
  - And/or
    - **Droperidol**
      - 0.625-1.25 mg IV/IM
    - Or
    - **Diphenhydramine**
      - 25-50 mg IV/IM/PO
  - **Contact Medical Control**

- **No**
  - Consider **Pain Management Protocol** Pg. 32
  - **Contact Medical Control**

### Notes:
- Document the mental status and vital signs prior to administration of **Promethazine** (Phenergan) and **Droperidol**.
- 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.
Allergic Reaction

ALS Transport if:

**History:**
- Onset and Location
- Insect bite/sting
- New clothing, soap, detergent

**Signs/Symptoms:**
- Anxiety
- Nausea / Vomiting
- Altered Mental Status
- Pale Diaphoresis
- Hypotension
- Rash
- Hives
- Angioedema
- Shortness of breath

**Universal Patient Care Protocol**

- Evidence of impending Respiratory distress or shock
- Hives / Rash only No respiratory component

**Notes:**
- Signs of shock include SBP < 90
- The shorter the onset from contact to symptoms, the more severe the reaction
- A single dose of epinephrine may not reverse the effects of anaphylaxis. Administer additional doses as needed
- Obtain ECG tracing during pharmacological administrations
- EMT may assist with patients own MDI
- Be watchful for possible secondary allergic response, after apparent resolution of initial S/S and patient should continue to be monitored by responsible adult for 30-60 minutes.

**Legend**

- **E** EMT
- **A** AEMT
- **P** PM
- **M** MC Order

**Epinephrine**
1:1000 0.1 – 0.3 mg IM
Repeat Epinephrine PRN

**Albuterol**
2.5 mg Pt.s MDI

**Diphenhydramine**
25-50 mg PO/IM/IV

**Prednisone**
60 mg PO

**Methylprednisolone**
125 mg IV / IM
Or
Prednisone
60 mg PO

**Ipratropium**
0.5 mg SVN

**Contact Medical Control**
Altered Mental Status/ Diabetic Emergency

**ALS Transport if:**

**History:**
- Known diabetic, medic alert tag
- Drugs, drug paraphernalia
- Report of illicit drug use or toxic ingestion
- Past medical history
- Medications
- History of trauma
- GI History
- Syncope

**Signs/Symptoms:**
- Decreased mental status
- Change in baseline mental status
- Bizarre behavior
- Hypoglycemia (cool, diaphoretic skin)
- Hyperglycemia (warm, dry skin; fruity breath; Kussmaul resps; signs of dehydration)
- Diabetic
- Syncope
- Abnormal Vital signs persists
- Shortness of breath

**Differential:**
- Hypovolemia
- Hypoxia
- Hydrogen ions (acidosis)
- Hypo-/Hyperkalemia
- Hypoglycemia
- Hypothermia
- Toxins
- Tamponade, cardiac
- Tension pneumothorax
- Thrombosis, coronary or pulmonary
- Trauma

**Universal Patient Care Protocol**

- **Blood Glucose check**
- **Blood Glucose**
  - **< 60 mg/dL**
    - Administer Oral Glucose
    - Patient Malnourished / ETOH?
      - Yes, Consider Thiamine 100 mg IV/IM
      - No, Dextrose D50% 25-50 g IV/IO
    - Glucagon 1 mg IM
  - **60-250 mg/dL**
    - Naloxone 0.4-2 mg IV/IM/IN
    - ECG / 12 lead
  - **> 250 mg/dL**
    - Consider Normal Saline 500-1,000 ml

**Notes:**
- 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 (< 60), normal glucose (60 - 120), high glucose (> 250).
- Consider Restraints if necessary for patient's and/or personnel's protection per the restraint procedure.
History:
- Age
- Duration
- Past medical history
- Last oral intake
- Medications
- Immunocompromised
- Bloody emesis/diarrhea
- Menstrual history
- Past surgical history
- Environmental exposure/travel history

Signs/Symptoms:
- Warm
- Sweaty
- Flushed
- Pain
- Radiation
- Abdominal distension
- Chills/Rigors
- Constipation
- Diarrhea
- Persistent Abnormal Vital signs
- ALOC
- Shortness of Breath

Differential:
- Infections / Sepsis
- Cancer / Tumors / Lymphomas
- GI or Renal disorders
- Heat Stroke
- Medication or drug reaction
- Vasculitis
- Hyperthyroid
- CNS disease/trauma
- Myocardial infarction
- Diabetic ketoacidosis
- Gynecologic disease (ovarian cyst, PID)
- Electrolyte abnormalities
- Pregnancy
- Psychologic

Universal Patient Care Protocol
1. Check blood glucose
2. Perform FAST Assessment Pg. 109
3. Obtain IV access
4. Fluid Bolus NS PRN
5. ECG/12 lead PRN

Consider:
- Acetaminophen 500-1000 mg PO
- Cooling measures
- Shivering? Or Hyperthermic?

Consider:
- Midazolam 1 - 2 mg IV/IO
- Ondansetron 4-8mg IV/IM/SL
- Or
- Droperidol 0.625-1.25 mg IV/IM
- Or
- Promethazine 6.25-25 mg IV/IM
- Or
- Diphenhydramine 25-50 mg IV/IM/PO
- Diazepam 1 - 2 mg IV / IM / IO
- Or
- Lorazepam 0.5 - 1 mg IV/IN/IM. May repeat PRN

Notes:
- Individuals’ normal body temperature differ, with 98.6°F (37°C) being average. Generally a temperature over 100.4°F (38°C) is considered a fever.
Overdose/Poisoning

**History:**
- Ingestion or suspected ingestion of a potentially toxic substance
- Substance ingested, route, quantity
- Time of ingestion
- Reason (suicidal, accidental, criminal)
- Past medical history, medications
- Home remedies given to patient prior to arrival

**Signs/Symptoms:**
- Mental status changes
- Hypotension / hypertension
- Decreased respiratory rate
- Tachycardia, dysrhythmias
- Seizures

**Differential:**
- Tricyclic antidepressants (TCAs)
- Acetaminophen (tylenol)
- Depressants
- Stimulants
- Anticholinergic
- Cardiac medications
- Solvents, Alcohols, Cleaning agents
- Insecticides (organophosphates)

**Notes:**
- Do not rely on patient history of ingestion, especially in suicide attempts.
- Bring bottles, contents, emesis to ED.
- Treat medication Over Doses if symptomatic including EKG changes SPB < 100, ALOC, ST > 100
- HR > 100

**Universal Patient Care Protocol**

1. **Check blood glucose**
   - **Above 60 mg/dl**
     - **BLS Provider?**
       - **Yes**
         - Contact Medical Control with nature of toxic exposure
       - **No**
         - Consider Activated Charcoal
2. **Obtain IV/IO access**
3. **Naloxone**
4. **ECG/12 lead**
5. **Consider TCP**

**Legend**

- EMT
- AEMT
- PM
- MC Order
- A
- P
- E
- M
- E
- P
- A
- E
- P
- E
- M

**Poison Control** 800-709-0911
# Pain Management

ALS transport if patients given a sedating medication.

## Universal Patient Care Protocol

### History:
- Location
- Duration
- Aggravating factors
- Alleviating factors

### Signs/Symptoms:
- O, P, Q, R, S, T
- Onset
- Palliation/Position/Provocation
- Quality/Quantity
- Radiation/Referral/Region
- Severity (0-10)
- Timing (duration/repetition)

### Universal Patient Care Protocol

**Morphine** PRN
- 2-4 mg IV, then
- 1-3 mg q 2 min to 20 mg max
Or
**Hydromorphone**
- 0.5 mg IV q 3-5 min
- max 4 mg
Or
**Fentanyl**
- 25-50 mcg IV titrated
- q 3-5 min to max 200 mcg
And/Or
**Ketorolac**
- 30 mg IV or 60 mg IM

**Obtain IV/IO access** A

**ECG/ 12 lead** PRN P

**Nitrous Oxide** PRN P
- if available

### Sedation
- **Lorazepam** PRN
  - 0.5 - 1 mg IV/IO/IN/IM
  - Or
- **Midazolam**
  - 2.5-5 mg IV/IO/IN
  - Or
- **Diazepam**
  - 2.5 mg IV/IO/IN

**Contact Medical Control** M

### Notes:
- The goal of pain management is patient comfort while maintaining alertness and the ability to communicate effectively with the medical care team.
- *see indications in formulary. Low dose especially in the elderly*
## Psychological / Emotional Emergencies

**ALS transport if patients given a sedating medication.**

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

### Universal Patient Care Protocol

1. **Leave scene immediately**
2. **Call for police assistance**
3. **Attempt verbal control**
   - **Successful?**
   - **Yes**
     - **Await Police**
   - **No**
     - **Evidence of immediate danger to crew?**
       - **Yes**
         - **Immediate risk of harm to patient or others?**
           - **Yes**
             - **Restraint Procedure Pg. 121-122 PRN**
           - **No**
             - **Or monitor situation and await Police**
               - **Obtain IV/IO access PRN**
               - **ECG / 12 Lead**
               - **Droperidol* 2.5-5 mg IV/IM**
               - **Lorazepam* 0.5-2 mg IV/IO/IN/IM**
               - **Midazolam* 2.5-5 mg IV/IO/IN/IM**
               - **Diazepam* 2-5 mg IV/IO/IN**
               - **Contact Medical Control M**
               - **Assess and treat patient per appropriate protocol**
               - **No**
                 - **Yes**
                   - **Doses may be repeated for the immediate safety of the provider or the patient with contact of Medical Control directly thereafter.**

### Notes:
- Your safety first!!
- Be sure to consider all possible medical/trauma causes for behavior (Hypovolemia, Hypoxia, Hydrogen ions (acidosis), Hyper-/Hyperkalemia, Hypoglocemia, Hypothermia, Toxins, Tamponade,cardiac, Tension pneumothorax, Thrombosis, pulmonary or coronary, Trauma
- Do not irritate the patient with a prolonged exam.
- Do not overlook the possibility of associated domestic violence or child abuse.
- *Doses may be repeated for the immediate safety of the provider or the patient with contact of Medical Control directly thereafter.*

### Legend

- E: EMT
- A: AEMT
- P: PM
- M: MC Order

---

**2012 - Northwest Region Emergency Medical Services & Trauma Care Council**
Seizure

**ALS transport if patients given a sedating medication and / or:**

- **History:**
  - Prior history of seizures
  - Seizure medications
  - Reported seizure activity
  - History of recent head trauma
  - Congenital abnormality
  - Pregnancy (see Pregnancy Induced Hypertension - Eclampsia)
  - Medical alert tag

- **Signs/Symptoms:**
  - Observed seizure activity
  - Altered mental status
  - Tonic / clonic activity
  - Status epilepticus
  - Incontinence
  - Mouth trauma
  - First time Seizure

- **Universal Patient Care Protocol**
  - Position patient on side to prevent aspiration
  - Blood Glucose <60mg/dL
    - A Obtain IV/IO access
    - P Glucagon PRN 1 mg IM to 1 mg max
    - A Dextrose PRN 12.5-25 g IV/IO
    - Yes, Pregnant Patient

- **Differential:**
  - Hypovolemia
  - Hypoxia
  - Hydrogen ions (acidosis)
  - Hypo-/Hyperkalemia
  - Hypoglycemia
  - Hypothermia
  - Toxins
  - Tamponade, cardiac
  - Tension pneumothorax
  - Thrombosis, coronary or pulmonary
  - Trauma

- **Notes:**
  - Be prepared to assist ventilations especially if a benzodiazepine is used.
  - If evidence or suspicion of trauma, spine should be immobilized.
**Stroke**

**Universal Patient Care Protocol**

**History:**
- Previous CVA, TIA’s
- Previous cardiac / vascular surgery
- Associated diseases: diabetes, hypertension, CAD
- Atrial fibrillation
- Medications (blood thinners)
- History of trauma

**Signs/Symptoms:**
- Altered mental status
- Weakness / Paralysis
- Blindness or other sensory loss
- Aphasia / Dysarthria
- Syncope
- Vertigo / Dizziness
- Vomiting
- Headache
- Seizures
- Respiratory pattern change
- Questionable airway
- Abnormal vital signs

**Differential:**
- Hypovolemia
- Hypoxia
- Hydrogen ions (acidosis)
- Hypo-/Hyperkalemia
- Hypoglycemia
- Hypothermia
- Toxins
- Tamponade, cardiac
- Tension pneumothorax
- Thrombosis, coronary or pulmonary
- Trauma

**Notes:**
- 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.
- Be alert for airway problems (swallowing difficulty, vomiting).
- Hypoglycemia can present as a localized neurologic deficit, especially in the elderly.
**Pregnancy Induced Hypertension**

**ALS transport if available gently and quietly**

**History:**
- Past medical history
- Prenatal care
- Medications/drugs
- Familial incidence
- Primigravida
- Renal disease

**Signs/Symptoms:**
- Seizure
- Hypertension
- Tachycardia
- Edema
- Headache
- Visual disturbance
- Abdominal pain
- Amnesia and/or other change in mental status

**Differential:**
- Hypertension
- Multiple fetuses
- Gestational diabetes
- Microthrombi
- Improper placental implantation

---

**Universal Patient Care Protocol**

1. Place in left lateral recumbent position
2. Obtain IV/IO access
3. ECG
4. Doppler Fetal Heart Tones if available
5. Pt Seizing?
   - Yes: Magnesium Sulfate 4 g IVP
   - No: Contact Medical Control

**Legend**
- **E**: EMT
- **A**: AEMT
- **P**: PM
- **M**: MC Order

**Notes:**
- Eclampsia can present up to two months postpartum
- Severe headache, vision changes, or RUQ pain may indicate preeclampsia.
- In the setting of pregnancy, hypertension is defined as a BP greater than 140 systolic or greater than 90 diastolic, or a relative increase of 30 systolic and 20 diastolic from the patient's normal (pre-pregnancy) blood pressure.
- Maintain patient in a left lateral position to minimize risk of supine hypotensive syndrome.
Postpartum

ALS transport if available:

<table>
<thead>
<tr>
<th>History:</th>
<th>Signs/Symptoms:</th>
<th>Differential:</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Prenatal care?</td>
<td>· Excess vaginal bleeding</td>
<td>· Secretions</td>
</tr>
<tr>
<td>· Due date and gestational age</td>
<td>· Signs of shock</td>
<td>· Infection</td>
</tr>
<tr>
<td>· Multiple gestation (twins etc.)</td>
<td></td>
<td>· Hypovolemia</td>
</tr>
<tr>
<td>· Meconium</td>
<td></td>
<td>· Hypoglycemia</td>
</tr>
<tr>
<td>· Delivery difficulties</td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Medications (maternal)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Maternal risk factors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Substance abuse</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Universal Patient Care Protocol

Encourage breast feeding

Obtain IV/IO access

Placenta delivered?

Yes

Fundal Massage Pg. 108

Oxytocin
10 units IM
then

No

Oxytocin
20 units in 1000 mL
NS titrated to severity of bleeding

Contact Medical Control

Legend

E EMT
A AEMT
P PM
M MC Order

2012 - Northwest Region Emergency Medical Services & Trauma Care Council
# Environmental Emergencies

### Universal Patient Care Protocol

#### History:
- Age
- Exposure to increased/decreased temperatures and/or humidity
- Past medical history/medications
- Extreme exertion
- Time and length of exposure
- Poor PO intake

#### Signs/Symptoms:
- Altered mental status or unconsciousness
- Hot, dry or sweaty skin
- Hypotension or shock
- Seizure
- Nausea
- Fatigue and / or muscle cramping

#### Differential:
- Fever (Infection) / Sepsis
- Dehydration
- Medications
- Hyperthyroidism (Storm)
- Delirium tremens (DT's)
- Heat exhaustion
- Heat stroke
- Hypoglycemia
- Poisoning/overdose

### Cooling Measures

- **Shivering?**
  - Yes
  - **Consider**
    - Lorazepam 0.5 - 1 mg IV/IN/IM
    - Midazolam 2.5-5 mg IV/IO
    - Diazepam 2.5-5 mg IV/IO
  - **Blood Glucose check**
  - **Treat per appropriate protocol**
- No

### Warming Measures

- **Hyperthermic?**
  - **Document patient temperature**
- **Hypothermic?**
  - **Obtain IV/IO access**
  - **Fluid bolus NS**
  - **ECG/ 12 lead**

### Notes:
- **ATTEMPT REWARMING BEFORE CEASING RESUSCITATION EFFORTS.**
- Extremes of age are more prone to temperature emergencies (i.e. young and old).
- Core temperature is the most reliable measure - for pts with ALOC and pts < 2 years old this should be the method of measurement.
- Heat emergencies predisposed by use of: tricyclic antidepressants, phenothiazines, anticholinergic medications, and alcohol.
- Cocaine, Amphetamines, and Salicylates may elevate body temperatures.
- Shivering stops below 32° C (90° F).
- Sweating generally disappears as body temperature rises above 104° F (40° C).
- 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).
- Hypothermia may produce severe bradycardia.
Burns

ALS transport if available:

**History:**
- Type of exposure (heat, gas, chemical)
- Inhalation injury
- Other trauma
- Loss of consciousness

**Signs and Symptoms:**
- Burns, pain, swelling
- Dizziness
- Loss of consciousness
- Shock / Hypotension
- Airway compromise / distress
- Singed facial or nasal hair
- Hoarseness / wheezing

**Differential:**
- Chemical
- Thermal
- Electrical
- Radiation

**Universal Patient Care Protocol**

- Oxygen 
  PRN
  Advanced Airway Management

**Stop the burning process:**
Remove jewelry and clothing that may be burned, covered in chemicals or restricting.

**Thermal / Electrical**
- Cover burn with a dry clean sheet or dressing
  Keep warm

**Chemical**
- Brush off any excess chemical or powder

**Pain Management Protocol**
Pg. 32

- If burn < 10% body surface area
  Cool down the wound with Normal Saline
  Cover burn with a dry clean sheet or dressing
  Outlying areas may use burn gel for comfort in burns < 10% BSA

- Outlying areas may use burn gel for comfort in burns < 10% BSA

- Obtain IV / IO access
  If Hypotensive fluid bolus
  If not Hypotensive Maintenance fluid

**Legend**

<table>
<thead>
<tr>
<th></th>
<th>E</th>
<th>EMT</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>AEMT</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>PM</td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>MC Order</td>
<td>M</td>
<td></td>
</tr>
</tbody>
</table>
## SCUBA Emergencies

**Transport ALL near drowning Patients/ALS if:**

### History:
- Aspiration of fluid
- Possible history of trauma
- Duration of immersion
- Temperature of water
- Depth of dive
- Know history of dive (tank pressure / gas content)
- Recent air travel
- Salt vs. Fresh water

### Signs and Symptoms:
- Unresponsive
- Changes in mental status
- Coughing
- Joint pain or tooth pain
- Ear pain/hearing loss
- Stroke like symptoms
- Itching
- Rash

### Differential:
- Trauma
- Pre-existing medical problem
- Pressure injury (diving)
  - Barotrauma
  - Decompression sickness
- Near Drowning

### Universal Patient Care Protocol

1. **100% O₂ Non rebreather mask**
2. **Spinal Immobilization**
   - Left lateral recumbant
3. **Remove wet clothing**
4. **Cover with dry (warm) blankets**
5. **Warming Measures**
6. **A**
   - Obtain IV/IO access
7. **Monitor and reassess**
8. **M**
   - Contact Medical Control

### Notes:
- Transport dive computer with patient
- **Scene safety!** Drowning is a leading cause of death in would-be rescuers.
- With cold water there is no time limit- resuscitate all.
- All near drowning victims should be transported- conditions may deteriorate during the next several hours
- Activate Trauma system. Harborview must clear patient prior to going to Virginia Mason unless Active duty/dependants
  - Consider Airlift Transport. Contact early
- For Air Embolism symptoms patient should be placed on high flow oxygen, and lie patient down on left side with head and feet neutral.
- **Diver’s Alert network (DAN) (877) 595-0625**
  - Hyperbaric Chambers capable of taking patients with the Bends or Carbon Monoxide poisoning on an emergency basis:
    - **Virginia Mason Medical Center**
      - Center for Hyperbaric Medicine
      - 925 Seneca Street
      - Seattle, WA 98111
      - Phone 24 hours (206) 583-6543
    - **US Naval Undersea Warfare Center (Active duty/dependants)**
      - Phone 24 hours (360) 396-2111
      - Daytime (360) 396-2522
      - *Call for availability*
Drowning / Near Drowning

**History:**
- Aspiration of fluid
- Submersion in water - regardless of depth
- Possible history of trauma
- Duration of immersion
- Temperature of water
- Salt vs. Fresh water

**Signs and Symptoms:**
- Unresponsive
- Changes in mental status
- Coughing
- Respiratory compromise

**Differential:**
- Trauma
- Pre-existing medical problem
- Pressure injury (diving)
  - Barotrauma
  - Decompression sickness

---

**Universal Patient Care Protocol**

1. 100% O₂ Non rebreather mask
2. Spinal Immobilization Protocol
3. Remove wet clothing
   - Cover with dry (warm) blankets
   - Warming Measures
4. Obtain IV/IO access
5. Monitor and reassess
6. Treat per appropriate protocol
7. Contact Medical Control

---

**Notes:**
- **Exam:** Check Head, Neck, Chest, Abdomen, Pelvis, Back, Extremities, Skin, Neuro for Trauma
- With cold water there is no time limit - resuscitate all.
- **Scene safety!** Drowning is a leading cause of death in would-be rescuers.
Head Injury

**Universal Patient Care Protocol**

- **Isolated Head Trauma?**
  - Yes
    - Spinal Immobilization with head of board elevated approx. 30°
    - Maintain SpO₂ ≥ 90%
    - GCS
  - No

- **GCS 3-8**
  - Obtain IV access
  - Maintain SBP ≥ 90 mm Hg
  - Intubate (RSI)

- **GCS 9 or greater**
  - Obtain IV access
  - Maintain SBP ≥ 90 mm Hg
  - Ondansetron (PRN) 4-8 mg IV/OI/IM
    - Or
    - Droperidol 0.625-1.25 IV/IM
    - Or
    - Promethazine 6.25-25 mg IV/IM
  - Maintain Capnography where available (maintain EtCO₂ 32-37 mmHg)
  - Avoid excessive hyperventilation
  - Contact Medical Control

**Differential:**
- Seizure
- Stroke
- Alcohol
- Epilepsy
- Endocrine
- Insulin
- Overdose
- Uremia
- Trauma
- Infection / sepsis
- Psychosis

**History:**
- Onset
- Mechanism (blunt / penetrating)
- Loss of consciousness
- Bleeding
- Medical History (ETOH…)
- Medications (Coumadin…)
- Extremes of age

**Signs and Symptoms:**
- Pain, swelling, bleeding, otorhinorrhea
- Altered Level of Consciousness
- Respiratory distress/failure
- Vomiting
- Significant mechanism of injury

**Signs of Herniation:**
- GCS <8
- Fixed or asymmetric pupils
- Neurologic Posturing
- Cushings Triad
- Intermittent apnea
- Neurologic deterioration (decrease in GCS ≥ 2)

**Legend**
- E
- EMT
- A
- AEMT
- P
- PM
- M
- MC Order

**Multi-system Trauma Protocol**
Pg. 43

**ALS transport if available:**

**Legend**

- E
- EMT
- A
- AEMT
- P
- PM
- M
- MC Order
# Multi-system Trauma

## History:
- Time and Mechanism of injury
- Damage to structure or vehicle
- Location in structure or vehicle
- Others injured or dead
- Speed and details of MVA
- Restraints / protective equipment
- Symptoms preceding incident

## Signs and Symptoms:
- Altered mental status or unconscious
- Hypotension or shock

## Differential:
- Chest: Tension pneumothorax
- Flail Chest
- Pericardial Tamponade
- Open chest wound
- Hemothorax
- Intra-abdominal bleeding
- Pelvis/femur fracture
- Spine fracture / Cord injury
- Extremity fracture / Dislocation
- HEENT (Airway Obstruction)
- Hypothermia

## Universal Patient Care Protocol

**Expose injuries**

**Arrange transport according to the CDC Pg. 9 / Or County Operating Procedure**

---

**Wound Care / Hemorrhage Control?**

**Pelvic Stabilization?** Pg. 119

**Spinal Immobilization?** Pg. 124

**Obtain IV/IO access**

**Signs of Shock?**

**LR/NS bolus**: repeat as needed to maintain BP of 80-90 systolic

**Reassess Airway/Ventilation**

**Advanced Procedures as Needed**

**Ongoing Assessment**

**Appropriate Protocol**

---

**Contact Medical Control**

---

## Notes:
- **Exam**: Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Extremities, Back, Neuro
- Mechanism is often a good indicator of serious injury
- If domestic violence or abuse is suspected it must be reported to Law Enforcement, receiving facility, airlift.
**Pediatric Airway**

**Notes:**
- For this Guideline, child is defined as less than 12 years old.
- EMT’s must have multi-lumen airway training to use Combitubes or LMAs.
- Limit intubation attempts to 3 per patient.
- If unable to intubate, continue BVM ventilations, transport rapidly, and notify receiving hospital early.
- Capnometry, or capnography is mandatory with all methods of intubation. Document results.
- Maintain C-spine immobilization for patients with suspected spinal injury.
- Reconfirm ETT placement each time patient is moved.
- Continuous pulse oximetry should be utilized in all patients with inadequate respiratory function.
- All choking victims need to be transported to the hospital. Children who have possibly aspirated anything may not be transported POV, but can be transported BLS if stable.
Pediatric Difficult Airway

**History:**
- Know difficult Airway
- Neck or head trauma
- Trisomy 21
- Congenital malformations

**Differential:**
- Physical Examination
  - Small jaw or limited jaw opening
  - Limited cervical spine movement
  - Swollen tongue, oropharynx, or neck, midface hypoplasia

---

**Universal Patient Care Protocol**

1. **Basic Maneuvers:**
   - Open airway, nasal/oral airway, bag-valve mask

2. **Pediatric Rapid Sequence Intubation (RSI) Pg. 46**

3. **RSI successful?**
   - Yes
   - No

4. **Airway Secured?**
   - Yes
   - No

5. **Repeat RSI**
   - Yes
   - No

6. **RSI successful?**
   - Yes
   - No

7. **Patient oxygenation and ventilation adequately with bag/mask ventilation?**
   - Yes
   - No

---

**Alternate Airway Management**

1. **Supraglottic airway successful?**
   - Yes
   - No

2. **Needle Cricothyroidotomy Pg. 76**

---

**Legend**

- EMT
- AEMT
- A
- PM
- M
- MC Order

---

**Contact Medical Control**

---

2012 - Northwest Region Emergency Medical Services & Trauma Care Council
Pediatric Rapid Sequence Intubation

Universal Patient Care Protocol

A Preoxygenate with 100% FiO2 for 5 min. Avoid bag mask ventilation if possible

A Obtain IV/IO access

P Consider premed with Atropine 0.02 mg/kg

P Shock?

Yes

E Etomidate 0.3 mg/kg

**If septic consider using instead

Fentanyl 2 mcg/kg And Midazolam 0.1 mg/kg

P

No

E Lidocaine 1 mg/kg

E Etomidate 0.3 mg/kg

P Apply cricoid pressure

P

No

Suspected intracranial hypertension?

Yes

E Etomidate 0.3 mg/kg

OR

Fentanyl 2 mcg/kg And Midazolam 0.1 mg/kg

P

No

Universal Patient Care Protocol

Contact Medical Control

AEMT

EMT

Legend

E EMT

A AEMT

P PM

M MC Order

ALS transport if available

Any personal or family history of malignant hyperthermia, known or suspected mitochondrial or skeletal myopathy, glaucoma, penetrating eye injury?

Yes

Rocuronium 1 mg/kg

OR

Vecuronium 0.1 mg/kg

P

No

Perform intubation, confirm placement, remove cricoid pressure, inflate cuff if necessary until resistance

Succinylcholine 2 mg/kg

OR

Rocuronium 1 mg/kg

M Contact Medical Control

M

Weight 4 kg grey 6 kg pink 8 kg red 10 kg purple 12 kg yellow 15 kg white 19 kg blue 24 kg orange 30 kg green

Atropine 0.08 mg 0.12 mg 0.16 mg 0.2 mg 0.24 mg 0.30 mg 0.38 mg 0.48 mg 0.60 mg

Etomidate 1.2 mg 1.8 mg 2.4 mg 3 mg 3.6 mg 4.5 mg 5.7 mg 7.2 mg 9 mg

Lidocaine 4 mg 6 mg 8 mg 10 mg 12 mg 15 mg 19 mg 24 mg 30 mg

Fentanyl 8 mcg 12 mcg 16 mcg 20 mcg 24 mcg 30 mcg 36 mcg 48 mcg 60 mcg

Midazolam 0.4 mg 0.6 mg 0.8 mg 1 mg 1.2 mg 1.5 mg 1.9 mg 2.4 mg 3 mg

Succinylcholine 8 mg 12 mg 16 mg 20 mg 24 mg 30 mg 36 mg 48 mg 60 mg

Vecuronium 0.4 mg 0.6 mg 0.8 mg 1 mg 1.2 mg 1.5 mg 1.9 mg 2.4 mg 3 mg

Rocuronium 4 mg 6 mg 8 mg 10 mg 12 mg 15 mg 19 mg 24 mg 30 mg

2012 - Northwest Region Emergency Medical Services & Trauma Care Council
Pediatric Cardiac Arrest

**Differential:**
- Respiratory effort
- Foreign body obstructions
- Hypovolemia (dehydration)
- Hypoxia
- Hydrogen ion (acidosis)
- Hypo-/hyperkalemia
- Hypoglycemia
- Hypothermia
- Toxins
- Tamponade, cardiac
- Tension pneumothorax
- Thrombosis (coronary or pulmonary)
- Trauma (hypovolemia, increased ICP)

**History:**
- Medical history
- Possibility of foreign body
- Respiratory distress or arrest
- Possible toxic or poison exposure
- Congenital disease
- Medication (maternal or infant)

**Universal Patient Care Protocol**

1. **Begin CPR Pg. 110**

2. **Apply AED / ECG monitor / Defibrillator**
   - Access rhythm, shock as advised

3. **Continue CPR Pg. 110**
   - IMMEDIATELY following shock or rhythm analysis

4. **Oxygen PRN**

5. **Advanced Airway Management**

6. **Obtain IV/IO access**

7. **Fluid bolus 20 ml/kg IV/IO**
   - May repeat up to 60 ml/kg

8. **Ongoing assessment**

9. **Consider other treatment Protocol as necessary**

10. **Return Of Spontaneous Circulation (ROSC)?**
    - **Yes**
    - **Post Resuscitation Protocol Pg. 52**
    - **No**

11. **Contact Medical Control**
Pediatric Bradycardia

**Universal Patient Care Protocol**

- **Oxygen**
- **Advanced Airway Management**
- **ECG / 12 lead**
- **Perform CPR if despite oxygenation and ventilation HR<60/mn with poor perfusion**
- **Obtain IV/IO access**
- **Support ABC’s; give oxygen if needed**
- **Observe**

**Differential:**
- Respiratory failure
- Foreign body obstructions
- Hypovolemia (dehydration)
- Hypoxia
- Hydrogen ion (acidosis)
- Hypo-/hyperkalemia
- Hypoglycemia
- Hypothermia

**History:**
- Medical history
- Possibility of foreign body
- Respiratory distress or arrest
- Possible toxic or poison exposure
- Congenital disease
- Medication (maternal or infant)
- Toxins
- Tamponade, cardiac
- Tension pneumothorax
- Thrombosis (coronary or pulmonary)
- Trauma (hypovolemia, increased ICP)

**Legend**

- **E** EMT
- **A** AEMT
- **P** PM
- **M** MC
- **PRN**

**Epinephrine**
- 1 : 10,000
- 0.01 mg/kg IV / IO
- OR
- 1 : 1,000
- 0.1 mg/kg ET
- Repeat every 3-5 min.PRN

**Atropine**
- 0.02 mg/kg IV/IO
- Consider pacing

**Contact Medical Control**

**Weight**

<table>
<thead>
<tr>
<th>Weight</th>
<th>4 kg</th>
<th>6 kg</th>
<th>8 kg</th>
<th>10 kg</th>
<th>12 kg</th>
<th>15 kg</th>
<th>19 kg</th>
<th>24 kg</th>
<th>30 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epinephrine 1 : 10,000</td>
<td>0.04 mg</td>
<td>0.06 mg</td>
<td>0.08 mg</td>
<td>0.1 mg</td>
<td>0.12 mg</td>
<td>0.15 mg</td>
<td>0.19 mg</td>
<td>0.24 mg</td>
<td>0.3 mg</td>
</tr>
<tr>
<td>Epinephrine 1 : 1,000</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2.4 mg</td>
<td>3 mg</td>
</tr>
<tr>
<td>Atropine</td>
<td>0.1 mg</td>
<td>0.12 mg</td>
<td>0.16 mg</td>
<td>0.2 mg</td>
<td>0.24 mg</td>
<td>0.3 mg</td>
<td>0.38 mg</td>
<td>0.48 mg</td>
<td>0.6 mg</td>
</tr>
</tbody>
</table>
Pediatric Narrow Complex Tachycardia

