

LMHS Protocols

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Updated



Affiliate of ProMedica

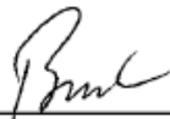


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EMS Protocols
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Different fields...Same Goal!

The preceding protocols are approved as listed.

Effective Date



Todd Brookens, DO, FACEP, FAAEM
EMS Medical Director
Lima Memorial Health System




DOUG LARUE
Notary Public, State of Ohio
My Commission Expires
3-11-2019

Introduction:

You have in your hands (or on your computer screen) the protocol document which describes the methods whereby Fire Departments and EMS Units operating under the medical direction of Lima Memorial Health System will provide high quality pre-hospital medical care. The document is exhaustive; however, we are not able to write a protocol or policy for every situation you may encounter in the pre-hospital environment and as such, they provide a guideline for treating the majority of situations presented to you. Additionally, On-Line Medical Control is always available for your consultation.

Foundations:**Definition of a Patient:**

A patient is an individual requesting or potentially needing medical evaluation or treatment. A patient-provider relationship is established via telephone, radio, or personal contact. It is your responsibility to ensure all potential patients are offered the opportunity for evaluation, treatment, and/or transport.

Rights of a Patient:

Once you have begun collecting information about a patient encounter, you have an ethical obligation to protect a patient's confidential information. It is important to take every opportunity to protect patient confidentiality. This applies to written as well as spoken communications.

Competent patients have the right to accept or refuse medical care, even if the consequences of the refusal of care may potentially be harmful for the patient. In the event that a patient refuses care, it is important to remember the following:

- 1) Be courteous
- 2) Offer transport without some or all of the recommended treatment if the patient will allow that.
Document the patient's wishes
- 3) Clearly advise the patient of the possible complications of their decision
- 4) Advise the patient to call 911 if they subsequently desire treatment and transport
- 5) Accurately document all components of the patient encounter

Regarding CONSENT:**1) Minors:**

- a) Patients under the age of 18 may not consent to medical treatment or transport.

However, the following may consent for the treatment of a minor

- i) Mother or Father
- ii) Legal Guardian
- iii) An individual standing in *loco parentis*. Such persons may include a stepparent taking the responsibilities of a parent of the child.
- iv) The leader of a group of children in possession of written permission from the parent authorizing emergency medical treatment (i.e. a school field trip, etc)

- b) No consent required in the following circumstances prior to initiating treatment:
 - i) The patient, guardian, or person standing in *loco parentis* cannot be reached and the minor needs to receive medical treatment.
 - ii) The identity of the child is unknown and a delay in giving treatment would endanger the life of the child.
 - iii) The effort to contact the child's parents, guardian, or person standing in *loco parentis* would result in a delay that would seriously worsen the condition of the child.
 - c) A minor may consent to treatment without the knowledge of a parent in the following circumstances:
 - i) Pregnancy
 - ii) Treatment of STD's
 - iii) Alcohol or drug abuse
 - iv) Emotional disturbance
- 2) Life threatening situations without the ability to communicate:
- a) A patient of any age who is unable to communicate because of an injury, accident, illness, or unconsciousness and is suffering from what reasonably appears to be a life-threatening injury or illness should be treated under the principle of ***implied consent***.
 - b) The principle of implied consent presumes that if the individual with the illness or injury were able to communicate, he or she would consent to the emergency treatment.
 - c) In these situations, patients may be transported without their consent. Law enforcement, physical and/or chemical restraint may be required.
- 3) Potentially life-threatening situations:
- a) Patients usually present in one of two situations: the alert patient who has a concerning presentation and refuses treatment and/or transport or the patient is intoxicated but does not have what reasonably appears to be a life-threatening injury. In these situations, the following steps should be taken:
 - i) Determine orientation to person, place, and time. Document.
 - ii) Determine what factor(s) is/are influencing the patient to refuse medical care. Resolve those in your power (i.e. transport without an IV).
 - iii) Attempt communication with spouse/significant other or family members.
 - iv) If patient continues to refuse, consider On-Line Medical Control or contact the medical director.
 - v) If patient continues to refuse care, clearly explain risks of refusal and have patient repeat those to you. Document.
 - vi) Assure patient they can call back for treatment and transport at any time.

Automatic notification of the Medical Director

Events that may potentially have a negative impact on patient care must be reported to the Medical Director immediately. Notification may be made by directly contacting the Medical Director at (419) 346-9444. These events include the following:

- 1) Cardiac arrest or respiratory arrest after administrations of any sedative or analgesic
- 2) Cardiac arrest after administering an anti-arrhythmic agent in a previously stable patient
- 3) Any attempt at surgical airway
- 4) Incorrect medication administration with patient complication
- 5) Any cardiac or respiratory arrest or patient injury related to use of physical or chemical restraints
- 6) Provider operating outside of scope of practice as defined by the State of Ohio and by the provider's approved level of practice within the system
- 7) Needle decompression of the chest
- 8) Intubation attempts >3
- 9) Unrecognized esophageal intubation or complication related to advanced airway management

Disclaimer: Certain medications and/or medical devices listed in the LMHS EMS protocols may not be available to or used by all departments utilizing LMHS medical direction due to financial considerations/limitations and/or certification level or training.

These policies, procedures, and protocols provide a foundation for providing the best possible patient care to those we encounter in the pre-hospital environment. The way we conduct ourselves in a professional manner is as important as the care we render to the citizens we serve.

I am happy to provide medical direction to your agency.

Sincerely,

Todd Brookens, DO, FACEP

Medical Director

Lima Memorial Health System

Emergency Medical Services

General

General Information

EMR**Emergency Medical Responder****EMT****Emergency Medical Technician** Scope of Practice**AEMT****Advanced Emergency Medical Technician****Paramedic****Paramedic** Scope of Practice**Med Control****Medical Control**

Bold Black Boxes contain important information

All Drugs color coded in **Dark Green**. Example: **Atropine**Calculated Drugs are **Blue**. Example: **125 mg****Important Note:**

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

(Sticky Notes)

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Scene Safety & BSI (body substance isolation)
 Bring all necessary equipment to patient's side
 Demonstrate professionalism and courtesy
 PPE (consider airborne or droplet precautions)

Initial Assessment

BLS: Consider Spinal Motion Restriction
 For pediatrics, use Broselow Tape

Cardiac
Arrest

Cardiac Arrest Protocol

Adult Airway Protocol

Consider **Pulse Oximetry**
 Supplemental **Oxygen**

Vital Signs

Temperature and Blood Glucose
 As indicated

Consider:

Cardiac monitor / **12 Lead ECG**

Appropriate Protocol

Transport patient per
Patient Transport Policy

Patient doesn't fit a protocol?
 Contact **OLMC**

Pearls

- Any patient contact that does not result in transport requires documentation and disposition
- Required vital signs on every patient include BP, pulse, RR, pain/severity
- Pulse oximetry, glucose measurement and temperature documentation is dependent on complaint
- Timing of transport based on patient's clinical condition
- If an ALS assessment has been performed and it is documented in the Patient Care Report that the Patient requires no further Advanced Interventions or assessments, then a BLS provider may accompany the patient during transport, so long as all appropriate care is taken to ensure patient care is never jeopardized.

General

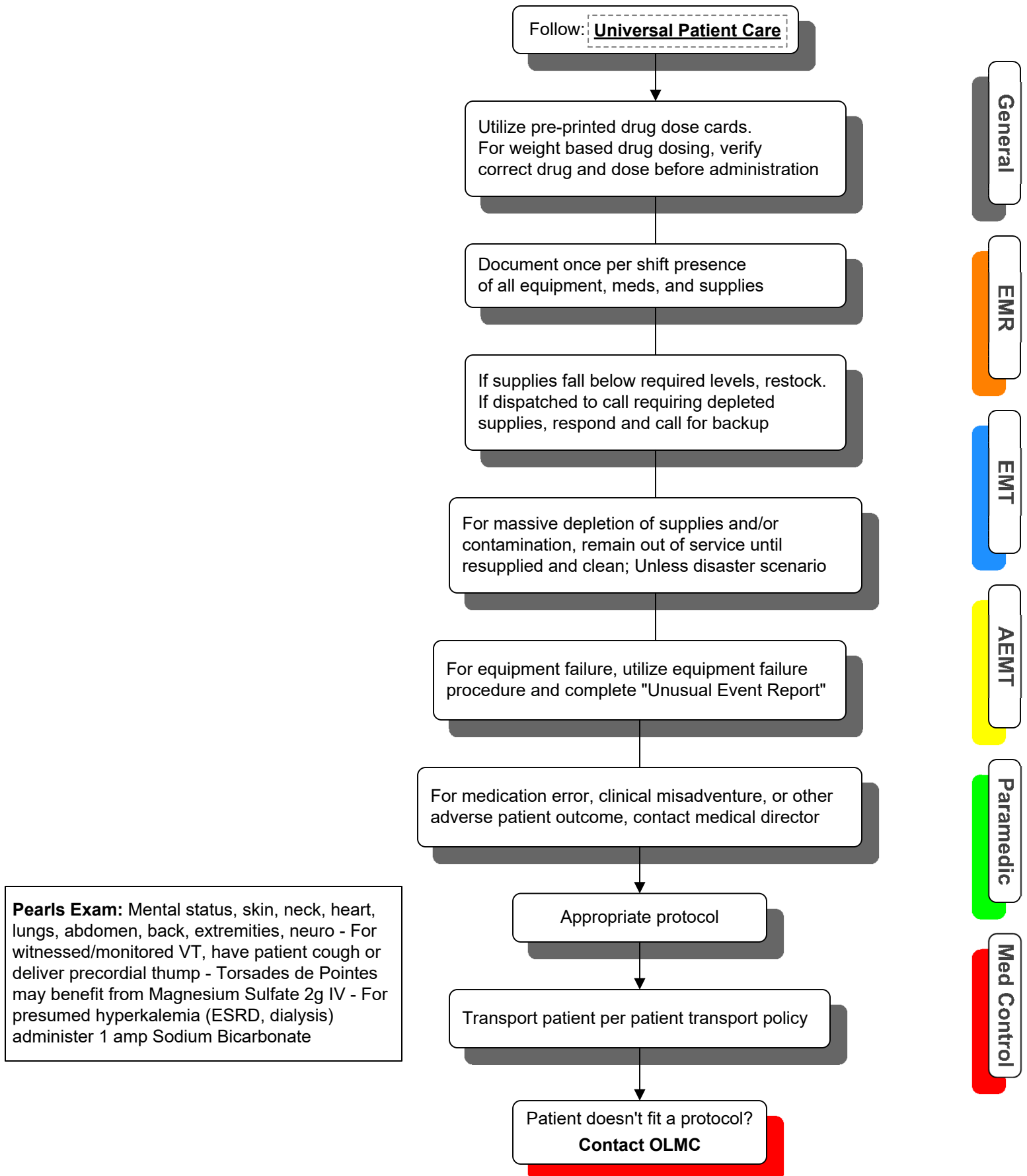
EMR

EMT

AEMT

Paramedic

Med Control



History

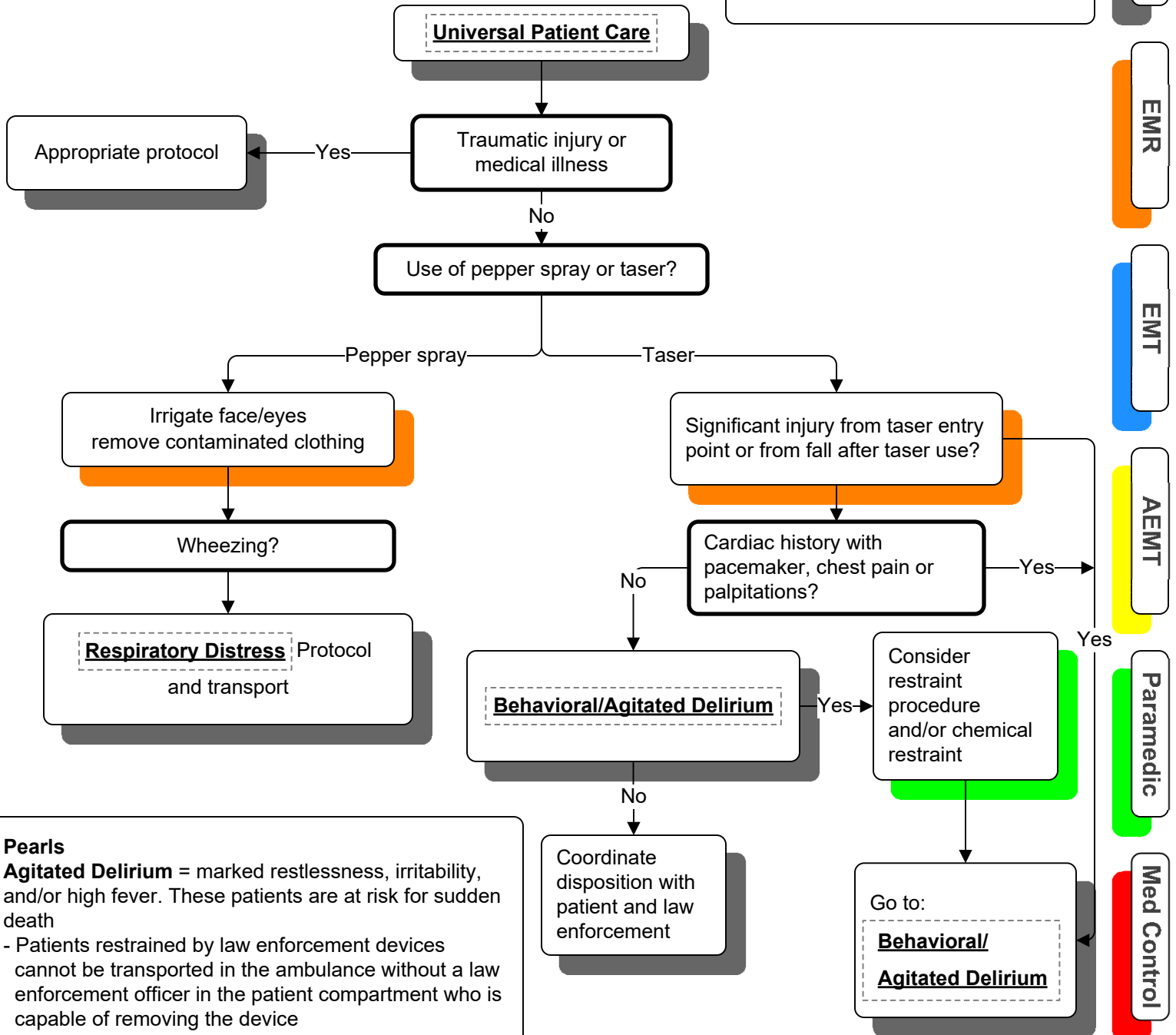
- Traumatic injury
- Drug abuse
- Cardiac history
- Asthma?
- Psych history

Signs and Symptoms:

- External signs of trauma
- Palpitations
- SOB
- Wheezing
- Altered mental status
- Intoxication/substance abuse

Differential:

- Agitated delirium secondary to psychiatric illness
- Agitated delirium secondary to substance abuse
- Traumatic injury
- Closed head trauma
- Asthma exacerbation
- Cardiac dysrhythmia

Universal Patient Care**Pearls**

- Agitated Delirium** = marked restlessness, irritability, and/or high fever. These patients are at risk for sudden death
- Patients restrained by law enforcement devices cannot be transported in the ambulance without a law enforcement officer in the patient compartment who is capable of removing the device
 - If there is any doubt about the cause of the patient's altered mental status, transport to hospital
 - All patients in police custody retain the right to request transport

General

EMR

EMT

AEMT

Paramedic

Med Control

History

- Past Medical History
- Medications
- Events
- End stage renal failure
- Estimated downtime
- Hypothermia?
- Overdose?
- DNR?

Signs and Symptoms:

- Pulseless
- Apneic
- No electrical activity on ECG
- No auscultated heart tones

Differential: (H's and T's)

- Medical or Trauma
- Hypoxia
- Potassium (hypo/hyperkalemia)
- Overdose
- Acidosis
- Hypothermia
- Device error - check leads
- Death

General

EMR

EMT

AEMT

Paramedic

Med Control

H's and T's

- Hydrogen Ion (acidosis)
- Hypovolemia
- Hypothermia
- Hypoglycemia
- Hyperkalemia
- Overdose (narcotics, tricyclics, calcium channel blocker, beta blocker)
- Tension pneumothorax

Universal Patient Care

Cardiac Arrest Protocol

- Use Automated CPR Device if available
- Avoid interruptions
- Delay Airway for first 2 cycles (4 minutes) of CPR
- Use ResQPod
- Use Supraglottic Airway or Intubation
- Avoid overventilation
- Use continuous End Tidal CO2 monitoring

Adult IV/IO Protocol

Epinephrine 1:10,000 1 mg IV, IO
Repeat every 3 - 5 minutes

Identify/correct causes of asystole

Continue **Epinephrine**

Criteria to discontinue??
Contact On Line Medical Control to cease efforts If approved, leave body at scene with police. Leave medical devices used in place (ETT, IO, needle decomp, King)

AT ANY TIME
ROSC
(Return of Spontaneous Circulation)

Remove ITD (ResQPod)

Go to: **Post Resuscitation** Protocol

Pearls:

- Always confirm asystole in more than one lead
- Always address correctable causes
- Place ITD (impedance threshold device) early in resuscitation to BVM and then advanced airway device (e.g.. SGA)

History

- Medications (theophylline, diet pills, thyroid, decongestants, digoxin)
- Diet (caffeine, chocolate)
- Drugs (nicotine, cocaine)
- Past Medical History
- Palpitations
- Syncope

Signs and Symptoms:

- HR > 160/min (varies)
- QRS < 0.12 sec
- Dizziness, CP, Dyspnea
- Possible rhythms:
 - Sinus tach
 - Atrial fib/atrial flutter
 - Multifocal atrial tachycardia

Differential:

- Heart disease (WPW, Valvular)
- Sick Sinus Syndrome
- MI
- Electrolyte imbalance
- Exertion, pain, emotional stress
- Fever
- Hypoxia
- Hypovolemia/anemia
- Overdose
- Hyperthyroidism
- PE

General

EMR

EMT

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Paramedic

Med Control

Universal Patient Care**V-Tach w/Pulse** ProtocolHx of WPW
WPW on ECG**Adult IV/IO** ProtocolSymptomatic (Chest Pain,
Altered Mental Status)Pre-arrest (no palpable BP,
Severely altered mental status)**12 Lead ECG****Diltiazem (Cardizem)**0.25 mg/kg IVP over 5 - 10 minutes
Maximum 20 mg

If unsuccessful after 15 min,

Diltiazem (Cardizem) 0.35 mg/kg
over 5-10 min **Maximum 20 mg**

After conversion

12 Lead ECG**Pearls****Exam:** Mental status, HEENT, skin, heart, lungs, abdomen, back, extremities, neuro

- Monitor for hypotension after diltiazem administration
- Monitor for respiratory depression/hypotension with midazolam
- Continuous pulse-oximetry required
- Document all effects of therapy/rhythm changes

Consider sedation for cardioversion

Midazolam (Versed) 2 - 5 mg IVP

or

Ketamine (Ketalar) 0.2 mg/kg IVP, IN, IMSynchronized **Cardioversion** 100 J
x1 then 360 J Repeat PRN**Diltiazem (Cardizem)**0.25 mg/kg IVP over 5 - 10 minutes
Maximum 20 mg

If unsuccessful after 15 min,

Diltiazem (Cardizem) 0.35 mg/kg
over 5-10 min **Maximum 20 mg**

After conversion

12 Lead ECG

History

- Past medical history
- Medications
 - *Beta-blocker
 - *Calcium channel blocker
 - *Clonidine
- *Digoxin
- Events
- Pacemaker

Signs and Symptoms:

- HR < 60 bpm
- Chest pain
- Hypotension or shock
- Altered mental status
- Syncope

Differential:

- MI
- Hypoxia
- Hypothermia
- Sinus bradycardia
- Athletes
- Head injury
- CVA
- Spinal cord injury
- Sick sinus syndrome
- AV block
- Overdose

Universal Patient Care**12 Lead ECG**

Adult IV/IO Protocol
Fluid Bolus as needed

"Signs of poor perfusion"
Cool, clammy, altered, hypotension,

Atropine 0.5 – 1 mg IVP, IO
Maximum 3 mg

External **Transcutaneous Pacing**

Consider sedation with
Midazolam (Versed) 2 mg IVP, IO
or
Ketamine (Ketalar) 0.2 mg/kg IVP, IN, IM

Dopamine (Intropin) IV infusion:
2 - 20 mcg/kg/min
Epinephrine IV infusion:
2 - 10 mcg/min

Pearls Exam: Mental status, neck, heart, lungs, neuro

- Use of lidocaine in heart block can worsen bradycardia and lead to asystole or death
- Pharmacologic treatment of bradycardia is based on presence or absence of symptoms
- If symptomatic Treat
- If asymptomatic Monitor only
- Consider treatable causes for bradycardia: i.e. beta or calcium channel blocker OD
- Remember to oxygenate and support ventilatory effort

General

EMR

EMT

AEMT

Paramedic

Med Control

History

- Events
- Downtime
- Past medical history
- Medications
- Terminal illness
- Lividity, rigor mortis
- DNR

Signs and Symptoms:

- Unresponsive
- Apneic
- Pulseless

Differential:

- Medical vs. Traumatic
- VF or Pulseless VT
- Asystole
- PEA

General

Universal Patient Care

PIT CREW approach

AT ANY TIME

ROSC (Return of Spontaneous Circulation) Remove ITD (ResQPod)

Go to Post Resuscitation Protocol

EMR

Criteria for Death / no resuscitation?**Begin continuous compressions**

Do not interrupt compressions for airway placement

EMT

Advanced Life Support Available?

