Fredericktown EMS

Emergency Medical Services Protocol

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Trent Timmons DO – Medical Director
Rick Lanuzza - Chief

Fredericktown Community Joint Emergency Ambulance District
Medical Protocol

The following document contains guidelines and procedures to be followed in providing patient care by members of the Fredericktown Community Joint Emergency Ambulance District. The level of care to be administered by the emergency squad will be at the EMT, **Advanced EMT, and Paramedic level, working under these written protocols and/or under the guidance and direction of the Dr. Trent Timmons. It is the responsibility of each member to know the material included in this protocol. It is further understood that conditions not specifically addressed in these protocols will be handled using the current standard of practice for each level of care spelled out by the National Standard Curriculum, tested by National Registry.

** Advanced EMT's must have completed and passed the approved "Transition Class" mandated by the Ohio Department of Public Safety, Division of EMS.

Protocol Approved:

Signature on file with the Chief
Dr. Trent Timmons - Medical Director

December 1, 2014

Legend

General Information

Emergency Medical Technician Scope of Practice

Advanced Emergency Medical Technician Scope of Practice

Paramedic Scope of Practice

Dark Red Boxes contain important information

All Drugs color coded in **Dark Green**. Example: **Atropine**

Calculated Drugs are **Blue**. Example: **125 mg**

General Information boxes

Important Note:

Pharmacology Section: *Indications*. This links where particular medication will be found in the protocol.

Comments for Future Protocol Changes

Add Sticky Notes Here

(For large changes, i.e. New Adult or Pediatric Protocol Page, Drug, Guideline, Procedure, etc.)

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Adult

Responsoft™

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Cardiovascular

Cardiovascular

Cardiovascular

Asystole/PEA

Cardiovascular

Asystole: cardiac standstill with no cardiac output and no ventricular depolarization.

Universal Patient Assessment

Check for a pulse, if no pulse begin **CPR** at a rate of 30 compressions to 2 ventilations for 5 cycles or 2 minutes.

AED / Cardiac Monitor

CPR

Maintain open airway
Adult Airway Protocol

Adult IV/IO

Consider a 2nd IV if time allows and can be completed without interrupting CPR

Epinephrine 1:10,000 1 mg IVP, IO
Repeat every 3 – 5 minutes
or
Vasopressin 40 units IVP, IO
To replace 1st or 2nd dose of Epinephrine

Continue **CPR** to circulate medications

Consider
Sodium Bicarbonate 1 mEq/kg IVP, IO
Repeat 0.5 mEq/kg every 10 minutes

Sodium Bicarbonate should be considered if the patient has a preexisting hyperkalemia (dialysis patient), preexisting metabolic acidosis and is intubated, suspected drug overdose (expected tricyclic antidepressant), or long cardiac arrest with the patient intubated.
Consider other causes of PEA or Asystole and treat accordingly when possible

Consider causes of cardiac arrest.
H's & T's
Hypovolemia Toxins
Hypoxia Tamponade, Cardiac
Hydrogen Ion (Acidosis) Tension Pneumothorax
Hyper / Hypokalemia Thrombosis (coronary or pulmonary)
Hypoglycemia Trauma
Hypothermia
Continue with CPR and evaluate effectiveness of circulation and perfusion.

Some causes of Asystole are: Hypoxia, Hypothermia, trauma, electrolyte imbalances, and acidosis. To successfully treat asystole, provide strong basic life support, and correct the underlying conditions.

During **CPR**, push hard and fast (100/ min.), ensure full chest recoil, minimize interruptions. Check rhythm every 2 minutes. Avoid hyperventilation.

General

EMT

AEMT

Paramedic

Bradycardia

Intervention by ems for bradycardia rhythm may not be necessary unless patient is symptomatic. Signs and symptoms such as hypotensive, altered mental status with inadequate perfusion, chest pain.

Universal Patient Assessment

Heart rate < 60 bpm
Cardiac Monitor

Adult IV/IO

Patients having a bradycardic heart rate less than 60 beats per minute who are **NOT** stable or are having Chest Pain, Shortness of Breath, or Altered Mental Status, Hypotension, or other signs of shock:

Adequate Perfusion

Observe **/ Monitor**

Poor Perfusion

Atropine 0.5 mg IVP, IO

Reassess vital signs and perfusion

If necessary after 3-5 minutes repeat

Atropine 0.5 mg IVP, IO

May repeat to maximum 3 mg

If the heart rate is greater than 60 bpm but the blood pressure is below 90 mm/hg systolic, consider:

Fluid Bolus of 250 ml Normal Saline
(watch for CHF)

If Fluid Bolus ineffective or signs of CHF noted

Dopamine 5 - 20 mcg/kg/min

If after administration of Atropine and patient remains unchanged consider:

External Transcutaneous Pacing

If time permits, consider the administration of

Versed 2 mg IVP, IO, MAD

May repeat x1 in 3-5 minutes.

Bradycardia can be caused by: Hypoxia, MI, Sick sinus syndrome, Heart blocks, and other ectopy not producing a pulse. The palpable rate will be < 60. Remember, a slow heart rate can be normal in some patients if cardiovascular condition is in superb state.

General

EMT

AEMT

Paramedic

Cardiovascular

Chest Pain (Ischemic) ACS

Cardiovascular

Chest pain may be described in may ways. Some common descriptions are: discomfort, squeezing, heaviness, tightness, and crushing.

Universal Patient Assessment

Oxygen

Cardiac Monitor / 12 Lead ECG

EMT-Basic: 12 Lead ECG set up and application for electronic transmission

Aspirin 162 mg PO

(2 baby aspirin, 81 mg each)

Must have IV lifeline established prior to the administration of nitroglycerin

Adult IV/IO

Nitroglycerin Tablet/Spray 0.4 mg SL

If BP > 90 Systolic

May be repeated every 3 – 5 minutes X 2

Basic EMT
Assist with Patient's prescribed Nitroglycerin

If patient is alert, complaining of severe pain, systolic B/P is above 90mm Hg and pain is not relieved by nitroglycerin

Yes

Morphine 2 – 4 mg IVP, IO

May repeat in 5 minutes as needed
Maximum 10 mg
Titrated to pain relief. Monitor vitals closely.

or

Fentanyl

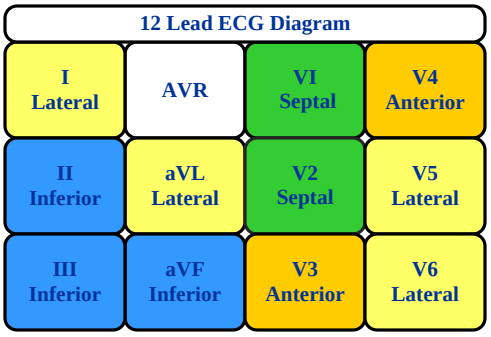
50 mcg IVP, IO

May repeat x 1

Maximum 100 mcg

Consider
Fluid Bolus 200 – 300 of NS for hypotension

The assessment of chest pain is important. Using the OPQRST method can be helpful.
O: Onset / Origin
P: Provokes
Q: Quality
R: Region
S: Severity:
T: Time
Other symptoms like; Difficulty breathing, Dizziness, Nausea/ Vomiting, Syncope, Sweating, Pale/Ashen Color, and Past History are important factors.



General

EMT

AEMT

Paramedic

Hypertensive Emergencies

Cardiovascular

Borderline hypertension is 140/90 and elderly patients it may be 140-160 systolic. Some causes of hypertension are: Genetic factors, increased peripheral arteriolar stiffness, obesity, lack of exercise, overuse of salt, aging and Inflammation.

Hypertensive Emergencies and Gestational Hypertension

1. Definitions:

a. **Hypertensive Emergency:** diastolic BP > 120 mm/Hg with signs of end organ damage; altered consciousness, CHF, intracranial hemorrhage (sudden, severe headache and/or unconsciousness), aortic dissection (sudden, severe tearing pain often radiating between the shoulder blades - BP may show right to left upper arm discrepancy).

b. Gestational Hypertension: (greater than **20 weeks** gestation) systolic B/P **>140** mmHg or diastolic B/P > **90** mm/Hg

2. Baseline Physical Assessment **as** per protocol. Repeats VS's frequently.

3. If diastolic BP > **130** mm/Hg and **signs** of organ compromise present (altered consciousness, **severe headache,** CHF, **dyspnea,** or chest pain) or if pregnant and diastolic B/P >110 with any preceding symptoms **as well as** epigastric or **liver** tenderness, or visual disturbance:

Universal Patient Assessment

↓

Adult IV/IO

↓

Cardiac Monitor

↓

ALWAYS reassess blood pressure prior to and after giving medications.
If pregnant, transport immediately to an appropriate obstetrical facility

↓

Transport with head elevated

↓

Hypertension **may** be a symptom rather than the primary disease **(e.g.** hypertension due to a seizure rather than a seizure due to hypertension). Always consider other causes of symptoms, especially in cases of altered consciousness, but do not **delay** transport. **Especially** in **suspected stroke patients, Rapidly lowering diastolic BP may cause brain injury.**

1. Definition:

a. **Hypertensive Urgency:** diastolic BP > 120 mm/Hg without signs or symptoms or organ compromise.

2. If no signs of respiratory distress, pain, or decreased level of consciousness attempt to contact patients physician or arrange to see physician.

General

EMT

AEMT

Paramedic

Cardiovascular

Hypotensive Emergencies (Non-Trauma)

Cardiovascular

Patient displays signs/symptoms of shock, not related to trauma.

Symptoms of non traumatic hypotension include, Dizziness, pale, cool, clammy skin, anemia, postural hypotension (positive Orthostatic vital signs). Patient history may include, vaginal bleed, GI bleed, black tarry stools. Hematemesis (coffee ground emesis).

General

EMT

AEMT

Paramedic

Universal Patient Assessment

Cardiac Monitor

Adult IV/IO

Place patient in modified Trendelenburg position if tolerated.

Keep patient warm

Pump Problem

If not in pulmonary edema and systolic BP is less than 90 mm/Hg with signs and symptoms of decreased cardiac output, Administer:

Fluid Bolus 250cc rapid IV bolus of 0.9% Normal Saline

Auscultate lungs frequently for rales. If rales appear or dyspnea increases terminate fluid bolus. If hypotension continues, administer an additional 250 ml fluid bolus. If fluid not effective, Initiate

Dopamine Infusion 2 – 20 mcg/kg/min

Arrhythmias

Rate Problem

For heart rate less than 50 and systolic BP less than 90 mmHg systolic with patient symptomatic:

Bradycardia Protocol

Treat as indicated

Cardiovascular

Pulmonary Edema/CHF

Cardiovascular

Signs and Symptoms:
Difficulty breathing, anxiety & restlessness, coughing that produces pink frothy sputum, pale, cool and clammy, chest pain, wheezing, course crackles, tachycardia, ankle edema, JVD, hypertension.

Universal Patient Assessment
Allow patient to assume position of comfort (*i.e.*, full fowlers, dangling, *etc.*)

Oxygen

Adult IV/IO

Nitroglycerin Tablet/Spray 0.4 mg SL
Every 3 – 5 minutes x 3
if BP ≥ 90 systolic

Cardiac Monitor

Consider use of
CPAP

Lasix 0.5 – 1 mg/kg IVP, IO
(40 – 80 mg)
80 mg maximum
May repeat x 1 in 10 minutes if the patient has not responded to 3 sub lingual nitroglycerin with improved respiratory effort.

Intubation and hyperventilation for deteriorating vital signs. Consider
Drug Assisted Intubation

Consider
Albuterol 2.5 mg/3 ml NS
free flow aerosol treatment
At same time administer **Oxygen** via nasal cannula. Try to measure pre-therapy **Pulse Oximetry** reading. May repeat X 1 in 2 - 3 minutes.

or

DuoNeb
0.5 mg Ipratropium &
2.5 mg Albuterol
in 3 ml NS via aerosol

Consider if systolic BP is less than 90mmHg
Dopamine 5 - 15 mcg/kg/min
Titrate to patient response and systolic BP

Morphine 2 - 10 mg IVP, IO
titrated to desired hemodynamic effects

or

Fentanyl
50 mcg IVP, IO
May repeat x 1
Maximum 100 mcg

Pulmonary Edema can have the following underlying causes: Acute Left Heart failure, Chronic Heart failure, and chemical inhalation. Be aware that cardiac wheezes can occur with CHF and mimic a COPD presentation. This can be very alluding if the patient has a history of both. Be sure to check pedal edema although it is not necessary for Acute Pulmonary edema.

General
EMT
AEMT
Paramedic

STEMI

Cardiovascular

Develop an organized system of emergency cardiac care for patients who are having a severe heart attack, or STEMI.

Priorities include:

- 12 lead ECG (before O^2 & NTG)
- Oxygen
- ASA
- Nitroglycerin
- Transmit ECG as soon as possible
- Notify Hospital of ETA

Universal Patient Assessment

See:

Chest Pain (Ischemic) ACS

Protocol

Once the chest pain protocol has been initiated and the necessary drugs and procedures are accomplished, continue treatment below.

Brilinta (Ticagrelor) 90 mg x 2 PO

180 mg Total

Heparin 80 Units/kg

Over 60 seconds

Maximum 4,000 Units

Lopressor 5 mg IVP, IO every 5 minutes

Maximum 15 mg

Administer only if pulse > 60 and BP > 100 mmHg Systolic.

Patients experiencing STEMI do not always present with chest discomfort (118). The Framingham Study was the first to show that as many as half of all MIs may be clinically silent and unrecognized by the patient (119). Canto et al. (100) found that one third of the 434 877 patients with confirmed MI in the National Registry of Myocardial Infarction (NRMI) (100) presented to the hospital with symptoms other than chest discomfort. Compared with MI patients with chest discomfort, MI patients without chest discomfort were more likely to be older (74.2 versus 66.9 years), women (49.0% versus 38.0%), diabetic (32.6% versus 25.4%), and/or have prior heart failure (26.4% versus 12.3%). www.acc.org/qualityandscience/clinical/guidelines/steMI/Guideline1/index.pdf

Cardiovascular

Tachycardia-PSVT

Cardiovascular

Narrow complex tachycardia is not normally related to heart disease and can occur at any age. The most common cause of SVT is an abnormal extra pathway from the AV node to the ventricles.

Universal Patient Assessment

Oxygen

Cardiac Monitor

PSVT-Heart rate is greater than 150

12 Lead ECG

EMT-Basic: 12 Lead ECG set up and application for electronic transmission

If Stable

V-Fib / Pulseless V-Tach ← No — Palpable pulse?

Yes

Adult IV/IO

Use antecubital vein

Stable

Patient **does not exhibit** any signs of Chest pain, Short of breath, decreased level of consciousness, or systolic B/P less than 90 mm/Hg systolic

Unstable

Systolic B/P less than 90 mm/Hg, Ongoing Chest Pain, Shortness of Breath, or a Altered Mental Status, or other symptoms of Shock.

Narrow Complex Tachycardia

Stable — Unstable

Paroxysmal Supraventricular Tachycardia

Valsalva's Maneuver

No change

Adenosine 6 mg Rapid IVP, IO

followed with a 10-20 ml NS flush

No change

Adenosine 12 mg Rapid IVP, IO

followed with a 10-20 ml flush

May repeat once in 1-2 min.

If the patient with PSVT becomes/is unstable proceed directly to synchronized cardioversion.

Atrial Fibrillation Atrial Flutter

Consider Symptoms and Transport

PSVT Atrial Fib / Flutter Heart rate > 150

Sedate patient

Versed 1-2 mg Slow IVP, IO

May repeat in 3 – 5 minutes

Synchronized Cardioversion

50, 100, 200, 300, 360 Joules

If no change after shock, continue shocks until change noted or maximum joules delivered

If patient converts with cardioversion, continue to monitor, oxygenate, and transport.

General

EMT

AEMT

Paramedic

Cardiovascular

Tachycardia-VT w/Pulse

Cardiovascular

VT is usually associated with ischemia or heart disease. Some causes are: CHF, drug toxicity, cocaine, hypokalemia and electrolyte imbalance.

Universal Patient Assessment

Cardiac Monitor

Palpable pulse?

Yes

No → **V-Fib / Pulseless V-Tach** Protocol

Adult IV/IO

Tachycardia-VT w/Pulse

Stable

Patient alert, conscious, perfusing rhythm, non-hypotensive, no chest pain

Consider

Adenosine 6 mg Rapid IVP, IO

followed with a 10-20 ml NS flush

No change

Adenosine 12 mg Rapid IVP, IO

followed with a 10-20 ml flush

May repeat once in 1-2 min.

Amiodarone

150 mg IVP, IO

diluted in 20-30 ml of saline) over 2 minutes

May repeat x 1 if no change in 5 minutes

Do not infuse in same IV line as other medications if possible, but do not delay the administration if unable to establish a 2nd IV

If V-TACH persists after the medications consider the patient **UNSTABLE**

Unstable

Altered Mental Status, Ongoing Chest Pain, Hypotension, or other signs of shock.
Rate-related symptoms uncommon if heart rate < 150 bpm.

Heart Rate > 150

Sedate patient

Versed 1 - 2 mg Slow IVP, IO

Synchronized Cardioversion

100, 200, 300, 360 Joules

If no change after shock, continue shocks until change noted or maximum joules delivered

If patient converts with cardioversion, continue to monitor, oxygenate, and transport.

If the rhythm is determined to be **Torsades de Pointe**, administer:

Magnesium Sulfate 2 g IVP, IO over 2 minutes

Unstable = symptoms suspicious of myocardial infarction with chest pain, dyspnea hypotension (systolic BP < 90 mmHg), CHF.
If patient becomes unstable at any time, move to 'unstable" arm of algorithm.

General

EMT

AEMT

Paramedic

Cardiovascular

V-Fib/Pulseless V-Tach

Cardiovascular

V-Fib is the most predominate initial rhythm in cardiac arrest. CPR must be started immediately with early defibrillation.

Check for a pulse, if no pulse begin **CPR** at a rate of 30 compressions to 2 ventilations for 5 cycles or 2 minutes

Apply **AED** or **Cardiac Monitor** and analyze rhythm.

If no pulse and shock is advised after 2 minutes of **CPR** deliver

Defibrillate 200 joules

CPR 30:2 cycle
For 2 minutes (5 cycles) prior to defibrillation**CPR to be done for 2 minutes (5 cycles) immediately following each defibrillation, then check monitor

CPR 2 min.

Adult Airway Protocol / **Adult IV/IO**

Epinephrine 1:10,000 1 mg IVP, IO, ET
repeat every 3-5 minutes
Or
Vasopressin 40 units IVP, IO (single dose)

CPR x 2 min.

Defibrillate 300 Joules

Consider
Sodium Bicarbonate 8.4%
1 mEq/kg IVP, IO
Repeat 0.5 mEq/kg every 10 minutes.

CPR x 2 min.

Amiodarone 300 mg IVP, IO

CPR x 2 min.

Defibrillate 360 Joules

CPR x 2 min.

Consider in 3 – 5 minutes
Amiodarone 150 mg IVP, IO

CPR x 2 min.

Defibrillate 360 Joules

Consider
Magnesium Sulfate
1 - 2 g IVP, IO
For Torsodes de Pointe

CPR x 2 min.

The most common cause of ventricular fibrillation is inadequate blood flow to the heart muscle due to coronary artery disease, as occurs during a heart attack. Other causes include the following:
Acute MI, Cardiomyopathy, Hypoxia, Electrical shock, Drowning, low levels of potassium (hypokalemia), Drugs Overdose such as Cocaine, sodium or potassium channel blockers, Digitalis toxicity

Environmental

Environmental

Environmental

Hyperthermia

Environmental

Some causes of hyperthermia are: High temperatures in the environment or excessive exercise in moderate to extremely high temperatures. Also, Older or ill incapacitated patient, a failing of temperature regulating center.

C	F
37.00	98.6
37.22	99.0
37.78	100.0
38.33	101.0
38.88	102.0
39.44	103.0
40.00	104.0
40.55	105.0
41.11	106.0
41.66	107.0
42.22	108.0

Universal Patient Assessment

Remove excess clothing, cool patient, but prevent from shivering. Do not give patient anything by mouth

Heat Stroke:
Cool by:
- Ice packs to head, lateral chest, and groin areas.
- Sponge with cold water

Adult IV/IO

prevent shivering

Valium 10 mg IVP, IO slow over 1 minute

Administer in 2 mg increments

Titrate to desired effect, for seizures accompanying heat stroke.

or

Alternative

Versed 10 mg MAD

5 mg (1 ml) in each nares

If seizures persist > 5 minutes, repeat ½ dose Intranasally

Signs & Symptoms
Heat Cramps
Severe muscle cramps
Heat Exhaustion
Altered mental status, dizziness, nausea & vomiting, headache, elevated core body temperature
Heat Stroke
Extremely elevate core body temperature, the absence of sweating, with hot red or flushed dry skin, rapid pulse, difficulty breathing,
strange behavior, hallucinations, confusion, agitation, disorientation
seizure, coma

General
EMT
AEMT
Paramedic

Environmental

Hypothermia

Environmental

A core body temperature of 95°F (35°C) can lead to decrease in heat production and increase in heat loss.

C	F
37.78	100.0
37.22	99.0
37.00	98.6
36.66	98.0
36.11	97.0
35.55	96.0
35.00	95.0
34.44	94.0
33.88	93.0
32.33	92.0

Universal Patient Assessment

Begin aggressive and sustained

CPR, as indicated.

Remove wet clothing and initiate warming procedure as soon as possible.
Handle patient gently. Rough handling may cause onset of Dysrhythmias.

Cardiac Monitor

Adult IV/IO (warmed if possible)

Signs & Symptoms

Mild Hypothermia:
Uncontrolled, intense shivering begins. The victim is still alert and able to help self, however movements become less coordinated and the coldness is creating some pain and discomfort.

Moderate Hypothermia:
Shivering slows or stops, muscles begin to stiffen and mental confusion and apathy sets in. Speech becomes slow, vague and slurred, breathing becomes slower and shallow, and drowsiness and strange behavior may occur.

Severe Hypothermia:
Skin is cold, may be bluish- gray in color, eyes may be dilated. Victim is very weak, displays a marked lack of coordination, slurred speech, appears exhausted, may appear to be drunk, denies problem and may resist help. There is a gradual loss of consciousness. There may be little or no apparent breathing, victim may be very rigid, unconscious, and may appear dead.

Search and Rescue Society of British Columbia
http://www.sarbc.org/hypo1.html

Severe Hypothermia
< 86°F (<30°C)

Withhold anti-arrhythmia treatment until hypothermic patient is warmed.
Intubate and **Oxygenate** as needed.

Near Drowning:

V-Fib, limit **Defibrillation**

attempts to one round and **one round of ACLS**.

Continue **CPR**

Moderate Hypothermia
86 - 93.2°F (30 - 34°C)

Use appropriate protocol for rhythm, but decrease all cardiac medications by one-half

Transport to nearest appropriate facility.

Mild Hypothermia
< 93.2 F (34° C)

Remove the patient from the environment to prevent further injury.

Do not allow the patient to ambulate.

Handle area gently, never rub or massage area.

Remove wet or restrictive clothing and splint area.

Support vital functions, handle medical related issues appropriately and transport.

General

EMT

AEMT

Paramedic

Environmental

Near Drowning

Environmental

There are multiple considerations with Drowning / Near Drowning. Water temperature being primary. All cold water drowning should be worked. Trauma and C-Spine should be considered and managed. As with all environmental exposures, time and duration will also need to be noted.

There are multiple considerations with Drowning / Near Drowning. Water temperature being primary. Extricate from water using appropriate techniques.

Universal Patient Assessment

If patient is a near drowning victim, treatment is supportive Insist on transport to Emergency Department for evaluation of impending pulmonary complications.

Assume cervical spine injury on diving accidents

Spinal Immobilization

Adult Airway Protocol
Be prepared to suction airway

CPR
If indicated

Cardiac Monitor

If victim is hypothermic due to immersion, refer to
Hypothermia Protocol

Remove wet clothing as time permits

CPAP

If indicated

General

EMT

AEMT

Paramedic

Gastrointestinal

Nausea/Vomiting

Gastrointestinal

Remember to use Body Substance Isolation (BSI) precautions.

CONTRAINDICATIONS
1. Patients hypersensitive to Promethazine or other phenothiazines*
2. Patients in comatose states
3. Not to be used in the presence of large amounts of CNS depressants (Alcohol, Barbiturates, Narcotics, etc.)
4. Do not give subcutaneously due to tissue necrosis
5. Not to be given intra-arterially, which may result in gangrene

PRECAUTIONS
1. Use with caution in patients with narrow-angle glaucoma
2. Low doses are sufficient for most elderly patients since they appear to be susceptible to hypotension. OBSERVE CLOSELY
3. Contact medical control before administering for vomiting due to pregnancy or labor.
4. Geriatrics may have hallucinations

Universal Patient Assessment

↓

Adult IV/IO

↓

Phenergan 12.5 mg IVP, IO

6.25 mg for elderly 70 & older

Antecubital is the preferred site
May repeat x 1 in 10 to 15 minutes

If no IV established:

Phenergan 25 mg Deep IM

Do not repeat IM injection without consulting medical control

↓

or

↓

Zofran 4 mg IVP, IO

↓

Continue with patient care as per protocol.

INDICATIONS: FOR CONTROL OF NAUSEA AND VOMITING RESULTING FROM
1. Inner ear disturbances
2. Closed head trauma
3. Cardiac-related problems
4. Influenza (flu) symptoms
5. Extremity trauma/fractures
6. Morphine administration
7. Kidney stones
8. Gallbladder disease

General

EMT

AEMT

Paramedic

General

General

Adult IV/IO

General

IV Therapy
- administer fluids
- administer medications

To minimize the risk of complications use:
- Proper choice of equipment
- careful choice of IV site
- good insertion technique
- aseptic preparation of infusions

Venipuncture Technique
Inform patient of IV insertion.
Use aseptic technique
Assessment of patient and equipment
Venipuncture technique
Dressings and maintenance of safety
Instructions to patient
Documentation

Universal Patient Assessment

Assess need for IV
Initiate infusion at TKO unless specified
Emergent or potentially emergent medical or trauma condition

Trauma
Large bore Catheter (if possible)
2 IV's when necessary

Peripheral IV
No more than three (3) attempts unless patient is critical

Unsuccessful

Unsuccessful

Intraosseous
Intraosseous Infusion EZ-IO (Proximal Tibia)
Intraosseous Infusion EZ-IO (Humerus)
Intraosseous Infusion EZ-IO (Distal Tibia)
for life-threatening event

Monitor infusion

General
EMT
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Paramedic

General

Pain Control

General

Important Information to Record
1. Time of each dose of analgesia
2. Dosage of each administration of analgesia
3. Time and results of pain assessments 1-10 scale

Universal Patient Assessment

Purpose: To relieve pain to a point of patient comfort.

Patient care according to **Protocol** based on **Specific Complaint**

Assess Pain Severity:
1-3 mild pain,
4-7 moderate pain,
8-10 severe pain. Document description of pain, examples: sharp, dull, stabbing, constant, intermittent, alleviating factors.

Pain Control Protocol

DO NOT USE ON HEAD TRAUMA, CHEST INJURY, RESPIRATORY DISTRESS DUE TO TRAUMA, OR ON ANY PATIENT WITH VOLUME DEPLETION OF ANY CAUSE.

Morphine: Administered for pain in adults in the following situations:
Chest Pain
Extremity Trauma without hypotension
Avulsions or Amputations without hypotension
Toradol (in addition to above)
Headache (with known hx. or migraines)
Kidney Stones
Non-Specific abdominal pain
Small Crush Injuries
Sprains & Strains
Known Narcotic sensitivity or chemical dependencies

Systolic BP > 100 mmHg — No → Monitor and reassess

Yes

Adult IV/IO

Toradol

Patient 18 – 65 years of age:
30 mg IVP, IO Slowly
30 – 60 mg IM

Patients > 65 years of age or > 18 years, but < 50 kg (110 lbs.)
15 mg IVP, IO Slowly
15 – 30 mg IM

If BP > 100 systolic
Morphine 2 - 10 mg IVP, IO
10 mg maximum

or

or

Monitor **Pulse Oximetry**

Versed
1 - 2 mg IVP, IO, MAD

or

Fentanyl
50 mcg IVP, IO
May repeat x 1
Maximum 100 mcg

If hypotension develops after **Morphine Sulfate** is given, position patient in Trendelenburg Position; if no response or inadequate response, administer a **0.9 NS fluid bolus** of 300-500 ml

Monitor and reassess

Narcan 2 mg IVP, IO, MAD

If respiratory depression develops after the administration of **Morphine**. Do not administer any more, support ventilations as needed. Consider intubation.

EMT may administer via MAD only.
Narcan 2 mg MAD

General
EMT
AEMT
Paramedic

General

Universal Patient Assessment

General

The Universal Patient Care Protocol should be used as primary guide to all patient assessments.

As always, emphasis on Scene Safety, A, B, C's and vital signs are indicated. Also, good interview technique in a systematic, efficient format.

Scene Safety & BSI (body substance isolation)

↓

Initial Assessment

Adult Primary Assessment

Routine Transport Orders (Adult)

↓

Adult Airway Protocol

↓

Consider

Spinal Immobilization

↓

Vitals Signs per guideline

(Temperature if appropriate)

↓

Consider

Pulse Oximetry / Capnography

↓

Consider

Cardiac Monitor / 12 Lead ECG

↓

Appropriate Protocol

General

EMT

AEMT

Paramedic

Neurological

Neurological

Neurological

CVA/TIA

Neurological

A stroke is a sudden interruption in blood flow to the brain that results in a neurologic deficit.

Universal Patient Assessment

Place patient in the supine position (as tolerated), place in semi fowler position if indicated

Adult Airway Protocol

Prehospital Stroke Screen

Adult IV/IO

Blood Glucose

Glucose < 60 mg/dl

Hypoglycemia Protocol

Glucose > 60 mg/dl

Cardiac Monitor

In a patient with suspected CVA with hypertension of Diastolic above 120 mm/Hg, **DO NOT treat for hypertension**.

If patient is deteriorating and unable to self maintain airway, Intubate.

Perform baseline assessment
- Level of consciousness
- Visual changes or loss
- Facial droop
- Weakness to extremities, unequal grasps or unsteady gait
- Arm drift
- Speech, check for slurring

Note:
Upon dispatch or from caller information, patient may be described as being confused, weak on one side, or having difficulty with speech. However, upon arrival you may find the patient alert, oriented and normal by other criteria.
This might have been a Transient Ischemic Attack or TIA. This patient needs to be transported.

GCS Score

General

EMT

AEMT

Paramedic

Neurological

Hypoglycemia

Neurological

Types of Diabetes:
Type 1: Insulin dependent
Type 2: Non-Insulin dependent
Gestational diabetes, Pre-Diabetes.
Blood Glucose level below 80 mg/dl. Symptoms may not occur until levels become 60 mg/dl or less.

GCS Score

Universal Patient Assessment

Examine patient for any signs injury

Blood Glucose

If one touch reads below 60mg/dl or patient is symptomatic at 70mg/dl.

Adult IV/IO

Dextrose 50%

Up to 25 g (50 ml) IVP, IO

Glucagon 1 mg IM, SQ
(if no IV access)

Oral Glucose 15 gm (one tube)
Patients who are able to speak

Cardiac Monitor

Observe for possible Seizure Activity
Rule out causes for changes in level of consciousness.

If seizures are present

Valium 5 - 10 mg IVP, IO

If an IV is unobtainable administer IM or Rectal

or

Versed 10 mg MAD

5 mg (1 ml) in each nares

If seizures persist > 5 minutes, repeat ½ dose Intranasally

Obtain relevant medical history:
OPQRST
1. Has patient eaten today?
2. Has patient taken insulin?
3. Onset
4. Medication - Type and time taken

Signs & Symptoms:
Hypoglycemia: Nervousness, irritability, confusion, weakness, cold & clammy, pale, sudden behavior change, seizure, coma.
Hyperglycemia: warm dry skin, dry mouth, tachycardia, nausea/ vomiting, fruity breath, shortness of breath, Kussmaul respirations, decreased LOC.
Causes of hypoglycemia are:
Too much Insulin
Not eating
Medications
Chronic Alcoholism
Sepsis
Unusual physical activity

General

EMT

AEMT

Paramedic

Neurological

Seizures

Neurological

General

EMT

AEMT

Paramedic

Some causes of seizures are: Head injury, overdose, stroke, hypoxia, infection, hypoglycemia, hyperglycemia, brain tumor, eclampsia, alcohol.

GCS Score

Universal Patient Assessment

Protect patient from further injury by controlling movements but not restraining.
Observe for possible etiology of seizure (*i.e.*, head trauma, overdose, meningitis, low blood sugar *etc.*).
Record, if possible, length of seizure and area of body involved.

Transport all patients experiencing first time seizure activity.
Suggest transport of patients with known seizure disorders if seizure different than normal or continues longer than 3 - 5 minutes.
Maintain airway but do not try to insert oral airway or orally suction during a seizure
Protect patient from injury
Consider the cause, transport medications to the hospital.

Blood Glucose

Glucose < 60 mg/dl → **Hypoglycemia** Protocol

Adult IV/IO

If seizures are present

Versed 10 mg MAD

5 mg (1 ml) in each nares

If seizures persist > 5 minutes, repeat ½ dose Intranasal, IV, IM

WATCH FOR CHANGES IN VITAL SIGNS

or

Valium 5 - 10 mg IVP, IO, IM

Administer at a rate of no more than 5 mg/min

If an IV is unobtainable administer IM or Rectal

May repeat in 10 min. X 1.

Maximum dosage is 20 mg

Monitor B/P closely.

Consider Valium Rectal Route if no IV access

Cardiac Monitor

Neurological

Unconscious–Unknown Etiology

Neurological

Fainting, "blacking out," or syncope is the temporary or transient loss of consciousness followed by the return to full recovery, but may encounter a short period of confusion. This loss of consciousness is accompanied by loss of muscle tone that can result in falling or slumping over.

Possible causes of syncope include: Hypoglycemia, Toxicity (alcohol, drugs, medications) CVA, underlying cardiac dysrhythmias, history of head trauma and seizure. If trauma cannot be ruled out, treat as the possible cause.

Universal Patient Assessment

Adult Airway Protocol

If possible, obtain extensive medical history and medications

Preoxygenate patient at a rate of 10 ventilations greater than normal respiratory rate if vital signs are deteriorating or if there are signs of impending herniation as evidenced by unilateral dilated pupil, sudden change in level of consciousness, decorticate or decerebrate posturing

Spinal Immobilization

Unconscious patient with suspected trauma.

Adult IV/IO

Consider **Fluid Bolus of 250 ml** except for head trauma patients. Avoid administering large amounts of fluid unless warranted by traumatic injuries

Cardiac Monitor

Blood Glucose

Glucose > 60 mg/dl

Hypoglycemia Protocol

GCS Score

Decreased level of consciousness of unknown etiology

Narcan 0.4 - 2 mg IVP, IO, MAD

ET: 2 – 2.5 times IV dose

EMT may administer via MAD only.

Narcan 2 mg MAD

General

EMT

AEMT

Paramedic

OB / GYN

Abnormal Deliveries

OB / GYN

The most common complication is the baby is not positioned normal. Another complication is abnormal heart rate. This usually indicates fetal distress.

Universal Patient Assessment

Oxygen
10-15 LPM NRB Mask

Childbirth Procedure

- **Prolapsed Cord:** An umbilical cord that comes out of the uterus ahead of the fetus.
- **Breech Delivery:** A delivery presenting the feet or the buttocks.
- **Multiple Births:** More than one fetus.
- **Meconium Delivery:** The first fetal stools in the amniotic fluid.

Breech Delivery

If baby's head is not delivered within 3 minutes, take action to prevent suffocation of baby by placing gloved hand in the vagina with your palm toward baby's face

Form a V with your fingers on either side of the baby's nose and push the vaginal wall away from baby's face until the head is delivered

Maintain baby's airway throughout transport in manner described.

Prolapsed Cord

Place mother in a knee-chest position or a supine position with hips elevated

Oxygen

With gloved hand gently push the baby up the vagina several inches to ease pressure off the umbilical cord.

Transport as soon as possible, continuing this treatment throughout transport.

Complications of Labor and Delivery

Ante partum Hemorrhage
The three major causes of massive vaginal bleeding include:
Abruptio Placenta
Placenta Previa, Uterine Rupture

Place patient flat, if possible, patient lying on left side.

Oxygen

Cardiac Monitor

Adult IV/IO
At Least 1 Large Bore

Postpartum Hemorrhage:
Treat for shock as outlined in ante partum hemorrhage

Premature Births

Any baby born before 7 months of pregnancy or weighing less than 2.5 kg, observe the following guidelines:

- Maintain baby's body heat
- Maintain open airway control as needed
- Prevent any bleeding from umbilical cord
- Keep contamination to a minimum

Multiple Births

Twins are delivered in the same manner as single births.
However, when the first baby is born, immediately tie off the cord to prevent hemorrhage from its twin.
If second baby is not delivered within approximately 10 minutes of first, begin transport.

General
EMT
AEMT
Paramedic

OB / GYN

Childbirth/Labor

OB / GYN

Three stages of labor:
First Stage: Onset of contractions with progressive changes in cervix.
Second Stage: Labor begins and fully dilated. Ends with birth.
Third Stage: Separation and delivery of placenta.

Universal Patient Assessment

Have mother lie in preferred birthing position.
Monitor fetal heart tones by Doppler, if available, every 5 min. until delivery.

Abnormal vaginal bleeding?

Yes → **Obstetrical Emergencies- Vaginal Bleeding**

No

Yes → Inspect perineum (No digital vaginal exam)

Questions prior to delivery
How far along in the pregnancy is the patient? What are length contractions and how far apart? Was there prenatal care? Has the patient's water broken? Is there any blood? Has crowning began yet? Is there any other presentation of the fetus?
Note: Up to 500 ml blood loss during delivery is normal and well tolerated by the mother.

No crowning

Monitor and reassess
Document frequency and duration of contractions

Crowning

Adult IV/IO

Childbirth Procedure

Vaginal Bleeding after Delivery

If brisk bleeding continues, massage "knead" the uterus over the lower abdomen above the pubis with firm pressure.

Oxygen
10 - 15 LPM via NRB Mask

If bleeding continues, evaluate massage technique, position for shock.

Cardiac Monitor
if hemodynamically unstable

Priority symptoms
Crowning
See **Abnormal Deliveries**

Rapid Transport

General
EMT
AEMT
Paramedic

OB / GYN

Obstetric Emergencies-Eclampsia

OB / GYN

Eclampsia: New onset of grand Mal seizure or unexplained coma during pregnancy.

Universal Patient Assessment

Adult IV/IO

Cardiac Monitor

Vaginal bleeding / Abdominal pain?

Seizure (Eclampsia/Toxemia)

Assessment and history of pregnancy

Protect patient from seizure activity

Suction secretions as needed, transport on left side

Adult Airway Protocol

For Seizures

Valium 5 - 10 mg IVP, IO

May be repeated in 10 minutes as needed

or

Versed 5 mg MAD

5 mg (1 ml) in each nares

May be repeated in 10 minutes as needed

Magnesium Sulfate 1 - 4 gm over 3 minutes as needed

Stop infusion if hypotension develops, difficulty breathing, decreased deep tendon reflexes or paralysis.

ECLAMPSIA/TOXEMIA

Definition:

Toxemia: is the presence of any combination of the following after the 20th week of pregnancy.

Pre-Eclampsia is the presence of any two of the following after the 20th week of pregnancy:

Hypertension: systolic BP >140 mmHg, diastolic BP >90mmHg or a change in the diastolic pressure >15mmHg from antenatal pressure,

Proteinuria, Generalized edema, or Hyperreflexia (test patellar reflex).

Eclampsia: is the presence of toxemia plus seizures.

General

EMT

AEMT

Paramedic

OB / GYN

Obstetric Emergencies–Vaginal Bleeding

OB / GYN

Placental abruption is the separation of the placenta from the uterine lining.

Universal Patient Assessment

Patient in supine position

Oxygen

Adult IV/IO

General considerations for obstetrical patients:
Initial information should include the patient's gravida /para status,
Estimated date of confinement, onset of labor, vaginal bleeding, fluid leakage, etc.

Record vital signs, uterine status (rate and duration of contractions, time between contractions.)

Obtain fetal heart tones if possible. Apply a generous amount of contact gel to the Doppler head before using. Then place Doppler firmly against the mother's abdomen.

Position patient on left side when possible
Monitor B/P and check absence or presence of edema. B/P above 130/80 should arouse suspicion of toxemias of pregnancy

Vaginal Bleeding during Pregnancy:No Hx. of trauma
< 20 Weeks (Miscarriage) Miscarriage – Termination of pregnancy before fetus is viable.
> 20 Weeks (abruption or Placenta Previa) Abruption- Premature separation of the placenta from the wall of the uterus
Placenta Previa- Attachment of the placenta very low in the uterus that completely or part covers the internal cervical opening.

General

EMT

AEMT

Paramedic

OB / GYN

Sexual Assault

OB / GYN

Sexual assault is sexual contact without the consent of the person assaulted.

Universal Patient Assessment

See Sexual Assault Guideline

The victim of a sexual assault may display many different emotions. Approach the victim calmly.

Physical Exam: - **Unless a life threatening condition occurs**

1. Explain all procedures to be performed prior to undertaking them
2. Obtain consent if possible. Do not assume that your presence automatically implies consent to treatment in part of the patient.
3. Limit the physical exam to any evidence you can visually obtain without causing any further emotional distress to the patient.

If time permits, obtain consent for all treatment given. May need to follow specific protocols after assessing the ABC's (e.g., respiratory or cardiac problems).

Obtain **Vital Signs**

Stabilize injuries necessitating immediate attention

Splinting

Wound Care

Follow the specific protocol after assessing the ABC's dependent on the patient's condition.

PROTOCOL
PREPARED BY:
Jean Marc Behar
E.M.S. Coordinator
Emergency Medical Service
2001 Payne Avenue
Cleveland, Ohio 44114-2988

Caution

A. All sexual assault patients should be transported to an appropriate medical facility, where rape evidence exams are performed, unless a medical condition dictates otherwise.
B. If the victim changed clothes after the attack, they must be brought along to the hospital in a paper bag. Plastic bags trap moisture and promote mildew which destroys vital evidence.
C. Attempt to notify the receiving facility of your impending arrival.

Respiratory

Adult Airway

Respiratory

Important skills to master for the adult airway are:

- Best method for airway management
- Managing the airway relevant to patients condition
- Rapid assessment for intubation
- Realizing when planned interventions have failed and the need for an alternative technique is required

Assess ABC's, respiratory rate, effort, adequacy
Establish airway, O_2 as needed

Breath Sounds: Listen for absent, diminished, unequal, wheezing, Rhonchi, Crackles, Stridor.

General

EMT

AEMT

Paramedic

Inadequate
Respiratory rate < 8 breaths per min. or in distress

Pulse Oximetry

Capnography

Adequate

Oxygen

Pulse Oximetry

Assess respiratory rate:

a. If rate is < 8, provide mouth to mask rescue breathing or bag valve mask ventilations. Call for ALS.
b. If rate is ≥ 25, place patient in a position of comfort. Administer Oxygen and Call for ALS
c. If rate is ≥ 8 or < 25, maintain an open airway and administer Oxygen.

Supplemental Oxygen

Nasal Cannula
2-4 LPM
Non-Rebreather Mask
10-15 LPM
Nebulized Treatment
6 LPM O_2

Airway Compromised

Basic Airway Maneuvers:
Manual, nasal or oral airway. Consider C-Spine precautions if necessary. Ventilate with bag mask device

Obstruction

Foreign Body Airway Obstruction- Adult Procedure

Intubation-Nasal

Apneic patients

Intubation-Adult, Oral

Direct laryngoscopy
removal with Magill forceps if possible

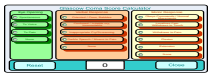
Establish airway and reattempt to ventilate.
If unable to ventilate, repeat above sequence.

If still unable to ventilate the patient:
Perform **Cricothyrotomy** and attempt to provide positive pressure ventilation with 100% oxygen.

Appropriate Protocol

Objective criteria for evaluation of the Respiratory Distress patient includes:

- Accessory muscle use / retractions
- O2 saturation < 92%
- Respiratory rate > 24
- Unable to speak full sentences
- Abdominal / paradoxic breathing
- Altered mentation (GCS 11-14)



GCS Score

Respiratory

Allergic Reaction/Anaphylaxis

Respiratory

An allergic reaction may include one or several symptoms. Most allergic reactions occur within minutes of the exposure, but some reactions may occur several hours later.