**History:**
- Medications or toxins
- Congenital heart disease
- Respiratory distress
- Syncope
- Volume loss (diarrhea / vomiting)

**Differential:**
- **Sinus Tachycardia vs. SVT**
  - Heart disease (congenital)
  - Electrolyte imbalance
  - Hypotension
  - Fever / infection / sepsis
  - Medication / toxin / drugs
  - Pulmonary Embolism
  - Tension pneumothorax

---

**Universal Patient Care Protocol**

- **Oxygen**
  - PRN
  - Advanced Airway Management
  - 12 lead / ECG
    - PRN

- **Adequately perfused**
  - **Obtain IV/IO access**
  - **A**

- **Poorly perfused**
  - **Borderline**
  - **Attempt Vagal maneuver**

- **Probable Sinus Tachycardia**
  - Infant rate < 220 bpm
  - Children < 180 bpm

- **Probable SVT**
  - Infant rate ≥ 220 bpm
  - Children ≥ 180 bpm

- **Search and treat causes**
  - **Consider Vagal Maneuvers (no delays)**

- **Adenosine**
  - 0.1 mg/kg
  - PRN Repeat dose
  - 0.2 mg/kg

- **Synchronized Cardioversion**
  - Pg. 101

- **Contact Medical Control**
  - M

---

**Legend**

- **E**: EMT
- **A**: AEMT
- **P**: PM
- **M**: MC Order

---

**Weight**

<table>
<thead>
<tr>
<th>Weight</th>
<th>4 kg</th>
<th>6 kg</th>
<th>8 kg</th>
<th>10 kg</th>
<th>12 kg</th>
<th>15 kg</th>
<th>19 kg</th>
<th>24 kg</th>
<th>30 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>grey</td>
<td>pink</td>
<td>red</td>
<td>purple</td>
<td>yellow</td>
<td>white</td>
<td>blue</td>
<td>orange</td>
<td>green</td>
</tr>
<tr>
<td><strong>Adenosine</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.1 mg/kg – 1st dose</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2.4 mg</td>
<td>3 mg</td>
</tr>
<tr>
<td>0.2 mg/kg – 2nd dose</td>
<td>0.8 mg</td>
<td>1.2 mg</td>
<td>1.6 mg</td>
<td>2 mg</td>
<td>2.4 mg</td>
<td>3 mg</td>
<td>3.8 mg</td>
<td>4.8 mg</td>
<td>6 mg</td>
</tr>
<tr>
<td><strong>Midazolam</strong></td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2 mg</td>
<td>2 mg</td>
</tr>
<tr>
<td><strong>Diazepam</strong></td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2 mg</td>
<td>2 mg</td>
</tr>
<tr>
<td><strong>Lorazepam</strong></td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2 mg</td>
<td>2 mg</td>
</tr>
</tbody>
</table>

---

2012 - Northwest Region Emergency Medical Services & Trauma Care Council
Pediatric Wide Complex Tachycardia

**History:**
- Medications or toxins
- Congenital heart disease
- Respiratory distress
- Syncope
- Drugs (cocaine)

**Differential:**
- Heart disease (congenital)
- Hypovolemia (dehydration) or anemia
- Electrolyte imbalance
- Anxiety
- Hypotension
- Medication / toxin / drugs

**Universal Patient Care Protocol**

1. Oxygen  
   | Advanced Airway Management  
   | 12 lead / ECG  
   | Obtain IV/IO access

**Is rhythm regular?**

- Yes
  - **Lidocaine** 1 mg/kg IV/IO
    - Or  
    - **Amiodarone** 5 mg/kg IV/IO
  - **Unable to convert or unstable?**
    - Yes
      - **Midazolam** 0.1 mg/kg IV / IO
        - Or  
        - **Diazepam** 0.1 mg/kg IV / IO
          - Or  
          - **Lorazepam** 0.1mg/kg IV / IO
      - **Synchronized Cardioversion Pg. 101**
    - No
      - Atrial Fibrillation, Monitor patient and transport. (Atrial Fibrillation very rare)

**Legend**

- E  
  - EMT
  - A  
  - AEMT
  - P  
  - PM
  - M  
  - MC Order

**Weight**

<table>
<thead>
<tr>
<th>Weight</th>
<th>4 kg grey</th>
<th>6 kg pink</th>
<th>8 kg red</th>
<th>10 kg purple</th>
<th>12 kg yellow</th>
<th>15 kg white</th>
<th>19 kg blue</th>
<th>24 kg orange</th>
<th>30 kg green</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lidocaine</td>
<td>4 mg</td>
<td>6 mg</td>
<td>8 mg</td>
<td>10 mg</td>
<td>12 mg</td>
<td>15 mg</td>
<td>19 mg</td>
<td>24 mg</td>
<td>30 mg</td>
</tr>
<tr>
<td>Amiodarone</td>
<td>20 mg</td>
<td>30 mg</td>
<td>40 mg</td>
<td>50 mg</td>
<td>60 mg</td>
<td>75 mg</td>
<td>95 mg</td>
<td>120 mg</td>
<td>150 mg</td>
</tr>
<tr>
<td>Midazolam</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2 mg</td>
<td>2 mg</td>
</tr>
<tr>
<td>Diazepam</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2 mg</td>
<td>2 mg</td>
</tr>
<tr>
<td>Lorazepam</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2 mg</td>
<td>2 mg</td>
</tr>
</tbody>
</table>

**Contact Medical Control**
Pediatric PEA / Asystole

**History:**
- Time of arrest
- Medical history
- Possibility of foreign body
- Hypothermia
- Non-accidental trauma
- SIDS

**Differential:**
- Respiratory failure
- Foreign body obstructions
- Hypovolemia (dehydration)
- Hypoxia
- Hydrogen ion (acidosis)
- Hypo-hyperkalemia
- Hypoglycemia
- Hypothermia
- Toxins
- Tamponade, cardiac
- Tension pneumothorax
- Thrombosis (coronary or pulmonary)
- Trauma (hypovolemia, increased ICP)

---

**Universal Patient Care Protocol**

1. **Begin CPR Pg. 110**
2. **Oxygen**
   - Advanced Airway Management
3. **Obtain IV/IO access**
4. **Epinephrine 1 : 10,000**
   - 0.01 mg/kg IV / IO
   - Repeat every 3-5 min. PRN
5. **Resume CPR and treat other associated rhythms, consider differentials**
6. **Assess Rhythm after 2 minutes of CPR**
7. **Contact Medical Control**

---

**Legend**

- E: EMT
- A: AEMT
- P: PM
- M: MC Order

**Epinephrine 1 : 10,000**
- 0.01 mg/kg IV / IO
  - Repeat every 3-5 min. PRN

**Epinephrine 1 : 1,000**
- 0.1 mg/kg ET
  - Repeat every 3-5 min. PRN

**Weight and Doses**

<table>
<thead>
<tr>
<th>Weight</th>
<th>4 kg grey</th>
<th>6 kg pink</th>
<th>8 kg red</th>
<th>10 kg purple</th>
<th>12 kg yellow</th>
<th>15 kg white</th>
<th>19 kg blue</th>
<th>24 kg orange</th>
<th>30 kg green</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epinephrine 1 : 10,000</td>
<td>0.04 mg</td>
<td>0.06 mg</td>
<td>0.08 mg</td>
<td>0.1 mg</td>
<td>0.12 mg</td>
<td>0.15 mg</td>
<td>0.19 mg</td>
<td>0.24 mg</td>
<td>0.3 mg</td>
</tr>
<tr>
<td>Epinephrine 1 : 1,000</td>
<td>0.4 mg</td>
<td>.06 mg</td>
<td>.08 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2.4 mg</td>
<td>3 mg</td>
</tr>
</tbody>
</table>

**Contact Medical Control**
**Pediatric Post Resuscitation Management**

**Universal Patient Care Protocol**

- **Oxygen** PRN
- **Advanced Airway Management**

- **Obtain IV/IO access** A

- **Fluid bolus 20 ml/kg IV/IO**
  May repeat up to 60 ml/kg A

- **12 lead / ECG** PRN P

- **ETCO2 If available** PRN P

- **Sedation Post Intubation** P

- **Midazolam**
  0.1 mg/kg IV / IO
  Or
  **Diazepam**
  0.1 mg/kg IV / IO max 2 mg
  Or
  **Lorazepam**
  0.1 mg/kg IV / IO max 2 mg

- **Consider Pain Management**
  Procedure Pg. 60

- **Treat other associated signs and symptoms per guideline**
  Consider temperature control

- **Contact Medical Control** M

---

<table>
<thead>
<tr>
<th>Weight</th>
<th>4 kg grey</th>
<th>6 kg pink</th>
<th>8 kg red</th>
<th>10 kg purple</th>
<th>12 kg yellow</th>
<th>15 kg white</th>
<th>19 kg blue</th>
<th>24 kg orange</th>
<th>30 kg green</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midazolam</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2.4 mg</td>
<td>3 mg</td>
</tr>
<tr>
<td>Diazepam</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2 mg</td>
<td>2 mg</td>
</tr>
<tr>
<td>Lorazepam</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2 mg</td>
<td>2 mg</td>
</tr>
</tbody>
</table>
Pediatric Anaphylaxis

**Universal Patient Care Protocol**

1. **History:**
   - Allergies
   - Medications
   - Past Medical history
   - Last oral ingestion
   - Event preceding

2. **Differential:**
   - Acute respiratory failure
   - Anxiety
   - Aspiration
   - Asthma
   - Drug reaction
   - Shock

3. **Evidence of impending Respiratory distress or shock?**
   - Yes: 
     - **Epinephrine**
     - 1:1,000 0.01 mg/kg IM
     - May repeat q 5 mins X 2 (total 3 doses)
     - **Albuterol**
     - 5 mg Nebulized single dose
     - **Diphenhydramine**
     - 1 mg/kg IV/IO/IM/PO
     - **Prednisone**
     - 1 mg/kg PO
     - Or
     - **Methylprednisolone**
     - 2 mg/kg IV/IO/IM
     - Or
     - **Decadron**
     - 0.6 mg/kg IV/IO/IM/PO
     - **Prednisone**
     - 4 mg
     - 6 mg
     - 8 mg
     - 10 mg
     - 12 mg
     - 15 mg
     - 19 mg
     - 24 mg
     - 30 mg
     - **Methylprednisolone**
     - 2 mg
     - 4 mg
     - 6 mg
     - 8 mg
     - 10 mg
     - 12 mg
     - 15 mg
     - 19 mg
     - 24 mg
     - 30 mg
     - **Decadron**
     - 2.4 mg
     - 3.6 mg
     - 4.8 mg
     - 6 mg
     - 7.2 mg
     - 9 mg
     - 11.4 mg
     - 14.4 mg
     - 18 mg
     - **Epinephrine**
     - 0.04 mg
     - 0.06 mg
     - 0.08 mg
     - 0.1 mg
     - 0.12 mg
     - 0.15 mg
     - 0.19 mg
     - 0.24 mg
     - 0.3 mg

4. **Oxygen**
   - Advanced Airway Management
   - **ECG/ Consider 12 lead**
   - **Obtain IV/IO access**
   - **Fluid Bolus NS**
     - 20 ml/kg IV/IO
     - May repeat up to 60 ml/kg
   - **Albuterol Nebulized**
   - 5 mg Nebulized single dose
   - **Prednisone**
     - 1 mg/kg PO
     - Or
     - **Methylprednisolone**
     - 2 mg/kg IV/IO/IM
     - Or
     - **Decadron**
     - 0.6 mg/kg IV/IO/IM/PO
   - **Epinephrine Drip**
     - 0.1-1.5 mcg/kg/min IV/IO
   - **Diphenhydramine**
     - 1 mg/kg IV/IO/IM/PO
   - **Contact Medical Control**
   - **Reassess patient**

5. **Legend:**
   - **E** EMT
   - **A** AEMT
   - **M** MEC Order
   - **P** A
   - **PM** P
   - **MC** M

6. **Contact Medical Control:**
   - Reassess patient

---

**Epinephrine Drip**

<table>
<thead>
<tr>
<th>Weight</th>
<th>4 kg grey</th>
<th>6 kg pink</th>
<th>8 kg red</th>
<th>10 kg purple</th>
<th>12 kg yellow</th>
<th>15 kg white</th>
<th>19 kg blue</th>
<th>24 kg orange</th>
<th>30 kg green</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphenhydramine</td>
<td>4 mg</td>
<td>6 mg</td>
<td>8 mg</td>
<td>10 mg</td>
<td>12 mg</td>
<td>15 mg</td>
<td>19 mg</td>
<td>24 mg</td>
<td>30 mg</td>
</tr>
<tr>
<td>Methylprednisolone</td>
<td>8 mg</td>
<td>12 mg</td>
<td>16 mg</td>
<td>20 mg</td>
<td>24 mg</td>
<td>30 mg</td>
<td>38 mg</td>
<td>48 mg</td>
<td>60 mg</td>
</tr>
<tr>
<td>Prednisone</td>
<td>4 mg</td>
<td>6 mg</td>
<td>8 mg</td>
<td>10 mg</td>
<td>12 mg</td>
<td>15 mg</td>
<td>19 mg</td>
<td>24 mg</td>
<td>30 mg</td>
</tr>
<tr>
<td>Decadron</td>
<td>2.4 mg</td>
<td>3.6 mg</td>
<td>4.8 mg</td>
<td>6 mg</td>
<td>7.2 mg</td>
<td>9 mg</td>
<td>11.4 mg</td>
<td>14.4 mg</td>
<td>18 mg</td>
</tr>
<tr>
<td>Epinephrine</td>
<td>0.04 mg</td>
<td>0.06 mg</td>
<td>0.08 mg</td>
<td>0.1 mg</td>
<td>0.12 mg</td>
<td>0.15 mg</td>
<td>0.19 mg</td>
<td>0.24 mg</td>
<td>0.3 mg</td>
</tr>
</tbody>
</table>

**Epinephrine Drip**

<table>
<thead>
<tr>
<th>Mcg/min</th>
<th>2</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administer</td>
<td>30 gts/min</td>
<td>60 gts/min</td>
<td>90 gts/min</td>
<td>120 gts/min</td>
<td>150 gts/min</td>
</tr>
<tr>
<td>Run gts/sec</td>
<td>1 every 2 seconds</td>
<td>1 every second</td>
<td>1.5 every second</td>
<td>2 every second</td>
<td>2.5 every second</td>
</tr>
</tbody>
</table>
Pediatric Apparent Life Threatening Event (ALTE)

**History:**
- Altered Mental Status
- Cardiac
- Respiratory Failure
- Seizures
- Syncope

**Differential:**
- Hypovolemia (dehydration)
- Hypoxia
- Hydrogen ion (acidosis)
- Hypo-hyperkalemia
- Hypoglycemia
- Hypothermia
- Toxins
- Tamponade, cardiac
- Tension pneumothorax
- Thrombosis (coronary or pulmonary)
- Trauma (hypovolemia, increased ICP)

---

**Universal Patient Care Protocol**

1. **Oxygen** PRN
2. **12 lead / ECG** PRN
3. **Obtain IV/IO access** A
4. **Consider other treatment Protocols as necessary**
   - Obtain full history and features of event
   - Explore medication ingestion/toxin risk
5. **Complete thorough history**
   - Specifically assess for history of apnea (>15 seconds?), increased or decreased tone?, change of color?, pallor or cyanosis?

**Yes to any?**

Meets criteria for an ALTE

Patient must be transported for evaluation even if well appearing
Consider contacting medical control if caregiver refusing transport

**Contact Medical Control** M
**Pediatric Breathing Difficulty**

**ALS transport if available:**

**History:**
- Possibility of foreign body
- Cardiac/Respiratory history
- Respiratory infection
- Persistent Symptoms

**Differential:**
- Asthma
- Aspiration
- Foreign body
- Pneumonia (aspiration)
- Croup
- Epiglottitis (Rare)
- Congenital heart disease
- Medication or Toxin
- Trauma

**Universal Patient Care Protocol**

1. High flow Oxygen
2. Advanced Airway Management
3. Severe Distress Respiratory Failure
   - Yes: Transport in position of minimal agitation
   - No: High flow Oxygen

**Pediatric Airway Pg. 44**

**Lower Airway**

- Wheeze?
  - Yes: Consider Albuterol 2.5 - 5 mg SVN
  - Yes: Consider Ipratropium 0.5 mg SVN for greater than 12 kilo

**Upper Airway**

- Stridor and/or Retractions?
  - Yes: Epinephrine 3 mL 1:1,000 SVN (No saline needed)

**Consider Methylprednisolone 2 mg/kg IV/IM**

- Or Prednisone 1 mg/kg PO

**Repeat appropriate nebulizer Treatment as indicated for continued symptoms**

**Contact Medical Control**

**Legend**

- **E** EMT
- **A** AEMT
- **P** PM
- **M** MC Order

**Weight** | 4 kg | 6 kg | 8 kg | 10 kg | 12 kg | 15 kg | 19 kg | 24 kg | 30 kg
---|---|---|---|---|---|---|---|---|---
**Epinephrine** | | | | | | | | 3 mL | |
**Nebulizer**

<table>
<thead>
<tr>
<th>Methylprednisolone</th>
<th>8 mg</th>
<th>12 mg</th>
<th>16 mg</th>
<th>20 mg</th>
<th>24 mg</th>
<th>30 mg</th>
<th>38 mg</th>
<th>48 mg</th>
<th>60 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prednisone</td>
<td>4 mg</td>
<td>6 mg</td>
<td>8 mg</td>
<td>10 mg</td>
<td>12 mg</td>
<td>15 mg</td>
<td>19 mg</td>
<td>24 mg</td>
<td>30 mg</td>
</tr>
</tbody>
</table>

**Albuterol 2.5 mg**

**Ipratropium 0.5 mg**

2012 - Northwest Region Emergency Medical Services & Trauma Care Council
Pediatric Diabetic Ketoacidosis / Hyperglycemia

**History:**
- Polyuria
- Polydipsia
- Vomiting
- Weakness
- Confusion

**Clinical Signs:**
- Dehydration
- Kussmaul respirations
- Smell of ketones
- Change in mental status

**Universal Patient Care Protocol**

**Oxygen**
- PRN

**Advanced Airway Management**

**Check Glucose**

**Obtain IV/IO access**

**Clinical Signs of Intracranial Hypertension?**
- **Yes:** Consider **Rapid Sequence Intubation** for GCS <8
  - Pg. 46
- **No:** Elevate head of bed to 45°

**Ventilate patient to maintain 30-35 mm/Hg ETCO2**

**Clinical Signs of Dehydration or Hyperglycemia > 250?**
- **Yes:** Fluid bolus 20 ml/kg IV/IO
- **No:**
  - Contact Medical Control

**Legend**
- E: EMT
- A: AEMT
- P: PM
- M: MC Order
Pediatric Hypoglycemia

**History:**
- Known diabetic, medic alert tag
- Past medical history
- Medications
- History of trauma
- Ingestion
- Syncope
- Persistent abnormal vital signs
- Persistent Hypoglycemia

**Differential:**
- Head trauma
- CNS (stroke, tumor, seizure, infection)
- Infection
- Thyroid (hyper / hypo)
- Diabetes (hyper / hypoglycemia)
- Toxicologic
- Acidosis / Alkalosis
- Electrolyte abnormativity

**Universal Patient Care Protocol**

- **Blood Glucose check**

  - **< 60 mg/dL**
    - **Administer Oral Glucose**
      - **Alert and stable airway?**
        - **Yes**
          - **Obtain IV/IO access**
            - **Blood Glucose < 60**
              - **D 25 2 mL/kg**
                - **OR Glucagon**
                  - **0.1 mg/kg IM to 1 mg max**
            - **No**
        - **No**

**Legend**

<table>
<thead>
<tr>
<th>E</th>
<th>A</th>
<th>P</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMT</td>
<td>AEMT</td>
<td>PM</td>
<td>MC Order</td>
</tr>
</tbody>
</table>

**Alert and stable airway?**

- Yes
- **No**

**Weight**

<table>
<thead>
<tr>
<th>Weight</th>
<th>4 kg grey</th>
<th>6 kg pink</th>
<th>8 kg red</th>
<th>10 kg purple</th>
<th>12 kg yellow</th>
<th>15 kg white</th>
<th>19 kg blue</th>
<th>24 kg orange</th>
<th>30 kg green</th>
</tr>
</thead>
<tbody>
<tr>
<td>D 25</td>
<td>8 mL</td>
<td>12 mL</td>
<td>16 mL</td>
<td>20 mL</td>
<td>24 mL</td>
<td>30 mL</td>
<td>38 mL</td>
<td>48 mL</td>
<td>60 mL</td>
</tr>
<tr>
<td>Glucagon</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1 mg</td>
<td>1 mg</td>
<td>1 mg</td>
<td>1 mg</td>
<td>1 mg</td>
</tr>
</tbody>
</table>

**Contact Medical Control**

2012 - Northwest Region Emergency Medical Services & Trauma Care Council
Newborn Resuscitation

**ALS transport if available:**

**History:**
- Prenatal care and history
- Due date/LMP
- Expected multiple births
- Meconium
- Congenital disease
- Medications
- Maternal risk factors

**Differential:**
- Airway obstruction
- Respiratory distress
- Infection
- Hypovolemia
- Hypoglycemia
- Congenital heart disease
- Hypothermia
- Persistent Central Cyanosis

**Universal Patient Care Protocol**

- Suction with bulb syringe
- Mouth then nose
- Dry infant and keep warm
- **APGAR Pg. 77**
- Oxygen Blow-by **PRN**
- Assess breathing and heart rate

**Heart rate > 100?**
- Continue ongoing assessment

**Heart rate < 60?**
- Or inadequate respirations
- Assist ventilations BVM **PRN**
- **Intubation** **PRN**
- **No improvement after 30 seconds?**
- Begin chest compressions

**Obtain IV/IO access**

**Fluid bolus 20 ml/kg IV/IO**
- May repeat up to 60 ml/kg

**ECG / 12 Lead**

**Epinephrine**
- 1 : 10,000
- 0.01 mg/kg IV / IO
- OR
- Epinephrine
- 1 : 1,000
- 0.1 mg/kg ET

- Repeat every 3-5 min. **PRN**

* Consider ceasing resuscitation efforts if fetal foot length is less than 33mm
Known Pediatric Toxic Exposure

**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

**Universal Patient Care Protocol**

1. Oxygen
2. Advanced Airway Management
3. Consider Activated Charcoal
   - 1 gm/kg
4. Respiratory depression, Opiate O.D
   - Naloxone
   - 0.1 mg/kg (max 2 mg)
5. ECG / 12 Lead

**Differential:**
- Tricyclic antidepressants (TCAs)
- Acetaminophen (tylenol)
- Depressants
- Stimulants
- Anticholinergic
- Cardiac medications
- Solvents, Alcohols, Cleaning agents
- Insecticides (organophosphates)

**Legend**

- E
- EMT
- A
- AEMT
- P
- PM
- M
- MC Order

**Contact Medical Control**

- with nature of toxic exposure

**Contact Medical Control**

- with nature of toxic exposure

<table>
<thead>
<tr>
<th>Substance</th>
<th>Weight</th>
<th>4 kg</th>
<th>6 kg</th>
<th>8 kg</th>
<th>10 kg</th>
<th>12 kg</th>
<th>15 kg</th>
<th>19 kg</th>
<th>24 kg</th>
<th>30 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activated Charcoal</td>
<td>4 gm</td>
<td>6 gm</td>
<td>8 gm</td>
<td>10 gm</td>
<td>12 gm</td>
<td>15 gm</td>
<td>19 gm</td>
<td>24 gm</td>
<td>30 gm</td>
<td></td>
</tr>
<tr>
<td>Naloxone</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2 mg</td>
<td>2 mg</td>
<td></td>
</tr>
<tr>
<td>Sodium Bicarbonate</td>
<td>4 mEq</td>
<td>6 mEq</td>
<td>8 mEq</td>
<td>10 mEq</td>
<td>12 mEq</td>
<td>15 mEq</td>
<td>19 mEq</td>
<td>24 mEq</td>
<td>30 mEq</td>
<td></td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>40 mg</td>
<td>60 mg</td>
<td>80 mg</td>
<td>100 mg</td>
<td>120 mg</td>
<td>150 mg</td>
<td>190 mg</td>
<td>240 mg</td>
<td>300 mg</td>
<td></td>
</tr>
<tr>
<td>Glucagon</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2.4 mg</td>
<td>3 mg</td>
<td></td>
</tr>
<tr>
<td>Atropine</td>
<td>0.08 mg</td>
<td>0.12 mg</td>
<td>0.16 mg</td>
<td>0.2 mg</td>
<td>0.24 mg</td>
<td>0.3 mg</td>
<td>0.38 mg</td>
<td>0.48 mg</td>
<td>0.6 mg</td>
<td></td>
</tr>
<tr>
<td>Midazolam</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2.4 mg</td>
<td>3 mg</td>
<td></td>
</tr>
<tr>
<td>Diazepam</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2.4 mg</td>
<td>3 mg</td>
<td></td>
</tr>
<tr>
<td>Lorazepam</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2.4 mg</td>
<td>3 mg</td>
<td></td>
</tr>
</tbody>
</table>
Pediatric Pain Management

**ALS transport if patients given a sedation medication**

### History:
- Age
- Location
- Duration
- Severity (1 - 10)
- Past medical history

### Differential:
- Per the specific protocol
- Musculoskeletal
- Visceral (abdominal)
- Cardiac
- Neurogenic
- Renal (colic)

### Medications
- Morphine
- Fentanyl
- Hydromorphone
- Midazolam
- Diazepam
- Lorazepam
- Ondansetron

### Drug allergies

### Aggravating factors

### Alleviating factors

### Universal Patient Care Protocol

**Legend**

- E: EMT
- A: AEMT
- P: EMT
- M: MC Order

### Weight

<table>
<thead>
<tr>
<th>Weight</th>
<th>4 kg grey</th>
<th>6 kg pink</th>
<th>8 kg red</th>
<th>10 kg purple</th>
<th>12 kg yellow</th>
<th>15 kg white</th>
<th>19 kg blue</th>
<th>24 kg orange</th>
<th>30 kg green</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>.04 mg</td>
<td>.06 mg</td>
<td>.08 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2.4 mg</td>
<td>3 mg</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>8 mcg</td>
<td>12 mcg</td>
<td>16 mcg</td>
<td>20 mcg</td>
<td>24 mcg</td>
<td>30 mcg</td>
<td>38 mcg</td>
<td>48 mcg</td>
<td>60 mcg</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>0.06mg</td>
<td>0.09mg</td>
<td>0.12mg</td>
<td>1 mg</td>
<td>1mg</td>
<td>1mg</td>
<td>1mg</td>
<td>1mg</td>
<td>1mg</td>
</tr>
<tr>
<td>Midazolam</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2 mg</td>
<td>2 mg</td>
</tr>
<tr>
<td>Lorazepam</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2 mg</td>
<td>2 mg</td>
</tr>
<tr>
<td>Lorazepam</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2 mg</td>
<td>2 mg</td>
</tr>
<tr>
<td>Ondansetron</td>
<td>Contact MC</td>
<td>1 mg</td>
<td>1 mg</td>
<td>1 mg</td>
<td>2 mg</td>
<td>2 mg</td>
<td>3 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ondansetron</td>
<td>Contact MC</td>
<td>1 mg</td>
<td>1 mg</td>
<td>1 mg</td>
<td>2 mg</td>
<td>2 mg</td>
<td>3 mg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
- Nitrous Oxide if available
- Contact Medical Control
- PRN
- ODT

**Additional Actions:**
- High pain level? Burns?
- Extremely anxious?
- Nausea?
- ALS transport if patients given a sedation medication

**Medications:**
- Morphine
- Fentanyl
- Hydromorphone
- Midazolam
- Diazepam
- Lorazepam
- Ondansetron

**Drug Allergies:**

**Aggravating Factors:**

**Alleviating Factors:**

**Past Medical History:**
- Age
- Location
- Duration
- Severity (1 - 10)
- Past medical history

**Differential:**
- Per the specific protocol
- Musculoskeletal
- Visceral (abdominal)
- Cardiac
- Neurogenic
- Renal (colic)
**Pediatric Fever**

**ALS transport if available:**

**History:**
- Fever not associated with heat injury does not require rapid temperature reduction

**Differential:**
- Infections / Sepsis
- Medication or drug reaction
- Altered mental status

**Universal Patient Care Protocol**

1. **Temp ≥ 101° or ≥ 38 Celsius?**
   - No: Otherwise well?
     - Yes: See appropriate protocol.
     - No: See appropriate protocol.