BLS

ALS

AED ProcedureAdult Airway

AEMT

- Do not interrupt chest compressions
- SGA/Intubate (VL or DL) IV or IO
- Waveform capnography
- Defibrillate once ETCO₂ is above 20 mmHg
- Follow VF/VT / Asystole / PEA protocol

Paramedic

Avoid interruptions in compressions
Ventilate no more than 8 - 10 breaths
minute Apply ITD (**ResQPod**) to BVM
and/or Supraglottic Airway

Med Control

Pearls**Exam:** Mental status***ALWAYS FOLLOW CURRENT ACLS GUIDELINES***

Success based on proper planning and execution; Pit Crew Approach to arrest. Assure adequate space and patient access.

No ventilations for first 2 cycles of CPR (4 minutes) use OPA and NRB mask; position airway

Maternal arrest → Treat mother per appropriate protocol with immediate notification of medical control and rapid transport.

Adequate compressions and timely defibrillation are keys to success.

Apply ITD (impedance threshold device) to BVM and/or ETT/Supraglottic Airway early. Do not over-ventilate.

History

- Age
- Medications
- Erectile dysfunction meds?
- Past medical history
- Diabetes
- Allergies
- Onset
- Palpitation/provocation
- Quality
- Region/radiation/referred
- Severity
- Time (duration)

Signs and Symptoms:

- Chest pain
- Location (substernal, epigastric, arm, jaw, neck, shoulder)
- Radiation of pain
- Pale, diaphoresis
- Shortness of breath
- Nausea, vomiting, dizziness

Differential

- Trauma vs. Medical
- Acute coronary syndrome vs. MI
- Pericarditis
- PE - Asthma/COPD
- Pneumothorax
- Aortic dissection
- GE Reflux, hiatal hernia
- Esophageal spasm
- Chest wall pain
- Pleural pain
- Overdose (cocaine)

General

EMR

EMT

AEMT

Paramedic

Med Control

Universal Patient Care

Aspirin 325 mg PO
Unless allergy to ASA,

12 Lead ECG

STEMI on 12-Lead
Immediate transport Notify
receiving facility Transmit
ECG if able

Nitroglycerin 0.4 mg tablet /spray
Every 5 minutes if SBP > 90

*** If the patient has their
own supply ***EMTs may
assist the patient with
Nitroglycerin 0.4 mg SL
Every 5 minutes if SBP > 90

IV Fluid Bolus for Inferior
MI (volume dependent)

Adult IV Protocol

Continued pain
Fentanyl (Sublimaze) 25 – 100 mcg IVP

Hypotension/arrhythmia
Treat per protocol

Nitroglycerin 0.4 mg (tablet/spray)
Every 5 minutes if SBP > 90

For nausea/vomiting, consider
Ondansetron (Zofran) 4 mg IV, IM, ODT

Ondansetron (Zofran)
4 mg ODT

Pearls

- Exam:** Mental status, skin, neck, heart, lung, abdomen, back, extremities, neuro
- Avoid NTG in patient who has used erectile dysfunction meds (Viagra, Levitra, Cialis, etc.) in past 24 hours
 - If patient has STEMI, establish 2nd IV
 - Monitor for hypotension after NTG and/or morphine administration
- Remember - diabetics, geriatric and female patients often have atypical symptoms

History

- Documented hypertension
- Related diseases: diabetes, CVA, renal failure, cardiac
- Medications (compliance?)
- Viagra, Levitra, Cialis?
- Pregnancy?

Signs and Symptoms:

- Systolic BP > 200
- Diastolic BP > 120

Plus

- Headache
- Nosebleed
- Blurred vision
- Dizziness

Differential:

- Hypertensive encephalopathy
- CNS injury
Cushing response = bradycardia
With hypertension
- MI
- Aortic dissection
- Pre-eclampsia/Eclampsia

General

EMR

EMT

AEMT

Paramedic

Med Control

Universal Patient Care

Check BP in both arms

12 Lead ECG**Adult IV/IO Protocol**

Hypertension + End-organ damage

- 1) Acute coronary syndrome
- 2) Acute MI
- 3) Acute renal failure

Administer **Nitroglycerin** Spray sublingual every 5 minutes until
Mean Arterial Pressure (MAP) is 110 mmHG

Hypertension + End-organ damage

- 1) Acute coronary syndrome
- 2) Acute MI/ Acute neuro symptoms
- 3) Acute renal failure

Labetalol (Trandate) 20 mg IVP

(avoid with bradycardia); May repeat x 1 in 10 minutes

Pearls**Exam:** Mental status, skin, neck, lung, heart, abdomen, back, extremities, neuro

- Never treat elevated blood pressure based on one set of vital signs
- Symptomatic hypertension is usually revealed through end-organ damage to cardiac, CNS, or renal systems
- Transport symptomatic patients with hypertension with their head elevated

History

- Blood loss: GI, AAA, Ectopic, Vaginal
- Fluid loss - Vomiting, diarrhea, fever
- Infection
- Cardiac: ischemia (MI, CHF)
- Medications
- Allergic reaction
- Pregnancy
- Poor PO intake history

Signs and Symptoms:

- Restless, confused
- Weakness, dizziness
- Weak, rapid pulse
- Pale, cool, clammy skin
- Delayed capillary refill
- Hypotension
- Coffee-ground emesis
- Tarry stools

Differential:

- Shock
 - Hypovolemic
 - Cardiogenic
 - Septic
 - Neurogenic
 - Anaphylactic
- Ectopic pregnancy
- Dysrhythmias
- PE
- Tension pneumothorax
- Medications/OD
- Vasovagal
- Physiologic

Universal Patient Care**Adult IV/IO****Observe and reassess**

No

Symptomatic

Cardiac

Treat per appropriate
cardiac protocol

Trauma

Treat per appropriate
trauma protocol

Non-cardiac
Non-trauma

Normal saline
20 ml/kg bolus

Additional normal saline
20 ml/kg bolus if no response

No rales present
Normal saline
500 ml bolus

Norepinephrine (Levophed) 0.1 - 0.5 mcg/kg/min
 IV **Epinephrine** 0.1 - 0.5 mcg/kg/min
 IV **Dopamine (Intropin)** 5 - 10 mcg/kg/min IV to get MAP to >65

General

EMR

EMT

AEMT

Paramedic

Med Control

Pearls

Exam: Mental status, skin, heart, lungs, abdomen, back, extremities, neuro

- Hypotension = SBP < 90 mmHg
- Consider orthostatic vital signs on non-trauma patients with suspected blood or fluid loss
- Consider all causes of shock and treat per protocol
- Norepinephrine= Levophed. **Use only in patients not responsive to Saline Bolus therapy;** Must have large bore IV
- Monitor closely for extravasation; IV pump preferable. 4 mg ampule in 1000 ml Dextrose = 4 mcg/ml

History

- Respiratory arrest
- Cardiac arrest

Signs and Symptoms:

- Return of pulse (ROSC)

Differential:

- Continue to address specific differential with original arrhythmia

Repeat primary assessment

Candidate for induced hypothermia?

Monitor ETCO₂ (>20 mmHg) with RR < 12/min. DO NOT HYPERVENTILATE
Remove ITD (ResQPod) if pulses return

Adult IV ProtocolNon-cardiac
Non-trauma

Hypotension?

Administer 1 Liter
NS Fluid Bolus

Monitor ECG, vitals, pulse oximetry, capnometry

Bradycardia?

Arrhythmia?

Go to appropriate protocol

Treat per

Bradycardia Protocol**Norepinephrine (Levophed)**

0.1 – 0.5 mcg/kg/min IV

Epinephrine 0.1 - 0.5 mcg/kg/min IV**Dopamine (Intropin)** 5 - 10 mcg/kg/min

MAP >65

12 Lead ECG

If arrest re-occurs, revert to appropriate
protocol and/or initial successful treatment

Pearls**Exam:** Mental status, skin, neck, heart, lungs, abdomen, extremities, neuro

- Avoid hyperventilation
- Most patients post resuscitation will require ventilatory assistance
- Post resuscitation condition of patient changes rapidly
- Consult OLMC as needed regarding management
- Titrate dopamine to maintain MAP >90. Ensure adequate fluid resuscitation is ongoing
- Remove ITD (ResQPod) if ROSC (return of spontaneous circulation) occurs

General

EMR

EMT

AEMT

Paramedic

Med Control

History

- Past Medical History
- Medications
- Events
- End stage renal failure
- Estimated downtime
- Hypothermia?
- Overdose?
- DNR?

H's and T's

- Hydrogen Ion (acidosis)
- Hypovolemia
- Hypothermia
- Hypoglycemia
- Hyperkalemia
- Overdose (narcotics, tricyclics, calcium channel blocker, beta blocker)
- Tension pneumothorax

Consider with all PEA patients

Fluid Bolus

Dextrose 50% 25 g IVP, IO
Naloxone (Narcan)
 2 - 4 mg IN, IVP, IO

Calcium Chloride 1 g IVP, IO
 (hyperkalemia arrest)

Sodium Bicarbonate

1 mEq/kg IVP, IO (TCA,
 hyperkalemia, renal failure)

Transcutaneous Pacing

Needle Chest Decompression

Glucagon 1 mg IV (beta blocker)

Signs and Symptoms:

- Pulseless
- Apneic
- No electrical activity on ECG
- No auscultated heart tones

Universal Patient Care

Cardiac arrest protocol attach ITD
 (ResQPOD)

**Adult Airway &
Adult IV/IO** Protocols

Epinephrine 1:10,000 1 mg IV, IO
 Repeat every 3 - 5 minutes

Differential:

- Hypovolemia (trauma, AAA, other)
- Hypoxia
- Potassium(hypo/hyperkalemia)
- Overdose (TCA's, digoxin, beta blockers, calcium channel blockers)
- Acidosis
- Hypothermia
- Cardiac tamponade
- Massive MI
- Hyperkalemia

AT ANY TIME ROSC
 (Return of Spontaneous
 Circulation)
 remove ITD
 Go to :

Post Resuscitation
Protocol

Criteria to discontinue:
 Cease efforts
 Contact **OLMC** for
 guidance if needed

General

EMR

EMT

AEMT

Paramedic

Med Control

Pearls

- Always confirm asystole in more than one lead
- Always address correctable causes
- Attach ITD (impedance threshold device) early in resuscitation to BVM and then to ETT/i-gel once advanced airway is placed

History

- Medications Theophylline, diet pills, thyroid supplements, decongestants, digoxin
- Diet (caffeine, chocolate)
- Drugs (nicotine, cocaine)
- Past Medical History
- Palpitations
- Syncope

Signs and Symptoms:

- HR > 150/min
- QRS < 0.12 sec
- History of WPW go to V-Tach protocol
- Dizziness, Chest pain, Dyspnea
- Possible rhythms presenting
 - Sinus tach
 - Atrial fib/atrial flutter
 - Multifocal atrial tachycardia

Differential:

- WPW, Valvular heart disease
- Sick Sinus Syndrome
- MI
- Electrolyte imbalance
- Exertion, pain, emotional stress
- Fever
- Hypoxia
- Hypovolemia/anemia
- Overdose
- Hyperthyroidism
- PE

Universal Patient Care**Adult IV Protocol****12 Lead ECG**Attempt **Valsalva****Adenosine (Adenocard)**

6 mg rapid IVP
Push with 10 ml saline

Repeat

Adenosine (Adenocard)

12 mg rapid IVP
Push with 10 ml saline
if no effect with 6 mg

Diltiazem (Cardizem)

0.25 mg/kg slow IVP

Consider **Adenosine (Adenocard)**

6 mg rapid IVP Push with 10 ml saline

Sedate for **Cardioversion** with**Midazolam (Versed)** 2 - 5 mg IVPor **Ketamine (Ketalar)** 0.2 mg/kg IVPSynchronized **Cardioversion**

100 J x 1, then 360 J Repeat as needed

Diltiazem (Cardizem)

0.25 mg/kg slow IVP

Maximum 20 mg**12 Lead ECG** after conversion**Pearls****Exam:** Mental status, skin, neck, lung, heart, abdomen, back, extremities, neuro

- History of WPW - do NOT give Cardizem
- Adenosine may not be effective in atrial flutter/fib, yet is not harmful
- Monitor for hypotension after Cardizem
- Monitor for respiratory depression and hypotension after Versed
- Continuous pulse oximetry
- Document rhythm changes with therapeutic interventions

General

EMR

EMT

AEMT

Paramedic

Med Control

History

- Past history, meds, diet, drugs
- Syncope/near syncope
- Palpitations
- Pacemaker
- Allergies: lidocaine

Signs and Symptoms:

- Ventricular tachycardia on ECG
- Conscious, rapid pulse
- Chest pain, SOB
- Dizziness
- Rate usually 150-180 bpm
- QRS > 0.12 sec

Differential:

- Artifact/device failure
- Cardiac
- Endocrine/metabolic
- Hyperkalemia
- Drugs
- Pulmonary

General

EMR

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AEMT

Paramedic

Med Control

Universal Patient Care

Palpable pulse?

V-Fib/Pulseless V-Tach

Stable

Adult IV Protocol

Pre-Arrest

No BP, altered mental status

12 Lead ECG

Amiodarone (Cordarone) 150 mg over 10 minutes IV
ONLY if QRS is regular and monomorphic Look for WPW If irregular and wide and polymorphic, use

Procainamide (Pronestyl) 20 mg/min
until conversion, QRS widens by 50%, hypotension
or **Maximum dose** reached 17 mg/kg

If patient becomes unstable
move to pre-arrest portion

Sedation for cardioversion

Midazolam (Versed)

2.5 to 5 mg IV, IM, IN

Ketamine (Ketalar) 0.2 mg/kg IVP, IN, IMSynchronized **Cardioversion** 100 J

No response, repeat at 360 J
Repeat **Cardioversion** as needed

No response, **Amiodarone (Cordarone)**
150 mg IV Over 10 minutes then
1 mg/min IV infusion

Pearls

Exam: Mental status, skin, neck, heart, lungs, abdomen, back, extremities, neuro

- For witnessed/monitored VT, have patient cough or deliver precordial thump
- Torsades de Pointes may benefit from Magnesium Sulfate 2 gram IV
- For presumed hyperkalemia (renal failure, dialysis) administer 1 amp Sodium Bicarbonate

History

- Estimated down time
- Past medical history
- Medications
- Events leading to arrest
- Renal Failure/hemodialysis
- DNR

Signs and Symptoms:

- Unresponsive
- Ventricular fibrillation or ventricular tachycardia on ECG

Differential:

- Asystole
- Artifact/device failure
- Cardiac
- Endocrine/metabolic
- Drugs
- Pulmonary

General

Cardiac Arrest protocol Attach ITD (ResQPOD)

EMR

Defibrillation sequence: Defibrillate @ 360 J or equivalent biphasic
Immediately resume **CPR** Reassess rhythm and repeat every 2 min

EMT

Adult Airway Protocol

Avoid ventilation for first 4 minutes of arrest
Position airway, place oral airway and NRB

AT ANY TIME

ROSC

(Return of Spontaneous Circulation)
Remove ITD (ResQPod)

Go to: **Post Resuscitation**

AEMT

Adult IV/IO Protocol

Epinephrine 1:10,000 1 mg IVP, IO
Repeat every 3 - 5 minutes

Paramedic

Amiodarone (Cordarone) 300 mg IVP, IO

Consider

Magnesium Sulfate

2 g IVP, IO

Amiodarone (Cordarone)

150 mg IVP, IO

Termination of Resuscitation
(TOR) ALS and BLS

Med Control

Pearls

- Attach ITD (ResQPod) early in resuscitation. Remove if ROSC occurs.
- Wait 3-5 minutes after vasopressin dose to begin epinephrine and between other medication administrations
- **Airway: Avoid airway procedures during first 4 minutes of arrest; focus on chest compressions and defibrillation**
- For suspected **HYPERKALEMIC ARREST** administer Calcium Chloride and Sodium Bicarbonate
- For **Torsades de Pointes** - 2 grams Magnesium Sulfate
- Effective CPR and early defibrillation are keys to success
- If unable to intubate, insert Supraglottic airway (King LTD)

History

- Type of bite/sting
- Description of animal involved
- Time, location, size of bite/sting
- Previous reaction to bite/sting
- Domestic vs. wild
- Tetanus and rabies risk
- Immunocompromised patient

Signs and Symptoms:

- Rash, skin break, wound
- Pain, swelling, redness
- Blood oozing from the wound
- Infection?
- Shortness of breath, wheezing
- Allergic reaction, hives, itching
- Hypotension/shock

Differential:

- Animal bite
- Human bite
- Snake bite
- Spider bite
- Insect sting/bite
- Infection risk
- Rabies/tetanus risk

General

EMR

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Paramedic

Med Control

Universal Patient Care**EMS Transport?**

No

Yes

Document contact with Animal control or Police Officer for animal bites

Position of comfort
Immobilize affected area/limb

Allergic Reaction

Protocol

Yes

Allergic Reaction ?

No

Pain Control Protocol

For Black Widow spider bites
Consider **Midazolam (Versed)** 2 - 5 mg IVP
Maximum dose 5 mg

Pearls

Exam: Mental status, skin, extremities, neck, lung, heart, abdomen, back, and neuro

- Human bites worse than animal bites
- Carnivore bites more likely to become infected and have risk of Rabies exposure
- Cat bites progress to infection rapidly
- Black widow spider bites are minimally painful, but over a few hours, muscle pain and severe abdominal pain develop
- Brown recluse spider bites are minimally painful. Tissue necrosis develops over a few days

History

- Submersion in water regardless of depth
- Possible history of trauma
- Duration of immersion
- Temperature of water
- Fresh or salt water

Signs and Symptoms:

- Unresponsive
- Mental status change
- Decreased or absent vital signs
- Vomiting
- Coughing

Differential:

- Trauma
- Pre-existing medical condition
- Pressure injury (diving)
 - Barotrauma
 - Decompression sickness

Universal Patient Care**Spinal Motion Restriction** protocol**Adult Airway** protocol

OR

Respiratory Distress protocol

OR

Other appropriate protocol

Adult IV Protocol

Cardiac monitor
Pulse Oximetry
ETCO₂

CPAP 5 cmH₂O for respiratory
distress In awake patients able to
maintain own airway

General

EMR

EMT

AEMT

Paramedic

Med Control

Pearls**Exam:** Trauma survey, head, neck, chest, pelvis, back, extremities, skin, neuro

- With cold water there is no time limit - resuscitate all
- All victims should be transported for evaluation due to potential for worsening over next several hours
- All appropriately trained rescuers to remove victims from areas of danger
- With pressure injuries, consider transport to a hyperbaric chamber (The Toledo Hospital) by air ambulance)

History

- Age
- Exposure to environment even in normal temperatures
- Past medical history/meds
- Exposure to extreme cold
- Length of exposure/wetness
- Drug use
- Infection/sepsis
- Extremes of age

Signs and Symptoms:

- Cold, clammy
- Shivering
- Mental status change
- Extremity pain/sensory abnormality
- Bradycardia
- Hypotension
- Shock

Differential:

- Sepsis
- Environmental exposure
- Hypoglycemia
- CNS dysfunction
 - CVA
 - Head injury
 - Spinal cord injury

Universal Patient Care

Document patient temperature

Remove wet clothing

Temperature <95 F (35 C)

Yes

Handle very gently

Blankets/external rewarming

Adult IV/IO Protocol
With warmed saline

Appropriate protocol based on symptoms

No

General

EMR

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AEMT

Paramedic

Med Control

Pearls**Exam:** Mental status, skin, HEENT, heart, lungs, neuro

- No patient considered dead until warm
- Core temperature < 35 C (95 F)
- Extremes of age susceptible
- Temp. less than 31 C (88 F) V-Fib is common cause of death. Handle these patients gently to prevent V-Fib
- Hypothermia may produce severe bradycardia
- Shivering stops below 32 C (90 F)

History

- Age
- Past medical history/surgical history
- Medications
- Onset
- Palliation/Provocation
- Quality
- Region/Radiation/Referred
- Severity
- Time
- Fever
- Last meal
- Last bowel movement/emesis
- Menstrual history (pregnant?)