Universal Patient Assessment

Oxygen

Pulse Oximetry

Assess Lung Sounds
Observe patient for edema of face, respiratory distress, severe itching, or hives.

If insect bite and stinger present, attempt to remove by gently scraping stinger away.

Signs and Symptoms
1. Mild: itching, hives, redness, nausea, abdominal cramps, Anxiety, urinary retention
2. Severe: wheezing, airway edema, shock, and circulatory collapse

General

EMT

AEMT

Paramedic

Basic EMT
Make sure medication is prescribed for the patient and is not expired or discolored. Assist patient with their administration.

Epinephrine Auto-Injector

Epinephrine 1:1,000

0.3 - 0.5 mg SQ, SL
May repeat x 2 every 5 minutes as needed.

Cardiac monitor

Adult IV/IO

Fluid Bolus
Maintain a systolic B/P at 90 mmHg or greater.

Solu-Medrol

125 mg IVP, IO

Albuterol 2.5 mg /3 ml saline

Free flow aerosol of Albuterol.
May repeat x 1 in 2 - 3 minutes. Try to measure pre-therapy pulse oximetry reading

or

DuoNeb

0.5 mg Ipratropium &
2.5 mg Albuterol
in 3 ml NS via aerosol

Benadryl 25 - 50 mg IVP, IO, IM

Consider **Intubation** to control airway.

If profound hypotension (secondary to Anaphylaxis)

Epinephrine 1:10,000

1 mg (10ml) Slow IVP, IO

Respiratory

Asthma/Status Asthmaticus

Respiratory

Asthma; a chronic disease, is caused by inflammation in the airways. When an asthma attack occurs, the muscles surrounding the airways become narrowed and the lining of the air passages becomes swollen. This reduces the amount of air that can pass by.

Universal Patient Assessment

Allow patient to assume position of comfort

Pulse Oximetry

Oxygen

Assess Lung Sounds

Cardiac Monitor

Rule out CHF, hyperventilation syndrome, pneumonia, etc.

Adult IV/IO

Albuterol 2.5 mg /3 ml saline

Free flow aerosol of Albuterol.
May repeat X 1 in 2 - 3 minutes. Try to measure pre-therapy pulse oximetry reading

Solu-Medrol

125 mg IVP, IO

or

DuoNeb

0.5 mg Ipratropium & 2.5 mg Albuterol in 3 ml NS via aerosol

Status Asthmaticus

Epinephrine 1:1,000

0.3 - 0.5 mg SQ, SL, ET
May repeat every 10 minutes X 2

Epinephrine Aerosol 1:1,000

5 ml In 2.5 ml NS

Intubation-Adult, Oral

as needed to control airway.

Signs and symptoms

COPD & Bronchitis

1. Barrel chest (emphysema) or obese (chronic bronchitis)
2. Wheezing with prolonged expiration
3. Coarse rhonchi
4. Chronic cough with sputum production
5. Dyspnea on mild exertion

Asthma

1. Difficulty breathing
2. Cough
3. Tachypnea and tachycardia
4. Wheezing, most pronounced in expiration
5. Prolonged expiratory phase of breathing
6. Poor air movement

General

EMT

AEMT

Paramedic

Respiratory

Cyanide-Smoke Inhalation

Respiratory

Cyanide poisoning should be suspected in any person exposed to fire smoke in a closed-space fre and those with:

- Soot in Mouth
- Altered Mental Status
- Hypotension

Signs / Symptoms
Low Inhaled Concentrations:
Faintness, flushing, anxiety, excitement, vertigo, headache, drowsiness, tachycardia, dyspnea, tachycardia.
Moderate/High Concentrations:
Tremors, arrhythmias, convulsions, stupor, paralysis, coma, respiratory depression, respiratory arrest, cardiac arrest.

Universal Patient Assessment

↓

Assure that patient is decontaminated or poses no risk to EMS personnel.

Wear protective clothing, masks, eye protection, etc, as warranted

↓

Oxygen

(Non-Rebreather Mask 15 LPM)

↓

Adult Airway Protocol

↓

Cardiac Monitor

↓

Adult IV/IO

↓

Reassess adequacy of ventilation and perfusion

↓

Consider

Sodium Bicarbonate 1 mEq/kg IVP, IO

if exposure was prolonged.

General

EMT

AEMT

Paramedic

Failed Airway

Difficult Airway: something one anticipates.
Failed Airway: Something one experiences.
Walls, 2002

Unsuccessful attempts at intubation by most proficient technician on scene

Assistive techniques that are also of great value are the Sellick's maneuver. It is important to remember: As unsuccessful attempts at intubation increase, the likelihood of tracheal swelling, soft tissue trauma, and aspiration can occur.

SPO_2 > 92% with BVM ventilation & 100% O_2

Yes → **Continue BVM w/100% O_2**
Consider securing airway, despite SPO_2 reading if airway needs controlled

No

King LT-D
(Pulseless & Apneic)

or → **Combitube**
(Pulseless & Apneic)

No
Unable to establish airway

BVM w/100% O_2

King LT-D
(Apneic)

or → **Combitube**
(Apneic)

SPO_2 > 92%?

Continue ventilation with BVM

Unsuccessful, or

Facial Trauma or swelling? (Avoid cricothyrotomy if possible, with most medical patients)

Yes

Surgical Cricothyrotomy
(Adult only)

General
EMT
AEMT
Paramedic

Toxicology

Toxicology

Toxicology

Carbon Monoxide (CO) Poisoning

Toxicology

Universal Patient Assessment

Remove from exposure environment and remove contaminated clothing

Adult Airway Protocol

Determine CO using **RAD-57™ device**

RAD-57™ may be used as a screening tool for **Symptomatic** patients, or If there is a CO alarm in a residence.

Patients suffering from exposure to byproducts of combustion should, when feasible, have a carboxyhemoglobin recorded using the RAD-57. These situations include fire victims of smoke inhalation, exposure to CO, firefighters during rehab activities, patients or families with complaints of general illness or headaches.

General

EMT

AEMT

Paramedic

Adult IV/IO

If necessary **Fluid Bolus**

300 ml & Reassess

Cardiac Monitor

For patients with significant smoke inhalation:

See **Toxic Exposure** cyanide toxicity

Consider transport to a hyperbaric center

The Ohio State University Medical Center

if the patient's SpCO reading is > 20 and/or, the patient is unconscious, has significant altered mental status, or the patient is pregnant.

All symptomatic patients should be transported, regardless of RAD-57 level.

Carboxyhemoglobin Reference

COHb Level %	Signs & Symptoms	Treatment
0 – 4%	None - Normal	None Necessary (smoker 3-5% higher)
5 – 9%	Minor Headache	100% O2 via NRB Mask Reassess after 10-15 min.
10 – 19%	Headache / SOB	100% O^2 via NRB Mask And transport to closest hospital
20 – 29%	Headache, Nausea, Dizziness, Fatigue	**ABC's, 100% Oxygen, Transport HBO**
30 – 39%	**Severe Headache, Vomiting, Vertigo, ALOC**	**ABC's, 100% Oxygen, Transport HBO**
40 – 49%	**Confusion, Syncope, Tachycardia**	**ABC's, 100% Oxygen, Transport HBO**
50 – 59%	**Seizures, Shock, Apnea**	**ABC's, 100% Oxygen, Transport HBO**
60% - up	**Cardiac Arrhythmias, Coma, Death**	**ABC's, 100% Oxygen, Transport HBO**

NOTE:
Remember that pulse oximetry should not be used as a determination of oxygenation in the patient with elevated carboxyhemoglobin.
Smokers may have baseline CO levels as high as 5-6%

Overdose

Toxicology

Toxicology

Commonly medication overdose and poisoning involve children and elderly.

Universal Patient Assessment

Request law enforcement officer on scene as necessary

Examine patient for signs of trauma and possible etiology of coma

Initiate and maintain routine protocol **including maintenance of the airway.**

While caring for patient, try to identify poisons or medicine taken, how much and when. Has any vomiting occurred since the ingestion.

Poison Control
1-800-222-1222

Glasgow Coma Score

Adult Airway Protocol

Blood Glucose

If blood glucose reads below 60mg/dl or patient is symptomatic at 70mg/dl.

Hypoglycemia Protocol

Adult IV/IO

Contact Poison Control
1-800-222-1222

Be prepared to restrain patient if they pose a threat to themselves or EMT's. Attempt to determine substance taken, how many, at what time. Take any pill bottles to the hospital with patient. Attempt to determine if patient takes prescription medications, last oral intake, any other substances taken. Attempt to determine if overdose was intentional

Narcan 0.4 - 2 mg IVP, IO, SQ, IM, MAD

ET: 2 – 2.5 times IV dose

May repeat X 2 at 2-3 minute intervals, titrated to patient's level of consciousness.

Use cautiously, may become combative

EMT may administer via MAD only.

Narcan 2 mg MAD

If a suspected benzodiazepine overdose

Caused by EMS, consider:

Romazicon 0.2 mg IVP, IO

Over 30seconds, wait 30 seconds then administer 0.3mg over 30 seconds, wait 30 seconds then administer 0.5mg every minute, over 30 seconds to a maximum dose of 3 mg.

Intubate As needed.

Intubation-Adult, Oral

Intubation-Nasal

General

EMT

AEMT

Paramedic

Toxicology

Toxic Exposure

Toxicology

Toxic Overdose is the result from an absorption, inhalation, ingestion, or injection of toxic substances.

Universal Patient Assessment

Consider HazMat procedures as indicated.

Safety of EMS personnel comes first. Assure the atmosphere crews are entering are safe. Notify receiving facility of patient exposure and level of decontamination.

Adult IV/IO

Cardiac Monitor

Respiratory Exposure

Adult Airway Protocol

GI Exposure

If patient is lethargic: Manage airway and intubate.

Adult Airway Protocol

Suspected narcotic OD

Narcan 0.4 - 2 mg IVP, IO, SQ, IM, MAD

ET: 2 – 2.5 times IV dose

May repeat X 2 at 2-3 minute intervals, titrated to patient's level of consciousness.

Use cautiously, may become combative

EMT may administer via MAD only. **Narcan** 2 mg MAD

Skin Exposure

Remove clothing and wash skin with copious amounts of water.
Brush off chemicals that activate with water.

Suspected Tricyclic OD

With signs and/or symptoms of toxic ingestion (e.g.: excessive tachycardia, widened QRS, hypotension, and/or seizure activity) administer:

Sodium Bicarbonate 1 mEq/kg IVP, IO

Organophosphate Exposure

Insecticide with psychosis, dyspnea, bradycardia, cyanosis, and/or coma)

Atropine 2 mg IVP, IO

May repeat every 5 - 15 minutes until the following appear: flushed appearance, dry mouth, dilated pupils
Observe for tachyarrhythmias.

Caustic Agent

Do not induce vomiting. Use supportive measures, dilute with oral fluids (water) if gag reflex is intact, and transport rapidly.

Cyanide Poisoning

May be suspected when occupants are involved in a closed space fire.

Adult Airway Protocol

General

EMT

AEMT

Paramedic

Trauma

Abdominal Trauma

Organs of the abdomen involve: Liver, kidney's, gall bladder, duodenum, pancreas, stomach, spleen, aorta, colon, appendix, small and large intestine.

Universal Patient Assessment

Adult Airway Protocol

Impaled objects **will not be removed**. Stabilize object securely for transport with bulky dressing.

If eviscerated bowel present, cover with saline-soaked sterile dressing.

Reassess adequacy of ventilation and perfusion Load and go with continued treatments performed en-route

Initiate at least one large bore IV

Adult IV/IO

Do not delay transport if unable to initiate IV infusion

If blood pressure is less than expected or shock signs/symptoms present administer:

Fluid Bolus 0.9% NS of 250 ml IVP, IO.

Repeat bolus as necessary if no improvement or vital signs deteriorate.

Trauma

Avulsion/Amputation

Trauma

History
Mechanism of injury
Environmental exposure
Findings at the scene
Pre-hospital care

Universal Patient Assessment

Wound Care

Wrap amputated part in damp dressing and place inside a plastic bag immersed in cold water or ice.

Immobilize and position partial avulsions for best vascular status; monitor circulatory, sensory, and motor function.

Elevate and apply ice, as needed.

Assess for severity.
A patient has an 8-12 hour window for reattachment (From time of injury until reattachment). Consider:

Air Transport

Adult IV/IO

Pain Control Protocol

DO NOT USE ON HEAD TRAUMA, CHEST INJURY, RESPIRATORY DISTRESS DUE TO TRAUMA, OR ON ANY PATIENT WITH VOLUME DEPLETION OF ANY CAUSE.

Aspirin 81 mg PO (baby aspirin)

Consider

Versed 0.1 mg/kg Slow IVP, IO

titrated to desired effect

Watch for respiratory depression

Life Threatening
Hemorrhage
Major Crush Injury Syndrome
Severe Open Fracture
Proximal Amputations
Multiple Fractures
Limb Threatening
Vascular Emergency
Compartment Syndrome
Open Fracture
Crush Injury
Major Dislocation

General
EMT
AEMT
Paramedic

Trauma

Burns

Trauma

According American Burn Association National Burn Repository (2005 report):
Gender: 70% male, 30% female
Burn Cause: 46% fire/flame, 32% scald, 8% hot object contact, 4% electrical, 3% chemical, 6% other.

Universal Patient Assessment

Move the patient to a safe environment and break contact with causative agent(s)

Burns can be thermal, or chemical. Types of burns are First degree (red and painful), Second degree (Skin blisters) and Third degree (Necrosis). Use the Lund-Browder to estimate body surface percentage affected. Take extra caution to use aseptic / sterile technique in all procedures.

If electrical burn(s), monitor patients EKG and treat with appropriate algorithm.

Adult Airway Protocol

Remember SpO2 readings maybe unreliable due to increased CO levels

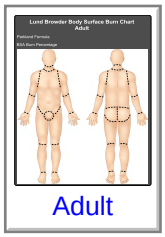
Determine CO using **RAD-57™ device**

Monitor airway closely for respiratory distress, and treat appropriately.

Cover wounds with wet sterile cool dressings for a **small burn**.

Use dry sterile dressings to treat **2nd degree** over 30% or 3rd degree greater than 5%.

For a **large burn** Maintain body heat, and remove constricting clothing and jewelry, if possible. Evaluate for further injuries.


Adult

Large Bore Needle

Adult IV/IO

Fluid Bolus 0.9% NS

Use **Parkland Formula**

The Parkland Formula does not apply to patients in shock. Shock may need more aggressive IV replacement.

Cardiac Monitor

If the patient is conscious and alert and complaining of severe pain

Pain Control Protocol

Consider

Versed 0.1 mg/kg Slow IVP, IO

titrated to desired effect

Watch for respiratory depression

General

EMT

AEMT

Paramedic

Trauma

Chest Trauma

Trauma

The thorax is a large, relatively common target for low and high velocity projectiles.

Universal Patient Assessment

Adult Airway Protocol

Remember SpO2 readings maybe unreliable due to increased CO levels

Cardiac Monitor

Consider **Spinal Immobilization**

If coma score < 8 or decreases by more than 2 points, assist ventilation with bag-value-mask and **100% oxygen.**
Do not remove any impaled foreign object. Stabilize object for transport.

Initiate at least one large bore IV

Adult IV/IO

Do not delay transport if unable to initiate IV infusion

If blood pressure is less than expected or shock signs/ symptoms present, administer a **Fluid Bolus 250 ml 0.9% NS IVP**. Repeat bolus as necessary if no improvement or vital signs deteriorate.

- **Reassess adequacy of ventilation and perfusion.**
- **Load and go with continued treatment performed en-route**

Simple Pneumothorax
- Treatment is supportive
- Monitor for development of tension pneumothorax particularly if positive pressure ventilation is utilized

Flail Chest
Stabilize flail segment via appropriate method.
Reassess and transport.
Massive Hemothorax, Impaled Object, Pericardial Tamponade, Pneumothorax
Do not delay transport.
- Stabilize flail segment with bulky elastic dressing if possible

Open Chest Wounds
Cover sucking wound with a non-porous dressing and tape over three sides. Reassess ventilations and perfusion.
- Cover sucking wound with non-porous dressing (Bioclusive Dressing, cellophane, etc) 3 sides

Tension Pneumothorax
- Reassess adequacy of ventilation and perfusion

Chest Decompression

Blunt or Penetrating
- Stabilize any impaled object, with bulky dressing.
- Treat for hypovolemic shock.

Myocardial Contusion
- Apply cardiac monitor to any patient with known blunt trauma to chest wall contusion, or sternal pain
- Monitor for and treat dysrhythmias as indicates in specific dysrhythmia protocols

Massive Hemothorax
- **Do not decompress**
- Treat aggressive for hypovolemic shock.

General | EMT | AEMT | Paramedic

Trauma

Crush Trauma

Trauma

Three mechanisms are responsible for the death of muscles cells.
Immediate cell disruption, Direct pressure on muscle cells, Vascular compromise.
Reference: Mediccom.org
James R. Dickson MD

Universal Patient Assessment

If patient has been trapped/pinned for longer than 20-30 minutes, and exhibits signs/symptoms of relevant mechanism of injury to suspect crushing injury

Consider

Spinal Immobilization

Adult Airway Protocol

Skin injury – may be subtle.
Swelling – usually a delayed finding.
Paralysis – may cause crush injury to be mistaken as a spinal cord injury.
Paresthesias, numbness – may mask the degree of damage.
Pain – often becomes severe upon release.
Pulses – distal pulses may or may not be present.
Myoglobinuria – the urine may become dark red or brown, indicating the presence of myoglobin.
Hyperkalemia
Reference: Mediccom.org
James R. Dickson MD

General

EMT

AEMT

Paramedic

Pre-extrication

Adult IV/IO
(At least 1 large bore)

Coordinate time of release with rescue personnel

Sodium Bicarbonate

50 mEq in 1 liter saline, begin maintenance infusion of 1500ml/hr, and then administer 1½ - 2 liter bolus **just prior to extrication.**

Cardiac Monitoring

Advise the receiving ED early of the patient's "Crushing Injury".
Anticipate Crushing Syndrome and possible cardiac arrest upon extrication of patient.

Post-extrication

Continue aggressive fluid resuscitation with 0.9% NS

Monitor ECG closely, watch for:
Widen QRS complexes – 0.12 seconds or greater.
Presence of PVC's, VT/V-Fib, Idioventricular rhythms

If patient experiences cardiac arrest, treat as traumatic arrest.

NOTE: If patient is in cardiac arrest, follow appropriate algorithm and consider:

Sodium Bicarbonate

1 mEq/kg IVP, IO every 5-10 minutes

MAST (PASG) are contraindicated in crushing injury patients.

Extremity Trauma

Fractures, Dislocations, & Sprains

Musculoskeletal system contains the skeleton & muscles. The skeleton provide the structure while the muscles provide the power of motion.

Access CMS (Circulation, motor, and sensation) before splinting.

Universal Patient Assessment

Wound Care

Check for swelling, deformity, discoloration

Splinting

If victim of multiple trauma

Multiple Trauma Protocol.

Adult IV/IO

If patient is in severe pain

Pain Control Protocol

DO NOT USE **Morphine** ON HEAD TRAUMA, CHEST INJURY, RESPIRATORY DISTRESS DUE TO TRAUMA, OR ON ANY PATIENT WITH VOLUME DEPLETION OF ANY CAUSE.

Consider

Versed 0.1 mg/kg Slow IVP, IO

titrated to desired effect

Watch for respiratory depression

or

Toradol

Patient 18 – 65 years of age:
30 mg IVP, IO Slowly
30 – 60 mg IM

Patients > 65 years of age or > 18 years, but < 50 kg (110 lbs.)
15 mg IVP, IO Slowly
15 – 30 mg IM
Contraindicated in renal patients

Facial Trauma

Trauma

Maintain airway, breathing, and control bleeding. Penetrating trauma can endanger the airway and induce heavy bleeding.

Types of fractures of the face:
Mandible, Zygoma,
Midface: Le Fort I, II, & III
Orbit, & Nose.

Universal Patient Assessment

Transport in position of comfort if cervical immobilization not required

Adult Airway Protocol

Nasotracheal intubation is contraindicated in patients with evidence of basilar skull fracture or midface fractures

Wound Care

Transport avulsed parts with patient according to amputation/Avulsions Protocol Embedded or impaled foreign objects should not be removed but should be stabilized for transport with bulky dressing.

Adult IV/IO

If warranted

Needle Cricothyrotomy

Multiple Trauma

Multiple trauma is injury of two or more parts of the body. Obtain Glasgow Coma Score prior to calling trauma center.

GCS Score

The presence of radial pulse -- systolic B/P at least 80 mmHg.

The presence of femoral pulse systolic B/P at least 70 mmHg.

The presence of carotid pulse systolic B/P at least 60 mmHg

Universal Patient Assessment

↓

Rapid Trauma Assessment

↓

Adult Airway Protocol

↓

Spinal Immobilization

↓

Wound Care

↓

Determine need for rapid transport (load-and-go) and/or need for air medical transport to Level I Trauma Center.

↓

Adult IV/IO

Start second IV if possible

Do not delay transport if unable to establish IV

↓

Cardiac Monitor

↓

Monitor vital signs and cardiac status. Ongoing assessment

Transport as quickly as possible, providing continuous monitoring and patient observation (re-evaluation en route.)

Perform a detailed assessment of the patient, including the reevaluation of the patient's ABC's and perform a focused assessment of the head, neck, chest, abdomen, pelvis, and extremities x4 and repeat neuro assessment.

Continue resuscitation, evaluation and reevaluation en route to the medical facility.

Visualize and inspect the patient's posterior aspect when ever possible.

General

EMT

AEMT

Paramedic

Trauma

Neurological Trauma

Trauma

Types of Head Trauma: Concussion, Skull fracture (Linear, Depressed & Basilar), Intracranial (Subdural, Epidural, Subarachnoid).

Universal Patient Assessment

Adult Airway Protocol

Signs & Symptoms: Headache, nausea & vomiting, loss of consciousness, seizures, neurological deficits, combative, unconscious, decerebrate or decorticate posturing.

General

EMT

AEMT

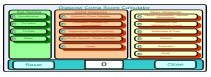
Paramedic

Intubation-Adult, Oral

All patients who:
- Are not responsive to verbal stimuli
- Are disoriented and combative such that spinal immobilization is not possible
- Demonstrate a rapidly deteriorating level of consciousness

Nasotracheal intubation is contraindicated in patients with evidence of basilar skull fracture or midface fractures.

Spinal Immobilization



GCS Score

Adult IV/IO

Do not delay transport if unable to initiate IV infusion

Fluid Bolus

Unless hypotensive, then, run to maintain adequate vital signs.

Monitor

In the head injured patient with signs of hypovolemic shock and poor perfusion, look for other sources of bleeding such as the chest, abdomen, pelvis, femur, etc.

Adult Airway Protocol

If prolonged or repetitive seizures develop, administer:

Versed 10 mg MAD

5 mg (1 ml) in each nares

or

Valium 10 mg IVP, IO

2 mg increments, titrated to desired effect

Pre-oxygenate at a rate of at least 10 ventilations/minute greater than normal respiratory rate if there are signs of impending herniation such as unilateral dilated pupil, sudden change in level of consciousness, decorticate or decerebrate posturing. Repeat as necessary if no improvement or vital signs deteriorate. **Observe spine-injured patients for neurogenic shock as evidenced by poor perfusion and hypotension with bradycardia**

If no response to fluid therapy, consider:

Dopamine 2 - 10 mcg/kg/min

Ocular Trauma

The eye is well protected by a series of facial bones. Patient's sight may be threatened if their is loss of aqueous or vitreous humor fluid, usually caused by penetrating trauma. Blunt trauma can cause a hemorrhage which can also cause a loss of vision.

Embedded or impaled objects **should not be removed,** but should be stabilized securely for transport.

Universal Patient Assessment

C-Spine Precautions

Spinal Immobilization

Penetrating Injuries

Chemical Injuries

Chemical injuries should have eyes immediately irrigated with one liter or more of 0.9% Normal Saline

objects should not be removed but should be stabilized securely for transport with bulky dressing Suspected penetrating injuries should be shielded avoid direct pressure on the orbit. Patch the contra lateral eye also.

Transport in position of comfort if cervical immobilization not required.
Elevate head of bed if cervical immobilization not required.

If necessary

Adult IV/IO

General

EMT

AEMT

Paramedic

Trauma

Spine Precaution

Trauma

The position of the National Association of Emergency Medical Service Physicians and the American College of Surgeons Committee on Trauma regarding emergency medical services spine precautions and the use of long boards are based upon belief that:

- Long spine backboards are commonly used to attempt to provide rigid spinal immobilization among emergency medical services for trauma patients. However, the belief of the use of long backboards is largely unproven.
- The long spine backboard can induce pain, patient agitation and respiratory compromise.
- The long spine board can decrease tissue perfusion at pressure points, leading to the development of pressure sores.
- Utilization of long spine board for spine immobilization during transport should be judicious so that the potential benefits outweigh the risks.
- Whether or not a long spine board is used, attention to spine precautions among at-risk patients is paramount. These include application of a cervical collar, adequate security to a stretcher, minimal movement/transfers and maintenance of inline stabilization during a necessary movement or transfers. **Long spine boards should be used judiciously and are recommended only for extrication purposes.**

General

EMT

AEMT

Paramedic

Purpose:
To provide guidelines that may serve to identify patients who may be safely transported to a hospital with application of a cervical collar and spine precautions. These indications for cervical collar and spinal precaution/restriction identifies patients who may have a potential spine injury and/or triggering a high index of suspicion for spine injury and may benefit from spine precaution/restriction. **The use of the long spine board is not required to provide adequate spine precautions and restriction.**

Steps	Was performed ? YES	NO
Adequate spine precaution/restriction may be achieved by:		
1. Application of a properly fitted cervical collar.	☐	☐
2. Supine positioning.	☐	☐
3. Minimal movement/transfers.	☐	☐
4. Maintaining inline stabilization during necessary movement or transfers.	☐	☐
5. Pediatric consideration: padding under shoulders to maintain airway and spine alignment in order to accommodate for the child's larger occiput. **Note**: Guidelines do not apply to patients sustaining penetrating trauma unless spinal involvement is suspected.	☐	☐
Patients Warranting Spine Precaution/Restriction:		
6. Cervical, thoracic or lumbar pain or tenderness, patients over 65 w/ questionable mechanism or any others w/ high risk mechanism.	☐	☐
7. Signs (physical exam findings) or symptoms (complaints) of a neurologic deficit.	☐	☐
8. High risk mechanism (for example: axial load; sudden deceleration; ;ateral force bend; penetrating with spine involvement).	☐	☐
9. Poor communication (altered level of consciousness; pediatric patient; language barrier; unreliable interaction).	☐	☐
10. Age >65 with questionable mechanism of blunt impact to the head, neck and/or trunk.	☐	☐

Trauma in Pregnancy

Pregnant patients suffering from major trauma are more susceptible to life-threatening injury than non-pregnant patients. Any pregnant patient who has suffered trauma should be transported to the hospital for evaluation.

Universal Patient Assessment

The pregnant patient may sustain any injury to which any other victim is subject, but during the last two trimesters the uterus and fetus are subject to certain injuries. Injuries to the uterus may be blunt or penetrating. In any case the greatest danger to mother and baby is hemorrhage and hemorrhagic shock.

Note: Shock is not always obvious in the pregnant patient because of an increase in circulating blood volume. The pregnant female will show signs of hypovolemia later in the course of the trauma event. Treat hypovolemia aggressively

General Guidelines for the Pregnant Trauma Victim

Patient may have a pulse 10-15 beats/minute faster than normal and BP may be lower (but with widened rather than narrowed blood pressure).
Blood volume is 20%-45% higher than normal. More volume is usually needed for fluid resuscitation of shock in pregnancy.
Trauma to the abdomen may cause occult intrauterine bleeding. Mark top of fundus to help monitor enlargement of the uterus, which suggests intrauterine bleeding.

Monitor vital signs frequently and watch the abdomen for signs of intra-abdominal bleeding.
Because of slow peristalsis and delayed gastric emptying, there is a greater chance for possible vomiting and aspirating.

If necessary

Spinal Immobilization

Transport patient on left side or tilt backboard to left.

Adult Airway Protocol

Wound Care

Perform secondary assessment including neurological exam and

Splinting

Cardiac Monitor

Re-assess vital signs and neuro throughout transport.
Monitor fetal heart tones with Doppler stethoscope
Apply a generous amount of contact gel to the Doppler head before using.
The Doppler is then placed firmly against the mother's abdomen.
Normal fetal heart rate will range between 120-160 beats per minute.

General

EMT

AEMT

Paramedic

Pediatric

Responsoft™

www.responsoft.com

Pediatric Cardiovascular

Pediatric Cardiovascular

Pediatric Asystole/PEA

Pediatric Cardiovascular

Universal Pediatric Assessment

CPR

Pediatric Airway Protocol

Cardiac Monitor

Asystole / PEA

Pediatric IV/IO

Epinephrine **1:10,000** 0.1 ml/kg IVP, IO

Epinephrine **1:1,000** 0.1 ml/kg ET dose

Repeat every 3 - 5 minutes

CPR x 2 min.

Sodium Bicarbonate 4.2% 1 mEq/kg IVP, IO

Continue CPR

CPR
One Rescuer:
30 compressions and 2 breaths
Two Rescuers:
15 compressions and 2 breaths
Push hard and fast (100/min) and release completely
Minimize interruptions in compressions

Confirm asystole in two leads

Consider **Fluid Bolus**
20 ml/kg

Possible Causes of Asystole / PEA:

- Hypoxemia
- Hypothermia
- Hypoglycemia
- Hypokalemia
- Hyperkalemia
- Acidosis
- Volume Depletion
- Tension Pneumothorax

Possible Causes of PEA Include:

Hypoxia acidosis - **Sodium Bicarbonate 4.2%** 1 mEq/kg IVP, IO

Hypovolemia - administer rapid 20 ml/kg 0.9 NS bolus (may repeat x1)

Hypothermia

Hyper/Hypokalemia

Cardiac Tamponade

Tension Pneumothorax - **Chest Decompression**

Thromboembolism

Toxins/Poisons/Drugs – See **Pediatric Overdose**

General

EMT

AEMT

Paramedic

Pediatric Bradycardia

Pediatric Cardiovascular

Stabilize the patient with special attention to ABC's. Continue monitoring patient after treatment and treat underlying cause.

Universal Pediatric Assessment

Pediatric Airway Protocol

Cardiac Monitor

Patients having a Bradycardia EKG rhythm< 60 beat per minute that **are not** hemodynamically stable or present with poor perfusion, chest pain, dyspnea, agitation, or altered mental status:

Administer oxygen by most appropriate means initially use Bag Valve Mask

Intubation-Pediatric, Oral
if necessary

If no immediate response to oxygen therapy, begin **CPR**

Pediatric IV/IO

Consider
Fluid Bolus
20 ml/kg

Epinephrine 1:10,000 0.1 ml/kg IVP, IO
Epinephrine 1:1,000 0.1 ml/kg ET dose
Every 3 – 5 minutes if necessary

Atropine 0.02 mg/kg IVP, IO
Minimum 0.1 mg, Maximum 1 mg
If given via ET, then administer 2 - 3 times IV dose

Reassess adequacy of ventilation and perfusion.
Repeat vital signs

Most common cause of bradycardia is respiratory insufficiency, failure.

General

EMT

AEMT

Paramedic

Pediatric PSVT

Pediatric Cardiovascular

Dysrhythmias in children are uncommon. Causes are usually not cardiac related. Watch for signs of decreased cardiac output.

Universal Pediatric Assessment

Cardiac Monitor

Pediatric IV/IO

Place IV in an antecubital fossa vein if at all possible

Supraventricular Tachycardia should be considered when child's heart rate > 230 bpm

Confirm child is UNSTABLE (hypotensive, poor perfusion) Assist ventilation and BRIEFLY attempt to establish venous access

Heart Rate > 230

Stable

Valsalva Maneuver

Further treatment is supportive

If unresponsive to stable measures or patient is unstable but responsive

Unstable

below age specific systolic Blood Pressure, and/or symptoms of poor perfusion, chest pain, dyspnea, agitation

Adenosine 0.1 mg/kg Rapid IVP, IO

Flush immediately with 10ml 0.9% NS

6 mg maximum 1st dose

If no response after 1 minute

Adenosine 0.2 mg/kg Rapid IVP, IO

Flush immediately with 10ml 0.9% NS

12 mg maximum 2nd dose

Monitor blood pressure and heart rate closely after each dose.
If at any time during Adenosine administration patient becomes unresponsive proceed with Cardioversion.

If patient with PSVT is (or becomes) unstable and fails to convert with Adenosine administration, proceed with direct synchronized cardioversion.

Consider sedation

Versed 0.1 mg/kg IVP, IO

May repeat. Maximum 5 mg

Cardioversion

0.5 - 1 joules/kg

If no change

2 joules/kg

General

EMT

AEMT

Paramedic

Pediatric Cardiovascular

Pediatric V-Fib/Pulseless V-Tach

Pediatric Cardiovascular

The occurrence of Ventricular Fibrillation and Pulseless Ventricular Tachycardia is rare. Swift and aggressive therapy is vital.

Universal Pediatric Assessment

Witnessed
Unwitnessed

Check pulse, If no pulse, then begin
CPR
until defibrillator arrives

Cardiac Monitor

Do not interrupt CPR except for rhythm checks or shock delivery.
Apply defibrillation pads to check for rhythm.
If V-Fib or Pulseless V-Tach:

Defibrillate
2 joules / kg

CPR x 2 min.

Pediatric IV/IO
Initiate second IV/IO infusion of 0.9% NS when possible

Consider
Fluid bolus
20 ml/kg

Do not interrupt compressions

Pediatric Airway Protocol

Epinephrine 1:10,000 0.1 ml/kg IVP, IO
Epinephrine 1:1,000 0.1 ml/kg ET dose
Repeat every 3 - 5 minutes

CPR x 2 min.

Defibrillate 4 joules / kg

CPR x 2 min.

Reassess adequacy of ventilation and perfusion

Consider antiarrhythmics
Lidocaine
1 mg/kg IVP, IO
or
Amiodarone
5 mg/kg

Consider CPR x 2 min.

Sodium Bicarbonate 4.2%
1 mEq/kg IVP, IO

Sodium Bicarbonate is contraindicated if patient is hypoxic and acidotic but not intubated

If rhythm is disorganized (PEA , Asystole, VF) resume **CPR**
If rhythm organized (normal sinus, SVT, etc) check for pulse- if no pulse resume CPR for 2 minutes or 5 cycles.

Perform rhythm check
• If rhythm is disorganized (PEA, Asystole, VF) resume CPR
• If rhythm organized (Normal sinus, SVT, etc.) check for pulse – if no pulse resume CPR

Usually a degeneration of ventricular tachycardias, plays a role in evolution of ventricular tachycardias. Some causes may include: Congenital, drug, alcohol intake, or metabolic imbalance as a cause for the disturbance.

General
EMT
AEMT
Paramedic

Pediatric Near Drowning

Pediatric Environmental

There are multiple considerations with Drowning / Near Drowning. Water temperature being primary. All cold water drowning should be worked. Trauma and C-Spine should be considered and managed. As with all environmental exposures, time and duration will also need to be noted.

General

EMT

AEMT

Paramedic

Universal Pediatric Assessment

If patient is a near drowning victim, treatment is supportive Insist on transport to Emergency Department for evaluation of impending pulmonary complications.

Remove wet clothing as time permits

Assume cervical spine injury on diving accidents

Spinal Immobilization

Pediatric Airway Protocol

If pulseless and apneic, initiate:

CPR

Cardiac Monitor

Treat underlying rhythm regardless of possible hypothermia

If patient is hypothermic and in **Pediatric V-Fib / Pulseless V-Tach**, limit **Defibrillation** attempts to one round and one round of ACLS. Continue **CPR**

CPAP

when appropriate

Pediatric Nausea/Vomiting

There are several clinical considerations with vomiting . The underlying cause and possible dehydration. Also consider Fever, Ear Infections, Viruses, Infections.

Universal Pediatric Assessment

Oxygen

Pediatric IV/IO

as needed for fluid replacement

Consider

Fluid Bolus **20 ml/kg**

If greater than 1 month of age with clear bilateral breath sounds

Infants < 1 month of age

10 ml/kg

Phenergan 6.25 mg IVP, IO, IM

For children over 2 years of age and is not hypotensive, or experiencing decreased level of consciousness

Maximum 12.5 mg (should not exceed ½ the adult dose
Avoid in children less than 2 years old

or

Zofran 0.1 mg/kg IVP, IO

Maximum 4 mg

Pediatric Febrile Seizures

Pediatric General

Febrile seizures commonly occur between the age of 6 months and 5 years. Febrile seizures can occur (small percentage) under 7 years.

Possible causes: Sudden spike in temperature due to: Viral Infection from: Upper respiratory, gastroenteritis, otitis media, roseola.

Universal Pediatric Assessment

Transport all pediatric patients< 8 weeks of age with temperature. Advise parent or guardian that peak effect of Tylenol administration is 3-4 hours. If patient having active seizure upon EMS arrival:

Maintain patent Airway

Oxygen

Remove excess clothing and blankets

Pediatric IV/IO

Valium 0.3 mg/kg Slow IVP, IO,

(Maximum dose for infant 5 mg-Drug calculator maximum goes to 10 mg)

Maximum dose for child 10 mg

May be given rectal route 0.3 mg/kg flush with 2-3 ml air after

administration. Watch for respiratory depression and hypotension and treat accordingly

Versed 0.1 mg/kg Slow IVP, IO,

MAD, Rectally Double dose 0.2 mg/kg

Watch for signs and symptoms of respiratory depression and treat accordingly **Maximum 5 mg**

General

EMT

AEMT

Paramedic

Pediatric IV/IO

Pediatric General

Always be honest. Tell the child that the IV stick will hurt, but only for a short time. Do Not promise their will only be 1 stick, or say that it won't hurt.

Common IV sites are: Hand, foot, scalp, forearm & antecubital sites. Hand: try not to use child's dominant hand or hand child uses for sucking thumb. Consider immobilizing arm prior to initiating IV.

Universal Pediatric Assessment

Assess need for IV
Initiate infusion at TKO unless specified
Emergent or potentially emergent medical or trauma condition

Peripheral IV
No more than three (3) attempts unless patient is critical

Unsuccessful and in arrest or life threatening

Unsuccessful

Intraosseous
Intraosseous Infusion EZ-IO (Proximal Tibia)
Intraosseous Infusion EZ-IO (Humerus)
Intraosseous Infusion EZ-IO (Distal Tibia)
for life-threatening event

Monitor infusion

Pediatric Non-Traumatic Shock

Pediatric General

Obtain history. If vomiting, diarrhea, or fever present, assess for hypovolemic shock secondary to dehydration.
Remember, early signs of hypovolemia in children include the following:
Tachycardia
Tachypnea
Agitation, restlessness
Poor peripheral perfusion (capillary refill > 2 seconds, mottled cool skin)
Hypotension is a LATE and ominous sign

Universal Pediatric Assessment

↓

Pediatric Airway Protocol

↓

Pediatric IV/IO

Fluid Bolus 20 ml/kg

↓

Reassess adequacy of ventilation and perfusion. Repeat vital signs

Pediatric Pain Control

Pediatric General

Younger children experience higher levels of pain during procedures than older children. Children's tolerance for pain increases with age. (Bromme, Rehwalt and Fogg, 1998; Broome and others 1990). Children are unique in their ways of coping. Children's behavior is not a specific indication of their pain level (Beyer, McGrath and Berde, 1990).

Pain assessment should be frequently evaluated. FACES pain rating scale, Word graphic Scale, Color Scale & Numeric Rating Scale are all acceptable methods for evaluating a child's pain scale.

Universal Pediatric Assessment

Patient care according to Protocol based on Specific Complaint

Pain severity or Indication for IV Medication

No

Yes

Pediatric IV/IO

Administer medication for pain in Pediatrics in the following situations:

- **Pediatric Amputations or Avulsions** without hypotension
- **Pediatric Extremity Trauma** without hypotension

Contraindication to sedation? Abdominal Pain?

Yes

Pulse Oximetry

No

If BP > 100 systolic

Morphine 0.1 mg/kg IVP, IO

10 mg maximum

or

Fentanyl

1 mcg/kg IVP, IO

Maximum 50 mcg

Monitor and reassess

Universal Pediatric Assessment

Pediatric General

The Universal Pediatric Assessment Protocol should be used as primary guide to patient assessment.

Scene Safety & BSI (body substance isolation)

↓

Pediatric Primary Assessment

Routine Transport Orders (Pediatric)

Consider use of

Broselow™ Pediatric Emergency Tape

↓

Pediatric Airway Protocol

↓

Consider

Spinal Immobilization

↓

Vitals Signs per guideline

(Temperature if appropriate)

↓

Consider

Pulse Oximetry / Capnography

↓

Consider

Cardiac Monitor

↓

Appropriate Protocol

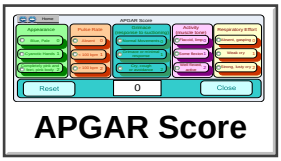
Pediatric Neonatal Resuscitation/Care Neonatal 79 Pediatric

Pediatric Neonatal

Pediatric Neonatal Resuscitation/Care

Pediatric Neonatal

Newborns are 28 days or less



Universal Pediatric Assessment

Meconium present?

Yes

No

If BVM ventilation ineffective or meconium present, consider

Oral Endotracheal Intubation

Thick meconium may need repeated suctioning using the ET tube as the suction catheter.

Dry infant and keep warm
Bulb syringe suction mouth / oropharynx / nose

After delivery of the infant, assess airway and ventilation while drying and positioning head down. If thick meconium is present continue to suction PRIOR to ventilating and stimulating.

Obtain **APGAR** score if possible. **DO NOT Delay Resuscitation** to obtain score. Generally, infants with scores > 7 need minimal intervention,
4-6 usually response to aggressive oxygenation with bag-valve-mask, and < 4 require ALS interventions. If score < 7, request ALS assistance.

Obtain careful history from mother including gestational age (prematurity?), multiple births, and color of amniotic fluid if membranes ruptured (fluid should be clear -- green or yellow-tinged fluid may indicate fetal distress).

APGAR Score

Respiratory Rate
> 20 or crying..... no action
< 20.....tactile stimulation
Heart Rate
> 100.....no action
80-100.....ventilate with central cyanosis and BVM ventilatory 100% oxygen and BVM ventilate with 100% assistance oxygen and BVM<80 begin chest compressions, while ventilating
Color
pink.....no action

Respirations present?

Resp. < 20

Yes

Cardiac Monitor / Heart rate

HR < 100

HR > 100

Tactile stimulation and ventilate with 100% oxygen and BVM

Reassess heart rate and APGAR
Give report to receiving Hospital

HR < 60

HR 60 - 100

HR > 100

Pediatrics Airway Protocol
CPR

Pediatric Airway Protocol

Monitor and reassess
Keep infant warm, wrap in dry blankets. Monitor axillary temperature, place on monitor.

HR < 60

Pediatric IV/IO

Reassess heart rate

Blood Glucose < 60 mg/dl

HR 60 - 100

HR > 100

Continue **Oxygen**

Pediatric IV/IO

Consult with Medical Control

Dextrose 10 %

1 ml/kg IVP, IO (Slowly)

Appropriate **Dysrhythmia Protocol**

General

EMT

AEMT

Paramedic

Pediatric Neurological

Pediatric Neurological

Pediatric Neurological

Pediatric Hypoglycemia

Pediatric Neurological

Remember, signs and symptoms of:
Hypoglycemia
Decreased level of consciousness, confused, drowsy
Nervousness, trembling
Seizures
Cold, clammy skin
Tachycardia,
Diabetic Ketoacidosis (DKA)
Hyperglycemia (Glucose >300)
Rapid, deep respirations
Warm, dry skin
Tachycardia, thready pulses
Anorexia, nausea or vomiting
Acetone breath (A fruity odor)
Abdominal pain
Excessive thirst
Recent history of excessive urination

Universal Pediatric Assessment

Oxygen

Blood Glucose

Glucose < 60 mg/dl
& patient awake

Oral Glucose 15 gm PO

Glucose < 60 mg/dl
patient unconscious or has decreased level of consciousness

Pediatric IV/IO

Dextrose 25 % 1 ml/kg Slow IVP, IO
patients < 8 years of age

If 25% Dextrose not readily available, then eject 25 ml of 50% Dextrose and mix remaining 25 ml with 25 ml Normal Saline

unable to establish IV/IO access

Glucagon 0.5 mg IM
(For child under 55 lbs. or 6 – 8 years old)
Glucagon 1 mg IM
For Children 55 lbs and over or over age6 - 8

serum glucose > 400 mg/dl

Increase 0.9 NS infusion rate to
10 ml/kg bolus over 1 hour

The fluid bolus in DKA patients is one-half that of standard bolus in hypotension

Questions to ask a Diabetic: How do you control your diabetes? Diet, oral medication, or Insulin. Two important questions are: Have eaten today? Have you taken your Insulin today?