2. **Associated with needing treatment?**
   - Yes: See appropriate protocol.
   - No: No vomiting, no acetaminophen in 4°
     - And Transport > 10 mins:
       - Consider Acetaminophen
         - 15 mg/kg PO/PR

3. **Contact Medical Control**

**Legend**

- E EMT
- A AEMT
- P PM
- M MC Order

**Acetaminophen**

<table>
<thead>
<tr>
<th>Weight</th>
<th>4 kg grey</th>
<th>6 kg pink</th>
<th>8 kg red</th>
<th>10 kg purple</th>
<th>12 kg yellow</th>
<th>15 kg white</th>
<th>19 kg blue</th>
<th>24 kg orange</th>
<th>30 kg green</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen</td>
<td>60 mg</td>
<td>90 mg</td>
<td>120 mg</td>
<td>150 mg</td>
<td>180 mg</td>
<td>225 mg</td>
<td>285 mg</td>
<td>360 mg</td>
<td>450 mg</td>
</tr>
</tbody>
</table>
Pediatric Shock Non-traumatic

**History:**
- Medical history
- Respiratory distress or arrest
- Possible toxic or poison exposure
- Congenital disease
- Medication (maternal or infant)
- Non accidental trauma

**Differential:**
- Respiratory effort
- Hypovolemia (dehydration)
- Hypoxia
- Hydrogen ion (acidosis)
- Hypo-hyperkalemia
- Hypoglycemia
- Hypothermia
- Toxins
- Tamponade, cardiac
- Tension pneumothorax
- Thrombosis (coronary or pulmonary)

**Universal Patient Care Protocol**

1. **Oxygen**
   - PRN
   - Advanced Airway Management

2. **ECG/ 12 lead**
   - PRN

3. **Obtain IV/IO access**
   - A

4. **Fluid bolus 20 ml/kg IV/IO**
   - May repeat up to 60 ml/kg
   - PRN

5. **Epinephrine Bolus**
   - 0.1 mg/kg IV/IO

6. **Epinephrine Drip**
   - 0.1-1.5 mcg/kg/min IV/IO

7. **Ongoing assessment**

8. **Consider other treatment Protocol as necessary**

9. **Contact Medical Control**
   - M

**Legend**

- EMT
- AEMT
- A
- PM
- M
- MC Order

**Weight**

<table>
<thead>
<tr>
<th>Weight</th>
<th>4 kg grey</th>
<th>6 kg pink</th>
<th>8 kg red</th>
<th>10 kg purple</th>
<th>12 kg yellow</th>
<th>15 kg white</th>
<th>19 kg blue</th>
<th>24 kg orange</th>
<th>30 kg green</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epinephrine 1 : 10,000</td>
<td>0.04 mg</td>
<td>0.06 mg</td>
<td>0.08 mg</td>
<td>0.1 mg</td>
<td>0.12 mg</td>
<td>0.15 mg</td>
<td>0.19 mg</td>
<td>0.24 mg</td>
<td>0.3 mg</td>
</tr>
<tr>
<td>Epinephrine Drip</td>
<td>1 mg Epinephrine 1:1,000 in 250 ml = 4 mcg/ml</td>
<td>Use 60 gtt tubing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Epinephrine Drip**

<table>
<thead>
<tr>
<th>Mcg/min</th>
<th>2</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administer</td>
<td>30 gtt/min</td>
<td>60 gtt/min</td>
<td>90 gtt/min</td>
<td>120 gtt/min</td>
<td>150 gtt/min</td>
</tr>
<tr>
<td>Run gtt/sec</td>
<td>1 every 2 seconds</td>
<td>1 every second</td>
<td>1.5 every second</td>
<td>2 every second</td>
<td>2.5 every second</td>
</tr>
</tbody>
</table>
Pediatric Seizure

**History:**
- Prior history of seizures
- Seizure medications
- History of VP Shunt
- Fever
- Head Trauma

**Differential:**
- Medication or Toxin
- Hypoxia or Respiratory failure
- Hypoglycemia
- First time Seizure

See Fever Protocol Page 61

---

**Universal Patient Care Protocol**

- Febrile?
  - Yes
  - Oxygen
    - Advanced Airway Management
      - Obtain IV/IO access PRN
      - Blood Glucose < 60
        - D 25 2 mL/kg
      - OR
        - Glucagon
          - 0.1 mg/kg IM to 1 mg max
      - Active Seizure ≥ 5 minutes?
        - Yes
          - Diastat *
            - * Patients own RX
              - Midazolam
                - 0.1 mg/kg IV/IO
                - Or
                - Diazepam
                  - 0.1 mg/kg IV/IO
                  - Or
                  - Lorazepam
                    - 0.1 mg/kg IV/IO
          - Repeat seizures?
            - Yes
              - Contact Medical Control

---

**Legend**

- E EMT E
- A AEMT A
- P PM P
- M MC Order M

---

**Weight**

<table>
<thead>
<tr>
<th>Weight</th>
<th>4 kg grey</th>
<th>6 kg pink</th>
<th>8 kg red</th>
<th>10 kg purple</th>
<th>12 kg yellow</th>
<th>15 kg white</th>
<th>19 kg blue</th>
<th>24 kg orange</th>
<th>30 kg green</th>
</tr>
</thead>
<tbody>
<tr>
<td>D 25</td>
<td>8mL</td>
<td>12mL</td>
<td>16mL</td>
<td>20mL</td>
<td>24mL</td>
<td>30mL</td>
<td>38mL</td>
<td>48mL</td>
<td>60mL</td>
</tr>
<tr>
<td>Glucagon</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1 mg</td>
<td>1 mg</td>
<td>1 mg</td>
<td>1 mg</td>
<td>1 mg</td>
</tr>
<tr>
<td>Midazolam</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2 mg</td>
<td>2 mg</td>
</tr>
<tr>
<td>Diazepam</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2 mg</td>
<td>2 mg</td>
</tr>
<tr>
<td>Lorazepam</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2 mg</td>
<td>2 mg</td>
</tr>
</tbody>
</table>
Unknown Pediatric Toxic Exposure / Ingestion Guideline

**Smells:**
- Almond = Cyanide
- Fruit = Alcohol, DKA, Antifreeze
- Garlic = Arsenic, parathion, DMSO
- Mothballs = Camphor
- Natural gas = Carbon monoxide
- Rotten eggs = Hydrogen sulfide
- Silver polish = Cyanide
- Wintergreen = Methyl salicylate

**Potential exposures:**
- Burning overstuffed furniture = cyanide
- Old burning buildings = Lead fumes and Carbon monoxide
- Pepto-Bismol™ like products = Aspirin
- Pesticides = Organophosphates and Carbamates
- Common Plants = Treat symptoms and bring plant/flower to ED

**Universal Patient Care Protocol**

- Assess scene safety as Indicated:
  - Appropriate body substance isolation
  - Refer to System/Department Haz/Mat Protocol
  - Stop exposure

- Obtain IV/IO NS/LR access

- Oxygen Advanced Airway Management

- Contact Medical Control
  - Initial interventions per Medical Control indicated for identified exposure

- For Altered Level of Consciousness
  - Support ABC’s
  - Keep Warm
  - Bring Container(s) of drug or substance to the ED

**Special Considerations:**
- Intubate for GCS<8
- Do not induce vomiting, especially in cases where caustic substance ingestion is suspected

**Naloxone**
- 0.1 mg/kg (max 2 mg)

**Weight & Naloxone Doses**

<table>
<thead>
<tr>
<th>Weight</th>
<th>Naloxone</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 kg</td>
<td>0.4 mg</td>
</tr>
<tr>
<td>6 kg</td>
<td>0.6 mg</td>
</tr>
<tr>
<td>8 kg</td>
<td>0.8 mg</td>
</tr>
<tr>
<td>10 kg</td>
<td>1.0 mg</td>
</tr>
<tr>
<td>12 kg</td>
<td>1.2 mg</td>
</tr>
<tr>
<td>15 kg</td>
<td>1.5 mg</td>
</tr>
<tr>
<td>19 kg</td>
<td>1.9 mg</td>
</tr>
<tr>
<td>24 kg</td>
<td>2.0 mg</td>
</tr>
<tr>
<td>30 kg</td>
<td>2.0 mg</td>
</tr>
</tbody>
</table>

Poison Control 800-222-1222

ALS transport if available
### History:
- Time and Mechanism of injury
- Damage to structure or vehicle
- Others injured or death
- Restraints / protective equipment
- Ejection
- Speed and details of MVC

### Differential:
- Abnormal neurological exam
- Tamponade, cardiac
- Tension pneumothorax
- Intracranial Hypertension

### Universal Patient Care Protocol

#### Oxygen
- Advanced Airway Management

#### Pediatric Spinal Precautions Pg. 69

#### Obtain IV/IO access

#### Fluid bolus 20 ml/kg IV/IO
- May repeat up to 60 ml/kg

#### Ongoing assessment

#### Consider other treatment Protocol as necessary
- See CDC Trauma Triage Pg. 9

#### Contact Medical Control

---

**Legend**
- EMT
- AEMT
- PM
- MC Order
- E
- A
- P
- M
Pediatric Near Drowning

**Transport ALL near drowning Patients**

<table>
<thead>
<tr>
<th>History:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Submersion in water regardless of depth</td>
</tr>
<tr>
<td>• Possible history of trauma</td>
</tr>
<tr>
<td>• Duration of submersion</td>
</tr>
<tr>
<td>• Temperature of water</td>
</tr>
<tr>
<td>• Salt vs. Fresh Water</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Differential:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Trauma</td>
</tr>
<tr>
<td>• Pre-existing medical problems</td>
</tr>
<tr>
<td>• Barotrauma</td>
</tr>
<tr>
<td>• Decompression Sickness</td>
</tr>
</tbody>
</table>

---

1. **Universal Patient Care Protocol**
2. Consider **Pediatric Spinal Precautions** Pg. 69
3. **Oxygen**
   - Advanced Airway Management
4. If no pulse or Symptomatic Bradycardia begin CPR
   - See Appropriate Guideline
5. **Remove wet clothing**
   - Cover with dry (warm) blankets
   - **Warming Measures**
6. **Obtain IV/IO access**
7. **ECG / 12 lead**
8. Consider other treatment Protocol as necessary
9. **Contact Medical Control**

---

**Legend**

- E = EMT
- A = AEMT
- P = PM
- M = MC Order
Pediatric Burns

ALS transport if available > 15%:

History:
- Type of exposure
- Inhalation injury
- Time of injury
- Mechanism of Injury
- Non-accidental trauma
- Trauma

Differential:
- Superficial (1°) red and painful
- Partial thickness (2°) blistering
- Full thickness (3°) charred or leathery skin
- Chemical
- Thermal
- Electrical

Universal Patient Care Protocol

Oxygen PRN
Advanced Airway Management

Stop the burning process:
Remove jewelry and clothing that may be burned, covered in chemicals or restricting.

Thermal / Electrical

Cover burn with a dry clean sheet or dressing
Keep warm

Use Rule of 9's

>15% then

Obtain IV/ IO access PRN
If Hypotensive fluid bolus LR/NS 20ml/kg
If not Hypotensive Maintenance fluid

Pain Management Protocol Pg. 60

Contact Medical Control M

Chemical

Brush off any excess chemical or powder

Flush area with water or Normal Saline (except materials that react with H2O) Keep warm

Eye involvement?
Saline flush in the affected eye

Relative percentage of body surface area (% BSA) affected by growth

<table>
<thead>
<tr>
<th>Body Part</th>
<th>0 yr</th>
<th>1 yr</th>
<th>5 yr</th>
<th>10 yr</th>
<th>15 yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>a = 1/2 of head</td>
<td>6 5/2</td>
<td>6 1/2</td>
<td>6 1/2</td>
<td>5 1/2</td>
<td>4 1/2</td>
</tr>
<tr>
<td>b = 1/2 of 1 thigh</td>
<td>2 3/4</td>
<td>3 1/4</td>
<td>4</td>
<td>4 1/4</td>
<td>4 1/2</td>
</tr>
<tr>
<td>c = 1/2 of 1 lower leg</td>
<td>2 1/2</td>
<td>2 1/2</td>
<td>2 3/4</td>
<td>3</td>
<td>3 1/4</td>
</tr>
</tbody>
</table>

Legend

A EMT
P P
M MC Order

2012 - Northwest Region Emergency Medical Services & Trauma Care Council
Pediatric Heat Related Emergency

**History:**
- Age
- Exposure to increase temperature and/or humidity
- Extreme exertion
- Time and length of exposure
- Fatigue and/or muscle cramping
- Altered Mental Status
- Temp > 104°F due to heat
- Abnormal vital signs

**Differential:**
- Infection
- Dehydration
- Medications
- Thyroid storm
- Delirium tremors
- CNS lesions or tumors
- DKA

**Universal Patient Care Protocol**
- Oxygen PRN
- Advanced Airway Management
- Remove from heat source
- Remove clothing
- ECG / 12 lead

**Cool Fluid intake PO**
- Yes
- Alert and oriented, no nausea
- No

**Check Glucose < 60 mg/dl**
- See Hypoglycemia Protocol Pg. 57
- Continue cooling to 39°C (103°F)
- Shivering or seizures?
- Yes
- No

**Contact Medical Control**

**Legend**
- EMT
- AEMT
- PM
- MC Order
- EMT
- A
- P
- M

**Notes:**
- Succinycholine not recommended for Hyperthermic patients
- Document patient’s rectal temperature
- Rapid cooling to 39°C (103°F) to avoid overshooting and shivering.
- Apply room temperature water to skin and increase airflow around patient if possible.
- Ice packs to axillae and groin
Pediatric Spinal Precautions

**ALS transport if available:**

Recommended high-energy guidelines:
- High-speed motor vehicle collision
- Rollover motor vehicle accident
- Occupant ejected from motor vehicle
- Pedestrian/bicyclist struck by motor vehicle
- Any accident involving motorized recreational vehicles
- Diving accident
- Fall from height > 5 ft or > 5 stairs
- Any other high-energy mechanism with rapid acceleration and deceleration
- High contact sports injuries

### Universal Patient Care Protocol

Patient with mechanism or exam concerning for potential spinal injury

Maintain manual cervical spine stabilization

Apply properly sized pediatric cervical collar

1. Place padding under shoulders to maintain neutral spinal alignment
2. Place child on backboard/papoose or stabilize child in car seat
3. Properly place restraint straps
4. Place tape across forehead

Maintain continuous monitoring throughout transport

Contact Medical Control

---

Legend

E: EMT
A: AEMT
P: PM
M: MC Order

Universal Patient Care Protocol

Maintain continuous monitoring throughout transport

Contact Medical Control
Sports Concussion

ALS transport if available:

<table>
<thead>
<tr>
<th>Signs observed by Others:</th>
<th>Symptoms Report by Athlete:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Appears dazed or stunned</td>
<td>• Headache</td>
</tr>
<tr>
<td>• Confusion</td>
<td>• Nausea or vomiting</td>
</tr>
<tr>
<td>• Forgetfulness</td>
<td>• Balance problems or dizziness</td>
</tr>
<tr>
<td>• Unsure</td>
<td>• Double or blurry vision</td>
</tr>
<tr>
<td>• Moves Clumsily</td>
<td>• Sensitivity to light</td>
</tr>
<tr>
<td>• Answers Questions slowly</td>
<td>• Sensitivity to noise</td>
</tr>
<tr>
<td>• Loses consciousness</td>
<td>• Numbness or weakness in extremities</td>
</tr>
<tr>
<td>• Behavior or personality Changes</td>
<td>• Feeling sluggish, hazy, foggy, or groggy</td>
</tr>
<tr>
<td>• Can’t recall events prior to hit / fall</td>
<td>• Concentration or memory problems</td>
</tr>
<tr>
<td>• Apparent weakness</td>
<td>• Confusion / Altered Mental Status</td>
</tr>
<tr>
<td>• Abnormal Vital signs</td>
<td>• DOES NOT &quot;FEEL RIGHT&quot;</td>
</tr>
</tbody>
</table>

Universal Patient Care Protocol

Oxygen PRN
Advanced Airway Management

Pediatric Spinal Precautions Pg. 69

A Obtain IV/IO access PRN A

A Fluid bolus 20 ml/kg IV/IO PRN A

P ECG/ 12 lead P

Consider other treatment Protocol as necessary

M Contact Medical Control M

Notes:
Signs of possible sports related concussion include:

• Trauma / Head Injury
• Headaches
• Dizziness
• Fatigue
• Uneven gait

• Nausea
• Blurred vision
• Amnesia
• Confusion
• Neurological deterioration over time
Pediatric START/JumpSTART Triage

Able to walk?
- Yes → Minor → Refer to appropriate Protocol
- No

Breathing?
- No → Position upper airway → Breaths → IMMEDIATE
- Yes → Pedictric / Adult
  - Pediatric
    - Pulse
      - Yes → 5 Rescue Breaths → IMMEDIATE
      - No → Apnec
    - Apnec → IMMEDIATE
  - Adult
    - No Pulse
      - No Apnec
        - No Breaths
          - IMMEDIATE
        - Breaths
          - IMMEDIATE

Respiratory Rate
- > 30 Adult
- < 15 or > 45 Pediatric → IMMEDIATE
- < 30 Adult / 15 - 45 Pediatric → Perfusion

Perfusion
- Capillary Refill > 2 sec (Adult)
- No Palpable Pulse (Pediatric) → IMMEDIATE

Mental Status
- Doesn't obey commands (Adult)
- “P” Inappropriate posturing or “U” (Pediatric) → IMMEDIATE
- Obeys Commands (Adult)
  - “A”, “V” or “P” Appropriate (Pediatric) → DELAYED

AVPU Infant / Child

<table>
<thead>
<tr>
<th>Response</th>
<th>Infant</th>
<th>Child</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Alert</td>
<td>Curious / Recognizes parents</td>
<td>Alert / Aware of surroundings</td>
</tr>
<tr>
<td>V – Responds to Voice</td>
<td>Irritable / Cries</td>
<td>Opens eyes</td>
</tr>
<tr>
<td>P – Responds to Pain</td>
<td>Cries in response to pain</td>
<td>Withdrawals from pain</td>
</tr>
<tr>
<td>U - Unresponsive</td>
<td>No Response</td>
<td>Opens eyes</td>
</tr>
</tbody>
</table>
## Suspected Child Abuse

### Transport all patients

<table>
<thead>
<tr>
<th>Physical findings:</th>
<th>Behavioral:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Unexplained bruises</td>
<td>- History of minor incident inconsistent with major injury</td>
</tr>
<tr>
<td>- Numerous/multiple bruises</td>
<td>- MOI inconsistent with developmental age</td>
</tr>
<tr>
<td>- Burns:</td>
<td>- Inappropriate fear of parent</td>
</tr>
<tr>
<td>- Cigarette, Immersion, Rope, Infected</td>
<td>- Inconsistent explanation for injury</td>
</tr>
<tr>
<td>- Torn, stained, bloody underclothes</td>
<td>- Nervous disorders (rash, hives, stomachaches)</td>
</tr>
<tr>
<td>- Bleeding, irritation or pain of the genitals</td>
<td>- Age-inappropriate behaviors (bedwetting)</td>
</tr>
<tr>
<td>- Poor hygiene/malnourished</td>
<td>- Lack of adult supervision</td>
</tr>
<tr>
<td>- Child with repeated injuries/multiple calls to the same</td>
<td>- Delay in seeking medical care</td>
</tr>
<tr>
<td>address</td>
<td>- Caregiver who refuses treatment or transport</td>
</tr>
<tr>
<td>- Flat/bald spots on head (infants)</td>
<td>Contact LE/CPS should caretaker not allow transport to hospital</td>
</tr>
<tr>
<td>- Unexplained wet clothing/body</td>
<td></td>
</tr>
</tbody>
</table>

### 1-800-363-4276

### Universal Patient Care Protocol

- **Oxygen** PRN
- **Advanced Airway Management**
- **ECG/12 lead** PRN
- **Obtain IV/IO access** PRN
- **Fluid bolus 20 ml/kg IV/IO** PRN
  - May repeat up to 60 ml/kg

**Consider other treatment Protocol as necessary**

### Documentation:

- Carefully document caretakers description of event
- Note environment including temperature
- Note clothing, stains, and conditions

### Contact Medical Control

### Sexual abuse:

- May be present without apparent signs of physical abuse
- Discourage patient from going to the bathroom
- Don’t allow patient to change clothes or wash
- Bring clothing to hospital

### Legend

- **E** EMT
- **A** AEMT
- **P** PM
- **M** MC Order
Pediatric Traumatic Brain Injury

ALS transport if available:

Universal Patient Care Protocol

Mechanism or Signs / Symptoms of Head Injury

Pediatric Spinal Precautions
Pg. 69

Advanced Airway Management or Focal neurologic abnormalities, or GCS < 8

Consider Rapid Sequence Intubation for GCS <8  Pg. 46

Hypotension?

Yes

Obtain IV/IO access

A

Fluid bolus 20 ml/kg IV/IO
May repeat up to 60 ml/kg

A

Signs of Intracranial Hypertension?

Yes

Consider Rapid Sequence Intubation for GCS <8  Pg. 46

Elevate head of bed to 45°

No

Ventilate patient to maintain 30-35 mm/Hg ETCO2

Clinical signs of seizure?

Yes

Midazolam
0.1 mg/kg IV/IO
Or
Diazepam
0.1 mg/kg IV/IO
Or
Lorazepam
0.1 mg/kg IV/IO

No

Contact Medical Control

Support ABC’s Monitor
Treat other associated symptoms
Consider Differentials

Legend
E EMT
A AEMT
P PM
M MC Order

Weight

<table>
<thead>
<tr>
<th>4 kg grey</th>
<th>6 kg pink</th>
<th>8 kg red</th>
<th>10 kg purple</th>
<th>12 kg yellow</th>
<th>15 kg white</th>
<th>19 kg blue</th>
<th>24 kg orange</th>
<th>30 kg green</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midazolam</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2.4 mg</td>
</tr>
<tr>
<td>Diazepam</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2.4 mg</td>
</tr>
<tr>
<td>Lorazepam</td>
<td>0.4 mg</td>
<td>0.6 mg</td>
<td>0.8 mg</td>
<td>1 mg</td>
<td>1.2 mg</td>
<td>1.5 mg</td>
<td>1.9 mg</td>
<td>2 mg</td>
</tr>
</tbody>
</table>

2012 - Northwest Region Emergency Medical Services & Trauma Care Council
Pediatric Assessment

**Airway & Appearance**
(Open/Clear – Muscle Tone/Body Position)

**Abnormal:** Abnormal or absent cry or speech. Decreased response to parents or environmental stimuli. Floppy or rigid muscle tone or not moving.

**Normal:** Normal cry or speech. Responds to parents or to environmental stimuli such as lights, keys, or toys. Good muscle tone. Move extremities well.

---

**Work of Breathing**
(Visible movement/Respiratory Effort)

**Abnormal:** Increased/excessive (nasal flaring, retractions or abdominal muscle use) or decreased/absent respiratory effort or noisy breathing.

**Normal:** Breathing appears regular without excessive respiratory muscle effort or audible respiratory sounds.

---

**Circulation to skin**
(Color / Obvious Bleeding)

**Abnormal:** Cyanosis, mottling, paleness/pallor or obvious significant bleeding.

**Normal:** Color appears normal for racial group of child. No significant bleeding.

---

**Decision/Action Points:**

**Any abnormal findings or life-threatening chief complaint** such as major trauma/burns, seizures, diabetes, asthma attack, airway obstruction, etc (urgent) – proceed to Initial Assessment. Contact ALS if not already on scene/enroute.

**All findings normal** (non-urgent) – proceed to Initial Assessment.

---

**Initial Assessment (Primary Survey)**

**Airway & Appearance**
(Open/Clear – Mental Status)

**Abnormal:** Obstruction to airflow. Gurgling, stridor or noisy breathing. **Verbal, Pain or Unresponsive** on AVPU scale.

**Normal:** Clear and maintainable. **Alert** on AVPU scale.

---

**Breathing**
(Effort / Sounds / Rate / Central Color)

**Abnormal:** Presence of retractions, nasal flaring, stridor, wheezes, grunting, gasping or gurgling. Respiratory rate outside normal range. Central cyanosis.

**Normal:** Easy, quiet respirations. Respiratory rate within normal range. No central cyanosis.

---

**Circulation to skin**
(Color / Obvious Bleeding)

**Abnormal:** Cyanosis, mottling, or pallor. Absent or weak peripheral or central pulses; Pulse or systolic BP outside normal range; Capillary refill > 2 sec with other abnormal findings.

**Normal:** Color normal. Capillary refill at palms, soles, forehead or central body ≤2 sec. Strong peripheral and central pulses with regular rhythm.

---

**Decision/Action Points:**

**Any abnormal findings (C, U, or P)** – Immediate transport with ALS. Open airway & provide oxygen. Assist ventilations, start CPR, suction, or control bleeding as appropriate. Check for causes such as diabetes, poisoning, trauma, seizure, etc. Assist patient with prescribed bronchodilators or epinephrine auto-injector, if appropriate.

**All findings on assessment of child normal (S)** – Continue assessment, detailed history & treatment at scene or enroute.
# Pediatric References

<table>
<thead>
<tr>
<th>Weight</th>
<th>4 kg grey</th>
<th>6 kg pink</th>
<th>8 kg red</th>
<th>10 kg purple</th>
<th>12 kg yellow</th>
<th>15 kg white</th>
<th>19 kg blue</th>
<th>24 kg orange</th>
<th>30 kg green</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Newborn – 3 mos</td>
<td>6 mos</td>
<td>9 mos</td>
<td>1 yr</td>
<td>2 yrs</td>
<td>3 yrs</td>
<td>5 yrs</td>
<td>7 yrs</td>
<td>10 yrs</td>
</tr>
<tr>
<td>Pulse</td>
<td>100-160</td>
<td>100-160</td>
<td>100-150</td>
<td>90-150</td>
<td>80-140</td>
<td>70-120</td>
<td>70-120</td>
<td>70-120</td>
<td></td>
</tr>
<tr>
<td>Respiratory Rate</td>
<td>30-60</td>
<td>30-60</td>
<td>30-60</td>
<td>24-40</td>
<td>24-40</td>
<td>22-34</td>
<td>18-30</td>
<td>18-30</td>
<td>18-30</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>40 mmHg</td>
<td>60 mmHg</td>
<td>60 mmHg</td>
<td>70 mmHg</td>
<td>70 mmHg</td>
<td>80 mmHg</td>
<td>80 mmHg</td>
<td>90 mmHg</td>
<td></td>
</tr>
<tr>
<td>Endotracheal uncuffed</td>
<td>3.0</td>
<td>3.5</td>
<td>3.5</td>
<td>4.0</td>
<td>4.5</td>
<td>5.0</td>
<td>5.5</td>
<td>6.0</td>
<td>6.5</td>
</tr>
<tr>
<td>Endotracheal cuffed</td>
<td>2.5</td>
<td>3.0</td>
<td>3.0</td>
<td>3.5</td>
<td>4.0</td>
<td>4.5</td>
<td>5.0</td>
<td>5.5</td>
<td>6.0</td>
</tr>
<tr>
<td>Nasogastric Tube</td>
<td>5 Fr</td>
<td>5 Fr</td>
<td>8 Fr</td>
<td>8-10 Fr</td>
<td>10 Fr</td>
<td>10 Fr</td>
<td>12 Fr</td>
<td>14 Fr</td>
<td>14 Fr</td>
</tr>
<tr>
<td>Defibrillation</td>
<td>8 J</td>
<td>12 J</td>
<td>16 J</td>
<td>20 J</td>
<td>24 J</td>
<td>30 J</td>
<td>38 J</td>
<td>48 J</td>
<td>60 J</td>
</tr>
<tr>
<td>Cardioversion</td>
<td>2-4 J</td>
<td>3-6 J</td>
<td>4-8 J</td>
<td>5-10 J</td>
<td>6-12 J</td>
<td>8-15 J</td>
<td>10-20 J</td>
<td>12-24 J</td>
<td>15-30 J</td>
</tr>
<tr>
<td>Fluid Challenge</td>
<td>60 mL</td>
<td>120 mL</td>
<td>160 mL</td>
<td>200 mL</td>
<td>260 mL</td>
<td>320 mL</td>
<td>400 mL</td>
<td>520 mL</td>
<td>640 mL</td>
</tr>
<tr>
<td>Suction Catheter</td>
<td>6Fr</td>
<td>8Fr</td>
<td>8Fr</td>
<td>10Fr</td>
<td>10Fr</td>
<td>10Fr</td>
<td>10Fr</td>
<td>10Fr</td>
<td>12Fr</td>
</tr>
</tbody>
</table>
Airway
Needle Cricothyrotomy (Pediatric)

Clinical Indications:
- Failed Airway Protocol
- Management of an airway when standard airway procedures cannot be accomplished or have failed in a patient less than or equal to 8 years of age

Procedure:
1. Have suction supplies available and ready. Collect supplies including the endotracheal adapter of a 3.0 mm ID ET tube.
2. Place a roll of sheets or towels under the child’s shoulders to hyperextend the neck and position the larynx as far anterior as possible.
3. Prep the area with antiseptic swab.
4. Locate the cricothyroid membrane utilizing anatomical landmarks.
5. Use the non-dominant hand to secure the membrane.
6. Use commercially prepared kit or:
   a. Attach a 5-cc syringe to a 16-18-20 gauge catheter-over-needle device; insert the needle through the cricothyroid membrane at a 45 to 60 degree caudal angle.
   b. Aspirate for air with the syringe throughout the procedure.
   c. Once air returns easily, stop advancing the device.
   d. Thread the catheter off the needle gently at a 60 degree caudal angle.
   e. Maintain stabilization of the membrane remove and safely dispose of the needle.
   f. Attach the previously sized ET adapter to the end of the catheter and begin ventilation with a Bag Valve Mask connected to high flow oxygen source.
7. Assess breath sounds. Make certain ample time is used not only for inspiration but expiration as well. A 1:4 ratio is not unreasonable.
8. Gentle ventilation is necessary to avoid barotrauma and subsequent pneumothorax.
9. Secure by best method available, recognizing that this method may be direct hands-on control of the device throughout the entire transport.
10. If unable to obtain an adequate airway, resume basic airway management and transport the patient as soon as possible.
11. Regardless of success or failure of needle cricothyrotomy, notify the receiving hospital at the earliest possible time of a surgical airway emergency.
12. Document time/procedure/confirmation/change in patient condition/time on the patient care record (PCR)
### APGAR Scale

<table>
<thead>
<tr>
<th></th>
<th>0 Points</th>
<th>1 Point</th>
<th>2 Points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A – Appearance</strong>&lt;br&gt;(Skin Color)</td>
<td>Blue / Pale</td>
<td>Normal, except for extremities</td>
<td>Normal over entire body</td>
</tr>
<tr>
<td><strong>P – Pulse</strong></td>
<td>Absent</td>
<td>Below 100</td>
<td>Above 100</td>
</tr>
<tr>
<td><strong>G – Grimace</strong>&lt;br&gt;(Reflex Irritability)</td>
<td>No Response</td>
<td>Grimace</td>
<td>Sneeze, cough, pulls away</td>
</tr>
<tr>
<td><strong>A – Activity</strong></td>
<td>Absent</td>
<td>Arms and Legs Flexed</td>
<td>Active Movement</td>
</tr>
<tr>
<td><strong>R – Respiration</strong></td>
<td>Absent</td>
<td>Slow, irregular</td>
<td>Good, strong cry</td>
</tr>
</tbody>
</table>

### AVPU Infant / Child

<table>
<thead>
<tr>
<th>Response</th>
<th>Infant</th>
<th>Child</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A – Alert</strong></td>
<td>Curious / Recognizes parents</td>
<td>Alert / Aware of surroundings</td>
</tr>
<tr>
<td><strong>V – Responds to Voice</strong></td>
<td>Irritable / Cries</td>
<td>Opens eyes</td>
</tr>
<tr>
<td><strong>P – Responds to Pain</strong></td>
<td>Cries in response to pain</td>
<td>Withdraws from pain</td>
</tr>
<tr>
<td><strong>U – Unresponsive</strong></td>
<td>No response</td>
<td>No response</td>
</tr>
</tbody>
</table>

### CUPS Pediatric

<table>
<thead>
<tr>
<th>C – Critical</th>
<th>Absent airway, breathing or circulation (cardiac or respiratory arrest or severe traumatic injury)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>U – Unstable</strong></td>
<td>Compromised airway, breathing or circulation (unresponsive, respiratory distress, active bleeding, shock, active seizure, significant injury, shock, near-drowning, etc.)</td>
</tr>
<tr>
<td><strong>P – Potentially Unstable</strong></td>
<td>Normal airway, breathing &amp; circulation but significant mechanism of injury or illness (Post-seizure, minor fractures, infant &lt;3 months with fever, etc.)</td>
</tr>
<tr>
<td><strong>S – Stable</strong></td>
<td>Normal airway, breathing &amp; circulation No significant mechanism of injury or illness (small lacerations or abrasions, infant ≥3 months with fever)</td>
</tr>
</tbody>
</table>
Neonatal Resuscitation

Dry, Warm, Position, Tactile stimulation. Suction mouth then nose.

Administer O₂ as needed.

Apnea/Gasping, HR <100 or central cyanosis

Ventilate with BVM

HR <60 after 30 sec BVM

Chest Compressions

ALS - HR<60

Intubate

Meds
Pain Assessment and Documentation
Pediatric

Clinical Indications:

- Any pediatric patient with pain

Definitions:

- Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage.
- Pain is subjective (whatever the patient says it is).

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. 0 – 10 Scale: the most familiar scale used by EMS for rating pain 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.

Visual Analog Scale

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Pain</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>Worst pain</td>
</tr>
</tbody>
</table>

5. Wong – Baker “faces” scale: may be used with any patient with a language barrier. The faces correspond to numeric values from 0-10.


<table>
<thead>
<tr>
<th>BEHAVIORAL TOOL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Face</strong></td>
</tr>
<tr>
<td>Legs</td>
</tr>
<tr>
<td>Activity</td>
</tr>
<tr>
<td>Cry</td>
</tr>
<tr>
<td>Consolability</td>
</tr>
</tbody>
</table>
Venous Access Intraosseous
Pediatric

Clinical Indications:

- Life threatening illness or injury in a child < 6 years of age (72 months) after effective ventilation is established.

Procedure:

1. Expose the lower leg.
2. Identify the tibial tubercle (bony prominence below the knee cap) on the proximal tibia. The insertion location will be 1-2 cm (2 finger widths) below this and medially.
3. Prep the site as per peripheral IV site.
4. **If using a commercially prepared device follow manufacturer's recommendation.**
5. Holding the intraosseous needle perpendicular to the skin, twist the needle handle with a rotating grinding motion applying controlled downward force until a “pop” or “give” is felt indicating loss of resistance. Do not advance the needle any further.
6. Remove the trocar and attach the IV.
7. Stabilize and secure the needle.
8. Document the procedure, time, and result (success) on/with the patient care report (PCR).
Airway Capnography

Clinical Indications:

- Capnography shall be used with all endotracheal or supraglottic airway.

Procedure:

1. Attach capnography sensor to supraglottic airway or endotracheal tube.
2. Note CO₂ level and waveform changes. These will be documented on each respiratory failure or cardiac arrest patient.
3. The capnometer shall remain in place with the airway and be monitored throughout the prehospital care and transport.
4. Any loss of CO₂ detection or waveform indicative of an airway problem should be documented.
5. The capnogram should be monitored as procedures are performed to verify or correct the airway problem.
6. Document the procedure and results on/with the Patient Care Report (PCR).

<table>
<thead>
<tr>
<th>NORMAL: “Square box” waveform; baseline CO₂ = 0; ET CO₂ = 35 - 45 mm Hg</th>
<th>![Graph of NORMAL waveform]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management: Monitor</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DISLODGED ETT / ESOPHOGEAL INTUBATION: Loss of waveform, Loss of ET CO₂ reading</th>
<th>![Graph of DISLODGED ETT waveform]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management: Replace ETT</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>“SHARKFIN” with/without prolonged expiration = Bronchospasm (asthma, COPD, allergic rxn):</th>
<th>![Graph of “SHARKFIN” waveform]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management: Bronchodilators (Albuterol, Atrovent, or epinephrine)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RISING BASELINE = Patient is rebreathing CO₂:</th>
<th>![Graph of RISING BASELINE waveform]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management: Check equipment for adequate oxygen inflow</td>
<td></td>
</tr>
<tr>
<td>Allow intubated patient more time to exhale</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HYPERVENTILATION: Rapid RR; shortened waveform; baseline ET CO₂ = 0; ET CO₂ &lt; 35 mm Hg</th>
<th>![Graph of HYPERVENTILATION waveform]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management: Biofeedback if conscious, decrease assisted ventilation rate if unconscious/intubated</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PATIENT BREATHING AROUND ET TUBE: angled, sloping downstroke on waveform</th>
<th>![Graph of PATIENT BREATHING waveform]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broken cuff or tube is too small</td>
<td></td>
</tr>
<tr>
<td>Management: Assess patient, oxygenation, ventilation; may need to reintubate</td>
<td></td>
</tr>
</tbody>
</table>

**Important: Severe metabolic acidosis (DKA, sepsis, salicylate poisoning, acute renal failure, methanol ingestion, tricyclic overdose) will cause tachypnea, but ET CO₂ will be HIGH. THIS IS NOT NORMAL**
Airway Combitube

Clinical Indications:
- Apneic patient when endotracheal intubation is not possible or readily available.
- Patient must be > 5 feet and >16 years of age.
- Patient must be unconscious without a gag reflex.
- No history of esophageal disease or caustic ingestion.
- Failed Airway Protocol

Procedure:
1. Preoxygenate and hyperventilate the patient.
2. Lubricate the tube.
3. Maintain the head in a neutral inline position.
4. Grasp the patient’s tongue and jaw with your gloved hand and pull forward.
5. Gently insert the tube until the teeth are between the printed rings.
6. Inflate line 1 (blue pilot balloon) leading to the pharyngeal cuff with 100 cc air.
7. Inflate line 2 (white pilot balloon) leading to the distal cuff with 15 cc of air.
8. Ventilate the patient through the longer blue tube.
9. Auscultate for breath sounds and sounds over the epigastrium.
10. Look for the chest to rise and fall.
11. If breath sounds are positive and epigastric sounds are negative, continue ventilation through the blue tube. The tube is in the esophagus.
12. In the esophageal mode, stomach contents can be aspirated through the #2, white tube relieving gastric distention.
13. If breath sounds are negative and epigastric sounds are positive, attempt ventilation through the shorter, #2 white tube and reassess for lung and epigastric sounds. If breath sounds are present and the chest rises, you have intubated the trachea and continue ventilation through the shorter tube.
14. The device is secured by the large pharyngeal balloon.
15. Confirm tube placement using end-tidal CO₂ detector or esophageal bulb device.