Signs and Symptoms:

- Pain
- Tenderness
- Nausea/vomiting/diarrhea
- Dysuria
- Constipation
- Vaginal bleeding/discharge
- Pregnancy

Associated Symptoms:

- Fever
- Headache
- Weakness
- Malaise
- Myalgias
- Cough
- Mental status changes
- Rash

Differential:

- Pneumonia/PE
- Liver
- Peptic ulcer/gastritis
- Gallbladder
- MI
- Pancreatitis
- Kidney stone
- AAA
- Appendicitis
- Bladder/prostate
- Pelvic (ectopic, PID, ovarian cyst)
- Spleen
- Diverticulitis
- Bowel Obstruction
- Gastroenteritis

General

EMR

EMT

AEMT

Paramedic

Med Control

Universal Patient Care

Adult IV Protocol

Orthostatic BP

Fluid Bolus

20 ml/kg NS IV

Avoid in dialysis patients and CHF/Fluid overload

12 Lead ECG

Vomiting?

Ondansetron (Zofran)

4 mg IVP, IM

Ondansetron (Zofran)

4 mg ODT

or

Promethazine (Phenergan)

25 mg IM

Consider **Pain Control** protocol

Pearls

Exam: Mental status, skin, neck, heart, lung, abdomen, back, extremities, neuro

- Abdominal pain in women of childbearing age g Ectopic pregnancy until proven otherwise
- Consider AAA in pts. > 50 years old with abdominal pain
- Repeat vital signs after therapeutic interventions
- **Zofran (Ondansetron) ODT= Oral Dissolving Tablet, may be given on the tongue(4 mg ODT)
- (Do Not Give Ondansetron to 1st trimester pregnant patients)

Vomiting/Diarrhea

History

- Age
- Last meal
- Last BM/emesis
- Duration
- Sick contacts
- Past medical history
- Past surgical history
- Medications
- Menstrual history
- Travel history
- Bloody emesis/diarrhea

Signs and Symptoms:

- Pain Constant, sharp, dull, etc.
- Distention
- Constipation
- Diarrhea
- Anorexia
- Radiation

Associated Symptoms:

- Fever, Headache, blurred vision, weakness, myalgias, cough, dysuria, mental status changes, rash

Differential:

- CNS
- MI
- Drugs
- GI/renal
- DKA
- Gynecologic
- Infections
- Electrolyte imbalance
- Food or toxin induced
- Medication/substance abuse
- Pregnancy
- Psychologic

Universal Patient Care

Adult IV Protocol

Blood Glucose

Orthostatic vitals

Normal saline bolus 500 ml

Vomiting/severe nausea?

No

Monitor and
reassess

Ondansetron (Zofran)

4 mg ODT

Ondansetron (Zofran) 4 mg IVP, IM

Do not use in 1st TM pregnancy

General

EMR

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Paramedic

Med Control

Pearls

Exam: Mental status, skin, HEENT, neck, heart, lungs, abdomen, back, extremities, neuro - Maintain high suspicion of cardiac event for persons with diabetes or neuropathies

General

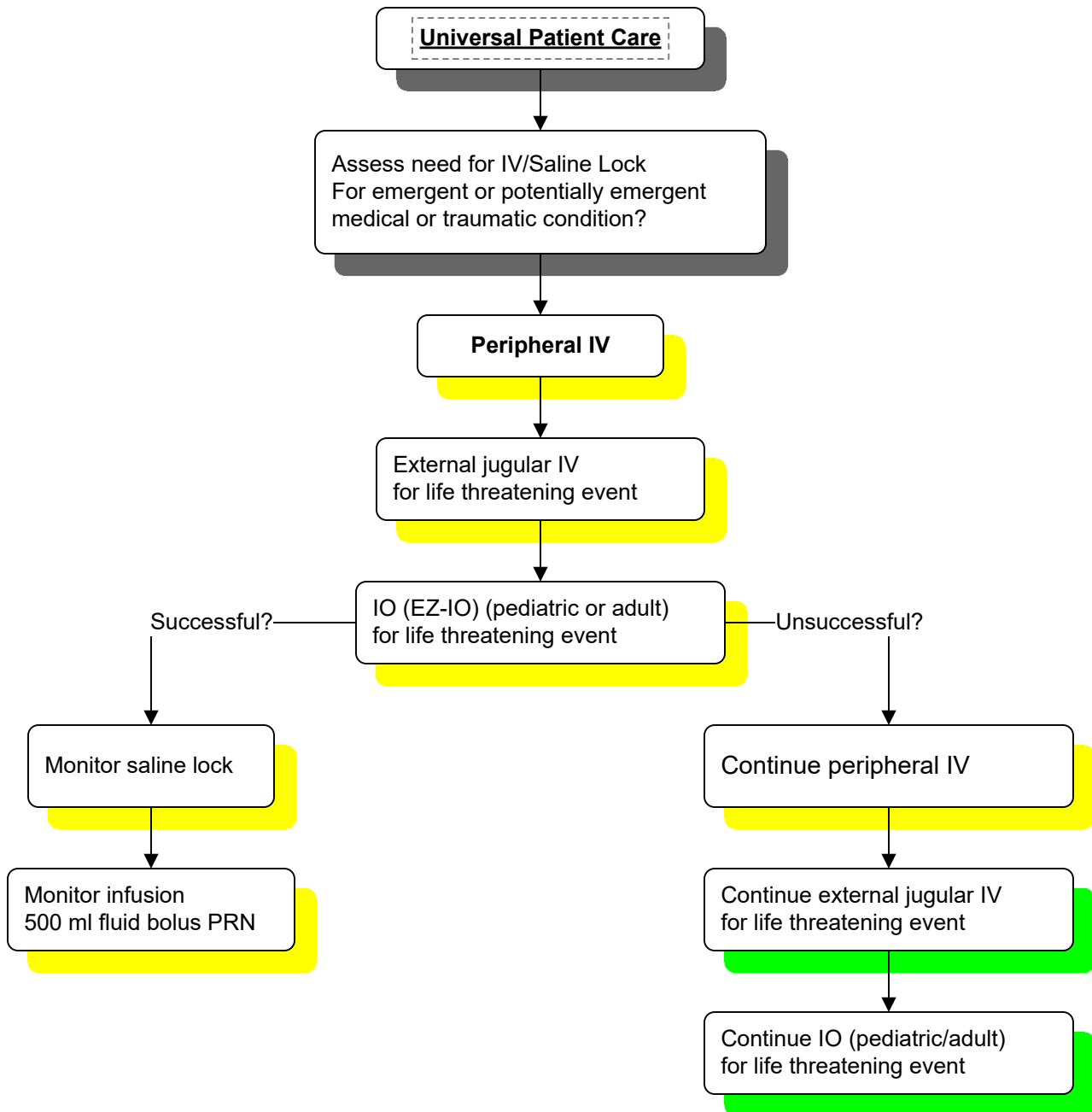
EMR

EMT

AEMT

Paramedic

Med Control

**Pearls**

- IO with EZIO for adult or pediatric patient for cardiac arrest or unresponsive patient with no available IV site
- Saline locks are preferred unless fluid bolus anticipated
- External jugular (>12 years old)
- Any pre-hospital fluids or medications approved for IV use may be given through IO
- All rates KVO unless giving fluid bolus
- Use microdrips for patients under 6 years old (if available)
- External jugular lines can be attempted initially in life-threatening events with no obvious peripheral site
- In CARDIAC ARREST, pre-existing dialysis shunt or external central venous catheter may be used
- In patients who are hemodynamically unstable or in extremis, contact OLMC prior to accessing dialysis catheter or central catheters
- Any venous catheter which has already been accessed prior to EMS arrival may be used
- Upper extremity preferred to lower extremity IV sites
- In post mastectomy patients, avoid IV/injection or blood pressure in arm on affected side

History

- Age
- Past medical history
- Past surgical history
- Medications
- Onset of pain/injury
- Previous back injury
- Traumatic mechanism
- Location of pain
- Fever
- Better or worse with activity

Signs and Symptoms:

- Pain
- Swelling
- Pain with ROM
- Extremity weakness
- Extremity numbness
- Shooting pain into an extremity
- Bowel or bladder dysfunction

Differential:

- Muscle spasm/strain
- Herniated disc with nerve compression
- Sciatica
- Spine fracture
- Kidney stone
- Pyelonephritis
- Aortic aneurysm
- Pneumonia
- Cardiac

Universal Patient Care

Injury or traumatic mechanism?

No

Orthostatic Blood Pressure

Positive

Adult IV Protocol
Normal Saline Bolus

Negative

Pain Control Protocol**Spinal Motion Restriction**Signs of
Hypoperfusion

Yes

No

Pearls

Exam: Mental status, HEENT, neck, chest, lungs, abdomen, back, extremities, neuro

- Abdominal aneurysm: consider in patients > 50 years old
- Kidney stones typically present with acute onset flank pain radiating to groin area
- Patients with midline pain over the spinous process should be spinally immobilized
- Any bowel or bladder incontinence is a significant finding which requires immediate medical evaluation

General

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Paramedic

Med Control

History

- Patient encountered by EMS who meets criteria for obvious death
- Patient with duly executed DNR who is apneic
- Patient for whom resuscitation efforts are ceased on-scene

Key Information:

- Name of primary care physician
- Known medical conditions
- Last time known to be alive

Differential:

- Attended death - a patient with a primary care physician who apparently died of medical causes (natural death)
- Unattended death - a patient without a primary care physician who apparently died of medical causes (natural death)
- Suspicious death (law enforcement)

General

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Paramedic

Med Control

Patient meets criteria for obvious death?

Patient meets criteria for discontinuation

Criteria for Death/Withholding ResuscitationLaw enforcement and/or EMS
recognize suspicious death?

No

Attended death?

Yes

Contact made with primary care physician?

No

Yes

Confirm name of primary
care physician from family.
Give info to law enforcementDescribe case and obtain
name of physicianRelease of body appropriate.
Medical devices may be removed.

Contact law enforcement
and/or county coroner.
Leave all medical devices in
place. If devices have been
removed, tape them to the
chest of the patient
Do not place sharps under
tape; note them on the tape.

Pearls

- The body of a deceased person may be released to the funeral home if the death is attended and law enforcement confirms that the death is not suspicious. It is preferred to communicate directly with the primary care physician prior to releasing the body. All reasonable attempts to contact the PCP must be made.
- If the death is unattended, the Medical Examiner must be contacted.
- If the death is traumatic, the Medical Examiner must be contacted.

History

- Age
- Past medical history
- Medication (BP, anticoagulants)
- Trauma
- Previous nosebleeds
- Duration
- Quantity

Signs and Symptoms:

- Bleeding from nasal passage
- Pain
- Nausea
- Vomiting

Differential:

- Trauma
- Infection
- Allergic rhinitis
- Lesions (polyps/ulcers)
- Hypertension

Universal Patient Care

- Upright position
- Compress nostrils together
- Ice pack

Hypotension and/or tachycardia

Yes

No

Adult IV Protocol

0.9% NaCl bolus 500 ml
Re-assess

Consider **Hypertension** protocol

General

EMR

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Paramedic

Med Control

Pearls**Exam:** Mental status, HEENT, neck, heart, lungs, neuro

- It is difficult to quantify the amount of blood loss in epistaxis
- Bleeding may be posterior and you may see the patient expel blood clots from the mouth
- Anticoagulants include: aspirin, Coumadin, Plavix, NSAIDS, Pradaxa, Eliquis, Xarelto, Lovenox

History

- Age
- Duration
- Severity
- Past medical history
- Medications
- Immunocompromized (HIV, transplant, diabetes, cancer)
- Exposure
- Last acetaminophen/ibuprofen use

Signs and Symptoms:

- Warm
- Flushed
- Sweaty
- Chills/rigors
- Myalgias, cough, chest pain
- Headache
- Dysuria
- Abdominal pain
- Mental status change
- Rash

Differential:

- Infection/sepsis
- Cancer/tumors/lymphomas
- Medication reaction
- Connective tissue disease
- Hyperthyroid
- Heat stroke
- Meningitis

Norepinephrine (Levophed)

0.1 – 0.5 mcg/kg/min IV

Epinephrine 0.1 - 0.5 mcg/kg/min IV**Dopamine (Intropin)** 5 - 10 mcg/kg/min

MAP >65

Universal Patient Care

Consider droplet, airborne,
contact precautions

Suspected Sepsis?Pulse, RR, BP, ETCO₂, Temperature

Yes

Support Airway

Establish 2 large bore IVs

0.9% NaCl bolus

20 ml/kg

Reassess Vitals/lung sounds

Notify receiving facility of Sepsis Alert

No

Monitor/trend Vital Signs

Limit on-scene time to 15 min

Prevent Hypothermia

Pearls**Exam:** Mental status, skin, HEENT, neck, heart, lungs, abdomen, back, extremities, neuro- SIRS = Systemic Inflammatory Response Syndrome = Fever > 38 (100.4) or < 36 (96.8); HR > 90; RR > 20, Decreased ETCO₂

- Sepsis: one or more organs begins to fail. Septic shock = sustained hypotension after aggressive fluid resuscitation

- Avoid hypoxia. Consider CPAP early; Intubate for altered mental status/respiratory failure

- Avoid overventilation to prevent acute lung injury

- **Avoid pressors(Dopamine)/(Norepinephrine) until adequate fluid resuscitation has been performed**

- Febrile seizure are more likely in children with history of febrile seizures with rapid elevation in temperature

- Droplet precautions include standard PPE plus surgical mask for provider and NRB or surgical mask for pt. Use for suspected influenza, meningitis, mumps, strep when spread by large droplets suspected

- Airborne precautions include standard PPE plus a N-95 mask for providers and surgical mask/NRB for pt. Use for TB, measles, varicella

- Contact precautions include standard PPE plus gown, change gloves after every patient contact, strict handwashing precautions. Use with MRSA, scabies, shingles, or other illnesses spread by contact

- All hazards precautions include standard PPE + airborne + contact > Use during initial phase of outbreak with unknown agent

General

EMR

EMT

AEMT

Paramedic

Med Control

History

- Age
- Location
- Duration
- Severity
- Past medical history
- Medications
- Drug allergies

Signs and Symptoms:

- Severity
- Quality
- Radiation
- Relation to movement
- Increased with palpation

Differential:

- Per the specific protocol
- Musculoskeletal
- Visceral (abdominal)
- Cardiac
- Pleural/respiratory
- Neurogenic
- Renal

Universal Patient Care

Care based on complaint specific protocol

Pain severity > 6/10
OR
Indication for IVP, IM, IN pain medication?

Adult IV Protocol

Pulse Oximetry / Capnography

Morphine 2 - 5 mg IVP, IM

or

Fentanyl (Sublimaze) 50 - 100 mcg IVP, IM, IN

or

Nalbuphine (Nubain) 5 mg IVP, 10 mg IM

or

Ketamine (Ketalar) 0.2 mg/kg IVP, IN, IM**Pearls**

- Pain severity is a vital sign and must be recorded pre and post IV/IM pain medications
- Vitals should be obtained pre, post, and at disposition with all pain medications
- Contraindications to Morphine = hypotension, altered mental status, head injury, respiratory distress, severe COPD
- Document drug allergies
- Observe for drug reaction

General

EMR

EMT

AEMT

Paramedic

Med Control

History

- Patient presents requesting blood pressure check
- EMS response to "assist invalid"
- Other situation in which patient does not have a medical complaint or obvious injury

Signs and Symptoms:

- Assess for medical complaint
- For patients with hypertension, check for chest pain, dyspnea, neuro changes
- For invalid assist calls, check for syncope, chest pain, trauma, inability to ambulate

Differential:

- Hypertensive urgency
- Hypertensive emergency
- Syncope
- Cardiac ischemia/dysrhythmia
- Fracture
- Head trauma

General

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Universal Patient CarePatient has medical complaint
or obvious trauma

Yes

Go to appropriate protocol and
recommend transport

No

Obtain BP, Pulse, SpO2

Pulse > 110
SBP > 200; DBP > 120
Pulse Oximetry < 94%

Yes

Recommend transport for evaluation.
Have patient sign refusal if transport declined

No

Confirm patient has no medical complaint.
Provide patient with vital sign results and have
them contact their doctor to report results**Pearls**

- Patients who are denying more severe symptoms may initially present for a routine check
- All persons who request service shall have a PCR completed
- For this category of patient, the PCR may be brief, but must include vital signs and documentation of a lack of medical complaint. Complete trauma exams on patients with potential mechanism for trauma

History

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

Signs and Symptoms:

- Decreased mental status
- Change in baseline mental status
- Bizarre behavior
- Hypoglycemia (cool, diaphoretic skin)
- Hyperglycemia (warm, dry skin, fruity breath)
- Kussmaul respiration, dehydration

Differential:

- Head trauma
- CNS (CVA, tumor, seizure, infection)
- Infection
- Thyroid
- Shock (septic, metabolic, traumatic)
- Diabetes (hyper/hypoglycemia)
- Toxicologic
- Acidosis/Alkalosis
- Environmental exposure
- Pulmonary
- Electrolyte abnormality
- Psychiatric

Universal Patient Care**Consider Spinal Motion Restriction****Adult IV Protocol****Blood Glucose**

Oral Glucose 15 grams
if airway not compromised

Dextrose 50% 25 grams IVP, IO
Glucagon 1 mg IM, IN
(if no IV access)

Thiamine 100 mg IVP

Return to baseline?