General
EMT
AEMT
Paramedic

Pediatric Neurological

Pediatric Seizure

Pediatric Neurological

Seizures can be largely classified into 2 types, generalized and partial seizures. Generalized seizures involve both cerebral hemispheres, while partial seizures involve only one cerebral hemisphere.

Universal Pediatric Assessment

Pediatric Airway Protocol

Blood Glucose

Glucose < 60 mg/dl

Pediatric Hypoglycemia Protocol

Pediatric IV/IO

Consider all possible causes of seizure activity in infants and children.
Metabolic:
Hypoxia
Hyponatremia
Hypoglycemia
Poisoning or overdose
Infectious:
Meningitis
Encephalitis
Structural:
Subdural hematoma
Hydrocephalus
Shunt dysfunction
Febrile

Consider all possible causes of seizure activity and treat underlying cause if at all possible.

- Head trauma Withdrawal of anti convulsant medication
- Brain tumor Poisoning or Overdose
- Degenerative CNS disorder Febrile seizure
- Meningitis or encephalitis Anoxia
- Hypoglycemia Lead intoxication
- Reyes syndrome

Versed 0.1 mg/kg Slow IVP, IO,

MAD, Rectally Double dose 0.2 mg/kg

Watch for signs and symptoms of respiratory depression and treat accordingly **Maximum 5 mg**

Valium 0.1 - 0.3 mg/kg Slow IVP, IO every 5 minutes x 5

Maximum for 1 month - 5 years: 5 mg
5-12 years: 10 mg
Drug calculator maximized at 10 mg

May be given rectal route 0.3 mg/kg flush with 2-3 ml air after administration.

Watch for respiratory depression and hypotension and treat accordingly

All first time seizure patients should be transported to the hospital.

General

EMT

AEMT

Paramedic

Pediatric Unconscious–Unknown Etiology

Pediatric Neurological

Pediatric Neurological

View surroundings for reason patient has altered mental status. Look for medication bottles, cleaning supplies, alcohol, etc. consider also possibilities due to fever, seizure, trauma, headache, etc. Obtain any previous medical history also.

Universal Pediatric Assessment

Pediatric Airway Protocol

Possible causes: Diabetes, Drugs, Alcohol, Dysrhythmia? Trauma? If Trauma, consider C-Spine Control, Blood Glucose check is essential. Possible Hyperglycemia? Possible Toxic Overdose? Narcotics? Other Causes?

C-Spine immobilization

unconscious patient with suspected trauma

Spinal Immobilization

Preoxygenate patient at a rate of 10 ventilations greater than normal respiratory rate if vital signs are deteriorating or if there are signs of impending herniation as evidenced by unilateral dilated pupil, sudden change in level of consciousness, decorticate or decerebrate posturing If possible, obtain extensive medical history and medications

Blood Glucose

Glucose < 60 mg/dl

Pediatric Hypoglycemia Protocol

Pediatric IV/IO

Consider bolus at 20 ml/kg except for head trauma patients. Avoid administering large amounts of fluid unless warranted by traumatic injuries.

decreased level of consciousness of unknown etiology

Narcan 0.1 mg/kg IVP, IO, MAD – If no IV

ET tube, then give 2 – 2.5 times IV dose

0.2 - 0.25 mg/kg

Maximum 2 mg

EMT may administer via MAD only.

Narcan 0.1 mg/kg MAD **Maximum 2 mg**

General

EMT

AEMT

Paramedic

Pediatric Respiratory

Pediatric Respiratory

Pediatric Airway

Pediatric Respiratory

Assessment is the same evaluating ABC's including respiratory rate, and effort. Breath sounds and levels of respiratory distress if noticed. Children due obstruct easier than an adult. Evaluate reasons as: swelling from this like croup, epiglottitis, foreign object, or ems interventions. Crying can also in crease work of breathing.

Establish airway (with cervical spine immobilization if unconscious, head, facial or cervical spine injury) and ventilation.

Inadequate

Adequate

Pulse Oximetry

Capnography

Oxygen

Suction available

Cardiac Monitor

Basic airway maneuvers: Manual, oral airway. Consider C-Spine precautions if necessary. Ventilate with bag mask device

Pulse Oximetry

Supplemental **Oxygen**

administer **oxygen** at the highest concentration possible - via a non-rebreather mask at 10-15 liters per minute (lpm). Do not hesitate to administer oxygen to the pediatric patient.

Positive respirations positive gag reflex

Oxygenate, Ventilate, Position, Reassess

Rapid Transport

Obstruction

Foreign Body Airway Obstruction-Child/Infant

Apneic and no gag reflex

Intubation-Pediatric, Oral

Oral intubation is preferred over nasal intubation.

- In children < 8 years, an uncuffed tube is used.

Patients < 9 years old nasotracheal intubation is absolutely contraindicated.

- Patients < 13 years old nasotracheal intubation is relatively contraindicated.

Direct laryngoscopy

Unsuccessful

Continue BVM

Confirm tube placement by:
1. Direct visualization of tube entering vocal cords **2**. The presence of bilateral breath sounds **3**. Bilateral chest excursion **4**. Vapor in endotracheal tube **5**. Use of an end-tidal carbon dioxide ($ET CO_2$) detector (example - Easy Cap, Nelcor).

When establishing an airway, remember the differences between the adult and pediatric airway. The young child has a disproportionately large tongue, which can easily occlude the airway. A small amount of blood or vomitus can also obstruct the airway. Deciduous, or "baby teeth", are poorly anchored and easily dislodged.

If the child requires ventilatory assistance, administer 100% oxygen via bag-valve-mask. It is strongly recommended that there are several sizes of clear pediatric masks available, and a pediatric and adult positive pressure ventilation bag. The neonatal size ventilation bag is not recommended equipment for field use.

General

EMT

AEMT

Paramedic

Pediatric Allergic Reaction

Pediatric Respiratory

Allergic reaction can occur quickly in children due to the small size of the airway. Causes of an allergic reaction can include food, medications, insect stings, pollens and molds.

Universal Pediatric Assessment

↓

Pediatric Airway Protocol

↓

Observe for respiratory distress (wheezing, stridor, retractions,) hypertension, or swelling of the tongue.

Signs & Symptoms
Hives, rash, itching, nasal congestion, sneezing, throat tightness, hoarseness, coughing, nausea/vomiting, dizziness, tachycardia.
Severe Reaction (Anaphylaxis)
Shortness of breath, chest pain, stridor, syncope, hypotension, unconsciousness, death.

If patient exhibits any of the above signs or symptom:

↓

Epinephrine 1:1,000
0.01 mg/kg SQ
Maximum 0.3 mg
May repeat X 2 every 5 minutes

← Use Epinephrine with caution in any patient who has used an aerosol bronchodilator with in the past 4 hours. If patient has used aerosol bronchodilator *repeatedly* with in 4 hours, **do not** administer Epinephrine

→ Assist with Pt's prescribed **Epinephrine Auto-Injector**

↓

Cardiac Monitor

↓

Give free flow aerosol
Albuterol 2.5 mg in 3 ml Saline
May repeat X 1 in 2 – 3 minutes

← or

DuoNeb
0.5 mg Ipratropium &
2.5 mg Albuterol
in 3 ml NS via aerosol

↓

Pediatric IV/IO → **Pulse Oximetry**

↓

Benadryl
1 - 2 mg/kg IVP, IO, IM
If patient's weight is more than 45 kg
25 – 50 mg IVP, IO, IM

→ **Solu-Medrol**
2 mg/kg IVP, IO Slowly

↓

when appropriate
CPAP

General
EMT
AEMT
Paramedic

Pediatric Respiratory Distress (Lower Airway)

Pediatric Respiratory

Lower Airway includes the trachea below the vocal cords, lungs and bronchioles.

Universal Pediatric Assessment

Common Lower Airway Problems include:
Asthma, Bronchiolitis.

Pediatric Airway

Acute Asthma / Status Asthmaticus

Albuterol 2.5 mg in 3 ml Saline

May repeat Albuterol as necessary to a maximum of 3 treatments.

or

DuoNeb

0.5 mg Ipratropium & 2.5 mg Albuterol in 3 ml NS via aerosol

Allow patient to assume position of comfort with head of bed elevated

If patient as own aerosolized inhaler, patient may self-administer medication

Pediatric IV/IO

Consider

Albuterol 2.5 mg in 3 ml Saline

May repeat Albuterol as necessary to a maximum of 3 treatments.

For Status Asthmaticus

Epinephrine 1:1,000

0.01 mg/kg SQ, SL

0.3 mg Maximum

May repeat this dose after 15 minutes.

Continue evaluating vitals.

DuoNeb

0.5 mg Ipratropium & 2.5 mg Albuterol in 3 ml NS via aerosol

Solu-Medrol

2 mg/kg IVP, IO Slowly

See: **Pediatric Lower Airway Reference**

General

EMT

AEMT

Paramedic

Pediatric Respiratory Distress (Upper Airway)

Pediatric Respiratory

Upper Airway includes the oral and nasal cavities, pharynx, and trachea.
Common Upper Airway Problems include:
Croup, Epiglottitis, and Foreign Body Aspiration.

Universal Pediatric Assessment

Pediatric Airway

Carefully obtain history and non-invasive respiratory assessment.
The presence of stridor indicates an upper airway obstruction.
Allow the child to assume a position of comfort.
The child may assume the tripod position.
Encourage parent to hold the child upright.
Keep child and parent **CALM.**
DO NOT agitate child.
Have parent (or caregiver) assist with the administration of supplemental oxygen.
Use the highest percentage possible.

General

EMT

AEMT

Paramedic

Foreign Body

An accurate history is by far the most important tool for establishing a diagnosis in pediatric patients with upper airway obstruction. Always inquire about possible foreign bodies such as peanuts, hot dogs, marbles, toys, etc. Relieve complete airway obstruction.

Relieve complete airway obstruction.
• 0-1 years of age 5 back slaps & 5 chest thrusts
• 1 year and older abdominal thrusts.
Blind finger sweeps are contraindicated. Do not attempt to remove foreign bodies unless clearly visualized.

Keep patients with a parent or guardian if practical. Place patient in a sitting position if warranted. Keep external stimuli such as lights and noise to a minimum.

Pediatric IV/IO

Croup

Normal Saline Aerosol
3 - 5 ml Saline
run **Oxygen** at 6 lpm

Mask-type nebulizer works best but blow by method with mask removed from nebulizer is adequate. Parents can often assist in aerosol therapy.

Aerosols

Epinephrine Aerosol

< 10 kg: mix 2.5 ml
Epinephrine 1 : 1,000 in 2.5 ml NS

> 10 kg: mix 5 ml 1:1,000
Epinephrine 1 : 1,000 in 2.5 ml NS

Suspected Epiglottitis

Treatment is supportive if patient ventilating adequately. Place patient in position of comfort. Do not attempt to visualize inside mouth or throat. Avoid external stimuli. Do not initiate IV infusion unless patient has respiratory arrest.

	Epiglottitis	Croup	Foreign Body
Site of Obstruction	Above vocal cords	Below vocal cords	Varies
Cause	Bacterial Infection	Viral infection	Varies
Age range	Generally older child (>2 yrs) but can occur at any age	Younger child (6 months-3 years)	Any (usually under 5 years and in adult years)
Onset	Sudden (6-24 hours), fever may be first sign	24-72 hours	Sudden if upper airway
Toxicity	Child appears very ill; often has high fever	Mild to moderate, low-grade fever	Not ill appearing, no fever
Drooling	Common	Infrequent	May be present
Cough		Rare “barky” or “seal-like”	Common, distinctive, choking, gagging

Pediatric Toxicology

Pediatric Toxicology

Pediatric Overdose

Pediatric Toxicology

Perform scene size-up and ensure crew safety. Be careful of potential violent situation and be aware of biohazards.

Universal Pediatric Assessment

Signs & Symptoms: Altered LOC, agitation, cool, pale, diaphoretic, or warm, dry & flushed. Constricted pupils, tachycardia, shortness of breath, slurred speech, depression, suicidal intentions or thoughts.

Obtain extensive medical history:
Patient weight, time of ingestion, medications and amount of ingestion, any alcohol taken with medications, etc.
If possible, bring medication bottles or ingested material container with patient to Emergency Department.
Notify receiving Emergency Department as soon as possible

If time permits, call Central Ohio Poison Control Center
1-800-222-1222

Tricyclic ingestion

Cardiac Monitor

Sodium Bicarbonate 8.4%
1 mEq/kg IVP, IO

Observe for seizure activity and cardiac dysrhythmias

Haldol

Observe for signs of dystonic reaction

Benadryl
1 mg/kg IVP, IO
25 mg maximum

Opiates

Narcan
0.1 mg/kg IVP, IO,
MAD If no IV
ET tube, then give 2 – 2.5 times IV dose
0.2 - 0.25 mg/kg

EMT may administer via MAD only.
Narcan 0.1 mg/kg MAD
Maximum 2 mg

Pediatric Toxicology

Pediatric Toxic Exposure

Pediatric Toxicology

Perform scene size-up and ensure crew safety. In a hazardous materials incident, stage up wind of the incident, and do not attempt to treat any patients who have not been decontaminated.

Universal Pediatric Assessment

Obtain extensive medical history: time and duration of exposure, route of exposure, type of chemical, etc.

Pediatric Airway Protocol

If any condition outside the scope of this protocol, then follow Poison Control recommendations.
Contact Central Ohio Poison Center
1-800-222-1222

General

EMT

AEMT

Paramedic

Skin Exposure

Wear gloves and mask while handling patient
- Remove patient clothing and wash skin with copious amounts of water. Brush off dry chemicals before flushing with water
- Cover patient with sheet to prevent spread of contaminant

EMT may administer via MAD only.

Narcan 0.1 mg/kg MAD

Maximum 2 mg

Gastrointestinal Exposure

If fully awake with intact gag reflex: treat supportively

Pediatric IV/IO

Narcan

0.1 mg/kg IV, IO, or ET, MAD

Maximum 2 mg

If serum glucose is < 60 mg/dl

Pediatric Hypoglycemia Protocol

Organophosphate Exposure

For development of coma, ataxia, psychosis, dyspnea, seizures, bradycardia,or cyanosis

Pediatric IV/IO

Atropine

0.02 mg/kg IVP, IO

Repeat Atropine every 15 minutes until signs of flushing, dry mouth and dilated pupils appear

Caustic agent or Volatile Hydrocarbon

Do not induce vomiting
Treatment is supportive

Pediatric IV/IO

Pediatric Toxic Overdose (Sarin, Cyanide/Smoke)

 Pediatric Toxicology

Perform scene size-up and ensure crew safety. In a hazardous materials incident, stage up wind of the incident, and do not attempt to treat any patients who have not been decontaminated.

Universal Pediatric Assessment

Obtain extensive medical history: time and duration of exposure, route of exposure, type of chemical, etc.

Pediatric Airway Protocol

If any condition outside the scope of this protocol, then follow Poison Control recommendations.
Contact Central Ohio Poison Center
1-800-222-1222

General

EMT

AEMT

Paramedic

Consider declaring
Mass Casualty Incident

Sarin Gas Exposure

Pediatric IV/IO

Atropine

0.02 mg/kg IVP, IO

EMS personnel should administer Atropine while considering method to treat the largest number of patients in the shortest of time

Provide aggressive management of airway compromise

Cyanide Exposure

Pediatric IV/IO

Cardiac Monitor

Consider

Sodium Bicarbonate 4.2%

1 mEq/kg IVP, IO

For prolonged exposure

Provide aggressive management of airway compromise.
Notify receiving Emergency Department as soon as possible

Smoke Inhalation

Pediatric Abdominal Trauma

Pediatric Trauma

Multiple trauma requires good teamwork, rapid assessment, and a short scene time with rapid transport.

Universal Pediatric Assessment

↓

Pediatric Airway Protocol

↓

Impaled objects **will not be removed**. Stabilize object securely for transport with bulky dressing.

If eviscerated bowel present, cover with saline-soaked sterile dressing

↓

large bore

Pediatric IV/IO

Administer at rate sufficient to maintain adequate perfusion. **Do not delay transport** if unable to initiate IV infusion

shock signs/symptoms present

Fluid Bolus

20 ml/kg

Repeat bolus as necessary if no improvement or vital signs deteriorate.

↓

Reassess adequacy of ventilation and perfusion Load and go with continued treatments performed en-route to hospital.

Perform a BTLS trauma assessment. Expose patient. Attempt to keep scene time to a minimum. Treat life threatening injuries as priority. Consider chest trauma also.

Pediatric Avulsion/Amputation

Pediatric Trauma

Extremity trauma can either be isolated, or in connection with a multiple traumatic event. Be thorough in your assessment and obtain a good HOPI to differentiate.

Assess injured extremity for:
- Color
- Pulses
- Sensation
- Movement
- Temperature
- Bleeding

Universal Pediatric Assessment

↓

Wound care

↓

Apply sterile dressing to amputation site.

Wrap amputated part in slightly moist sterile gauze and place in plastic bag, which is to be kept cool.

↓

Pediatric IV/IO

Administer at rate sufficient to maintain adequate perfusion. **Do not delay transport** if unable to initiate IV infusion

↓

Aspirin 81 mg
(1) Chewable baby Aspirin
age appropriate

↓

Pain Control Protocol

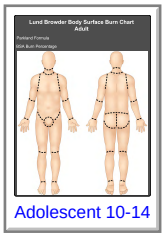
↓

Wrap amputated part in slightly moist sterile gauze and place in plastic bag which
Is to be kept cool. May consider air transport.

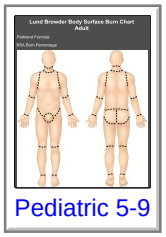
Pediatric Burns

Pediatric Trauma

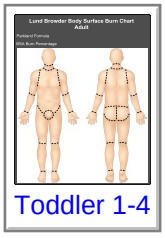
Burns many times are not life-threatening, but cause a significant amount of pain. Some types of burns are flame, scalds, steam, electrical, flash, tar and chemical burns. Consider transporting patient to burn center.



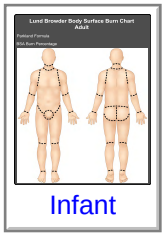
Adolescent 10-14



Pediatric 5-9



Toddler 1-4



Infant

Burns can be thermal, or chemical. Types of burns are First degree (red and painful), Second degree (Skin blisters) and Third degree (Necrosis). Use the Lund and Browder to estimate body surface percentage affected. The child's palm size equals approximately 1% BSA for irregular or splash pattern burns.

Universal Pediatric Assessment

Refer to:

Pediatric Multiple Trauma Protocol

as indicated

Contact the utility company to remove line unless rescue personnel are specifically trained in removal of live power lines

→ Resuscitate patient after removal to a safe environment

Pediatric Airway Protocol

Maintain high suspicion for inhalation injury in patients with singed hairs or eyebrows, mucosal, burns, or cough.

Cover wounds with dry sterile dressings. Generally, do not use wet dressings but may immerse body part in cool water if burn is limited to small area.
Remove any constricting jewelry or clothing if possible.
Evaluate for any associated injuries and treat appropriately.

→ Transport all significant burns to appropriate facility

If warranted

Pediatric IV/IO

Avoid multiple attempts and do not delay transport

→ **Cardiac Monitor**

Pediatric Pain Control Protocol

General

EMT

AEMT

Paramedic

Pediatric Chest Trauma

Pediatric Trauma

Blunt trauma from MVA's is commonly the cause of chest trauma. Pulmonary contusion & pneumothorax are also present with fractured ribs.

Universal Pediatric Assessment

Refer to:

Pediatric Multiple Trauma Protocol

as indicated

Do not remove any impaled or foreign object.
Stabilize impaled object for transport.
Carefully assess for and treat a life-threatening thoracic injury.

LARGE BORE

Pediatric IV/IO

Administer at rate sufficient to maintain adequate perfusion. **Do not delay transport** if unable to initiate IV infusion

shock signs/symptoms present

Fluid Bolus

20 ml/kg

Repeat bolus as necessary if no improvement or vital signs deteriorate.

Cardiac Monitor

Pediatric Airway Protocol

See Below for Specific Treatment

Tension Pneumothorax
- Load and go with continued treatments performed en-route

Chest Decompression

Flail Chest

Stabilize flail segment with bulky elastic dressing if possible
- Reassess adequacy of ventilation and perfusion
- Load and go with continued treatment

Simple Pneumothorax
- Treatment is supportive
- Monitor for development of tension pneumothorax particularly if positive pressure ventilation is utilized
- Reassess adequacy of ventilation and perfusion.
- Load and go with continued treatment performed en-route

Open Chest Wounds

Cover sucking wound with non-porous dressing (Bioclusive Dressing, cellophane, etc) 3 sides
Load and go with continued treatments performed en-route

Pericardial Tamponade
- Treat for hypovolemic shock. Reassess adequacy of ventilation and perfusion
- Load and go with continued treatments performed enroute

Myocardial Contusion
- Apply cardiac monitor to any patient with known blunt trauma to chest wall contusion, or sternal pain
- *Monitor for and treat dysrhythmias as indicates in specific dysrhythmia protocols
- Reassess adequacy of ventilation and perfusion
- Load and go with continued treatments performed en-route

Massive Hemothorax
- Do not decompress
- Treat aggressive for hypovolemic shock. Reassess adequacy of ventilation and perfusion.
- Load and go with continued treatments performed en-route

Blunt or Penetrating

Stabilize any impaled object, with bulky dressing.
- Treat for hypovolemic shock. Reassess adequacy of ventilation and perfusion
- Load and go with continued treatments performed en-route

Pediatric Child Abuse (Suspected)

Pediatric Trauma

If injuries are inconsistent with the history, abuse should be suspected.

Universal Pediatric Assessment

↓

Refer to:

Pediatric Multiple Trauma Protocol

as indicated

↓

Wound care

↓

Transport to appropriate facility

↓

Report in detail all suspicions to hospital staff and other proper authorities.
(Sheriff's Department and/or Fredericktown Police Department)
Document and report all person(s) to whom suspicions were given. If the parent or guardian refuses permission to transport the patient, contact law enforcement agency

Child abuse should be suspected when any of the following exist:
History is inconsistent with the extent of injury or developmental age.
The injury reflects an outline of an object or mode of infliction.
There is a delay in seeking medical attention.
There are other unexplained injuries in various stages of healing.
The explanation seems vague or confused.

Pediatric Crushing Trauma

Pediatric Trauma

If patient has been trapped/ pinned for longer than 20-30 minutes, and/or exhibits signs/symptoms or relevant mechanism of injury to suspect crushing injury, then EMS personnel are directed to ***coordinate time of release with rescue personnel***

Universal Pediatric Assessment

Refer to:

Pediatric Multiple Trauma Protocol

as indicated

If patient has been trapped/pinned for longer than 20 – 30 minutes, and/or exhibits signs/symptoms or relevant mechanism of injury to suspect crushing injury, then EMS personnel are directed to coordinate time of release with rescue personnel

Crush injury causes a toxic mixture of fluids, electrolytes, and acids from lack of cellular respiration to pool in the area that is crushed. Upon release of the mechanism of crush, that mixture starts to flow with normal circulation and mixes with oxygenated blood which makes the mixture even more toxic. When this mixture of toxins gets to the heart, the patient experiences sudden cardiac death.

Pre-extrication

Large Bore

Pediatric IV/IO

Cardiac Monitoring

Obtain monitor tracing prior to and sequentially during further treatment

Contact Emergency Department and notify of patient's "crushing injury"

Sodium Bicarbonate 8.4%

Add Sodium Bicarbonate 50 mEq to additional liter of 0.9% Normal Saline and piggy-back to original IV infusion.

Begin this infusion of 0.9% Normal Saline

20 ml/kg/hr. If possible administer

20 ml/kg bolus just prior to extrication.

Post-extrication

Continue aggressive fluid administration 20 ml/kg

Monitor EKG close and watch for abnormalities or dysrhythmias, Widened QRS complexes of 0.12 seconds or greater, Presence of PVCs, V-Tach, V-fib or Idioventricular rhythms.

If patient has cardiac arrest, treat as a trauma arrest

MAST pants are **contraindicated** in Crushing Injury patients

Pediatric Extremity Trauma

Pediatric Trauma

Always assess head, chest and abdominal trauma before extremity unless severe bleeding is involved. Extremity trauma can involve both soft tissue and skeletal components.

Universal Pediatric Assessment

↓

Refer to:

Pediatric Multiple Trauma Protocol

as indicated

↓

Monitor pulse, motor, and sensory function distal to the site of injury

↓

Wound Care

↓

Splinting

↓

Pediatric IV/IO

Administer at rate sufficient to maintain adequate perfusion. **Do not delay transport** if unable to initiate IV infusion

→ shock signs/symptoms present

Fluid Bolus

20 ml/kg

Repeat bolus as necessary if no improvement or vital signs deteriorate.

↓

Pain Control Protocol

without age specific hypotension

Assess injured extremity for:
Color, Pulses, Sensation, Movement, Temperature, and Bleeding
For open fractures: control bleeding with direct pressure and cover with dry, sterile dressing.

General

EMT

AEMT

Paramedic

Pediatric Facial Trauma

Pediatric Trauma

Maintain airway, breathing, and control bleeding. Penetrating trauma can endanger the airway and induce heavy bleeding.

Universal Pediatric Assessment

↓

Transport in position of comfort if cervical immobilization not required

↓

Pediatric Airway Protocol

Nasotracheal intubation is contraindicated in patients with evidence of basilar skull fracture or midface fractures. Additionally, Nasotracheal intubation is **contraindicated in pediatric** patients.

↓

If warranted

Needle Cricothyrotomy

A temporary ventilation method in pediatric patients who are < 10 years of age. A surgical Cricothyrotomy is contraindicated in patients < 10 years of age.

↓

Transport avulsed parts with patient according to

Pediatric Amputation/Avulsions Protocol

Embedded or impaled foreign objects should not be removed but should be stabilized for transport with bulky dressing

↓

Pediatric IV/IO

Pediatric Multiple Trauma

Pediatric Trauma

Obtain history. Document mechanism of injury and time of injury. Ideally, transport child to Level I Pediatric Trauma facility if possible. **Remember, signs of hypovolemic shock are subtle and include the following**:

- tachycardia
- tachypnea
- restlessness
- poor peripheral perfusion
- hypotension is a LATE and ominous sign

Universal Pediatric Assessment

Spinal Immobilization

Assume cervical spine injuries on all unconscious patients with known or suspected trauma on all unconscious patients with unknown history, and on all patients with multiple trauma.

And

Pediatric Airway Protocol

Hyperventilate patient if vital signs are deteriorating, at a rate of 10 ventilation/minute greater than normal respiratory rate if there are signs of impending herniation (such as unilateral dilated pupils) sudden change in level of consciousness, decorticate or decerebrate posturing.

Assess for adequacy of ventilation by auscultations of bilateral breath sounds. See:

Pediatric Chest Trauma

Nasotrachael intubation is contraindicated in patients with evidence of basilar skull fracture or midface fractures. **Additionally, Nasotrachael Intubation is contraindicated in pediatric patient.**

- Radial pulse indicates a B/P or at least 80 mmHg systolic
- Femoral pulse indicates a B/P of at least 70 mmHg systolic
- Carotid pulse indicates a B/P of at least 60 mmHg systolic

If warranted

Needle Cricothyrotomy

A temporary ventilation method in pediatric patients who are < 10 years of age. A surgical Cricothyrotomy is contraindicated in patients < 10 years of age.

Control active bleeding

Wound Care

shock signs/symptoms present

Fluid Bolus

20 ml/kg

Repeat bolus as necessary if no improvement or vital signs deteriorate.

Pediatric IV/IO

Administer at rate sufficient to maintain adequate perfusion. **Do not delay transport** if unable to initiate IV infusion

Assess for adequacy of perfusion including level of consciousness, peripheral pulses (rate and quality), capillary refill, weak pulses, clammy skin, and blood pressure falls late in shock. Check Vital signs and repeat every 5-10 min.

Reassess adequacy of ventilation and perfusion. Load and go with continued treatments performed en-route.

Pediatric Neurological Trauma

Pediatric Trauma

Children are more likely to experience head injuries, because their heads are proportionally larger, and heavier, in comparison to the rest of their bodies.

Universal Pediatric Assessment

Spinal Immobilization

Establish and maintain cervical spine control with infant/ pediatric collar and immobilization device. Immobilize entire spine. Consider possibility of head and cervical spine trauma for all unconscious infants and children.

- Are not responsive to verbal stimuli
- Are disoriented and combative such that spinal immobilization is not possible
- Demonstrate a rapidly deteriorating level of consciousness

Nasotracheal intubation is contraindicated in patients with evidence of basilar skull fracture or midface fractures. **Additionally, nasotrachael intubation is contraindicated in pediatric patients.**

Pediatric Airway Protocol

Intubate (while maintaining cervical immobilization) all patients who:

If warranted

Needle Cricothyrotomy

A temporary ventilation method in pediatric patients who are < 10 years of age. A surgical Cricothyrotomy is contraindicated in patients < 10 years of age.

As an adjunct to assist in intubation of combative head injured patients

Pediatric IV/IO

Do not delay transport if unable to initiate IV infusion.

NS Bolus
20 ml/kg

In the head injured patient with signs of hypovolemic shock and poor perfusion, look for other sources of bleeding such as the chest, abdomen, pelvis, femur, etc.

Consider sedation

Versed 0.1 mg/kg IVP, IO Slowly

May repeat. Maximum 5 mg

Repeat sedation in 5 – 10 minutes if necessary. May give via **MAD** if no IV established.

Repeat as necessary if no improvement or vital signs deteriorate. Observe spine-injured patients for neurogenic shock as evidenced by poor perfusion and hypotension with bradycardia. If no response to fluid therapy,

Pre-oxygenate at a rate of at least 10 ventilations/minute greater than normal respiratory rate if there are signs of impending herniation such as unilateral dilated pupil, sudden change in level of consciousness, decorticate or decerebrate posturing.

Reassess adequacy of ventilation and perfusion. Load and go with continued treatments performed en-route.

General

EMT

AEMT

Paramedic

Pediatric Ocular Trauma

Pediatric Trauma

Common injuries to the eye are : Blunt trauma, and penetrating trauma, chemical exposure foreign bodies, animal bites and scratches.

Evaluating the eye assess for obvious trauma, visual loss or blurred vision, blinking, and loss of portion of visual field.

Universal Pediatric Assessment

Refer to:

Pediatric Multiple Trauma Protocol

as indicated

Chemical Injuries

Should have eyes immediately irrigated with one liter or more of 0.9% Normal Saline

Imbedded or Impaled Foreign Objects should not be removed but should be stabilized securely for transport with bulky dressing.

Suspected penetrating injuries should be shielded avoid direct pressure on the orbit. Patch the contra lateral eye also.

Transport in position of comfort if cervical immobilization not required. Elevate head of bed if cervical immobilization not required.

If necessary

Pediatric IV/IO

Pharmacology

Responsoft™

www.responsoft.com

Pharmacology

Pharmacology

Pharmacology

Adenosine (Adenocard®)

Pharmacology

Action: Antiarrhythmic

Onset: Half life < 10 sec. Adenosine will not convert atrial fib., atrial flutter, or VT to NSR

Indications

Tachycardia-PSVT, Tachycardia-VT w/Pulse, Pediatric PSVT

Adult Dose

6 mg rapid IVP, IO
If ineffective, administer 12 mg rapid IVP, IO
May repeat 12 mg in 1 - 2 min. Maximum 30 mg

Pediatric Dose

0.1 mg/kg Rapid IVP, IO
Maximum 6 mg
May repeat in 1 - 2 minutes 0.2 mg/kg Rapid IVP, IO
Maximum 12 mg

Contra-indications

2nd & 3rd degree AV Block, Sick Sinus Syndrome, Symptomatic bradycardia, unless patient has functioning artificial pacemaker, Hypersensitivity

Adverse Reactions

Transient Brady dysrhythmias, Facial flushing, Dyspnea, Chest pain, Hypotension, Headache, Nausea, Bronchospasm, Asystole, VT, VF

Precautions

Adenosine exerts its effect by decreasing conduction through the AV node and may produce a short lasting first, second or third degree heart block. In extreme cases transient asystole may result. Treat as necessary, but conditions are usually brief requiring no intervention.

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

Adult dose: Inject into IV line as close to the patient as possible. Flush with 20-30 ml NS after each dose. Evaluate extremity.
Pediatric dose: Flush with 5 ml NS after each dose
IV at antecubital site preferred. Evaluate extremity.

Pharmacology

Albuterol (Proventil®)

Pharmacology

Action: Bronchodilator

Advanced-EMT can Administer Medication

Onset: improvement within 5 min. Peak effect 2 hours

Contraindications Indications Adverse Reactions Adult Dose Precautions Pediatric Dose

Indications

Pulmonary Edema/CHF
Allergic Reaction/Anaphylaxis,
Asthma/Status Asthmaticus, Pediatric Allergic Reaction,
Pediatric Respiratory Distress (Lower Airway)

Adult Dose

2.5 mg (0.083%) in 3 ml Saline, via nebulizer
@ 6 liters/minute over 10 minutes
Patient may wear nasal cannula if additional oxygen is needed during treatment. Better response using mouthpiece instead of aerosol mask.

Pediatric Dose

2.5 mg (0.083%) in 3 ml Saline, via nebulizer
@ 6 liters/minute over 10 minutes

Contra-indications

Hypersensitivity, sensitivity to Albuterol Sulfate,
Use caution in patient's with tachydysrythmias greater than 150 bpm, and cardiovascular disorders

Adverse Reactions

Tremors, Dizziness, Nervousness, Headache, Nausea, Tachycardia, HTN, Bronchospasm, Ectopy, Hypotension, Angina

Precautions

1. Patients with cardiovascular disease, seizure disorders, hyperthyroidism, or diabetes mellitus.
2. Patients who use bronchodilators excessively.
3. If wheezing is thought to be of cardiogenic nature, do not administer aerosol without physician order

Medical Considerations

Side Effects: Tachycardias, agitation, tremors, ectopy, vasodilatation, hypertension, angina, vomiting, and vertigo. **Note: Discontinue administration if side effects develop.**

Pharmacology

Amiodarone (Cordarone®)

Pharmacology

Action: Antiarrhythmic

Onset: Immediate

Indications

Tachycardia-VT w/Pulse
V-Fib/Pulseless V-Tach
Pediatric V-Fib/Pulseless V-Tach

Adult Dose

300 mg IVP, IO Slowly
May repeat 150 mg in 3 - 5 minutes

Pediatric Dose

5 mg/kg IVP, IO

Contra-indications

Known hypersensitivity, Cardiogenic shock present, Sinus Bradycardia (marked), 2nd or 3rd Degree AV Block – unless pacemaker available (be prepared to pace).

Adverse Reactions

Hypotension, Bradycardia, CHF, V-Tach, A-V Block, PEA, Asystole, Nausea, Fever

Precautions

∅

Medical Considerations

Will precipitate with Sodium Bicarbonate

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Pharmacology

Aspirin

Pharmacology

Action: Blood modifier
Platelet aggregation

EMT can Administer Medication.

Onset: Peak effect: 15 minutes to 2 hours

Indications

Chest Pain (Ischemic) ACS,
Avulsion/Amputation,
Pediatric Avulsion/Amputation

Adult Dose

Angina / MI - 162 mg (2 tablets, 81 mg each) chewable PO
Avulsion - 81 mg (1 tablet, 81 mg) chewable, PO

Pediatric Dose

∅

Contra-indications

Ulcers, GI disorders, Other bleeding disorders, Allergy / Hypersensitivity, Renal failure, Altered LOC

Adverse Reactions

GI bleeding, Nausea, Vomiting, Bronchospasm, Anaphylaxis

Precautions

Anemia, hepatic disease, renal disease, Hodgkin's disease

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

None

Atropine

Pharmacology

Action:Anticholinergic, Blocks vagal effects on heart. Increases heart rate.

Onset: 2 – 5 minutes, peak effect 15 – 30 minutes.

Indications

Asystole/PEA, Bradycardia,
Toxic Exposure, Pediatric Bradycardia,
Pediatric Toxic Exposure,
Pediatric Toxic Overdose (Sarin, Cyanide/Smoke)
Intubation-Pediatric, Oral, Drug Assisted Intubation

Adult Dose

Asystole, PEA - 1 mg IVP, every 3 - 5 minutes
ET dose 2 – 2.5 mg
Bradycardia - 0.5 mg IVP, IO repeat every 3 - 5 min.
(Maximum 3 mg)
Organophosphate Exposure - 2 mg every 15 minutes
Until following appear: flushed appearance, dry mouth, dilated pupils. Observe for tachycardia.

Pediatric Dose

0.02 mg/kg IV, IO (minimum dose 0.1 mg)
May repeat once
Maximum single dose: 1 mg

Contra-indications

None in Cardiac Arrest situation. Hypersensitivity, Glaucoma, Atrial Fibrillation, MI – use caution

Adverse Reactions

Tachycardia, Palpitation, Dizziness, Headache, Nervousness, Dilated pupils, Dry mouth, Ventricular Fibrillation, Ventricular Tachycardia, Ataxia, Confusion, mydriasis, Photophobia

Precautions

Low doses may cause paradoxical bradycardia. May worsen bradycardia associated with second-degree Mobitz II and third degree AV blocks.

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

Use caution in patients with asthma, allergies CAD, CHF, HTN, infants, small children, & persons with down's syndrome

Pharmacology

Brilinta (Ticagrelor®)

Pharmacology

Action
Antiplatelet agents

Onset:
Within 1 hour

Indications

STEMI

Adult Dose

90 mg x 2 PO
180 mg Total

Pediatric Dose

∅

Contra-indications

Hypersensitivity; active pathological bleeding, such as peptic ulcer intracranial hemorrhage. Severe hepatic impairment (Cirrhosis, Hepatitis B or C, liver failure

Adverse Reactions

CNS: dizziness, fatigue, headache
Respiratory: cough, dyspnea
Cardiovascular: atrial fibrillation, bradycardia, hypertension, hypotension, peripheral hypertension, hypotension, peripheral edema
Gastrointestinal: diarrhea, nausea
Skin: rash
Muscular-Skeletal: back pain, extremity pain
Miscellaneous: non-cardiac chest pain.

Precautions

Should be discontinued for active bleeding.

Contraindications
Indications
Adverse Reactions
Dosage
Precautions
Pedi Dosage

Medical Considerations

Watch for bleeding

Pharmacology

Dextrose

Pharmacology

Action: Natural sugar
Restores circulating blood sugar levels toward normal, in states of hypoglycemia.

Advanced-EMT can Administer Medication

Onset:1 - 2 minutes

Indications

Hypoglycemia,
Pediatric Neonatal Resuscitation/Care,
Pediatric Hypoglycemia

Adult Dose

Dextrose 50%: 25 g (50 ml) IVP, IO Slowly

Pediatric Dose

Dextrose 25%: 1 ml/kg (0.5 g/kg) IVP, IO Slowly
Dextrose 10%: 1 ml/kg IVP, IO Slowly

Contra-indications

Sub Q & IM injections Intercerebral bleeding, Hemorrhagic CVA, Cerebral edema, Delirium Tremors if patient dehydrated.

Adverse Reactions

Tissue necrosis if extravasation occurs, Hypovolemia, Dehydration

Precautions

Use a free flowing IV line. May cause necrosis if administered via an infiltrated IV line. Obtain B/G reading and blood sample prior to administration if possible.

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

Do not use Dextrose if IV site is questionable. Perform blood glucose analysis prior to administration and 5-15 minutes after initial analysis.

Pharmacology

Diazepam (Valium®)

Pharmacology

Action: Anticonvulsant
Sedative

Advanced-EMT can Administer Medication

Onset: Onset: 1 – 5 minutes
Peak effect: 1 – 2 hours

Indications

Hyperthermia, Hypoglycemia, Seizures, Obstetric Emergencies-Eclampsia, Neurological Trauma, Pediatric Febrile Seizures, Pediatric Seizure, CPAP-Port O_2 Vent Continued

Adult Dose

5 - 10 mg IVP, IO in 5 mg increments, Slowly (2.5 - 5 mg/min) Maximum 10 mg

Pediatric Dose

0.1 - 0.3 mg/kg every 5 minutes x 5 Maximum dose for: 1 month - 5 years 5 mg, 5 - 12 years 10 mg

Contra-indications

Hypersensitivity, glaucoma, hypotension, head injury

Adverse Reactions

Respiratory depression, Hypotension, Bradycardia, Confusion, Nausea, Hiccups, Drowsiness, Cardiovascular collapse

Precautions

Caution in shock and alcohol intoxications, Use with caution in those patients with limited respiratory reserve, Do not mix with other drugs, Seizures may recur within 20-30 minutes after seizure control takes place. This is due to drug distribution. If patient has received Diastat (for seizure control) prior to administration, utilize ½ of your recommended dosage of Diazepam for continued administration.

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

Avoid using small veins.
Do not mix with other drugs.

Pharmacology

Diphenhydramine (Benadryl®)

Pharmacology

Action: Antihistamine

Advanced-EMT can Administer Medication

Onset: < 15 min.
Peak effect 1 - 4 hours

Indications

Allergic Reaction/Anaphylaxis,
Pediatric Allergic Reaction, Pediatric Overdose

Adult Dose

25 - 50 mg IVP, IO or Deep IM

Pediatric Dose

1 - 2 mg/kg IVP, IO, IM Slowly
Maximum 25 mg

Contra-indications

Hypersensitivity, Asthma, COPD, pregnant or lactating females

Adverse Reactions

Sedation, Blurred vision, Anticholinergic affects, Hypotension, Dizziness, Excitement (especially pediatric patients), Seizure, Nausea, Vomiting

Precautions

∅

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

Should be administered following Epinephrine 1:1,000 in cases involving the respiratory system (stridor, wheezing, retractions).

Pharmacology

Dopamine (Intropin®)

Pharmacology

Action: Increases heart rate & cardiac contractility

Onset: < 5 minutes

Indications

Bradycardia, Hypotensive Emergencies (Non-Trauma), Pulmonary Edema/CHF, Neurological Trauma

Adult Dose

5 - 15 mcg/kg/minute
Mix 400 mg in 250 ml (1600 mg/ml)

Pediatric Dose

∅

Contra-indications

Tachyarrhythmia's, Ventricular Fibrillation

Adverse Reactions

Headache, Tachycardia, Nausea and Vomiting, Ectopy, Anginal Pain, Bradycardia, Dyspnea, Anemia, Hypotension, Hypertension, Palpitation, Widened QRS Complex, Anxiety

Precautions

Duration of action is less than 10 minutes, Must be given by IV drip, Use in ventricular arrhythmias that are not corrected, must be done with caution, Decrease pulse pressure, Mix with no other drugs, Dopamine and Lasix = high urine output, Acidosis decreases effectiveness of Dopamine, Must dilute original solution, Phenytoin should not follow Dopamine use, May result in profound hypotension and bradycardia

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

Do not mix with other drugs.
Must use infusion pump.
Acidosis decreases effectiveness.
Administer into large vein, infiltration will cause necrosis & sloughing.

Pharmacology

DuoNeb (Ipratropium/Albuterol)

Pharmacology

Action: Bronchodilator

Advanced-EMT can Administer Medication

Onset: 15 minutes, peak effect 1 - 1.5 hours

Indications

Allergic Reaction/Anaphylaxis,
Asthma/Status Asthmaticus,
Pediatric Allergic Reaction,
Pediatric Respiratory Distress (Lower Airway)

Adult Dose

0.5 mg Ipratropium & 2.5 mg Albuterol in 3 ml NS via aerosol

Pediatric Dose

0.5 mg Ipratropium & 2.5 mg Albuterol in 3 ml NS via aerosol

Contra-indications

Hypersensitivity to any of its components, or to atropine and its derivatives.