- **Endotracheal intubation with a Combitube in Place:**
  (Not necessary if the ventilations are adequate with the Combitube.)
  A. The tube must be in the esophageal mode.
  B. Prepare all equipment needed for endotracheal intubation.
  C. Decompress the stomach.
  D. Hyperoxygenate the patient.
  E. Deflate the balloons on the Combitube and remove. Suction equipment must be ready.
  F. Rapidly proceed with endotracheal intubation.
Airway
Needle Cricothyrotomy (Adult)

Clinical Indications:

- Failed Airway Protocol.
- Management of an airway when standard airway procedures cannot be accomplished or have failed in a patient greater than or equal to 8 years of age.

Procedure:

1. Have suction supplies available and ready.
2. Collect supplies including the endotracheal adapter of a 3.0 mm ID ET tube.
3. Locate the cricothyroid membrane utilizing anatomical landmarks.
4. Use the non-dominant hand to secure the membrane.
5. Prep the area with antiseptic swab.
6. Using the syringe and the finder needle supplied in the commercial needle cricothyrotomy kit (or a 5-cc syringe attached to a 10 to 14 gauge catheter-over-needle device if needed), insert the needle through the cricothyroid membrane at a 45 to 60 degree caudal angle.
7. Aspirate for air with the syringe throughout the procedure.
8. Once air returns easily, stop advancing the device. If using an over the needle catheter, thread the catheter off the needle gently at a 60 degree caudal angle.
9. Attach the previously sized ET adapter to the end of the catheter and begin ventilation with a Bag Valve Mask connected to high flow oxygen source.
10. Assess breath sounds. Make certain ample time is used not only for inspiration but expiration as well. A 1:6 ratio is not unreasonable.
11. Secure needle by best method available, recognizing that this method may be direct hands-on control of the device throughout the entire transport.
12. If unable to obtain an adequate airway, resume basic airway management and transport the patient as soon as possible.
13. Regardless of success or failure of needle cricothyrotomy, notify the receiving hospital at the earliest possible time of a surgical airway emergency.
Airway
Cricothyrotomy Surgical (Adult)

Clinical Indications:

- Failed Airway Protocol
- Management of an airway when standard airway procedures cannot be performed or have failed in a patient > 12 years old

Clinical Contraindications:

- Significant trauma to the trachea or larynx suspicious of a tear or fracture
- Massive neck edema obstructing landmark identification
- Children less than 12 years of age
- Ability to effectively ventilate / oxygenate and suction if necessary.

Procedure:

1. Have suction and supplies available and ready.
2. Place patient supine with the neck in a neutral position.
3. Locate the cricothyroid membrane utilizing anatomical landmarks.
4. Prep the area with an antiseptic swab.
5. Stabilize the thyroid cartilage with the non dominant hand.
6. Identify the cricothyroid membrane.
7. Make a vertical incision over the cricothyroid membrane.
8. Visualize the cricothyroid membrane and puncture with the cric introducer or scalpel.
9. Dilate the cricothyroid membrane using any of the following techniques: kit dilator, curved hemostats, or gloved finger.
10. Insert a 5.5-6.5 ID ETT just until the cuff passes into the trachea. Be sure the cuff has cleared the cricothyroid space.
11. Inflate the cuff with 5-10cc of air and ventilate the patient while manually stabilizing the tube.
12. All of the standard assessment techniques for insuring tube placement should be performed (auscultation, chest rise & fall, end-tidal CO2 detector, etc.). Esophageal bulb devices are not accurate with this procedure.
13. Secure the tube.
### LEMON

<table>
<thead>
<tr>
<th>Physical signs</th>
<th>Less difficult airway</th>
<th>More difficult airway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Look externally</td>
<td>Normal face and neck</td>
<td>Abnormal face shape</td>
</tr>
<tr>
<td></td>
<td>No face or neck pathology</td>
<td>Sunken cheeks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Edentulous</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Buck teeth”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Narrow mouth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Obesity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Face or neck pathology</td>
</tr>
<tr>
<td>Evaluate the 3-3-2 rule</td>
<td>Mouth opening &gt;3F</td>
<td>Mouth opening &lt;3F</td>
</tr>
<tr>
<td></td>
<td>Hyoid-chin distance &gt;3F</td>
<td>Hyoid-chin distance &lt;3F</td>
</tr>
<tr>
<td></td>
<td>Thyroid cartilage-mouth floor distance &gt;2F</td>
<td>Thyroid cartilage-mouth floor distance &lt;2F</td>
</tr>
<tr>
<td>Mallampati</td>
<td>Class I and II (can see the soft palate, uvula, fauces +/- faucial pillars)</td>
<td>Class III and IV (can only see the hard palate +/- soft palate +/- base of uvula)</td>
</tr>
<tr>
<td>Obstruction</td>
<td>None</td>
<td>Pathology within or surrounding the upper airway (e.g. peri-tonsillar abscess, epiglottis, retro-pharyngeal abscess)</td>
</tr>
<tr>
<td>Neck Mobility</td>
<td>Can flex and extend the neck normally</td>
<td>Limited ROM of the neck</td>
</tr>
</tbody>
</table>
Airway
Intubation Confirmation
End-Tidal CO$_2$ Detector

Clinical Indications:

- The End-Tidal CO$_2$ detector shall be used with all endotracheal or supraglottic airway airways.

Procedure:

1. Attach End-Tidal CO$_2$ detector to supraglottic airway or endotracheal tube.
2. Note color change. A color change or CO$_2$ detection will be documented on each respiratory failure or cardiac arrest patient.
3. The CO$_2$ detector shall remain in place with the airway and monitored throughout the prehospital care and transport. Any loss of CO$_2$ detection or color change is to be documented and monitored as procedures are done to verify or correct the airway problem.
4. Tube placement should be verified frequently and always with each patient move or loss of color change in the End-Tidal CO$_2$ detector.
5. Document the procedure and the results on/with the Patient Care Report (PCR).
Airway
King LTS-D™

Clinical Indications:

- Apneic patient when endotracheal intubation is not possible or readily available.
- Respiratory arrest with absent gag reflex when endotracheal intubation is not possible or not available.
- Failed airway protocol
- Patient must be > 5 feet tall.
- No history of esophageal disease or caustic ingestion.

Procedure:

1. Select appropriate size tube per manufacturer specifications.
2. Pre-oxygenate and hyperventilate patient with BVM.
3. Lubricate distal portion of the tube.
4. Draw up 60 ml of air in syringe and connect to pilot balloon.
5. Maintain the head in a neutral inline position.
6. Grasp the patient’s tongue and jaw and pull up and forward.
7. Insert the tube into the corner of mouth with the blue orientation line facing laterally until the teeth are between the 14cm-16cm lines.
8. Inflate the cuff with 60 ml of air and remove syringe from pilot balloon
9. Connect BVM to tube and ventilate patient.
10. Auscultate for negative epigastric sounds and present bilateral lung sounds.
11. Check for chest rise and fall.
12. If available use ETCO2 monitoring.
13. Secure tube with tape or commercial device.

Endotracheal intubation with a King™ Airway in place. (Not necessary if ventilations are adequate with King™ Airway).

A. Prepare all equipment needed for an endotracheal intubation
B. Pre-oxygenate and hyperventilate patient.
C. Pass a Eschmann Catheter (Pg.90) through the King airway.
D. Deflate cuff and extubate the tube.
E. Using the Eschmann Catheter (Pg.90) insert ETT into airway.
F. Confirm correct placement. If ETT is in esophagus use direct laryngoscopy and insert ETT into the trachea.
Airway
Intubation Confirmation
Esophageal Bulb (or other commercial device)

Clinical Indications:

- To assist in determining and documenting the correct placement of an endotracheal or nasotracheal tube.

Procedure:

1. Complete intubation as per Airway Intubation-Oral or Airway Intubation-Nasal protocols.
2. Place the bulb device over the proximal end of the ETT or NTT. Squeeze the bulb to remove air prior to securing the bulb on the tube.
3. Once secured on the tube, release the bulb.
4. If the bulb expands evenly and easily, this indicates probable tracheal intubation. Assessment of the patients breath sounds bilaterally should also be performed.
5. If the bulb does not expand easily, this indicates possible esophageal intubation and the need to reassess the airway.
Airway (Alternate Airway Adjuncts)
Intubation Orotracheal

Clinical Indications:

- An unconscious patient without a gag reflex who is apneic or is demonstrating inadequate respiratory effort.
- Any patient medicated for rapid sequence intubation.

Procedure:

1. Prepare all equipment and have suction ready.
2. Preoxygenate the patient.
3. Medicate according to appropriate RSI procedure. Page 95.
4. Apply cricoid pressure (Sellick Maneuver).
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 cords and continue to visualize until the cuff is past the cords.
8. Number of attempts at ventilation shall not further compromise oxygenation. Oxygenate between each attempt and record SPO2. If unable to intubate after two (2) attempts proceed to Failed Airway protocol Page 23.
9. Remove the stylet and inflate the cuff (5-10cc until no cuff leak).
10. Auscultate for absence of sounds over the epigastrium and bilaterally equal breath sounds.
11. This should be repeated frequently and after movement or manipulation.
12. Confirm the placement using a minimum of two (2) methods. CO2 detection device mandatory.
14. 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 (PCR).
15. Document all devices used to confirm initial tube placement. Also document positive or negative breath sounds before and after each movement of the patient.
Airway (Alternate Airway Adjuncts)
Intubation with Eschmann Catheter,
Tracheal Tube Introducer or
Gum Elastic Bougie

Technique

1. Perform direct laryngoscopy after thorough preoxygenation.
2. Insert bougie under direct visualization (grade II) or semi blind (grade III) using epiglottis as a guide. Maintain midline bent end facing anteriorly.
3. With the tip directed anteriorly guide the bougie toward the epiglottis.
4. Advance the bougie posterior to the epiglottis and into the glottic opening.
5. Cricoid pressure may facilitate correct placement (when the tip of the introducer passes the cricoid cartilage and enters the trachea it also may be palpable at the anatomic location).
6. The operator may be able to feel the bougie “click” or “bump” over the anterior tracheal rings (“wash boarding or railroading”).
7. Use the laryngoscope to elevate the pharyngeal soft tissue.
8. Subtle maneuvering may be required to traverse the vocal cords.
9. Advance to the carina (resistance to passage) to verify placement (approximately 45 cm). Once advanced to the carina, further insertion causes the bougie to rotate on entrance into a bronchus as an additional criterion to confirm correct placement. Failure to meet resistance after inserting nearly the full length of the bougie indicates esophageal placement. Withdraw and align the black “lip-line marker” with the lips (1 cm band located 40 cm (4 stripes) from proximal end).
10. Pass endotracheal tube (larger than 6.0 mm) over the bougie.
11. If the endotracheal tube catches on the arytenoid or aryepiglottic folds, withdraw the tube slightly and rotate it 90° counterclockwise and advance it forward (allows beveled end to pass).
12. For optimal passage of the tube over the bougie into the trachea, the laryngoscope may be left in place as the endotracheal tube is advanced with the bevel facing posteriorly.
13. Secure the tube (remove bougie) and verify tube placement.
Airway (Alternate Airway Adjuncts)
Nasotracheal Intubation

Clinical Indications:

- A spontaneously breathing patient in need of intubation (inadequate respiratory effort, evidence of hypoxia or carbon dioxide retention, or need for airway protection).
- Patient must be 12 years of age or older.

Procedure:

1. Premedicate the patient with nasal spray (oxymetazoline) Afrin®.
2. Select the largest and least obstructed nostril and insert a lubricated nasal airway to help dilate the nasal passage.
3. Preoxygenate the patient. Lubricate the tube with water soluble lubricant. The use of a BAAM device is recommended. (Endotrol).
4. Remove the nasal airway and gently insert the tube keeping the bevel of the tube toward the septum.
5. Insert the tube along the floor of the nasopharynx angling toward the posterior hypopharynx.
6. Continue to pass the tube listening for air movement and looking for vapor condensation in the tube. As the tube approaches the larynx, the air movement gets louder.
7. Open the patient’s mouth to assure the tube is centered behind the uvula.
8. Gently and evenly advance the tube through the glottic opening on inspiration. This facilitates passage of the tube and reduces the incidence of trauma to the vocal cords.
9. Upon entering the trachea, the tube may cause the patient to cough, buck, strain, or gag. Do not remove the tube! This is normal, but be prepared to control the cervical spine and the patient, and be alert for vomiting.
10. Auscultate for bilaterally equal breath sounds and absence of sounds of the epigastrium. Observe for symmetrical chest expansion. The 15mm adapter usually rests close to the nostril with proper positioning.
11. Inflate the cuff with 5-10 cc of air. Confirm tube placement using an end-tidal CO₂ monitoring or esophageal bulb device.
12. Medicate patient according to physician order.
13. Secure the tube. Document the procedure, time, and result (success) on/with the patient care report (PCR).
Airway
Laryngeal Mask Airway (LMA)

Clinical Indications:
- Apneic patient when endotracheal intubation is not possible or readily available.
- Appropriate intubation is impossible due to patient access or difficult airway anatomy.
- **This airway does not prevent aspiration of stomach contents.**
- The device shall be dual lumen.

Clinical Contraindications:
- Pulmonary Fibrosis
- Morbid Obesity

Procedure:
1. Check the tube for proper inflation and deflation.
2. Lubricate with a water-soluble jelly.
3. Pre-Oxygenate the patient with 100% Oxygen.
4. Using proper technique, insert the LMA into the hypopharynx until resistance is met.
5. Inflate the cuff until a seal is obtained.
6. Connect the LMA to an ambu bag and assess for breath sounds, air entry, and end tidal CO2.
7. Monitor oxygen saturation with pulse oximetry and heart rhythm with ECG.
8. Re-verify LMA placement after every move and upon arrival in the ED.
9. Document the procedure, time, and result (success) on/with the patient care report (PCR).
Airway Nebulizer Inhalation Therapy

Clinical Indications:

- Patients experiencing bronchospasm.

Procedure:

1. Gather the necessary equipment.
2. Assemble the nebulizer kit.
3. Instill appropriate medication into the reservoir well of the nebulizer.
4. Connect the nebulizer device to oxygen at 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. If the patient is unable to maintain good lip seal around the mouth piece, nebulizer may be connected to a face mask.
7. In the intubated patient, nebulizer should be placed in line for effective medication delivery.
8. 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.
9. 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.
10. Assess and document peak flows before and after nebulizer treatments.
11. Document the treatment, dose, and route on/with the patient care report (PCR).
Airway
Non-invasive Positive Pressure Ventilation (NIPPV)

Clinical Indications:

- Consider in respiratory distress in the conscious patient suffering from
  Presumed pulmonary edema
  Severe reactive airway disease
  These conditions reactive under medical management

- Continue medical management of Cardiogenic pulmonary edema while preparing
  and during use of NIPPV.

Procedure:

1. Assemble equipment and assure proper functioning.
2. Ensure adequate oxygen supply to ventilation device.
3. Assess and document initial SPO2 and Work of Breathing.
4. Explain the procedure to the patient.
5. Calmly and continuously reassure patient.
6. Consider placement of a nasopharyngeal airway.
7. Place the delivery mask over the mouth and nose.
8. Secure the mask with provided straps or other provided devices.
9. Begin with a low pressure (e.g., 5 cm H20) and increase as patient tolerates/clinical situation dictates at 2.5cm H20 to a maximum of 10cm H20.
10. Monitor the patient’s respiratory status and vital signs with frequent reassessment.
11. If rapid improvement is not noted, discontinue NIPPV and manage oxygenation via other means.
12. Notify receiving facility of NIPPV use.
13. SVN can be utilized in line in the NIPPV circuit.
## Airway Rapid Sequence Induction (RSI)

### INDICATIONS
- Need for airway control persistent GCS ≤ 8

### RELATIVE CONTRAINDICATIONS
- Patients with adequate Oxygenation
- Patients with adequate ventilation
- Patients who would be difficult to intubate
- Patients with distorted facial or laryngeal anatomy
- Known neuromuscular disease

**Caution with Succinylcholine:**
- Chronic renal failure and on dialysis
- Patient or family history of malignant hyperthermia
- Significant burns between 24 hours and 2 weeks old
- Massive crush injury / suspected rhabdomyolysis

### PROCEDURE
- Preoxygenate with 100% O₂ via NRB or BVM.
- Monitor oxygen saturation with pulse oximetry and cardiac rhythm with ECG.
- Ensure functioning vascular access.
- Evaluate for difficult airway (LEMON)- see page 85.
- Prepare equipment (intubation kit, BVM, suction, RSI medications, alternate Airway devices/ adjuncts: Eschmann, cric kit, supraglottic airway.

### PREMEDICATE ADULT
- Lidocaine 1.5 mg/kg
- None

### PREMEDICATE PEDIATRIC
- Lidocaine 1.5 mg/kg
- Atropine 0.02 kg/kg min dose 0.1mg

### SEDATE ADULT
- Etomidate 0.3 mg/kg IV over 15 sec
- OR
- Midazolam 2.5-10 mg IV SLOW
- OR substitute when Etomidate and/or Midazolam is unavailable for induction
- Ketamine 1-2 mg/kg IV push

### SEDATE PEDIATRIC
- Midazolam 0.1 mg/kg IV
- OR substitute when Midazolam is unavailable for induction
- Ketamine 1.5 mg/kg IV over 1 minute

### NEUROMUSCULAR BLOCKADE
- Rocuronium 1 mg/kg IV
- OR
- Vecuronium 0.01 mg/kg IV
- AND
- Succinylcholine 1.5 mg/kg IV
- OR
- Succinylcholine 1.5 mg/kg IV
- OR
- Rocuronium 1 mg/kg IV

### CONTINUED MAINTENANCE/SEDATE
- Midazolam 2.5 – 10 mg, max 10 mg q 5-10 min PRN
- OR
- Lorazepam 1 – 2 mg, max 2 mg q 5 min PRN
- OR
- Diazepam 2 – 5 mg, max 5 mg q 5 min
- AND
- Rocuronium 1 mg/kg IV
- OR
- Vecuronium 0.1 mg/kg
Airway
Suctioning-Advanced

Clinical Indications:

- Obstruction of the airway (secondary to secretions, blood, or any other substance) in a patient currently being assisted by an airway adjunct such as:
  - a naso-tracheal tube
  - endotracheal tube
  - supraglottic airway
  - tracheostomy tube
  - cricothyrotomy tube

Procedure:

1. Ensure suction device is in proper working order.
2. Collect supplies including flexible suction catheter, sterile saline in container, clean gloves.
3. Preoxygenate the patient as much as possible. Do not over inflate the lungs.
4. Attach suction catheter to suction device, keeping end of catheter aseptic.
5. Measure length of catheter for proper depth of insertion based on the type of device in place.
6. If applicable, remove ventilation devices from the airway.
7. With the thumb port of the catheter uncovered, insert the catheter through the airway device.
8. Once the desired depth (measured in #5 above) has been reached, occlude the thumb port and remove the suction catheter slowly.
9. Interrupt ventilations for no more than 30 seconds.
10. Reattach ventilation device (e.g., bag-valve mask) and ventilate the patient.
11. Clear the suction catheter of thick secretions by aspirating sterile saline.
12. If thick secretions prevent effective suctioning instill 3-5 cc of sterile saline in the tube and ventilate the patient 3-4 breaths. Then repeat suctioning as described.
13. Document time and result including SpO₂ readings before and after procedure in the patient care report (PCR).
Clinical Indications:

- Obstruction of the airway (secondary to secretions, blood, or any other substance) in a patient who cannot maintain or keep the airway clear.

Procedure:

Oropharyngeal

1. Ensure suction device is in proper working order with rigid suction tip in place.
2. Preoxygenate the patient as much as possible.
3. Explain the procedure to the patient if they are coherent.
4. Examine the oropharynx and remove any potential foreign bodies or material which may occlude the airway if dislodged by the suction device.
5. If applicable, remove ventilation devices from the airway.
6. Use the suction device to remove any secretions, blood, or other substances.
7. Be aware that a patient with altered mentation may bite on the catheter resulting in a foreign body obstruction.
8. The alert patient may assist with this procedure.
9. Reattach ventilation device (e.g., bag-valve mask) and ventilate or assist the patient.
10. Record the time and result of the suctioning in the patient care report (PCR).

Nasopharyngeal

1. Ensure suction device is in proper working order with flexible suction tip in place.
2. Lubricate the end of the suction catheter with water soluble lubricant.
3. Preoxygenate the patient as much as possible.
4. Explain the procedure to the patient if they are coherent.
5. Examine the oropharynx and remove any potential foreign bodies or material which may occlude the airway if dislodged by the suction device.
6. If applicable, remove ventilation devices from the airway.
7. Insert the flexible catheter through the largest nare following the floor of the nasal passage angling toward the posterior pharynx.
8. Use the suction device to remove any secretions, blood, or other substance.
9. Reattach ventilation device (e.g., bag-valve mask) and ventilate or assist the patient.
10. Record the time and result of the suctioning in the patient care report (PCR).
Airway
Tracheostomy Tube Change

Clinical Indications:

- Presence of Tracheostomy site.
- Urgent or emergent indication to change the tube such as:
  - obstruction that will not clear with suction,
  - dislodgement,
  - inability to oxygenate/ventilate the patient without other obvious explanation.

Procedure:

1. Have all airway equipment prepared for standard airway management, including equipment for orotracheal intubation and failed airway.
2. Have airway device (endotracheal tube or tracheostomy tube) of the same size as the tracheostomy tube currently in place as well as 0.5 size smaller available (e.g., if the patient has a #6.0 Shilley, then have a 6.0 and a 5.5 tube).
3. Lubricate the replacement tube(s) and check the cuff.
4. Remove the tracheostomy tube from mechanical ventilation devices and use a bag-valve apparatus to pre-oxygenate the patient as much as possible.
5. Once all equipment is in place, remove devices securing the tracheostomy tube, including sutures and/or supporting bandages.
6. If applicable, deflate the cuff on the tube.
7. Remove the tracheostomy tube.
8. Insert the replacement tube. Confirm placement via standard measures except for esophageal detection (which is ineffective for surgical airways).
9. If there is any difficulty placing the tube, re-attempt procedure with the smaller tube.
10. If difficulty is still encountered, use standard airway procedures such as oral bag-valve mask or endotracheal intubation (as per protocol). More difficulty with tube changing can be anticipated for tracheostomy sites that are immature – i.e., less than two weeks old.

➢ Great caution should be exercised in attempts to change immature tracheotomy sites.

11. Document procedure, confirmation, patient response, and any complications in the PCR.
Airway
Ventilator Operation

Clinical Indications:

- Transport of an intubated patient

Procedure:

1. Confirm the placement of tube as per airway protocol.
2. Ensure adequate oxygen delivery to the ventilator device.
3. Preoxygenate the patient as much as possible with bag-valve mask.
4. Remove BVM and attach tube to ventilator device.
5. Per instructions of device, set initial values. For example, set an inspiratory / expiratory ratio of 1:4 with a rate of 12 to 20.
7. If any worsening of patient condition, decrease in oxygen saturation, or any question regarding the function of the ventilator, remove the ventilator and resume bag-valve mask ventilations.
**Cardiac**
**12 Lead ECG**

**Clinical Indications:**
- Suspected cardiac patient
- Suspected tricyclic overdose
- Electrical injuries
- Syncope

**Procedure:**
1. Assess patient and monitor cardiac status.
2. Administer oxygen as patient condition warrants.
3. If patient presents with pain or complaint, suspect of a cardiac related emergency, then perform a 12 Lead ECG. (EMT can perform ECG - read only)
4. Prepare ECG monitor and connect patient cable with electrodes.
5. Enter the required patient information (patient name, etc.) into the 12 lead ECG device.
6. Expose chest and prep as necessary. Modesty of the patient should be respected.
7. Apply chest leads and extremity leads using the following landmarks:
   - RA - Right arm
   - LA - Left arm
   - RL - Right leg
   - LL - Left leg
   - V1 - 4th intercostal space at right sternal border
   - V2 - 4th intercostal space at left sternal border
   - V3 - Directly between V2 and V4
   - V4 - 5th intercostal space at midclavicular line
   - V5 - Level with V4 at left anterior axillary line
   - V6 - Level with V5 at left midaxillary line
8. Instruct patient to remain still.
9. Press the appropriate button to acquire the 12 Lead ECG.
10. If the monitor detects signal noise (such as patient motion or a disconnected electrode), the 12 Lead acquisition will be interrupted until the noise is removed.
11. Once acquired, transmit the ECG data by fax (where available) to the appropriate hospital.
12. Contact the receiving hospital to notify them that a 12 Lead ECG has been sent.
13. Monitor the patient while continuing with the treatment protocol.
14. Download data as per guidelines and attach a copy of the 12 lead to the Patient Care Report.
15. Document the procedure, time, and results on/with the patient care report (PCR)

<table>
<thead>
<tr>
<th>I Lateral</th>
<th>aVR</th>
<th>V1 Septal</th>
<th>V4 Anterior</th>
</tr>
</thead>
<tbody>
<tr>
<td>II Inferior</td>
<td>aVL Lateral</td>
<td>V2 Septal</td>
<td>V5 Lateral</td>
</tr>
<tr>
<td>III Inferior</td>
<td>aVF Inferior</td>
<td>V3 Anterior</td>
<td>V6 Lateral</td>
</tr>
</tbody>
</table>
Cardiac Cardioversion

Clinical Indications:

- Unstable patient with a tachydysrhythmia (rapid atrial fibrillation, supraventricular tachycardia, ventricular tachycardia)
- Patient is not pulseless (the pulseless patient requires unsynchronized cardioversion, i.e., defibrillation)

Procedure:

1. Ensure the patient is attached properly to a monitor/defibrillator capable of synchronized cardioversion.
2. Have all equipment prepared for unsynchronized cardioversion/defibrillation if the patient fails synchronized cardioversion and the condition worsens.
3. Consider the use of pain or sedating medications.
4. Set energy selection to appropriate level per AHA guidelines.
5. Set monitor/defibrillator to synchronized cardioversion mode.
6. Make certain all personnel are clear of patient.
7. Press the button to cardiovert. Stay clear of the patient until you are certain the energy has been delivered. NOTE: It may take the monitor/defibrillator several cardiac cycles to “synchronize”, so there may a delay between activating the cardioversion and the actual delivery of energy.
8. Note patient response and perform immediate unsynchronized cardioversion/defibrillation if the patient’s rhythm has deteriorated into pulseless ventricular tachycardia/ventricular fibrillation, following the procedure for Defibrillation-Manual.
9. If the patient’s condition is unchanged, repeat steps 2 to 8 above, using appropriate energy level per AHA guidelines.
10. If the patient has not improved after two attempts of cardioversion, contact medical control.
Cardiac Defibrillation - Automated

Clinical Indications:

- Non-traumatic cardiac arrest in patients older than 1 year of age

Procedure:

1. Confirm the cardiac arrest. Instruct partners or First Responders to initiate CPR while the defibrillator is set up. If defibrillation is underway by First Responders, continue resuscitation as outlined.
2. Turn the defibrillator on and begin documentation.
3. Attach the cables to the appropriate pads and then apply the pads to the patient’s chest in the proper position.
4. **Stop CPR and clear the patient** prior to rhythm analysis.
5. Analyze the patient’s rhythm by pushing the “analyze” button.
6. **Assertively state “CLEAR” and visualize that no one, including yourself, is in contact with the patient prior to defibrillation.**
7. Defibrillate if appropriate by depressing the “shock” button.
8. The sequence of defibrillation charges is preprogrammed for monophasic defibrillators. Biphasic defibrillators will determine the correct joules accordingly.
9. Immediately resume CPR for two minutes and then repeat steps 4 - 7 three more times if indicated.
10. If “no shock advised” appears, perform CPR for two minutes and then reanalyze.
11. Transport and continue treatment as indicated.
Cardiac
Defibrillation - Manual

Clinical Indications:

- Non-traumatic cardiac arrest with ventricular fibrillation or pulseless ventricular tachycardia

Procedure:

1. Clinically confirm the diagnosis of cardiac arrest and identify the need for defibrillation.
2. After application of an appropriate conductive agent if needed, apply defibrillation paddles or hands free pads to the patient’s chest in the proper position.
3. Set the appropriate energy level according to AHA guidelines and device type (mono vs biphasic).
4. Charge the defibrillator to the selected energy level.
5. Assure proper placement of the paddles or pads.
6. Make sure fast patch pads have good skin contact.
7. Assertively state, “CLEAR” and visualize that no one, including yourself, is in contact with the patient.
8. Deliver the countershock by depressing the shock button.
9. Immediately resume CPR for 2 minutes.
10. Repeat the procedure as indicated by patient response and ECG rhythm.
11. Document the dysrhythmia and the response to defibrillation with ECG strips on/with the PCR.
Cardiac
Transcutaneous Pacing

Clinical Indications:

- Patients with symptomatic bradycardia.
- Pediatric patients requiring external transcutaneous pacing require the appropriate placement of pads for pediatric patients per the manufacturer’s guidelines.
- If used in asystole, it must be used early.

Procedure:

1. Oxygen, ECG monitor, IV (if possible) should be in place prior to pacing.
2. Confirm the presence of the dysrhythmia (include a copy of the ECG strip) and evaluate the patient’s hemodynamic status.
3. Adjust the QRS amplitude so the machine can sense the intrinsic QRS activity.
4. Apply pacing pads to the patient’s chest in either of the following positions - anterior-anterior or anterior-posterior.
5. Attach the pacing pads to the therapy cable from the machine.
6. Consider the use of sedation and or analgesia if patient is uncomfortable.
7. Turn the pacer on.
8. Observe the ECG screen for a “sense” marker on each QRS complex. If a “sense” marker is not present, readjust ECG size or select another lead.
9. Set the desired pacing rate (60-80).
10. Start at the lowest setting and increase the current slowly while observing the ECG screen for evidence of electrical pacing capture.
11. Assess the patient’s response to the pacing therapy.
12. Document the dysrhythmia and the response to external pacing with ECG strips.
Central Venous Device

Clinical Indications:
- Need for vascular access using a patient’s current externally accessible central venous device.
- For multi-lumen lines, PICC lines, Hickman’s and Groshong catheters.

Procedures:
1. Apply gloves.
2. Gather all equipment required: antiseptic, 10 mL syringe of Normal Saline, IV solution and tubing, extra syringes
3. If thumb or slide clamps are present, assure they are in the locked position before beginning. Clamps need to closed before removing any syringe of adapter from the hub. Always clean the hub with antiseptic while changing syringes or adapters.
4. Clean hub with alcohol swab and attach a syringe of saline.
5. Flush with 5 ml of Normal Saline, aspirate for blood return and flush with the remaining 5 ml of Normal Saline.
6. Regardless of the type of PICC line access, if resistance is met, assume the lumen is obstructed and repeat procedure on the second lumen if available. Also repeat the procedure on the second lumen if aspirating for blood is unsuccessful.
7. If a clamp is present, close it, remove the syringe, clean the hub, attach a new syringe, open the clamp and aspirate 5ml of blood to discard.
8. Attach a new syringe if needed, open the clamp and draw blood for labs.
9. Establish IV fluids at minimum TKO rate or desired infusion rate and secure the line.
10. Discontinue if complication occurs.
11. Hickman Catheter

### Accessing a Subcutaneous Implanted Port

1. Don mask and sterile gloves.
2. Palpate port to locate septum.
3. Stabilize device with thumb and index finger.
4. Cleanse area around port with 3 separate antiseptic swabs/pads.
5. While stabilizing port, insert Huber needle at 90 degree angle through skin into the septum. Apply pressure until needle comes into contact with metal backing of device.
6. Aspirate for blood to confirm placement. If no blood return, attempt to irrigate with saline and aspirate blood again.
7. Add new syringe of saline and flush with saline.
8. Assess for swelling around device. If swelling occurs, STOP INJECTION.
9. Tape down Huber needle “wings”.
10. Apply transparent dressing.
Chest Decompression

Clinical Indications:

- Tension pneumothorax

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 at the midclavicular line on the affected side of the chest. May consider fifth intercostal space in the midaxillary line.