If yes, patient may refuse transport without OLMC order. IF patient is not on oral diabetic meds and adult present with patient blood glucose >100 Patient. able to eat meal now

Naloxone (Narcan) 2 mg IN

Naloxone (Narcan) 2 mg IN

Consider other cause:
Head injury OD
CVA Hypoxia

Consider **Dextrose 50%** 12.5 grams IVP
And reassess

Naloxone (Narcan) 2 mg slow IV, IN, IM

12 Lead ECG

Normal Saline Bolus
1,000 ml

Pearls Exam: Mental status, HEENT, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro

- Use caution for environmental toxin or Haz-Mat exposure as cause of mental status changes
- Safer to assume hypoglycemia than hyperglycemia if doubt exists. Recheck blood sugar after D50/glucagon
- Do not let alcohol confuse clinical picture
- Do not give oral glucose if patient cannot protect airway
- Consider patient restraints
- Omit thiamine if no signs of malnutrition or alcoholism

General

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Paramedic

Med Control

History

- Situational crisis
- Psychiatric illness/medications
- Injury to self or threats to others
- Medic alert tag
- Substance abuse/OD
- Diabetes

Signs and Symptoms:

- Anxiety
- Agitation
- Confusion
- Affect change
- Hallucinations
- Delusional thoughts
- Bizarre behavior
- Combative/violent
- Expression of suicidal/homicidal thoughts

Differential:

- See altered mental status
- Hypoxia
- Alcohol intoxication
- Medication effect/OD
- Withdrawal syndromes
- Depression
- Bipolar
- Schizophrenia

Scene Safety**Universal Patient Care**

Treat suspected medical or trauma problems per protocol

Remove patient from stressful environment

Verbal techniques
(reassurance, calm, rapport)

No

Patient MUST exhibit a Violent THREAT NOT to be used for anxiety, hyperventilation, Dyspneic patients

Ketamine (Ketalar) 4 mg/kg IM, IN
Immediately place IV, O2, Monitor, ETCO2 Monitor vitals including ETCO2 Apply **Oxygen** Give 1 L NS
Apply **Soft restraints**

In the absence of a Paramedic, the AEMT may administer **Midazolam (Versed)** 2 - 5 mg IV, IM, IN for violent patient requiring physical and chemical restraint
All patients receiving sedation must have continuous monitoring of vital signs

Pearls

Exam: Mental status, skin, heart, lungs, neuro

- All patients given sedation must have IV, ETCO2, SpO2, cardiac monitoring, supplemental oxygen;
- Consider ALL causes for behavior Trauma vs. medical (hypoglycemia, OD, hypoxia, head injury, substance abuse)
- Do not overlook possibility of domestic violence or child abuse
- Pts with agitated delirium are often dehydrated and acidotic
- All patients with physical or chemical restraints must be continuously observed by ALS personnel on scene

General

EMR

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AEMT

Paramedic

Med Control

History

- Reported/witnessed seizure
- Previous seizure history
- Medical alert tag
- History of trauma
- History of diabetes
- History of pregnancy

Signs and Symptoms:

- Decreased mental status
- Sleepiness
- Incontinence
- Observed seizure activity
- Evidence of trauma
- Unconsciousness

Differential:

- CNS trauma
- Tumor
- Metabolic, hepatic, renal failure
- Hypoxia
- Electrolyte abnormality
- Drugs, meds, non-compliance
- Infection/fever
- Alcohol withdrawal
- Eclampsia
- Stroke
- Hyperthermia
- Hypoglycemia

Universal Patient CareConsider **Spinal Motion Restriction** criteria

Status Epilepticus Postictal

Adult Airway Protocol
Blood Glucose**Adult IV** Protocol**Midazolam (Versed)** 2 – 5 mg Slow IVP
OR 5 mg IM, IN May be repeated x 1

Focused history/exam

Blood Glucose

Glucose < 60 mg/dl

Adult IV Protocol**Thiamine** 100 mg IVP**Dextrose** 50% 12.5 g IVP
and reassess
Glucagon 1 mg IM**Status/seizure recurs?****Midazolam (Versed)**
2 - 5 mg slow IV
OR **Midazolam (Versed)**
5 mg IM, IN
may be repeated x1

General

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Pearls**Exam:** Mental status, HEENT, heart, lungs, extremities, neuro*Status Epilepticus* - > 2 successive seizures without a period of consciousness or recovery*Grand mal* - generalized - LOC, incontinence, tongue trauma*Focal seizures (petit mal)* - only a part of the body affected and not associated with LOC*Jacksonian seizures* - focal seizures that become generalized

- Be prepared for airway problems and continued seizures
- Assess for occult trauma and substance abuse
- Be prepared to assist ventilation if midazolam is used
- Seizures in pregnant patient: follow OB Emergency Protocol
- Thiamine may be omitted in patients who do not appear malnourished

Suspected Stroke

History

- Previous CVA, TIA
- Previous cardiac, vascular surgery
- Diabetes, HTN, CAD
- Afib
- Medications (blood thinners)
- Trauma?

Signs and Symptoms:

- Altered mental status
- Weakness/paralysis
- Blindness or sensory loss
- Aphasia/dysarthria
- Syncope
- Vertigo/dizziness
- Vomiting
- Headache
- Seizures
- Respiratory pattern change
- Hyper/Hypotension

Differential:

- See altered mental status
- TIA
- Seizure
- Hypoglycemia
- CVA
- Tumor
- Trauma

Universal Patient Care

Go to: **RACE** / **Cincinnati Stroke Scale**
pre-hospital stroke screens

If positive and symptoms < 3 hours
transport to approved stroke
facility. Limit scene time .

Yes

Call a "**Stroke Alert**" when
notifying stroke center

Notify Stroke Center of
Last Known Well time

Blood Glucose

Adult IV Protocol

12 Lead ECG

Thiamine 100 mg IVP

Dextrose 50% 25 g IVP

If no IV access

Glucagon 1 mg IM

Consider other protocols as
indicated:

- **Altered Mental Status**
- **Hypertension**
- **Seizure**
- **Adult Airway** protocol

Pearls

Exam: Mental status, HEENT, heart, lungs, abdomen, extremities, neuro

- Minimize scene/transport time remove "if symptom onset <12 hours"
- Onset of symptoms - last witnessed time the patient was symptom free
- Monitor for airway problems (swallowing, vomiting)
- Always assess for hypoglycemia
- Patients not malnourished do not require Thiamine
- Document RACE score
- Document 12-Lead ECG

General

EMR

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AEMT

Paramedic

Med Control

History

- Cardiac, CVA, seizures
- Occult blood loss (GI, ectopic)
- Females: LMP, vaginal bleeding
- Fluid loss, N/V/D
- Past medical history
- Medications

Signs and Symptoms:

- LOC with recovery
- Light-headedness, dizzy
- Palpitations, slow or rapid pulse
- Pulse irregularity
- Low blood pressure

Differential:

- Vasovagal
- Orthostatic hypotension
- Cardiac
- Micturition/defecation syncope
- Psychiatric
- CVA
- Hypoglycemia
- Seizure
- PE
- Shock
- Toxicologic
- Medication effect

Universal Patient Care**Spinal Motion Restriction** Protocol

Orthostatics

Blood Glucose

< 60 mg/dl

Adult IV Protocol**12 Lead ECG****Thiamine** 100 mg IVP**Dextrose** 50% 12.5 g IVP

And reassess

If no IV access

Glucagon 1 mg IM

Consider other protocols as indicated:

Altered Mental Status**Hypotension****Seizure****Adult Airway** Protocol

General

EMR

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Paramedic

Med Control

Pearls**Exam:** Mental status, skin, HEENT, heart, lungs, abdomen, extremities, neuro

- Assess for trauma
- Consider dysrhythmias, GI bleed, ectopic pregnancy, seizure as causes of syncope
- Omit thiamine in patients who are not malnourished
- More than 25% of geriatric syncope is cardiac dysrhythmia related

History

- Due date
- Time contractions started/how often
- Rupture of membranes
- Time/amount of vaginal bleeding
- Sensation of fetal activity
- Past medical and delivery history
- Medications
- Drug use
- Gravida/para status
- High risk pregnancy?

Signs and Symptoms:

- Spasmodic pain
- Vaginal discharge or bleeding
- Crowning or urge to push
- Meconium

Differential:

- Abnormal presentation
- Buttock
- Foot
- Hand
- Prolapsed cord
- Placenta previa
- Abruptio placenta

General

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Paramedic

Med Control

Universal Patient Care

Left lateral position

Treat suspected medical or trauma problems per protocol

Hypertension?
Abnormal vaginal bleeding?

Visually inspect perineum for crowning (No digital exam)

Crowning > 36 weeks gestation

No crowning

Monitor and reassess
Document frequency and duration of contractions

Adult IV Protocol

Childbirth

If prolapsed cord
push up on head

Pediatric Newly Born Protocol

Priority symptoms:
Crowning
< 36 weeks gestation
Abnormal presentation
Severe vaginal bleeding
Multiple gestation

Early notification of Hospital
of impending delivery

Pearls

Exam (mother): Mental status, heart, lungs, abdomen, neuro

- Document at all times (deliver, contractions frequency/length)

Transport: Mother may lay in position of comfort if not fetal distress present; Preferred position is left lateral decubitus

After delivery - massage uterus (lower abdomen) which will promote uterine contraction to control postpartum bleeding

- Some perineal bleeding is normal with childbirth, large quantities or free bleeding is abnormal
- Record APGAR at 1 and 5 minutes after birth

History

- Past medical history
- Hypertensive meds
- Prenatal care
- Prior pregnancies
- G/P

Signs and Symptoms:

- Vaginal bleeding
- Abdominal pain
- Seizures
- Hypertension
- Headache
- Visual changes
- Facial/hand edema

Differential:

- Pre-eclampsia/eclampsia
- Placenta previa
- Placenta abruptio
- Spontaneous abortion

General

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Med Control

Universal Patient Care**Adult IV** Protocol

Vaginal bleeding/abdominal pain?

No

Known pregnancy/
missed period?

Yes

Left lateral position

Hypertension during
transport?

Yes

Seizure during
transport?

Yes

Blood Glucose**Magnesium Sulfate** 4 g IVP
slow over 10 – 20 min.

Active seizure activity

Midazolam (Versed)

2 - 5 mg slow IVP

Known pregnancy/missed period?

Yes

No

Abdominal Pain Protocol

Hypotension?

Yes

500 ml NS Bolus

Complaint of labor

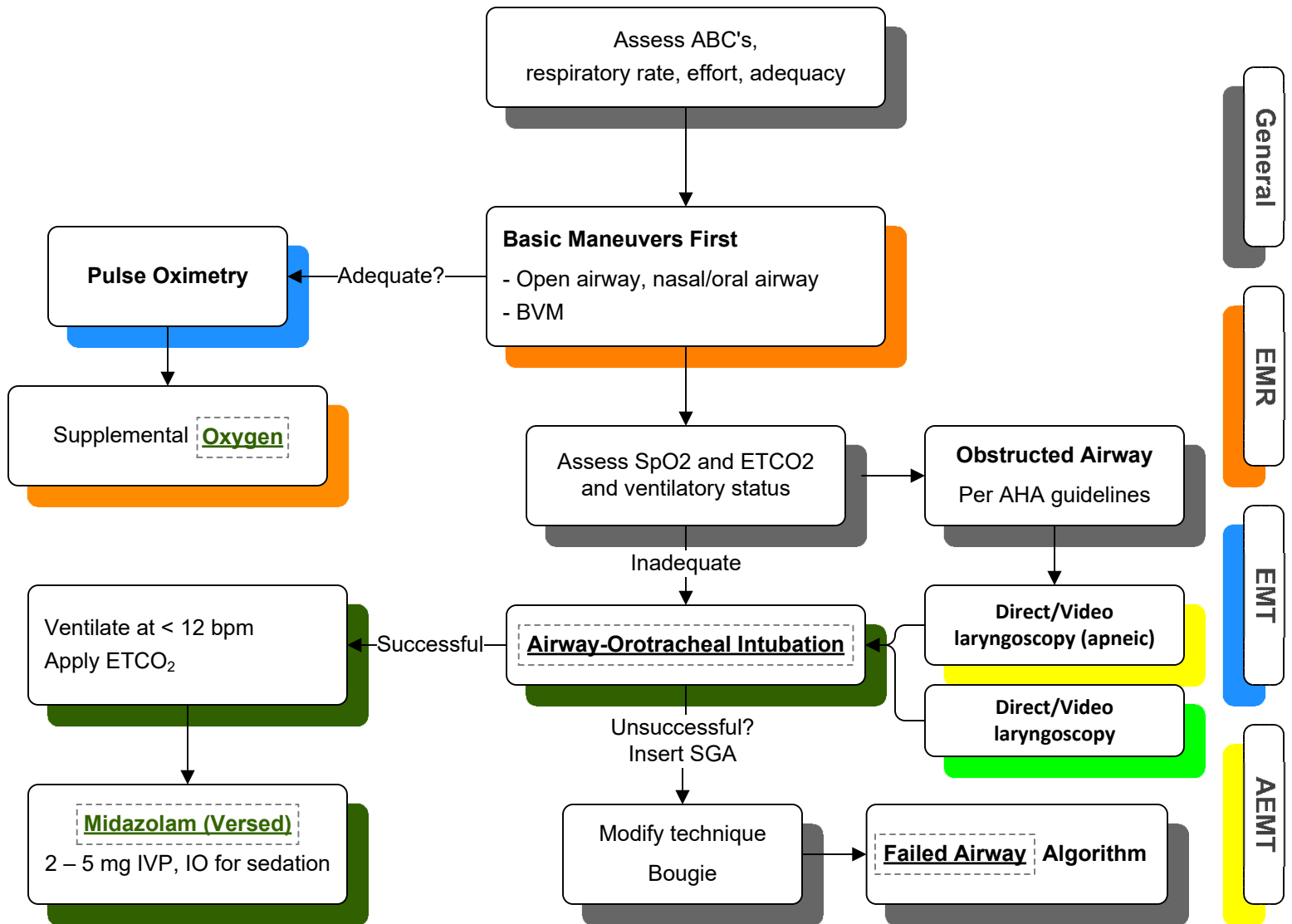
Yes

Childbirth/Labor ProtocolNo
Place left
lateral recumbent

Transport

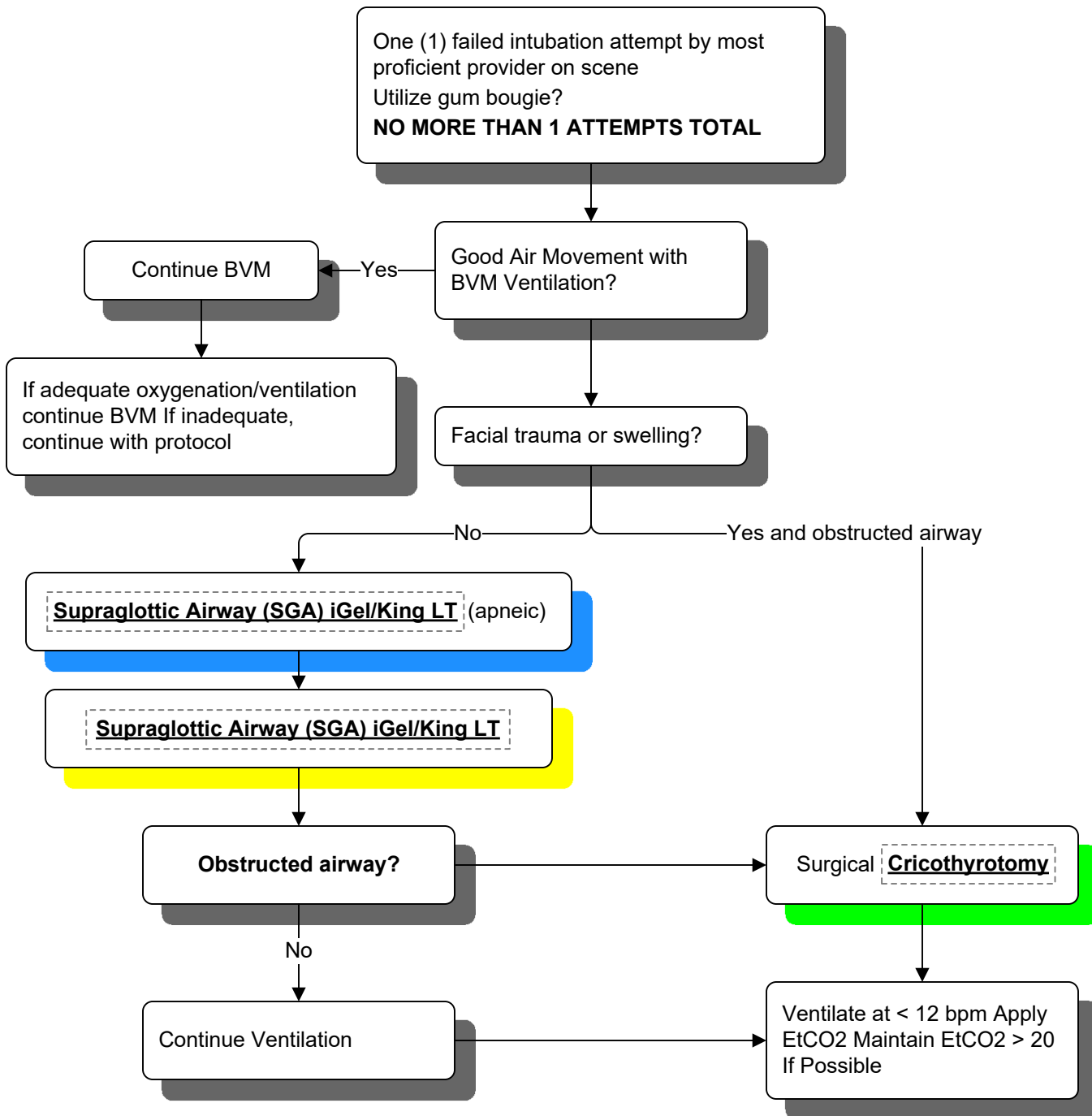
Pearls**Exam:** Mental status, abdomen, heart, lungs, neuro

- Severe headache, vision changes, RUQ pain may indicate pre-eclampsia
- In pregnancy, HTN = BP > 140/90
- Maintain patient in left lateral position to minimize risk of supine hypotensive syndrome
- Quantify bleeding = number of pads per hour
- Any pregnant patient in MVC should be seen by physician for evaluation and fetal monitoring
- Magnesium, in high doses (i.e. 6 grams), may cause hypotension and decreased respiratory drive. Use cautiously.



Pearls

- For this protocol, Adult > 12 years old
- Capnometry is mandatory with all methods of intubation. Document results.
- Continuous EtCO₂ monitoring is required for all intubated patients
- Do not assume hyperventilation is psychogenic - use oxygen
- ELM = External Laryngeal Manipulation
- Use SGA = Supraglottic airway (King or iGel) when unable to intubate a patient. Avoid hypoxemia
- In head trauma, maintain EtCO₂ 35-45. Avoid overventilation. Avoid hypoxemia
- Utilize continuous pulse oximetry - All intubated patients must have a C-Collar in place. For non-trauma patients, remove collar upon transfer
- Bougie may be used on any attempt based on initial assessment



General

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Med Control

Pearls

Continuous pulse Oximetry should be used in all patients with inadequate respiratory function
 Continuous EtCO₂ should be applied to all patients with respiratory failure and to all intubated patients
 Providers should consider using a King airway when unable to intubate a patient
 AEMT's and EMT's may use the SGA only after attending approved in-service and completing practical examination
 Notify OLMC as soon as possible about failed airway
 Patient must have respiratory effort to perform naso-tracheal intubation

History

- Onset/location
- Insect sting or bite
- Food allergy/exposure
- Medication allergy/exposure
- New clothing, soap
- Past history
- Medication history

Signs and Symptoms:

- Itching/hives
- Coughing/wheezing/respiratory distress
- Chest or throat tightening
- Difficulty swallowing
- Hypotension/shock
- Edema

Differential:

- Urticaria
- Anaphylaxis
- Shock
- Angioedema
- Aspiration
- Vasovagal
- Asthma/COPD
- CHF

General

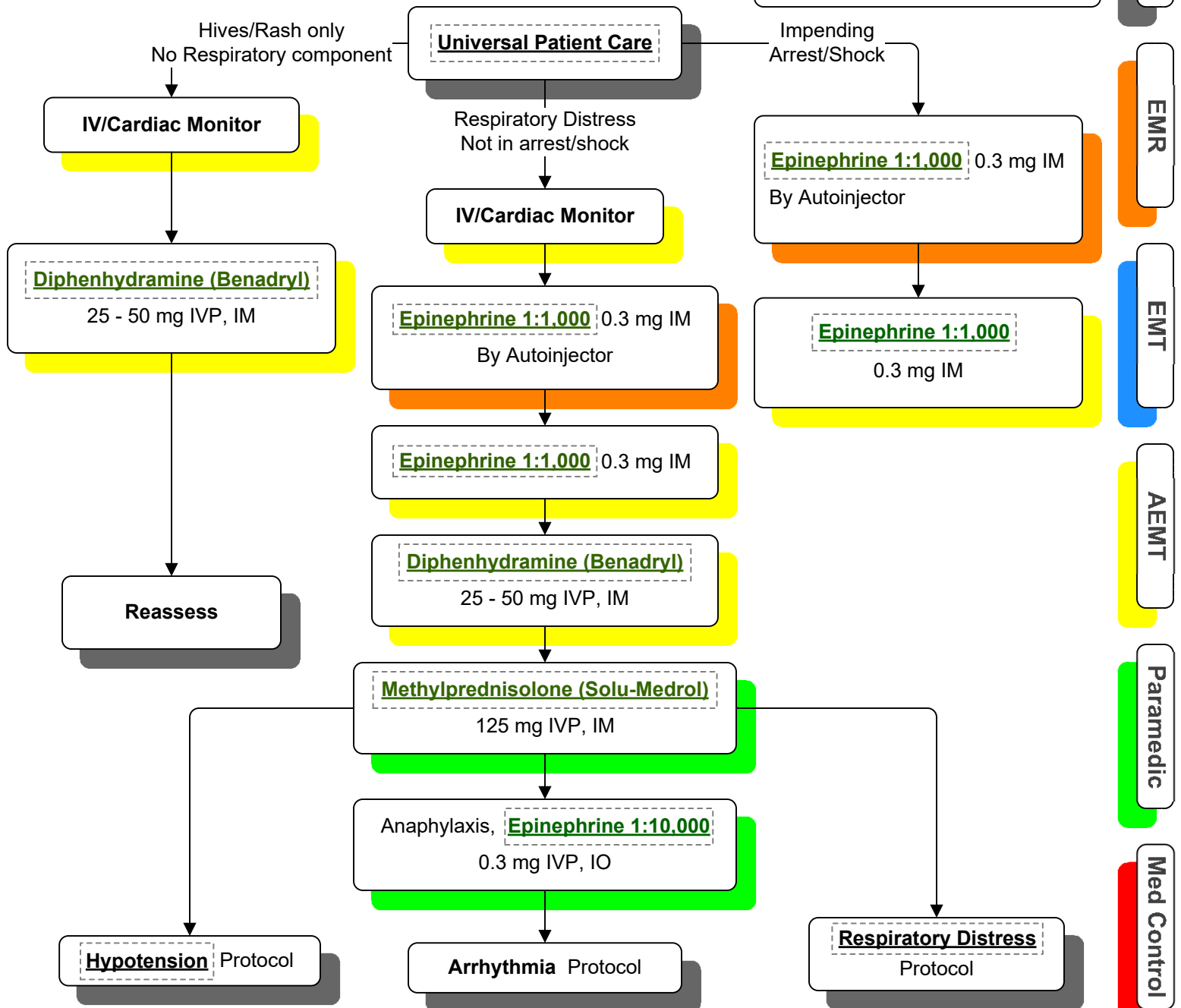
EMR

EMT

AEMT

Paramedic

Med Control

**Pearls****Exam:** Mental status, skin, neck, heart, lung, abdomen, back, extremities, neuro

- Epinephrine may precipitate cardiac ischemia. Use caution when giving epi to patients greater than 50 years old. Perform ECG.
- Shorter the onset = more severe the reaction