Adverse Reactions

Respiratory: Bronchitis, Pharyngitis, Pneumonia
Musculo-Skeletal: Leg Cramps
Digestive: Diarrhea, Dyspepsia, Nausea
Urogential: UTI
Whole Body: Pain, Chest Pain

Precautions

DuoNeb should be used with caution in patients with cardiovascular disorders, especially coronary insufficiency, cardiac arrhythmias, and hypertension; in patients with convulsive disorders, hyperthyroidism, or diabetes mellitus.
Due to the presence of ipratropium bromide in DuoNeb, it should be used with caution in patients with narrow-angle glaucoma, prostatic hypertrophy, or bladder-neck obstruction.
Use caution in patients with hepatic or renal insufficiency

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

DuoNeb is supplied as a single-dose, ready-to-use vial containing 3 mL of solution. No mixing or dilution is needed.

Pharmacology

Epinephrine 1:1,000

Pharmacology

Action: Sympathomimetic & Cardiac stimulant

Advanced-EMT can Administer Medication

Onset: 5 - 10 minutes SQ

Indications

Allergic Reaction/Anaphylaxis, Asthma/Status Asthmaticus, Pediatric Asystole/PEA, Pediatric Bradycardia, Pediatric V-Fib/Pulseless V-Tach, Pediatric Non-Traumatic Shock, Pediatric Allergic Reaction, Pediatric Respiratory Distress (Lower Airway)

Adult Dose

Anaphylaxis / Asthma - 0.3 – 0.5 mg SQ, SL, ET

Asthma & Status Asthmaticus: 0.3 – 0.5 mg SQ, SL, ET

Epinephrine Aerosol 5 ml in 3.5 ml NS

Pediatric Dose

Cardiac Arrest: 0.1 ml/kg ET

Anaphylaxis: 0.01 mg/kg SQ (maximum 0.3 ml)

Pediatric Respiratory Distress (Upper Airway):

Aerosol

< 10 kg: mix 2.5 ml 1:1,000 Epinephrine in 2.5 ml NS

> 10 kg: mix 5 ml 1:1,000 Epinephrine in 2.5 ml NS

Contra-indications

None in Cardiac Arrest, Known Hypersensitivity, Do not give to any patient who has repeatedly used an aerosol bronchodilator within the past 4 hours. Do not use Epinephrine in males over 45 years old or females over 50 years old.

Adverse Reactions

Palpitations, Arrhythmias, Hypertension, Pulmonary Edema, Dyspnea, Nervousness

Precautions

When given to a patient that is stabilized on antidepressants, a hypertensive crisis may occur, Do not mix with any other drugs, Very light sensitive, do not use solutions that are discolored or those that have a precipitate, Massage site after injection to counteract possible vasoconstriction, Use with caution on patients with Epi-Pen usage (previous).

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

Always transport after treatment due to rebound effect. Use with caution in males over age 35 or in those patients with a known history of hypertension, thyroid disease or angina.

Pharmacology

Epinephrine 1:10,000

Pharmacology

Action: Sympathomimetic & Cardiac stimulant

Onset: < 5 minutes

Contraindications | Indications | Adverse Reactions | Adult Dose | Precautions | Pediatric Dose

Indications

Asystole/PEA, V-Fib/Pulseless V-Tach,
Allergic Reaction/Anaphylaxis,
Pediatric Asystole/PEA, Pediatric Bradycardia,
Pediatric V-Fib/Pulseless V-Tach

Adult Dose

Cardiovascular

1 mg IVP, IO every 3 - 5 min. (2 - 2.5 mg ET every 3 - 5 min.)

Pediatric Dose

Asystole or Pulseless Arrest

0.1 ml/kg IVP, IO Maximum 10 ml

Repeat every 3 – 5 minutes

Contra-indications

None in Cardiac Arrest, Known Hypersensitivity,

Adverse Reactions

Palpitations, Arrhythmias, Hypertension,
Pulmonary Edema, Dyspnea, Nervousness

Precautions

When given to a patient that is stabilized on antidepressants, a hypertensive crisis may occur, Do not mix with any other drugs, Very light sensitive, do not use solutions that are discolored or those that have a precipitate, Massage site after injection to counteract possible vasoconstriction, Use with caution on patients with Epi-Pen usage (previous).

Medical Considerations

None

Pharmacology

Etomidate (Amidate®)

Pharmacology

Action: Hypnotic, Sedative

Onset: 1 minute
Duration: 5 - 7 minutes

Indications

Drug Assisted Intubation

Adult Dose

0.3 mg/kg IVP, IO
May repeat initial dose in 2 minutes if needed

Pediatric Dose

∅

Contra-indications

Hypersensitivity, Use caution in elderly patients

Adverse Reactions

Averting, Tonic, Clonic movements, Laryngospasm, Apnea, Hyperventilation, Hypoventilation, Hypertension, Hypotension, Tachycardia, Bradycardia Nausea and Vomiting

Precautions

Very Safe in the unstable patient, Onset is predictable and rapid (i.e.: arm to brain), No analgesic side effects, Commonly used in combination with an analgesic, Excellent hemodynamic stability, Reduces intracranial pressure. Side effect of Myocolonus should be anticipated, but will not interfere with intubation efforts

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

30% of patients will have no response to drug

Pharmacology

Fentanyl (Sublimaze®)

Pharmacology

Action: Narcotic analgesic

Advanced-EMT can Administer Medication (Pain control only).

Onset: Almost immediate. Maximal analgesic & respiratory effect may take several minutes.

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Indications

Chest Pain (Ischemic) ACS, Pulmonary Edema, Pain Control, Pediatric Pain Control

Adult Dose

50 mcg IVP, IO, may repeat x 1
Maximum 100 mcg

Pediatric Dose

1 mcg/kg IVP, IM, IO
Maximum 50 mcg

Contra-indications

Known intolerance to drug.

Adverse Reactions

Respiratory: Respiratory Depression, Apnea, Laryngospasm
Cardiovascular: Bradycardia, Hypertension, Hypotension
CNS: Dizziness, blurred vision
Gastrointestinal: Nausea & Vomiting
Other: Rigidity, Diaphoresis

Precautions

Use caution in patients with head injuries and elevated ICP. Use caution with bradycardia, COPD and decreased respiratory reserve patients. Also patients using narcotics. Fentanyl should be reduced in elderly and debilated patients. Also, patients with elevated BP with or without pre-existing hypertension.

Medical Considerations

Use caution when administering Fentanyl to elderly and debilitated patients, or patients with limited pulmonary reserve.

Pharmacology

Flumazenil (Romazicon®)

Pharmacology

Action: Reversal of benzodiazepine induced depression caused by over ingestion or treatment.

Onset:1 – 2 minutes
Peak effect: 6 – 10 minutes

Indications

Overdose

Adult Dose

0.2 mg IVP, IO over 30 seconds, wait 30 seconds then administer 0.3 mg over 30 seconds, wait 30 seconds then administer 0.5 mg every minute, over 30 seconds. Maximum dose of 3 mg. Intubate as needed.
Medication used for adverse reaction by EMS

Pediatric Dose

∅

Contra-indications

Known hypersensitivity to drug. Cyclic antidepressant overdose. Cocaine or other stimulant intoxication. < 16 yrs. old.

Adverse Reactions

Nausea / vomiting, dizziness, headache, agitation, abnormal vision, seizures.

Precautions

Not very effective reversing hypoventilation or effects of Ethanol, barbiturates, or opioids.

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

Be prepared to manage seizures in patients dependent on benzodiazepines.

Pharmacology

Furosemide (Lasix®)

Pharmacology

Action: Diuretic

Onset: Diuretic effect within 15 - 20 minutes. Vascular effect within 5 minutes

Indications

Pulmonary Edema/CHF

Adult Dose

0.5 - 1 mg/kg IVP, IO Slowly
40 mg or 80 mg if patient takes medication daily
Maximum 80 mg
Hold for systolic *BP <100mmHg*

Pediatric Dose

1 mg/kg IVP, IO
Maximum 20 mg

Contra-indications

Hypersensitivity

Adverse Reactions

Vertigo, numbness & tingling headache, orthostatic hypotension, transient deafness if given rapidly, blurred vision, Dehydration, Hyperglycemia, Hypokalemia

Precautions

Patients that are allergic to sulfa may be allergic to furosemide, Do not mix with Epinephrine or Norephinephrine, Known Hypokalemic

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

Use cautiously with hypokalemia
Can increase risk if digitalis toxicity

Pharmacology

Glucagon

Pharmacology

Action: Anti-hypoglycemic

Advanced-EMT can Administer Medication

Onset: Patient should respond within 15 minutes

Indications

Hypoglycemia,
Pediatric Hypoglycemia

Adult Dose

1 mg IM (slowly)
mix with a gentle rolling; do not shake

Pediatric Dose

0.5 mg IM
(For child under 55 lbs. or 6 – 8 years old)

Contra-indications

Hypersensitivity, Hyperglycemia, allergies to beef or porcine proteins, Insulinoma, Patients with adrenal gland tumor

Adverse Reactions

Nausea, Vomiting

Precautions

Glucagon is of little help in patients with adrenal insufficiency. Administration of Glucagon should be followed by supplemental carbohydrates.

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

Do not mix with saline

Heparin

Pharmacology

Action
Anticoagulant

Onset:
20 - 60 minutes SQ, IV immediate.

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Indications

STEMI

Adult Dose

80 units/kg over 1 minute
Maximum: 4,000 Units

Pediatric Dose

∅

Contra-indications

Severe thrombocytopenia (the number of platelets is reduced- the most common cause of bleeding disorders), Uncontrollable active bleeding state.

Adverse Reactions

Hemorrhage, local irritation, hypersensitivity: some reactions to occur include; fever, chills, urticaria, asthma, rhinitis, headache, nausea & vomiting.

Precautions

Heparin resistance encountered in fever, thrombosis, infections, MI, cancer and post surgical patients. Increased risk to older patients and especially women is a higher incidence of bleeding and particularly women over 60 years of age. Pregnant & nursing mothers.

Medical Considerations

Patients over the age of 60 may require low dose.

Pharmacology

Ketorolac (Toradol®)

Pharmacology

Action: Non-steroidal anti-inflammatory agent, Analgesic

Advanced-EMT can Administer Medication

Onset:10 minutes
Peak effect: 1 – 2 hours

Indications

Pain Control, Extremity Trauma

Adult Dose

Patient 18 – 65 years of age: 30 mg IVP, IO Slowly
30 – 60 mg IM
Patients > 65 years of age or > 18 years, but < 50 kg (110 lbs.)
15 mg IVP, IO Slowly
15 – 30 mg IM

Pediatric Dose

∅

Contra-indications

Hypersensitivity, Bleeding or blood clotting disorder, bleeding in brain, closed head injury, GI bleeding, pregnancy, severe kidney disease, or ulcers. Renal patients.

Adverse Reactions

Bleeding, nausea & vomiting

Precautions

GI irritation or hemorrhage

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

None

Pharmacology

Lidocaine (Xylocaine®)

Pharmacology

Action: Anti-arrhythmic

Onset: 30 - 90 seconds

Contraindications Indications Adverse Reactions Adult Dose Precautions Pediatric Dose

Indications

Pediatric V-Fib/Pulseless V-Tach,
Intraosseous Infusion EZ-IO (Proximal Tibia),
Intraosseous Infusion EZ-IO (Distal Tibia)
Intraosseous Infusion EZ-IO (Humerus)
Intubation-Pediatric, Oral, Drug Assisted Intubation

Adult Dose

Drug Assisted Intubation: 1.5 mg/kg IV, IO
Intraosseous Infusion EZ-IO: 20 – 40 mg

Pediatric Dose

Pediatric V-Fib/Pulseless V-Tach:
1 mg/kg IV, IO, ET Repeat every 3 - 5 minutes
Maximum: 3 mg/kg ET dose: 2 – 2.5 mg/kg
Intraosseous Infusion EZ-IO: 0.5 mg/kg
Intubation-Pediatric, Oral: 1 mg/kg

Contra-indications

Bradycardia, 2nd or 3rd degree heart block,
Known hypersensitivity, Stokes-Adams syndrome, WPW

Adverse Reactions

Drowsiness, Vomiting, Confusion, Seizures, Hypotension, Bradycardia, Slurred speech, Tremors, Restlessness, euphoria, Hypotension, Tinnitus, Blurred, or double vision

Precautions

Contraindicated if allergic to other amide type anesthetics such as Nupercaine. Caution in patients with greater than second degree heart block. Discontinue drug if signs of toxicity appear (i.e.: dizziness, convulsions or confusion. Convulsions may be the first sign of toxicity). Use in caution in patients with digitalis toxicity. Use with caution with procainamide, phenytoin, quinidine and beta-blockers

Medical Considerations

Observe closely for drug toxicity Signs include: dizziness, confusion, delirium, seizures

Pharmacology

Magnesium Sulfate

Pharmacology

Action: Magnesium is physiological calcium channel blocker and blocks neuromuscular transmission

Onset: immediate
Lasts about 30 minutes

Indications

Tachycardia-VT w/Pulse, V-Fib/Pulseless V-Tach, Obstetric Emergencies-Eclampsia

Adult Dose

Torsades de pointes: administration, 1 or 2 grams IVP, IO
Eclampsia: 4 grams bolus IVP, IO over 15 – 20 minutes

Pediatric Dose

25 – 50 mg/kg Slow over 10 minutes
Maximum 2 grams

Contra-indications

Heart block or myocardial damage, Hypertension, Caution with renal impairment. **Caution:** Reduce dosing with concurrent narcotics and/or hypnotics

Adverse Reactions

Respiratory depression, Hypothermia,
Circulatory collapse, Respiratory paralysis, Hypotension, Diaphoresis, Facial flushing, Sweating, Depressed reflexes

Precautions

4 grams in 250 cc 0.9% SODIUM CHLORIDE infuse in 15 - 30 min.

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

Not compatible with Sodium Bicarbonate

Pharmacology

Methylprednisolone (Solu-Medrol®)

Pharmacology

Action: Anti-inflammatory steroid

Onset: 1 – 2 hours

Indications

Allergic Reaction/Anaphylaxis,
Pediatric Allergic Reaction,
Pediatric Respiratory Distress (Lower Airway)

Adult Dose

125 mg IVP, IO (Slowly)

Pediatric Dose

2 mg/kg IVP, IO
Maximum 62.5 mg

Contra-indications

Hypersensitivity, GI Bleed, Severe Infection

Adverse Reactions

Fluid & Electrolyte Disturbances: CHF in susceptible patients, HTN
Musculoskeletal: Weakness
Neurological: Convulsions, headache, vertigo
Metabolic: Nausea & vomiting
Cardiovascular: Arrhythmias, hypotension **Skin**: Sweating

Precautions

Nonspecific ulcerative colitis, impending perforation or abscess or other infection. Peptic ulcer, renal insufficiency, hypertension, osteoporosis, myasthenia gravis (weakness of muscles)

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

None

Pharmacology

Metoprolol (Lopressor®)

Pharmacology

Action: Beta-adrenergic blocking agent

Onset: Immediate
Peak effect: 20 minutes

Indications

STEMI

Adult Dose

5 mg IVP, IO every 5 minutes
Maximum 15 mg
Administer only if pulse > 60 and BP > 100 Systolic

Pediatric Dose

∅

Contraindications

Sinus Bradycardia, heart block greater than first degree,, cardiogenic shock, and overt cardiac failure. Hypersensitivity. Sick Sinus-Syndrome. MI with slow heart rate and hypotensive < 100 mmHg Systolic. Patients with Bronchospastic Diseases should in general not receive Beta Blockers.

Adverse Reactions

CNS: Tiredness, vertigo, hallucinations, headache, dizziness, visual disturbances, confusion.
Cardiovascular: Hypotension, Bradycardia, second or third degree block, first degree block, heart failure.
Respiratory: Dyspnea
Gastrointestinal: Nausea & abdominal pain.
Miscellaneous: Unstable diabetes and claudication (cramplike pain in caves)

Precautions

Patients with Impaired hepatic function.

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

Closely monitor Blood Pressure, Heart Rate and ECG during administration of medication.

Pharmacology

Midazolam (Versed®)

Pharmacology

Action: Sedative, Amnesic, Short acting benzodiazepine CNS depressant

Advanced-EMT can Administer Medication (Seizures Only)

Onset: 2 - 5 minutes

Indications

Bradycardia, Tachycardia-PSVT, Tachycardia-VT w/Pulse, Hyperthermia, Pain Control, Hypoglycemia, Seizures, Obstetric Emergencies-Eclampsia, Avulsion/Amputation, Burns, Neurological Trauma, Extremity Trauma, Pediatric PSVT, Pediatric Febrile Seizures, Pediatric Seizure, Pediatric Neurological Trauma, CPAP, Intubation-Pediatric, Oral, MAD, Drug Assisted Intubation

Adult Dose

1 mg IVP, IO Slowly every 2 – 3 minutes x 2
MAD: 5 mg (1ml) Intranasal each nares in adults greater than 50 kg
Trauma (Avulsion / Amputation, Burns, & Extremity):
0.1 mg/kg IVP, IO Maximum 5 mg

Pediatric Dose

0.1 mg/kg IVP, IO
MAD, Rectal Dose: 0.2 mg/kg
Maximum 5 mg

Contra-indications

Hypersensitivity, Pregnant, Nursing mothers, Renal failure, Shock, Glaucoma, Acute alcoholic intoxication with depressed vital signs

Adverse Reactions

Apnea, **Respiratory depression,** Hypoxia, Decreased tidal volume, Fluctuations in vital signs, Dysrhythmias, **Hypotension if pushed to fast,** Euphoria, Confusion, Nausea, Vomiting, Headache, Hiccups

Precautions

Not recommended for patients that are pregnant, renal failure, shock, acute alcoholic intoxication with depressed vital signs.
Not recommended for CHF patients due to possible two to three-fold increase in half-life elimination and volume of distribution.
Rapid administration may cause respiratory depression, apnea, arrest, or cardiac arrest.

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

Consider reducing the dose on elderly & debilitated patients. These patients may take longer to recover from drug. **Monitor Respiratory status.**

Pharmacology

Morphine

Pharmacology

Action: Narcotic (Opiate) agonist

Advanced-EMT can Administer Medication

Onset: 2 - 3 minutes

Indications

Chest Pain (Ischemic) ACS, Pulmonary Edema/CHF, Pain Control, Pediatric Pain Control

Adult Dose

Chest Pain: 1 - 2 mg IVP, IO
Maximum of 10 mg

Pediatric Dose

0.1 mg/kg IVP, IO
Maximum 10 mg

Contra-indications

Hypersensitivity, Significant hypotension, Acute abdominal conditions, Multisystem trauma, Head injury, Convulsive disorders, Hypovolemia, Asthma, Pregnancy, Exacerbated COPD

Adverse Reactions

Respiratory depression, Orthostatic hypotension, Bradycardia, Nausea, Vomiting, Syncope, Abdominal cramps, Blurred vision

Precautions

Systolic BP at least 90 mmHg (may need to manage with fluid bolus). Watch for respiratory depression and be prepared to support ventilations. Narcan® should be readily available when administering Morphine.

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

Administer slowly to avoid nausea & vomiting.
Antidote: Administer Narcan 2 mg IVP, to reverse effects of morphine if necessary.
Use with caution with the elderly.

Pharmacology

Naloxone (Narcan®)

Pharmacology

Action: Narcotic antagonist Reverses the effects of opiates including respiratory depression.

Advanced-EMT can Administer Medication

EMT can Administer Medication via MAD only

Onset: 2 minutes.

Indications

Pain Control, Unconscious–Unknown Etiology, Overdose, Toxic Exposure, Pediatric Unconscious–Unknown Etiology, Pediatric Overdose, Pediatric Toxic Exposure, Mucosal Atomizer Devise (MAD)

Adult Dose

0.4 – 2 mg IVP, IO, MAD
May repeat every 2 - 3 minutes to a Maximum 6 mg
IM, SQ, MAD, ET Maximum 10 mg (ET dose 2 – 2.5 mg)

Pediatric Dose

0.1 mg/kg IVP, IO, MAD
Maximum 2 mg
ET Dose: 0.2 - 0.25 mg/kg

Contra-indications

Known Hypersensitivity

Adverse Reactions

Increased BP, Tachycardia, Projectile vomiting, Tremors, Seizures (possibly an opiate addiction withdrawal symptom), Dysrhythmias, Hypotension, Cardiac arrest

Precautions

Effects last 1 - 4 hours – narcotic effect will often outlast the drug. Use with caution on patients with known narcotic dependency – could cause withdrawal symptoms

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

Short half life. Effects last 1-4 hours, patients should be watched closely. Narcotic effect will often outlast the antagonist actions. Subsequent IM dose will prolong IV effects.

Pharmacology

Nitroglycerin (Spray, Tablet,)

Pharmacology

Action: Antianginal agent (coronary vasodilator)

Advanced-EMT can Administer Medication

EMT may assist with Patient's prescribed Nitroglycerin

Onset: 2 minutes

Indications

Chest Pain (Ischemic) ACS, Hypertensive Emergencies, Pulmonary Edema/CHF

Adult Dose

Spray / Tablet:
0.4 mg SL may be repeated 2 times every 3 – 5 minutes
Check BP before and between each dose
hold for systolic BP < 90 mmHg

Pediatric Dose

∅

Contra-indications

Known Hypersensitivity, hypotension (Systolic BP < 90 mmHg),
Use with Caution in MI, & ICP (increased intracranial pressure).
Recent Viagra use, Glaucoma, Cerebral hemorrhage

Adverse Reactions

Headache, Orthostatic hypotension, Dizziness,
Weakness, Palpitations, Nausea & vomiting

Precautions

Contraindicated in head trauma.
Use caution in any patient whom is intoxicated.
Be sure to remove any transdermal system before defibrillation.

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

Check for transdermal patch prior to initiating spray/tablet.
Remove nitro patch before defibrillation.

Pharmacology

Ondansetron (Zofran®)

Pharmacology

Action: Antiemetic

Onset: Rapid
Peak effect:15 – 30 minutes

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Indications

Nausea/Vomiting,
Pediatric Nausea/Vomiting

Adult Dose

4 mg IVP, IO
Maximum 4 mg

Pediatric Dose

0.1 mg/kg IVP, IO
Maximum 4 mg

Contra-indications

Hypersensitivity

Adverse Reactions

Cardiovascular: Angina, Electrocardiographic Alterations, Hypotension, Tachycardia, Syncope, Palpitations
Neurological: Extrapyramidal reactions, Grand Mal Seizure, Dizziness, Lightheadness,
General: Flushing
Local Reactions: Pain, Redness, Burning at site of injection
Other: Hypokalemia, Hiccups

Precautions

Not a drug that stimulates gastric or intestinal peristalsis. Transient ECG changes including, QT interval prolongation.

Medical Considerations

None

Pharmacology

Oral Glucose (Glutose®, Insta-Glucose®)

Pharmacology

Action: Natural sugar

EMT can Administer Medication.

Onset: Onset: 1 - 2 minutes

Indications

Hypoglycemia,
Pediatric Hypoglycemia

Adult Dose

15 Grams PO (37. 5 ounce tube)
Squeeze tube between cheek and gum in small amounts, allowing time for patient to absorb and swallow.

Pediatric Dose

15 Grams PO
Do not use for children under 2 years of age

Contra-indications

Do not administer to unconscious person or unable to swallow

Adverse Reactions

∅

Precautions

∅

Contraindications

Indications

Adverse Reactions

Adult Dose

Precautions

Pediatric Dose

Medical Considerations

None

Oxygen

Action: Medical gas

Indications

Adult Airway
Pediatric Airway

Adult Dose

2 - 6 LPM via nasal cannula
10 - 15 LPM via non-rebreather mask
15 LPM or greater via BVM / ET

Pediatric Dose

2 - 6 LPM via nasal cannula, blow by
10 - 15 LPM via non-rebreather mask
15 LPM or greater viia BVM / ET

Contraindications

None
May depress respirations in rare patients with chronic obstructive pulmonary disease. This is not a contraindication to its use, but simply means that such patients must be watched closely and assisted to breathe if the respiratory rate declines.

Adverse Reactions

Toxicity, depressed hypercarbonic drive
(Respiratory depression with COPD patients)

Precautions

∅

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

None

Pharmacology

Promethazine (Phenergan®)

Pharmacology

Action: Antihistaminic, Sedative, Anti-motion-sickness

Onset: 3 - 5 minutes

Indications

Nausea/Vomiting,
Pediatric Nausea/Vomiting

Adult Dose

12.5 mg IVP, IO Slowly
May repeat in 10 – 15 minutes x 1
6.25 mg IVP, IO for elderly 70 & older
OBSERVE CLOSELY. Contact medical control before administering for vomiting due to pregnancy or labor.

Pediatric Dose

Under age 12: 6.25 mg IVP, IO, IM Slowly
Dosage should not exceed half of the suggested adult dose.
NOT TO BE GIVEN TO CHILDREN UNDER 2 YEARS OF AGE

Contra-indications

Hypersensitivity, Comatose states and in patients that have demonstrated idiosyncratic reaction. Intra-arterial injection -will result in possibility of gangrene. Should not be given subcutaneous. Seizure, Hypotension. Not to be used in the presence of large amounts of CNS depressants (Alcohol, Barbiturates, Narcotics, ETC.)

Adverse Reactions

Cardiovascular: Increased or Decreased Blood Pressure, Tachycardia, Bradycardia, Faintness
CNS: Drowsiness, Sedation, Blurred Vision, Dizziness, Confusion, Disorientation, Extrapyramidal Symptoms, Fatigue, Nervousness, Insomnia, Tremors, Convulsions, Excitation, Catatonic -like States, Hysteria, Hallucinations
Gastrointestinal: Dry Mouth, Nausea, Vomiting
Respiratory: Asthma, Nasal Stuffiness, Respiratory Depression, Apnea
Other: Angioneurotic Edema, Neuroleptic Malignant Syndrome (potentially fatal)

Precautions

If active wheezing, do not use. Be sure IV is patent and no signs of infiltration. Can cause phelobitis.
*Phenothiazines include: Etrafon, Serentil, Stelazine, Compazine, Thorazine, Trilafon
NOTE: If the medication is not seen in above medications, and ends in --zine or -ine, or unsure, consult medical control before administration or Phenergan.

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

Use cautiously when patient has allergy to sulfa. Dilute drug with NS or give IVP (slowly) with IV wide open. If extrapyramidal side effects develop, administer Benadryl 25 mg.

Pharmacology

Sodium Bicarbonate

Pharmacology

Action: Alkalinizing agent, Antacid, Electrolyte

Onset: Immediate

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Indications

Asystole/PEA, V-Fib/Pulseless V-Tach, Cyanide-Smoke Inhalation, Toxic Exposure, Crush Trauma, Pediatric Asystole/PEA, Pediatric V-Fib/Pulseless V-Tach, Pediatric Overdose, Pediatric Toxic Overdose (Sarin, Cyanide/Smoke), Pediatric Crushing Trauma

Adult Dose

1 mEq/kg IVP, IO
Repeat with 0.5 mEq/kg every 10 minutes of cardiac arrest

Pediatric Dose

1 mEq/kg IVP, IO
Repeat with 0.5 mEq/kg every 10 minutes of cardiac arrest

Contra-indications

Hypertension, Convulsions, CHF, and other situations where administration of sodium can be dangerous. Hypoxic and acidotic (i.e. not intubated), severe pulmonary edema, hypocalcemia, hypokalemia, hypernatremia.

Adverse Reactions

Hypernatremia, alkalosis, hypokalemia

Precautions

May precipitate in calcium solutions, vasopressors may be deactivated.

Medical Considerations

Flush IV tubing before and after administration. If potassium falls too low, the heart may become irritable, especially if the patient is taking a digitalis preparation.

Vasopressin (Pitressin®)

Pharmacology

Action: Vasoconstrictor, Antidiuretic

Onset: < 5 minutes

Indications

Asystole/PEA,
V-Fib/Pulseless V-Tach

Adult Dose

40 units IVP/IO one (1) time first or second dose as an alternative for Epinephrine 1:10,000.

Pediatric Dose

∅

Contra-indications

Known Hypersensitivity, Caution if liver disease, Seizure disorder, CHF, CAD, Caution if impaired renal function, Asthma, Migraine, Pregnancy, Caution if elderly, Not recommended in conscious patients

Adverse Reactions

Stomach cramps, nausea & vomiting, angina, confusion, wheezing

Precautions

Increased peripheral vascular resistance may provoke cardiac ischemia and angina. Improved myocardial perfusion without increasing myocardial Oxygen demand.
Must wait 5 minutes before giving Epinephrine 1:10,000.

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

None

Pharmacology

Vecuronium (Norcuron®)

Pharmacology

Action: Paralytic Non-depolarizing neuromuscular blocking agent

Onset: < 1 minute

Indications

Drug Assisted Intubation

Adult Dose

0.1 mg/kg IVP, IO
Maintenance : 0.01 – 0.05 mg/kg

Pediatric Dose

0.1 mg/kg IVP, IO

Contra-indications

Hypersensitivity / Allergy, Newborns, myasthenia gravis

Adverse Reactions

Most frequent reaction is an extension of the drug's pharmacological action beyond the time period needed. May vary from skeletal muscle weakness to profound and prolonged skeletal muscle paralysis resulting in respiration insufficiency or apnea.

Precautions

Slower circulation time in cardiovascular disease, old age, edematous states resulting in increased volume of distribution may contribute to a delay in onset time. Severe obesity or neuromuscular disease may pose airway and/ or ventilatory problems. Malignant hyperthermia. Vecuronium has no known effect on consciousness, the pain threshold, or cerebration. Administration must be accompanied by adequate anesthesia or sedation. **Storage**: Protect from light.

Contraindications
Indications
Adverse Reactions
Adult Dose
Precautions
Pediatric Dose

Medical Considerations

Keep patient sedated with Versed when using Vecuronium. Monitor vital signs every 5 minutes. Patient must be monitored with capnography while paralyzed.

Guidelines

Responsoft™

www.responsoft.com

Guidelines

Air Transport

Guidelines

Air Transport – Helicopter

Policy

Whenever patient care can be improved by decreasing transport time or by providing expedient advanced care not available from the ground EMS, utilization of medical air transport should be engaged (i.e.; extensive multiple trauma, neurologic trauma, amputation, need for blood, etc.).

Purpose

1. Improve patient care in the pre hospital setting.
2. Allow for expedient transport in serious, mass casualty situations.
3. Provide life-saving treatment such as blood transfusion.

Procedure

1. Do not delay ground transportation in order to wait for a helicopter. If the patient is packaged and ready for transport and the helicopter is not on the ground or within a reasonable distance, the transportation will be initiated by ground ambulance/EMS to the local emergency department.
2. Whenever possible and no significant delay would be incurred, transport to KCH-ED helipad is recommended.
3. Each Fire/EMS District should identify potential landing zones for medical helicopters per Med-Flight landing zone criteria.
4. If a potential need for air transport is anticipated, but not yet confirmed, an air medical transport service can be placed on standby.
5. If the scene conditions or patient situation improves after activation of the air medical transport service and air transport is determined to not be necessary, paramedic or administrative personnel may cancel air transport.

Criteria

See: Trauma Triage Criteria-Adult/Geriatric

Trauma Triage Criteria-Pediatric

1. Multiple Trauma
2. Prolonged extrication (>20 min.) of an anticipated multiple trauma or severe head injury patient.
3. Flail chest injury
4. Two or more long bone fractures (humerus, femur)
5. Amputations proximal to the wrist or ankle.
6. Severe burns (i.e. >= 25% body surface) especially when involving the face, airway, hands, feet or when associated with a pre-existing medical condition. (i.e. diabetes mellitus)
7. Visible crush injuries to head, neck or torso.
8. Closed or open head injury associated with or caused by significant energy transfer. (i.e. auto accident, thrown from vehicle, bullet wounds)

The decision to activate air transport to the scene or to KCH-ED helipad is the decision of the EMS personnel on the ground based on their best clinical judgment.

Guidelines

Blood Draws by EMS for Law Enforcement

Guidelines

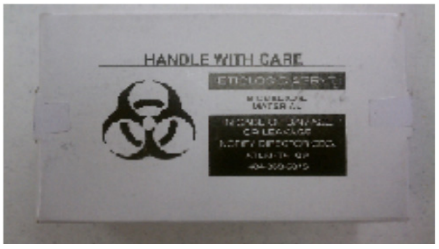
Phlebotomy by EMS for the Investigations of Operating Watercraft or Vehicles Under the Influence

Effective on September 17, 2010.

One of the provisions within this law is in addition to, and in the course of, providing emergency medical treatment, an Advanced EMT or Paramedic may withdraw blood as provided under sections 1547.11, 4506.17, and 4511.19 of the Ohio Revised Code.

As the withdrawal of blood for this purpose can only be done in the course of the provision of emergency medical treatment, **EMS providers should not be dispatched for the sole purpose of performing phlebotomy when a person does not require emergency medical treatment**. The key elements to participate in this process include training in the proper method of blood collection for the purpose of evidence collection and maintenance of the chain of custody of the evidence while simultaneously, and most importantly, providing emergency medical care.
The Advanced EMT or Paramedic who performs phlebotomy for evidence collection in addition to and in the course of providing emergency medical care must have completed prior training in performance of the procedure and maintenance of the chain of custody that has been approved by the EMS medical director. Phlebotomy for the purpose of evidence collection should not be performed by an EMS provider if one or more of the following exist:

1. The performance of phlebotomy for the purpose of evidence collection would delay patient treatment or transport or, in the event of a mass casualty incident, would delay the treatment or transport of other patients.
2. The patient refuses phlebotomy.
3. The patient is a minor whose legal guardian has not granted permission or is not present to provide permission for the performance of phlebotomy.
4. The patient has poor venous access.
5. Indwelling central lines, venous ports, or dialysis fistulas should not be accessed for the purpose of phlebotomy for evidence collection.
6. The proper equipment for the performance of phlebotomy for evidence collection is not readily available.
7. The chain of custody cannot be maintained for any reason. In addition to these patient-related issues, the responsibility of performing phlebotomy for evidence collection is immediately transferred to the receiving facility if the patient transport has been completed prior to the successful completion of phlebotomy by the EMS provider on scene or en route. Phlebotomy for the purpose of evidence collection should not be performed if the EMS agency employing the EMS provider has administrative policies in place that limit or prohibit an employee's ability to fully participate in this activity or associated activities, i.e. participation in legal proceedings while on duty or off duty.



Child Abuse Recognition and Reporting

Guidelines

Guideline:

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

Purpose:

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

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

Procedure:

1. With all children, assess for and document psychological characteristics of abuse, including excessively passivity, compliant or fearful behavior, excessive aggression, violent tendencies, excessive crying, fussy behavior, hyperactivity, or other behavioral disorders

2. With all children, assess for and document physical signs of abuse, including especially any injuries that are inconsistent with the reported mechanism of injury. The back, buttocks, genitals, and face are common sites for abusive injuries.

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

4. With all children, assess for and document signs of sexual abuse, including torn, stained, or bloody underclothing, unexplained injuries, pregnancy, or sexually transmitted diseases.

5. Immediately report any suspicious findings to both the receiving hospital (if transported) and to the Social Services. Law enforcement must also be notified. EMS should not accuse or challenge the suspected abuser. This is a legal requirement to report, not an accusation. In the event of a child fatality, law enforcement must be notified.

Concealed Weapons (Part 1)

Guideline

POLICY

Fredericktown EMS will **NOT** attempt to determine the validity of a license. Under no circumstances will Fredericktown EMS personnel, once having assumed custody of a weapon, return a weapon to a patient. Should a patient decide to refuse aid and/or transport **AFTER** Fredericktown EMS personnel have assumed custody of a weapon, the weapon will only be transferred to the custody of Law Enforcement, not the patient. Law Enforcement will determine the validity of the license.

With respect to citizen rights under HB 12 and the departments obligation to ensure the safety of its members and the citizens we protect, Fredericktown Community Joint Ambulance District (AKA Fredericktown EMS) will, contingent upon meeting strict criteria, secure handguns for:

- Conscious patients unable to leave the weapon with another responsible party **AND** willing to relinquish custody to the crew prior to transport;
- Patients with Altered Level of Consciousness, **IF** crew members are able to safely secure the weapon prior to transport.

Conscious patients **UNWILLING** to leave the weapon with another responsible party **OR** unwilling to relinquish custody to the crew prior to transport will **NOT** be loaded into the squad and will **NOT** be transported with the weapon. Fredericktown EMS considers our transport vehicles as extensions of government facilities and therefore considers the patient care compartment of the vehicles “Forbidden Carry Zones”.

Law Enforcement Officers are exempt from complying with the provisions of this policy **PROVIDED** that the patient is hand cuffed **AND** three cot straps. Law Enforcement officers being transported **SHALL** comply with these provisions by either relinquishing custody of their weapon(s) to the crew prior to transport or preferably to another officer prior to transport.

Family members, friends, or coworkers, etc. whether requested by the crew **OR** requesting to accompany our patient to the hospital are **NOT** exempt from complying with the provisions of this policy. **NO ONE**, other than Law Enforcement Officers as outlined above, is allowed to carry a weapon in the patient care compartment of Fredericktown EMS transport vehicles.

The primary goal when encountering a patient with a weapon is to have the patient transfer custody of the weapon prior to transport. In the event that transfer to another party is not possible, the following guidelines are suggested:

REMEMBER- If you are ever in doubt about scene safety, your safety or your crew’s safety, leave the scene immediately and have Law Enforcement secure the area before returning to the patient. Always use sound judgment and caution when dealing with weapons of any kind.

Concealed Weapons (Part 2)

PROCEDURES

Three types of weapons contact are possible:

CONSCIOUS PATIENTS WILLING TO RELINQUISH WEAPON

- Prior to loading the patient;
- Contact Law Enforcement (Knox County Sheriff's Office, Fredericktown PD, Etc)
- Owner places the weapon in the Lock Box;
- Crew locks the box and places it into the locked exterior compartment for safe transport; Upon law enforcement arrival , allow law enforcement to assume custody of the weapon and give the patient a receipt for the weapon.
- Crew conducts a thorough physical exam using Complete Search technique;
- If no other weapons found, transport;

CONSCIOUS PATIENTS UNWILLING TO RELINQUESH WEAPON

- Contact Law Enforcement (Knox County Sheriff's Office, Fredericktown PD, Etc)
- Communicate sound medical reasoning for transport;
- Explain the Fredericktown EMS procedures for safe handling and security of weapons while attempting to encourage patient to relinquish custody;
- If patient continues to refuse to relinquish custody, **REFUSE TO TRANSPORT;**
- Evacuate the scene;
- Re-enter the scene only after law enforcement has secured the weapon/scene.

PATIENTS WITH ALTERED LEVEL OF CONSCIOUSNESS

- Contact Law Enforcement (Knox County Sheriff's Office, Fredericktown PD, Etc)
- If a patient with an altered level of consciousness carrying a firearm is encountered **AND** we can safely remove the holster from the person, then do so with the weapon still in the holster, if not remove the weapon from the holster;
- Crew places the weapon, or weapon in the holster into the lock box;
- Crew locks the box and places it into the locked exterior compartment for safe transport; Upon law enforcement arrival, allow law enforcement to assume custody of the weapon and give the patient a receipt for the weapon.
- **Do not attempt to unload any firearm prior to securing it in the lock box!**

Concealed Weapons (Part 3)

SPECIAL NOTES:

DO NOT EVER ATTEMPT TO CLEAR A WEAPON. Regargless of a persons familiarity with firearms, there is no way to know if any modifications have been made or if the weapon is in good working order.

If the patient is unconscious, disoriented or incapacitated in any way, there is no way to verify that they are a legitimate permit holder and law enforcement should be notified.

Assume control of the weapon and if possible, turn it over to law enforcement officers at the scene. If law enforcement ETA is prolonged and transport urgent, the weapon shall be placed in the locked box and placed in the locked exterior compartment and turned over to law enforcement at the hospital.

If a patient is carrying a weapon in the “Forbidden Carry Zone”, even though they are a legitimate permit holder, law enforcement should be called.

Remember that having a weapon while intoxicated is a criminal offence. Law enforcement should be notified any time this situation is encountered.

When in doubt **CALL LAW ENFORCEMENT.**

Attached is a brief, graphic representation in algorithm form to use for reference. This algorithm is not comprehensive, however does contain necessary references of use in making an informed decision.

ALWAYS ASSUME ALL WEAPONS ARE LOADED!!!!

Concealed Weapons Form

Fredericktown EMS

Receipt for Surrendered Weapon (CCW)

THIS FORM SHALL BECOME PART OF THE PATIENT CARE REPORT

_____ _____

Full Name of Person Receiving Weapon Badge/Unit Number

_____

_____

Address of Person Receiving Weapon

_____

_____ _____

Full Name of Weapon (s) Owner

_____ _____

Address of Incident

_____ _____Same as Owner

Address of Weapons Owner

Detail of Weapon (s)

Revolver / Semi-Automatic Make_____

Model_____ Serial Number_____

Caliber_____ Total # of rounds _____

Revolver / Semi-Automatic Make_____

Model_____ Serial Number_____

Caliber_____ Total # of rounds _____

Revolver / Semi-Automatic Make_____

Model_____ Serial Number_____

Caliber_____ Total # of rounds _____

_____

If there are more weapons than on this list, please fill out addendum and attach

I am authorized to possess the Weapon (s) listed above because I am a Law Enforcement Official with the _____.

Property Receipt from Law Enforcement Given to:

_____

Name Address Telephone

_____ _____

Signature of F.E.M.S. Member completing form Date

_____ _____

Signature of Law Enforcement Official Date

Guidelines Consent, Refusal and Withdrawal of Consent Guidelines

Right of Consent or Refusal:
All patients who are conscious and oriented to person, place, and situation have the right to give consent for treatment and transport, or to refuse treatment and/or transportation.

Patients should be advised by the EMS personnel of his/her diagnostic impression and the course of treatment prescribed by Fredericktown EMS Protocols. This should be explained in terminology understood by the patient.

Limitations to the Right of Refusal:
All patients who are unconscious or mentally impaired such that they cannot make a proper judgment regarding their immediate situation shall be transported to the closest appropriate facility.

Patients may be considered incompetent to refuse care and/or transportation when they are impaired. Patients who may be impaired include:

- Patients who exhibit Suicidal behavior or Ideation
- Patients with Drug, Alcohol or Toxic Exposures (CO)
- Patients with Medical Conditions that may cause impairment

Withdrawal of Consent:
A competent patient may withdraw consent for treatment at any time.

The Medic In-Charge shall consider the following with making a judgment regarding Patient Competency to Withdraw Consent: A person may be considered mental competent for the purpose of consenting or refusing treatment and/or transport if he or she:

- Is ≥18 years of age, or a court certified emancipated minor
- Is oriented to person, place and situation
- Is capable of understanding the nature and consequences of the proposed treatment with sufficient emotional control, judgment, and discretion to manage his own affairs
- Is not otherwise impaired

If a competent patient refuses consent or withdraws consent for treatment, EMS personnel shall document:

- All care provided
- The patient's competency to refuse consent
- Patient’s should acknowledge and sign the refusal statement on the electronic patient care report or paper equivalent
- If the patient refuses to sign, then their refusal should be witnessed by at least two people, preferably one being a non-EMS provider

Minors, developmentally disabled patients, and persons deemed incompetent by EMS personnel should be treated after consultation with the patient's guardian, parent, spouse, or other responsible caregiver. If the guardian, parent, spouse, or other responsible caregiver is not immediately available, then the patient should be treated as per protocol and transported to the closest most appropriate hospital.

Actions

For patients for whom the DNR Comfort Care protocol is activated, you:

Will:

- Suction the airway
- Administer oxygen
- Position for comfort
- Splint or immobilize
- Control bleeding
- Provide pain medication
- Provide emotional support
- Contact other appropriate health care providers such as hospice, home health, attending physician/CNP/CNS

Will Not:

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

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

Interaction with the Patient, Family, and Bystanders

The patient always may request resuscitation even if he or she is a DNR Comfort Care patient and this protocol has been activated. The request for resuscitation amounts to a revocation of DNR Comfort Care status.

If family or bystanders request or demand resuscitation for a person for whom the DNR Comfort Care Protocol has been activated, do not proceed with resuscitation. Provide comfort measures as outlined above and try to help the family understand the dying process and the patient's choice not to be resuscitated.

EMS workers are not required to search a person to see if they have DNR Identification.

If an EMS or other health care worker discovers one of these items in the possession of a patient, the worker must make a reasonable effort to identify DNR patients in appropriate circumstances. Examples of ways to verify identity are:

- The patient or a family member, caregiver, or friend gives the patient's name.
- The health care worker knows the patient personally.
- Institution identification band.
- Driver's license, passport, or other picture ID.

If you cannot verify the identity of a patient with DNR Identification after reasonable efforts, you still should follow this protocol.

Verification of identity is not required for patients or residents of health care facilities when a DNR order is present on the person's chart.