3. Prep the insertion site.

4. Insert the 2 inch, 10/12/14/16 gauge angiocath (1¼ inch, 18 gauge angiocath in patients less than 8 years) with a 10cc syringe attached, by directing the needle just over the top of the third rib (2nd intercostal space) or (fifth intercostal space in the midaxillary line) 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 patients less than 8 years) through the chest wall. Pull back on the plunger of the syringe as the needle is advanced. 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.

6. Withdraw the needle and advance the catheter until flush with the skin. Listen for a gush or “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. Secure the catheter and rapidly transport the patient providing appropriate airway assistance.
Childbirth / Fundal Massage

Clinical Indications:

- Imminent delivery with crowning

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 aim the baby down to allow delivery of the anterior shoulder.
6. Gently aim the baby up 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.
10. Follow the Newborn Resuscitation Protocol for further treatment. Pg. 58
11. The placenta will deliver spontaneously, usually within 5 minutes of the infant. Do not force the placenta to deliver.
12. Continue rapid transport to the hospital.

Clinical Indications for Fundal Massage:

- Post partum hemorrhage AFTER placental delivery

Procedure for Fundal Massage:

1. Assure complete delivery of placenta.
2. Place absorbent material underneath pelvis of patient to facilitate the estimation of blood loss.
3. Place the ulnar aspect of your non dominant hand perpendicular to the abdomen, parallel and just superior to the symphysis pubis.
4. Exert moderate pressure up and in toward the spine.
5. With your dominant hand find the uterine fundus and begin a “kneading” motion using moderate pressure.
6. This procedure will be uncomfortable to the patient but should not be painful.
7. Uterine massage should result in uterine contracture and the feeling of a firm “grapefruit” sized mass.
8. Continue procedure until bleeding subsides.
9. Document patient condition, procedure and response on PCR.
Stroke FAST Assessment

Clinical Indications:

- Suspected Stroke Patient

Procedure:

1. Assess and treat suspected stroke patients as per protocol.
2. Use FAST assessment to evaluate three major physical findings to identify a stroke patient who requires rapid transport to the hospital.
3. If possible, prehospital care providers should establish the time of onset of stroke signs and symptoms.

Stroke test

1. Facial droop – Have patient show their teeth or smile.
   a. Normal – Both sides of face move equally
   b. Abnormal – One side of the face does not move as well as the other.
2. Arm drift – the patient closes their eyes and holds both arms out.
   a. Normal – Both arms move the same direction or do not move at all (pronator grip may be helpful).
   b. Abnormal – One arm does not move or one arm drifts down compared to the other.
3. Speech – Have the patient say “you can’t teach an old dog new tricks”.
   a. Normal – the patient uses the correct words with no slurring
   b. Abnormal – The patient slurs their words, uses inappropriate words or is unable to speak.
4. Time – Identify onset of symptoms or last known normal

Any positive findings in steps 1-3 may indicate stroke and you should consider activating your Code Stroke per County Operating Procedure.

Report specific findings for example: left side facial drooping, slurred speech.
### CPR (High Density)

<table>
<thead>
<tr>
<th>MANEUVER</th>
<th>Adult</th>
<th>Child</th>
<th>Infant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unresponsive (for all ages)</td>
<td>No breathing or no normal breathing (ie, only gasping)</td>
<td>No breathing or only gasping</td>
</tr>
<tr>
<td></td>
<td>No pulse palpated within 10 seconds for all ages (HCP only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RECOGNITION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACTIVATE: Emergency Response Number (lone rescuer)</td>
<td>Activate when victim found unresponsive HCP: if asphyxial arrest likely, call after 5 cycles (2 minutes) of CPR</td>
<td>Activate after performing 5 cycles of CPR</td>
<td>For sudden, witnessed collapse, activate after verifying that victim unresponsive</td>
</tr>
<tr>
<td>CPR Sequence</td>
<td>C-A-B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compression Rate</td>
<td>At least 100/min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compression Depth</td>
<td>At least 2 inches (5cm)</td>
<td>At least 1/3 AP diameter About 2 inches (5cm)</td>
<td>At least 1/3 AP diameter About 1 1/2 inches (5cm)</td>
</tr>
<tr>
<td>Chest Wall Recoil</td>
<td>Allow complete recoil between compressions</td>
<td>HCPs rotate compressors every 2 minutes</td>
<td></td>
</tr>
<tr>
<td>Compression Interruptions</td>
<td>Minimize interruptions in chest compressions</td>
<td>Attempt to limit interruptions to &lt;10 seconds</td>
<td></td>
</tr>
<tr>
<td>Airway</td>
<td>Head tilt-chin lift (HCP suspected trauma: jaw thrust)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compression-to-ventilation ratio (until advanced airway placed)</td>
<td>30:2</td>
<td>1 or 2 rescuers</td>
<td>30:2 Single rescuer 15:2 2 HCP rescuers</td>
</tr>
<tr>
<td>Ventilations: when rescuer untrained or trained and not proficient</td>
<td>Compressions only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ventilations with advanced airway (HCP)</td>
<td>1 breath every 6-8 seconds (8-10 breaths/min) Asynchronous with chest compressions About 1 second per breath Visible chest rise</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign-body airway obstruction</td>
<td><strong>Responsive</strong>: Abdominal thrusts</td>
<td><strong>Responsive</strong>: Back slaps and chest thrusts</td>
<td><strong>Responsive</strong>: CPR with airway check</td>
</tr>
<tr>
<td></td>
<td><strong>Unresponsive</strong>: CPR with airway check</td>
<td><strong>Unresponsive</strong>: CPR with airway check</td>
<td></td>
</tr>
<tr>
<td>Defibrillation</td>
<td>Attach and use AED as soon as available. Minimize interruptions in chest compressions before and after shock; resume CPR beginning with compressions immediately after each shock.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**2012 - Northwest Region Emergency Medical Services & Trauma Care Council**
Discontinuation of CPR, Do not attempt Resuscitation
Determination of Field Death

Procedure:

ALS/BLS Treatment: CPR may be discontinued without Medical Control contact and the patient determined to be dead for the following reasons, ONLY IF:

1. Upon further examination it is determined that the patient meets the “Determination of Death Criteria” and CPR was initiated prior to this discovery.

Category I – Obvious death
- Decomposition of body tissue
- Total decapitation
- Total incineration
  - Total separation or destruction of the heart or brain
  - Note: Prehospital care providers desiring support in the field may contact the Medical Control at any time for Determination of Death
- Fetus with a foot length of 33mm or less
- Traumatic Arrest (Non-breathing and pulseless)

Category II – (must meet 3 requirements)
- Non-breathing
- Pulselessness
- Rigor Mortis
- Asystole in two leads (EMT’s can transmit Rhythm strip to hospital for convenience)
  - Note: Exception – suspected hypothermia requires full resuscitation efforts

2. Endotracheal intubation and drug therapy appropriate to the presenting rhythm, according to AHA guidelines, have been initiated and the patient remains apneic, pulseless, and in asystole or PEA.
Discontinuation of CPR, Do not attempt Resuscitation
Determination of Field Death (continued)

3. DNR or POLST form has been presented after CPR was initiated.
   a. Prehospital care providers need not initiate CPR if:
      I. POLST form or DNR papers are dated and signed by the patient with appropriate witnessed signatures and there is no question they belong to the patient. The patient may be of any age.
      II. Banded with the State Banding system or EMS-NO CPR Form is present.
      III. Compelling reasons to withhold CPR/Resuscitation efforts. Such as but not limited to:
         - End stage of terminal condition
         - Living will
         - Verbal request by family

Once death has been determined and resuscitation efforts discontinued, all ALS therapeutic modalities initiated during the resuscitation must be left in place until it has been determined that the patient will not be a Coroners’ case. This includes such equipment as endotracheal tubes, IV catheters, monitor electrodes and personal items including clothes, jewelry etc. If the coroner releases the body while the prehospital care provider is still on scene, remove all medical equipment used during the resuscitation.

4. Medical Control contacted. Time of death recorded on MIR.
Glucometry

Clinical Indications:

- Patients with suspected hypoglycemia (diabetic emergencies, change in mental status, bizarre behavior, etc.)
- Patients with Altered Mental Status

Procedure:

1. Gather and prepare equipment.
2. Blood samples for performing glucose analysis should be obtained according to device manufacturers recommendations.
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 presenting symptoms, analysis, and protocol.
6. Repeat glucose analysis as indicated for reassessment after treatment and document patient response on the PCR.
7. Follow manufacture recommendations for device calibration.
## Glasgow Coma Score

<table>
<thead>
<tr>
<th>Eye Opening</th>
<th>Infants</th>
<th>Children/Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spontaneous</td>
<td>4</td>
<td>Spontaneous</td>
</tr>
<tr>
<td>To speech/sound</td>
<td>3</td>
<td>To speech</td>
</tr>
<tr>
<td>To pain</td>
<td>2</td>
<td>To pain</td>
</tr>
<tr>
<td>No response</td>
<td>1</td>
<td>No response</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Verbal Response</th>
<th>Infants</th>
<th>Children/Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coos or babbles</td>
<td>5</td>
<td>Oriented</td>
</tr>
<tr>
<td>Irritable crying</td>
<td>4</td>
<td>Confused</td>
</tr>
<tr>
<td>Cries to pain</td>
<td>3</td>
<td>Inappropriate words</td>
</tr>
<tr>
<td>Moans to pain</td>
<td>2</td>
<td>Incomprehensible</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Motor Response</th>
<th>Infants</th>
<th>Children/Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spontaneous</td>
<td>6</td>
<td>Obeys commands</td>
</tr>
<tr>
<td>Withdraws touch</td>
<td>5</td>
<td>Localizes pain</td>
</tr>
<tr>
<td>Withdraws pain</td>
<td>4</td>
<td>Withdraws pain</td>
</tr>
<tr>
<td>Abnormal flexion</td>
<td>3</td>
<td>Abnormal flexion</td>
</tr>
<tr>
<td>Abnormal extension</td>
<td>2</td>
<td>Abnormal extension</td>
</tr>
<tr>
<td>No response</td>
<td>1</td>
<td>No response</td>
</tr>
</tbody>
</table>
Injections-Subcutaneous, Intramuscular

Clinical Indications:

- When medication administration is necessary and the medication must be given via the SQ or IM route or as an alternative route in selected medications.

Procedure:

1. Receive and confirm medication order or perform according to standing orders.
2. Prepare equipment and medication expelling air from the syringe.
3. Needle size Subcutaneous Injection
   a. 25g 5/8 inch needle for average adult
   b. 25-27g ½ inch needle for infant, child, elderly, or thin patient
   c. The most common site for subcutaneous injection is the arm. Injection volume should not exceed 1 cc.
4. Needle size Intramuscular injection:
   a. 20-25g 1-2 inch depending on patient size.
   b. The possible injection sites for intramuscular injection include the arm, buttock and thigh.
5. Injection volume should not exceed 1 cc for the arm and not more than 2.5 cc in the thigh or buttock.
6. The thigh should be used for injections in pediatric patients and injection volume should not exceed 1 cc.
7. Explain the procedure to the patient and reconfirm patient allergies.
8. Expose the selected area and cleanse the injection site with alcohol.
9. Insert the needle into the skin with a smooth, steady motion
10. **SQ: 45 degree angle IM: 90 degree angle**
11. Aspirate for blood. If blood is aspirated do not inject medication. Discard and begin again.
12. Inject the medication.
13. Withdraw the needle quickly and dispose of properly without recapping.
14. Apply pressure to the site.
15. Monitor the patient for the desired therapeutic effects as well as any possible side effects.
Nasogastric Tube Insertion

Clinical Indications:

- Gastric decompression in intubated patients.
- Administration of activated charcoal in patients with altered mental status.

Procedure:

1. Assemble all supplies. Assure functioning suction unit.
2. Estimate insertion length by superimposing the tube over the body from the nose, to the ear, to the stomach.
3. Mark the proper insertion distance with tape.
4. Flex the neck if not contraindicated to facilitate esophageal passage.
5. Liberally lubricate the distal end of the tube and pass through the patient’s nostril along the floor of the nasal passage. Do not orient the tip upward into the turbinates. This increases the difficulty of the insertion and may cause bleeding.
6. In the setting of an unconscious, intubated patient or a patient with facial trauma, oral insertion of the tube may be considered or preferred.
7. Continue to advance the tube gently until the appropriate distance is reached.
8. Confirm placement by injecting 20cc of air and auscultate for the swish or bubbling of the air over the stomach. Additionally, aspirate gastric contents to confirm proper placement.
9. Secure the tube.
10. Decompress the stomach of air and food either by connecting the tube to suction or manually aspirating with the large catheter tip syringe.
11. Mechanical suction should not reach high setting.
12. Document the procedure, time, patient response, and result (success) on/with the patient care report (PCR).
Orthostatic Blood Pressure Measurement

Clinical Indications:

- Patient situations with suspected blood / fluid loss / dehydration
- Patients larger than the Length Based tape

Procedure:

1. Assess the need for orthostatic vital sign measurement.
2. Obtain patient’s pulse and blood pressure while supine.
3. Have patient stand for two minutes.
4. Obtain patient’s pulse and blood pressure while standing.
5. If pulse has increased by 30 BPM or systolic blood pressure decreased by 30 mmHg, the orthostatics are considered positive.
6. If patient is unable to stand, orthostatics may be taken while the patient is sitting with feet dangling.
7. If positive orthostatic changes occur while sitting, **DO NOT** continue to the standing position.
8. Patients on prolonged beta-blocker therapy will not demonstrate orthostatic vital sign changes. Provider must complete assessment and utilize clinical judgment.
9. Document the time and vital signs for supine and standing positions on/with the patient care report (PCR).
10. Determine appropriate treatment based on protocol.
Pain Assessment and Documentation
ADULT

Clinical Indications:
- Any patient with pain

Definitions:
- Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage.
- Pain is subjective (whatever the patient says it is).

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: the 0 - 10 and the Wong - Baker "faces" scale.
5. 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.

Visual Analog Scale

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Worst pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Wong – Baker “faces” scale: may be used with geriatrics or any patient with a language barrier. The faces correspond to numeric values from 0-10. This scale can be documented with the numeric value or the textual pain description.

Pelvic Fracture Stabilization

Clinical Indications:

- Physical exam indicates and mechanism of injury suggests a pelvic fracture

Procedure:

1. Physical exam shows instability of pelvis with compression.
2. Assess the abdomen and neurovascular status of the lower extremities.
3. Assess for blood at the perineum
4. Fold a sheet lengthwise into a swathe approximately 12 to 18 inches wide.
5. Pass this swathe under the patient’s buttocks and tie circumferentially around the pelvis covering buttocks posteriorly. The swathe should be just below the iliac crests.
6. Re-assess the abdomen and neurovascular status of the lower extremities.

**OR**

1. Physical exam shows instability of pelvis with compression.
2. Assess the abdomen and neurovascular status of the lower extremities.
3. Assess for blood at the perineum.
4. Utilize a commercial pelvic stabilization device following the manufacturer’s specifications.
5. Re-assess the abdomen and neurovascular status of the lower extremities.
Pulse Oximetry

Clinical Indications:

- Patients with suspected hypoxemia.

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 (PCR).
5. Verify pulse rate on machine with palpated 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 $\text{SpO}_2$ 97-99%. 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:
   - (a) Poor peripheral circulation (blood volume, hypotension, hypothermia)
   - (b) Excessive pulse oximeter sensor motion
   - (c) Fingernail polish (may be removed with acetone pad)
   - (d) Carbon monoxide bound to hemoglobin
   - (e) Irregular heart rhythms (atrial fibrillation, SVT, etc.)
   - (f) Jaundice
Restraints

Clinical Indications:

- Patients with actual or potential threat to self or others.

Procedure:

1. Planning:
   A. Request assistance from Law Enforcement.
   B. EMS personnel are not to knowingly place themselves at risk during the process of restraining a patient.
   C. Obtain necessary resources to manage scene and patient.
   D. Assess patient for any condition that may contribute to violent behavior. Treatment for identified conditions is to be initiated according to protocol immediately after controlling the situation and patient behavior.
   E. Consult Medical Control as soon as possible regarding the application and use of restraints.
   F. Verbal de-escalation techniques are to be implemented and documented. If verbal de-escalation fails, providers may need to implement physical and or chemical restraint measures.

2. Application of restraints:
   A. Obtaining and preparing appropriate restraints
      - padded leather restraints
      - soft restraints (i.e. posey, Velcro or seatbelt type)
      - any method utilized must allow for quick release
   B. Assessing the safety of the situation
      - Complete a visual check for potential weapons
      - If there is suspicion of weapon involvement request involvement of Law Enforcement prior to engaging in patient interaction.
      - Providers should remove any potential weapons from their person. (i.e., pens, flashlights, trauma shears etc.)
   C. Assigning a contact for the out of control person
      - Minimize the number of people speaking to the out of control person.
      - Continue use of verbal de-escalation
   D. Designating who will direct and cue team members in the application of restraints
      - Assign each limb and the head to specific team members
      - Give the signal to go hands-on (this may be a non-verbal signal)
      - Supervise the application of restraints
      - Give the verbal signal for hands-off (RELEASE)
      - No team member is to release their designated limb until directed
   E. Conduct a preliminary debriefing
      - Assess team members and patient for any injuries
      - Re-assess restraints for appropriate application
3. Reassessment / Chemical Adjuncts:
   A. Following the application of physical restraints EMS personnel must assess the patient to determine the need for administration of an anxiolytic, or sedative to prevent continued forceful struggling against the restraint. Continued forceful struggling against the restraint can lead to hyperkalemia, rhabdomyolysis, or cardiac arrest.
   B. Chemical adjuncts to physical restraints are to be administered in accordance with patient care protocols and / or on line medical direction.
   C. Post restraint assessment must include hemodynamic, respiratory, and neurologic systems. Restrained extremities should be evaluated for pulse quality, capillary refill, color, nerve and motor function a minimum of every fifteen minutes.

4. Documentation:
   A. In addition to standard information, the Medical Incident Report must document the following:
      i. Complete assessment of patient
      ii. Objective description of patient behavior (competence)
      iii. Use and effectiveness of verbal de-escalation techniques
      iv. Reason for physical restraint
      v. Explanation offered to the patient
      vi. Type of restraint used and time applied
      vii. Post restraint serial extremity evaluation
      viii. Post evaluation of the patient’s respiratory status
      ix. Condition of the patient enroute and on transfer to Emergency Department Staff.

5. Approved restraint devices / patient positioning:
   A. The following forms of restraint are not to be utilized by EMS personnel:
      i. “Sandwiching” patients between backboards, scoop-stretchers, or mattresses, as a restraint
      ii. Restraining a patient’s hands and feet behind the patient (i.e. hog-tying)
      iii. Methods or other material applied in a manner that could cause respiratory, vascular, or neurological compromise, including the use of “choke holds”.
      iv. Locking handcuffs
      v. Hard plastic ties or any restraint device requiring a key to remove

   B. Patients should not be transported in the prone position. EMS personnel must ensure that the patient’s position does not compromise the patient’s respiratory, circulatory, or neurological systems, and does not preclude any necessary medical intervention to protect the patient’s airway should vomiting occur.

   C. Occasionally it is necessary for Law Enforcement to apply restraint devices that are not approved for EMS use in order to protect the safety of the patient and the public. As soon as the situation is controlled EMS personnel are to exchange these devices for those that are approved for EMS use. In the event that restraint exchange cannot safely occur, Law Enforcement must accompany patient during transport.
Spinal Clearance

Clinical Indication:

- To determine whether it is appropriate for the **Certified Provider** to forgo full spinal immobilization i.e. rigid collar, backboard, three point restraining device and head immobilization device, in the prehospital setting

Procedure:

**Assess for the following:**

1. Midline bony spinal tenderness to palpation, crepitus, or step off
2. Physical findings with a neurologic deficit
3. Altered mental status to include substance abuse and/or loss of consciousness
4. The presence of additional painful or distracting injuries
5. The complaint of parasthesia or numbness
6. Language barrier i.e. patient not understanding the questions asked, dementia, speaks a different language, or mentally delayed
7. Painful spontaneous cervical ROM
8. Children under the age of 12
9. Significant mechanism of injury or care provider judgment

If any of the above findings are positive, full spinal immobilization is to be implemented.
**Spinal Immobilization**

**Clinical Indications:**

- Need for spinal immobilization as determined by protocol

**Procedure:**

1. Gather a backboard, straps, C-collar appropriate for patient’s size, tape, and head rolls or similar commercial device to secure the head.

2. Explain the procedure to the patient.

3. Place the patient in an appropriately sized C-collar while maintaining in-line stabilization of the C-spine. This stabilization, to be provided by a second rescuer, should not involve traction or tension but rather simply maintaining the head in a neutral, midline position while the first rescuer applied the collar.

4. Once the collar is secure, the second rescuer should still maintain their position to ensure stabilization (the collar is helpful but will not do the job by itself.)

5. Place the patient on a long spine board with the log-roll technique if the patient is supine or prone. For the patient in a vehicle or otherwise unable to be placed prone or supine, place them on a backboard by the safest method available that allows maintenance of inline spinal stability.

6. Stabilize the patient with straps and head rolls/tape or other similar device. Once the head is secured to the backboard, the second rescuer may release manual in-line stabilization.

7. NOTE: Some patients, due to size or age, will not be able to be immobilized through inline stabilization with standard backboards and C-collars. Never force a patient into a non-neutral position to immobilize them. Such situations may require a second rescuer to maintain manual stabilization throughout the transport to the hospital.

Splinting

Clinical Indications:

- Immobilization of an extremity for transport, either due to suspected fracture, sprain, or injury.
- Immobilization of an extremity for transport to secure medically necessary devices such as intravenous catheters.

Procedure:

1. Assess and document pulses, sensation, and motor function prior to placement of the splint. If no pulses are present and a fracture is suspected, consider reduction of the fracture prior to placement of the splint.
2. Remove all clothing, jewelry or restricting items from the extremity.
3. Select a site to secure the splint both proximal and distal to the area of suspected injury, or the area where the medical device will be placed.
4. Do not secure the splint directly over the injury or device.
5. Place the splint and secure with Velcro, straps, or bandage material (e.g., kling, kerlex, cloth bandage, etc.) depending on the splint manufacturer and design.
6. Document pulses, sensation, and motor function after placement of the splint. If there has been a deterioration in any of these 3 parameters, remove the splint and reassess.
7. If a femur fracture is suspected and there is no evidence of pelvic fracture or instability, the following procedure may be followed for placement of a femoral traction splint:
   a. Assess neurovascular function as in #1 above.
   b. Place the ankle device over the ankle.
   c. Place the proximal end of the traction splint on the posterior side of the affected extremity, being careful to avoid placing too much pressure on genitalia or open wounds. Make certain the splint extends proximal to the suspected fracture. If the splint will not extend in such a manner, reassess possible involvement of the pelvis.
   d. Extend the distal end of the splint at least 6 inches beyond the foot.
   e. Attach the ankle device to the traction crank.
   f. Twist until moderate resistance is met.
   g. Reassess alignment, pulses, sensation, and motor function. If there has been deterioration in any of these 3 parameters, release traction and reassess.
8. Document the time, type of splint, and the pre and post assessment of pulse, sensation, and motor function in the patient care report (PCR).
Taser Dart Removal

Clinical Indication:

- The darts should only be removed in the field if they do not involve the eye, face, neck, breast or groin.
- Patients with retained darts in these areas should be transported to a hospital for removal by a physician.

Procedure:

1. Prior to removal, patient must be adequately restrained.
2. Body substance isolation procedures must be taken.
3. Ensure that wires are disconnected from the gun or the wires have been cut.
4. Push on the body part which the barbed dart (straight #8 fish hook) is imbedded and simultaneously pull the dart straight out.
5. Apply alcohol or iodine to the puncture area and dress wound.
6. Treat the dart as a “contaminated sharp”. The dart should be placed in a biohazard sharps container and turned over to law enforcement.
7. Patient must be thoroughly assessed to determine if other medical problems or injuries are present.
8. If the individual does not have any other presenting injuries/illness, they may be left in the custody/care of law enforcement.
9. If transported to the hospital, follow the Patient Care Procedure regarding restraints for aggressive or violent patients.
10. Detailed documentation is very important as it is likely to become evidence.
Temperature Measurement

Clinical Indications:

- Monitoring body temperature in a patient with suspected infection, hypothermia, hyperthermia, or to assist in evaluating resuscitation efforts.

Procedure:

1. If clinically appropriate, allow the patient to reach equilibrium with the surrounding environment. For example, the temperature of a child or infant that has been heavily bundled is often inaccurate, so “unbundle” the child for 3 to 5 minutes before obtaining temperature.

2. For adult patients that are conscious, cooperative, and in no respiratory distress, an oral temperature is preferred (steps 3 to 5 below). For infants or adults that do not meet the criteria above, a rectal temperature is preferred (steps 6 to 8 below).

3. To obtain an oral temperature, ensure the patient has no significant oral trauma and place the thermometer under the patient’s tongue with appropriate sterile covering.

4. Have the patient seal their mouth closed around thermometer.

5. If using an electric thermometer, leave the device in place until there is indication an accurate temperature has been recorded (per the “beep” or other indicator specific to the device). If using a traditional thermometer, leave it in place until there is no change in the reading for at least 30 seconds (usually 2 to 3 minutes). Proceed to step 9.

6. Prior to obtaining a rectal temperature, assess whether the patient has suffered any rectal trauma by history and/or brief examination as appropriate for patient’s complaint.

7. To obtain a rectal temperature, cover the thermometer with an appropriate sterile cover, apply lubricant, and insert into rectum no more than 1 to 2 cm beyond the external anal sphincter.

8. Follow guidelines in step 5 above to obtain temperature.

9. Record time, temperature, method (oral, rectal), and scale (C° or F°) in Patient Care Report (PCR).
Thrombolytic Screen

Clinical Indications:

- Rapid evaluation of a patient with suspected acute stroke, acute myocardial infarction, or acute pulmonary embolus who may benefit from thrombolysis.
- OR USE YOUR COUNTY OPERATING PROCEDURE IF AVAILABLE

Procedure:

1. Follow the appropriate protocol for patient’s complaint to assess need for thrombolysis (e.g., FAST assessment for suspected stroke, 12-lead EKG for suspected myocardial infarction, etc.). If the screen is positive, proceed to step 2 below.

2. By history from the patient and/or family members, obtain and record the following information:
   a. history of active internal bleeding?
   b. history of CNS neoplasm, arteriovenous (AV) malformation, or CNS aneurysm?
   c. history of CNS surgery in past 2 months?
   d. history of severe, uncontrolled hypertension (>200/130)?
   e. history of bleeding disorder?
   f. history of aortic dissection?
   g. history of allergy to thrombolytic?

3. Record all findings in the Patient Care Report (PCR).
Venous Access
Blood Draw

Clinical Indications:

- Collection of a patient’s blood for laboratory analysis.

Procedure:

1. Utilize universal precautions as per Infection control standards Page 11.
2. Select vein and prep with topical antiseptic as usual.
3. Select appropriate blood-drawing devices: Vacutainer blood tubes and blood tube holders with male or female adaptors shall be available and used to obtain and transfer all blood samples.
4. Draw appropriate tubes of blood for lab testing per destination hospital protocol.
5. Assure that the blood samples are labeled with the correct information (a minimum of the patients name, along with the date and time the sample was collected).
6. Deliver the blood tubes to the appropriate individual at the hospital.

- Emergent procedure only – Not to be used unless transporting patients (ie: State Patrol blood draws) without contacting Medical Control.
Venous Access
External Jugular Access

Clinical Indications:
- External jugular vein cannulation is indicated in a critically ill patient > 8 years of age who requires intravenous access for fluid or medication administration and in whom an extremity vein is not obtainable.
- External jugular cannulation can be attempted initially in life threatening events where no obvious peripheral site is noted.

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. Prep the site as per peripheral IV site.
4. Align the catheter with the vein and aim toward the same side shoulder.
5. "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.
6. Attach the IV and secure the catheter avoiding circumferential dressing or taping.
7. Document the procedure, time, and result (success) on/with the patient care report (PCR).
Venous Access
Extremity

Clinical Indications:

- Any patient where intravenous access is indicated (significant trauma or mechanism, emergent or potentially emergent medical condition).

Procedure:

1. Inspect the IV solution for expiration date, cloudiness, discoloration, leaks, or the presence of particles.
2. Connect 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.
3. Place a tourniquet around the patient’s extremity to restrict venous flow only.
4. Select a vein and an appropriate gauge catheter for the vein and the patient’s condition.
5. Prep the skin with an antiseptic solution.
6. Insert the needle with the bevel up into the skin in a steady, deliberate motion until the blood flash is visualized in the catheter.
7. Advance the catheter into the vein. Never reinsert the needle through the catheter. Dispose of the needle into the proper container without recapping.
8. Draw blood samples when appropriate.
9. Remove the tourniquet and connect the IV tubing or saline lock.
10. Open the IV to assure free flow of the fluid and then adjust the flow rate as per protocol or as clinically indicated.
11. Cover the site with a sterile dressing and secure the IV and tubing.
12. Document the procedure, time and result (success) on/with the patient care report (PCR).
Venous Access
Intraosseous Adult

Clinical Indications:

- Inability to obtain vascular access in a patient that requires emergent access.

Procedure:

1. Assemble standard intravenous access equipment as well as IO needle. **If a commercial kit is being used (FAST 1™, EZ-IQ™, Bone Injection Gun™), or hand held Intraosseous needle, follow the procedure recommended by the manufacturer.**

2. Follow manufacturers’ specifications for placement. Suggested sites: proximal humerus, proximal tibia and distal femur.

3. Holding the I/O needle perpendicular to the site, insert it with a twisting motion until you feel decreased resistance or feel a “pop”. Stop advancing the needle.

4. Remove the trochar.

5. Begin infusion of IV fluids. The fluids should flow easily. Once ease of flow has been established, the line may be used just as any other IV line.

6. **Lidocaine** flush 1mL of 2% Lidocaine in conscious patients PRN.

7. Stabilize the IO needle.

Wound Care and Hemorrhage Control

Clinical Indications:

- Bleeding control of open wounds, including tourniquet use.
- Protection and care for open wounds.