History

- CHF
- Past medical history
- Medications (digoxin, lasix)
- Viagra, Levitra, Cialis
- Cardiac history (i.e.. MI)

Signs and Symptoms:

- Respiratory distress, bilateral rales
- Apprehension, orthopnea
- JVD
- Pink, frothy sputum (late sign)
- Peripheral edema, diaphoresis
- Hypotension, shock
- Chest pain

Differential:

- MI
- CHF
- Asthma
- Anaphylaxis
- Aspiration
- COPD
- Pleural effusion/pneumonia
- PE
- Tamponade
- Toxic exposure

Universal Patient Care

Obtain ETCO2 and Pulse Oximetry

Nitroglycerin 0.4 mg SL every 2-3 min
If systolic BP > 110

Adult IV ProtocolApply **CPAP****12 Lead ECG** & transmit**Consider**

Midazolam (Versed) 1 - 2 mg IVP OR 2 mg IN
if SBP > 100 for sedation if needed
or

Ketamine (Ketalar) 0.2 mg/kg IVP, IN, IM

General

EMR

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AEMT

Paramedic

Med Control

Pearls**Exam:** Mental status, skin, neck, heart, lungs, abdomen, back, extremities, neuro

- **Early aggressive treatment of pulmonary edema with nitrates and CPAP avoids intubation**
- Pre-hospital use of diuretics is no longer indicated **CPAP**
- Avoid Nitro in patient who has used Viagra or Levitra in past 24 hours or Cialis in past 36 hours
- Consider myocardial infarction in all of these patients (cardiogenic shock)
- Careful monitoring of LOC, BP, respiratory status with above interventions is essential
- Allow patient to remain in position of comfort to maximize breathing effort

History

- Asthma
- COPD
- CHF
- Home treatment (oxygen/nebulizer)
- Meds (theophylline, steroids, inhalers)
- Toxic exposure
- Smoke inhalation

Signs and Symptoms:

- SOB
- Pursed lip breathing
- Decreased ability to speak
- Increased respiratory rate and effort
- Wheezing, rhonchi, rales, stridor
- Accessory muscle use
- Fever, cough, tachycardia

Differential:

- Asthma
- Anaphylaxis
- Aspiration
- COPD
- Pneumonia/pleural effusion
- Pneumothorax
- Cardiac (MI/CHF)
- PE
- Tamponade
- Hyperventilation
- Inhaled toxin

General

EMR

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Paramedic

Med Control

Universal Patient Care

Respiratory insufficiency?

Yes

Adult Airway Protocol

No

Rales/CHF

Position of Comfort

Stridor

Pulmonary Edema Protocol

Wheezes

Adult IV Protocol**Adult IV** Protocol**Albuterol (Proventil)** 2.5 mg nebulized

3 ml nebulized saline

No improvement

Epinephrine 1:10,0000.3 mg Neb Mix with
3 ml NS**DuoNeb** aerosol (Albuterol/Atrivent)**Methylprednisolone (Solu-Medrol)**

125 mg IVP, IM

Magnesium Sulfate 2 g IVP over 20 min

For severe cases

Epinephrine 1:10,000

0.3 mg IVP

Contact **OLMC** if patient
does not meet criteria for Epi
See below

Consider **Epinephrine 1:1,000** 0.3 mg SQ, IM

Pearls:

- EMT Basic's may assist patients with their own albuterol MDI
- Monitor pulse ox continuously - CPAP may be used for patients with COPD, CHF, Pneumonia, Asthma as per protocol
- Contact OLMC prior to administering epinephrine to patients > 50 years old, have a cardiac history, or heart rate > 150. Perform 12-lead ECG on these patients
- Monitor ETCO2 continuously

History

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

Signs and Symptoms:

- Mental status changes
- Hypotension/hypertension
- Decreased respiratory rate
- Tachycardia, dysrhythmias
- Seizures

Differential:

- TCA's
- Acetaminophen
- Depressants
- Stimulants
- Anticholinergic
- Cardiac medications
- Solvents, alcohols, cleaning agents
- Insecticides (organophosphates)

Treat and Release Opiate OD:

- Awake and alert and oriented after naloxone and refuses transport
- Return to baseline Mentation
- Pulse oximetry normal
- No other concerning factors
- Contact OLMC for report

Universal Patient Care**Adult IV Protocol****Tricyclic Ingestion?****Sodium Bicarbonate** 1 mEq/kg

Respiratory Depression?

EMR/EMT**Naloxone (Narcan)**

2 mg IN

AEMT/Medic**Naloxone (Narcan)**0.4 - 2 mg IVP or
Narcan 2 mg IN

Chest Pain?

Chest Pain ProtocolMay repeat until
breathing normally.**Atropine**2 mg IVP q 5 min.
No Maximum dose

Other

Hypotension seizures
ventricular dysrhythmias
or mental status
changes

Appropriate protocol

General

EMR

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Paramedic

Med Control

Pearls**Exam:** Mental status, skin, HEENT, heart, lungs, abdomen, extremities, neuro

- Do not rely on patient history of ingestion in suicide attempt
- Bring bottles to ED
- TCA= tricyclic antidepressant: seizure, dysrhythmias, hypotension, decreased mental status, coma
- Acetaminophen: normal or N/V - causes irreversible liver failure if not detected
- Depressants: decreased HR, decreased BP, decreased temperature, decreased respirations, non-specific pupils
- Stimulants: increased HR, increased BP, increased temperature, dilated pupils, seizures
- Anticholinergic: increased HR, increased temperature, dilated pupils, mental status change
- Cardiac meds: dysrhythmias, mental status changes
- Insecticides: increased/decreased HR, increased secretions, nausea, vomiting, diarrhea, pinpoint pupils
- Consider restraints per restraints procedures
- ALS units may transport patients who have received activated charcoal therapy

History

- Type of exposure (heat, gas, chemical)
- Inhalation injury
- Time of injury
- Past medical history
- Medications
- Other trauma
- LOC

Signs and Symptoms:

- Burns, pain, swelling
- Dizziness
- LOC
- Hypotension/shock
- Airway compromise/distress
- Singed facial or nasal hair
- Hoarseness or wheezing

Differential:

- Superficial (1st degree) - red and painful
- Partial thickness (2nd degree) - blistering
- Full thickness (3rd degree) - painless/charred leathery skin
- Chemical
- Thermal
- Electrical
- Radiation

Universal Patient Care

Remove rings, bracelets, and other constricting items

Thermal

Chemical

If burn < 10% BSA (rule of 9's) Cool down wound with normal saline

Cover with dry sterile sheet or dressings

Adult IV Protocol

20 ml/kg Normal Saline

Pain Control Protocol

Transport to nearest Trauma center

Remove clothing or expose area. Brush off any visible dry chemical or powder

Eye involvement
Saline flush in affected eye
See **Eye Injury/Complaint**

Flush area with water or normal saline for 10 - 15 minutes

Pearls

Exam: Mental status, HEENT, Neck, Heart, Lungs, Abdomen, Extremities, Back, Neuro
Critical Burns: > 25% BSA; 3rd Degree burns > 10% BSA; 2nd or 3rd degree burns to face, eyes, hands or feet; electrical burns, respiratory burns, deep chemical burns, burns with extremes of age or chronic disease; burns associated with major traumatic injury. These burns require admission or transfer to a burn center.
Early intubation required in significant inhalation injuries
Treat potential CO exposure with 100% Oxygen
Circumferential burns to extremities are dangerous due to potential vascular compromise due to soft tissue swelling
Burn patients are prone to hypothermia
Do not overlook possibility of multi-system trauma
Do not overlook possibility of child abuse. **NOTE:** the palm of the patient = 1% total BSA burned

General

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Paramedic

Med Control

History

- Lightning or electrical exposure
- Single or multiple victims
- Trauma from fall or MVC into pole
- Duration of exposure
- Voltage and current (AC/DC)

Signs and Symptoms:

- Burns
- Pain
- Entry and exit wounds
- Hypotension or shock
- Arrest

Differential:

- Cardiac arrest
- Seizure
- Burns
- Multiple trauma

General

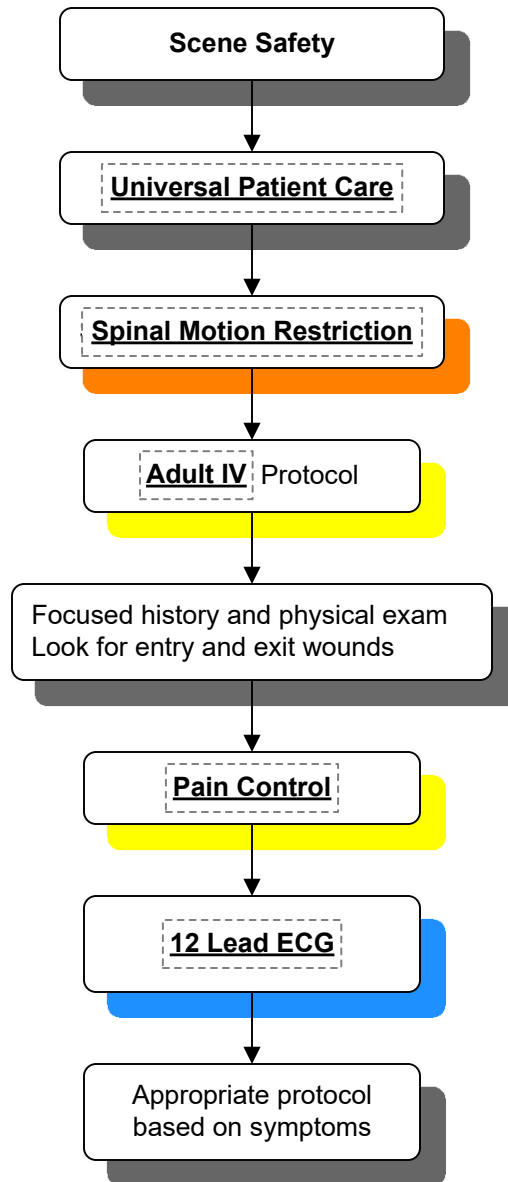
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Paramedic

Med Control

**Pearls**

Exam: Mental status, HEENT, neck, heart, lungs, abdomen, extremities, back, neuro

- Ventricular fibrillation and asystole are most common dysrhythmias
- Damage often hidden - most severe damage to muscle, vessels, and nerves
- In multiple victim lightning incident, attend to victims in full arrest first. IF the victim did not arrest initially, it is likely they will survive. These patients are often resuscitated with adequate CPR and ALS
- Do not overlook other trauma
- Lightning is a massive DC shock, most often leading to asystole as the dysrhythmia
- In lightning injuries, most of the current will travel over the body surface producing flash burns

History

- Type of injury
- Mechanism: crush/penetrating/amputation
- Time of injury
- Open vs. Closed wound/fracture
- Wound contamination
- Medical history
- Medications

Signs and Symptoms:

- Pain
- Swelling
- Deformity
- Altered sensation/motor function
- Diminished pulse/cap refill
- Decreased extremity temperature

Differential:

- Abrasion
- Confusion
- Laceration
- Sprain
- Dislocation
- Fracture
- Amputations

General

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Med Control

Universal Patient Care

Isolated extremity injury?

Multiple Trauma Protocol

Yes

Immobilize extremity as indicated
Apply ice to reduce swelling

Wound Care / Hemorrhage Control

Limb or life threatening event?
Pain medication needed?

Adult IV Protocol**Pain Control** Protocol**Amputation?****Clean amputated part**

Wrap part in sterile dressing soaked
with normal saline. Place in air tight
container. Place container on ice if available.

Pearls**Exam:** Mental status, extremity, neuro

- In amputations, time is critical. Consider transport to Trauma center (see above note)
- Hip dislocation and knee and elbow fracture/dislocations have a high incidence of vascular compromise
- Urgently transport any injury with vascular compromise
- Blood loss may be concealed or not apparent with extremity injuries
- Severe bleeding not rapidly controlled may necessitate application of a tourniquet
- Lacerations must be evaluated for repair within 6 hours from the time of injury

History

- Time of injury/onset
- Blunt/penetrating/chemical
- Open vs. closed injury
- Involved chemical/MSDS
- Wound contamination
- Medical history
- Tetanus status
- Normal visual acuity
- Medications

Signs and Symptoms:

- Pain, swelling, blood
- Deformity, contusion
- Visual deficit
- Leaking aqueous/vitreous humor
- Upwardly fixed eye
- Shooting or streaking light
- Visible contaminants
- Lacrimation

Differential:

- Abrasion/laceration
- Globe rupture
- Retinal nerve damage detachment
- Chemical/thermal/agent of terror
- Orbital fracture
- Orbital compartment syndrome
- Neurological event
- Acute glaucoma
- Retinal artery occlusion

General

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Paramedic

Med Control

Universal Patient Care**Nature?**

Pain/Visual

Injury

Assess visual acuity
Evaluate pupils

Complete neuro exam

Screen for unrecognized
chemical exposure

Cover both eyes

Isolated to eye(s)?No → **Appropriate protocol**

Out of socket

In socket

Cover with saline-soaked
gauze

Mechanism

Burn/Chemical

Physical trauma

Immediate irrigation with
saline or water

Tetracaine 2 drops

Irrigate with normal saline

Cover unaffected eye eyes

Pain Control Protocol

Assess Orbital Stability

Assess visual acuity
when able

Penetrating trauma or
globe rupture?

No

Yes

Ondansetron (Zofran)

4 mg IVP, IM, ODT

Ondansetron (Zofran)

4 ODT

Pearls

- Normal visual acuity can be present even with severe eye injury
- Remove contact lenses when possible
- Any chemical or thermal burn to the face/eyes should raise suspicion of respiratory insult
- Orbital fractures raise concern of globe or nerve injury and need repeated assessments of visual status
- Should cover both eyes to prevent injury
- Use shields for physical trauma to eyes (not pads)
- Do not remove impaled objects

History

- Time of injury
- Mechanism: blunt/penetrating
- LOC
- Bleeding
- Medical history
- Medication
- Evidence of multi-trauma
- Helmet use/damage to helmet

Signs and Symptoms:

- Pain
- Swelling
- Bleeding
- Altered mental status
- Unconsciousness
- Respiratory distress/failure
- Vomiting
- Significant MOI

Differential:

- Skull fracture
- Brain injury (concussion, contusion, hemorrhage, laceration)
- Epidural hematoma
- Subdural hematoma
- Subarachnoid hemorrhage
- Spinal injury
- Abuse

General

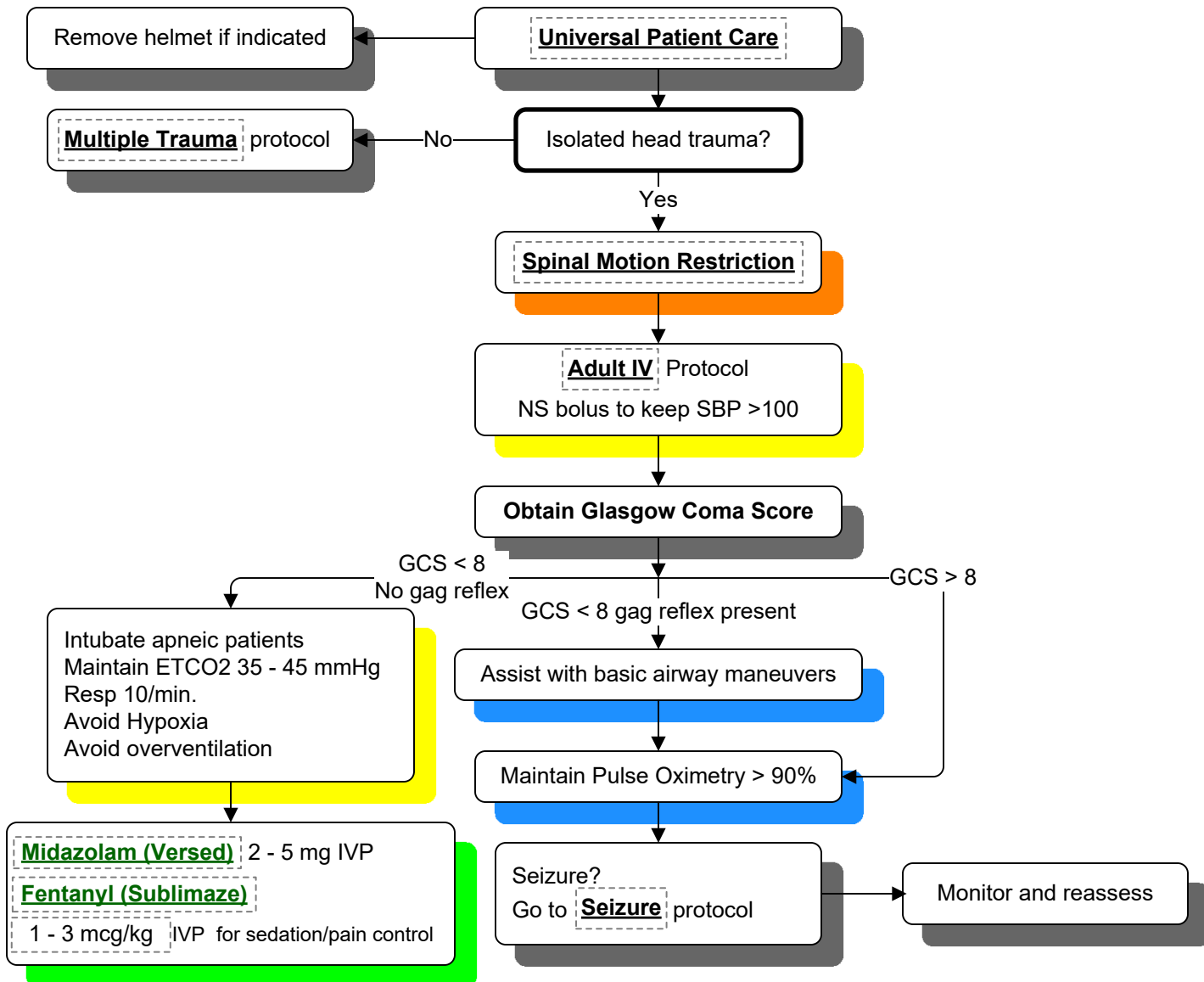
EMR

EMT

AEMT

Paramedic

Med Control

**Pearls**

Exam: Mental status, skin, HEENT, heart, lungs, abdomen, extremities, back, neuro

Cushing's Response: Elevated ICP causing hypertension and bradycardia

- Hypotension usually indicates injury or shock unrelated to head injury and should be aggressively treated
- Monitor and document changes in LOC and GCS
- Consider restraints if necessary for safety of patient and/or personnel protection. Do not use Haldol
- Concussions are periods of confusion or LOC associated with trauma and may be resolved upon arrival of EMS
- Any prolonged period of confusion or mental status abnormality that does not return to normal within 15 minutes should be evaluated by a physician

History

- Time and MOI
- Damage to structure/vehicle
- Location in structure/vehicle
- Others injured/dead
- Speed and details of MVC
- Restraints/protective equipment
- Past medical history
- Medications

Signs and Symptoms:

- Pain
- Swelling
- Altered mental status
- Unconscious
- Deformity
- Bleeding
- Hypotension/shock
- Arrest

Differential:

- Chest
 - Tension pneumothorax
 - Flail chest
 - Pericardial tamponade
 - Open chest wound
 - Hemothorax
- Intra-abdominal bleeding
- Pelvis/femur fracture
- Spine fracture/cord injury
- Head injury
- Extremity fracture/dislocation
- Airway obstruction
- Hypothermia

General

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Universal Patient Care

Rapid trauma assessment and GCS

Minimize on-scene time

Spinal Motion Restriction**Adult IV** Protocol

Vital signs and perfusion

Abnormal

Abnormal

NS bolus to maintain
SBP 60 - 90 for
Hemorrhagic Shock

Ongoing assessment

**Continued hypotension (SBP <90)?
Permissive Hypotension (SBP 60-90
mmHg) Consider:** Reduction of long
bone fracture Pelvic binding with sheet
for pelvic fracture Control of external
hemorrhage (CAT tourniquet)

Consider

Chest Decompression

Consider **Pain Control** Protocol
if SBP > 90 and GCS = 15

Pearls

Exam: Mental status, HEENT, heart, lungs, abdomen, extremities, back, neuro

- In prolonged extrications/serious trauma, consider air transport
- Severe bleeding from an extremity not rapidly controlled may necessitate the application of a **TOURNIQUET**

Low Risk Characteristics

Simple rear-end collision
 Ambulatory on scene at anytime
 No neck pain on scene
 No midline cervical tenderness

These Low Risk Factors allow Safe
 Omission of SMR in Patients with
 GCS = 15

High Risk Characteristics

Age > 65
 Trauma Triage Criteria
 Axial Loads/Diving injury
 Sudden Accel/Deceleration
 Lateral bending forces to neck or torso
Violent impact to head, neck, torso, pelvis
 Numbness, tingling, Paresthesia
 If Any of the Above, Strongly consider SMR

Potential mechanism for
 unstable spine Injury?