EMS personnel who receive a verbal DNR order from a doctor or CNP/CNS must verify the identity of the person issuing the order. Some examples of verification are:

- Personal knowledge of the doctor/CNP/CNS.
- List of practitioners with other identifying information such as addresses.
- A return telephone call to verify information provided.

Activation

When this protocol is activated for a given DNR Comfort Care patient depends on whether the patient is a DNR Comfort Care patient or a DNR Comfort Care – Arrest patient. For a DNR Comfort Care patient, this protocol is activated when the DNR order is issued or the living will specifying no CPR becomes effective. For a DNR Comfort Care – Arrest patient, the protocol is activated when the patient experiences a cardiac arrest or a respiratory arrest.

"Cardiac arrest" means absence of a palpable pulse. "Respiratory arrest" means absence of spontaneous respirations or presence of agonal breathing.

DNR-Bracelet/Wallet Card

3701-62-04

Appendix B

Hospital Type Bracelet Insert

DNR Name_____ Gender_____
Physician's name_____ Physican's Phone_____

Appendix D

3701-62-04

DNR Comfort Care Wallet Identification Card

DNR
COMFORT CARE
❑ DNR Comfort Care ❑ DNR Comfort Care Arrest
Name_____
Birthdate_____ Gender ❑ M ❑ F

Physician name_____
Physician phone_____
Other emergency phone_____

The person named on the front of this card may revoke DNR Comfort Care status by destroying this card.

DNR Comfort Care/ DNR Comfort Care-Arrest

EMS personnel will honor the State of Ohio DNR Comfort Care/DNR Comfort Care-Arrest directives when presented to them. In the absence of these advanced directives, EMS personnel will initiate appropriate care per protocol.

DNR Comfort Care

YOU WILL

- Suction the airway
- Administer oxygen
- Position for comfort
- Splint or immobilize
- Control bleeding
- Provide pain management
- Provide emotional support
- Contact physician, hospice, or home health care

YOU WILL NOT

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

DNR Comfort Care-Arrest

YOU WILL

- Administer current resuscitative care which includes components of CPR
- Terminate CPR and its components immediately after cardiac or respiratory arrest occurs.

Documentation

EMS or other health care personnel who implement the DNR Protocol for a DNR Comfort Care patient should document in their records, in accordance with the policy of their agency or facility:

- The item that identified the person as DNR Comfort Care (as listed in the Identification portion of this protocol).
- The method of verifying the person's identity, if any was found through reasonable efforts.
- Whether the person was a DNR Comfort Care or DNR Comfort Care – Arrest patient.
- The actions taken to implement the DNR Protocol.

When a DNR Order is Current

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

TO BE ENACTED

APPENDIX

DNR COMFORT CARE

The State of Ohio Do-Not-Resuscitate Protocol Approved by the Ohio Department of Health

Identification

Patients can be either DNR Comfort Care patients or DNR Comfort Care – Arrest patients. The difference is that for a DNR Comfort Care patient, the State of Ohio DNR Protocol is activated immediately when a DNR order is issued or when a living will requesting no CPR becomes effective, but for a DNR Comfort Care -- Arrest patient, the protocol is activated only when the patient experiences a cardiac arrest or a respiratory arrest. Be careful to check the patient's DNR order or DNR identification to determine which applies.

A DNR Comfort Care or DNR Comfort Care – Arrest patient's status is confirmed when the patient has one of the following:

*1. A DNR Comfort Care card or form completed for the patient.
*2. A completed State of Ohio living will (declaration) form that states that the patient does not want CPR (in the case of a patient who has been determined by two doctors to be in a terminal or permanently unconscious state).
3 A DNR Comfort Care necklace or bracelet bearing the DNR Comfort Care official logo.
*4. A DNR order signed by the patient's attending physician or, when authorized by section 2133.211 of the Ohio Revised Code, a certified nurse practitioner (CNP) or clinical nurse specialist (CNS).
5. A verbal DNR order is issued by the patient's attending physician, CNP, or CNS.

* Copies of these items are sufficient.

DNR Identification Form

Guidelines

DNR COMFORT CARE

DNR IDENTIFICATION FORM

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

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

Patient Name:_____

Address:_____

City_____ State_____ Zip_____

Birthdate_____ Gender ❑ M ❑ F

Signature_____ (optional)

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

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

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

Printed name of physician*:_____

Signature_____ Date_____

Address:_____ Phone_____

City/State_____ Zip_____

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

See reverse side for DNR Protocol

Guidelines

Left Ventricular Assist Device (LVAD)

Guidelines

A. The **HeartMate II Left Ventricular Assist System** is a small advanced blood pump designed to restore hemodynamic function in patients with late-stage heart failure. This device is typically used as a long-term bridge to heart transplant and is implanted by The Ohio State University Medical Center and the Cleveland Clinic.

B. The LVAD is comprised of a continuous flow pump located inside the patient's thorax that is attached to the left ventricle. A power cable extends from the pump to an external battery pack that is secured in a harness worn by the patient. Patients with an L VAD rely upon these devices for their survivaL.

C. Establish patent airway, apply cardiac monitor, initiate IV infusion of 0.9% NS at TKO rate.

D. Apply pulse oximetry/C02 monitoring devices. (may be unreliable in VAD patient)

E. Contact VAD coordinator on call:

1. The Ohio State University Medical Center (614) 293-8000 and ask for the VAD Coordinator on-call
2. Cleveland Clinic VAD hotline: 216-444-2200. Pager number 23400 should be requested.

F. **General Guidelines**:

1. If no VAD alarms, ignore the VAD and do regular ALS assessment.
2. Pulses may not be detectable due to VAD continuous blood flow mechanism.
3. Blood pressure may be difficult to auscultate, so a Doppler may be needed.
4. Look for the patient's "Emergency Contact Card".
5. Check patients DNR status.
6. Locate extra batteries, battery charger or AC adapter.
7. Batteries must be charged & connected for the VAD for continuous function.
8. Assume the patient is anti-coagulated and at risk for bleeding.
9. EKG 12-Lead may be performed as usuaL.
10. Avoid external chest compressions or CPR. Call VAD specialist before initiation.
11. Arrhythmias may be treated per protocol.
12. LVAD is pre-load dependent so fluid bolus at 20cc/kg may be indicated.

G. If the VAD pump has stopped, look for possible equipment disconnection, activated continuous alarms, or absence of "humming" sound just above diaphragm per stethoscope.

1. Confirm amount of time pump has been stopped. A prolonged period of stoppage can increase the risk of clot formation and expulsion when the pump is restarted.
2. Fix any external loose connections (3 possible) to the system controller.
3. If pump does not re-start, consider replacing the 2 batteries (one at a time) with new, fully-charged pair.

H. Transport to the hospital that the coordinator on call recommends if not in cardiac arrest. If in cardiac arrest transport to nearest Emergency Department.

I. Always transport patient with Travel Bag containing extra controller, batteries and cables and if stable transport to the hospital that the coordinator on call recommends.

Guidelines Pediatric Consent, Consent Withdrawal, Treatment and Transport Guidelines

In non-emergency cases involving minors, consent should be obtained from the parent or legal guardian prior to undertaking any treatment.

When waiting to obtain lawful consent from the person authorized to make such consent would present a serious risk of death, impairment of health or would prolong severe pain or suffering, treatment may be undertaken without consent. In no event should legal consent procedures be allowed to delay immediately required treatment.

Pediatric Refusal:
Care may be refused for a MINOR, ONLY if **ALL** of the following are met

1. The patient exhibits no historical or physical findings of potentially life or limb or organ threatening injury or illness, **AND**
2. The patient is not intoxicated, and has no alterations in mental status, level of consciousness, or vital signs, **AND**
3. The responsible parent or legal guardian is competent and present, or verifiably available by phone, and refuses care, **AND**
4. There are no findings to suggest child abuse or neglect.

If after evaluation of a minor, EMS personnel determine that the patient does not require transport, that minor may be left with parental consent, in the care of a responsible adult that is not the parent or legal guardian

Religious Objection:
Situations involving a critically ill or injured child under the care of a competent adult who refuses treatment and or transport for the minor due to religious objection have historically occurred. In such circumstances:

Notify the EMS Supervisor and the police department
The police may take the child into protective custody whereby enabling EMS to treat and transport the child despite the objection of the responsible parent.

Pediatric Transport Destination:
Pediatric patients who require "advanced" level of care should be transported to a Level 1 Trauma Center. Arrange for Air Medical transport.

Pediatric patients with a complaint related to pregnancy should be transported to hospital that provides obstetrical services.

Routine Transport Orders (Adult)

Guidelines

Guideline

Routine Transport Orders (Adult)

General: perform scene size-up, initial assessment, and either rapid trauma assessment or a focused history and detailed physical exam, followed by ongoing assessment.
Obtain blood glucose level.
Assure patency of airway (with C-spine control as indicated) and provide ventilatory assistance as needed.

EMT consider using King LTD or Combitube if patient is pulseless and apneic.
Advanced EMT May perform oral Intubation or consider above (do not need to be pulsesless)
Place pulse oximeter on finger of patient and obtain SpO_2 level before administering O_2 if possible.
Administer oxygen by appropriate route, evaluate cardiopulmonary status, and suction as needed.
Obtain medical history (include present complaint, past pertinent medical history, current medications, allergies) and vital signs (BP, pulse, respirations, SPO_2, pupils, general appearance, skin color and level of consciousness). Also obtain a baseline body temperature if indicated and time allows.

Establish peripheral IV/IO lifeline at TKO of Normal Saline if indicated – **AEMT or Paramedic** level.
Monitor patient's cardiac status as indicated. **AEMT or Paramedic.** Treat any dysrhythmias per this protocol.
Notify the Emergency Department of patient's status, your ETA, and treatments given.
Continue to assess and re-evaluate the patient at the scene and enroute.
Transport to the nearest appropriate medical facility as soon as possible.

Paramedic consider Drug Assisted Intubation if indicated
Once an emergency squad has been requested and responded to the residence, nursing home or other location, care to the highest level the personnel can provide will be provided. Care shall continue until transport has been completed to the receiving facility or a physician has assumed patient care in person (no written or verbal order can be accepted).

Guidelines

Routine Transport Orders (Pediatric)

Guidelines

Gudeline

Pediatric Protocol

Routine Orders for all Pediatric Patients Requiring Advanced Life Support
Refer to length based pediatric guide (**Broslow pediatric tape or similar guide**)
if unsure of patients, drug dosage, weight or age.

EMT:
Establish airway and ventilation.
Oxygen, at highest percentage possible via appropriate route. Apply pulse oximeter, use 100% O_2 on all children in arrest.
Vital signs (Pulse, respirations, blood pressure, and temperature if appropriate) as needed.

Perform appropriate assessment, including medical history as necessary.
Notify Emergency Department of patient's status, your estimated time of arrival and treatments given. Continue to reassess patient enroute to the hospital.
Transport with parent if appropriate. **All patients under the age of 18 years old will be transported to the appropriate emergency department unless a parent or legal guardian signs the Refusal for Transport / Treatment..**
Advanced EMT/Paramedic*:*
Establish an IV/IO of 0.9% Normal Saline at TKO if indicated – if IV is not obtainable, IO infusion should be obtained.
Apply cardiac monitor, always suspect airway compromise as primary cause of cardiac dysfunction.

Be aware of the differences between the adult and pediatric patient. In infants and young children, the larynx is located more anteriorly and cephaled. The epiglottis is shorter and U-shaped. The angle formed by the epiglottis and vocal cords is more acute in young children. Their gums are soft, vascular and easily damaged. Deciduous, or 'baby teeth', are poorly anchored and easily dislodged. The tongue is relatively large while obviously the larynx and trachea are much smaller in the pediatric patient. Care must be taken not to hyperextend the neck, as the trachea is very pliable and can collapse.
A straight laryngoscope blade is recommended in the neonate and infant, while either a straight or curved blade can be used in the older child.
Pediatric drug dosages will not exceed maximum adult drug dosages

Scene of Any Death (First Arrival)

Guidelines

First Arrival on the Scene of Any Death

1. ABC's and confirms that the patient is clearly DOA. The patient will be pulseless and apneic, and cold to touch. If there is depended lividity, noted rigor, or injuries obviously incompatible with life. Then it is not necessary to apply heart monitor. If there is any doubt in the mind of the EMT as to the viability of the patient, then they should proceed with aggressive resuscitation according to protocols. Remove those living or unconscious who are injured to hospitals without delay.

2. When person is known to be dead: Make sure the Law Enforcement Agency having jurisdiction is en route, if not already present. Only contact the Coroner and/or patients physician after speaking to the Law Enforcement Officer on the scene. Law Enforcement is capable of handling all communications between the scene the Coroner / patients physician. If EMS is asked to assist, then remain on the scene, in service, and assist in whatever means possible.

- Preserve every vestige of evidence as it was found.
- Preserve any and all positions of persons, objects or fragments in their original relation to the person involved at the scene.
- Request Dead On Arrival time confirmation from Dispatch.
- If death is obviously from natural causes, Consider not covering the body until you speak with Law Enforcement unless you can not limit the exposure of the deceased.

3. When the Coroner and/or the person under their direction arrives - the body or bodies at the scene become the responsibility of the coroner's office until released to a funeral director.

SERT (Out of) Franklin County

SERT: Surgical Emergency Response Team

PROCEDURES FOR CENTRAL OHIO EMS SERT ACTIVATION

Central Ohio, non-CFD EMS may encounter similar situations that require surgical intervention for or prior to extrication for the preservation of life. Through mutual aid, Central Ohio EMS may utilize the SERT. SERT activation procedures vary slightly depending on the distance to the scene.

Out-of Franklin County. Outside of Franklin County, the following steps should occur for utilization of the SERT.

1) The on-scene Incident Commander calls the Columbus Fire Alarm Office (FAO) to request the SERT. The FAO can be contacted by calling (**614**) **221-2345**.

2) The FAO will implement its processes to notify the on-call SERT hospital. (See section *Overview of Columbus SERT Processes*.)

3) Depending on the distance to the scene and in consultation with the on-scene Incident Commander, the FAO may engage MedFlight of Ohio or another aeromedical program to transport the SERT to the scene. **877-633-3598**

   a. The FAO will send the nearest available CFD medic unit to the on-call hospital to retrieve the SERT, and will take the SERT directly to the scene or to an awaiting aeromedical program's helipad.
   b. When flying, consideration must be given to the number of SERT members and the weight of their equipment and supplies that may be required for a field amputation or other surgical intervention. When SERT transport is via helicopter, the SERT will likely be limited to two members who will be accompanied by an aeromedical program crew member. The crew member's role is to assure safe aeromedical operations and to assist the SERT once on-scene.
   c. In instances where aeromedical transport is not possible (i.e. inclement weather), CFD or the respective aeromedical program may opt to transport the SERT via a ground medic unit to the scene.

4) SERT members shall present to the non-Franklin County agency's on-scene incident commander first for communication, and the SERT surgeon assumes control of patient care once at the patient's side.

5) Once extricated, the SERT surgeon in consultation with the on-scene Incident Commander determines the optimal mode of transport for the patient to the trauma center, given current weather conditions, weight limitations and other factors. The transporting EMS agency shall anticipate that the SERT surgeon or other SERT team member will help accompany the patient back to the receiving trauma center.

Guideline:

EMERGENCY MEDICAL SERVICES PROTOCOL FOR SEXUAL ASSAULT

I. Introduction

A. The terms sexual assault and sexual abuse refer to any act of sexual contact or conduct performed upon one person by another, and without mutual consent, or with an inability of the victim to give consent due to age, or mental or physical incapacity. This protocol should also be used for other forms of sexual assault (sex crimes perpetrated against adults), and sexual abuse (sex crimes perpetrated against children and adolescents).

B. In Ohio, rape is defined as any sexual penetration, however slight, using force or coercion against the person's will. Although the majority of victims are women, children and men are also victims.

C. Rape is an act of physical violence and not an act perpetrated for sexual gratification.

II. Objectives

A. It is of the utmost importance that the rape survivor feel acceptance and support, regardless of her/his emotional response.

B. Do not evaluate or pass judgment on the credibility of the circumstances of the assault, recognizing that any response form a rape victim is within the appropriate range.

C. Providing help to victims of sexual assault requires special sensitivity. Social, cultural, and religious practices may cause victims additional stress if they are concerned about discriminatory treatment as they are seeking support.

III. Recognition

A. History - Obtain and document the following:

1. Time, date, and place of the attack.
2. If the patient volunteers the information, ascertain all body areas violated in the attack.
3. Information about whether the patient bathed since the attack.
4. If the victim is still wearing the clothing worn during the assault, suggest she take other clothing with her to be worn home.
5. If the patient changed clothes after the attack, the clothing must be brought along to the hospital in a ***paper bag***.
6. All marks or evidence of trauma
7. Other significant physical findings
8. Medical history, including possibility of pregnancy
9. All treatment given

Soft Restraints

Guidelines

Guideline:

Application of restraints may become necessary to protect both the patient and EMS personnel.
To apply restraints, wrap restraint around wrist or ankle, with the buckle side facing out. Attach tails of restraints to rail of cot, backboard, or patient, using a quick release tie. It is imperative to be able to release the restraint quickly.
Pulse, motor, sensation and circulation distal to the restraint should be assessed and documented before and after applying restraint.
Document the reason for restraint application, any marking or bruising of skin present on the patient before or after restraining, and any marking or bruising of EMS personnel as a result of restraining the patient. (In the course of a EMS run, situations may present themselves to require types of restraints not listed in this protocol i.e.: backboard, sheet, Along with chemical measures the goal remaining to protect the patient and caregiver.

SUSPECTED INFLUENZA A (SWINE FLU)

History

- 2 or more of the listed Signs & Symptoms
- Travel to endemic area within the past 7 days
- Exposure to sick contact with influenza symptoms.

Signs & Symptoms

- Fever and / or chills
- Breathing problems
- Cough
- Runny nose / congestion
- Sore throat
- Body aches
- Malaise (aches & pains)
- Nausea & vomiting
- Diarrhea

A suspected influenza patient is one of the following:

- Any patient with 2 or more signs or symptoms of influenza
- Any patient with one symptom and a history of travel to a endemic area or exposure to a sick contact.

Differential

- Influenza A (Swine H1N1 & Avian)
- Influenza B
- Non Influenza Viral Infections
- Respiratory Bacterial Infections

Dispatch Center Staff

Follow existing EMD Protocols and Guidelines
Ask the following Question

Listen carefully and tell me if you have any of the following symptoms?

- Fever or chills?
- Upper Respiratory Infection with a runny nose, nasal congestion, or a cough?
- Sore Throat?
- Vomiting or diarrhea?
- Body aches or weakness?
- Contact with someone with the flu?
- Travel to an area with a known flu outbreak?

If any symptom is positive (yes)
Notify responding EMS Units of potential Influenza Patient.

SUSPECTED INFLUENZA A (SWINE FLU)

Initial EMS Contact of Suspected Influenza Patient

- Bring N-95 mask and personal protective equipment (PPE) with you into home or patient area.
- Stay a minimum of 2 meters (6 feet) from the patient until the patient history has been completed and no identified influenza symptoms have been identified.
- If the patient history is positive for 2 or more symptoms, all EMS personnel should put on a N-95 mask if in the patient treatment area.
- If the patient history is positive, place a surgical mask on the patient (use a Non-Rebreather Mask of Oxygen is clinically indicated).
- Follow strict hand-washing procedures and disposal of all PPE if not transporting the patient. Disposal should be in EMS biohazard waste containers.

Use Normal Treatment Protocols with the following exceptions

No Nebulized Medications should be given.

- Multi-Dose Inhalers (if possible with spacers) or Sub Q Epinephrine should be used instead.
- IV Epinephrine should be reserved for pre-arrest patients only.

Only use CPAP devices if they have disposable filters.

If an Invasive Airway is required, any Blind Insertion Airway Device (King LT-D or Combitube) is preferable to Endotracheal.

EMS Transport of Suspected Influenza Patient

- Confirm N-95 mask is on patient.
- Use PPE including gloves and N-95 mask if in patient compartment.
- If performing any direct patient care (especially any airway procedure) a gown and eye protection must also be used.
- Driver must wear N-95 mask if drivers cab is open to the patient compartment.
- Create negative pressure in the unit by having an open window.
- Notify the receiving facility early of the patients impending arrival so they may prepare an appropriate room to receive the patient.
- Carefully clean the unit after the call using approval infection control practices.

The purpose of this protocol is to provide direction to communication center and EMS professionals on the safe identification, treatment, and transport of any patient with suspected influenza. By identifying any potential influenza patient, EMS professionals can more effectively reduce their exposure risk through the utilization of appropriate personal protective equipment (PPE).

Pearls

- Document Primary Symptom and all Associated Symptoms in the Patient Care Report for influenza surveillance.
- Patients with Swine Flu (H1N1) are infectious / contagious for up to 7 days after the onset of symptoms. If symptoms last longer than 7 days, the patient is considered contagious until the symptoms resolve.
- If you develop influenza like symptoms, notify your health care provider, your EMS Agency, and avoid contact with others to limit the spread of the illness.

Guidelines

Trauma Triage Criteria-Adult/Geriatric

Guidelines

These criteria are based on Ohio's legislated Prehospital Trauma Triage Criteria. Subtle differences reflected here demonstrate Central Ohio's regional capabilities to care for trauma victims. The State of Ohio definition of trauma is that trauma victims and trauma injuries have an indication of severe damage to or destruction of tissue in which there is significant risk of loss of life, loss of limb, permanent disfigurement, AND.OR permanent disability. Pediatric are defined as less than age 16. Geriatric patients are defined as those adults 70 years of age and older.

Adult patients with any of the following signs or symptoms subsequent to a traumatic injury should be transported directly to an Adult Trauma Center per Agency SOP's. Adult trauma Centers in Central Ohio include:

Grant Medical Center, Mount Carmel West, The Ohio State University & Riverside Methodist Hospital

MULTI-SYSTEM TRAUMA	Adult (16 years and older)	GERIATRIC (70 years and older): Differences from the General Adult Population are Underlined
Injury with any ONE of the following physiologic A-B-C-D criteria:	• **Airway / Breathing:** RR < 10 **OR** > 29; **OR** requiring endotracheal intubation; **OR** relief of tension pneumothorax • **Circulation:** HR > 120 **OR** SBP < 90 with suspicion of hemorrhagic shock, **OR** absent radial pulse with carotid pulse present • **Disability:** GCS ≤ 13; **OR** GCS ***Motor*** Score < 5; **OR** LOC > 5 minutes	• **Airway / Breathing:** Same criteria as Adult • • Circulation: Same criteria EXCEPT **SBP<100** • • Disability: Same criteria EXCEPT **GCS < 15 with suspected head injury** • **Multiple body regions injured**
Head, Neck, or Torso injuries with any ONE of the following criteria:	• Head, Neck, Torso: Any penetrating OR visible crush injury • Skull: Open or suspected skull fracture • Chest: Flail chest • Pelvis: Unstable or suspected pelvic fracture • Abdominal tenderness, distention; **OR** "seat belt sign" • Paralysis or other signs of spinal cord injury	• All with Same Criteria as Adult
Extremity Orthopedic Injury with any ONE of the following criteria:	• Fracture of 2 long bones (humerus / femur) OR significant open fracture • Visible crush injury • Amputation proximal to wrist or ankle • Neurovascular compromise	• All with Same Criteria as Adult EXCEPT also **Fracture of any one long bone sustained in a motor vehicle crash**
Extremes of Temperature:	• Second (partial thickness) OR Third (full thickness) Degree Burns > 10%TBSA • Significant burns involving face, airway, hands, feet, OR genitalia • Suspicion of profound hypothermia secondary to environmental exposure	• All with Same Criteria as Adults
Note: Transport trauma burn patients to The OSU Medical Center		
Eye Injury:	• Globe injury	• All with Same Criteria as Adults
NOTE: Transport isolated globe injuries Grant Medical Center, Mount Carmel West or The Ohio State University Medical Center		

GCS Score

SEE:

SOURCES OF FORCES WARRANTING HIGH INDEX OF SUSPICION FOR MAJOR TRAUMA

Located in: **Trauma Triage Criteria-Pediatric**

Guidelines

Trauma Triage Criteria-Pediatric

Guidelines

PEDIATRIC patients with any of the following signs or symptoms subsuquent to a traumatic injury should be transported directly to a Pediatric Trauma Center per Agency SOPs. The Pediatric Trauma Centers in Central Ohio is: **Nationwide Children's Hospital**

Note: The exception is trauma patients < 16 years of age who appear pregnant or give a history of pregnancy should be transported to an ADULT trauma center.

MULTI-SYSTEM TRAUMA	PEDIATRIC (less than 16 years of age)
Injury with any ONE of the following physiologic A-B-C-D criteria:	• Airway / Breathing**:** Evidence of respiratory failure or distress including tachypnea, bradypnea, stridor, grunting, retractions, cyanosis, hoarseness, and / or difficulty speaking • Circulation**:** Evidence of poor perfusion including tachycardia, bradycardia, weak / absent peripheral pulses, pallor, cyanosis, and / or delayed capillary refill distal • Disability**:** GCS ≤ 13; OR *Motor* Score < 5; OR LOC > 5 minutes
Head, Neck, or Torso injuries with any ONE of the following criteria:	• Head, Neck, or Torso: Any penetrating OR visible crush injury to head, neck, or torso • Skull: Open or suspected skull fracture • Chest: Flail chest • Pelvis: Unstable pelvis OR suspected pelvic fracture • Abdomen: Tenderness, distention; OR "seat belt sign" • Paralysis or other signs of spinal cord injury
Extremity Orthopedic Injury with any ONE of the following criteria:	• Fracture of 2 or more long bones (humerus / femur) OR significant open fracture • Visible crush injury • Amputation proximal to wrist or ankle • Neurovascular compromise
Extremes of Temperature:	• Second (partial thickness) OR Third (full thickness) Degree Burns > 10% TBSA • Significant burns involving face, airway, hands, feet, OR genitalia • Suspicion of profound hypothermia secondary to environmental exposure
Eye injury:	• Globe injuries.

GCS Score

THE FOLLOWING APPLIES TO ALL AGES

SOURCES OF FORCES WARRANTING HIGH INDEX OF SUSPICION FOR MAJOR TRAUMA	
• Fatality in same vehicle • Ejected OR thrown from vehicle • Seat belt restraint use and high impact collision • Intrusion of the passenger compartment > 12 inches	• Rollover • Auto-pedestrian impact > 20 mph OR thrown > 15 feet: For Geriatric patients, the caution is heightened to any pedestrian struck by a motor vehicle • Motorcycle, ATV, **OR** bicycle crash with injury • Falls > 20 feet: For Geriatric patients, the caution is heightened to a fall from any distance (even the same level) with evidence of head injury
PRE-EXISTING CONDITIONS / "COMORBIDS" WARRANTING HIGH INDEX OF SUSPICION FOR MAJOR TRAUMA	
• Age ≤ 15 OR > 70 years • Bleeding Disorder OR use of Anticoagulants including Coumadin or Warfarin • Cardiac Disease OR Respiratory Disease • Cirrhosis • Dialysis if > 70 years of age	• Immunosuppression • Insulin-dependent diabetes • Morbid Obesity • Pregnancy

Vital Signs

Gudeline

1. In most cases a set of baseline vital signs should be obtained and recorded as soon as practical.

   Standard vital signs include:

   A. Heart /pulse rate
   B. Blood pressure
   C. Respiratory rate
   D. Pulse oximeter reading when available
   E. Assess Breath Sounds Bilaterally
   F. Obtain Blood Glucose when appropriate
   G. **Temperature when appropriate** (see: **Pediatric Febrile Seizures Protocol**)

Procedures

Responsoft™

www.responsoft.com

Procedures-continued

Procedure

12 Lead ECG

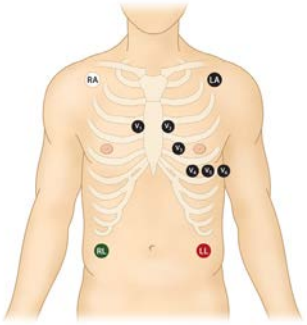
Procedure

Steps

Was performed ?

Steps	YES	NO
1. Prepare ECG monitor and connect patient cable with electrodes.	☐	☐
2. Enter the required patient information into the 12 lead ECG device.	☐	☐
3. Expose chest (modesty of the patient should be respected) and prep as necessary. Poor tracings are usually caused by lack of skin preparation. Use gauze pad to vigorously rub site. Using alcohol preps will remove skin lotions and creams. Allow alcohol to dry before applying electrode. Remove any excess hair as needed to also improve tracing.	☐	☐
4. Attach limb leads on or near the limbs. Avoid attaching limb leads to the torso. Attaching leads to the torso produces a cleaner rhythm, but may limit evaluation of ECG. Some of the changes that can occur are: * A shift in the cardiac axis towards the right * R wave becomes smaller in lead I * Less prominent Q waves in inferior leads	☐	☐
5. Apply chest leads and extremity leads using the following landmarks: It is important to realize that once a 12 lead ECG has been performed, that any further 12 lead ECG's, lead placement must be the same for true ECG comparison. This also includes Hospital vs EMS 12 lead ECG comparison.	☐	☐

- 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



Steps	YES	NO
6. Instruct patient to remain still.	☐	☐
7. Press the appropriate button to acquire the 12 Lead ECG. Transmit ECG to hospital if resources are available.	☐	☐
8. 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. Suggestions to trouble shoot are: 1. Are cables connected? 2. Is equipment functioning properly? 3. Is an external electrical equipment interfering? 4. Was skin prepared properly? 5. Are Electrodes dry? 6. Poor adhesion?	☐	☐
9. Monitor the patient while continuing with the treatment protocol.	☐	☐
10. Document the procedure, time, and results on/with the patient care report (PCR)	☐	☐

General

EMT

AEMT

Paramedic

Procedure

12 Lead ECG Transmission

Procedure

General

EMT

AEMT

Paramedic

Clinical Indications:

Patients who present with non trauma related chest pain on which a 12 lead EKG has been performed and any or all of the following findings have been identified.

- ST segment elevation over 1 mm of the baseline in any EKG lead.
- ST segment depression over 1mm of the baseline in any EKG lead.
- Any evidence of Left Bundle Branch Block (LBBB).
- Any clinical situation that is highly suggestive of a potentially serious cardiac event.
- Any cardiac rhythm that may impact care of the patient at the receiving hospital.

CONSIDERATIONS:

- A 12 lead EKG should be obtained as soon as it is recognized to be indicated.
- Do not delay patient care for the transmission of the 12 lead EKG, the 12 lead can be transmitted while Enroute to the hospital.
- Transmission of the 12 lead EKG may not be feasible if transport time is less than 5 minutes.

Steps	Was performed ? YES	NO
1. Take the following steps to enter the patients name into the LifePak 12. The information that you put into the monitor will help the hospital match the EKG to the patient upon arrival at the hospital. a. Press **OPTION** b. Select **PATIENT** c. Using the selector knob, enter the patients **LAST NAME & FIRST NAME.** d. Select **END** when the information is complete.	☐	☐
2. Connect the data cable to the cell phone, and then connect the data cable to the grey connection port on the back of the LifePak 12 if not already connected.	☐	☐
3. Press **TRANSMIT**, select **DATA**	☐	☐
4. Select the desired **REPORT** to be sent to the hospital, in most cases this will be the 12 lead EKG tracing that was obtained.	☐	☐
5. Select the desired **SITE.** This will be the hospital that you are transporting the patient to.	☐	☐
6. Select **SEND** to transmit the report to the receiving hospital.	☐	☐
7. While encoding the hospital, verify their receipt of the 12 lead EKG.	☐	☐

Procedure

Adult Primary Assessment

Procedure

Clinical Indications:

Begin an ABC approach to the patient from a general impression and establish the presence of a life threatening injury or illness.

Steps | **Was performed ?** YES NO

Initial Assessment

1. Quickly assess level of consciousness using the AVPU Method.
   - A Alert: Eyes Open
   - V Verbal: Responds to vocal stimuli
   - P Pain: Responds only to pain
   - U Unresponsive: No response to verbal or Painful stimuli

2. Assess the airway (protect c-spine if uncertain)
   - a. responsive - no intervention needed, proceed to step 3.
   - b. if unresponsive - use the appropriate medical or trauma maneuver to open the airway
   - c. if airway remains partially or totally obstructed, continue attempts to clear the airway (refer to airway emergencies).

3. Assess adequacy of breathing
   - a. observe chest rise and fall, auscultate breath sounds anteriorly, posteriorly and peripherally.
   - b. observe for signs of distress - use of secondary muscles, cyanosis
   - c. count the respiratory rate and obtain pulse oximeter reading (SpO2) if available
   - d. if breathing adequate - go to step 4.
   - e. if breathing is inadequate and patient is unresponsive - assist breathing with appropriate device
   - f. if breathing is inadequate and patient is responsive - administer **OXYGEN**.

4. Assess the circulation / perfusion
   - a. assess rate and quality of pulses - peripheral and central pulses
   - b. stop any active bleeding, assess skin color, temperature, and obtain blood pressure.
   - c. if there is no palpable pulse or rate is too slow to maintain cerebral blood flow, begin CPR (refer to Circulatory 6).
   - d. if bleeding is present - manage bleeding

5. Provide care for any compromise in airway, breathing, circulation, or neurological status per protocol and perform basic life support as per current American Heart Association Guidelines.

6. Identify priority patients and make a transport decision.
   - a. Priority patients include those with compromises in airway, level of consciousness, breathing, and circulation, which are not easily remedied with basic intervention.
   - b. If identified as a non-priority medical patient, go to Patient Assessment-Medical.
   - c. if identified as a non priority trauma patent, go to Patient Assessment-Trauma.

7. Further Assessments, Go to: **Patient Assessment-Medical** or **Patient Assessment-Trauma**

General

EMT

AEMT

Paramedic

Procedure

AED

Procedure

Automated External Defibrillation (AED)

Clinical Indications: **EMT-Basic**

For unresponsive, pulseless & apenic patients.

Contraindications:

Not for use on children less than 1 years of age.

Provide CPR until AED arrives. Minimize interruptions in CPR

Steps	Was performed ? YES	NO
1. **POWER ON** Turn on power and continue CPR.	☐	☐
2. **Attach device to patient** • Select correct pad size or dose system for victim's size and age (child vs adult). • Open package and expose adhesive surface. • Attach pads to the patient (upper right sternal border and cardiac apex) • Attach cables to the AED if needed.	☐	☐
3. **Attach device to patient** • Announce to the team members, "Analyzing rhythm-stand clear!" (Verify that there is no patient movement and that no one is in contact with the patient.) • Press the "analyze" control (some AED's omit this control).	☐	☐
4. **Shock** If VF / VT is present, the device will charge and signal that a shock is indicated. • Announce, "Shock is indicated. Stand Clear! I'm going to shock on three!" • Verify that no one is touching the patient. • Press the "Shock" button when signaled to do so.	☐	☐

Repeat CPR and steps 3 and 4 until VF / VT is no longer present. The rescuer sholud deliver ONE shock and then immediately resume CPR, beginning with chest compressions. After 5 cycles (about 2 minutes) of CPR, the AED should then analyze the rhythm and deliver another single shock if indicated. The cycle is then repeated.

Procedure

Blood Glucose

Procedure

Clinical Indications:

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

Steps	Was performed ? YES	NO
1. Gather and prepare equipment.		
2. Blood samples for performing glucose analysis should be obtained simultaneously with intravenous access or by finger stick.		
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 (ex. 100 mg / dL) and treat the patient as indicated by the analysis and protocol.		
6. Repeat glucose analysis as indicated for reassessment after treatment and as per protocol.		

Procedure

Capnography

Procedure

Clinical Indications

- Capnography shall be used when available with all endotracheal airways.

Steps	Was performed ? YES	NO
1. Attach capnography sensor to endotracheal tube.		
2. Note CO_2 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 CO_2 detection or waveform indicates an airway problem and 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).		

General

EMT

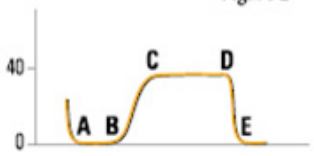
AEMT

Paramedic

Components of the capnogram:

A capnogram consists of 4 phases and plots CO_2 concentration over time.
Phase I, respiratory baseline, is shown as A-B. It measures the CO_2-free Gas in the deadspace of the conducting airways (so named because they conduct gas to the alveoli where gas exchange can occur). The A-B value is normally zero.
Phase II—also known as the expiratory upstroke—is shown as B-C.
The rapid rise seen in the capnogram represents mixing of dead space (CO_2-free) and alveolar air (contains CO_2). The expiratory upstroke should be steep.
Phase III, the expiratory plateau, represents exhalation of mostly alveolar gas; this is shown as C-D. Point D is the $EtCO_2$ level at the end of a normal exhaled breath; normally 38 mmHg or 5%.

Figure 2



Phase IV, or the inspiratory downstroke, shown as D-E, reflects the inhalation of CO_2-free gas. The capnogram quickly returns to its baseline.3, 4 Changes in the capnogram or $EtCO_2$ values reflect changes in metabolism, circulation, ventilation or equipment function.

In summary: An elevated $EtCO_2$ indicates compromised ventilation or alveolar hypoventilation. A below-normal $EtCO_2$ indicates an increase in ventilation or possible alveolar hyperventilation.

Procedure

Cardioversion

Procedure

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)

Steps	Was performed ? YES	NO
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 (Valium® / Versed® per protocol).	☐	☐
4. Set energy selection.	☐	☐
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.	☐	☐
9. If the patient’s condition is unchanged, repeat steps 2 to 8 above.	☐	☐
10. If the patient has not improved after cardioversion, continue with drug therapy.	☐	☐
11. Note procedure, response, and time in the patient care report (PCR).	☐	☐

Procedure

Chest Decompression

Procedure

General EMT AEMT Paramedic

Clinical Indications:
The treatment of tension Pneumothorax involves decompression of the affected chest cavity to release the pressure that has developed. Decompression can be achieved, with minimal risk, by the insertion of a 14 or 16 gauge needle into the second inter-costal space at the midclavicular line. Also an approach in the mid-axillary line between the fifth and sixth rib is possible, and considered safer by some physicians.
The needle must be inserted on the top side of the rib due to nerves, intercostal artery, and veins follow the bottom of the rib.

Indication:
- Diminished or absent lung sounds
- Cyanosis and difficulty breathing
- Distended neck veins
- Tachycardia, tachypnea, hypotension, narrow pulse pressure
- Tracheal shift to the unaffected side (may not always be present)

Steps	Was performed ? YES	NO
1. Prepare the equipment: 14 or 16 gauge needle & antiseptic	☐	☐
2. Locate the site: 2nd or 3rd intercostal space, midclavicular or 4th intercostal space between the 4th & 5th rib, midaxillary.	☐	☐
3. Prep the site	☐	☐
4. Insert the needle just superior to the rib until a rush of air is felt and / or heard.	☐	☐
5. Secure the needle in place.	☐	☐
6. Support patient with 100% oxygen and transport without delay.	☐	☐

Procedure

Childbirth

Procedure

General EMT AEMT Paramedic

Clinical Indications:

- Imminent delivery with crowning

Steps	Was performed ? YES	NO
1. Have mother lie in preferred birthing position.		
2. Monitor fetal heart tones by Doppler, if available, every 5 minutes until delivery.		
3. Elevate buttocks with blanket or pillow. If available, place sterile towels or sheets around vaginal opening.		
4. When infant's head appears, place one hand on top of head and exert gentle counter-pressure to prevent explosive delivery.		
5. If amniotic sac has not broken after head delivered, use clamp to puncture or your fingers to tear the sac open and pull it away from the baby's face.		
6. As head is delivered, check to see if the cord is around the neck; slip it over the head or clamp twice and cut between, then unwrap (this is in extreme cases).		
7. Suction the baby's airway with bulb syringe as soon as the head is delivered.		
8. Support the head and body with both hands as the baby is delivered. Wipe fluids from mouth and nose and suction again.		
9. Wrap baby in warm blanket, put newborn cap on head and keep baby level with vagina until cord is cut. If no partner available, complete initial care of the newborn.		
10. Assess baby for **Apgar Score**		
11. Clamp or tie cord twice and cut between as pulsations cease; about 4 fingers width from the infant.		
12. If placenta delivers (usually about 20 minutes after infant), place in plastic bag and transport to hospital with the mother. bleeding can be controlled by massaging the fundus.		
13. Place sterile pad over vaginal opening, lower mother's legs.		
14. Record time of delivery and transport mother, infant and placenta to hospital.		
15. Recheck Apgar Scores at 5 minutes.		

Procedure

Combitube®

Procedure

Clinical Indications:

The Combitube® is to be considered to secure the airway of the adult patient following failed airway attempts of endotracheal tube placement.

Contraindications:

- Patients with intact gag reflexes
- Patients height below 4 feet
- Patients with unknown esophageal pathology
- Patients after ingestion of caustic substances
- Central-airway obstruction

Combitube™ Sizing

SA: (37 Fr): Small Adult, 4 feet to 5 ½ feet tall
Combitube™ (41 Fr): 5 feet to 6 ½ feet tall

General

EMT

AEMT

Paramedic

Steps	Was performed ? YES	NO
1. Insert Combitube® gently in a curved downward movement by grasping the back of the tongue and jaw between thumb and forefinger and lifting the jaw. Insert until printed ringmarks lie between teeth or alveolar ridges. Do not use force!	☐	☐
2. Inflate oropharyngeal balloon first by help of the by packed large syringe (blue dot) with 85 cc of air with the Combitube® 37 F SA or with 100 cc of air with the Combitube® 41 F (use valve with blue pilot balloon). In many cases you may observe a slight outward movement during inflation (during elective cases, you may use the minimal leakage technique: inflate the balloon with 40 to 85 or 40 to 100 cc of air). Then, inflate distal cuff with 5 to 12 cc of air (Combitube® 37 F) or 5 to 15 cc of air (Combitube® 41 F).	☐	☐
3. With blind insertion, there is a high probability of esophageal placement of the Combitube®. Therefore, test ventilation is started via the longer, blue tube No. 1. Air cannot escape at the distal end of the blocked "esophageal" lumen and enters the pharynx via the perforations. Since mouth, nose, and esophagus are sealed by the balloon and the cuff, air is forced into the trachea. If auscultation over the lungs is positive (and epigastric insufflation negative), ventilation may be continued. The "tracheal" lumen serves to decompress the esophagus and the stomach.	☐	☐
4. On a few occasions, the Combitube® has been placed blindly into the trachea. In this case, ventilation is changed to the shorter, clear tube No. 2, leading to the tracheal lumen. Air is blown directly into the trachea. In a few cases, ventilation does not work neither via the esophageal nor tracheal lumen. The reason may be, that the oropharyngeal balloon is inserted to deep, thereby occluding the laryngeal aperture. The Combitube® has to be pulled out for about 2 to 3 cm, and ventilation started again via the longer tube.	☐	☐
5. Use laryngoscope whenever feasible!	☐	☐

Procedure

CPAP–Port O_2 Vent™

Procedure

Clinical Indications: Any patient who is complaining of shortness of breath for reasons other than pneumothorax but:

- Is awake & oriented
- Is over 12 years old and is able to fit the CPAP mask over their face
- Has the ability to maintain an open airway (GSC>10)
- Has a systolic blood pressure above 90mmHg
- Uses accessory muscles during respirations
- Has signs and symptoms consistent with asthma, COPD, CHF, pulmonary edema, or pneumonia

Contraindications:

- Pneumothorax
- Respiratory arrest
- Agonal respirations
- Unconsciousness
- Shock associated with cardiac insufficiency
- Penetrating chest trauma
- Persistent nausea and vomiting
- Has active upper GI bleeding or history of recent gastric
- Patient has a tracheotomy

Continuous Positive Airway Pressure (CPAP) has been shown to rapidly improve vital signs, gas exchange, and the work of breathing, decrease the need for endotracheal intubation, and decrease the sense of dyspnea. CPAP is beneficial for patients that suffer from shortness of breath from congestive heart failure and acute cardiogenic pulmonary edema. In patients with CHF, the CPAP improves hemodynamics by reducing preload and afterload**.**

Steps	Was performed ? YES	NO
1. Verify that the patient does not have a pneumothorax	☐	☐
2. Place the patient in a sitting position, then place patient on cardiac monitor	☐	☐
3. Assess vital signs and pulse oximeter every 5 minutes	☐	☐
4. If blood pressure is <90 systolic, contact Medical Control prior to placing the patient on the CPAP	☐	☐
5. Verbally explain the procedure and instruct the patient of the following: Patient requires effective "verbal sedation" such as "You are going to feel some pressure from the mask on your face but this will help you to breathe easier as we increase the pressure on the machine." **See Special Note for Paramedic level for medication sedation.**	☐	☐
6. Turn machine on, start initially at your lowest setting and titrate up to desired effect, considering the patients response to the treatment.	☐	☐
7. Place the delivery device over the patients nose and mouth and instruct the patient to breathe in through their nose slowly and exhale through their mouth as long as possible. Count out loud slowly and instruct the patient to inhale slowly as you count to four (4).	☐	☐
8. Check for any air leaks around the mask. Explain to the patient that you are going to increase the pressure of the machine very slowly and continue exhaling out against the pressure as long as possible before inhaling.	☐	☐
9. Slowly titrate the pressure to the Medical Control level per this protocol. Closely monitor the patient's response, mental status, and vital signs.	☐	☐

Procedure

CPAP–Port O_2 Vent™ Continued

Procedure

Steps | **Was performed ?** YES NO

	YES	NO
10. Treatment should be continued throughout the transport to the Emergency Department.	☐	☐
11. Continue to coach the patient while keeping the mask in place and readjusting as needed.	☐	☐
12. If the respiratory rate and/or level of consciousness deteriorate, remove device and consider bag-valve-mask ventilation and/or endotracheal intubation. Refer to Intubation protocol.	☐	☐
13. Recheck vital signs every 5 minutes Be aware that you can cause CO2 narcosis in COPD patients due to the high oxygen content. Immediately discontinue treatment with the onset of decreased alertness. Be aware also, that each machine is different. Be familiar with your unit and its capabilities.	☐	☐

General

EMT

AEMT

Paramedic

In case of worsening symptoms, despite C-PAP and signs of impending respiratory failure, intubate the patient.