Procedure:

1. Utilize universal precautions as per Infection Control Standards Page 11.
2. Control Bleeding
   A. Apply direct pressure to wound with clean gauze pad. If extremity wound, elevate above the level of the heart.
   B. If gauze soaks through, apply additional gauze on top of original - do not remove initial dressing.
   C. If unable to control bleeding with direct pressure and elevation and additional gauze, use pressure points. Do not rely on bandage to control bleeding. Direct pressure is much more effective.
   D. If prolonged extrication or transport and unable to control bleeding to extremity wound, consider use of commercially-prepared gauze impregnated with a hemostatic non-thermogenic agent (i.e., Quick Clot gauze). Follow manufacturers’ recommendations for packing, dressing, and bandaging site.
   E. Tourniquets. For partial or complete extremity amputation or uncontrolled bleeding, consider use of commercial tourniquet device. Use blood pressure cuff only if commercial device not available and continuous pressure monitoring can be assured.
      i. Follow device manufacturers’ recommendations for application and monitoring.
      ii. Apply tourniquet pressure only to point bleeding is controlled to preserve as much distal tissue as possible.
      iii. Record application time
   G. Once bleeding is controlled, bandage dressing in place – do not rely on bandage to control bleeding.
3. Once bleeding is controlled, irrigate contaminated wounds with saline as appropriate (this may have to be avoided if bleeding was difficult to control). Consider analgesia per protocol prior to irrigation.
4. Cover wounds with sterile gauze/dressings. Check distal pulses, sensation, and motor function to ensure the bandage is not too tight.
5. Monitor wounds and/or dressings throughout transport for bleeding.
### Acetaminophen (Tylenol)

**Indications:** Fever, Pain

**ADULT Dose:** ADULT: 20mg/kg PO  
**TOXIC DOSE IS 150 mg/kg**

**Contraindications:** Documented hypersensitivity

**Pediatric Considerations:** 15mg/kg PO  
Liquid solutions vary in concentration verify correct dose  
Do not exceed 5 doses in 24 hours

**Precautions:** Use cautiously in patients with long term alcohol use  
Many OTC products contain APAP - Consider Toxicity

**Adverse Effects:** Hypoglycemia  
Allergic reaction

**Onset/Duration:** 20-30 minute onset  
4-6 hour duration

**Classification:** Antipyretic, Analgesic

**Action:** Analgesia, Antipyresis

**Notes:** Caution with long term alcohol ingestion

### Acetylsalicylic acid/Aspirin (Bayer/Ecotrin)

**Indications:** Chest Pain with Suspected MI

**ADULT Dose:** 81mg X 4 tabs Chewable up to 325 mg PO

**Contraindications:** Known Hypersensitivity

**Pediatric Considerations:** Contraindicated

**Precautions:** Toxic dose is 200-300 mg/kg

**Adverse Effects:** Angioedema  
Occult Blood loss  
Nausea- GI upset  
Hepatotoxicity

**Onset/Duration:** 30-60 minute onset  
4-6 hour duration

**Classification:** Antiplatelet, Analgesic, Antipyretic, Anti-inflammatory

**Action:** Inhibition of platelet aggregation and platelet synthesis  
Reduction of risk of death in patients with a history of myocardial infarction or unstable angina

**Notes:** Salicylate Toxicity: tinnitus, nausea, vomiting,
### Activated Charcoal (Actidose-Aqua/Insta-Char)

<table>
<thead>
<tr>
<th><strong>Indications:</strong></th>
<th>Suspected overdose or accidental ingestion of drugs or chemicals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>ADULT 50 grams PO/NG</td>
</tr>
</tbody>
</table>
| **Contraindications:** | ALOC  
Diminished or absent gag reflex  
Caustic, corrosive, or petroleum distillate ingestion |
| **Pediatric Considerations:** | PED 1 gm/kg PO/NG  
Do not use preparations containing sorbitol |
| **Precautions:** | Unpleasant taste be prepared for spitting or vomiting  
Use of straw may facilitate administration in adult patient |
| **Adverse Effects:** | Vomiting  
Aspiration |
| **Onset/Duration:** | Immediate onset  
24 hour duration |
| **Classification:** | Chemical absorbent |
| **Action:** | Inhibits gastrointestinal absorption of drugs or chemicals. |
| **Notes:** | Most effective if administered within 30 minutes of ingestion |

### Adenosine (Adenocard)

<table>
<thead>
<tr>
<th><strong>Indications:</strong></th>
<th>Supra-ventricular tachyarrhythmias (stable)</th>
</tr>
</thead>
</table>
| **ADULT Dose:**  | 6 mg Rapid IVP followed with 10 - 20 cc NS flush  
Repeat dose of 12 mg PRN X1 q 2 minute |
| **Contraindications:** | 2nd or 3rd degree heart block  
Sick sinus syndrome  
Hypersensitivity to adenosine |
| **Pediatric Considerations:** | 0.1 mg/kg initial  
Repeat 0.2 mg/kg |
| **Precautions:** | Some Asthma patients may experience bronchoconstriction |
| **Adverse Effects:** | Headache  
Dizziness  
Dyspnea  
Nausea/vomiting  
Chest pressure  
Transient asystole |
| **Onset/Duration:** | Immediate Onset  
10 second duration |
| **Classification:** | Antidysrhythmic agent  
Endogenous purine nucleoside |
| **Action:** | Slows conduction through the A-V node can interrupt the re-entry pathways through the A-V node |
| **Notes:** | Individuals with long term adjustment to nicotine or high doses of caffeine may require larger dose of Adenosine.  
Warn patient of unpleasant effects of medication PRIOR to administration |
<p>| <strong>Drug : Drug interactions:</strong> | Theophylline, nicotine, caffeine- may require higher doses |</p>
<table>
<thead>
<tr>
<th>Indications:</th>
<th>Treatment of Bronchospasm in patients with reversible obstructive airway disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADULT Dose:</td>
<td>2.5 mg in 3cc NS via nebulizer 1-2 puffs of patients OWN Metered Dose Inhaler (MDI) May initiate continuous nebulizer for persistent distress. Do not exceed 15mg/ hr</td>
</tr>
<tr>
<td>Contraindications:</td>
<td>Known hypersensitivity Tachycardia (relative)</td>
</tr>
<tr>
<td>Pediatric Considerations:</td>
<td>2.5-10 mg as per Broselow tape</td>
</tr>
<tr>
<td>Precautions:</td>
<td>Cardiovascular disease Diabetes mellitus Hypothyroidism</td>
</tr>
<tr>
<td>Adverse Effects:</td>
<td>Tachycardia Palpitations Dysrhythmias Nausea Hypertension Dizziness Restlessness</td>
</tr>
<tr>
<td>Onset/Duration:</td>
<td>5 minute onset 3-4 hour duration</td>
</tr>
<tr>
<td>Classification:</td>
<td>Bronchodilator</td>
</tr>
<tr>
<td>Action:</td>
<td>Relaxes bronchial smooth muscle by stimulating beta2 receptors resulting in bronchodilation</td>
</tr>
<tr>
<td>Drug : Drug interactions</td>
<td>Beta Blockers: Pt may not respond as effectively to medication Sympathomimetics: additive effects</td>
</tr>
<tr>
<td><strong>Amiodarone (Cordarone)</strong></td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td></td>
</tr>
</tbody>
</table>

**Indications:**
VF/pulseless VT; pulsed wide-complex tachycardia; monomorphic sustained severe VT; SVT.

**ADULT Dose:**
VF/pulseless VT:
300mg IVP (dilute in NS/D5W 20cc). May repeat 150mg IVP x 1 in 5-10min. Max 450mg.
VT, wide-complex tachycardia:
150mg IV piggyback over 10min (mix in D5W 100cc).

**Contraindications:**
Known hypersensitivity; cardiogenic shock; bradycardia with ventricular escape beats; marked sinus bradycardia; 2\textordmasculine} or 3\textordmasculine} degree AV blocks.
Antiarrhythmics are not indicated for prophylactic treatment of ectopy or as a prophylactic post-arrest. Do not use with medications that prolong QT interval (procainamide). Do not use lidocaine if amiodarone is being used.

**Pediatric Considerations:**
VF/pulseless VT:
5mg/kg IV/IO (dilute in NS/D5W 15cc). May repeat q 5-10min to max 15mg/kg.
VT, wide-complex tachycardia:
5mg/kg IV/IO piggyback over 20-60min (mix in D5W 100cc), run dose in by time:
- 20min = 4gtts/sec = 300gtts/min
- 33min = 3gtts/sec = 180gtts/min
- 50min = 2gtts/sec = 120gtts/min
- 60min = 1gtt/sec = 60gtts/min. (Do not repeat without medical control order.)

**Precautions:**
Dosing varies for specific arrhythmias, pay attention to dosing/concentration for specific patient age and clinical presentation. Lidocaine should be used for pulsed patients. If allergic to lidocaine or if lidocaine is not carried or if amiodarone has already been given, then administer amiodarone. May potentiate effects of oral anticoagulants, digoxin, antiarrhythmics and cyclosporine.

**Adverse Effects:**
Flushing; N/V; HA; tinnitus; blurred vision; dizziness; restlessness; confusion; tremors; numbness; hypotension; edema; CHF; dysrhythmias; SA node dysfunction; bradycardia (may be resistant to atropine and require pacing); Q-T prolongation; heart block; sinus arrest; abdominal pain; muscle twitching; seizures, respiratory depression. Phlebitis may occur at IV site with higher concentrations. May cause grayish-blue skin discoloration. Discontinue if significant adverse effects occur.

**Onset/Duration:**
Onset via IV 15min/half-life 40 days.
<table>
<thead>
<tr>
<th><strong>Amiodarone (Cordarone) continued</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Classification:</strong> Antiarrhythmic Class III; has effects in all four classes. Class I – sodium channel blockade; Class II – noncompetitive alpha and beta-adrenergic inhibition; Class III – prolonged repolarization and refractoriness by increased action potential duration; and Class IV – slight calcium channel blockade.</td>
</tr>
<tr>
<td><strong>Action:</strong> Suppresses ventricular ectopy, increases ventricular fibrillation threshold; increases cardiac refractory period without influencing resting membrane potential; relaxes vascular smooth muscle, reduces peripheral vascular resistance, and slightly increases cardiac index.</td>
</tr>
<tr>
<td><strong>Notes:</strong> Amiodarone will form precipitate in IV lines if combined with aminophylline, heparin sodium or sodium bicarbonate. If sodium bicarbonate needs to be administered, after amiodarone flush IV line with NS 10-20cc. Also precipitates with cefamandole nafate, cefazolin sodium and mezlocillin sodium. Amiodarone leeches plasticizers from IV tubing and IV bags; bags should be mixed and run when needed. Do not premix or save unused mixed bags.</td>
</tr>
<tr>
<td><strong>Atropine (Atreza)</strong></td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td><strong>Indications:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>ADULT Dose:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Pediatric Considerations:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Action:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
**Calcium Chloride (CaCl2)**

<table>
<thead>
<tr>
<th>Indications:</th>
<th>Hyperkalemia</th>
<th>Hypermagnesemia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>specific arachnid envenomation</td>
<td>Crush Syndrome</td>
</tr>
<tr>
<td></td>
<td>Over dose of calcium channel blockers</td>
<td></td>
</tr>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>10 to 20 mg/kg slow IV /IO</td>
<td></td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>VF (unless due to hyperkalemia)</td>
<td>Hypercalcemia, renal calculi</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pediatric Considerations:</strong></td>
<td>DOSE : 10 mg/kg IV/IO</td>
<td></td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>Causes tissue necrosis if injected into interstitial space</td>
<td>Precipitates with sodium bicarbonate</td>
</tr>
<tr>
<td></td>
<td>May increased dig toxicity</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Clear IV with 20cc NS before and after administration</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Bradycardia, hypotension, syncope</td>
<td></td>
</tr>
<tr>
<td>Onset/Duration:</td>
<td>5 to 15 minute onset</td>
<td>duration is dose dependent, effects may persist for up to 4 hrs</td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>Inotropic agent</td>
<td></td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Couples electrical and mechanical events of the myocardium</td>
<td>Increases myocardial contractility</td>
</tr>
<tr>
<td></td>
<td>increases ventricular irritability</td>
<td></td>
</tr>
<tr>
<td><strong>Notes:</strong></td>
<td>200mg IV prophylactic to diltiazem admin in elderly dehydrated or drug-induced hypotension</td>
<td></td>
</tr>
</tbody>
</table>

**Clopidogrel Bisulfate (Plavix)**

| Indications:                        | STEMI confirmed with Medical Control authorization required |                  |
| ADULT Dose:                         | 300mg PO with TNKase | 600mg PO with primary PCI |
| Contraindications:                  | Active pathological bleeding, bleeding conditions/disorders (hemophilia), peptic ulcer | Intracranial hemorrhage |
|                                     | Intracranial hemorrhage | Recent surgery, recent serious injury (physical trauma) |
| Precautions:                        | Avoid concomitant use CYP2C19 inhibitors (e.g., omeprazole) medications |                  |
| **Adverse Effects:**                | Bruising, bleeding |                  |
| **Onset/Duration:**                 | 2 hrs onset | 7-10 day duration |
| **Classification:**                 | Anti-platelet, thienopyridine class inhibitor |                  |
| **Action:**                         | Inhibits platelets’ ability to clump together as part of blood clot. Inhibitor of adenosine diphosphate (ADP) induced platelet aggregation acting by direct inhibition of ADP binding to its receptor and of subsequent ADP-mediated activation of glycoprotein GPIIb/IIIa complex. |                  |
## Dexamethasone (Decadron)

<table>
<thead>
<tr>
<th><strong>Indications:</strong></th>
<th>Counteract allergic anaphylactic shock.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>4 to 8 mg intravenously</td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>Hypersensitivity to the product</td>
</tr>
<tr>
<td><strong>Pediatric Considerations:</strong></td>
<td>0.6 mg/kg IV/IO/IM/PO</td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>Use cautiously with renal or hepatic disease; hypothyroidism, ulcerative colitis with impending perforation; diverticulitis; active or latent peptic ulcer; inflammatory bowel disease; CHF, hypertension, thromboembolic disorders; osteoporosis; seizure disorders; diabetes mellitus; lactation.</td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Stomach upset, headache, dizziness</td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
<td>4-8 hours onset 24 -72 hours duration</td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>Is a potent synthetic member of the glucocorticoid class of steroid drugs. It acts as an anti-inflammatory and immunosuppressant.</td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Enters target cells and binds to specific receptors, initiating many complex reactions that are responsible for its anti-inflammatory and immunosuppressive effects.</td>
</tr>
</tbody>
</table>

## Dextrose / D50W / D25W (DGlucone)

<table>
<thead>
<tr>
<th><strong>Indications:</strong></th>
<th>Hypoglycemia  Hypokalemia with concurrent insulin administration  Altered level of consciousness due to suspected or confirmed hypoglycemia</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>12.5 to 25 g IV / IO repeat dose to maximum of 50 g  Consider administration with 100 mg of thiamine</td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>Hyperglycemia</td>
</tr>
<tr>
<td><strong>Pediatric Considerations:</strong></td>
<td>DOSE: 0.5gm/kg D25%  DILUTE D50% 1:1 to D25%</td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>Causes tissue necrosis if injected into interstitial space  May increase cerebral ischemia in CVA  caution with intracranial hemorrhage</td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Thrombophlebitis  Osmotic Diuresis  Pulmonary Edema  May worsen Wernicke's encephalopathy</td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
<td>30 to 60 seconds onset  duration depends on severity of hypoglycemia</td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>Hyperglycemic agent hypotonic solution</td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Provide immediate source of glucose for rapid utilization for cellular metabolism</td>
</tr>
<tr>
<td><strong>Notes:</strong></td>
<td>Follow with complex carbohydrate if leaving patient at home</td>
</tr>
</tbody>
</table>
## Diazepam (Valium)

<table>
<thead>
<tr>
<th>Indications:</th>
<th>Major motor seizures, status epilepticus, premedication for painful procedures, combative patients</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>2-5 mg IV for procedural sedation and pain management 5mg IV over 2 minutes, 10 mg PR, or 2-5 mg IM for seizures 2 mg IV q5min for effect or 10 mg PR for eclamptic seizures 2-10 mg IV or 10mg IM titrated to effect for nerve agents</td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>Respiratory depression Hypotension</td>
</tr>
<tr>
<td><strong>Pediatric Considerations:</strong></td>
<td>0.1mg/kg IV/IO for procedural sedation and pain management 0.1mg/kg IV over 2 minutes, or 0.5 mg/kg PR for seizures 0.1mg/kg IV/IM for nerve agents MAX DOSES: 5 mg in children and 10 mg in adolescents</td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>Inject slowly, do not use small veins. Should not administer to patients in shock, coma or in acute alcoholic intoxication with depression of vital signs. Use caution in elderly patients.</td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Hypotension Respiratory depression</td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
<td>IV 1-5 minute onset, 15-60 minute duration IM 15-30 minute onset, 15-60 minute duration</td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>Benzodiazepine</td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Suppresses spread of seizure activity through the motor cortex, skeletal muscle relaxant, reduces anxiety and causes sedation</td>
</tr>
<tr>
<td><strong>Notes:</strong></td>
<td>Intramuscular administration leads to widely variable absorption and should be avoided if possible. <strong>Diastat - EMT's many administer patients own prescription ONLY</strong></td>
</tr>
</tbody>
</table>
### Diltiazem (Cardizem)

<table>
<thead>
<tr>
<th>Indications:</th>
<th>A fib</th>
<th>A flutter</th>
<th>PSVT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>10-25 mg IV/IO may repeat dose</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>Concurrent use of IV beta-blockers</td>
<td>Wide complex tachycardia of unknown etiology</td>
<td>Sick Sinus Syndrome</td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>May precipitate with use of furosemide</td>
<td>Use cautiously in elderly patients</td>
<td>Congestive Heart Failure</td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Arrhythmias</td>
<td>Bradycardia</td>
<td>Hypotension</td>
</tr>
<tr>
<td></td>
<td>Heart Failure</td>
<td>AV block</td>
<td>Pulmonary edema</td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
<td>2 to 10 minute onset</td>
<td>1-3 hour duration</td>
<td></td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>Calcium channel blocker</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Inhibit calcium ion on passage across cell membrane</td>
<td>slows SA and AV node conduction velocity</td>
<td>decreases myocardial contractility</td>
</tr>
<tr>
<td><strong>Drug: Drug Interactions</strong></td>
<td>Potentiates with Beta-Blocker, Lithium, Tegretol, cyclosporins</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Diphenhydramine (Benadryl)

<table>
<thead>
<tr>
<th>Indications:</th>
<th>Anaphylaxis</th>
<th>Allergic reactions</th>
<th>Dystonia</th>
<th>Sedation</th>
<th>Nausea</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>12.5 to 50 mg IV/IO/IM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>Known hypersensitivity</td>
<td>Newborns</td>
<td>Acute asthma</td>
<td>COPD exacerbation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relative: narrow angle glaucoma</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pediatric Considerations:</strong></td>
<td>DOSE: 1 mg/kg IV/IO/IM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>Reduce dose for elderly</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Seizures</td>
<td>Sedation</td>
<td>Thickening of Bronchial Secretions</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
<td>IV administration has immediate onset</td>
<td>6 to 8 hour duration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>Antihistamine</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Prevents but does not reverse histamine mediated responses</td>
<td>suppresses cough reflex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Drug: Drug Interactions</strong></td>
<td>Potentiates CNS depressants</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Dopamine (Intropin)

<table>
<thead>
<tr>
<th>Indications:</th>
<th>Cardiogenic shock</th>
<th>Sepsis</th>
<th>Refactory Hypotension</th>
<th>Bradycardia</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADULT Dose:</td>
<td><strong>Initial</strong> 5.0 mcg/kg/min: IVD, then titrate to effect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contraindications:</td>
<td>Tachydysrhythmias</td>
<td>Hypovolemic shock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pediatric Considerations:</td>
<td>1-20mcg/kg/min IVD</td>
<td>Epinephrine is pressor of choice in pediatric shock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Precautions:</td>
<td>Titrate to blood pressure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adverse Effects:</td>
<td>Angina, Ectopy, Headache, Tachydysrhythmias,VT/VF, Increased myocardial ischemia, AMI, Hyperthensio</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onset/Duration:</td>
<td>Less than 5min. onset</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classification:</td>
<td>Sympathomimetic</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Action:

Dopamine has the following dose related effects:
- 1-2 mcg/kg/min: dilates renal and mesenteric blood vessels (no effect on heart rate or blood pressure)
- 2-10 mcg/kg/min: beta effects on heart usually increase cardiac output without increasing heart rate.
- 10-20 mcg/kg/min: alpha peripheral effects cause peripheral vasoconstriction and increased blood pressure.

Mix: 400 mg in 250 ml NS or 800 mg in 500ml NS to produce concentration of 1600 mcg/ml. Use 60gtts IV admin set only, all doses in micro drops per minute.

### Concentration: 1600 mcg/kg/ml

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>5 (mcg/kg/min)</th>
<th>10 (mcg/kg/min)</th>
<th>15 (mcg/kg/min)</th>
<th>20 (mcg/kg/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td>60</td>
<td>10</td>
<td>25</td>
<td>35</td>
<td>45</td>
</tr>
<tr>
<td>70</td>
<td>15</td>
<td>25</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>80</td>
<td>15</td>
<td>30</td>
<td>45</td>
<td>60</td>
</tr>
<tr>
<td>90</td>
<td>15</td>
<td>35</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>100</td>
<td>20</td>
<td>35</td>
<td>55</td>
<td>75</td>
</tr>
<tr>
<td>110</td>
<td>20</td>
<td>40</td>
<td>60</td>
<td>85</td>
</tr>
</tbody>
</table>
**Droperidol (Inapsine)**

<table>
<thead>
<tr>
<th><strong>Indications:</strong></th>
<th>Chemical restraint, nausea and vomiting, migraine headache</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>0.625-5.0 mg IV/IM/IN</td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>Renal impairment, hepatic disease</td>
</tr>
<tr>
<td><strong>Pediatric Considerations:</strong></td>
<td>0.05 mg/kg IV/IM /IN max 0.1mg</td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>In use in elderly, debilitated, and other poor-risk patients; and patients with Parkinson’s disease, hypotension, liver, kidney, cardiac disease bradydysrhythmias.</td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Dystonia, hypotension, tachycardia, apnea, dizziness, anxiety</td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
<td>Onset 3-10 min; peak effect in 30 minutes Duration is 2-4 hours</td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>Antiemetic, Butyrophenone derivative</td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Produces marked sedation by directly blocking subcortical receptors. Also blocks CNS receptors at the chemoreceptor triggering zone, producing an antiemetic effect.</td>
</tr>
<tr>
<td><strong>Notes:</strong></td>
<td>Use a reduced dose for elderly and debilitated patients. Consider use of Diphenhydramine with Droperidol. These medications can be given as a single injection.</td>
</tr>
</tbody>
</table>
# Epinephrine (Adrenaline)

**Indications:**
- Cardiopulmonary arrest: ventricular fibrillation, pulseless ventricular tachycardia, pulseless electrical activity
- Anaphylaxis
- Status Asthmaticus
- Profound Refractory Hypotension
- Asystole

**ADULT Dose:**
- **Cardiopulmonary arrest:**
  - 1 mg 1:10,000 q 3 to 5 minutes IV / IO
- **Anaphylaxis:**
  - 0.1-0.3 mg of 1:1000 IM q 10 to 20 minutes X 2
- **Status Asthmaticus:**
  - 0.3 mg of 1:1000 SQ q 20 minutes X 2
- **Profound Refractory Hypotension:**
  - 2-10 mcg/min IV infusion
  - mix one milligram of 1:1000 epinephrine in 250 cc normal saline for a concentration of 4mcg/cc

**Pediatric Considerations:**
- Dose 0.01 mg/kg 1:1000 IM/IV/IO max 0.3mg
- Nebulized for respiratory emergencies see pediatric protocols

**Precautions:**
- Use caution when given IV in anaphylactic shock as myocardial ischemia and or cardiac arrest may occur.

**Adverse Effects:**
- Hypertension
- Tachycardia
- Increased myocardial oxygen demand

**Onset/Duration:**
- Onset: Immediate if given IVP / 5-10 minutes SQ/IM
- Duration: 3-5 minutes IVP / 20 minutes SQ/IM

**Classification:**
- Sympathomimetic agent (catecholamine)

**Action:**
- Beta effect is more profound than Alpha effect

**Notes:**
- Epinephrine is the pressor of choice in the case of pediatric shock states. Dopamine may be ineffective.

<table>
<thead>
<tr>
<th>Mcg/ min</th>
<th>2</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>administer</td>
<td>30 gtt/min</td>
<td>60 gtt/min</td>
<td>90 gtt/min</td>
<td>120 gtt/min</td>
<td>150 gtt/min</td>
</tr>
</tbody>
</table>

1 mg epinephrine 1:1000 in 250 cc = 4 mcg/cc use 60gtt tubing
<table>
<thead>
<tr>
<th><strong>Etomidate (Amidate)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indications:</strong></td>
</tr>
<tr>
<td><strong>ADULT Dose:</strong></td>
</tr>
</tbody>
</table>
| **Contraindications:** | Hypersensitivity  
|                        | Pregnancy |
| **Pediatric Considerations:** | 0.3 mg/kg IV over 15-30 seconds |
| **Precautions:**       | Do not re-dose with etomidate. Long term use can cause decreased corticosteroid production. |
| **Adverse Effects:**   | Myoclonic skeletal muscle movement, apnea, hyperventilation, laryngospasm, dysrhythmias, nausea, vomiting, eye movement, hiccups, snoring, seizures |
| **Onset/Duration:**    | 15-20 seconds onset  
|                        | 3-5 minutes duration  
|                        | * short ½ life. |
| **Classification:**    | Hypnotic, non sedative, non narcotic, non analgesic |
| **Action:**            | Ultra short acting, nonbarbituate hypnotic. Produces rapid induction of anesthesia with minimal cardiorespiratory effects. Rapidly distributed following iv injection/ rapidly metabolized and excreted. (note extremely short duration) |
| **Notes:**             | MUST Use sedative (ativan/ versed) for intubation maintenance. |

<table>
<thead>
<tr>
<th>Wt in lbs</th>
<th>100</th>
<th>110</th>
<th>120</th>
<th>130</th>
<th>140</th>
<th>150</th>
<th>160</th>
<th>170</th>
<th>180</th>
<th>190</th>
<th>200</th>
</tr>
</thead>
<tbody>
<tr>
<td>WT in kg</td>
<td>45</td>
<td>50</td>
<td>54</td>
<td>59</td>
<td>64</td>
<td>68</td>
<td>73</td>
<td>77</td>
<td>82</td>
<td>86</td>
<td>91</td>
</tr>
<tr>
<td>Dose in mg</td>
<td>13 mg</td>
<td>15 mg</td>
<td>16 mg</td>
<td>18 mg</td>
<td>19 mg</td>
<td>20 mg</td>
<td>22 mg</td>
<td>23 mg</td>
<td>25 mg</td>
<td>26 mg</td>
<td>27 mg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wt in lbs</th>
<th>210</th>
<th>220</th>
<th>230</th>
<th>240</th>
<th>250</th>
<th>260</th>
<th>270</th>
<th>280</th>
<th>290</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>WT in kg</td>
<td>95</td>
<td>100</td>
<td>104</td>
<td>109</td>
<td>113</td>
<td>118</td>
<td>122</td>
<td>127</td>
<td>132</td>
<td>136</td>
</tr>
<tr>
<td>Dose in mg</td>
<td>28 mg</td>
<td>30 mg</td>
<td>31 mg</td>
<td>33 mg</td>
<td>34 mg</td>
<td>35 mg</td>
<td>37 mg</td>
<td>38 mg</td>
<td>40 mg</td>
<td>41 mg</td>
</tr>
</tbody>
</table>
### Fentanyl (Sublimaze)

<table>
<thead>
<tr>
<th><strong>Indications:</strong></th>
<th>Analgesia, Pulmonary Edema, Acute MI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>25-50 mcg IV/IO/IM</td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>Known hypersensitivity</td>
</tr>
<tr>
<td><strong>Pediatric Considerations:</strong></td>
<td>DOSE: 1-2 mcg/kg IV/IM</td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>Head injuries, COPD, ALOC Hypotension</td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>CNS depression, resp. depression, hallucinations, hypotension, hypertension, arrhythmias, n/v, constipation, Chest wall rigidity</td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
<td>Onset- 1-2min IV, 7-15min IM Duration- ½ - 1hr IV, 1-2hr IM</td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>Opiod agonist/ narcotic analgesic</td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Binds to opiate receptors as an agonist to alter pt’s perception of painful stimuli.</td>
</tr>
<tr>
<td><strong>Notes:</strong></td>
<td>CNS and resp. depressant effects are similar to Morphine. Drug has little hypnotic activity and rarely causes histamine release.</td>
</tr>
</tbody>
</table>

### Furosemide (Lasix)

<table>
<thead>
<tr>
<th><strong>Indications:</strong></th>
<th>Pulmonary edema</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>40mg-80mg (or double pt’s daily dose up to 100mg) slowly * can be dosed at 0.5-1.0 mg/kg</td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>Dehydration/ hypovolemia, hypokalemia, hepatic coma</td>
</tr>
<tr>
<td><strong>Pediatric Considerations:</strong></td>
<td>2 mg/kg</td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>Pt’s using potassium depleting steroids, hx of lupus, hx of hepatic cirrhosis, increased risk of hypokalemia in pt’s taking digoxin, dehydration or pneumonia</td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Hypotension, electrolyte imbalance, transient hearing loss</td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
<td>Onset 5 min for preload reduction, 30 min for diuresis. Duration ~2 hours.</td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>Non-potassium sparing loop diuretic</td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Inhibits sodium and chloride re-absorption in the proximal loop of henle promoting excretion of sodium, water, chloride, and potassium. Also reduces cardiac preload by increasing venous capacitance.</td>
</tr>
</tbody>
</table>
## Glucagon

<table>
<thead>
<tr>
<th>Indications:</th>
<th>Hypoglycemia, Beta-blocker OD, Calcium channel blocker OD, Symptoms of esophageal obstruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADULT Dose:</td>
<td>Hypoglycemia- 1.0mg IM / IN Ca++ and beta-blocker OD- 3-5mg IV / IM / IN</td>
</tr>
<tr>
<td>Contraindications:</td>
<td>None in emergency setting</td>
</tr>
<tr>
<td>Pediatric Considerations:</td>
<td>Dose: 0.1mg/kg up to 1mg IM</td>
</tr>
<tr>
<td>Precautions:</td>
<td>Do not dilute with saline solutions, will form a precipitate.</td>
</tr>
<tr>
<td>Adverse Effects:</td>
<td>Nausea &amp; Vomiting, hyperglycemia, hypersensitivity reactions</td>
</tr>
<tr>
<td>Onset/Duration:</td>
<td>Onset is 5-20 minutes, peak effect at 30 minutes. Duration is 1-1.5 hours</td>
</tr>
<tr>
<td>Classification:</td>
<td>Polypeptide hormone</td>
</tr>
<tr>
<td>Action:</td>
<td>Accelerates liver glycogenolysis and inhibits glycogen synthetase resulting in blood glucose elevation. Stimulates hepatic gluconeogenesis and causes an inotropic myocardial effect. Relaxes GI smooth muscle</td>
</tr>
<tr>
<td>Notes:</td>
<td>Reconstitute powdered solution with supplied diluent only If given IV, flush line with D-5% instead of NS solution.</td>
</tr>
</tbody>
</table>

## Glucose Oral (Glucose Paste)

| Indications:          | Hypoglycemia in conscious pt that is able to swallow.                                           |
| ADULT Dose:           | One tube PO- between cheek and gum                                                              |
| Contraindications:    | Unconsciousness, inability to swallow, hyperglycemia                                             |
| Pediatric Considerations: | One tube PO                                                                                 |
| Precautions:          | Not tasty, watch for spitting                                                                    |
| Adverse Effects:      | Choking if not properly administered                                                           |
| Classification:       | Carbohydrate                                                                                    |
| Action:               | Rapidly metabolized source of calories in pt’s with inadequate oral intake.                    |
| Notes:                | Perform glucose check before and after administration of Glucose. Follow with complex carbohydrate if leaving patient at home. |
### Heparin Sodium

<table>
<thead>
<tr>
<th><strong>Indications:</strong></th>
<th>STEMI confirmed with Medical Control authorization required</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>60U/kg IV bolus to max 4,000U (if &gt;100kg max 5,000U); 12U/kg/hr IV drip to max 1,000U/hr</td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>Allergy to heparin, thrombocytopenia, hemophilia</td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>Increased risk of bleeding w/ bleeding/clotting disorders (hemophilia), GI ulceration, bacterial endocarditis Recent surgery Derived from porcine intestinal mucosa, avoid if allergic to pork</td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Bleeding, Heparin induced thrombocytopenia, Hyperkalemia (5-10%)</td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
<td>Onset immediate duration 1.5 hours</td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>Injectable anticoagulant</td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Binds to and activates antithrombin III which binds to and inactivates thrombin. This inhibits further clot formation.</td>
</tr>
<tr>
<td><strong>Notes:</strong></td>
<td>Invert infusion solution periodically to prevent pooling Do not mix in same line with droperidol</td>
</tr>
</tbody>
</table>

### Hydromorphone (Dilaudid)

<table>
<thead>
<tr>
<th><strong>Indications:</strong></th>
<th>Moderate to severe pain.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>0.5mg IV q 3-5 min total of 4mg (caution in elderly) 1-2mg IM</td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>Hypotension SBP &lt;110 CNS depression Respiratory depression RR&lt;12 Head Injury Current nausea or vomiting (prior to anti-emetics)</td>
</tr>
<tr>
<td><strong>Pediatric Considerations:</strong></td>
<td>0.015 mg/kg IV/IM</td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>Caution should be used in patients who have taken other central nervous depressants, narcotic analgeics, sedative/hypnotics, or tricyclic antidepressants.</td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Respiratory depression Increased sedation Headache Abdominal pain Decreased LOC Impaired mental status Decreased LOC Nausea/vomiting</td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
<td>Onset: IV – Immediate IM – 7-15 minutes Duration: 4-5 hours</td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>Narcotic analgesic, Opiate</td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Decrease sensitivity to pain, Stimulates variety of opioid receptors</td>
</tr>
<tr>
<td><strong>Notes:</strong></td>
<td>This is a strong narcotic. Start with low doses given slowly and add additional low doses as needed. One mg of hydromorphone is equal to 7mg of morphine</td>
</tr>
</tbody>
</table>
### Ipratropium (Atrovent / Ipramide)

| Indications: | Bronchospasm due to reactive airway diseases  
|             | Organophosphate poisoning |
| ADULT Dose: | 0.5 mg via nebulizer q 6-8 hours |
| Contraindications: | Known Hypersensitivity |
| Pediatric Considerations: | 0.25 mg SVN |
| Precautions: | Should be used with caution in patients with narrow-angle glaucoma. |
| Adverse Effects: | Anxiety, Palpitations, Nausea/ vomiting |
| Onset/Duration: | 15-30 minute onset  
|               | 5-7 hour duration |
| Classification: | Anticholinergic bronchodilator |
| Action: | Blocks acetylcholine receptors, dries respiratory tract secretions, Reduces bronchospasm |