Yes

Altered LOC
 (GCS < 15)?
 Unreliable interaction?

All No

Any
 Yes

Apply SMR

Spinal Tenderness?
 OR
 Anatomic deformity of spine?
 Or
 Neurologic deficit or complaint

Any
 Yes

Possible spine injury
 Apply SMR

No

OMIT SMR

Unreliable Patient Interactions

- Language barriers, inability to communicate
- Lack of cooperation during exam
- Evidence of drug/alcohol intoxication
- Painful distracting injury such as long-bone fracture

Motor/Sensory Exam

- Wrist/Hand extension bilaterally
- Foot plantarflexion bilaterally
- Foot dorsiflexion bilaterally
- Gross sensation in all extremities
- Check for paresthesias

History

-Patient who has suffered a traumatic injury and is now pulseless

Signs and Symptoms

- Evidence of penetrating trauma
- Evidence of blunt trauma

Differential:

- Medical condition preceding traumatic event as cause of arrest
- Tension pneumothorax
- Hypovolemic shock
 - External hemorrhage
 - Unstable pelvic fracture
 - Displaced long bone fracture
 - Hemothorax
 - Intra-abdominal hemorrhage
 - Retroperitoneal hemorrhage

Universal Patient Care

Patient with injury obviously incompatible with life or traumatic arrest in asystole

Do not attempt resuscitation
Contact law enforcement

No

Spinal Motion Restriction Protocol

Adult IV Protocol
With Fluid Bolus

Return of pulse?

Go to appropriate protocol

No

Continue fluid bolus
Reduce long bone fractures
Bind pelvis
Control external hemorrhage

Bilateral **Needle Chest Decompression**

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Pearls

Injuries obviously incompatible with life include decapitation, massively deforming head or chest injuries or other features of a patient encounter that would make resuscitation futile. If in doubt, place patient on monitor. Consider using medical cardiac arrest protocols if uncertainty exists regarding medical or traumatic cause of arrest

Scene Safety Bring all necessary equipment to patient's side. Demonstrate professionalism and courtesy

PPE (consider airborne or droplet precautions)

Initial Assessment

BLS: Consider Spinal Motion Restriction
For pediatrics, use Broselow tape
Use age/length based dose calculator

Cardiac
Arrest

Cardiac Arrest Protocol

Pediatric Airway Protocol

Consider **Pulse Oximetry, Capnography**
Supplemental **Oxygen**

Vital Signs

Temperature and Blood Glucose
As indicated

Consider:

Cardiac monitor / **12 Lead ECG**

Appropriate Protocol

Transport patient per
Patient Transport Policy

Patient doesn't fit a protocol?
Contact **OLMC**

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Pearls

- Any patient contact that does not result in transport requires documentation and disposition
- Required vital signs on every patient include BP, pulse, RR, pain/severity
- Pulse oximetry, glucose measurement and temperature documentation is dependent on complaint
- Timing of transport based on patient's clinical condition

History

- Past medical history
- Foreign body?
- Respiratory distress or arrest
- Apnea
- Possible toxin exposure
- Congenital disease
- Medication (maternal or infant)

Signs and Symptoms:

- Decreased heart rate
- Delayed capillary refill or cyanosis
- Mottled, cool skin
- Hypotension or arrest
- Altered LOC

Differential:

- Respiratory distress
- Foreign body
- Secretions
- Infection/sepsis
- Hypovolemia
- Congenital heart disease
- Trauma
- Hypothermia
- Toxin ingestion
- Hypoglycemia

General

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Pediatric Universal Care

Pediatric Airway Protocol

Monitor and
reassess

Poor perfusion
Decreased blood pressure
Respiratory insufficiency

Pediatric IV

20 ml/kg fluid bolus NS
Repeat as needed

No improvement
After 2 boluses?

Epinephrine 1:10,000 0.01 mg/kg IV, IO Max. 1 mg

Epinephrine 1:1,000 0.1 mg/kg 1:1000 ET

Repeat every 3 - 5 min Maximum = 1 mg/dose

Consider external

Transcutaneous Pacing

Consider **Atropine** 0.02 mg/kg

Reassess

Pediatric Pulseless Arrest Protocol

Consider

Dextrose 25% 1 - 2 ml/kg slow IVP

Maximum 25 ml

Glucagon 0.025 mg/kg IM Maximum 1 mg

Naloxone (Narcan) 0.2 mg/kg IVP, IM, IN, IO prn

Maximum 2 mg

Normal saline 20 ml/kg bolus (repeat prn)

Pearls Exam: Mental status, HEENT, skin, heart, lungs, abdomen, back, extremities, neuro

- Infant = < 1 year of age
- Most maternal medications pass through breast milk to infant
- The majority of pediatric arrests are due to airway problems
- Hypoglycemia, severe dehydration and narcotic effects may produce bradycardia
- Minimum atropine dose is 0.1 mg IV/IO

History

- Time of arrest
- Medical history
- Medications
- Foreign body?
- Hypothermia?
- Suspected abuse?
- SIDS

Signs and Symptoms:

- Unresponsive
- Cardiac arrest

Differential:

- Respiratory failure
 - Foreign body
 - Secretions
 - Infection
- Hypovolemia
- Congenital heart disease
- Trauma
- Tension pneumothorax
- Hypothermia
- Toxin ingestion
- Hypoglycemia
- Acidosis

Pediatric Universal Care

V.Fib/Pulseless V-Tach Asystole/PEA

Defibrillate

- 1st 2 J/kg
- 2nd 4 J/kg
- 3rd 4 J/kg

Pediatric Airway Protocol

Pediatric IV/IO

Epinephrine 1:10,000

0.01 mg/kg IV, IO Max. 1 mg (10 ml)

OR

Epinephrine 1:1,000 0.1 mg/kg ET

Repeat every 3 - 5 minutes

Defibrillate 4 J/kg every 1 - 2 minutes

Consider Amiodarone (Cordarone) 5 mg/kg IVP, IO

Pediatric Airway Protocol

Pediatric IV/IO

Epinephrine 1:10,000

0.01 mg/kg IV, IO Max. 1 mg (10 ml)

OR

Epinephrine 1:1,000 0.1 mg/kg ET

Repeat every 3 - 5 minutes

Dextrose 25% 1 - 2 ml/kg IV, IO

Naloxone (Narcan) 0.1 mg/kg IV, IO, ETT

Consider and treat causes

- Hypoxemia - oxygen
- Acidosis - oxygen, Sodium Bicarbonate 1 mEq/kg IVP, IO
- Volume depletion - fluid bolus 20 ml/kg
- Tension pneumothorax
- Hypothermic
- Hypoglycemia - D25 1 - 2 ml/kg IVP, IO

Pearls

- Max doses: Epi = 1 mg; Amiodarone = 300 mg; D25 = 25 ml; Narcan = 2 mg; Sodium Bicarbonate = 50 meq;
- For success to occur, a cause must be identified and corrected
- For ROSC, go to post resuscitation protocol

General

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Med Control

History

- Past medical history
- Medications or toxin ingestion (Aminophylline, diet pills, thyroid pills, decongestants, digoxin)
- Drugs - nicotine, cocaine
- Congenital heart disease
- Respiratory distress
- Syncope or near syncope

Signs and Symptoms:

- HR > 180 in child
- HR > 220 in infant
- Pale/cyanosis
- Diaphoresis
- Tachypnea
- Vomiting
- Hypotension
- Altered LOC
- Pulmonary congestion
- Syncope

Differential:

- Heart disease (congenital)
- Hypo/hyperthermia
- Hypovolemia/anemia
- Electrolyte abnormality
- Anxiety/pain/stress
- Fever/infection/sepsis
- Hypoxia
- Hypoglycemia
- Medication/toxin/drugs
- PE
- Trauma/tension pneumothorax

Pediatric Universal Care

Continuous cardiac monitor
Identify cause

Stable

Unstable

Vagal Maneuvers

Ice pack to face or valsalva

Pediatric IV**Adenosine (Adenocard)**

0.1 mg/kg IVP
0.2 mg/kg IVP and
0.3 mg/kg IVP
Flush each with 5 ml NS

If rhythm changes go to appropriate protocol

Cardioversion 0.5 J/kg

Consider **Midazolam (Versed)** 0.1 mg/kg IVP, IN
up to **Maximum 2 mg**

Repeat **Cardioversion**

1 - 2 J/kg

Pediatric IV**Adenosine (Adenocard)**

0.1 mg/kg IVP
0.2 mg/kg IVP and
0.3 mg/kg IVP
Flush each with 5 ml NS

General

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Paramedic

Med Control

Pearls: DO NOT DELAY CARDIOVERSION FOR SEDATION IN UNSTABLE PATIENT.

Exam: Mental status, skin, neck, lung, heart, abdomen, back, extremities, neuro

- Carefully evaluate the rhythm to distinguish Sinus Tach, SVT, and V-Tach
- Separating the child from caregiver may worsen clinical condition
- Use pediatric hands-free paddles in children < 10 kg or Broselow color purple
- Monitor for respiratory depression and hypotension with Versed use
- Continuous pulse oximetry required
- Document all rhythm changes
- Maximum sinus tachycardia rate is 220 - patient age in years

History

- Age
- Last meal
- Last BM/emesis
- Duration
- Sick contacts
- Past medical history
- Past surgical history
- Medications
- Menstrual history
- Travel history
- Bloody emesis/diarrhea

Signs and Symptoms:

- Pain Constant, sharp, dull, etc.
- Distention
- Constipation
- Diarrhea
- Anorexia
- Radiation

Associated Symptoms:

- Fever, Headache, blurred vision, weakness, myalgias, cough, dysuria, mental status changes, rash

Differential:

- CNS
- MI
- Drugs
- GI/renal
- DKA
- Gynecologic
- Infections
- Electrolyte imbalance
- Food or toxin induced
- Medication/substance abuse
- Pregnancy
- Psychologic

Pediatric Universal Care

Consider **Pediatric IV**

Blood Glucose

If < 60 go to

Pediatric Altered Mental Status Protocol

Normal saline bolus

20 ml/kg IVP PRN

10 ml/kg if Blood Glucose > 250 mg/dl

Vomiting/severe nausea?

Monitor and reassess

Ondansetron (Zofran)

4 mg ODT

Consider **Ondansetron (Zofran)**

0.2 mg/kg IVP, ODT up to 4 mg

Pearls

Exam: Mental status, skin, HEENT, neck, heart, lungs, abdomen, back, extremities, neuro

- Monitor frequently to reassess vascular status

General

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Paramedic

Med Control

History

- Blood loss
- Fluid loss - Vomiting, diarrhea, fever
- Infection
- Medications
- Allergic reaction
- Poor PO intake history

Signs and Symptoms:

- Restless, confused
- Weakness, dizziness
- Weak, rapid pulse
- Pale, cool, clammy skin
- Delayed capillary refill
- Hypotension
- Rapid pulse
- Decreased BP

Differential:

- Trauma
- Infection
- Dehydration
 - Vomiting
 - Diarrhea
 - Fever
- Congenital heart disease
- Medication or toxin

Pediatric Universal Care

Evidence or history of trauma

Yes

Pediatric Multiple Trauma

Protocol

No

Blood Glucose

Pediatric IV/IO

Pediatric IV/IO

Normal Saline Bolus

20 ml/kg

May repeat prn x 1

Dextrose 25% 1 - 2 ml/kg IVP
Glucagon 0.025 mg/kg IM (if no IV)

General

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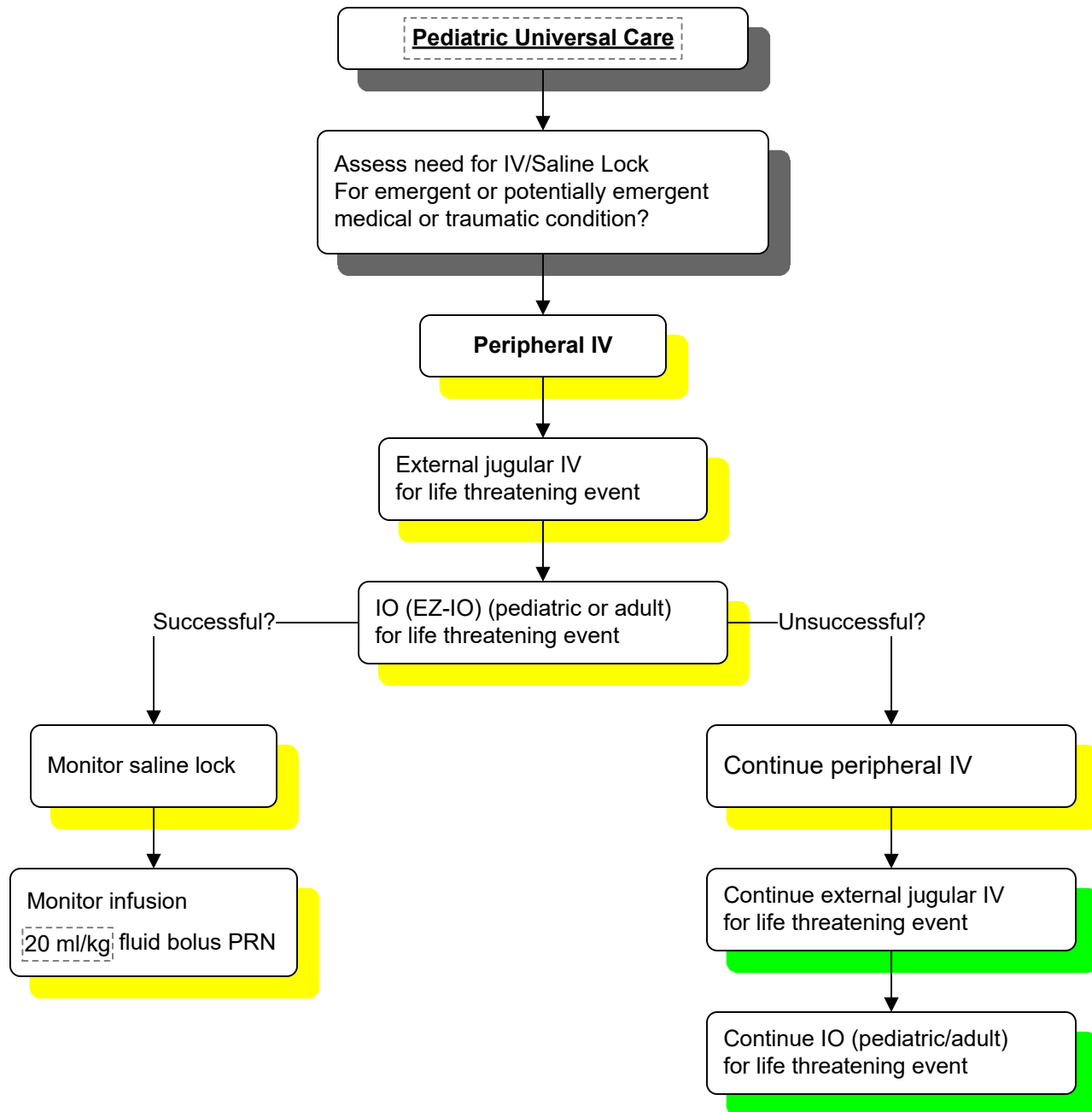
Paramedic

Med Control

Pearls

Exam: Mental status, skin, heart, lungs, abdomen, back, extremities, neuro

- Max dose of D25 = 25 ml per dose, glucagon = 1 mg
- Consider all causes of shock and treat per appropriate protocol
- Decreasing heart rate is a sign of impending collapse



General

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Med Control

Pearls

- IO with EZIO for adult or pediatric patient for cardiac arrest or unresponsive patient with no available IV site
- Saline locks are preferred unless fluid bolus anticipated
- External jugular (>12 years old)
- Any pre-hospital fluids or medications approved for IV use may be given through IO
- All rates KVO unless giving fluid bolus
- Use microdrips for patients under 6 years old (if available)
- External jugular lines can be attempted initially in life-threatening events with no obvious peripheral site
- In CARDIAC ARREST, pre-existing dialysis shunt or external central venous catheter may be used
- In patients who are hemodynamically unstable or in extremis, contact OLMC prior to accessing dialysis catheter or central catheters
- Any venous catheter which has already been accessed prior to EMS arrival may be used
- Upper extremity preferred to lower extremity IV sites
- In post mastectomy patients, avoid IV/injection or blood pressure in arm on affected side

History

- Age
- Location
- Duration
- Severity (1-10)
- Past medical history
- Medications
- Drug allergies

Signs and Symptoms:

- Severity
- Quality
- Radiation
- Relation to movement
- Increased with palpation

Differential:

- Per the specific protocol
- Musculoskeletal
- Visceral (abdominal)
- Cardiac
- Pleural/respiratory
- Neurogenic
- Renal

General

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Med Control

Pediatric Universal Care

Care based on complaint specific protocol

Cardiac Monitor, ETCO2 and SPO2 Monitoring
for all Patients when using NarcoticsPain severity > 6/10
OR
Indication for IV, IM pain medication?**Pediatric IV**
Pulse Oximetry

Isolated extremity traumatic pain

Yes

No

Contact OLMC

Morphine 0.1 mg/kg IV, IM

May repeat in 10 minutes x 1

or

Fentanyl (Sublimaze) 0.5 - 1 mcg/kg IV, IN

or

Ketamine (Ketalar) 0.2 mg/kg IVP, IN, IM**Pearls**

- Max dose Morphine = 2 mg/dose
- Pain severity is a vital sign and must be recorded pre and post IV/IM pain medications
- Vitals should be obtained pre, post, and at disposition with all pain medications
- Contraindications to Morphine = hypotension, altered mental status, head injury, respiratory distress, severe COPD
- Document drug allergies
- Observe for drug reaction

History

- Due date and gestational age
- Multiple gestation (twins, etc)
- Meconium
- Delivery difficulties
- Congenital disease
- Maternal medications
- Maternal risk factors
 - Smoking
 - Substance abuse

Signs and Symptoms:

- Respiratory distress
- Peripheral cyanosis or mottling (normal)
- Central cyanosis (abnormal)
- Altered level of responsiveness
- Bradycardia