Documentation on the patient care record should include:

CPAP level

FiO2 50% -as long as the pulse oximeter is at 92% or greater with low FiO2 is acceptable, while avoiding CO2 narcosis in COPD patients. This may be different from one machine to another, if you don't have control over your Fi02. Be careful with COPD patients. SpO2 and vital signs are reassessed every 5 minutes Response to treatment Any adverse reactions

Special Notes:

CPAP should NOT be used in children under 12 years of age. Advise the receiving hospital of your estimated time of arrival as soon as possible so that they can prepare for your patient.

DO NOT REMOVE the CPAP machine until the hospital staff is ready for the patient. Monitor the patient for any gastric distention, which may lead to vomiting. If the patient requires nitroglycerine, treat with tablets not spray

Be sure that you have adequate oxygen available since there may different machines.

In the event of the patient vomiting, be sure to remove the mask as quickly as possible

Paramedic:

May consider the administration of medication to assist with the anxiety of the mask being applied to the patients face.

Valium 2.5 – 5.0 mg IVP, IO titrated to desired effect. Watch for respiratory depression

or

Versed 1-2 mg IVP, IO titrated to desired effect. Watch for respiratory depression

Procedure

CPR

Procedure

Clinical Indications:

- Summary of BLS Maneuvers for Adult, Children, and Infants

Steps

Component	Recommendations			Was performed ? YES	NO
	Adults	Children	Infants		
Recognition	Unresponsive (for all ages)				
	No breathing or no normal breathing (i.e., only gasping)	No breathing or only gasping		☐	☐
	No pulse palpated within 10 seconds				
CPR Sequence	C-A-B (Circulation-Airway-Breathing)			☐	☐
Compression Rate	At least 100/minute			☐	☐
Compression Depth	At least 2 inches (5 cm)	At least 1/3 AP diameter About 2 inches (5 cm)		☐	☐
Chest Wall Recoil	Allow complete recoil between compressions Rotate compressors every 2 minutes			☐	☐
Compression Interruptions	Minimize interruptions in chest compressions Attempt to limit interruptions to <10 seconds			☐	☐
Airway	Head tilt-chin lift (suspected trauma: jaw thrust)			☐	☐
Compression-to-Ventilation Ratio (until advanced airway placed)	30:2 1 or 2 rescuers	30:2 Single rescuer 15:2 2 Rescuers		☐	☐
Ventilation With Advanced Airway	1 breath every 6-8 seconds (8-10 breaths/minute) Asynchronous with chest compressions About 1 second per breath – Visible chest rise			☐	☐
Defibrillation	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			☐	☐

General

EMT

AEMT

Paramedic

Procedure

Cricothyrotomy-Needle

Procedure

General

EMT

AEMT

Paramedic

Clinical Indications:

Note: In most situations, a cricothyrotomy should only be performed after all other less invasive methods of airway management have failed

A. Indications for needle cricothyrotomy

1. Suspected cervical spine fracture with inability to control the airway by other methods
2. Pharyngeal hematomas, usually secondary to cervical spine fractures
3. Impacted foreign body
4. Severe facial trauma, laryngeal trauma or oropharyngeal hemorrhage
5. Laryngeal spasms (epiglottitis)
6. Obstructing tumors
7. Burns of the face and/or upper airway precluding intubation

B. Procedure for needle cricothyrotomy

Note: needle cricothyrotomy is to be used as a temporary ventilation method in pediatric patients who are < 10 years of age

Steps	Was performed ? YES	NO
1. Palpate cricothyroid membrane anteriorly between thyroid cartilage and cricoid cartilage	☐	☐
2. If time permits, prep area with alcohol swab	☐	☐
3. Use a 14 gauge angiocath with syringe and puncture skin midline, directly over the cricothyroid membrane while directing angiocath at a 45 degree angle caudally. Withdraw stylet while advancing catheter	☐	☐
4. Insert angiocath through lower half of cricothyroid membrane. Aspiration of air signifies entry into the tracheal lumen	☐	☐
5. Attach catheter hub to a 3.5 mm pediatric ET tube adapter	☐	☐
6. Some technicians prefer to utilize a short IV extension tubing between the catheter hub and 3.5 mm ET tube adapter to prevent accidental removal of catheter and facilitate use of bag-valve device	☐	☐
7. Secure apparatus to the neck with tape	☐	☐
8. Ventilate with bag-valve device at a rate of one – second inspiration and four seconds expiration	☐	☐

Procedure

Cricothyrotomy-Surgical

Procedure

Clinical Indications:

Note: in most situations, a Cricothyrotomy should only be performed after all other less invasive methods of airway management have failed.

A. Indications for surgical Cricothyrotomy :

1. Suspected cervical spine fracture with inability to control the airway by other methods
2. Pharyngeal hematomas, usually secondary to cervical spine fractures
3. Impacted foreign body
4. Severe facial trauma, laryngeal trauma or oropharyngeal hemorrhage
5. Laryngeal spasms (Epiglottitis)
6. Obstructing tumors
7. Burns of the face and/or upper airway precluding intubation

B. Procedure for surgical Cricothyrotomy :

Note: surgical Cricothyrotomy is not to be performed in pediatric patients< 10 years of age

Steps	**Was performed ?** YES	NO
1. Palpate cricothyroid membrane anteriorly between thyroid cartilage and cricoid cartilage	☐	☐
2. If time permits, prep area with alcohol swabs	☐	☐
3. Stabilize thyroid cartilage and make vertical skin incision approximately 2.5 cm over the cricothyroid membrane. Carefully incise through the membrane transversely	☐	☐
4. Some technicians prefer a horizontal incision over the cricothyroid membrane. In that case, extreme care must be taken not to extend the incision to far and risk incision of the thyroid	☐	☐
5. Insert scalpel handle into the incision and rotate 90 degrees or use hemostats to open the airway	☐	☐
6. Insert a cuffed endotracheal tube through the incision. A 6.0 mm ET tube is generally sufficient	☐	☐
7. Inflate cuff and ventilate the patient Confirm tube placement by auscultation of the chest and place end-tidal CO2 detector and pulse oximeter probe. Stabilize the ET tube	☐	☐

Procedure

Defibrillation

Procedure

Clinical Indications: Advanced EMT, Paramedic

Unresponsive, pulseless patients who are not breathing and in ventricular fibrillation or pulseless ventricular tachycardia.

Steps	Was performed ? YES	NO
1. Turn on the power.	☐	☐
2. Apply conductive gel or paste to paddle, or apply self adhesive disposable defibrillation electrodes to patient and connect to defibrillator	☐	☐
3. Select the energy level to be delivered per protocol and charge paddles.	☐	☐
4. Place paddles firmly on unclothed chest using approximately 25 pounds of pressure. Place the sternum paddle on the patient's upper right chest to the right of the sternum below the clavicle. Place the apex paddle on the patient lower left chest over the cardiac apex to the left of the nipple in the mid-axillary line. If using paste or gel, do not allow it to reach the paddle handles, as this may lead to current arcing and burns.	☐	☐
5. Make sure all personnel, including the operator are clear of the patient and any equipment that might connect to the patient.	☐	☐
6. Discharge the defibrillator by pushing both the paddle discharge buttons simultaneously or by pushing a paddle discharge on the operator panel.	☐	☐
7. Observe the patient and monitor to determine results. Continue CPR during delays.	☐	☐
8. Continue to defibrillate using the same procedure per protocol. When finished, clean unit prior to storage.	☐	☐
9. **Note:** If an implanted defibrillator is present and not functioning, treat this patient the same as one without the device. If a patient has an implanted pacemaker, place paddles away from the pulse generator if possible.	☐	☐

Procedure

Doppler Stethoscope

Procedure

General

EMT

AEMT

Paramedic

Indications:
Blood pressure determinations under certain circumstances **infants, hypotensive, obese & patients with peripheral vasoconstriction** may be extremely difficult if not impossible by the auscultation or palpation methods.

Doppler Information:
The motion of a pulsating artery partially compressed by a blood pressure cuff could be detected by the Doppler ultrasonic technique for estimation of arterial blood pressure. Since that time the Doppler ultrasonic technique has been shown to be closely correlated with direct intra-arterial blood pressure recordings and to auscultatory determination.[1]

1. WARE, R.W. New approaches to the indirect measurement of human blood pressure. Proc. 3rd Nat. Biomed. So. Instrumentation Symposium (ISA BM-65) (1965).

Remember: A small cuff will produce an artificially elevated blood pressure while too large a cuff will produce a falsely low recording. Therefore, the selection of proper cuff size is as important using the Doppler technique.

The ultrasound strikes an immobile structure such as the compressed arterial wall, the ultrasound frequency is reflected back unchanged. If a moving structure (pulsating artery) is encountered, however, the frequency is altered up or down (Doppler effect) and this is detectable by an audible alteration of the reflected sound. The first motion of the arterial wall occurs as cuff pressure is lowered to systolic pressure, allowing opening of the artery under high velocity and causing an increase in frequency of the reflected ultrasound. This is detected as an audible alteration of the amplified sound.

Steps	Was performed ? YES	NO
1. Place blood pressure (BP) cuff on patient's arm.	☐	☐
2. Place doppler gel at end of doppler or site where blood pressure or fetal heart tones will be obtained.	☐	☐
3. **For Blood Pressure:** Place doppler on brachial artery and listen for audible flow sound. Once audible flow sound heard, inflate BP cuff to preferred reading. Slowly deflate cuff carefully listening for audible flow sound.	☐	☐
4. Listen for the first audible flow signal from the doppler detector, corresponding to the systolic blood pressure. Record reading ex. 80/Doppler.	☐	☐
1. **For Fetal Heart Tones:** Position the doppler firmly on the mother's abdomen. Move the doppler in a circular pattern of 6 – 8 inches in diameter around the mother's umbilicus.	☐	☐
2. Move the doppler until fetal heart tones can be heard. Once the tones have been located, measure the fetal heart rate. Normal fetal heart rate is 120 – 160 bpm. **Tip:** Ask mother that has had previous fetal heart tones obtained at doctors office, what area where the heart tones heard on last visit. This may help to find heart tones quicker.	☐	☐

Procedure

Drug Assisted Intubation

Procedure

Clinical Indications: The Paramedic is permitted to intubate any victim who has little or no spontaneous respiratory effort, has respiratory distress or has significant airway compromise.

INDICATIONS:

To relieve upper airway obstruction

• developing oropharyngeal edema, anaphylaxis, burns • severe facial injuries

To prevent aspiration

• multiple trauma head injuries • unconscious patients • patients with seizures

To allow for removal of aspirate contents or secretions in patients unable to perform it themselves (neurologic disease), establish a means of mechanical ventilation in

• patients with depressed respiratory drive • head injured patients who need hyperventilation

Correction of hypoxia, hypercarbia, and acidosis from other causes

• altered lung function (pulmonary contusion, flail chest, other chest trauma • expanding abdomen causing respiratory compromise

General

EMT

AEMT

Paramedic

Steps	Was performed ? YES	NO
1. All patients should be pre-oxygenated with 100% **Oxygen** for at least 1 minute prior to any intubation attempt.	☐	☐
2. The intubation attempt should be no longer than 30 seconds. If so, the attempt should be stopped and the patient should be re-oxygenated for at least 1 minute with 100% **Oxygen**.	☐	☐
3. Utilize a Drug Assisted Intubation Technique as indicated: (e.g.: instance of combative head and/or spinal injuries; multi-system trauma with decreased level of consciousness; medical emergencies with diminished loss of consciousness requiring ventilatory assistance).	☐	☐
4. Patients with suspected head injury should receive **Lidocaine** **1.5 mg/kg IVP, IO** prior to intubation. NOTE: In children less than 10 years of age, consider **Atropine** **0.1 mg/kg IVP, IO.**	☐	☐
5. Consider **Midazolam (Versed)** **2 mg IVP, IO**, titrated to desired effect (up to 6 mg MAX dose), prior to intubation attempt. Or Consider **Amidate (Etomidate)** **0.3 mg/kg IVP, IO**. (may repeat the initial dose in 2 minutes if needed) **Pediatric Dosage (3 months to 12 years of age: 5-35 kg, 11-77 lbs):** **Midazolam (Versed)** **0.1 – 0.2 mg/kg IVP, IO**	☐	☐
6. Perform a Sellick maneuver (as indicated) as patient becomes more sedated and release cricoid pressure only after confirmed placement of the endotracheal tube. Perform tracheal **intubation**. (Inflate cuff and confirm tube placement [see #8 below]. Secure tube via appropriate method	☐	☐
7. Administer **Vecuronium (Norcuron)** **0.1 mg/kg IVP, IO** (onset 1 min; recovery; 45 min) **Vecuronium (Norcuron)** **0.01 - 0.05 mg/kg** Maybe given maintenance dose **Pediatric Dosage (3 months to 12 years of age: 5-35 kg, 11-77 lbs):** **Vecuronium (Norcuron)** **0.1 mg/kg IV, IO**	☐	☐
8. After the trachea is intubated, the cuff should be inflated. Proper tube placement must be assured by: • Observing rise and fall of both sides of the chest wall • Confirming the presence of bilateral breath sounds • Observing the absence of air movement out of the mouth or into the stomach with each bagged ventilation • End Tidal CO2 or Esophageal Intubation Detector	☐	☐
9. Administer additional sedative and paralytic if needed. **Versed** for post intubation sedation at **2-4 mg slow IVP, IO** in adult patients with a systolic B/P greater than 90 mmHg. Children that are agitated after intubation ; **0.1 - 0.2 mg/kg slow IVP, IO**. **Vecuronium** **0.1 mg/kg slow IVP, IO** only after the ET tube is in place and secured. **DO NOT ADMINISTER if the patient is HYPOTENSIVE**.	☐	☐

Procedure

End-Tidal CO_2 Detector (Colormetric)

Procedure

Clinical Indications:

- The End-Tidal CO_2 detector shall be used with all endotracheal or Combitube airways. To help verify tube placement with the exception of cardiac arrest. During cardiac arrest, it is an unreliable means of verifying placement.

Steps	Was performed ? YES	NO
1. Attach End-Tidal CO_2 detector to combitube or endotracheal tube.	☐	☐
2. Note color change. A color change: Yellow, tube is placed correctly. Tan, tube may not be properly placed. Purple, tube is not in the trachea.	☐	☐
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).	☐	☐
6. If fluid enters the CO_2 detector, remove.	☐	☐
7. In addition to the use of the CO_2 detector, assessing breath sounds bilaterally, and negative gastric sounds must also be performed.	☐	☐
8. If the patient's condition is unchanged, repeat steps 2 to 8 above.	☐	☐
9. If the patient has not improved after cardioversion, continue with drug therapy.	☐	☐
10. Note procedure, response, and time, in the patient care report (PCR).	☐	☐

Procedure

Epinephrine Auto-Injector®

Procedure

Clinical Indications: EMT, Advanced EMT, Paramedic

Patients who are prescribed an **Epinephrine** auto-injector for the treatment of allergic reaction.

Cautions

EMT: Patient Assisted.

This device is for use by those patients for whom they are prescribed. The EMT is only assisting the patient by administering their medication for them. If the EMS carries an **Epinephrine** auto-injector, the medication may not be used by the EMT, unless the patient does not have their device with them, or is having trouble with their own device.

Steps	Was performed ? YES	NO
1. Use body substance precautions.	☐	☐
2. Contact medical control for authorization if possible.	☐	☐
3. Assure medication is prescribed for patient.	☐	☐
4. Check expiration date, if medication outdated cloudy, or discolored, do not use.	☐	☐
5. Remove cap and select an injection site. (thigh or shoulder)	☐	☐
6. Push firmly against the site.	☐	☐
7. Hold the injector against the site for at least 10 seconds.	☐	☐
8. Properly discard injector.	☐	☐
9. Monitor the patient with transporting.	☐	☐

Procedure

External Transcutaneous Pacing

Procedure

Clinical Indications: EMT-Paramedic

1. Emergency treatment of bradycardia or asystole until a transvenous pacing or other definitive therapy can be initiated.
2. Standby use for anticipated or suspected conduction disturbances.
3. Refer to specific protocol for indications. Note: during cardiac arrest, follow usual protocols for airway, breathing, circulation and drug therapy.

Contraindications:

1. When an internal pacer is already capturing.

Steps	Was performed ? YES	NO
1. Obtain baseline vital signs.	☐	☐
2. Connect patient to monitor and obtain a rhythm strip.	☐	☐
3. Explain procedure to patient.	☐	☐
4. Apply adhesive pacing electrodes to clean, dry skin.	☐	☐
5. Apply Negative electrode on the Left Anterior Chest, halfway between the xiphoid process and the left nipple, with the upper edge of the electrode below the nipple line.	☐	☐
6. Apply the Positive Electrode on the Left Posterior Chest beneath the scapula and lateral to the spine.	☐	☐
7. **Note:** If anterior/posterior placement is contraindicated (C-spine injury suspected etc.) the anterior/anterior position may be used. Placement is as follows:	☐	☐
8. Negative electrode is placed on the left chest mid-axillary over the fourth intercostal space. Positive electrode is placed on the anterior right chest in the subclavicular area. This placement is less desirable because it interferes with placement of defibrillation paddles and tends to cause pectoral muscle stimulation.	☐	☐
9. Check for sensing of intrinsic QRS complexes. (Done by adjusting ECG gain.)	☐	☐
10. Set pacing rate at 70 beats per minutes. Set current at minimum.	☐	☐
11. Turn on Pacemaker and increase current as follows until capture is present: a. Conscious patient: 5 ma. Intervals b. Unconscious patient: 20 ma. Intervals Electrical capture is usually evidenced by a wide QRS and a tall broad T wave. In some patients it may be less obvious, noted only as a change in QRS configuration. Mechanical capture may be evidenced by a palpable pulse, rise in blood pressure. Improved level of consciousness and improved skin color/temperature.	☐	☐
12. Obtain a rhythm strip. Assess patients comfort level. (Conscious patients may require sedation). Consider sedation with **Versed** IVP in 1 mg increments, not to exceed 5 mg; or **Valium** in 1 mg increments not to exceed 10 mg.	☐	☐
13. **Document the following information:** **a**. Time pacing was initiated; baseline and pacing rhythm strip **b.** Current required to capture. **c.** Pacing rate. **d.** Medications utilized for sedation.	☐	☐

General

EMT

AEMT

Paramedic

Procedure

Foreign Body Airway Obstruction-Adult

Procedure

Adolescent (puberty) and older

Steps	Was performed ? YES	NO
1. Ask “Are you choking?”	☐	☐
2. Give abdominal thrusts / Heimlich maneuver or chest thrusts for pregnant or obese victims.	☐	☐
3. Repeat abdominal thrusts until effective or victim becomes unresponsive.	☐	☐
Victim becomes unresponsive		
4. Activate EMS. If second rescuer is present, send that person to activate EMS system.	☐	☐
5. Begin CPR.	☐	☐
6. Look into mouth when opening the airway during CPR. Use finger sweep only to remove visible foreign body in unresponsive victim.	☐	☐
7. Continue CPR until ALS arrives.	☐	☐

During ventilation attempts, use appropriate size masks of bag mask as soon as available.
Supplementary oxygen delivery equipment should be immediately available.

Procedure

Foreign Body Airway Obstruction-Child/Infant

Procedure

1 year to adolescent (puberty)

Steps	Was performed ? YES	NO
1. Ask “Are you choking?”	☐	☐
2. Give abdominal thrusts / Heimlich maneuver.	☐	☐
3. Repeat abdominal thrusts until effective or victim becomes unresponsive.	☐	☐
Victim becomes unresponsive		
4. If second rescuer is present, send that person to activate EMS system.	☐	☐
5. Begin CPR.	☐	☐
6. Look into mouth when opening the airway during CPR. Use finger sweep only to remove visible foreign body in unresponsive victim.	☐	☐
7. Continue CPR for 5 cycles or 2 minutes and then activate EMS system. Return to child and continue CPR until ALS arrives.	☐	☐

Infant

	YES	NO
1. Confirm severe airway obstruction. Check for the sudden onset of severe breathing difficulty, ineffective or silent cough, weak or silent cry.	☐	☐
2. Give up to 5 back slaps and up to 5 chest thrusts.	☐	☐
3. Repeat step 2 until effective or victim becomes unresponsive.	☐	☐
Victim becomes unresponsive		
4. If second rescuer is present, send that person to activate EMS system.	☐	☐
5. Begin CPR.	☐	☐
6. Look into mouth when opening the airway during CPR. Use finger sweep only to remove visible foreign body in unresponsive victim.	☐	☐
7. Continue CPR for 5 cycles or 2 minutes and then activate EMS system. Return to infant and continue CPR until ALS arrives.	☐	☐

During ventilation attempts, use appropriate size masks of bag mask as soon as available.
Supplementary oxygen delivery equipment should be immediately available.

General

EMT

AEMT

Paramedic

Procedure

Football Helmet/Shoulder Pad Removal

Procedure

Clinical Indications:

Helmet removal kit (Suggested List)

2 screwdrivers (flat and Phillips head)

2 trauma shears

trainer angel, snips or other cutting tool pin for deflating air pads in helmet

Steps	Was performed ? YES	NO
1. Three to four personnel are needed to safely remove the helmet and pads from the patient.	☐	☐
2. One EMT goes to the head, while two others go to each side.	☐	☐
3. Take manual C-spine control by holding helmet from the top of head. This EMT is also able to assess patient's LOC and airway patency.	☐	☐
4. Cut jersey away. Cut laces or fasteners along front of shoulder pads.	☐	☐
5. Separate pads along sternum and lay sides flat along each side. From a side position, cut or unsnap chinstrap.	☐	☐
6. If necessary, unscrew or cut facemask fasteners on each side to allow facemask to flip back, creating access to patient's airway. Most helmets can be quickly and safely removed without first removing facemask.	☐	☐
7. Unsnap cheek pad on each side (usually 3 snaps) but do not remove. Take over C-spine control from the front, with EMT on one side of patient, or by straddling patient.	☐	☐
8. Take the cheek pads out as person assuming C-spine slides fingers in further around sides of jaw to support head and neck.	☐	☐
9. From the top of the head, remove helmet by gently spreading sides of helmet and following the contour of the head by pulling down then up and off. Make sure that C-spine alignment is maintained – do not allow head position to drop.	☐	☐
10. Remove shoulder pads by pulling pads straight back from each side over head, along long axis. Downward pressure should be maintained on the posterior pads with one hand while removing to prevent movement of body	☐	☐
11. Regain C-spine control from the top of head, gently lowering head to an inline position. Proceed with immobilization according to protocol.	☐	☐

Procedure — Intraosseous Infusion EZ-IO® (Proximal Tibia) — Procedure

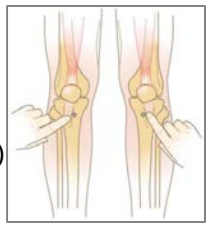
Clinical Indications:

EZ-IO AD® (40 kg / 88 Lbs and over) & **EZ-IO PD®** (3-39 kg / 7 – 87 Lbs)

1. Intravenous fluids or medications needed in adults /children and a peripheral IV cannot be established in 2 attempts or 90 seconds **AND** the patient exhibits one or more of the following:
   a. An altered mental status (GCS of 8 or less)
   b. Respiratory compromise (SaO2 80% after appropriate oxygen therapy respiratory rate <10 or >40)
   c. Hemodynamic instability (Systolic BP <90)
2. **EZ-IO AD®** & **EZ-IO PD®** may be considered PRIOR to peripheral IV attempts in the following situations:
   a. Cardiac Arrest b. Profound hypovolemia with alteration of metal status

Pediatric Proximal Tibia

Adult Proximal Tibia



Contraindications:

Fracture of the bone selected for IO infusion (consider alternate site)
Excessive tissue at insertion site with the absence of anatomical landmarks (consider alternate tibia)
Previous significant orthopedic procedures (IO within 24 hours, prosthesis –
(consider alternate tibia) Infection at the site selected for insertion (consider alternate site)

Steps

Was performed ? YES NO

1. Select site **Tibia** Prep the skin with an antibacterial wipe. Prepare EZ-IO driver and appropriate needle set.

2. Identify the major structures of the upper and lower leg as well as the three **EZ-IO landmarks**, the **Tibia** (anterior or most forward lower leg bone), **Patella** (knee cap) and **Tibial tuberosity** (bump or raised area on the anterior aspect or front of the tibia)
   Note that the insertion site is one finger width medial to the tibial tuberosity.

3. Stabilize the leg and place the powered EZ-IO AD‡ - maintaining a 90 degree angle during the insertion process. IMPORTANT - Stabilize the needle set prior to any attempt at removing the driver. Failure to stabilize the catheter may cause inadvertent dislodgment.
   Remove EZ-IO driver from needle set while stabilizing catheter hub.
   Remove stylet from catheter, place stylet in shuttle or approved sharps container.

4. **Confirm placement**
   The catheter is firmly seated and does not move.
   • Observed blood on the stylet tip (noted by wiping tip on a 4x4) prior to placing stylet in the shuttle or bio hazard container.
   • You note blood at the catheter hub.
   • You are able to aspirate blood or marrow from the catheter (We recommend aspirating a small amount of blood due to its extremely viscous nature).
   • Drugs or fluids flow without difficulty – there are no signs of extravasation (leakage) in or around the tissue. **CAUTION**: Conscious patients will experience pain with infusion prior to Lidocaine! Flow rates may be slow or non existent prior to the 10 ml bolus.
   • You note the effects of administered drugs.
   Connect primed EZ-Connect

5. Rapid syringe bolus (flush) the EZ-IO AD® catheter with 10 ml of normal saline.
   Rapid syringe bolus (flush) the EZ-IO PD® catheter with 5 ml of normal saline.
   Repeat syringe bolus (flush) as needed.
   Utilize pressure (pressure bag or infusion pump) for continuous infusions where applicable.

6. **Conscious Patients**: IO Infusion for conscious patients has been noted to cause severe discomfort. Prior to IO syringe bolus (flush) or continuous infusion in alert patients, SLOWLY administer Lidocaine 2% (Preservative Free) through the EZ-IO hub. *Ensure that the patient has no allergies or sensitivity to Lidocaine.*
   EZ-IO AD Slowly administer 20 – 40 mg Lidocaine 2% (Preservative Free)
   EZ-IO PD Slowly administer 0.5 mg /kg Lidocaine 2% (Preservative Free)

7. **Four Important points to consider once the EZ-IO has been established:**
   A. Routinely reconfirm that the EZ-IO catheter is secure and in position. **B**. Maintain appropriate protection at the insertion site guarding against accidental bumping or dislodgement.
   C. Frequently monitor the EZ-IO, the fluid and the extremity. **D**. Remove the EZ-IO within 24hrs.

General
EMT
AEMT
Paramedic

Procedure

Intraosseous Infusion EZ-IO® (Distal Tibia)

Procedure

Clinical Indications:

EZ-IO AD® (40 kg / 88 Lbs and over) & **EZ-IO PD®** (3-39 kg / 7 – 87 Lbs)

1. Intravenous fluids or medications needed in adults /children and a peripheral IV cannot be established in 2 attempts or 90 seconds **AND** the patient exhibits one or more of the following:
   a. An altered mental status (GCS of 8 or less)
   b. Respiratory compromise (SaO2 80% after appropriate oxygen therapy respiratory rate <10 or >40)
   c. Hemodynamic instability (Systolic BP <90)
2. **EZ-IO AD®** & **EZ-IO PD®** may be considered PRIOR to peripheral IV attempts in the following situations:
   a. Cardiac Arrest b. Profound hypovolemia with alteration of metal status

Contraindications:

Fracture of the bone selected for IO infusion (consider alternate site)
Excessive tissue at insertion site with the absence of anatomical landmarks (consider alternate tibia)
Previous significant orthopedic procedures (IO within 24 hours, prosthesis –
(consider alternate tibia) Infection at the site selected for insertion (consider alternate site)

Pediatric Distal Tibia

Adult Distal Tibia

General EMT AEMT Paramedic

Steps	Was performed ? YES	NO
1. Select site **Tibia** Prep the skin with an antibacterial wipe. Prepare EZ-IO driver and appropriate needle set.	☐	☐
2. Here we can identify the major structures of the lower leg as well as the **EZ-IO PD‡ landmarks**, the distal **Tibia** (the lower portion of the anterior lower leg bone), The **Medial Malleolus** (Ankle) and the insertions site - one finger width proximal to the medial malleolus – along the flat aspect of the medial distal tibia.	☐	☐
3. Stabilize the leg and place the powered EZ-IO AD‡ - maintaining a 90 degree angle during the insertion process. IMPORTANT - Stabilize the needle set prior to any attempt at removing the driver. Failure to stabilize the catheter may cause inadvertent dislodgment. Remove EZ-IO driver from needle set while stabilizing catheter hub. Remove stylet from catheter, place stylet in shuttle or approved sharps container.	☐	☐
4. **Confirm placement** The catheter is firmly seated and does not move. • Observed blood on the stylet tip (noted by wiping tip on a 4x4) prior to placing stylet in the shuttle or bio hazard container. • You note blood at the catheter hub. • You are able to aspirate blood or marrow from the catheter (We recommend aspirating a small amount of blood due to its extremely viscous nature). • Drugs or fluids flow without difficulty – there are no signs of extravasation (leakage) in or around the tissue. **CAUTION**: Conscious patients will experience pain with infusion prior to Lidocaine! Flow rates may be slow or non existent prior to the 10 ml bolus. • You note the effects of administered drugs. **Connect primed EZ-Connect**	☐	☐
5. Rapid syringe bolus (flush) the EZ-IO AD® catheter with 10 ml of normal saline. Rapid syringe bolus (flush) the EZ-IO PD® catheter with 5 ml of normal saline. Repeat syringe bolus (flush) as needed. Utilize pressure (pressure bag or infusion pump) for continuous infusions where applicable.	☐	☐
6. **Conscious Patients**: IO Infusion for conscious patients has been noted to cause severe discomfort. Prior to IO syringe bolus (flush) or continuous infusion in alert patients, SLOWLY administer Lidocaine 2% (Preservative Free) through the EZ-IO hub. *Ensure that the patient has no allergies or sensitivity to Lidocaine.* EZ-IO AD Slowly administer 20 – 40 mg Lidocaine 2% (Preservative Free) EZ-IO PD Slowly administer 0.5 mg /kg Lidocaine 2% (Preservative Free)	☐	☐
7. **Four Important points to consider once the EZ-IO has been established:** **A**. Routinely reconfirm that the EZ-IO catheter is secure and in position. **B**. Maintain appropriate protection at the insertion site guarding against accidental bumping or dislodgement. **C**. Frequently monitor the EZ-IO, the fluid and the extremity. **D**. Remove the EZ-IO within 24hrs.	☐	☐

Procedure Intraosseous Infusion EZ-IO® (Humerus) Procedure

Clinical Indications:

EZ-IO AD® (40 kg / 88 Lbs and over) & **EZ-IO PD®** (3-39 kg / 7 – 87 Lbs)

1. Intravenous fluids or medications needed in adults /children and a peripheral IV cannot be established in 2 attempts or 90 seconds **AND** the patient exhibits one or more of the following:
   a. An altered mental status (GCS of 8 or less) b. Respiratory compromise
   c. Hemodynamic instability (Systolic BP <90)
2. **EZ-IO AD®** & **EZ-IO PD®** may be considered PRIOR to peripheral IV attempts in the following situations:
   a. Cardiac Arrest b. Profound hypovolemia with alteration of metal status

Contraindications:

Fracture of the bone selected for IO infusion (consider alternate site)
Excessive tissue at insertion site with the absence of anatomical landmarks (consider alternate tibia)
Previous significant orthopedic procedures (IO within 24 hours, prosthesis – consider alternate tibia)
Infection at the site selected for insertion (consider alternate site)

Humeral Access

General EMT AEMT Paramedic

Steps — **Was performed ?** YES NO

1. Select a site (**Proximal Humerus**) Prep the skin with an antibacterial wipe.
2. Prepare the EZ-IO driver and appropriate needle set.
3. Position the arm for maximum humeral head exposure. Adduct the humerus then posteriorly locate the elbow toward the back rest of your chair (or floor if you are laying down).
4. Place the patient's hand on the patient's abdomen – at near the umbilicus. This will provide for a more prominent insertion site as well as ensure protection for the vital neurovascular structures located under the patient's arm.
   Important note: By placing the hand on the umbilicus (rather than the entire forearm across the abdomen) you will be able to retain the elbow on the stretcher or the ground and maximize your approach to the humeral head.
5. The patient should be in a supine position. Expose shoulder and adduct humerus (place the patient's arm against the patient's body) resting the elbow on the stretcher or ground.
6. Palpate and identify the mid-shaft humerus and continue palpating toward the proximal aspect or humeral head. As you near the shoulder you will note a protrusion. This is the base of the greater tubercle insertion site.
   With the opposite hand you may consider "pinching" the anterior and inferior aspects of the humeral head while confirming the identification of the greater tubercle. This will ensure that you have identified the midline of the humerus itself.
7. Stabilize the arm and place the powered EZ-IO AD‡ - maintaining a 90 degree angle during the insertion process. IMPORTANT - Stabilize the needle set prior to any attempt at removing the driver. The Humeral cortex can be considerably "less dense" and failure to stabilize the catheter may cause inadvertent dislodgment. As patients advances in age - bone density continues to decrease and the proximal humeral catheter's stability must routinely be assessed.
8. Connect primed EZ-Connect
   Rapid syringe bolus (flush) the EZ-IO AD® catheter with 10 ml of normal saline.
   Rapid syringe bolus (flush) the EZ-IO PD® catheter with 5 ml of normal saline.
   Repeat syringe bolus (flush) as needed.

9. Utilize pressure (pressure bag or infusion pump) for continuous infusions where applicable. Begin infusion, dress site, secure tubing, and monitor site and patient condition.
10. **Conscious Patients**: IO Infusion for conscious patients has been noted to cause severe discomfort. Prior to IO syringe bolus (flush) or continuous infusion in alert patients, SLOWLY administer Lidocaine 2% (Preservative Free) through the EZ-IO hub. *Ensure that the patient has no allergies or sensitivity to Lidocaine.*
    EZ-IO AD Slowly administer 20 – 40 mg Lidocaine 2% (Preservative Free)
    EZ-IO PD Slowly administer 0.5 mg /kg Lidocaine 2% (Preservative Free)

Procedure

Intubation-Adult, Oral

Procedure

Clinical Indications: ***Pulseless and Apneic*** ***or Apneic Patients*** **– Advanced EMT, EMT-Paramedic**
Endotracheal Intubation is an advanced airway skill that should only be attempted after the patient's Airway, Breathing, & Circulation have been evaluated and treated appropriately.

General

EMT

AEMT

Paramedic

Steps	Was performed ? YES	NO
1. Airway: Head-tilt/chin-lift (Jaw-thrust if suspected cervical injury) & insert an oral or nasal airway if the patient is comatose or semi-comatose.	☐	☐
2. Breathing: If the patient's ventilations are < 10/min. or there are signs of inadequate respirations, i.e.: cyanosis, SPO2 < 90% with oxygen, etc., then assist respirations with a Bag-Valve-Mask and supplemental oxygen.	☐	☐
3. Circulation: Begin chest compressions if indicated interposing 2 respirations after each 30 compressions. (Once a patient has been successfully endotracheally intubated; compressions should continue without pause with ventilations interposed no less than every fifth compression) *ANYTIME a patient is found or becomes pulseless, follow the A.E.D. protocol .	☐	☐
4. After completing the steps listed above, endotracheal intubation may be attempted only if the patient is **pulseless and not breathing**. This procedure should take no more than 30 seconds before re-ventilating and hyper oxygenating the patient prior to each attempt. **If the patient cannot be successfully intubated after 3 attempts, you should consider a Combi-tube to occlude the esophagus and protect the airway from aspiration of stomach contents.** If these procedures are unsuccessful, a basic airway and Bag-Valve-Mask, when used appropriately, can sufficiently ventilate an apneic patient.	☐	☐
5. The patient is considered successfully intubated after confirming tube placement by no less than three separate criteria: 1) direct visualization, 2) auscultation & chest movement, 3) use of a commercial device such as End-tidal CO2, Esophageal Intubation Detector, etc. Once confirmed, there should be minimal head/cervical movement (consider head blocks) and frequent reevaluation of tube placement. Failure to recognize loss of proper tube placement is fatal to the patient and not be over emphasized.	☐	☐
6. NOTE: Tracheal intubation should be approached with extreme caution in patients with suspected cervical fractures. Preferred methods of intubating these patients include: • blind nasotracheal intubation1 • proper two-man oral intubation maneuver using cervical spine control • cricothyrotomy 1 Contraindications to blind nasotracheal intubation Absolute: Apnea Congenital or acquired (traumatic) structural abnormalities Relative: Absent airway reflexes Agitated patients Increased intracranial pressure	☐	☐
7. *It is the decision of the Medical Director that because of the variance in skill levels and experience due to individual run volumes, with respiratory arrest being a small percentage of those runs, and the importance of a well managed airway and good ventilatory support, that all Advanced E.M.T.s shall once every three years (to coincide with state certification) successfully complete no less than 4 hours of advanced airway training that includes both endotracheal and Combitube review and clinical skill practice taught in a format that is approved by the Ohio Department of Public Safety. Those not in compliance with this mandate will not be permitted to endotracheally intubate patients. This is to be monitored by each department Chief or their designee keeping the Medical Director informed.	☐	☐

Procedure

Intubation-Pediatric, Oral

Procedure

Clinical Indications: *Pulseless and Apneic* or *Apneic Patients* – Advanced EMT, EMT-Paramedic

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

General

EMT

AEMT

Paramedic

Steps	Was performed ? YES	NO
1. The patient should be oxygenated for at least 60 seconds before intubation attempt is made. This should be accomplished via 100% non-rebreather mask if the patient is breathing, or via bag valve mask device if apneic or respiratory effort is insufficient.	☐	☐
2. The technique should be performed by the most experienced person and not to exceed 15-20 seconds in duration. Cardiac monitoring should be instituted prior to insertion of the laryngoscope.	☐	☐
3. In children <8 years, an uncuffed tube is used.	☐	☐
4. Studies suggest endotracheal tube size is best determined by using a length-based resuscitation tape, for example, the Broselow Tape.	☐	☐
5. Apply Sellick Maneuver (cricoid pressure), should be initiated during pre-oxygenation, and continue until endotracheal tube (ET Tube) is secured.	☐	☐
6. Oral intubation should be performed. Never perform blind airway procedures (ie: nasal intubation) on a pediatric patient due to anatomic variations.	☐	☐
7. Endotracheal tube placement should be confirmed by: direct visualization of tube entering vocal cords, the presence of bilateral breath sounds, bilateral chest excursion, vapor in endotracheal tube, and use of an end-tidal carbon dioxide (ET CO2) detector (example-Easy Cap). For children under 15 kg or with an endotracheal tube size 5.0 or less, a pediatric size ET CO2 detector should be used. If this is not available, the ET CO2 detector should be used briefly to assess initial placement, then as an occasional Aspot check@, due to the large dead space volume. Document actions. **In the emergent setting, the only absolute methods to confirm placement are direct visualization and ET CO2 detection.	☐	☐

8. Endotracheal tube depth, in cm, should be documented and continuously re-assessed. Proper depth can be estimated by the following formulas:

   * Infants < 1yr.....7 + Wt (kg) = ___cm depth
   * Children >1 yr.....12 + 1/2 age = ___cm depth
   * When intubating children who are not in full cardiac arrest, consider using the following medications:

Medication	Dose	Route	Remarks		
Lidocaine	1 mg/kg	IV,IO	Useful for cerebral protection and to decrease airway reactivity, give 3 minutes before intubating.	☐	☐
Versed (Midazolam)					
6 mo to 5 yr	0.1 mg/kg	IV,IO	Useful for combative patients, give 1-2 minutes before intubating. Max. Pediatric dose 6 mg.		
6 yr to 12 yr	0.05 mg/kg				
Atropine	0.02 mg/kg	IV,IO	Eliminates bradycardia due to vagal stimulation. Use on children < 5 years. Give 1 minute before intubating.		

Procedure

Intubation-Nasal

Procedure

Complications: Epistaxis (nosebleed), Esophageal intubation, Injury to nasal septum or turbanates, vocal cord injury, Intracranial tube placement from basilar skull fracture.

General

EMT

AEMT

Paramedic

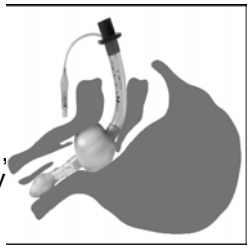
Steps	Was performed ? YES	NO
1. Prepare and check all equipment needed.	☐	☐
2. Preoxygenate the patient with 100% Oxygen.	☐	☐
3. Lubricate the ET tube. The use of a BAAM device is helpful if available.	☐	☐
4. Insert the tube with the flange facing the basal septum. Attempt to advance through the largest nostril. Insert tube at a almost 90° angle. If tube will not pass, try the other nostril before using a smaller tube.	☐	☐
5. 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.	☐	☐
6. Gently and evenly advance the tube through the glottic opening during inspiration. This facilitates passage of the tube and reduces the incidence of trauma to the vocal cords.	☐	☐
7. 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.	☐	☐
8. Auscultate for bilateral breath sounds and absence of gastric sounds. Observe for symmetrical chest expansion. The 15mm adapter usually rests close to the nostril with proper positioning.	☐	☐
9. Inflate the cuff with approximately 10 ml of air.	☐	☐
10. Confirm tube placement by listening to breath sounds bilaterally, negative gastric sounds. Also use end-tidal CO_2 , esophageal bulb device.	☐	☐
11. Secure the tube.	☐	☐
12. Document the procedure, time, ET tube position at nares and result (success) on/ with the patient care report (PCR).	☐	☐

Procedure

King LT-D™ Airway

Procedure

Clinical Indications: For airway management in patients for controlled or spontaneous ventilation. Also indicated for difficult and emergent airway cases.



Contraindications:
- Responsive patients with an intact gag reflex.
- Patients with known esophageal disease.
- Patients who have ingested caustic substances.

Cautions:
The KING LT-D™ is supplied sterile and is not intended for re-use.
- During transition to spontaneous ventilation, airway manipulations or other methods may be needed to maintain airway patency.

Warnings:
Use care if patient:
- The KING LT-D™ does not protect the airway from the effects of regurgitation and aspiration.
- High airway pressures may divert gas either to the stomach or to the atmosphere.
- Intubation of the trachea cannot be ruled out as a potential complication of the insertion of the
- KING LT-D™. After placement, perform standard checks for breath sounds and utilize an appropriate carbon dioxide monitor as required by protocol.
- Lubricate only the posterior surface of the KING LT-D™ to avoid blockage of the aperture or aspiration of the lubricant.