### Ketamine (Ketalar)

| Indications: | Induction agent for Rapid Sequence Intubation (RSI) |
| ADULT Dose: | 1-2 mg/kg IV push; 4-6 mg IM |
| Contraindications: | Severe Hypertension |
| Pediatric Considerations: | 1.5 mg/kg IV over 1 minute; 4-5 mg IM |
| Precautions: | Increased blood pressure due to catecholamine release.  
|              | Reemergence phenomenon. As with any intubated patient, continued sedation must be provided before the induction agent has worn off. Increased ICP has been a theoretical concern, however studies have not shown a significant increase in ICP with the use of ketamine and therefore it is felt to be an appropriate induction agent for patients with possible increased ICP, unless they have markedly elevated blood pressure. |
| Adverse Effects: | Laryngospasm, hypersalivation, nausea/vomiting, arrhythmias, emergence delirium, hallucinations, elevated BP, hypotension |
| Onset/Duration: | Adults: IV 30 sec; duration 5-10 min for 2 mg/kg; IM 3-4 min, duration 12-25 min  
|               | Pediatrics: IV 30-120 sec; duration 20-60 min; IM 5-10 min, duration 30-90 min |
| Classification: | Dissociative hypnotic anesthetic agent |
| Action: | Ketamine is a dissociative anesthetic agent, structurally similar to phencyclidine (PCP), which interrupts the connection between the thalamo-neocortical tracts and the limbic system. In addition, it stimulates many different receptors, including the opioid and catecholamine receptors. It is unique among sedative agents in that it also provides analgesia in addition to the amnestic and sedative effects. The sympathomimetic effects cause an increase in heart rate, blood pressure, and cardiac output. It is also a bronchodilator, and thus may be beneficial in patients with bronchospasm requiring intubation.  
| Special Notes: | When elevated ICP is suspected, consider using a lower dose along with midazolam. Avoid in patients with severely elevated blood pressure; May increase respiratory secretions. Consider adjuvant use of antiallagogue such as atropine minimum dose 0.1mg |
### Ketorolac (Toradol)

| **Indications:** | Renal colic/calculi (abdominal/flank pain)  
Muscular skeletal pain |
|------------------|------------------------------------------------|
| **ADULT Dose:** | Renal colic/calculi 30-60 mg IV/IM  
½ dose for >65 years old |
| **Contraindications:** | Documented hypersensitivity to ASA or other NSAID’s, bleeding disorders, renal impairment, active peptic ulcer, nursing mothers, labor & delivery. Suspected or possible dissecting AAA. Any on Anti-coagulant. |
| **Precautions:** | Patients that are > 65 y/o or < 50 kg should receive ½ dose. Use extreme caution in elderly and hepatic dysfunction pts. |
| **Adverse Effects:** | Possible anticoagulation effects, anaphylaxis, drowsiness, sweating/diaphoresis, nausea, pain at injection site. |
| **Onset/Duration:** | IM: 45-60 minutes onset  
4-6 hours duration |
| **Classification:** | NSAID, analgesic, antipyretic |
| **Action:** | Inhibits synthesis of protaglandins |

### Labetalol (Trandate, Normodyne)

<table>
<thead>
<tr>
<th><strong>Indications:</strong></th>
<th>Severe hypertensive crisis (ie 240/120), as compared to pt’s regular BP, plus end-organ damage (brain, cardiovascular, renal); <strong>If treating hypertension must call for Medical Control MD approval prior to admin.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>5-10mg IV slow bolus over 2mins; repeat q 10mins 5-10mg IV slow bolus over 2mins until desired supine blood pressure obtained; or 200mg placed in 500ml D5W to deliver at 2mg/min IV drip rate. Max total 300mg.</td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>COPD, asthma, CHF, 2&lt;sup&gt;nd&lt;/sup&gt; &amp; 3&lt;sup&gt;rd&lt;/sup&gt; heart block, bradycardia, cardiogenic shock</td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>Pt placed in supine position. BP, HR &amp; EKG monitored. Atropine and TCP available.</td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Bronchospasm, CHF, heart block, bradycardia, postural hypotension, nausea</td>
</tr>
</tbody>
</table>
| **Onset/Duration:** | 5mins onset  
duration dose dependent |
| **Classification:** | Sympathetic Alpha-1, non-selective Beta Blocker |
| **Action:** | Blocks adrenergic receptors which decreases peripheral vascular resistance without significantly altering heart rate or cardiac output: non-selective beta blocker with intrinsic anti-sympathomimetic activity, plus alpha blockade. |
| **Drug:Drug Interactions:** | Beta-receptor agonists, verapamil, cimetidine, precipitate forms with furosemide. |
| **Notes:** | Reduce BP ≤20% first hr then toward 160/100mmHg within next 2–6hrs. Pt with chronic HTN may not tolerate "normal" BP. Excessive rapid BP reduction may precipitate coronary, cerebral, or renal ischemia. Maintain supine position x 3hrs min. Pregnancy Cat C use only if potential benefits justify potential risk to fetus/nursing infant. |
**Lidocaine** (Xylocaine)

<table>
<thead>
<tr>
<th>Indications:</th>
<th>First line antiarrythmic in pregnancy</th>
<th>symptomatic PVCs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VT/VF</td>
<td>RSI with suspected</td>
</tr>
<tr>
<td></td>
<td>VT with pulse</td>
<td>closed head injuries</td>
</tr>
</tbody>
</table>

**ADULT Dose:**

<table>
<thead>
<tr>
<th>VT/VT</th>
<th>1.5mg/kg IV / IO q 5-10 min. Max 3 mg/kg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VT w/ pulse</td>
<td>1 -1.5mg/kg IV/ IO, then 0.5-0.75mg/kg q 5-10 min. up to 3 mg/kg.</td>
</tr>
<tr>
<td><strong>Run of 6 or more Symptomatic PVC’s</strong></td>
<td>0.5-1.5mg/kg IV/IO then 0.5-0.75mg/kg q 5-10 min up to 3 mg/kg.</td>
</tr>
<tr>
<td>Drip</td>
<td>2 -4 mg/min following bolus/ conversion</td>
</tr>
<tr>
<td>RSI</td>
<td>1 -1.5mg/kg IV/IO</td>
</tr>
</tbody>
</table>

**Contraindications:**

<table>
<thead>
<tr>
<th>High degree heart blocks</th>
<th>WPW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stokes-Adams syndrome</td>
<td>SVT</td>
</tr>
<tr>
<td>Hypotension</td>
<td>Bradycardias</td>
</tr>
</tbody>
</table>

**Pediatric Considerations:**

<table>
<thead>
<tr>
<th>VF/VT</th>
<th>1mg/kg IV / IO q 10 min. Max 3 mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>VT w/ pulse</td>
<td>1mg/kg IV/ IO, q 10 min. up to 3 mg/kg</td>
</tr>
<tr>
<td><strong>Drip</strong></td>
<td>2-4mg/min following conversion</td>
</tr>
<tr>
<td><strong>RSI</strong></td>
<td>1mg/kg IV/IO</td>
</tr>
</tbody>
</table>

**Precautions:**

Caution in use with pts >70 y/o or with liver or renal disease, CHF, resp depression, shock. Reduce maintenance infusion by 50%

**Adverse Effects:**

Seizures, slurred speech, altered mental status

**Onset/Duration:**

Onset- 45-90 seconds
Duration- 10-20 minutes

**Classification:**

Amide derivative, antiarrythmic

**Action:**

As an antiarrythmic, it suppresses automaticity and shortens the effective refractory period and action potential duration of His-Purkinje fibers and suppresses spontaneous ventricular depolarization during diastole by altering sodium permeability through cellular fast channel membranes. The drug acts preferentially on diseased or ischemic myocardial tissue, exerting its effect on the conduction system by inhibiting re-entry mechanisms and halts ventricular arrhythmias.

**Drip** – mix 1G/250ml D5W using 60gtt set

<table>
<thead>
<tr>
<th>4mg/ml:</th>
<th>1mg</th>
<th>2mg</th>
<th>3mg</th>
<th>4mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>gtt/min:</td>
<td>15gtt</td>
<td>30gtt</td>
<td>45gtt</td>
<td>60gtt</td>
</tr>
</tbody>
</table>
### Lorazepam (Ativan)

<table>
<thead>
<tr>
<th>Indications:</th>
<th>Seizures</th>
<th>Anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sedation</td>
<td>Intubation maintenance</td>
</tr>
<tr>
<td>ADULT Dose:</td>
<td>1 - 2 mg IV/IN/IM. May repeat PRN</td>
<td></td>
</tr>
<tr>
<td>Contraindications:</td>
<td>Narrow angle glaucoma, pregnancy</td>
<td></td>
</tr>
<tr>
<td>Pediatric Considerations:</td>
<td>0.1 mg/kg IV/IO/IM</td>
<td></td>
</tr>
<tr>
<td>Precautions:</td>
<td>Caution in use with pt’s with renal or hepatic impairment. Increased CNS depression in pts intoxicated or on other depressant type drugs.</td>
<td></td>
</tr>
<tr>
<td>Adverse Effects:</td>
<td>Orthostatic hypotension, drowsiness, respiratory depression, Tachycardia, confusion</td>
<td></td>
</tr>
<tr>
<td>Onset/Duration:</td>
<td>Onset 1-5 minutes IV, 15-30 minutes IM Duration 12-24 hours</td>
<td></td>
</tr>
<tr>
<td>Classification:</td>
<td>Benzodiazepine hypnotic</td>
<td></td>
</tr>
<tr>
<td>Action:</td>
<td>CNS depressant via facilitation of inhibitory neurotransmitter gamma-amiobutyric acid (GABA) at benzodiazepine receptor sites in the ascending reticular activating system. Effects include muscle relaxation, anticonvulsant activity and emotional behavior anxiolytic effects.</td>
<td></td>
</tr>
<tr>
<td>Notes:</td>
<td>Very viscous solution, dilute when giving IV</td>
<td></td>
</tr>
</tbody>
</table>

### Magnesium Sulfate (MgSO4)

<table>
<thead>
<tr>
<th>Indications:</th>
<th>Eclamptic seizures refractory VF/VT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Torsades de Pointes refractory bronchospasm</td>
</tr>
<tr>
<td>ADULT Dose:</td>
<td>TdP/VF/VT -2g IVP</td>
</tr>
<tr>
<td></td>
<td>Breathing diff/RAD - 2g/100cc IV over 5-10 min</td>
</tr>
<tr>
<td>Contraindications:</td>
<td>Renal disease, heart block, hypermagnesemia</td>
</tr>
<tr>
<td>Precautions:</td>
<td>Caution should be used in patients receiving digitalis as it may cause severe hypotension or cardiac arrest. Calcium chloride should be readily available as an antidote if respiratory depression results from treatment.</td>
</tr>
<tr>
<td>Adverse Effects:</td>
<td>Hypotension, respiratory depression, bradycardia, dysrhythmias, cardiac arrest, CNS depression, flushing, sweating</td>
</tr>
<tr>
<td>Onset/Duration:</td>
<td>1-5 min onset approximately 30 min duration</td>
</tr>
<tr>
<td>Classification:</td>
<td>Electrolyte, anticonvulsant, antidysrhythmic</td>
</tr>
<tr>
<td>Action:</td>
<td>Decreases acetylcholine at neuromuscular junction (motor end plate), which is responsible for anticonvulsant properties; reduces SA node impulse formation and prolongs conduction time in the myocardium; Attracts and retains water in the intestinal lumen which distends the bowel to promote mass movement and relieve constipation</td>
</tr>
<tr>
<td>Drug : Drug interaction</td>
<td>Potentiates neuromuscular blockade produced by nondepolarizing paralytics (rocuronium/Zemuron, vecuronium/Norcuron)</td>
</tr>
<tr>
<td><strong>Methylprednisolone</strong> (Solu-Medrol/Amethapred)</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Indications:</strong></td>
<td>Allergic reaction</td>
</tr>
<tr>
<td></td>
<td>upper airway burns</td>
</tr>
<tr>
<td></td>
<td>COPD exacerbations</td>
</tr>
<tr>
<td></td>
<td>History of adrenal insufficiency associated with either serious trauma/illness or shock unresponsive to conventional therapy</td>
</tr>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>125 mg IV / IO / IM</td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>Preterm infants, Newborn, systemic fungal infections</td>
</tr>
<tr>
<td><strong>Pediatric Considerations:</strong></td>
<td>2 mg/kg IV / IO / IM</td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>Use with caution in patients with G.I. bleeding, diabetes mellitus &amp; severe infection</td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Alkalosis, CHF, headache, hypertension, hypokalemia, seizures, nausea and vomiting</td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
<td>Onset: 20 minutes-2 hours Duration: 18-36 hours</td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>Corticosteroid, glucocorticoid steroid, anti-inflammatory</td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Decreases inflammation by depressing migration of polymophonuclear leukocytes and activity of endogenous mediators of inflammation. Potentiates vascular smooth muscle relaxation by beta adrenergic agonists.</td>
</tr>
<tr>
<td><strong>Notes:</strong></td>
<td>Hypoglycemic responses to insulin and oral hypoglycemic agents may be blunted. Potassium depleting agents may potentiate hypokalemia induced by corticosteroids.</td>
</tr>
</tbody>
</table>
# Metoprolol (Lopressor)

<table>
<thead>
<tr>
<th><strong>Indications:</strong></th>
<th>AMI dysrhythmias</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>2.5 - 5mg slow IV q 5min; to a maximum dose of 15 mg</td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>Documented hypersensitivity uncompensated congestive heart failure cardiogenic shock AV conduction abnormalities asthma bradycardia pediatric</td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>During IV administration, carefully monitor blood pressure, heart rate, and ECG. Goal of treatment is to reduce heart rate to 60-90 beats/min.</td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Hypotension, CHF, Dizziness, chest pain, headache, Bronchospasm, Bradycardia</td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
<td>Onset immediate, peaks in 20 minutes IV / Duration 5-8 hours</td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>Beta-blocker</td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Selective beta-1-adrenergic receptor blocker that decreases the automaticity of contractions (and thus heart rate). Negative inotropic and chronotropic effects are manifested by slowed AV conduction, antidysrhythmic effects, and decreased myocardial oxygen demand.</td>
</tr>
<tr>
<td><strong>Notes:</strong></td>
<td>Use of Calcium channel blockers may potentiate side effects/adverse effects; toxicity of metoprolol may increase with coadministration of phenothiazines and calcium channel blockers; metoprolol may increase toxicity of digoxin, flecainide, clonidine, epinephrine, nifedipine, prazosin, verapamil, and lidocaine</td>
</tr>
</tbody>
</table>
**Midazolam (Versed)**

<table>
<thead>
<tr>
<th>Indications:</th>
<th>RSI induction</th>
<th>Seizure</th>
<th>chemical restraint</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>RSI - 2.5-10mg IV/IO over 2 minutes</td>
<td>Chemical restraint - 2.5-5mg IM/IV/IN over 2 min, repeat PRN for restraint</td>
<td>Seizure - 2.5-5mgIV/IM/IO/IN</td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>Hypersensitivity, OD of alcohol or other CNS depressants, depressed vital signs / hypoperfusion, acute narrow angle glaucoma, Pregnancy</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pediatric Considerations:</strong></td>
<td>6 months to 5 years of age: Initial dose 0.05 to 0.1 mg/kg. A total dose up to 0.6 mg/kg</td>
<td>6 to 12 years of age: Initial dose 0.025 to 0.05 mg/kg; total dose up to 0.4 mg/kg may be needed to reach the desired endpoint but usually does not exceed 10 mg total.</td>
<td></td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>Use caution in patients with renal impairment, history of COPD; may wish to double the IV dose when administering IM</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Respiratory depression or arrest, Hypotension, bradycardia, HA, N/V, pain at injection site, hiccups</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
<td>Onset IV/ IO: 1-3 min IM: approx 10-20 min</td>
<td>duration of action is dose dependent</td>
<td></td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>Benzodiazepine, CNS depressant, anticonvulsant, amnestic, muscle relaxant</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Potentiation of gamma aminobutyric acid (GABA) by binding to specific benzodiazepine receptors in the CNS; may act on limbic system and on the reticular formation</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Notes:</strong></td>
<td>Sedative effect potentiated by barbiturates, alcohol, and narcotics</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Morphine</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Indications:</strong></td>
<td>Pain management, Pulmonary edema, Procedural sedation, Analgesia, Acute Myocardial Infarction</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>2-4 mg IV/In/IM titrated, 1-3 mg q 2 min to 20 mg max</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>Head injury, exacerbated COPD, depressed respiratory drive, hypotension, ALOC</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pediatric Considerations:</strong></td>
<td>0.1 mg/kg IV/IN/IO</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>Patients with acute bronchial asthma, chronic pulmonary diseases, severe respiratory depression, and pulmonary edema induced by chemical irritants.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Respiratory depression, hypotension, ALOC, nausea &amp; vomiting</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
<td>IV immediate onset, peak effect 20 min. IM/SQ 15-30 min. , peak effect 30-60 min. Duration 2-7 hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>Narcotic analgesic</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Narcotic agonist with activity at u-receptors (supraspinal analgesia, euphoria, respiratory and physical depression), K-receptors (sedation and myosis), and delta-receptors (dysphonia, hallucinations, respiratory and vasomotor stimulation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Notes:</strong></td>
<td>Naloxone and respiratory equipment should be immediately accessible.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Naloxone (Narcan)</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indications:</strong></td>
<td>Suspected or Known narcotic overdose Altered level of consciousness</td>
</tr>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>0.4 - 2mg IM/IV/IO/IN/SQ/SVN</td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>None in the emergent setting</td>
</tr>
<tr>
<td><strong>Pediatric considerations:</strong></td>
<td>Dose : 0.1 mg/kg Max dose 2 mg Use caution in newborns</td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>Rapid reversal of narcotic effects may lead to combative behavior and vomiting May not reverse hypotension For patients with chronic pain issues administer 0.4 mg increments until respirations improve</td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Hypertension, Nausea, Vomiting, Tremors, Dysrhythmias</td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
<td>IV/IO immediate SQ/ IM 5-10 minutes</td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>Narcotic Antagonist</td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Competitively binds with opiate receptor sites in the CNS</td>
</tr>
</tbody>
</table>
### Nitroglycerine (NitroStat /NitroQuick)

<table>
<thead>
<tr>
<th><strong>Indications:</strong></th>
<th>ACS, Acute angina, MI, CHF with pulmonary edema</th>
</tr>
</thead>
</table>
| **ADULT Dose:**  | 0.4 mg SL q 3-5 minutes SBP >100 and patient is symptomatic  
Drip: Start at10mcg/min increase q 4-5 min titrate to effect to max 100 mcg/min  
Paste; 1-2 inches PRN |
| **Contraindications:** | SBP <100, Intracranial bleeding/head trauma  
Within 24 hours of erectile dysfunction or pulmonary hypertension medication Suldenafil (Viagra/Revation) or Vardenafil (Levitra)  
Within 48 hours of erectile dysfunction medication Tadalafil (Cialis) |
| **Precautions:** | Will cause severe loss of blood pressure if administered to a patient experiencing an inferior MI |
| **Adverse Effects:** | Hypotension, HA, syncope, reflex tachycardia, skin flushing |
| **Onset/Duration:** | Onset immediate, 0-3 minutes duration up to 30 minutes |
| **Classification:** | Nitrate |
| **Action:** | Causes relaxation of the vascular smooth muscle via stimulation of intracellular cyclic guanosine monophosphate production. This results in decreased preload, afterload, blood pressure, left ventricular workload and myocardial oxygen demand. Relaxes esophageal smooth muscle. |
| **Notes:** | Aspirin may increase nitrate serum concentrations; marked symptomatic hypotension may occur with coadministration of calcium channel blockers or beta-blockers (dose adjustment of either agent may be necessary) |

### Nitrous Oxide (Nitronox)

<table>
<thead>
<tr>
<th><strong>Indications:</strong></th>
<th>acute pain due to orthopedic trauma (i.e. soft tissue injury or suspected fracture), renal colic, burns, abdominal pain (not due to suspect bowel obstruction), moderate to severe pain, anxiety, apprehension</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>instruct the patient to inhale deeply through the demand valve and mask or mouth piece</td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>Head injury, Chest injury, Abdominal pain, COPD, ETOH or drug intoxication</td>
</tr>
<tr>
<td><strong>Pediatric Considerations:</strong></td>
<td>instruct the patient to inhale deeply through the demand valve and mask or mouth piece</td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>pregnancy safety: nitrous oxide increases the incidence of spontaneous abortion, ventilate patient area during use, nitrous oxide is a non-flammable and non-explosive gas, nitrous oxide is ineffective in 20% of the population</td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Drowsiness, Dizziness, Nausea/Vomiting</td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
<td>onset: 2 - 5 minutes duration: 2 – 5 minutes</td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>inhaled gaseous analgesic and general anesthetic</td>
</tr>
</tbody>
</table>
### Norepinephrine Bitartrate (Levophed)

**Indications:**

**ADULT Dose:**
Mix 2 AMPS or 8mg in 250cc of D5W then titrate to effect. Adjust rate of flow to establish and maintain low normal BP (80-100mmHg systolic) sufficient to maintain vital organ circulation. In previously HTN pt, recommend BP rise no higher than 40mmHg below preexisting systolic BP. Turn drip off if blood pressure maintains at normal levels. Monitor BP q 2min until reach desired BP, then q 5 min with continued infusion. Rate of flow watched constantly; pt never left unattended.

**Contraindications:**
Sulfite allergy. Hypotensive states due to hypovolemia, from blood volume deficits except emergency measure to maintain coronary and cerebral artery perfusion until blood volume replacement therapy completed. Mesenteric or peripheral vascular thrombosis.

**Pediatric Considerations:**
0.01-0.5mcg/kg/minute IV drip only (rarely used).

**Precautions:**
Can be deactivated by alkaline solutions. Infusion site in upper extremity large vein, AC if possible. Extravasation can cause tissue necrosis. Caution with occlusive vascular disease, elderly. Infusion site checked frequently for free flow. Blanching along course of infused vein, sometimes without obvious extravasation, attributed to vasa vasorum constriction with increased permeability of vein wall, permitting leakage. Extreme caution with MAOI or antidepressant triptyline or imipramine types per severe, prolonged hypertension. If continuous admin to maintain BP in absence of blood volume replacement, following may occur: severe peripheral, visceral vasoconstriction; decreased renal perfusion, urine output; poor systemic blood flow despite “normal” BP; tissue hypoxia; lactate acidosis. Avoid abrupt withdrawal.

**Adverse Effects:**
Anxiety, palpitations, hypertension, reflex bradycardia. VT/VF in pts with profound hypoxia or hypercarbia. Conventional dose with hypersensitive pt (hyperthyroid) or overdose may cause severe HTN, violent HA, photophobia, stabbing retrosternal px, pallor, intense sweating, vomiting.

**Onset/Duration:**
Rapid/1-2min following discontinuation of infusion.

**Classification:**
Sympathomimetic

**Action:**

**Notes:**
Elderly pt dose start at lower end, reflecting greater frequency of decreased hepatic, renal, and cardiac function. Admin in saline solution alone not recommended.
**Ondansetron (Zofran)**

<table>
<thead>
<tr>
<th><strong>Indications:</strong></th>
<th>Nausea, vomiting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>4-8mg IV/IM/PO 2ml Slow IV or IM</td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>Hypersensitivity, liver disease (reduce dose)</td>
</tr>
<tr>
<td><strong>Pediatric Considerations:</strong></td>
<td>0.15 mg/kg IV/IM/PO Recommended for use in children greater than 2 years of age</td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>Maintain lower dose with amiodarone Maintain lower dose with liver disease</td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Rare hypersensitivity, fatigue, pyrexia, dizziness, headache, constipation, urinairy retention.</td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
<td>Rapid onset duration 5 hours</td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>Antiemetic</td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Selective serotonin blocking agent</td>
</tr>
<tr>
<td><strong>Notes:</strong></td>
<td>May precipitate with Sodium bicarbonate.</td>
</tr>
</tbody>
</table>

**Oxymetazoline (Afrin)**

<table>
<thead>
<tr>
<th><strong>Indications:</strong></th>
<th>Pre-medication for nasal intubation, Epistaxis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>2-3 puffs each nostril (on inhalation)</td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>Known hypersensitivity</td>
</tr>
<tr>
<td><strong>Pediatric Considerations:</strong></td>
<td>Children under 12 require diluted concentration</td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>Hyperthyroidism Cardiac Disease Hypertension Diabetes mellitus Simultaneous use of MAOI and ephedrine may result in Hypertensive crisis</td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Cardiovascular collapse palpitations Hypertension</td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
<td>Immediate onset 30min-4hour duration</td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>vasoconstrictor</td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Local vasoconstriction of dilated arterioles causing reduction of blood flow and reduction of nasal congestion</td>
</tr>
</tbody>
</table>
**Oxytocin (Pitocin)**

<table>
<thead>
<tr>
<th>Indications</th>
<th>Control of postpartum hemorrhage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>10 units IM then mix 20 units in 1000cc NS administered IV at 50-1000cc/hr to control postpartum hemorrhage</td>
</tr>
</tbody>
</table>
| **Contraindications:** | Hypersensitivity  
Toxemia of pregnancy  
Undelivered placenta  
Undelivered baby |
| **Precautions:** | Status post cervical or uterine surgery, uterine sepsis, primipara after age 35 |
| **Adverse Effects:** | HTN, subarachnoid hemorrhage, anxiety, dysrhythmias, tetany, uterine rupture, hyponatremia |
| **Onset/Duration:** | Onset IV: 1 min IM: 3-7 min  
Duration IV: 30 min with half-life of 12-17 min IM: 60 min with half-life of 12-17min |
| **Classification:** | Hormone |
| **Action:** | A synthetic water-soluble protein pharmacologically identical to the naturally-occurring oxytocin secreted by the posterior pituitary. Directly produces phasic uterine contractions characteristic of normal labor and delivery and to treat uterine atony. |
| **Notes:** | Additive effects with other vasopressors and ephedra, amphetamine or methamphetamines resulting in severe hypertension; rule out multiple fetuses. |

**Prednisone**

<table>
<thead>
<tr>
<th>Indications</th>
<th>Reactive airway disease</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>60 mg PO</td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>Systemic fungal infections</td>
</tr>
<tr>
<td><strong>Pediatric Considerations:</strong></td>
<td>1 – 2 mg/kg PO</td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Prolonged wound healing, nausea &amp; vomiting</td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>Glucocorticoid</td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Decreases inflammation by depressing migration of polymorphonuclear leukocytes and activity of endogenous mediators of inflammation.</td>
</tr>
<tr>
<td><strong>Notes:</strong></td>
<td>Attempt to administer medication with pudding or other palatable substance</td>
</tr>
</tbody>
</table>
**Procainamide (Pronestyl)**

| **Indications:** | Consider as adjunct to other anti-arrhythmic (amiodarone, Lidocaine) for VT, VF or wide-complex tachycardia of unknown origin, WPW |
| **ADULT Dose:** | Perfusing rhythm: 20mg/min IV infusion up to 17mg/kg followed by drip of 1-4mg/min (mix 2Grams/250cc NS for 8mg/cc). **Stop** if hypotension occurs or if QRS widens by 50% |
| **Contraindications:** | 2\(^{nd}\) & 3\(^{rd}\) AV block  
Bradycardias  
Torsades  
Prolonged QT  
Lupus |
| **Pediatric Considerations:** | 2-6mg/kg slow IV at 25 to 50mg/min |
| **Precautions:** | May exacerbate arrhythmias or produce paradoxical VT in Afib/Aflutter patients |
| **Adverse Effects:** | Anxiety, nausea, seizures, widening QRS, hypotension, CNS toxicity |
| **Onset/Duration:** | 30 min – 2 hours onset  
18-36 hours duration |
| **Classification:** | Antidysrhythmic |
| **Action:** | Class 1A membrane stabilizer inhibits recovery after repolarization resulting in decreasing myocardial excitability and conduction velocity. |
| **Notes:** | Caution with concomitant use of other class 1A antiarrhythmics (Quinidine, TCA’s), digoxin |
### Promethazine (Phenergan)

<table>
<thead>
<tr>
<th>Indications:</th>
<th>Nausea /vomiting</th>
<th>Analgesic potentiation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADULT Dose:</td>
<td>6.25-25 mg slow IV/IO/deep IM (if ≥ 60 y/o 12.5 mg IV/IO/IM) start at 12.5 mg and titrate dose to desired effect <strong>Must be diluted</strong></td>
<td></td>
</tr>
<tr>
<td>Contraindications:</td>
<td>Documented hypersensitivity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comatose patients</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Debilitated patients (signs of dehydration and weakness)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Glaucoma</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Known sulfa allergy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Concomitant CNS depressant use/administration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neonates</td>
<td></td>
</tr>
<tr>
<td>Precautions:</td>
<td>Avoid SQ administration <strong>Give slowly</strong> rapid administration can cause vein irritation, phlebitis and sclerosis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Avoid concomitant use with epinephrine as it may result in further hypotension</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Watch for signs/symptoms of excessive sedation. Dystonic reaction (treat with Diphenhydramine)</td>
<td></td>
</tr>
<tr>
<td>Adverse Effects:</td>
<td>May reduce seizure threshold in heatstroke patients. Drowsiness, sedation, ALOC, allergic reaction, dysrhythmia, nausea and vomiting, hyperexcitability, dystonic (extrapyramidal) reaction and hypertension. <strong>Use in children may cause hallucinations, convulsions and sudden death.</strong></td>
<td></td>
</tr>
<tr>
<td>Onset/Duration:</td>
<td>Onset: IV, 5 minutes; IM, 20 minutes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Duration: 4-6 hours</td>
<td></td>
</tr>
<tr>
<td>Classification:</td>
<td>Anti-emetic, phenothiazine, antihistamine, H₁ receptor antagonist, antivertigo agent and antitussive</td>
<td></td>
</tr>
<tr>
<td>Action:</td>
<td>Blocks cholinergic receptors in the vomiting center, which mediate nausea and vomiting; competes with histamine for the H₁ receptor site.</td>
<td></td>
</tr>
<tr>
<td>Notes:</td>
<td>In case of dystonic reaction, treat with diphenhydramine. Promethazine decreases the effects of anticoagulation therapy.</td>
<td></td>
</tr>
</tbody>
</table>
## Rocuronium (Zemuron)

| Indications: | Need for aggressive airway control and maintenance using RSI |
| ADULT Dose: | 0.6-1.2 mg/kg IV |
| Contraindications: | Muscular disorders |
| | Known hypersensitivity |
| Pediatric Considerations: | 1 mg/kg IV |
| Precautions: | Not recommended for RSI in Caesarean patients or those over 65 years of age. |
| Adverse Effects: | Hypotension |
| | Altered mental status |
| | Increases pulmonary resistance |
| Onset/Duration: | Onset: 60-70 seconds |
| | Duration: 20+ minutes |
| Classification: | Nondepolarizing neuromuscular blocker |
| Action: | Neuromuscular blockade (Paralysis) |
| Notes: | Airway control equipment must be readily available. Intubation conditions expected in 1-2 minutes after injection. Consider lower doses in extremely debilitated patients. |

## Sodium Bicarbonate

| Indications: | Cardiac arrest 2° to preexisting hyperkalemia or TCA OD with ECG changes of prolonged QT or QRS, or with seizures. Consider in prolonged arrest. |
| ADULT Dose: | 8.4% - 1 mEq/kg IV, then 25 mEq in 250ml NS and run 250 ml/hr |
| Pediatric Considerations: | 4.2% - 1 mEq/kg IV/IO |
| Precautions: | Do not administer in the same IV with calcium chloride |
| | Prepare to ventilate patient. |
| Adverse Effects: | Metabolic alkalosis, electrolyte imbalance, fluid overload |
| Onset/Duration: | Immediate if IV, onset is less than 15 min |
| | Duration 1-2 hours |
| Classification: | Alkalizing agent |
| Action: | Agent that dissociates to provide bicarbonate ion to buffer hydrogen ions in order to raise the pH level to reverse acidosis. It has also been found beneficial in the event of drug overdose in order to force urine alkalinization/divuresis, membrane stabilization of cardiac cells as well, and electrolyte balance restoration. |
| Notes: | Most catecholamines and vaspressors (dopamine, epinephrine) can be deactivated by alkaline solutions like sodium bicarbonate. When administered with calcium chloride, a precipitate may form that will clog the IV line. |
### Succinylcholine (Anectine)

<table>
<thead>
<tr>
<th>Indications:</th>
<th>An adjunct to general anesthesia, to facilitate tracheal intubation, and to provide skeletal muscle relaxation.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>1.5 mg/kg IV</td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>Hyperkalemia</td>
</tr>
<tr>
<td><strong>Pediatric Considerations:</strong></td>
<td>1-2 mg/kg IV/IM</td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>Caution should be observed if succinylcholine is administered to patients during the acute phase of injury following major burns, multiple trauma, extensive denervation of skeletal muscle or upper motor neuron.</td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Respiratory depression, Apnea, Anaphylaxis, Hypertension, Hypotension, Hyperkalemia, Increased intraocular pressure, Dyssrhythmias, Malignant hyperthermia</td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
<td>Onset: 1 minute, Duration: 4-6 minutes</td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>Depolarizing neuromuscular blocking agent</td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Short-acting depolarizing-type, skeletal muscle relaxant</td>
</tr>
<tr>
<td><strong>Notes:</strong></td>
<td>Should not be mixed with alkaline solutions.</td>
</tr>
</tbody>
</table>

### Tenecteplase (TNKase)

<table>
<thead>
<tr>
<th>Indications:</th>
<th>STEMI confirmed with Medical Control authorization required</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT Dose:</strong></td>
<td>Single IV bolus over 5sec; if &lt;60kg/132lbs then 30mg; if 60-70kg/132-154lbs then 35mg; if 70-80kg/154-176lbs then 40mg; if 80-90kg/176-198lbs then 45mg; and, if &gt;90kg/198lbs then 50mg</td>
</tr>
<tr>
<td><strong>Contraindications:</strong></td>
<td>Active internal bleeding, History of CVA, intracranial/intraspinal surgery or trauma past 2 months, intracranial neoplasm/arteriovenous malformation or aneurysm, Severe uncontrolled HTN</td>
</tr>
<tr>
<td><strong>Precautions:</strong></td>
<td>Blood vessel punctures should be minimized, especially non-compressible sites.</td>
</tr>
<tr>
<td><strong>Adverse Effects:</strong></td>
<td>Bleeding</td>
</tr>
<tr>
<td><strong>Onset/Duration:</strong></td>
<td>Rapid/90-130min half-life</td>
</tr>
<tr>
<td><strong>Classification:</strong></td>
<td>Thrombolytic, tissue plasminogen activator</td>
</tr>
<tr>
<td><strong>Action:</strong></td>
<td>Binds to fibrin and converts plasminogen to plasmin; decreases systemic activation of plasminogen and the resulting degradation of circulating fibrinogen.</td>
</tr>
<tr>
<td><strong>Notes:</strong></td>
<td>Do not give with glucose-containing solution as may precipitate. Do not use in-line filter.</td>
</tr>
</tbody>
</table>
### Thiamine (Betalin, Biamine, Vitamin B1)

**Indications:**
Coma and seizures of unknown origin especially if alcohol use is suspected. Concurrent use with D50 for patients with history of alcohol abuse. Malnutrition or thiamine deficiency Suspected Wernicke or Korsakoff Syndrome.