Differential:

- Airway failure
 - Secretions
 - Respiratory drive
- Infection
- Maternal med effect
- Hypovolemia
- Hypoglycemia
- Congenital heart disease
- Hypothermia

General

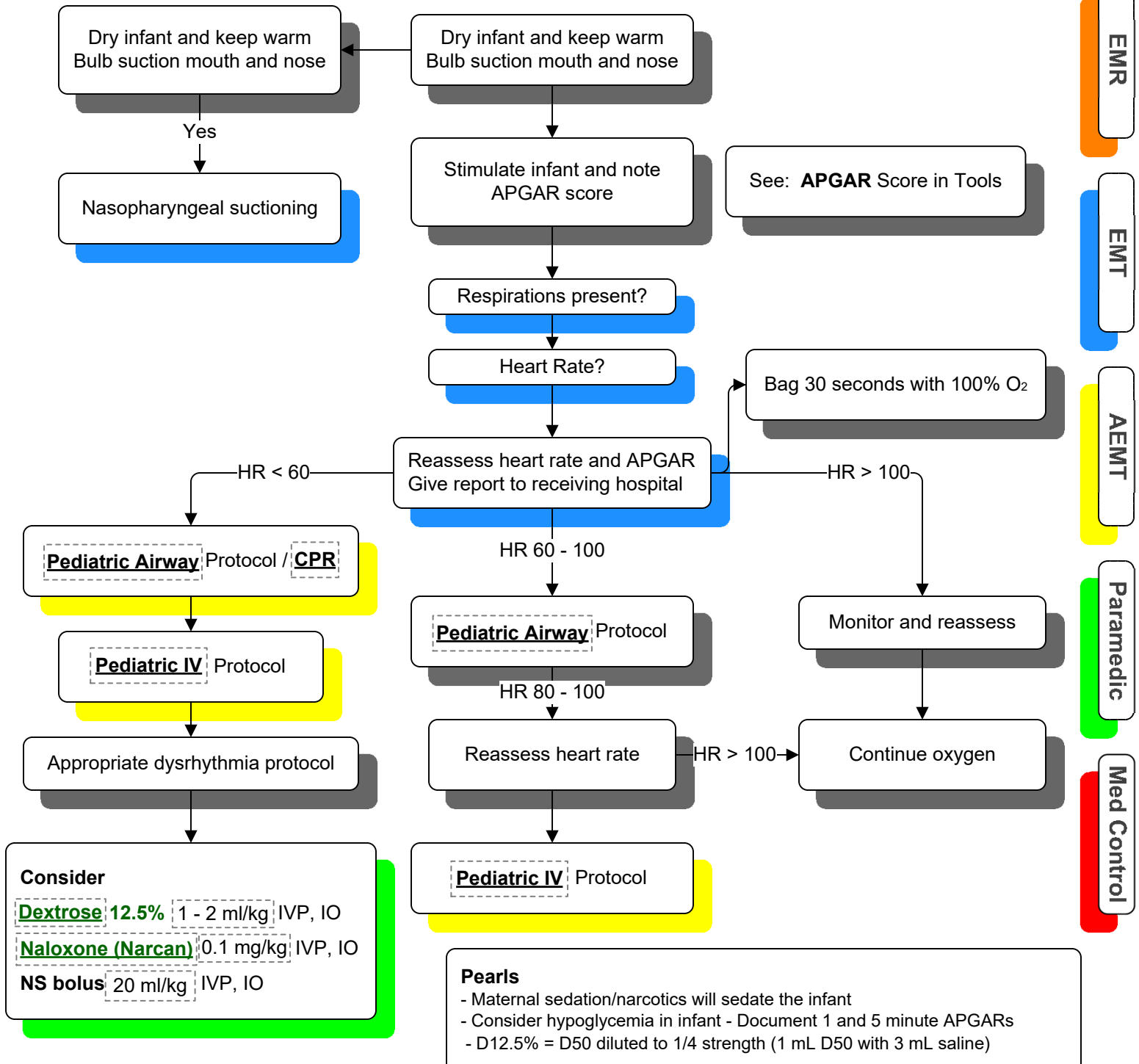
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History

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

Signs and Symptoms:

- Decreased mental status
- Change in baseline mental status
- Bizarre behavior
- Hypoglycemia (cool, diaphoretic skin)
- Hyperglycemia (warm, dry skin, fruity breath)
- Kussmaul respiration, dehydration

Differential:

- Head trauma
- CNS (CVA, tumor, seizure, infection)
- Infection
- Thyroid
- Shock (septic, metabolic, traumatic)
- Diabetes (hyper/hypoglycemia)
- Toxicologic
- Acidosis/Alkalosis
- Environmental exposure
- Pulmonary
- Electrolyte abnormality
- Psychiatric

Pediatric Universal Care**Spinal Motion Restriction** Protocol**Pediatric IV****Blood Glucose**

Glucose < 60 mg/dl

Glucose > 250 mg/dl
dehydration

Glucose 60 – 250 mg/dl

Dextrose 25%

1 - 2 ml/kg IV

If no IV access

Glucagon 0.025 mg/kg IM**Naloxone (Narcan)**

0.1 mg/kg IV, IN, IM

If respiratory depression

EMT may administer IN only**Normal Saline Bolus**

10 ml/kg

Return to baseline?

Yes

If yes, patient may refuse transport without OLMC order. IF:

- Adult present with patient
- Blood glucose > 100
- Patient able to eat meal now
- No history of oral hypoglycemic med use

Consider other causes:

- Head injury OD
- CVA Hypoxia
- ALTE (apparent life-threatening event)

Consider :

- Dextrose 25%** 1 - 2 ml/kg
- Naloxone (Narcan)** 0.1 mg/kg IV, IM, IN, ET
- Glucagon** 0.025 mg/kg IM

If signs of shock
Normal saline bolus

20 ml/kg IV

General

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Pearls**Exam:** Mental status, HEENT, skin, heart, lungs, abdomen, back, extremities, neuro

- Be aware of AMS as sign of environmental toxin or Haz-Mat exposure
- Safer to assume hypoglycemia than hyperglycemia if doubt exists
- Low glucose < 60, Normal glucose 60-120, High glucose > 250

History

- Fever
- Previous seizure history
- Reported seizure activity
- History of recent head trauma
- Congenital abnormality

Signs and Symptoms:

- Observed seizure activity
- Altered mental status
- Hot, dry skin or elevated body temperature

Differential:

- Fever
- Infection
- Head trauma
- Medication/toxin
- Hypoxia/respiratory failure
- Hypoglycemia
- Metabolic abnormality/acidosis
- Tumor

General

EMR

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Med Control

Pediatric Universal Care

Pediatric Airway Protocol

Cooling measures

Fever?

No

Pediatric IV

Repeat Seizures or Status

Midazolam (Versed)

0.05 - 0.1 mg/kg IVP

Maximum dose 5 mg/dose

If no IV

Midazolam (Versed)

0.2 mg/kg IM, IN

Maximum dose 5 mg/dose

Blood Glucose < 60 mg/dl

Dextrose 25% 1 - 2 ml/kg IVP or

Glucagon 0.025 mg/kg IM if no IV

Active seizure?

Yes

Evidence of shock or trauma?
go to appropriate protocol

Midazolam (Versed)

0.05 - 0.1 mg/kg IVP

Maximum 5 mg/dose

If No IV

Midazolam (Versed)

0.2 mg/kg IM, IN

Maximum dose 5 mg/dose

Pearls

Max dose of D25 = 25 ml, max dose of glucagon = 1 mg

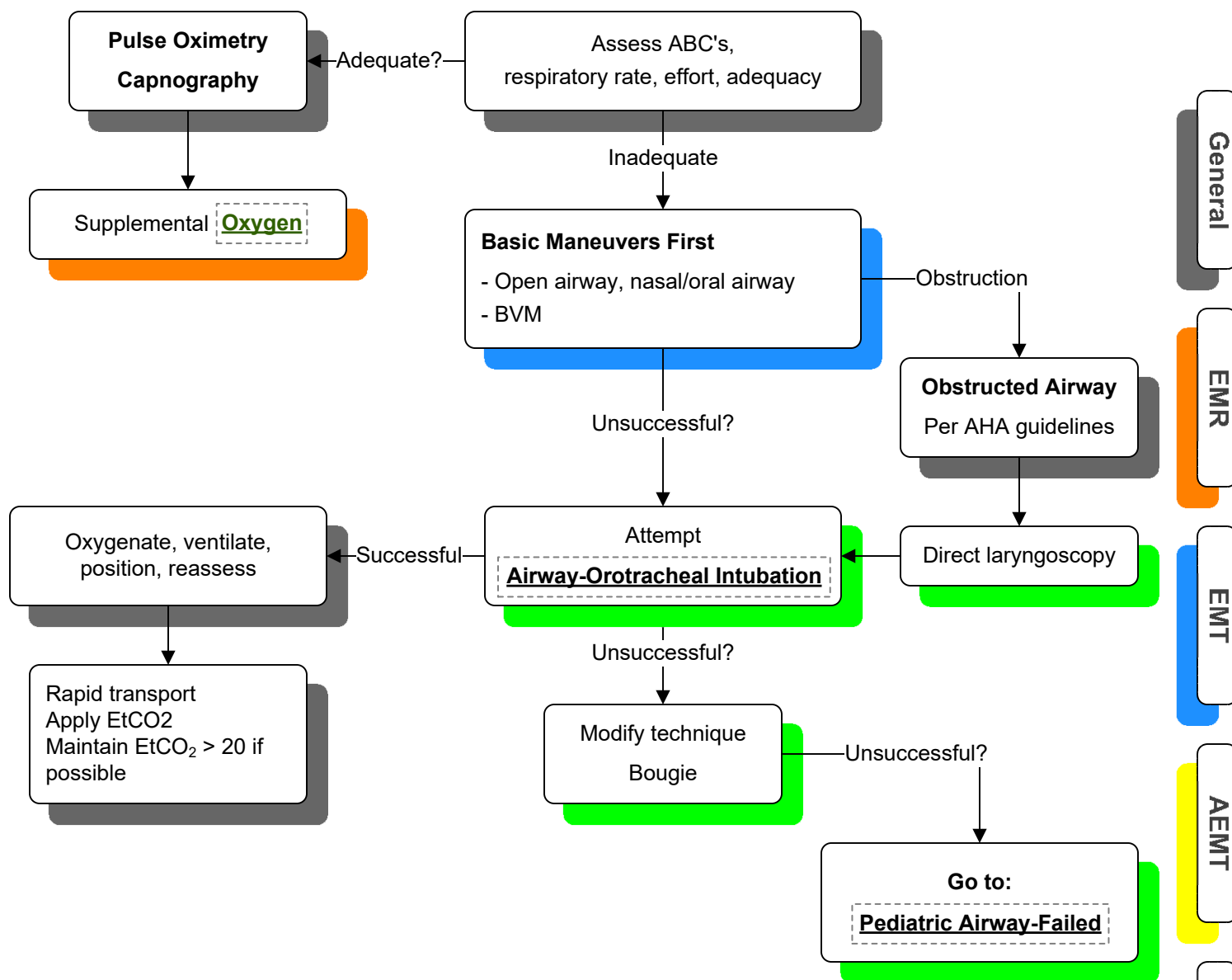
Status Epilepticus - > 2 successive seizures without a period of consciousness or recovery

Grand mal - generalized - LOC, incontinence, tongue trauma

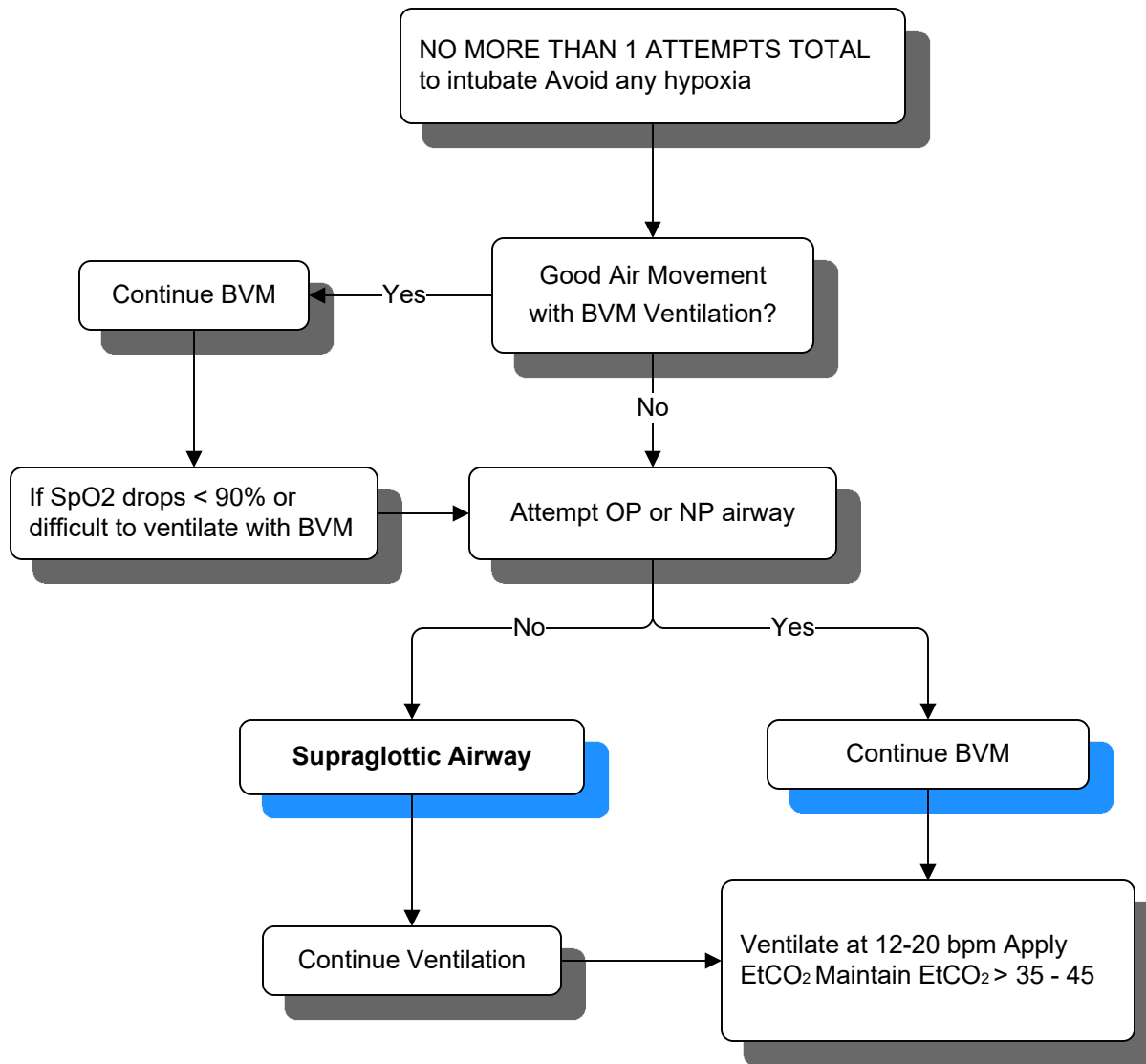
Focal seizures (petit mal) - only a part of the body affected and not associated with LOC

Jacksonian seizures - focal seizures that become generalized

- Be prepared to assist ventilation if Versed is used
- Immobilize the spine if there is suspicion of trauma
- In an infant, a seizure may be the only evidence of a closed head injury

**Pearls**

- For this protocol, pediatric = < 12 years old
- Capnometry is mandatory with all methods of intubation. Document results.
- If adequate oxygenation and ventilation with BVM, acceptable to defer intubation until arrival at hospital
- Nasal cannula EtCO₂ should be utilized to monitor BVM ventilations
- Limit intubation attempts to 1 per patient
- Maintain C-spine immobilization for patients with suspected spine injury
- Use ELM = External laryngeal manipulation
- Use continuous pulse oximetry
- Consider a C-collar to maintain ETT for intubated patients; remove in ER upon transfer



General

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Pearls

If first intubation attempt fails, use BVM ventilations, Avoid any hypoxia

Continuous pulse oximetry should be used in all patients

Notify OLMC as early as possible about difficult/failed airway

History

- Onset/location
- Insect sting or bite
- Food allergy/exposure
- Medication allergy/exposure
- New clothing, soap
- Past history
- Medication history

Signs and Symptoms:

- Itching/hives
- Coughing/wheezing/respiratory distress
- Chest or throat tightening
- Difficulty swallowing
- Hypotension/shock
- Edema

Differential:

- Urticaria
- Anaphylaxis
- Shock
- Angioedema
- Aspiration
- Vasovagal
- Asthma/COPD
- CHF

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Hives/Rash only
No Respiratory component

Pediatric Universal Care

Impending Arrest/Shock

Respiratory Distress
Not in Arrest/Shock

Pediatric IV
Cardiac Monitor

Pediatric IV
Cardiac Monitor

Epinephrine 1:1,000

0.01 mg/kg IM

Maximum 0.3 mg

Epi Pen (see note below)

Diphenhydramine (Benadryl)

1 mg/kg IV, IM

Epinephrine 1:1,000

0.01 mg/kg IM **Maxi. 0.3 mg**

Epi-Pen (see note below)

Diphenhydramine (Benadryl)

1 mg/kg IV, IM

Epi-Pen

Epi-Pen Jr if pt < 60 lbs

Epi-Pen if patient > 60 lbs or

Epi-Pen Jr not available

Reassess

Methylprednisolone (Solu-Medrol) 1 mg/kg IVP, IM

Anaphylaxis **Epinephrine 1:10,000**

0.01 mg/kg to **Max. 0.3 mg PRN**

Epi Pen (see note to the right)

Respiratory Distress

Hypotension

Hypotension

Dysrhythmia?

Arrhythmia Protocol

Pediatric Respiratory Distress

Protocol

Pearls

Exam: Mental status, skin, neck, heart, lung, abdomen, back, extremities, neuro

- Any patient with respiratory symptoms or extensive reaction should receive epinephrine and IV/IM Benadryl

- Shorter the onset = more severe the reaction

History

- Asthma
- COPD
- CHF
- Home treatment (oxygen/nebulizer)
- Meds (theophylline, steroids, inhalers)
- Toxic exposure
- Smoke inhalation

Signs and Symptoms:

- SOB
- Pursed lip breathing
- Decreased ability to speak
- Increased respiratory rate and effort
- Wheezing, rhonchi, rales, stridor
- Accessory muscle use
- Fever, cough, tachycardia

Differential:

- Asthma
- Anaphylaxis
- Aspiration
- COPD
- Pneumonia/pleural effusion
- Pneumothorax
- Cardiac (MI/CHF)
- PE
- Tamponade
- Hyperventilation
- Inhaled toxin

Pediatric Universal Care

Respiratory insufficiency?

Pediatric Airway Protocol

No

Position of comfortWheezes age < 18 months
or 1st wheeze

Wheezes age > 18 months or history

Epinephrine 1:1,000

3 ml Nebulized

Albuterol (Proventil) 2.5 mg nebulized

No response

Albuterol (Proventil) 2.5 mg nebulized
Ipratropium (Atrovent) 500 mcg nebulized
DuoNeb aerosol

Continuous

Albuterol (Proventil) 5 mg nebulized
Pediatric IV Protocol

Methylprednisolone (Solu-Medrol)

1 - 2 mg/kg IVP

Consider **Epinephrine 1:1,000**

0.01 mg/kg SQ or IM for severe cases

Stridor

Consider **Pediatric IV**
 if SpO₂ < 92%

Nebulized Saline 3 ml

No improvement

Epinephrine 1:10,000
 Neb 3 mL mix
 with 2 ml Normal Saline
 and aerosolize

Monitor and transport

Contact **OLMC**

Consider

Epinephrine 1:1,000

0.01 mg/kg SQ, IM

Maximum 0.3 mg

Pearls

- Pulse oximetry should be monitored continuously
- Do not force a child into a position. They protect their airway by body position
- Bronchiolitis is a viral infection typically affecting infants which results in wheezing which may not respond to albuterol
- Croup typically affects children < 2 yrs old. It is viral and may be associated with fever, gradual onset, no drooling
- Epiglottitis typically affects children > 2 yrs old. It is bacterial, with fever, rapid onset, possible stridor, and common drooling
- For patients on **Xopenex**, you may continue a treatment in place of albuterol. Use patient meds and dosing (0.3mg-1.25mg) neb

General

EMR

EMT

AEMT

Paramedic

Med Control

History

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

Signs and Symptoms:

- Mental status changes
- Hypotension/hypertension
- Decreased respiratory rate
- Tachycardia, dysrhythmias
- Seizures

Differential:

- TCA's
- Acetaminophen
- Depressants
- Stimulants
- Anticholinergic
- Cardiac meds
- Solvents, alcohols, cleaning agents
- Insecticides (organophosphates)

Pediatric Universal Care

Pediatric IV

Tricyclic ingestion with cardiac arrhythmia?