General

EMT

AEMT

Paramedic

Steps	Was performed ? YES	NO
1. Choose the correct KING LT-D™ size, based on patient height. See: **King LT-D Chart**		
2. Test cuff and inflation system for leaks by injecting the maximum recommended volume of air into the cuffs See: **King LT-D Chart**. Remove all air from both cuffs prior to insertion.		
3. Apply lubricant to the beveled distal tip and posterior aspect of the tube, taking care to avoid introduction of lubricant in or near the ventilatory openings.		
4. Have a spare KING LT-D™ ready and prepared for immediate use.		
5. Pre-oxygenate, if possible.		
6. Position the head. The ideal head position for insertion of the King LT-D™ is the “sniffing position”. However, the angle and shortness of the tube also allows it to be inserted with the head in a neutral position.		
7. Hold the KING LT-D™ at the connector with dominant hand. With non-dominant hand, hold mouth open and apply chin lift.		
8. With the KING LT-D™ rotated laterally 45-90° such that the blue orientation line is touching the corner of the mouth, introduce tip into mouth and advance behind base of tongue.		
9. As tube tip passes under tongue, rotate tube back to midline (blue orientation line faces chin).		
10. Without exerting excessive force, advance tube until base of connector is aligned with teeth or gums.		
11. Using the syringe provided, inflate the cuffs of the KING LT-D™ with the appropriate volume: See: **King LT-D Chart.**		
12. Attach resuscitator bag to the 15 mm connector of the KING LT-D™. While gently bagging the patient to asses ventilation, simultaneously withdraw the KING LT-D™ until ventilation is easy and free flowing (large tidal volume with minimal airway pressure).		
13. Depth markings are provided at the proximal end of the KING LT-D™ which refer to the distance from the distal ventilatory opening. When properly placed, with the distal tip and cuff in the upper esophagus, and the ventilatory openings aligned with the opening to the larynx, the depth markings give an indication of the distance, in centimeters, from the vocal cords to the teeth.		
14. Confirm proper position by auscultation, chest movement and verification of CO_2.		

Procedure

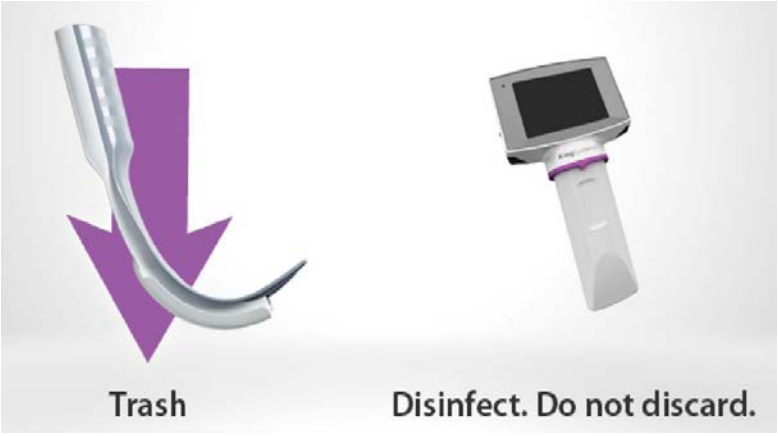
King Vision™ Video Laryngoscope

Procedure

Clinical Indications: Oral intubation

General | EMT | AEMT | Paramedic

Steps	Was performed ? YES	NO
1. Check the Display is ready by pressing and holding (about a second) the power button on the back of the Display. A. The LED above the screen should illuminate and show Green. If the LED is RED the batteries that were installed need to be replaced with fresh ones.	☐	☐
2. Turn the Display OFF. The Display must be OFF before attaching the Blades, if not the video image will not display.	☐	☐
3. Select the proper endotracheal tube being used and stylet if needed. (stylets are not needed with channeled blades)	☐	☐
4. Open the blade packaging and remove Blade. A. Insert the Display into the Blade. B. Listen for a “click” and feel the Display engage with the Blade. C. Turn the Display ON, both the LED should light up GREEN and the video screen should now show an image.	☐	☐
5. (If you are using the Standard style Blade-SKIP this step) For the Channeled Blade: take the lubricated endotracheal tube and slide it through the channel to lubricate it.	☐	☐
6. Insert the King Vision Video Laryngoscope into the patient’s mouth midline. Watch for airway structures as you advance the device. Always center the vocal cords in the middle of the video screen.	☐	☐
7. Pass the endotracheal tube through the vocal cords confirming placement with the display.	☐	☐
8. Standard Blade simply remove it from the patient’s airway.	☐	☐
9. Dispose of the Blade. Display should be cleaned or disinfected before its next use.	☐	☐



Procedure

Lucas Device Part A

Procedure

Clinical Indications:
The Lucas may be used in patients 12 years of age in cardiac arrest, where manual CPR would otherwise be used

Contraindications:
1. Patients < 12 years of age.
2. Patients who do not fit within the device.
   a. Patients who are too large and with whom you cannot press the pressure pad down 2 inches.
   b. Patients who are too small and with whom you cannot pull the pressure pad down to touch the sternum

EMT

General

Steps	Was performed ? YES	NO
1. All therapies related to the management of cardiopulmonary arrest should be continued as currently defined	☐	☐
2. Initiate resuscitative measures following the Join ems protocols a. Early defibrillation should be considered and provided as indicated based on clinical presentation. b. Manual chest compressions should be initiated ***immediately*** while the LUCAS device is being placed on the patient. c. **Limit interruptions in chest compressions to 10 seconds or less.** d. **Do not delay manual CPR for the LUCAS. Continue manual CPR until the device can be placed.**	☐	☐
3. While resuscitative measures are initiated, the LUCAS device should be removed from its carrying device and placed on the patient in the following manner.	☐	☐

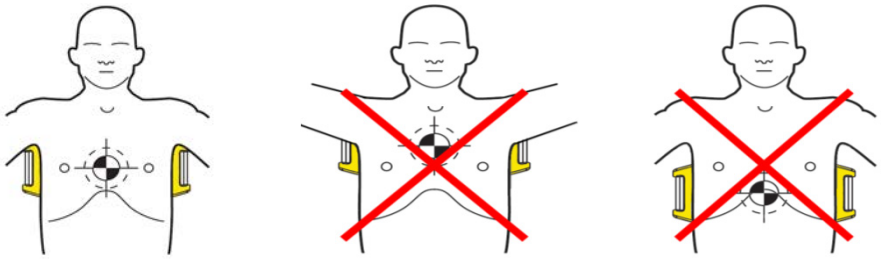
EMT

AEMT

Paramedic

Backplate Placement

- The backplate should be centered on the nipple line and the top of the backplate should be located just below the patient's armpits



- In cases for which the patient is already on the stretcher, place the backplate underneath the thorax. This can be accomplished by log-rolling the patient or raising the torso **(Placement should occur during a scheduled discontinuation of compressions [e.g., after five cycles of 30:2 or two minutes of uninterrupted compressions]).**

Lucas Chest Compression System Instructions for use videos

Training Center for Lucas 2 Device

Introduction and Warning

Unpacking and Powering up the device

Assembly

Adjustment and Operation

Apply the stabilization strap

Operate & Change the Batteries

Procedure

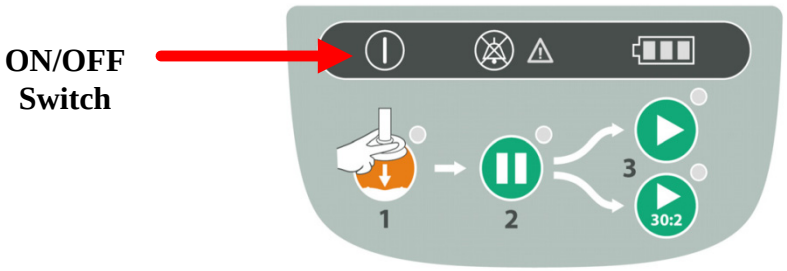
Lucas Device Part B

Procedure

EMT

Position the Compressor

Turn the LUCAS Device on (the device will perform a 3 second self test).



Remove the LUCAS device from its carrying case using the handles provided on each side.

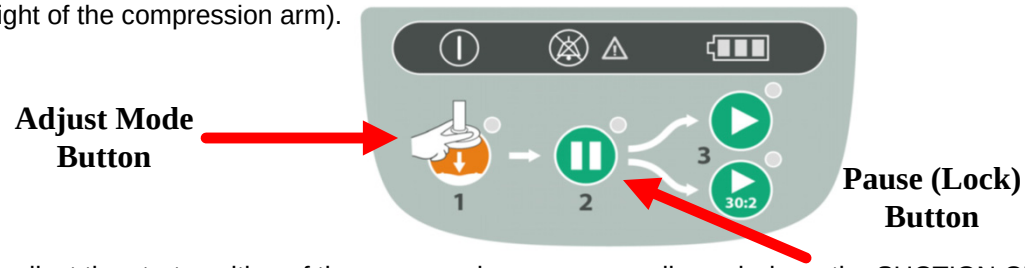
With the index finger of each hand, pull the trigger to ensure the device is set to engage the backplate. Once this is complete, you may remove your index finger from the trigger loop.

Approach the patient from the side opposite the person performing manual chest compressions.

- Attach the claw hook to the backplate on the side of the patient opposite that where compressions are being provided.
- Place the LUCAS device across the patient, between the staff member's arms who is performing manual CPR.
- At this point the staff member performing manual CPR stops and assists attaching the claw hook to the backplate on their side.
- Pull up once to make sure that the parts are securely attached.

Adjust the Height of the Compression Arm

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



- To adjust the start position of the compression arm, manually push down the SUCTION CUP with two fingers onto the chest (without compressing the patient's chest)
- Once the position of the compression arm is satisfactory, push the green PAUSE button labeled #2 (This will lock the arm in this position), then remove your fingers from the SUCTION CUP.
- If the position is incorrect, press the ADJUST MODE BUTTON and repeat the steps.

Procedure

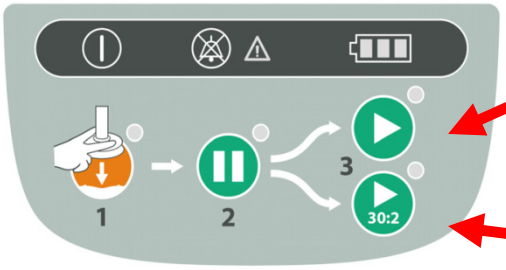
Lucas Device Part C

Procedure

Start Compressions

- If the patient is not intubated and you will be providing compression to ventilation ratio of 30:2 push ACTIVE (30:2) button to start
- If the patient is intubated and you will be providing continuous compressions push ACTIVE (continuous) button

EMT



Active Button (continuous)

Active Button (30:2)

Patient Adjuncts

- Place the neck roll behind the patient's head and attach the straps to the LUCAS device.
- \This will prevent the LUCAS from migrating toward the patient's feet.
- Place the patients arms in the straps provided.
- Using the LUCAS during the Resuscitation

Defibrillation

- Defibrillation can and should be performed with the LUCAS device in place and in operation
- One may apply the defibrillation electrodes either before or after the LUCAS device has been put in position
  - The defibrillation pads and wires should not be underneath the suction cup
  - If the electrodes are already in an incorrect position when the LUCAS is placed, you must apply new electrodes
- Defibrillation should be performed according to the joint ems protocols and following the instructions of the defibrillator manufacturer.

- If the rhythm strip cannot be assessed during compressions, one may stop the compressions for analysis by pushing the PAUSE BUTTON (The duration of interruption of compressions should be kept as short as possible and should not be > 10 seconds. There is no need to interrupt chest compressions other than to analyze the rhythm).

- Once the rhythm is determined to require defibrillation, the appropriate ACTIVE BUTTON should be pushed to resume compressions while the defibrillator is charging and then the defibrillator should be discharged.

Pulse Checks/Return of Spontaneous Circulation (ROSC)

- Pulse checks should occur intermittently while compressions are occurring

- If the patient moves or is obviously responsive, the LUCAS Device should be paused and the patient evaluated.

- If there is a change in rhythm, but no obvious indication of responsiveness or ROSC, a pulse check while compressions are occurring should be undertaken. If the palpated pulse is asynchronous, one may consider pausing the LUCAS Device. If the pulse remains, reassess the patient. If the pulse disappears, one should immediately restart the LUCAS Device.

Disruption or Malfunction of Lucas Device

- **If disruption or malfunction of the LUCAS device occurs, immediately revert to Manual CPR.**

Procedure

Lucas Device Part D

Procedure

Device Management

EMT

Power Supply

- Battery Operation
  - o When fully charged, the Lithium Polymer battery should allow 45 minutes of uninterrupted operation
  - o There is an extra battery in the Lucas Device bag
  - o The battery is automatically charged when the device is plugged into a wall outlet and not in operation. The device should be stored with the Lucas Device plugged into a wall outlet **(When detaching from the wall outlet, make sure that the cord is always with the LUCAS Device)**.
  - o When the orange Battery LED shows an intermittent light, one should replace the battery or connect to a wall outlet

- One may connect the LUCAS Device to wall power in all operational modes (One must always keep the battery installed in order for the LUCAS Device to remain operational).

Power Supply Cord Slot (for charging and AC operation)

Care of the LUCAS Device after use

- Remove the Suction cup and the Stabilization Strap (if used, remove the Patient Straps).
- Clean all surfaces and straps with a Sani-Cloth.
- Let the device and parts dry.
- Replace the used Battery with a fully-charged Battery.
- Replace the Suction Cup and straps
- Repack the device into the carrying bag
- Make sure that the Charging Cord is plugged into the LUCAS Device.
- The LUCAS Device in the carrying bag should be charging on and secure while in rescue

Procedure

Mucosal Atomizer Device (MAD)

Procedure

Clinical Indications:
For administration of Versed or Narcan when an IV is not established.

Steps	Was performed ? YES	NO
1. Assess ABC's – Airway, Breathing, Circulation	☐	☐
2. For Pulse less Patients, proceed to ACLS guidelines	☐	☐
3. Apnea with pulse – Establish oral airway and begin bag ventilation with 100% Oxygen.	☐	☐
4. Load syringe with 2 mg (2ml) of medication and attach MAD nasal atomizer	☐	☐
5. Place atomizer 1.5 cm within the nostril.	☐	☐
6. Briskly compress syringe to administer 1ml of atomized spray.	☐	☐
7. Remove and repeat in other nostril, so all 2mg (2ml) of medication are administered	☐	☐
8. Continue ventilating patient as needed. Proceed down standard unconscious protocol: - Ventilate, oxygenate - Check blood sugar and treat if low - Secure airway if necessary If no arousal occurs after 3 minutes, establish an IV and administer intravenous medications then continue with altered mental status.	☐	☐

General

EMT

AEMT

Paramedic

To calculate it manually, use the formula below: Assess weight: children weight in kg = 10 + 2 (age in years) Calculate appropriate dose of Versed using the following formula:

- Children: Total kg wt x 0.2 mg = total mg dose of Versed, maximum of 10 mg
- Adults over 50 kg: 10 mg (2 ml) of Versed
- Total volume in milliliters of Versed (5mg/ml concentration) =(Total mg dose divided by 5mg/ml) + 0.12ml for dead space of device

MAD® Versed Dosage Table

Patient Age (Years)	Weight	IN Volume 5 mg/ml	Dose (mg)
Neonate	3 kg	0.3 ml	0.6 mg
< 1 yr	6 kg	0.4 ml	1.2 mg
1 yr	10 kg	0.5 ml	2.0 mg
2 yr	14 kg	0.7 ml	2.8 mg
3 yr	16 kg	0.8 ml	3.2 mg
4 yr	18 kg	0.9 ml	3.6 mg
5 yr	20 kg	1.0 ml	4.0 mg
6 yr	22 kg	1.0 ml	4.4 mg
7 yr	24 kg	1.1 ml	4.8 mg
8 yr	26 kg	1.2 ml	5.2 mg
9 yr	28 kg	1.3 ml	5.6 mg
10 yr	30 kg	1.4 ml	6.0 mg
11 yr	32 kg	1.4 ml	6.4 mg
12 yr	34 kg	1.5 ml	6.8 mg
Small teenager	40 kg	1.8 ml	8.0 mg
Adult or full grown teenager	≤ 50 kg	2.0 ml	10.0 mg

Procedure

Patient Assessment-Medical

Procedure

Clinical Indications:

If patient unresponsive, go to Rapid Assessment. History of Present illness including but not limited to below:

Steps | **Was performed ?** YES NO

Focused History and Physical Exam Non-Priority Medical Patients

1. History of Present illness including but not limited to:
   - **O** - Onset of the problem
   - **P** - Provocation
   - **Q** - Quality - 'Crushing, Pressure, Stabbing"
   - **R** - Radiating
   - **S** - Severity "l -10 Scale" and Duration
   - **T** - Time since this onset of this episode

2. Provide appropriate interventions as per protocols. Splint injured, painful or swollen extremities. Apply dressings and bandage all wounds. Consult MCP with any questions, further treatments or omission of interventions as written.

Priority Medical Patients Rapid Assessment

1. **Rapidly assess the patient 'head to toe". (1 - 1 1/2 minutes total)**
   Head, Ears, Eyes, Nose, Throat
   The head should be examined for signs of abnormality. The ears should be examined for presence of fluid and foreign bodies. The pupils should be checked for symmetry and response to light. The nose should be examined for presence of fluid and patency. Examine the throat for signs of obstruction, redness and patency. The neck should be examined for pain, stiffness or injury. The neck veins should be assessed for signs of extreme distention. If there is any evidence of neck injury, employ cervical spine precautions. Assess for any signs of trauma.

2. **Chest, and Abdomen**
   The chest should be examined for signs of visible injury. Assess for breath sounds as well as chest movement, symmetry, and effort. The chest should be palpated for pain.
   The abdomen should be assessed for signs of injury, pain, tenderness, rigidity, and guarding. The pelvis should be palpated for stability if any history of trauma.

3. **Extremities and Back**
   The lower as well as the upper extremities should be examined -and assessed for presence of pulses, sensation, and motor function. Note if edematous or signs of poor perfusion exist. The back should be examined for signs of pain. For patients with possible spinal injury, assess the back during the log roll procedure.

4. **A SAMPLE history should also be obtained if possible. This should include:**
   - S - Signs and Symptoms
   - A - Allergies
   - M - Medications
   - P - Past illnesses
   - L - Last meal
   - E - Events of the injury or illness

   a. Obtain baseline vital signs and prepare the patient for transport.

General EMT AEMT Paramedic

Procedure

Patient Assessment-Trauma

Procedure

Clinical Indications:

Rapid Assessment should be performed on all priority transport patients after the Initial Assessment. Patient with a mechanism or nature of illness consistent with the possibility of spinal trauma should first have manual spinal control and after the rapid assessment be fully spinal immobilized.

General

EMT

AEMT

Paramedic

Steps	Was performed ? YES	NO
Non-Priority Trauma Patients		
1. Assess injuries based on chief complaint. a. Obtain Vital Signs b. Provide care based on signs and symptoms. c. Continue with Detailed Assessment as appropriate	☐	☐
Priority Trauma Patients Rapid Trauma Assessment		
1. **Rapidly assess the patient 'head to toe". (1 - 1 1/2 minutes total)** **Head, Ears, Eyes, Nose, Throat** The head should be examined for signs of abnormality. The ears should be examined for presence of fluid and foreign bodies. The pupils should be checked for symmetry and response to light. The nose should be examined for presence of fluid and patency. Examine the throat for signs of obstruction, redness and patency. The neck should be examined for pain, stiffness or injury. The neck veins should be assessed for signs of extreme distention. If there is any evidence of neck injury, employ cervical spine precautions. Assess for any signs of trauma.	☐	☐
2. **Chest, and Abdomen** The chest should be examined for signs of visible injury. Assess for breath sounds as well as chest movement, symmetry, and effort. The chest should be palpated for pain. The abdomen should be assessed for signs of injury, pain, tenderness, rigidity, and guarding. The pelvis should be palpated for stability if any history of trauma.	☐	☐
3. **Extremities and Back** The lower as well as the upper extremities should be examined -and assessed for presence of pulses, sensation, and motor function. Note if edematous or signs of poor perfusion exist. The back should be examined for signs of pain. For patients with possible spinal injury, assess the back during the log roll procedure.	☐	☐
4. **Neurological Survey** If not already done, a neurological evaluation as well as a history should be obtained. The pupils should be assessed for equality and reaction to light. The level of consciousness should be assessed using the AVPU method: **A – Alert** **V – Verbal** **P – Pain** **U - Unresponsive**	☐	☐
5. **A SAMPLE history should also be obtained if possible. This should include:** S - Signs and Symptoms A - Allergies M - Medications P - Past illnesses L - Last meal E - Events of the injury or illness	☐	☐
6. **Exposure** A thorough exam cannot be accomplished without properly exposing a patient. Passive warming	☐	☐

Procedure

Pediatric Primary Assessment

Procedure

Steps

Clinical Indications: All Levels

- Any child that can be measured with the Broselow-Luten Resuscitation Tape.

Was performed ? YES NO

General

1. Scene size-up, including universal precautions, scene safety, environmental hazards assessment, need for additional resources, by-stander safety, and patient/caregiver interaction
Consider the number of patients, mechanism of injury or nature of the illness. Request additional help if necessary.

EMT

2. Priorities of management are established on a life-threatening basis. Begin an A.B.C. approach to the patient to form a general impression and establish the presence of a life threatening injury or illness. Obtain and record the chief complaint of the patient. Quickly assess level of consciousness using the A.V.P.U. method: **A** - Alert - eyes open
V - Verbal - responds to vocal stimuli
P - Pain - responds only to pain
U - Unresponsive - no response to Verbal or Pain.

GCS Score

AEMT

3. Evaluate for the presence of increased intracranial pressure (ICP). In the infant, increased ICP may be manifested by a full or bulging anterior fontanel, a weak, shrill or irritable cry, and poor muscle tone. Pupillary responses, level of consciousness, recognition of parents, and Glasgow Coma Score (GCS) should also be documented.

Paramedic

4. Assess the airway (protect c-spine if uncertain)
When establishing an airway, remember the differences between the adult and pediatric airway. The young child has a disproportionately large tongue, which can easily occlude the airway. A small amount of blood or vomitus can also obstruct the airway. Deciduous, or “baby teeth”, are poorly anchored and easily dislodged.
   a. responsive - no intervention needed, proceed to step 3.
   b. if unresponsive - use the appropriate medical or trauma maneuver to open the airway
if airway remains partially or totally obstructed, continue attempts to clear the airway (refer to airway emergencies).

5. Assess adequacy of breathing
   a. If patient is not breathing, ventilate patient via mouth-to-mouth resuscitation using appropriate barrier device.
   b. observe chest rise and fall; auscultate breath sounds anteriorly, posteriorly and peripherally. (see Respiratory Distress Protocol) observe for signs of distress - use of secondary muscles, nasal flaring, and tripod position. If oxygen is indicated and the child has a patent airway and good respiratory effort, administer **oxygen** at the highest concentration possible - via a non-rebreather mask at 10-15 liters per minute (lpm). Do not hesitate to administer oxygen to the pediatric patient.
   c. If the child requires ventilatory assistance, administer **100% oxygen** via bag-valve-mask. It is strongly recommended that there are several sizes of clear pediatric masks available, and a pediatric and adult positive pressure ventilation bag. The neonatal size ventilation bag is not recommended equipment for field use.
   d. When possible, monitor oxygen saturation with continuous pulse oximetry and document findings every 5-10 minutes.

6. Assess the circulation / perfusion
   a. Assess rate and quality of pulses - peripheral and central pulses. Early signs and symptoms of shock in children include a rapid heart and respiratory rate (again, remember age-dependent vital signs), agitation, and poor peripheral perfusion (capillary refill > 2 seconds). Hypotension is a LATE and ominous finding. Document vital signs (including temperature and blood pressure if appropriate) and peripheral perfusion.
   b. stop any active bleeding, assess skin color, temperature, and obtain blood pressure.
   c. if there is no palpable pulse or rate is too slow to maintain cerebral blood flow, begin CPR.

Further Assessments, Go to: **Patient Assessment-Medical** or **Patient Assessment-Trauma**

Procedure

Peripheral IV

Procedure

Clinical Indications: Advanced EMT, Paramedic

- Intravenous cannulation is indicated for the administration of drugs or fluids in any critically ill or potentially critically ill patient.

Clinical Indications:

Although there are no true absolute contraindications, peripheral intravenous cannulation should not significantly delay scene times.

Steps	Was performed ? YES	NO
1. Explain to the patient the need for intravenous cannulation and describe what you will be doing.	☐	☐
2. Observe body substance isolation precautions	☐	☐
3. Place a commercial tourniquet or inflate a blood pressure cuff just above the elbow and place the arm in a straight position. If using a blood pressure cuff, inflate until 20 mm/HG below the systolic pressure.	☐	☐
4. Select a prominate vein by feel more than sight. Choose the most distal prominent vein on the hand, forearm, or antecubital space that is straight, on a flat surface, and not rolling. If possible, avoid veins over joints, using the antecubital veins as a last resort.	☐	☐
5. A vein may be distended for easier cannulation by gently tapping on it with your fingers.	☐	☐
6. Prep the venipuncture sight with povidine-iodine or alcohol, using a firm circular motion from the vein outward.	☐	☐
7. With traction on the skin below the venipuncture sight, stabilize the vein.	☐	☐
8. With the bevel of the needle upward, puncture the skin using a 30 to 45 degree angle. Enter the vein directly from above or from the side.	☐	☐
9. When the vein is entered, you should feel a pop and see blood return through the catheter.	☐	☐
10. Carefully lower the catheter and advance the needle and catheter approximately 2 mm to stabilize the needle in the vein.	☐	☐
11. Slide the catheter off of the needle into the vein then remove the needle. Dispose of the needle into a puncture proof (sharps) container. Do not attempt to recap the needle.	☐	☐
12. Release the tourniquet and attach the infusion tubing into the hub of the catheter.	☐	☐
13. Open the flow regulator on the IV tubing. The fluid should run freely.	☐	☐
14. Cover the venipuncture site with a sterile dressing, then tape the catheter to the skin using any acceptable technique. Make a loop with the IV tubing and tape the loop to the arm. This will allow a little extra tubing in case the IV bag is accidentally pulled away from the patient. If the vein is near or over a joint, immobilize it with an arm board to prevent dislodgment of the catheter.	☐	☐

General

EMT

AEMT

Paramedic

Procedure

Pulse CO-Oximeter (RAD-57™)

Procedure

General EMT AEMT Paramedic

Indications:

1. INDICATIONS: Patients suffering from exposure to byproducts of combustion including, fire victims of smoke inhalation, exposure to CO, firefighters during rehab activities, patients or families with complaints of general illness or headaches.

2. If atmospheric CO is detected at 10 ppm or greater concentration, Consider persons occupying the structure be evacuated from the structure to fresh air and evaluated for blood carboxyhemoglobin (COHb) using the RAD-57™ SpO2\SpCO™ monitor. Persons with elevated levels of COHb should be assessed and treated by EMS per the appropriate protocol.

Contraindications: None

Precautions:

1. Very low perfusion at the monitored site may result in inaccurate readings. If the "Low Perfusion" indication is frequently displayed, find a better perfused monitoring site.
2. A misapplied sensor or a sensor that becomes dislodged may cause inaccurate readings.
3. Do not use tape to secure the sensor to the site.

Steps	Was performed ? YES	NO
1. Press green power On/Off button to activate unit		
2. Place sensor on patient finger (observe top/bottom of sensor). **DO NOT** place on **thumb or 5th digit.** If available, utilize the pediatric sensor (less than 30kg / 66 lbs.).		
3. Four green LED's below power button indicate battery level.		
4. Sensor calibrated to penetrate mid-nail, not cuticle area. **Do Not** force finger in too far.		
5. RAD-57™ will calibrate on the patient in about 5-8 seconds.		
6. Displays will come up in pulse oximeter (SpO2) mode.		
7. PI graph will display perfusion strength.		
8. Display will show "SEN OFF" until sensor is on finger.		
9. Press orange "SpCO" button.		
10. Display will show SpO2 level from 1% to 99%.		
11. Record level(s) on PCR.		
12. Press and hold the green power button to turn unit off.		

See RAD-57™ Operator's Manual for specific operations details, troubleshooting, service and maintenance.

Procedure

Pulse Oximetry

Procedure

Clinical Indications:

- Patients with suspected hypoxemia or to obtain baseline reading.

Steps	Was performed ? YES	NO
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. The thumb is not recommended for use.	☐	☐
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 actual pulse of the patient.	☐	☐
6. Monitor critical patients continuously until arrival at the hospital. If recording a one-time reading, monitor patients 30-60 seconds minimum.	☐	☐
7. Document percent of oxygen saturation in response to therapy to correct hypoxemia and initial vital signs when appropriate.	☐	☐
8. Normal saturation is 95-100%. Below 92%, 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) Artificial nails (e) Carboxyhemoglobin (f) Methemoglobin (g) Moisture in the sensor (h) Excessive ambient light (i) Arterial catheters, BP cuffs, infusion lines, etc. (j) Poor pulse quality (j) Incorrect sensor type (k) Venous pulsations (l) Sensor not at heart level **See manufactures Instructions for use for additional cautions and proper cleaning instructions.**	☐	☐

General

EMT

AEMT

Paramedic

Procedure

ResQPOD®

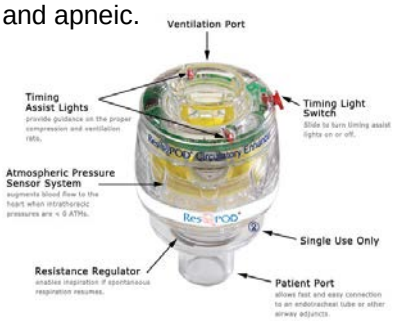
Procedure

Clinical Indications:

The ResQPod® Circulatory Enhancer is indicated for the temporary increase in blood circulation. Cardiopulmonary arrest 18 years and older. Patient must be pulseless and apneic.

Contraindications:

- Persons with dilated cardiomyopathy and / or congestive heart failure.
- Persons with pulmonary hypertension and / or aortic stenosis.
- Persons with flail chest
- Persons with chest pain
- Persons suffering from shortness of breath
- Patients under 18 years of age



General EMT AEMT Paramedic

Steps — **Was performed ?** YES NO

Use with Facemask

1. Attach the bottom of the ResQPOD® Circulatory Enhancer directly to the facemask. Be sure all pieces fit as tightly together as possible.
2. Gently but firmly, hold the ResQPOD® Circulatory Enhancher with the facemask over the nose and mouth, ensuring a tight seal with the face.
3. As an option, slide the Timing Assist Light switch on as a guide to breathing rate.
4. Breathe normally taking slow and deep breaths, following the timing light as a prompt for inhalation, then exhale fully.
5. Breathe through the ResQPOD® Circulatory Enhancer, relaxing between each breath to prevent overexertion. **Prolonged use for more than 30 minutes is not recommended.**
6. Prepare for Intubation. If pulse is obtained prior to intubaation, remove ResQPOD and assist ventilations.

Use with an Adjunct Airway Device

1. Attach the bottom of the ResQPOD® Circulatory Enhancer directly to the airway adjunct. Be sure all pieces fit as tightly together as possible and that the airway adjunct has not become dislodged.
2. Attach ventilation assist device. Slide the Timing Assist light switch to on as a guide to administering ventilations.
3. Administer ten (10) breaths per minute with each breath lasting 1 second.
4. If a pulse is obtained, remove the ResQPOD and assist ventilations as needed.

Special Notes:

A. Always place ETCO2 detector between the ResQPOD and ventilation source.
B. Administer endotracheal medications directly into endotracheal tube.
C. Do not interrupt CPR unless absolutely necessary.
D. If a pulse returns, discontinue CPR and the ResQPOD. If the patient rearrests, resume CPR with the ResQPOD.
E. Do not delay compressions if the ResQPOD is not readily available.

Procedure

Spinal Immobilization

Procedure

Clinical Indications:

- Need for spinal immobilization as determined by protocol

Steps	Was performed ? YES	NO
1. Gather a backboard, straps, C-collar appropriate for patient's size, tape, and head rolls or similar 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 applies 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 in-line 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 in-line stabilization with standard backboards and C-collars. Never force a patient into a non-neutral position to immobilize them. Such situations may require a second rescuer to maintain manual stabilization throughout the transport to the hospital.	☐	☐
8. Document the time of the procedure in the patient care report (PCR).	☐	☐

Procedure

Splinting

Procedure

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

Steps	Was performed ? YES	NO
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 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. **Do not** straighten fractures of the elbow, wrist, knee or ankle. Straighten all fractures involving the long bones at near normal position, if possible before splinting, using slight traction	☐	☐
4. Do not secure the splint directly over the injury or device. Elevate and apply ice packs, as needed.	☐	☐
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. distal to injury, before and after splinting and en route. 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 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).	☐	☐
9. **Splinting Suggestions:** **Long bone fractures:** Board Splint, Vacuum Splint, **Femur Fracture**: MAST, Traction Splint, Long board Splint **Pelvic Fracture**: MAST **Shoulder, Humerus, Clavicle Fracture**: Sling & Swathe **Supracondylar Humeral Fracture**: Carefully Immobilize	☐	☐

General

EMT

AEMT

Paramedic

Procedure

Taser® Removal

Procedure

Clinical Indications:

Before touching any patient who has been subdued by use of a Taser unit, ensure that Law Enforcement has disconnected the wires from the handheld unit.

Steps	Was performed ? YES	NO
1. Assure the scene is secure. Use of this type of weapon to subdue a violent person implies he/she was at risk to him/herself or others.	☐	☐
2. Perform airway, breathing, and circulation assessment and take corrective measures according to medical protocol.	☐	☐
3. Evaluate and treat for secondary injuries/altered level of consciousness according to protocols. • Identify the location of the probes on the patient's body. If any of the probes are embedded in the face (including eyes), neck, groin, or spinal column, do not remove the probes in the field; it is acceptable to cut the wiring away from the barbs to facilitate movement and patient care as needed. These patients should be transported to an Emergency Department.	☐	☐
4. Removal of Probe: • Wear gloves • Place one hand on the patient in the area where the probe is embedded and stabilize the skin surrounding the puncture site. • Place your other hand firmly around the probe. In one fluid motion, pull the probe straight out from the puncture site. • Repeat procedure with the second probe. • Removed probes should be handled and disposed of like contaminated sharps in a designated sharps container unless the Sheriff requires them to be kept as evidence.	☐	☐
5. Confer with Law Enforcement and determine the patients condition from the time of Taser discharge until EMS arrival.	☐	☐
6. Obtain history of present injury and any past medical history, including CAD, HTN, MD, Asthma, COPD, and seizure disorder if possible.	☐	☐
7. Obtain a history of allergies to medications and a list of current medications if possible.	☐	☐
8. Treatment and follow-up: • Cleanse puncture site with alcohol swab and bandage as appropriate. • If the patient has not received a tetanus shot in the last 5 years, they should be advised to get one. A patient should be transported to the Emergency Department if there are signs of trauma, medical problems,(i.e. chest pain, dyspnea, etc) or altered mental status) .	☐	☐

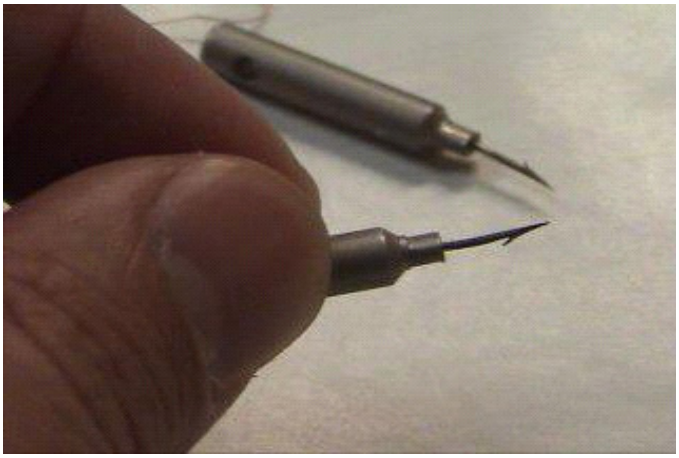
General

EMT

AEMT

Paramedic

Typical Taser Probes



Medical Research Reports
http://www.taser.com/pages/pr/medical.html

Procedure

Tourniquet Application

Procedure

EMT

General

EMT

AEMT

Paramedic

Indications:

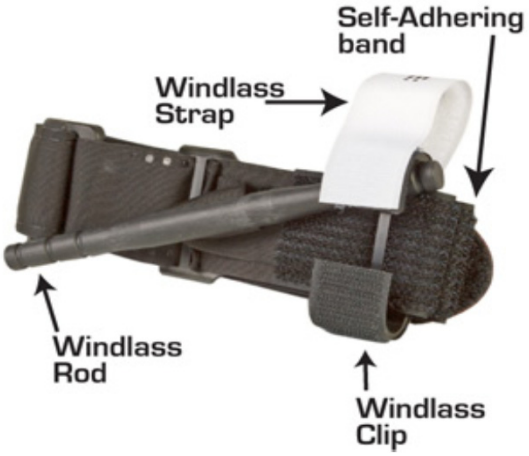
To stop bleeding when:

A. Life-threatening limb hemorrhage is not controlled with direct pressure or other simple measures, as may occur with a managed extremity.

b. Traumatic amputation has occurred.

Combat Application Tourniquet®

Steps	Was performed ? YES	NO
Placement 1. Expose the extremity by removing clothing in proximity to the injury. 2. Place directly over exposed skin 5 – 6 cm proximal to the injury. 3. Route the self-adhering band around the extremity. 4. Pass the band through the outside slit of the buckle. 5. Pull the self-adhering band tight. 6. Twist the rod until bright red bleeding stops. 7. Lock the rod in place with the clip. 8. Record the date/time of application on the tourniquet	☐	☐
Evaluation 1. The tourniquet is effectively applied when there is cessation of bleeding from the injured extremity, indicating total occlusion of arterial blood flow. 2. Any preexisting distal pulse should be absent at that time as well.	☐	☐
Placement 1. Tourniquets should be removed as soon as possible under conditions where the hemorrhage can be directly controlled. 2. Tourniquet placement must be communicated in patient reports for all pre-hospital and inter- hospital transfers. 3. Tourniquet time > 6 hours is associated with distal tissue loss.	☐	☐



Procedure

Valsalva's Maneuver

Procedure

Clinical Indications:

- Treatment of supraventricular tachycardia dysrhythmias.

Steps	Was performed ? YES	NO
1. Place patient in sitting or semi-sitting position.		
2. Position head tilting down.		
3. Instruct the patient to take a deep breath and bear down or strain, as if to have a bowel movement. Have the patient hold this position for 20-30 seconds.		
4. Continue monitoring the patient throughout the procedure. Stop the maneuver if the patient heart rate drops below 100 or asystole occurs.		
5. The maneuver works by the Increase of intrathoracic pressure by forcible exhalation against the closed (or significantly closed) glottis. The maneuver causes a trapping of blood in the great veins, preventing it from entering the chest and right atrium. When the breath is released, the intrathoracic pressure drops and the trapped blood is quickly propelled through the heart, producing an increase in the heart rate (tachycardia) and the blood pressure. Immediately after this event a reflex bradycardia ensues. **(http://www.breathing.com/articles/valsalvas-maneuver.htm)**		

Procedure

Wound Care

Procedure

Clinical Indications:

- Protection and care for open wounds prior to and during transport.

Steps	Was performed ? YES	NO
1. Use personal protective equipment, including gloves, gown, and mask as indicated.	☐	☐
2. Observe for and control obvious bleeding, by the most appropriate method.	☐	☐
3. Apply direct pressure. Utilizing appropriate universal precautions, apply direct pressure to the bleeding site using a sterile gauze pad (or equivalent). Continue to hold pressure until bleeding is adequately controlled, then apply a sterile dressing	☐	☐
4. If bleeding persists, add additional dressing(s) to the area and continue direct pressure until the bleeding is controlled.	☐	☐
5. If additional dressings become blood soaked, remove them and redress *once* in order to assure that you are applying pressure to the area that is bleeding.	☐	☐
6. If appropriate, elevation of the injury site and/or cold compresses may facilitate bleeding control.	☐	☐
7. If bleeding is not controlled in a timely manner, consider applying digital pressure to the adjacent pressure points.	☐	☐
8. In extraordinary circumstances, a tourniquet may be applied to control excessive bleeding or hemorrhage associated with a partially avulsed and/or amputate part.	☐	☐
9. Pneumatic anti-shock garment may be used to control external hemorrhage with evidence of open fractures and when all other methods do not work or are not practical	☐	☐
10. Treat the underlying injury	☐	☐

Reference

Responsoft™

www.responsoft.com

Fredericktown EMS Protocol Changes
February 2015

Adult & Pediatric Sections: **MAST** removed in any page suggested it use.

Adult & **Pediatric** Universal Patient Assessment, removed “C-Spine precautions when necessary” and replaced with “Consider”.

Adult Section: any reference to use **Nitroglycerin** Spray, option added to use Tablet.

Adult: Cardiovascular, **Tachycardia-VT w/Pulse,** added consider adenosine.

Adult: Cardiovascular, **Hypertensive Emergencies,** Removed Nitroglycerin.

Adult Trauma: added new page (replaced C-Spine Clearance in Procedures Section)

Spine Precaution

Pediatric: **Pediatric Non-Traumatic Shock**, Removed Epinephrine 1:1,000 Drip

Adult: Respiratory, **Adult Airway**, Removed, EMT allowed to intubate.

Pharmacology: **Adenosine (Adenocard)**, added Tachycardia-VT w/Pulse link

Pharmacology: **Naloxone** (**Narcan**), EMT’s allow to administer Narcan IN

Guidelines: added new page **Consent, Refusal and Withdrawal of Consent**

Guidelines: added new page **Pediatric Consent, Consent Withdrawal, Treatment and Transport**

Guidelines: Several Revisions made **Scene of Any Death (First Arrival). See highlighted areas.**

Guidelines: added new page **SERT (Out of Franklin County)**

Procedure: **CPR**, Added consider Lucas 2 Device

Procedure: added new page **Lucas Device Part A, Part B, Part C & Part D**

Procedures added new page, **Tourniquet Application**

Fredericktown EMS Protocol Changes-continued

July 27, 2015

Adult: Cardiovascular, **STEMI**, Heparin maximum dose changed from 5,000 to 4,000 Units

Pharmacology: **Heparin**, maximum dose changed from 5,000 to 4,000 Units

Capnography-Basic

Capnography

Considered the ventilation vital sign

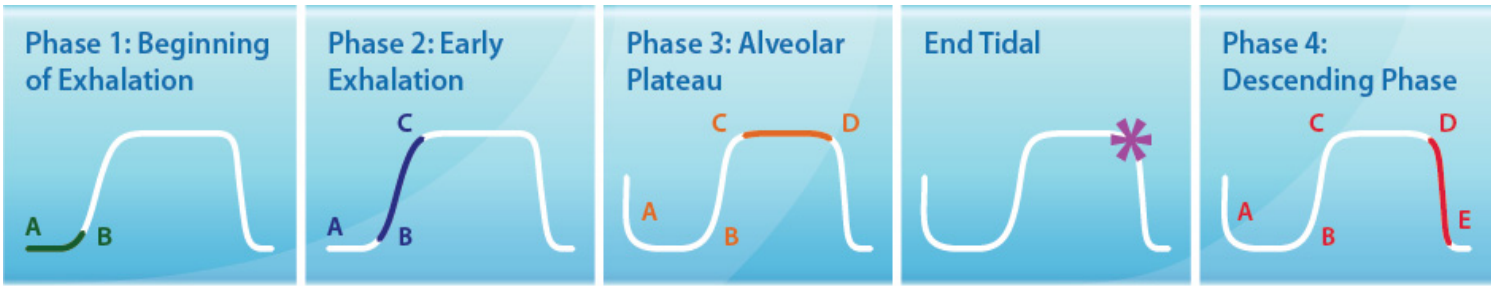
Capnography gives an accurate picture of the patient's ventilation and/or perfusion status frequently before symptoms are recognized by health care providers.
Provides objective data regarding clinical course of management and treatment
Arterial blood gas CO2 has a normal range of 35 – 45 mmHg.
EtCO2 will normally be within 1 – 5 mm less than an ABG CO2 value
ETCO2 can be used to estimate ABG PaCO2
Elevated ETCO2 = Hypoventilation / ROSC / increased metabolism
Decreases ETCO2 = Hyperventilation / hypotension / hypovolemia / decreased cardiac output / PE / decreased metabolism

Prehospital Airway

- *Intubated Patients*
  - Confirms Airway Presence during transport and patient movement
  - Access Quality of Ventilation
  - Provides Early notification of problems or ROSC
  - Provides feedback regarding ideal ventilation rates in head injured patients
- *Non Intubated Patients*
  - Assesses ventilation status in patients with respiratory distress
  - Shows bronchodialator effectiveness
  - Indicates patients ventilation rate
  - Facilitates the assessment and management of ketoacidosis in the Diabetics patients
- *The diagnostic element of CO2 is in the waveform not in the numeric value!!!*

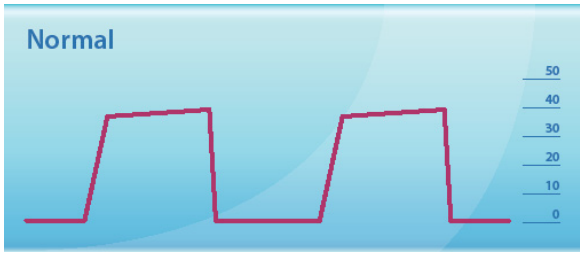
False Positives Possible?
After recent ingestions of carbonated beverages or alcohol, a false positive EtCO2 may be present for 2 – 3 ventilated breaths.
Several ventilations should wash out stomach CO2 content.
Displacement of ETT against the lateral tracheal wall can cause flat waveform

Phases of the Capnogram



Anatomic Dead Space | Gas Mixing | Exhalation | Peak CO2 Concentration (Capnography Reading) | Inspiration

Normal Capnography Waveform



Capnography-Information

Capnography Uses

Increased ICP - You can use capnography to maintain ventilation rates to obtain EtCO2 at the low end of normal

Use in Ventilation Rates - useful in the prehospital setting to help maintain appropriate manual and mechanical ventilation –
Inadvertent Hyperventilation - Inadvertent hyperventilation is common following paramedic RSI despite EtCO2 monitoring and target parameters.(1)

Cardiac Arrest - Reductions in EtCO2 during CPR are associated with comparable reductions in cardiac output making EtCO2 more reliable than radial pulses. (2)

Return of Spontaneous Circulation - The use of CO2 is able to be used in the determination of ROSC, often the first indicator. Increase occurs due to the excess CO2 being washed out of the previously hypoperfused tissue.(3)

Use in Death Confirmation - Studies indicate that patients that have been intubated and have a CO2 less than 10 which does not increase are clinically dead.(4)

ACLS Medication - You will see an initial increase in the EtCO2 after administration of Sodium Bicarbonate. This will come back down after several ventilations. This demonstrates the reason ACLS suggest no NaHCO3 unless adequate ventilation present

Paralytics - You may see a “curare cleft” caused by the stronger thoracic muscles that are more paralyzed than the weaker diaphragm. This is an indicator that the patient is coming up from medication. Consider further sedation and/or paralyzation.