**ADULT Dose:**
100 mg IM/IV (slow)

**Contraindications:**
Known hypersensitivity

**Adverse Effects:**
Anaphylaxis (rare), Nausea/Vomiting, Hypotension (from rapid administration or excessive dose), Anxiety/Agitation

**Onset/Duration:**
ONSET: rapid DURATION: variable

**Classification:**
B complex vitamin

**Action:**
Allows and is required for normal metabolism of glucose. Combines with ATP to form thiamine pyrophosphate coenzyme, a necessary component for carbohydrate metabolism. Provides the appropriate thiamine levels to allow glucose to be utilized in sufficient amounts, thus reversing cellular hypoglycemia secondary to thiamine deficiency

### Vasopressin (Pitressin)

**Indications:**
VT/VF arrested states

**ADULT Dose:**
40 Units IV/IO one time dose Follow with the administration of Epi q 15 min in the presence of cardiac arrest

**Contraindications:**
Chronic Nephritis, none in the setting of cardiac arrest.

**Precautions:**
This drug should not be used in patients with vascular disease, especially disease of the coronary arteries, except with extreme caution. May produce water intoxication. The early signs of drowsiness, listlessness, and headaches should be recognized to prevent terminal coma and convulsions.

**Adverse Effects:**
Moderate to severe skeletal weakness, which may require artificial respiration. Malignant hyperthermia

**Onset/Duration:**
Onset unknown, Duration 2 to 8 hrs

**Classification:**
Posterior pituitary antidiuretic hormone

**Action:**
Produces vascular smooth muscle contraction and decreased urinary flow rate.

### Vecuronium (Norcuron)

**Indications:**
Paralysis to facilitate intubation

**ADULT Dose:**
0.1mg/kg IV/IO

**Contraindications:**
Newborn infants, myasthenia gravis

**Pediatric Considerations:**
0.1mg/kg IV/IO

**Precautions:**
Patient must be sedated

**Adverse Effects:**
Apnea

**Onset/Duration:**
Onset 1-2 minutes/ Duration 30 minutes

**Classification:**
Nondepolarizing neuromuscular blocking agent

**Action:**
Prevents acetylcholine from binding to receptors on the motor end plate, thus blocking depolarization.
## Drug Reference

<table>
<thead>
<tr>
<th>Equivalents:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1kg = 2.2lb</td>
<td>1 gm = 1000 mg</td>
</tr>
<tr>
<td>1kg = 1000 gm</td>
<td>1 L = 1000 ml</td>
</tr>
<tr>
<td>1ml = 60 mcgltts (micro tubing)</td>
<td>1 ml = 10,15,20 gtts (macro tubing)</td>
</tr>
<tr>
<td>1 ml and 1 cc are interchangeable</td>
<td></td>
</tr>
</tbody>
</table>

### Conversions:
MULTIPLY to convert a larger unit into a smaller unit using the above table. 
DIVIDE to convert a smaller unit into a larger unit using the above table.

### Dosage Calculations:
To calculate the amount of drug to be drawn up or administered, use the following formula:

\[
\text{WHAT (type and amount of drug ordered)} \times \frac{\text{QUANTITY (volume of fluid in the container)}}{\text{HAVE (amount of drug in the container)}} = \text{the amount to be administered.}
\]

\[
\frac{\text{WHAT} \times \text{QUANTITY}}{\text{HAVE}} = \text{Amount to be administered}
\]

### IV Rate:
To calculate an IV drip rate based on the volume of fluid to be infused over time. (Make sure the unit measurement of the concentration and the dosage are the same. [e.g. both in milligrams])

\[
\text{Drops per minute} = \frac{\text{VOLUME to be infused in cc} \times \text{Drop factor of IV set}}{\text{Time in minutes}}
\]

To calculate an IV drip rate for a medication that is administered based on a specified dosage to be infused per minute.

\[
\text{Drops per minute} = \frac{\text{Dosage per minute to be administered} \times \text{Drop factor (60)}}{\text{Concentration of medication per ml}}
\]

To calculate an IV drip rate for a medication that is administered based on a specified dosage per kilogram of body weight per minute.

\[
\text{Drops per minute} = \frac{\text{Desired dosage per minute} \times \text{Weight in Kg} \times \text{Drop factor of IV set}}{\text{Concentration of medication per ml}}
\]
Air Ambulance Transports

An air ambulance will be activated based on the Washington State Trauma Triage Procedures by the on scene EMS provider or Incident Commander. Whenever possible, providers will contact Medical Control prior to activating an air ambulance. The decision process as to when to mobilize an air ambulance should take into consideration: site resuscitation, stabilization capabilities and ground transport time. Dispatch may assist in contacting an air ambulance service for activation as soon as the need for air transport is identified.

Every attempt should be made to stabilize the patient prior to transport, including IV, airway, chest decompression or stabilization, control of external hemorrhage, and spine immobilization. Trauma associated cardiac arrest patients should not be transferred by air ambulance. Transfer of care to air ambulance personnel will optimally occur at designated landing sites. Deviation from designated landing sites should be briefly discussed with Medical Control.

Information to have available regarding airlift transport:
- Map coordinates - township, range and section
- Location of nearest landing zone
- Capability to transport to landing zone
- How landing zone is marked
- Any obstructions near landing zone
- Relevant weather information

Physician Present at the Scene

The prehospital care provider functions under the direction of the on-duty Medical Control physician. With Medical Control permission, a physician on scene may participate in the care of a patient at the scene of any emergency in one of the following ways:

1. Take total responsibility for management of the patient(s). If so must accompany the patient(s) to the hospital. The physician on scene must supply proof of being a MD or DO prior to initiation of any patient care direction or treatment.
2. Offer assistance in caring for the patient(s), allowing the prehospital care provider to remain under the control of the Medical Control Physician and within the prehospital provider’s scope of practice.

In all cases, the Medical Control Physician must be contacted to specifically delegate authority to any on-scene physician. Access to communication with the Medical Control should be provided to any on-scene physician on request. Notation of Physician’s identification and directive from Medical Control must be documented on the Medical Incident Report.
**Emergency at a Physician’s office**

At a private Physician’s office, the individual physician maintains the responsibility for the treatment and management decisions for the patient. During transport, treatment rendered by the prehospital provider must remain within the provider’s scope of practice.

**Patient Care Reports (PCR)**

A copy of ECG tracing **MUST** be attached to all copies of the MIR when any dysrhythmia is encountered in the field.

The prehospital contact report is to include:

a. Unit identification
b. Age and sex of patient
c. Severity
d. Chief complaint
e. Relevant medical history
f. Vital signs
g. Treatment given, and response to treatment
h. ETA
i. Request for additional information or treatment
## Ten Critical Steps for Handling Possible Bioterrorism Events

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Maintain an index of suspicion.</td>
<td>In an otherwise healthy population, some associations are very suggestive, especially when seen in clusters, high numbers, or unusual presentations.</td>
</tr>
<tr>
<td>2 – Protect yourself and your patients.</td>
<td>Use appropriate personal protection equipment (PPE). Prophylaxis; vaccines, if available; or antibiotics, if risks are known.</td>
</tr>
</tbody>
</table>
| 3 – Adequately assess the patient. | Review and assess the patient’s history. Also, ask:  
  - Are others ill?  
  - Were there any unusual events?  
  - Was there an uncontrolled food source or other environmental factor?  
  - Was there vector exposure?  
  - Has the patient been traveling?  
  - What is the patient’s immunization record?  
Perform a physical examination with special attention to the respiratory system, nervous system, skin condition and hematologic and vascular status. |
| 4 – Decontaminate as appropriate. | Do not use bleach on exposed people. Soap, water and shampoo are perfectly adequate for all biological and most chemical agents. Chemically contaminated clothes should be removed and discarded safely. Biologically contaminated clothes can be laundered with soap, water and perhaps, bleach. |
| 5 – Establish a diagnosis. | Think clinically and epidemiologically; always send specimens for culture. |

### “Clustered” Symptoms and Potential Bioagents

<table>
<thead>
<tr>
<th>“Clustered” Symptoms</th>
<th>Potential Bioagents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoptysis</td>
<td>Plague</td>
</tr>
<tr>
<td>Flaccid Paralysis</td>
<td>Botulism</td>
</tr>
<tr>
<td>Purpura</td>
<td>Viral Hemorrhagic Fevers (VHF)</td>
</tr>
<tr>
<td>Wide mediastinum</td>
<td>Anthrax</td>
</tr>
<tr>
<td>Centripetal rash</td>
<td>Smallpox</td>
</tr>
</tbody>
</table>

### Symptom (individuals) and Possible Diagnosis

<table>
<thead>
<tr>
<th>Symptom (individuals)</th>
<th>Possible Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulmonary</td>
<td>Tularemia, plague, staph enterotoxin B (SEB)</td>
</tr>
<tr>
<td>Neuromuscular</td>
<td>Botulism, Venezuelan equine encephalitis (VEE)</td>
</tr>
<tr>
<td>Bleeding/purpura</td>
<td>VHF, ricin, plague (late)</td>
</tr>
<tr>
<td>Rash (various types)</td>
<td>VHF, T2 mycotoxin, smallpox, plague</td>
</tr>
<tr>
<td>Flu-like symptoms</td>
<td>Varies</td>
</tr>
</tbody>
</table>

### Immediate Symptoms (large numbers) and Possible Diagnosis

<table>
<thead>
<tr>
<th>Immediate Symptoms (large numbers)</th>
<th>Possible Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulmonary</td>
<td>SEB, mustard, Lewisite, phosphene, cyanide</td>
</tr>
<tr>
<td>Neurologic</td>
<td>Nerve gases, cyanide</td>
</tr>
</tbody>
</table>

### Delayed Symptoms (large numbers) and Possible Diagnosis

<table>
<thead>
<tr>
<th>Delayed Symptoms (large numbers)</th>
<th>Possible Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulmonary</td>
<td>Biologic agents, mustard, phosgene</td>
</tr>
<tr>
<td>----------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Neurologic</td>
<td>Botulism, VEE, other encephalitis</td>
</tr>
</tbody>
</table>

6 – Render prompt treatment.

<table>
<thead>
<tr>
<th>A irway, B reathing, C irculation.</th>
</tr>
</thead>
</table>

7 – Provide good infection control.

- Gown, gloves, mask and hand washing, and eyewear if necessary, are sufficient.
- Recommended isolation precautions for biologic agents include:
  - Standard Precautions – for all individuals/patients
  - Contact Precautions – Viral Hemorrhagic Fevers
  - Droplet Precautions – Pneumonic Plague and Tularemia
  - Airborne Precautions - Smallpox

8 – Alert the proper authorities.

<table>
<thead>
<tr>
<th>CALL FIRST: Your local law enforcement agency; call either 911 or your local phone number for law enforcement.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALL SECOND: Your area FBI office</td>
</tr>
<tr>
<td>Western WA: 206-622-0460</td>
</tr>
<tr>
<td>Eastern WA: 509-747-5196</td>
</tr>
<tr>
<td>After hours statewide in WA: 206-622-0460</td>
</tr>
<tr>
<td>CALL THIRD: Your local emergency management agency, or if unavailable, the WA state EM Duty Officer at: 1-800-258-5990</td>
</tr>
</tbody>
</table>

9 – Assist in the epidemiologic investigations.

<table>
<thead>
<tr>
<th>Steps in an epidemiologic investigation so as to determine who may be at risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Count cases;</td>
</tr>
<tr>
<td>- Relate to the at-risk population;</td>
</tr>
<tr>
<td>- Make comparisons;</td>
</tr>
<tr>
<td>- Develop hypotheses;</td>
</tr>
<tr>
<td>- Test hypotheses;</td>
</tr>
<tr>
<td>- Make inferences;</td>
</tr>
<tr>
<td>- Conduct studies;</td>
</tr>
<tr>
<td>- Interpret and evaluate.</td>
</tr>
</tbody>
</table>

10 – Know and spread this information.

*This material is the original property of the San Diego County Medical Society. With their permission, it has been adapted, reprinted, and distributed by the Washington state Department of Health for the educational use of Washington state EMS personnel.*
Medical Spanish

Initial questioning

Is there someone with you who speaks English?
¿Hay alguien con usted que hable inglés?
*Ah-ee al-glee-ehn hohn oss-teh hohn ah-bleh en-glehhs?

I speak a little Spanish. Please answer yes or no to the following questions.
Hablo un poco de español. Por favor conteste si o no a las siguientes preguntas.
*Ah-bloh oon pohr-fahr-borg kohn-tehs-theh see oh noh ah lahhs see-ghee-ehn-tehs preh-goon tahs.

Speak slowly, please.
Hable despacito, por favor.
*Ah-bleigh dehs-pah-see-oh, pohr fahr-bohr.

What is your name?
¿Cómo se llama?
*Koh-moh she yah-mah?

How old are you?
¿Cuántos años tiene?
*Kwahn-tohs ah-nyohs tee-ee-nah?

When did the problem start?
¿Cuándo empezó el problema?
*Kwahn-doh ehm-peh-soh ehl proh-bleh-mah?

What medicine do you take?
¿Qué medicina toma?
*Keh meh-dee-see-nah toh-mah?

Numbers

<table>
<thead>
<tr>
<th>1. uno</th>
<th>11. once</th>
<th>21. viento</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. dos</td>
<td>12. doce</td>
<td>22. viento</td>
</tr>
<tr>
<td>3. tres</td>
<td>13. trece</td>
<td>23. veintitrés</td>
</tr>
<tr>
<td>4. cuatro</td>
<td>14. catorce</td>
<td>24. veinticuatro</td>
</tr>
<tr>
<td>5. cinco</td>
<td>15. quince</td>
<td>25. veinticincos</td>
</tr>
<tr>
<td>6. seis</td>
<td>16. dieciséis</td>
<td>26. veintiséis</td>
</tr>
<tr>
<td>7. siete</td>
<td>17. diecisiete</td>
<td>27. veintisiete</td>
</tr>
<tr>
<td>8. ocho</td>
<td>18. dieciocho</td>
<td>28. veintiocho</td>
</tr>
<tr>
<td>9. nueve</td>
<td>19. diecinueve</td>
<td>29. veintinueve</td>
</tr>
<tr>
<td>10. diez</td>
<td>20. viente</td>
<td>30. treinta</td>
</tr>
</tbody>
</table>

Days of the week

Lunes: Monday
Martes: Tuesday
Miércoles: Wednesday
Jueves: Thursday
Viernes: Friday
Sábado: Saturday
Domingo: Sunday

Common Medical Questions/Terms

How do you feel?
¿Cómo se siente?
*Koh-moh she see-eehn-the?

What is the problem?
¿Cuál es el problema?
*Kwahn-ehl proh-bleh-mah?

Have you had this problem before?
¿Ha tenido este problema antes?
*Ah-thee-nee-doh ehl proh-bleh-mah ahn-tehs?

Do you have nausea or vomiting?
¿Tiene nausea o vómito?
*Tee-ee-nah nah-oo-she-ah oh boh-meh-toh?

Don’t move
No se mueva
*Noh she mweh-bah

We are going to give you an IV
Vamos a ponerte suero intravenoso.
*Bah-mohs ah poh-nehr-ler soo-ee-roh enn-trah-beh-noh-soh.

Do you have a fever?
¿Tiene fiebre?
*Tee-ee-nehr fee-ee-brh?

Calm down
Cálmese
*Kahl-meht-sah
Common Medical Questions/Terms (continued)

Where does it hurt?
¿Dónde le duele?
Dohn-deh leh dweh-leh?
Show me
Enséñeme
Ehn-shy-neh-meh.
When?
¿Cuándo?
Kwahn-doh?
How?
¿Cómo?
Koh-moh?
For how long?
¿Por cuánto tiempo?
Pohr kwahn-toh tay-ehm-poh?
Why?
¿Por qué?
Pohr keh?
Relax, please
Por favor, relájese
Pohr fah-bohr, reh-lah-hey-shay.

Is it severe?
¿Es severo?
Ehs sheh-ber-roh?
Does it ache?
¿Es adolorido?
Ehs ah-doh-roh-reh-doh?
Is it like pressure?
¿Es opresivo?
Ehs oh-preh-see-boh?
Is the pain the same since it started?
¿Es el dolor igual desde que empezó?
Ehs ehl doh-lor ee-gwahl dehs-deh keh ehm-peh-soh?

Chest Pain

Pain in the chest?
¿Dolor del Pecho?
Doh-lohr dehl peh-choh?
Point to where the pain is, please.
Apunte dónde tiene el dolor, por favor.
Ah-poon-the dehn-deh tee-eh-neh ehl doh-lohr.

Does the pain travel to your left shoulder (arm)?
¿Le viaja el dolor al hombre (brazo) izquierdo?
Leh bee-ah-hah ehl doh-lohr ahl ohm-broy (brah-soh) ees-keh-her-doh?
Is it piercing?
¿Es punzante?
Ehs poon-sahn-the?

Are you having contractions?
¿Tiene contracciones?
Tee-eh-neh kohn-track-see-ohn-ehs?

(Do not) push.
(No) Empuje.
(Noh) Ehm-poo-heh

OB / GYN

How many minutes do the contractions last?
¿Cuántos minutos le duran las contracciones?
Kwahn-tohs mee-noo-tohs leh doo-rah loud kohn-trahk-see-ohn-ehs?
# MNEMONIC’s

<table>
<thead>
<tr>
<th>Patient Assessment:</th>
<th>Newborn Assessment:</th>
<th>Medical:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: Airway</td>
<td>A: Appearance</td>
<td>M: Morphine</td>
</tr>
<tr>
<td>B: Breathing</td>
<td>P: Pulse Rate</td>
<td>O: Oxygen</td>
</tr>
<tr>
<td>C: Circulation</td>
<td>G: Grimace (facial actions)</td>
<td>N: Nitrates</td>
</tr>
<tr>
<td>D: Disability</td>
<td>A: Activity</td>
<td>A: Aspirin</td>
</tr>
<tr>
<td>E: Expose</td>
<td>R: Respiration</td>
<td></td>
</tr>
</tbody>
</table>

### History:

<table>
<thead>
<tr>
<th>S: Signs and symptoms</th>
<th>P: Progression of symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: Allergies</td>
<td>A: Associated chest pain</td>
</tr>
<tr>
<td>M: Medications</td>
<td>S: Sputum productions, speech, word sentences</td>
</tr>
<tr>
<td>P: Pertinent past medical history</td>
<td>T: Temperature, tiredness</td>
</tr>
<tr>
<td>L: Last oral intake</td>
<td>M: Medications the patient is currently taking</td>
</tr>
<tr>
<td>E: Events leading to injury or illness</td>
<td>E: Exercise/Exertion normally tolerated</td>
</tr>
<tr>
<td>D: Diagnosis (previous)</td>
<td></td>
</tr>
</tbody>
</table>

### Trauma Assessment:

<table>
<thead>
<tr>
<th>Scene safety</th>
<th>V: Vitals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spinal Stabilization</td>
<td>O: Oxygen</td>
</tr>
<tr>
<td>LOC</td>
<td>M: Monitor</td>
</tr>
<tr>
<td>Airway</td>
<td>I: IV/Information</td>
</tr>
<tr>
<td>Breathing</td>
<td>T: Transport decision</td>
</tr>
<tr>
<td>Oxygen</td>
<td>H: History</td>
</tr>
<tr>
<td>Circulation</td>
<td>A: Allergies</td>
</tr>
<tr>
<td>Arterial Bleeds</td>
<td>M: Medications</td>
</tr>
<tr>
<td>Bare the Body</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trauma:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>T: Tracks, Tags, Tattoos</td>
<td>I: Instability</td>
</tr>
<tr>
<td>C: Crepitus</td>
<td>S: Scars</td>
</tr>
</tbody>
</table>

### Trauma or Pain Questions:

| Trauma: |
|-----------------|-----------|
| D: Deformities | C: Contusions |
| A: Abrasions | P: Punctures |
| B: Burns | T: Tenderness |
| L: Lacerations | S: Swelling |

| Time, duration | |

### Notes:

- **A:** Airway
- **B:** Breathing
- **C:** Circulation
- **D:** Disability
- **E:** Expose
- **M:** Morphine
- **O:** Oxygen
- **N:** Nitrates
- **A:** Aspirin

---

2012 - Northwest Region Emergency Medical Services & Trauma Care Council
Causes of Pulseless electrical Activity (PEA) – “5” H’s and T’s:

H: Hypovolemia
H: Hypoxia
H: Hydrogen ion – acidosis
H: Hypo- / Hypekalemia
H: Hypoglycemia
H: Hypothermia
T: Toxins
T: Tamponade, cardiac
T: Tension Pneumothorax
T: Thrombosis, (Coronary or Pulmonary)
T: Thrombosis, (hypovolemia increased ICP)

Altered Mental Status (ALOC):

A: Alcohol, Drugs
E: Endocrine (glands)
I: Insulin, Infection
O: Overdose
U: Uremia (2nd kidney insufficiency)
T: Trauma
I: Infection
P: Psychiatric
S: Shock

Triage:  Charting:

A: Alert  S: Subjective
P: Responsive to Verbal  O: Objective
V: Responsive to Pain  A: Assessment
U: Unresponsive  P: Plan
## Phone Numbers

### HOSPITALS

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Medical Reports</th>
<th>Main</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bremerton Naval Hospital</td>
<td>(360) 475-5678</td>
<td>(360) 475-4286 ED</td>
</tr>
<tr>
<td>Children’s Hospital Medical Center</td>
<td>(206) 987-2222</td>
<td>(206) 987-2000 Main</td>
</tr>
<tr>
<td>Forks Community Hospital</td>
<td>(360) 374-6271 Main (ER ext. 190)</td>
<td></td>
</tr>
<tr>
<td>Harborview Medical Center</td>
<td>(206) 731-3074</td>
<td>(206) 731-3000 Main</td>
</tr>
<tr>
<td>Harrison Medical Center – Bremerton</td>
<td>(360) 377-9111</td>
<td>(360) 377-3911</td>
</tr>
<tr>
<td>Harrison Medical Center – Silverdale</td>
<td>(360) 744-8800 Main</td>
<td></td>
</tr>
<tr>
<td>Jefferson Healthcare</td>
<td>(360) 385-7617</td>
<td>(360) 385-2200 Main</td>
</tr>
<tr>
<td>Madigan Army Medical Center</td>
<td>(253) 968-1396</td>
<td>(253) 968-1390 Main (ER)</td>
</tr>
<tr>
<td>Mary Bridge Children’s Hospital</td>
<td>(253) 403-1476</td>
<td>(253) 403-1418 Main (ER)</td>
</tr>
<tr>
<td>Mason General Hospital</td>
<td>(360) 426-8171</td>
<td>(360) 426-1611 Main</td>
</tr>
<tr>
<td>Olympic Medical Center</td>
<td>(360) 417-7381</td>
<td>(360) 417-7000 Main</td>
</tr>
<tr>
<td>St. Anthony’s</td>
<td>(253) 530-2100</td>
<td>(253) 530-2000 Main</td>
</tr>
<tr>
<td>St. Peters Hospital</td>
<td>(360) 493-7289 (ER)</td>
<td></td>
</tr>
<tr>
<td>St. Josephs</td>
<td>(253) 426-6769</td>
<td>(253) 627-4101 Main</td>
</tr>
<tr>
<td>Swedish 1st Hill</td>
<td>(206) 386-2573</td>
<td>(206) 386-6000</td>
</tr>
<tr>
<td>Swedish Cherry Hill</td>
<td>(206) 320-2111</td>
<td>(206) 320-2000</td>
</tr>
<tr>
<td>Tacoma General Hospital</td>
<td>(253) 627-8500</td>
<td>(253) 403-1050 Main (ER)</td>
</tr>
<tr>
<td>University of Washington Medical Center</td>
<td>(206) 598-3300 Main</td>
<td>(206) 598-2000 Report line (206) 598-4000 ER</td>
</tr>
<tr>
<td>Virginia Mason Seattle</td>
<td>(206) 583-6433 ED</td>
<td>(206) 624-1144 Main</td>
</tr>
</tbody>
</table>

### COMMUNICATION CENTERS

<table>
<thead>
<tr>
<th>Center</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airlift Northwest</td>
<td>(800) 426-2430</td>
</tr>
<tr>
<td>Clallam County (PENCOM)</td>
<td>(360) 452-4545</td>
</tr>
<tr>
<td>Jefferson County</td>
<td>(360) 385-3831</td>
</tr>
<tr>
<td>Kitsap County (CENCOM)</td>
<td>(360) 308-5400</td>
</tr>
<tr>
<td>Mason County</td>
<td>(360) 426-5533 or (360) 426-4441 (Shel-com)</td>
</tr>
<tr>
<td>Olympic Ambulance</td>
<td>(800) 445-2257</td>
</tr>
</tbody>
</table>

### INFORMATION

<table>
<thead>
<tr>
<th>Service</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem Trek</td>
<td>(800) 424-9300</td>
</tr>
<tr>
<td>Coast Guard Group Seattle</td>
<td>(206) 217-6001</td>
</tr>
<tr>
<td>Diver’s Alert network (DAN)</td>
<td>(877) 595-0625</td>
</tr>
<tr>
<td>Department of Ecology</td>
<td>(425) 649-7000</td>
</tr>
<tr>
<td>National response &amp; Terrorist Hotline</td>
<td>(800) 424-8802</td>
</tr>
<tr>
<td>Poison Control</td>
<td>(800) 222-1222</td>
</tr>
<tr>
<td>WA State Ferries Office-Operations</td>
<td>(206) 515-3456 (watch officer)</td>
</tr>
<tr>
<td>WA State Patrol Dispatch</td>
<td>(360) 405-6650 (not for public use)</td>
</tr>
</tbody>
</table>
Airway- Cricothyrotomy Surgical (Adult) 
Bougie Assisted Cricothyrotomy

Clinical Indications; (unable to manage airway by other methods):
- Failed Airway Protocol
- Cervical Spine Injuries
- Maxillofacial trauma
- Oropharyngeal obstruction from:
  - Edema due to infection, caustic ingestion, allergic reaction, and/or inhalation injuries
  - Foreign body
  - Mass lesion
- All other advanced airway management options are contraindicated
- Management of an airway when standard airway procedures cannot be performed or have failed in a patient > 8 years old

Clinical Contraindications:
- Significant trauma to the trachea or larynx suspicious of a tear or fracture
- Massive neck edema obstructing landmark identification
- Children less than 8 years of age
- Ability to effectively ventilate / oxygenate and suction if necessary.

Procedure:
1. Have suction and supplies available and ready
2. Place patient supine with the neck in a neutral position
3. Stabilize the larynx/thyroid cartilage with the thumb and middle finger of the non-dominant hand
4. Locate the cricothyroid membrane utilizing anatomical landmarks
5. Prep the area with an antiseptic (Povidone-Iodine)
6. Make a transverse stabbing incision through the skin and cricoid membrane with a 20-blade scalpel (a “half round” blade makes a larger initial hole)
7. Insert a tracheal hook at the inferior margin of the incision and pull up on the trachea
8. Insert a bougie through the incision with the curved tip directed towards the feet
9. Insert a 5.5-6.5 mm I.D. endotracheal tube over the bougie until the cuff passes into the trachea. Be sure the cuff has cleared the cricothyroid space
   a. Tactile feedback from the tracheal rings confirms proper placement
10. Inflate the cuff with 5-10cc of air and ventilate the patient while manually stabilizing the tube
11. All of the standard assessment techniques for insuring tube placement should be performed (auscultation, chest rise & fall, end-tidal CO2 detector, etc.). Esophageal bulb devices are not accurate with this procedure
12. Secure the tube
13. Document the time, procedure, and patient response on/with the Patient Care Report
14. (PCR).
Airway, i-gel Supraglottic Airway

Clinical Indications: Appropriate intubation is impossible due to patient access or difficult airway anatomy
- Airway, Adult; Airway Rapid Sequence Intubation; Failed Airway, Adult; & Cardiac Arrest
- Newborn Resuscitation
- Pediatric Airway; Pediatric Difficult Airway & Pediatric Rapid Sequence Intubation

Caution: This airway does not prevent or protect against aspiration

Procedure:
1. Select the appropriate size i-gel

<table>
<thead>
<tr>
<th>Size</th>
<th>Weight Range</th>
<th>Compatible Endotracheal Tube</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>2 – 5 kg</td>
<td>3.0 mm I.D.</td>
</tr>
<tr>
<td>1.5</td>
<td>5 – 12 kg</td>
<td>4.0 mm I.D.</td>
</tr>
<tr>
<td>2</td>
<td>10 - 25 kg</td>
<td>5.0 mm I.D.</td>
</tr>
<tr>
<td>2.5</td>
<td>25 - 35 kg</td>
<td>5.0 mm I.D.</td>
</tr>
<tr>
<td>3</td>
<td>30 – 60 kg</td>
<td>6.0 mm I.D.</td>
</tr>
<tr>
<td>4</td>
<td>50 – 90 kg</td>
<td>7.0 mm I.D.</td>
</tr>
<tr>
<td>5</td>
<td>&gt; 90 kg</td>
<td>8.0 mm I.D.</td>
</tr>
</tbody>
</table>

2. Lubricate with a water-soluble jelly on the middle of the smooth surface and return to the cradle
3. Pre-Oxygenate the patient
4. Grasp the lubricated i-gel along the integral bite block. Position the device so that the i-gel cuff outlet is facing towards the patient's chin (mental region of mandible)
5. The patient should always be in the 'sniffing position' with the head extended and neck flexed prior to insertion unless head/neck movement is inadvisable or contraindicated
6. Introduce the leading soft tip into the mouth of the patient in the direction of the hard palate
7. Glide the i-gel downward and backward along the hard palate with a continuous but gentle push until a definitive resistance is felt
8. Connect the i-gel to a bag-valve-mask and assess for breath sounds, adequate air exchange and end tidal CO2 (EtCO2)
9. Monitor oxygen saturation with pulse oximetry, EtCO2 and heart monitor
10. Re-verify i-gel placement after every move and upon arrival in the Emergency Department
11. Secure the i-gel

*When using the device after encountering a difficult intubation endotracheal intubation may be accomplished by passing a bougie through the i-gel into the trachea (see above chart for endotracheal tube compatibility). When advancing the bougie you may be able to “rail-road” the bougie to over the cartilaginous rings in the trachea to confirm proper location. Place an endotracheal tube over the bougie and advance into the trachea.
Personal Information:

Name: ________________________________

Address: ______________________________

City: _________ State: _____ Zip: _____

Home: ________________________________

Cell: ________________________________

Work: ________________________________

Agency: ______________________________

Medical Information:

____________________________________

____________________________________

____________________________________

____________________________________