Pacemaker - Can be used to help determine when a patient has capture during pacing as you will see an increase in CO2 prior to feeling a pulse. The increase is due to the increase in cardiac output that should accompany capture.

Trauma Patients - Decreased CO2 levels, when determined not to be not from other causes, should lead you to suspect hypovolemia as severe shock will have low CO2 due to poor perfusion. You will see an increase in CO2 as perfusion status improves during resuscitation.

Nasotracheal Intubation - In NTI capnography can be used to guide the ET tube into proper position
You will see an increase in CO2 as the tube passes into the hypopharnyx and decrease if you remove it from the hypopharynx and move toward the esophagus.(5)

Diabetic – In DKA patients, Kaussmaul respiration helps correct acidosis. Patients with an EtCO2 of less than 29 were found to be in acidosis 95% of the time, whereas no patients with EtCO2 of 36 or higher were in acidosis.(6)

Seizure Patients - Capnography is a very valuable and reliable assessment tool to assure airway patency in seizure patients or those medicated with Valium, Versed, or Ativan for seizure activity.

- Can be used in actively seizing patients
- Increases in CO2 are common during seizures due to the patient’s exaggerated muscular activity
- Continued increases or very high EtCO2 can indicate hypoventilation, commonly associated with benzodiazepine use.

Pain Management - Patients that are given sedatives or narcotics for pain are at risk for hypoventilation, Capnography can assure continued ventilation during extrication and/or transport with just a glance at the monitor.

Asthma - EtCO2 is specifically good for assessing the severity of asthma or the presence of bronchospasm
Bronchospasm can give the appearance of a “shark fin” on the waveform.
Diagnosis of asthma versus panic attack

Patients experiencing bronchoconstriction will develop a shark fin appearance to the waveform. This sharkfin will resolves as the patient responds to treatment. In the event the patient fails treatment the shark fin will not resolve and increases in EtCO2 may be seen as the patient gets tired.

CPAP - You can use a nasal cannula with CPAP as long as you can good get a good mask seal.
It is a good idea to place it on the patient to monitor respiratory status during CPAP use. Alerts Clinician to periods of apnea in CPAP patients.

Reference

Capnography-Information/Waveforms

Reference

Pulmonary Embolus (PE) - Typical presentation of SOB, tachycardia, risk factors. EtCO2 can present with normal waveform appearance and a lower numeric value due to respiratory rate and decrease perfusion to lungs. **If the PE is small you may see no change**. Small PE may demonstrate no change in EtCO2 values and should not be used as a single assessment tool for assessment of a PE

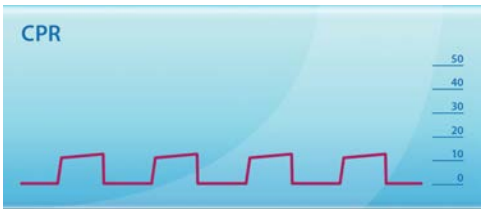
Pregnant Patients - compression of the vena cava restricts blood flow back to the heart and lungs which can cause decreases in EtCO2 due to decrease perfusion.
Note: Shark-fin waveform appearance in pregnant patients can be a normal finding and does not specifically indicate bronchoconstriction.

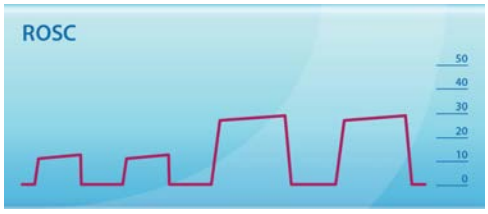
Rescue Airway Device – Rescue Airway Devices - Used to confirm adequate ventilation. without other evidence of bronchoconstriction as this may be a normal finding.

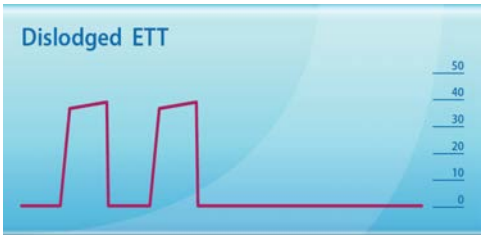
Remember

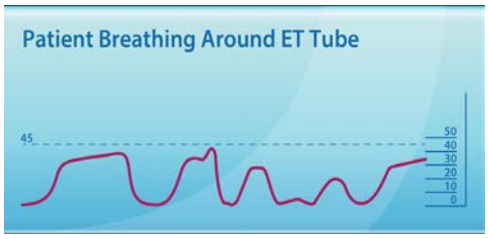
Capnography assesses ventilation
It confirms adequate ventilation – not a confirmed secured airway!!!!
You have to have adequate perfusion
Changes are immediate long before pulse oximetry
You need to use it to be comfortable with it

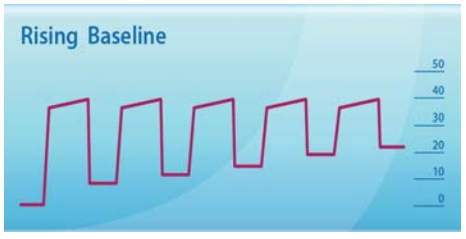
Capnography Wave Forms

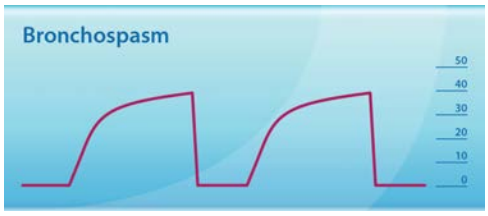


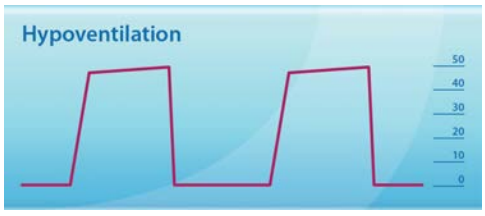


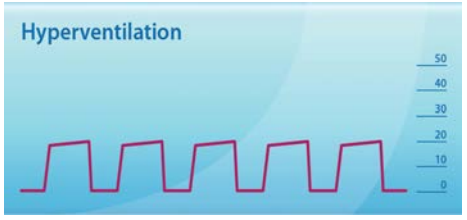












References

(1) Davis, DP.,Dunford,JV. Inadvertent Hyperventilation following Paramedic RSI of Severely Head-injured Patients. Acad Emerg Med. Vol. 10, No. 5 446. 2003
(2) Weil, M. Cardiac Output and End-Tidal Carbon Dioxide. Critical Care Medicine, November 1985
(3) Singh Amar. Comparing the Ability of Colormetric and Digital Waveform End Tidal Capnography to Verify ET tube placement. Academic Emergency Medicine Vol. 10 No. 5 466-467
(4) Levine R. End-tidal Co2 and outcome of out-of-hospital cardiac arrest. New England Journal of Medicine. July 997;337:301-306
(5) Phillips 2003
(6) Fearon D., Steele D. End-tidal CO2 predicts the presence and severity of Acidosis in Children. Academic Emergency Medicine Vol 9 No. 12 1373-1378

King LT-D Chart

Sizing Information			
Size	Patient Criteria	Connector Color	Inflation Volumes
2	35 - 45 inches (90 - 115 cm)	Green	25 - 30 ml
2.5	41 - 51 inches (105 - 130 cm)	Orange	30 - 40 ml
3	4 - 5 feet (122 - 155 cm)	Yellow	45 - 60 ml
4	5 - 6 feet (155 - 180 cm)	Red	60 - 80 ml
5	Greater than 6 feet (>180 cm)	Purple	70 - 90 ml

Medication Infusions

Dopamine Drip

	Dopamine (Intropin®) 400 mg / 250 NS or D5W			
	5 mcg	10 mcg	15 mcg	20 mcg
Weight - lbs / kg	gtts / min	gtts / min	gtts / min	gtts / min
88 / 40	8	15	23	30
99 / 45	8	17	25	34
110 / 50	9	19	28	38
121 / 55	10	21	31	41
132 / 60	11	23	34	45
143 / 65	12	24	37	49
154 / 70	13	26	39	53
165 / 75	14	28	42	56
176 / 80	15	30	45	60
187 / 85	16	32	48	64
198 / 90	17	34	51	68
209 / 95	18	36	53	70
220 / 100	19	38	56	75
231 / 105	20	39	59	79
242 / 110	21	42	62	83
253 / 115	22	43	65	86
264 / 120	23	45	68	90
275 / 125	23	47	70	94
286 / 130	24	49	73	98
297 / 135	25	51	76	101
308 / 140	26	53	79	105

Lidocaine Drip

Lidocaine (Xylocaine®)	
2 grams / 500 NS or D5W	
(Dose) mg / min.	gtts / min.
1 mg	15
2 mg	30
3 mg	45
4 mg	60

Pediatric Guidelines for Tubes & Cannulas

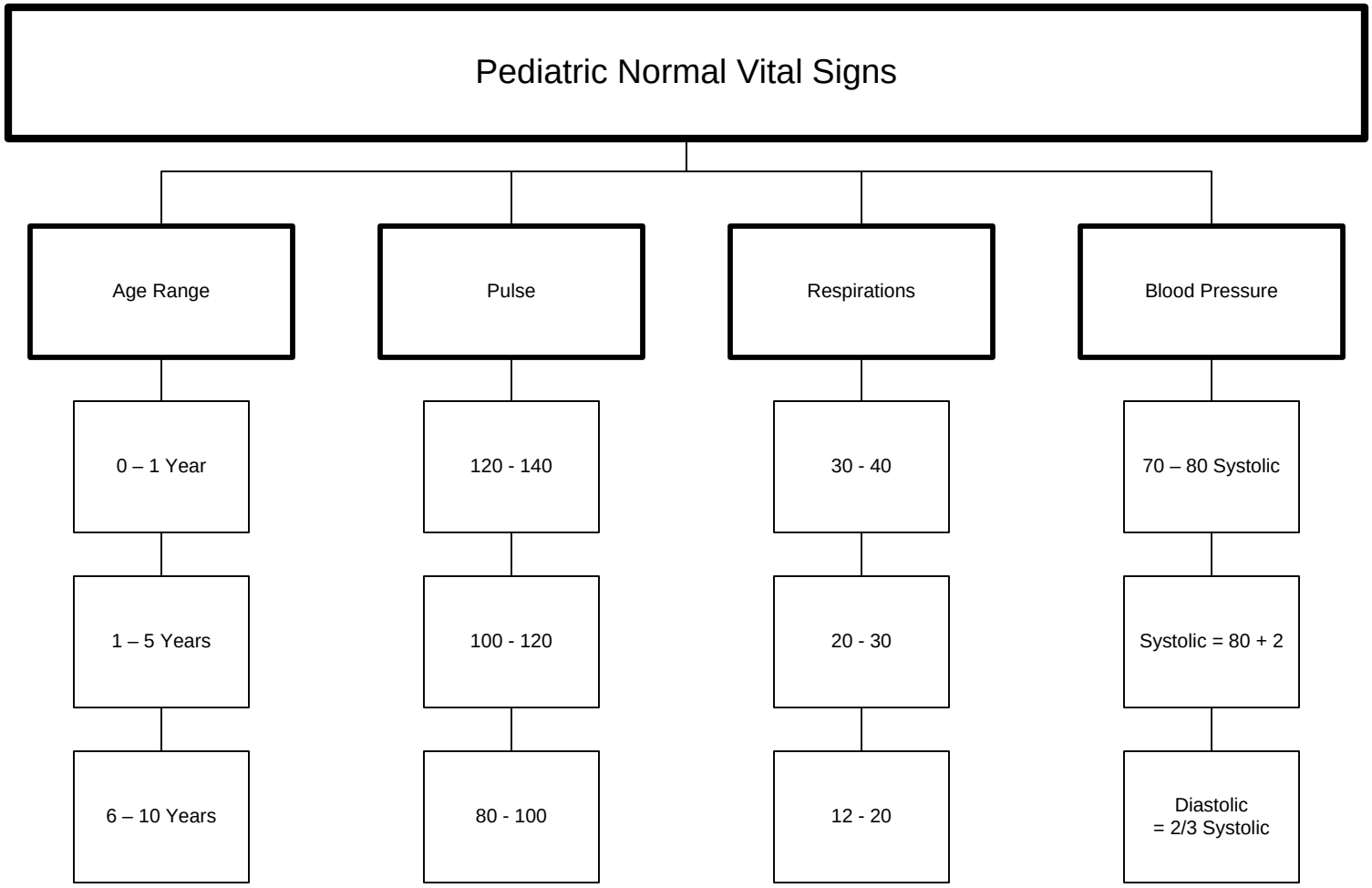
	5 mcg	10 mcg	15 mcg	20 mcg
Age	Weight	ET Tube*	Suction	Maintenance IV Rate
NB	3.5 kg	3.5	8 Fr	15 ml/hr
6 months	7 kg	4.0	8 Fr	30 ml/hr
1 year old	10 kg	4.5	8 Fr	40 ml/hr
2 year old	12 kg	5.0	8-10 Fr	45 ml/hr
3 year old	14 kg	5.0	10 Fr	50 ml/hr
4 year old	16 kg	5.5	10 Fr	55 ml/hr
5 year old	18 kg	5.5	10 Fr	60 ml/hr
6 year old	21 kg	6.0	10 Fr	63 ml/hr
7 year old	24 kg	6.0	10 Fr	66 ml/hr
8 year old	27 kg	6.5	10-12 fr	68 ml/hr
9 year old	28 kg	6.5	12 Fr	70 ml/hr
10 year old	30 kg	7.0	12 Fr	70 ml/hr

*ET Tube sizes are Approximate. One size larger or smaller may be needed.

Pediatric Lower Airway Reference

	Asthma	Bronchiolitis
Site of Obstruction	Bronchospasm or narrowing of the small airways	Inflammatory infection of the small airways
Etiology	Varies	Viral infection (RSV), most often in winter and early spring
Age range	Varies	Usually less than 2 years
Clinical Appearance	**MILD** Cough, tachypnea, tachycardia, plus nasal congestion, mild retractions, audible wheezing	**Mild** Same as **Asthma**
Severe Anxious, obtunded, pale, cyanotic, unable to talk, dimished to no air exchange, severe retractions, wheezing may or may not be present.		**Severe** Same as **Asthma**

Pediatric Vital Signs



Phone Numbers

Knox Community Hospital	393-9711
Knox County 911	392-3557
Mt. Vernon PD	397-2222
Fredericktown PD	694-9222
Med Central Mansfield ER	419-526-8100
Richland County 911	419-524-2412
Morrow County 911	419-946-7055
Knox County EMA	393-6772
Mt. Vernon Ambulance (MAS)	393-3311
Fredericktown Fire	694-9701
Central Ohio JFD	625-5646
Eastern Knox County JFD Sta. 1	599-7381
Eastern Knox County JFD Sta. 2	599-1573
Fredericktown EMS	694-0351
College Township & Monroe Township Sta. 1	427-3000
College Township & Monroe Township Sta. 2	397-4115
Utica EMS	892-2369
Utica Fire	892-2222
Utica Dispatch	892-2211
Homer Fire	892-2505
Bladensburg Fire Sta. 1	668-4452
Bladensburg Fire Sta. 2	668-6461
Mt. Vernon Fire Sta. 1	393-9514
Mt. Vernon Fire Sta. 2	393-9516
Grant	614-566-9268
Riverside	614-566-5321
St. Ann’s	614-898-4040
OSU	614-293-8333
Columbus Nationwide Children’s Hospital	614-722-6868 or 800-642-6666
Akron City	330-375-3000
Akron General	330-384-6000
Akron Kids	330-543-8995
OSP Post 59 (Morrow / Knox County)	397-5115
Poison Control	(800) 222-1222

Reference

MEND Examination – Prehospital

Reference

Date 08/05/2015 Time : Fredericktown EMS Medic _____

Patient Name _____

Date of Birth _____

Reset

Green Boxes Contain Basic Exam (CPSS)

MENTAL STATUS

	YES	NO
• Level of consciousness (AVPU)	☐	☐
• Speech: “You can’t teach an old dog new tricks”	☐	☐
• Questions (age, month)	☐	☐
• Commands (close, open eyes)	☐	☐

CRANIAL NERVES

• Facial Droop (show teeth or smile)	☐	☐
• Visual Fields (four quadrants)	☐	☐
• Horizontal Gaze (side to side)	☐	☐

LIMBS

• Motor – Arm Drift (close eyes-hold out arms)	☐	☐
Leg Drift (open eyes-lift each leg separately)		
• Sensory – Arm, Leg (close eyes & touch, pinch)	☐	☐
• Coordination – Arm, Leg (finger-nose, heel-shin)	☐	☐

Reference

MEND Examination – Prehospital-continued

Reference

History

- Last time patient was without symptoms [:]

Reset

T-PA Exculsions

	YES	NO
• Head trauma at onset	☐	☐
• Seizure (shaking or staring spell) at onset	☐	☐
• Taking warfarin (Coumadin)	☐	☐
• History of bleeding problems	☐	☐
• ? Brain hemorrhage (stiff neck, decreased LOC)	☐	☐

MANAGEMENT

- Do **NOT** allow aspiration (NPO, head up)
- Do **NOT** give glucose (unless glucose < 50 mg/dl)
- Do **NOT** treat hypertension

ED REPORT KEY ITEMS

Symptom Onset

- Time (last time w/o sxs)
- Trauma (history)
- Headache (severe)
- Seizure (staring, shaking)

Neurologic Exam

	YES	NO
• LOC	☐	☐
• Speech / Language	☐	☐
• Visual fields	☐	☐
• Motor strength	☐	☐

Witness

- Name _____
- Contact information _____

Home

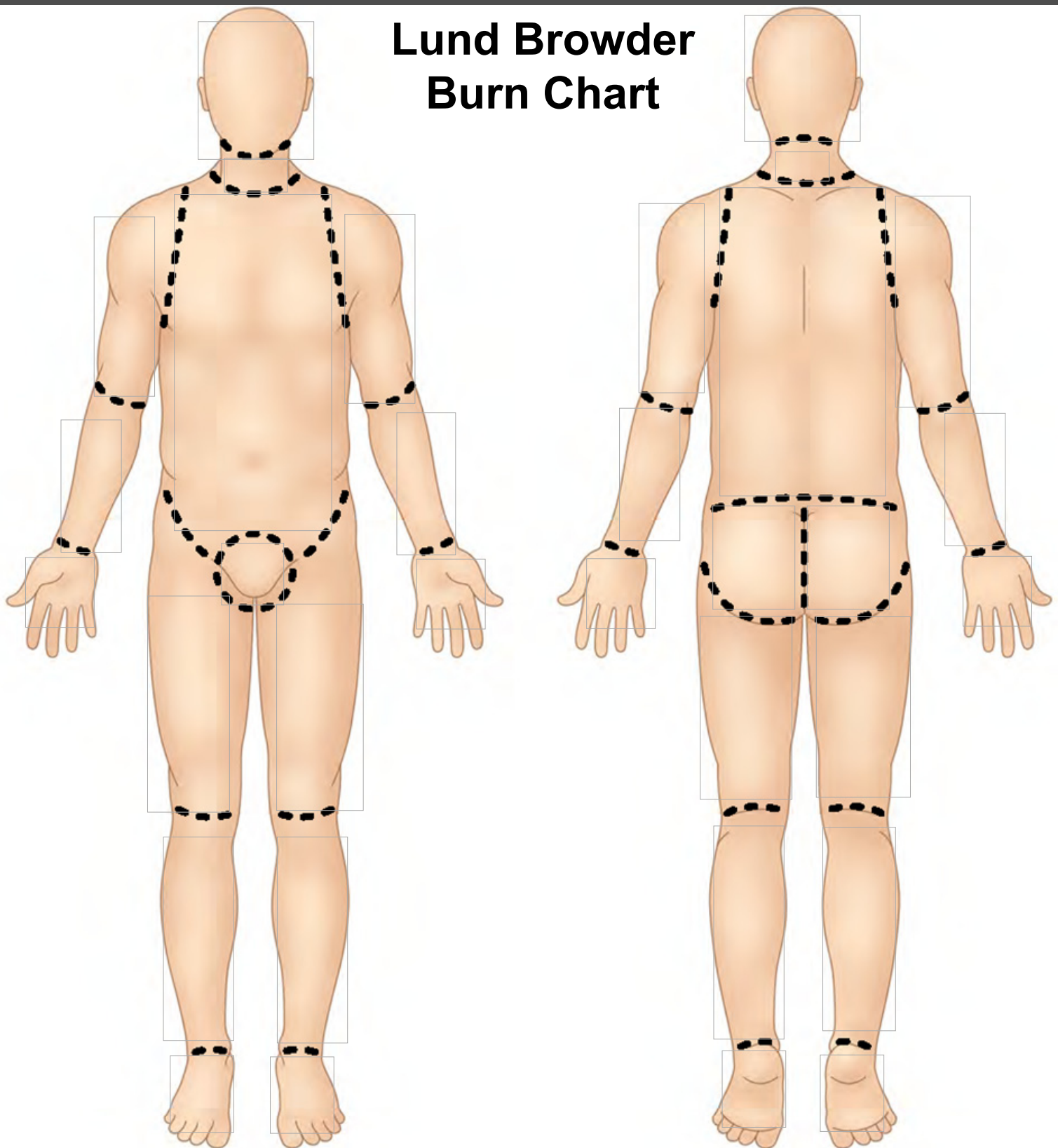
Adult

Reset

Print

BSA Burn Percentage **0** **%** Parkland Formula Totals **0** ml / hr

Lund Browder Burn Chart



Home

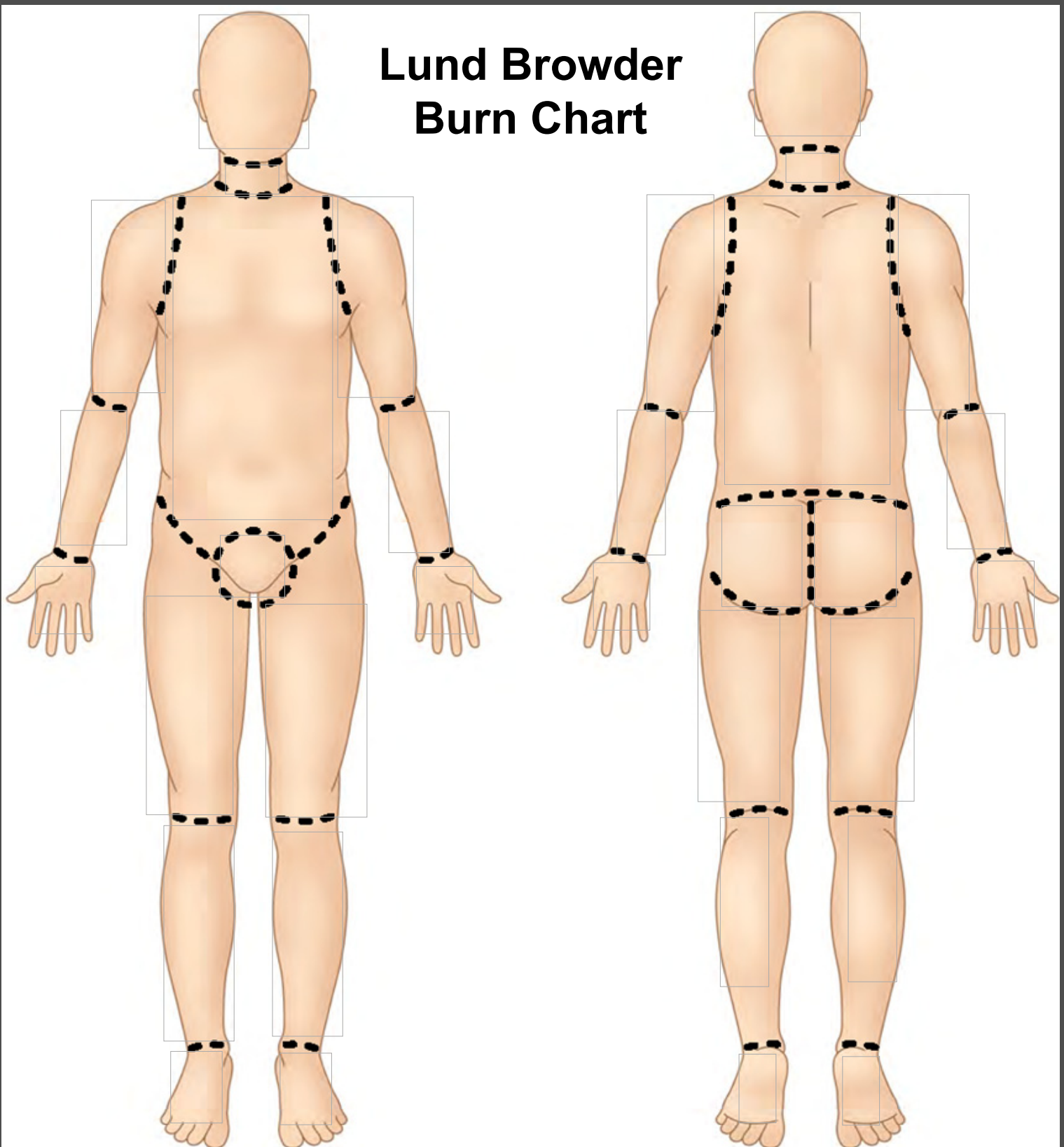
Reset

Adolescent Age 10-14

Print

BSA Burn Percentage **0** % Parkland Formula Totals **0** ml / hr

Lund Browder Burn Chart



Home

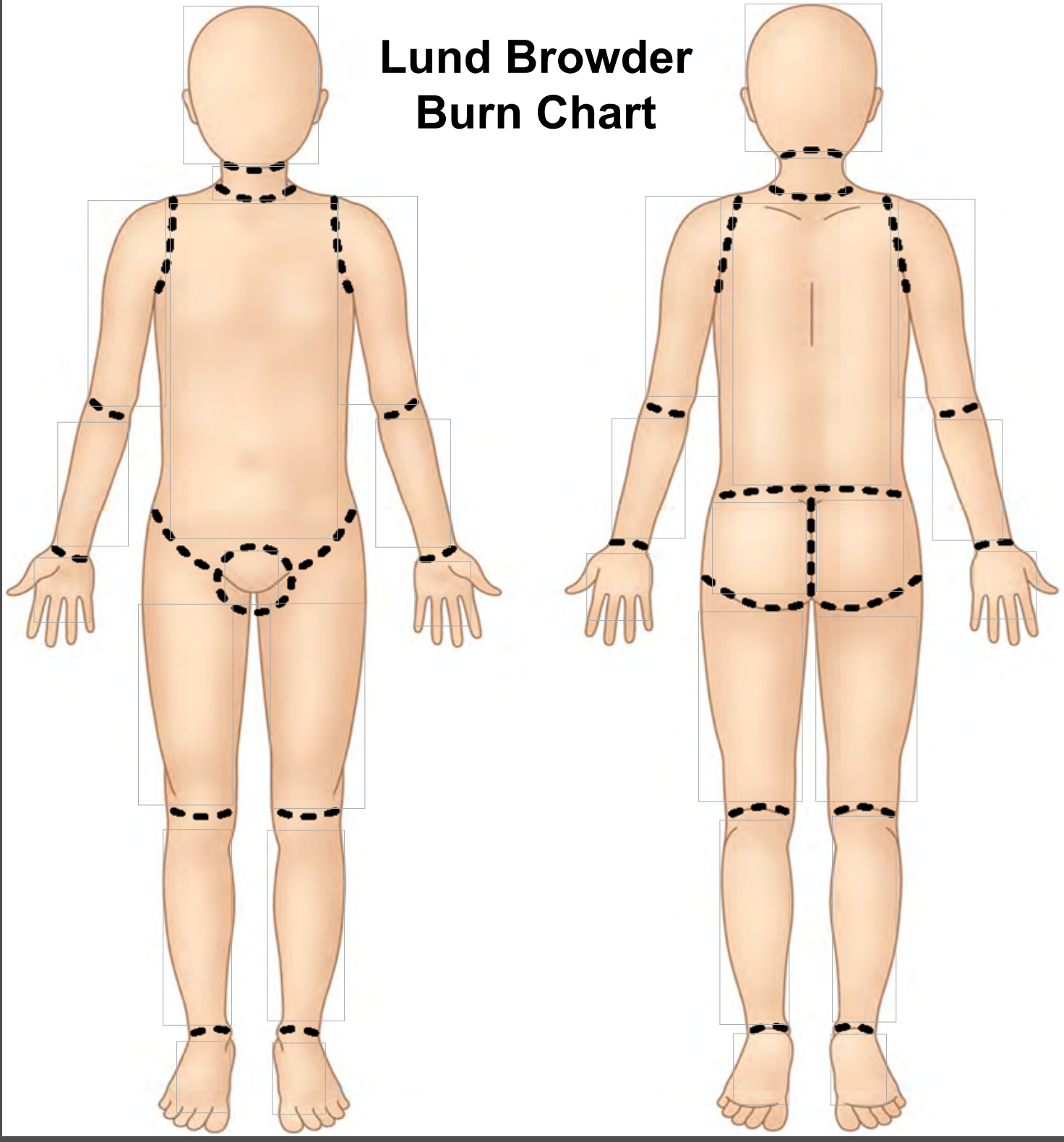
Reset

Pediatric Age 5-9

Print

BSA Burn Percentage **0** % Parkland Formula Totals **0** ml / hr

Lund Browder Burn Chart



Home

Reset

Toddler Age 1-4

Print

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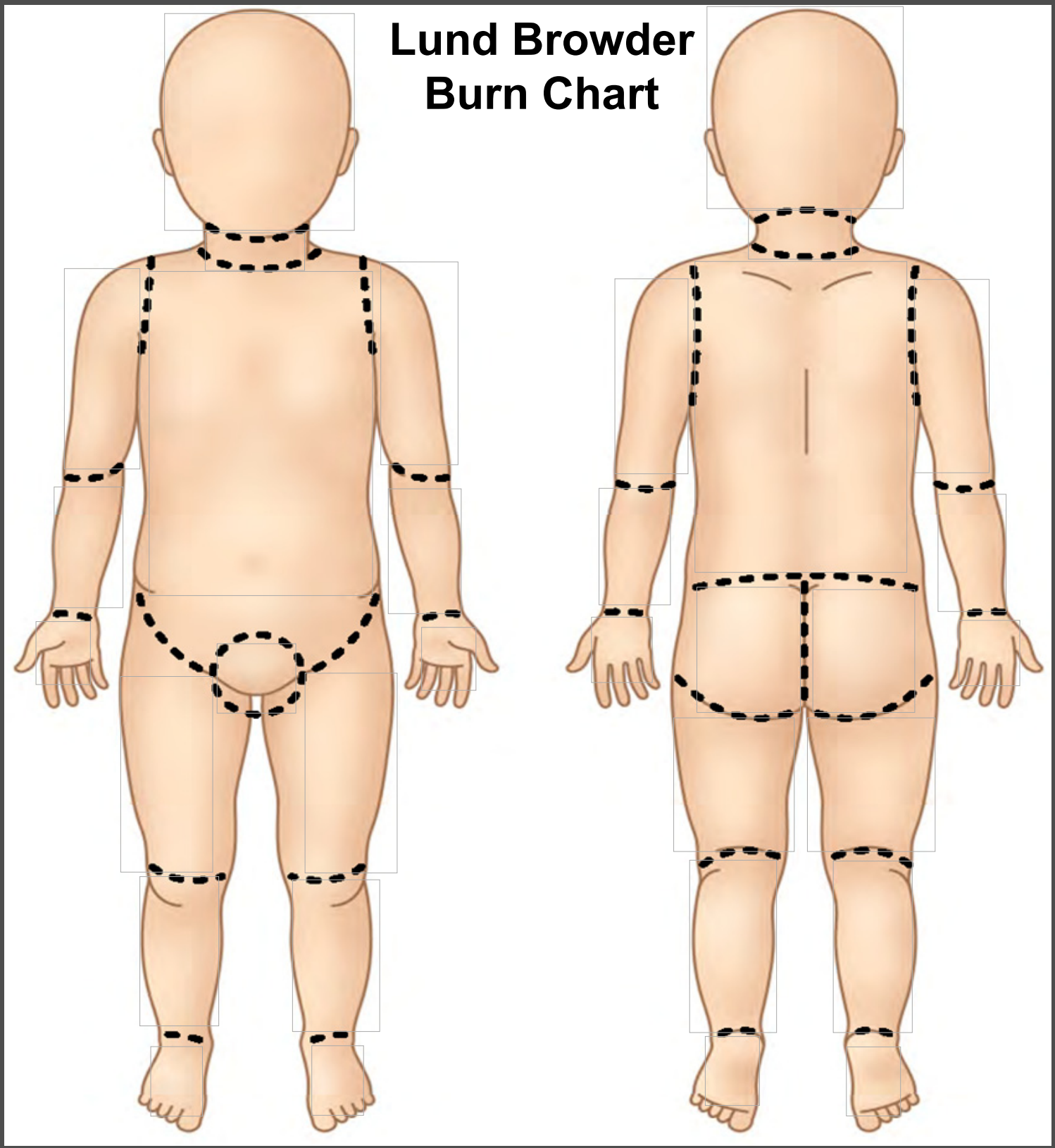
Lund Browder Burn Chart



Home

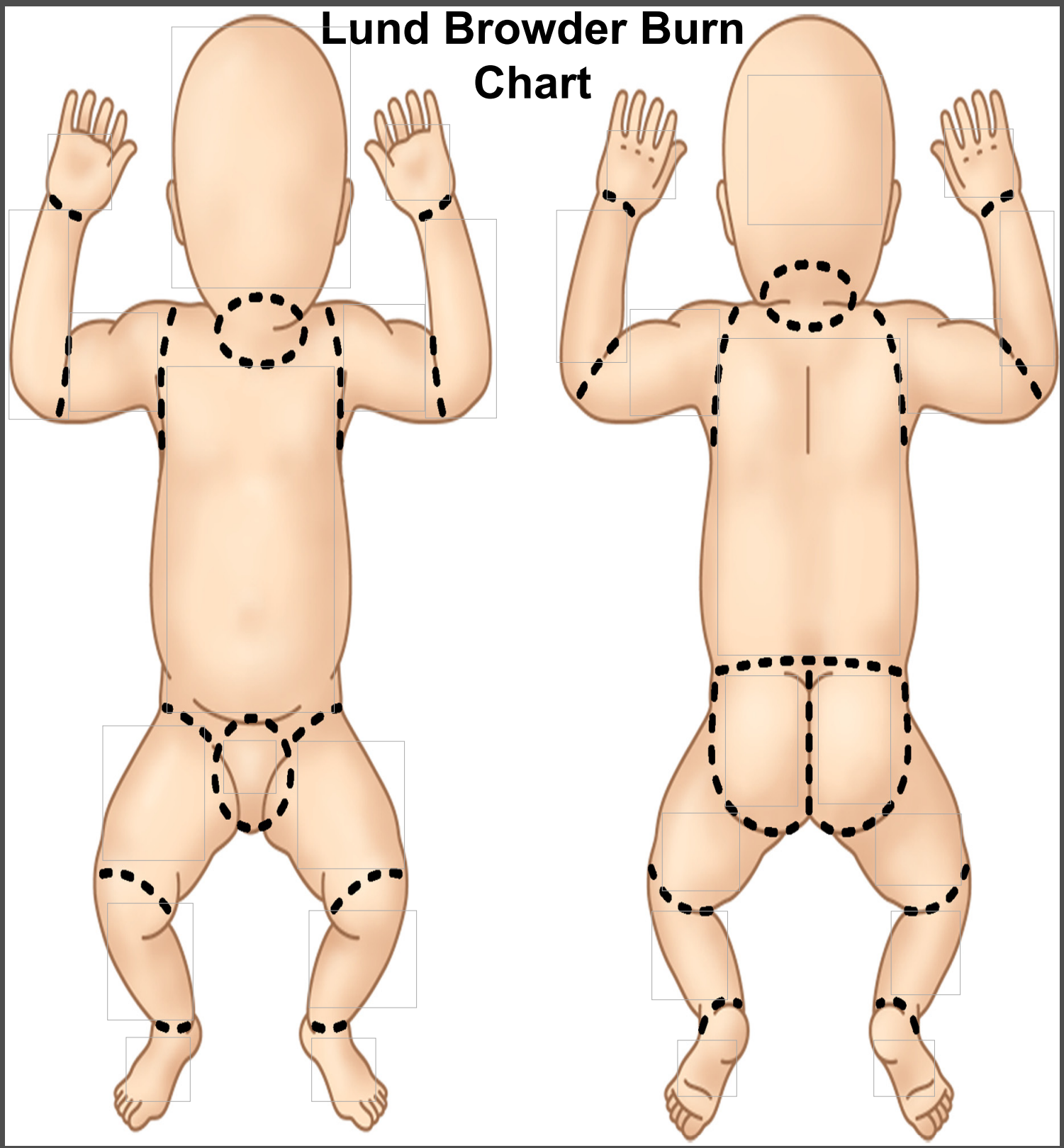
Reset

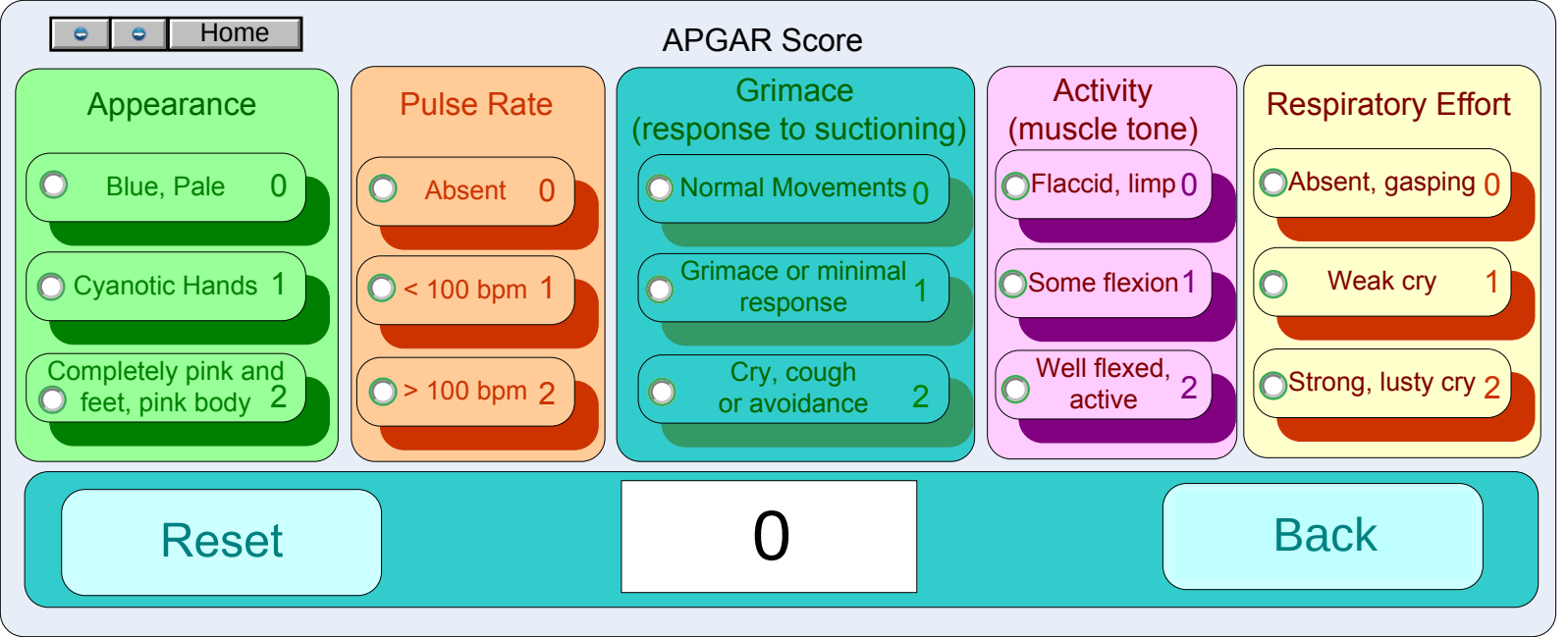
Infant Age 0-1

Print

BSA Burn Percentage **0** % Parkland Formula Totals **0** ml / hr

Lund Browder Burn Chart




Home
APGAR Score
Appearance
Blue, Pale 0
Cyanotic Hands 1
Completely pink and feet, pink body 2
Pulse Rate
Absent 0
< 100 bpm 1
> 100 bpm 2
Grimace (response to suctioning)
Normal Movements 0
Grimace or minimal response 1
Cry, cough or avoidance 2
Activity (muscle tone)
Flaccid, limp 0
Some flexion 1
Well flexed, active 2
Respiratory Effort
Absent, gasping 0
Weak cry 1
Strong, lusty cry 2
Reset
0
Back

Home

Glasgow Coma Score

Eye Opening

- Spontaneous 4
- To Voice 3
- To Pain 2
- None 1

Verbal Response

- Oriented / Coos, Babbles 5
- Confused / Irritable cry, Inconsolable 4
- Inappropriate Cry/Screaming 3
- Garble Speech / Moans to Pain 2
- None 1

Motor Response

- Obeys Commands / Normal Movements 6
- Localizes Pain Withdraws to Touch 5
- Withdraws to Pain 4
- Flexion 3
- Extension 2
- None 1

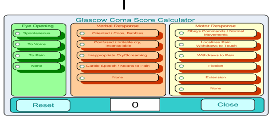
Reset

0

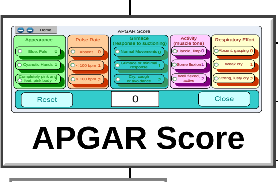
Back


ResponsEMS Protocol
1
2
3
4
5
6
7
8
9
Reset
0
Enter


Calculate


Glascow Coma Score Calculator
Reset
0
Close

GCS Score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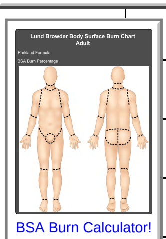
APGAR Score


Lund Browder Body Surface Burn Chart Adult
BSA Burn Calculator!