Sodium Bicarbonate 1 mEq/kg IVP, IO

Respiratory Depression?

Naloxone (Narcan)

0.1 mg/kg IN

Beta Blocker

Glucagon

0.025 mg/kg IVP

Organophosphates
Carbamates?

Atropine

0.02 mg/kg IVP PRN

Calcium Channel Blocker

Calcium Chloride

20 mg/kg slow IVP

Naloxone (Narcan)

0.1 mg/kg IVP, IN, IM

Other ingestion/toxin with hypotension/seizures/arrhythmia mental status change

Appropriate protocol

Pearls

Exam: Mental status, skin, HEENT, heart, lungs, abdomen, extremities, neuro

Max dose: Narcan 2 mg, glucagon 1 mg, Calcium Chloride 1 g, Sodium Bicarbonate 50 meq, atropine 2 mg/dose (minimum = 0.1 mg)

- Do not rely on patient history of ingestion in suicide attempt
- Bring bottles to ED
- TCA: seizure, dysrhythmias, hypotension, decreased mental status, coma
- Acetaminophen: normal or N/V - causes irreversible liver failure if not detected
- Depressants: decreased HR, decreased BP, decreased temperature, decreased respirations, non-specific pupils
- Stimulants: increased HR, increased BP, increased temperature, dilated pupils, seizures
- Anticholinergic: increased HR, increased temperature, dilated pupils, mental status change
- Cardiac meds: dysrhythmias, mental status changes
- Insecticides: increased/decreased HR, increased secretions, nausea, vomiting, diarrhea, pinpoint pupils
- Consider restraints per restraints procedures
- Mark I kits contain 2 mg Atropine and 600 mg Pralidoxime in autoinjector

General

EMR

EMT

AEMT

Paramedic

Med Control

History

- Type of exposure (heat, gas, chemical)
- Inhalation injury
- Time of injury
- Past medical history
- Medications
- Other trauma
- LOC

Signs and Symptoms:

- Burns, pain, swelling
- Dizziness
- LOC
- Hypotension/shock
- Airway compromise/distress
- Singed facial or nasal hair
- Hoarseness or wheezing

Differential:

- Superficial (1st degree)
- red and painful
- Partial thickness (2nd degree)
- blistering
- Full thickness (3rd degree)
- painless/ charred leathery skin
- Chemical
- Thermal
- Electrical
- Radiation

Pediatric Universal Care

Remove rings, bracelets,
and other constricting items

Thermal

Chemical

If burn < 10% BSA (rule of 9's)
Cool down wound with normal saline

Cover with dry sterile sheet or
dressings

Pediatric IV Protocol**Pediatric Pain Control** Protocol**Morphine** 0.1 mg/kg IVP**Maximum dose = 2 mg/dose**

or

Fentanyl (Sublimaze)

0.5 - 1 mcg/kg IVP, IN, IO

Consider transport by air
ambulance for burns >10%
Nearest ED if airway involved.

Remove clothing or expose area.
Brush off any visible dry chemical
or powder

Eye involvement

Saline flush in affected eye

See **Eye Injury/Complaint**

Flush area with water or normal
saline For 10 - 15 minutes

Pearls**Exam:** Mental status, HEENT, Neck, Heart, Lungs, Abdomen, Extremities, Back, Neuro

Critical Burns: > 20% BSA age > 10; > 10% BSA age < 10; 3rd Degree burns > 10% BSA; 2nd or 3rd degree burns to face, eyes, hands or feet; electrical burns, respiratory burns, deep chemical burns, burns with extremes of age or chronic disease; burns associated with major traumatic injury. These burns require admission or transfer to a burn center

- Early intubation required in significant inhalation injuries
- Treat potential CO exposure with 100% Oxygen
- Circumferential burns to extremities are dangerous due to potential vascular compromise due to soft tissue swelling
- Burn patients are prone to hypothermia
- Do not overlook possibility of multi-system trauma
- Do not overlook possibility of child abuse.

General

EMR

EMT

AEMT

Paramedic

Med Control

History

- Type of injury
- Mechanism: crush/penetrating/amputation
- Time of injury
- Open vs. Closed wound/fracture
- Wound contamination
- Medical history
- Medications

Signs and Symptoms:

- Pain
- Swelling
- Deformity
- Altered sensation/motor function
- Diminished pulse/cap refill
- Decreased extremity temperature

Differential:

- Abrasion
- Confusion
- Laceration
- Sprain
- Dislocation
- Fracture
- Amputations

General

EMR

EMT

AEMT

Paramedic

Med Control

Pediatric Universal Care

Isolated extremity injury?

No

Pediatric Multiple Trauma

Protocol

Yes

Immobilize extremity as indicated
Apply ice to reduce swelling

Wound Care / Hemorrhage Control

Limb or life threatening event?
Pain medication needed?

Pediatric IV Protocol**Pediatric Pain Control** Protocol**Amputation?****Clean amputated part**

Wrap part in sterile dressing soaked
with normal saline. Place in air tight
container. Place container on ice if available.

Pearls**Exam:** Mental status, extremity, neuro

- In amputations, time is critical. Consider transport to pediatric trauma center.
- Hip dislocation and knee and elbow fracture/dislocations have a high incidence of vascular compromise
- Urgently transport any injury with vascular compromise
- Blood loss may be concealed or not apparent with extremity injuries
- Severe bleeding not rapidly controlled may necessitate application of a tourniquet
- Lacerations must be evaluated for repair within 6 hours from the time of injury

History

- Time of injury
- Mechanism: blunt/penetrating
- LOC
- Bleeding
- Medical history
- Medication
- Evidence of multi-trauma
- Helmet use/damage to helmet

Signs and Symptoms:

- Pain
- Swelling
- Bleeding
- Altered mental status
- Unconsciousness
- Respiratory distress/failure
- Vomiting
- Significant MOI

Differential:

- Skull fracture
- Brain injury (concussion, contusion, hemorrhage, laceration)
- Epidural hematoma
- Subdural hematoma
- Subarachnoid hemorrhage
- Spinal injury
- Abuse

General

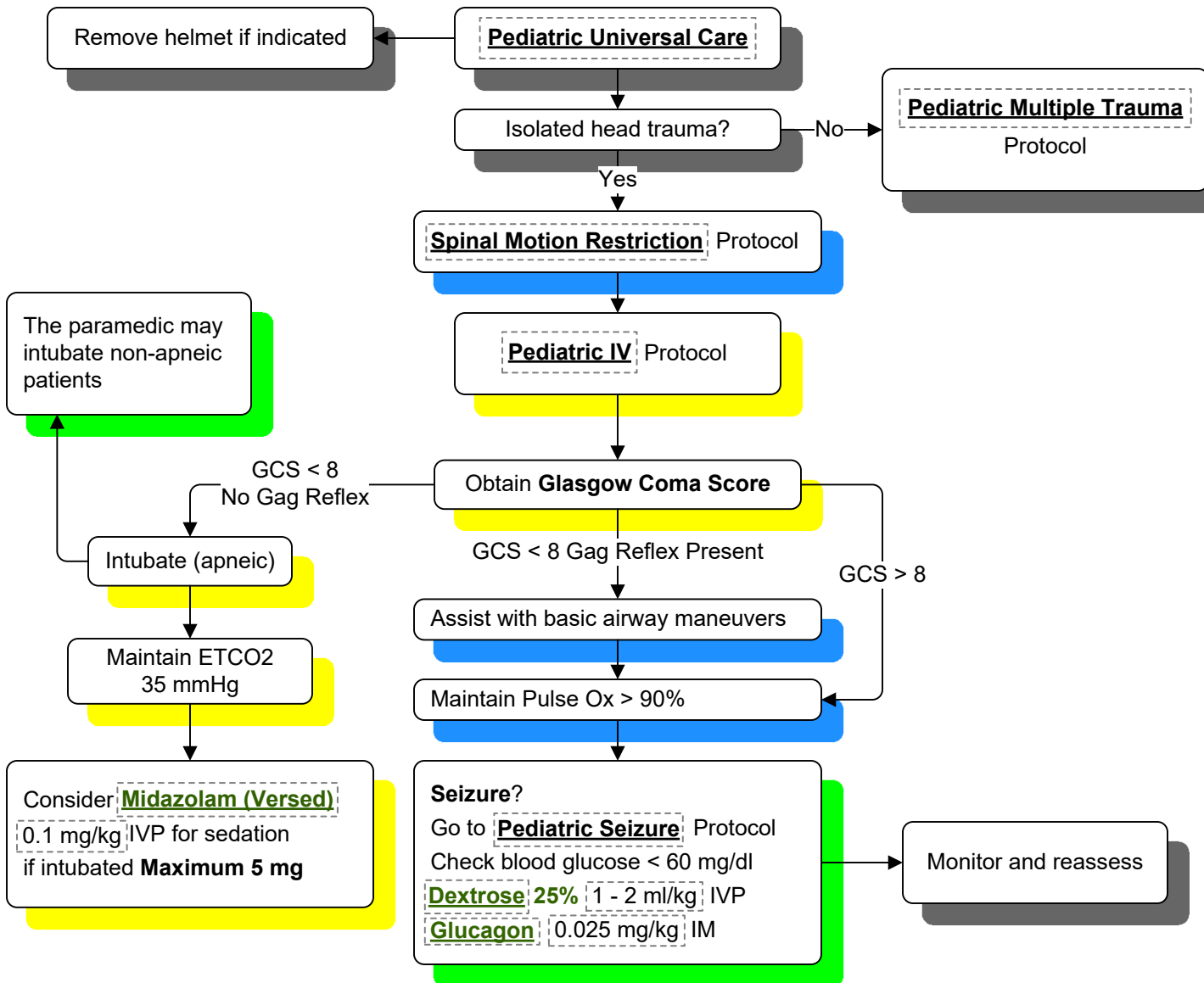
EMR

EMT

AEMT

Paramedic

Med Control

**Pearls**

Exam: Mental status, skin, HEENT, heart, lungs, abdomen, extremities, back, neuro

- Consider air transport for GCS < 12; anticipate intubation for GCS < 8

Cushing's Response: Elevated ICP causing hypertension and bradycardia

- Hypotension usually indicates injury or shock unrelated to head injury and should be aggressively treated

- Monitor and document changes in LOC and GCS

- Consider restraints if necessary for safety of patient and/or personnel protection. Do not use Haldol

- Concussions are periods of confusion or LOC associated with trauma and may be resolved upon arrival of EMS

- Any prolonged period of confusion or mental status abnormality that does not return to normal within 15 minutes should be evaluated by a physician

History

- Time and MOI
- Damage to structure/vehicle
- Location in structure/vehicle
- Others injured/dead
- Speed and details of MVC
- Restraints/protective equipment
 - Car seat
 - Helmet
 - Pads
- Ejection
- Past medical history
- Medications

Signs and Symptoms:

- Pain
- Swelling
- Altered mental status
- Unconscious
- Deformity
- Bleeding
- Hypotension/shock
- Arrest

Pediatric Universal Care**Differential:**

- Chest
 - Tension pneumothorax
 - Flail chest
 - Pericardial tamponade
 - Open chest wound
 - Hemothorax
- Intra-abdominal bleeding
- Pelvis/femur fracture
- Spine fracture/cord injury
- Head injury
- Extremity fracture/dislocation
- Airway obstruction
- Hypothermia

General

EMR

EMT

AEMT

Paramedic

Med Control

Rapid trauma assessment and GCS

Consider air ambulance per air transport protocol Minimize on-scene time

Spinal Motion Restriction Protocol**Pediatric IV**

Vital signs and perfusion?

Abnormal

Normal

Normal Saline bolus to maintain SBP > 90

Continued hypotension
Continue fluid bolus
Consider:
 Reduction of long bone fracture
 Reduction of pelvic fracture
 Control of external hemorrhage

Consider

Needle Chest Decompression

Ongoing assessment

Transport

Consider

Pediatric Pain Control Protocol**Pearls****Exam:** Mental status, HEENT, heart, lungs, abdomen, extremities, back, neuro

- Mechanism is the most reliable indicator of serious injury. Examine all restraints/protective equipment for damage
- In prolonged extrications/serious trauma, consider air transport
- Severe bleeding from an extremity not rapidly controlled may necessitate the application of a tourniquet
- Do not overlook the possibility of child abuse

Action: Antiarrhythmic

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

Indications

Supraventricular Tachycardia

Pediatric Supraventricular Tachycardia

Adult Dose

6 mg rapid IVP with 10 ml NS flush

Repeat at 12 mg rapid IVP with 10 ml NS flush, if no effect with 6 mg

Pediatric Dose

0.1 mg/kg IVP

0.2 mg/kg IVP and

0.3 mg/kg IVP

Flush each with 5 ml NS

Contra-indications

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

Adverse Reactions

Cardiovascular: Facial flushing, Headache, Sweating, Palpitations, Chest Pain, Hypotension

Respiratory: Shortness of Breath, Chest Pressure, Hyperventilation, Head Pressure

Central Nervous System: Lightheadedness, Dizziness, Tingling in Arms, Numbness, Apprehension, Blurred Vision, Burning Sensation, Heaviness in Arms, Neck, and Back

Gastrointestinal: Nausea, Metallic Taste, Tightness in Throat, Pressure in Groin.

Precautions

May be rarely associated with ventricular fibrillation. The effects of adenosine are antagonized by methylxanthines such as caffeine and theophylline. In their presence, larger doses may be required or adenosine may not be effective. At the time of conversion to a sinus rhythm, a variety of new rhythms may occur. Generally these last a short period and are normally corrected on their own with no intervention.

Contraindications

Indications

Adult Dose

Adverse Reactions

Precautions

Pediatric Dose

Medical Considerations

Adult dose:
Flush with 20 ml NS after each dose
Pediatric dose: Flush with 5 ml NS after each dose
IV at antecubital site preferred

Action: Bronchodilator

Advanced EMT can Administer Medication

Onset: improvement within 5 min.
Peak effect 2 hours**Indications****Respiratory Distress****Pediatric Respiratory Distress****Adult Dose**

2.5 mg in 3 ml Normal Saline, via nebulized

Pediatric Dose

2.5 mg in 3 ml Normal Saline, via nebulized

**Contra-
indications**

Hypersensitivity, Use caution in patient's with tachydysrhythmias and cardiovascular disorders

Adverse Reactions**Cardiovascular:** Tachycardia, Hypertension**Central Nervous System:** Tremors, Dizziness, Nervousness, Headache, Insomnia**Ear, Nose, and Throat:** Pharyngitis, Nasal Congestion**Gastrointestinal:** Nausea, Dyspepsia**Respiratory:** Bronchospasm, Cough, Bronchitis, Wheezing**Precautions**

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.

Contraindications**Indications****Adult Dose****Adverse Reactions****Precautions****Pediatric Dose****Medical
Considerations**Use of mouth
piece is most
effective route if
patient is
cooperative

Action: Antiarrhythmic**Onset:** Immediate**Indications**

Ventricular Tachycardia/Wide Complex w/Pulse V-Fib/Pulseless V-Tach
Pediatric Pulseless Arrest Quick Drug Infusion Reference

Adult Dose

V-Tach w/Pulse: 150 mg infusion over 10 minutes
V-Fib / Pulseless V-Tach: 300 mg Rapid IVP, IO
 After 3 - 5 minutes, additional 150 mg IVP, IO

Pediatric Dose

5 mg/kg IVP, IO Maximum 300 mg

Contra-indications**Adverse Reactions**

Body as a Whole: Fever
Cardiovascular: Hypotension, Asystole/Cardiac Arrest/EMD, Cardiogenic Shock, CHF, Bradycardia, Ventricular Tachycardia, A-V Block
Digestive System: Nausea

Precautions

Like all antiarrhythmic agents, may cause a worsening of existing arrhythmias or precipitate a new arrhythmia. 2% of patients were reported to have respiratory distress syndrome (ARDS). May produce vasodilation and hypotension. **Do not use with irregular Tachyarrhythmias or Torsades.**

Contraindications**Indications****Adult Dose****Adverse Reactions****Precautions****Pediatric Dose****Medical Considerations**

Use large needle when drawing drug into syringe, and draw slowly. This will help prevent foaming.

Action: Blood modifier
Platelet aggregation

EMT can Administer Medication.

Onset: Peak effect: 15 minutes
to 2 hours

Indications

Chest Pain

Adult Dose

325 mg PO

Pediatric
Dose



Contra-
indications

Ulcers, GI disorders, other bleeding disorders, allergy / hypersensitivity, Renal failure

Adverse
Reactions

GI bleeding, nausea, vomiting, bronchospasm

Precautions

Use cautiously in patients with asthma, pregnancy. A one time dose is safe if patient is on coumadin.

Contraindications

Indications

Adult Dose

Adverse Reactions

Precautions

Pediatric Dose

Medical
Considerations

None

Action: Anticholinergic
Increases heart rate

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

Indications

Bradycardia **Overdose/Toxic Ingestion**
Pediatric Bradycardia **Pediatric Overdose/Toxic Exposure**
Medication Assisted Intubation (MAI)

Adult Dose

Bradycardia: 0.5 - 1 mg IVP, IO up to **3 mg Maximum**
Overdose/Toxic Ingestion: 2 mg IVP every 5 minutes No Maximum dose
Medication Assisted Intubation: 0.5 mg IVP (if exhibiting bradycardia)

Pediatric Dose

Pediatric Bradycardia: 0.02 mg/kg IVP, IO
Minimum dose 0.1 mg, **Maximum single dose 1 mg**
Pediatric Overdose/Toxic Exposure: 0.02 mg/kg IVP PRN
Medication Assisted Intubation (< 3 year old): 0.01 mg/kg IVP **Maximum 0.5 mg**

Contra-Indications

Hypersensitivity, Glaucoma

Adverse Reactions

Cardiovascular: Palpitations, bradycardia (following low doses of atropine) Tachycardia (after higher doses)
CNS: Headache, Flushing, Nervousness, drowsiness, weakness, dizziness, fever, Elderly may exhibit mental confusion or excitement to even small doses, larger doses, Restlessness, Tremor
Gastrointestinal: Nausea, Vomiting, Heartburn

Precautions

May produce drowsiness, dizziness or blurred vision. Use cautiously in patients with asthma or allergies. Use caution in Coronary artery disease, CHF, Cardiac arrhythmias, Tachycardia, Hypertension, Infants, small children, Debilitated patients with chronic lung disease

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

Action: Hyperkalemia,
Calcium channel blocker

Onset: Immediate

Indications

Pulseless Electrical Activity (PEA)

Pediatric Overdose/Toxic Exposure

Adult Dose

1 gram (Hyperkalemic Arrest)

Pediatric Dose

20 mg/kg Slow IVP **Maximum 1 gram**

**Contra-
indications**

Patients with the risk of existing digitalis toxicity

**Adverse
Reactions**

Rapid injection may cause tingling sensations, a calcium taste, or heat wave. Peripheral vasodilatation, local burning, or moderate fall in BP. If infiltration occurs, IV administration at the site should be discontinued at once.

Precautions

Injections should be made slowly through a small needle into a large vein to minimize venous irritation and avoid undesirable reactions.

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

Medical Considerations

Irritating to veins and must not be injected into tissue, severe necrosis and sloughing may occur.

Action: Natural sugar**Dextrose 50%, 25% & 12.5%**

Advanced EMT can Administer Medication

Onset: 1 - 2 minutes**Indications**

Pulseless Electrical Activity (PEA) Altered Mental Status Seizure
Suspected Stroke Syncope
Pediatric Bradycardia Pediatric Pulseless Arrest
Pediatric Hypotension/Shock Non-Trauma Pediatric Newly Born
Pediatric Altered Mental Status Pediatric Seizure Pediatric Head Trauma

Adult Dose

Dextrose 50%: 25 g (50 ml) IVP, IO
Altered Mental Status, Seizure, Syncope dose: 12.5 g (25 ml)

Pediatric Dose

(Infant/Child) Dextrose 25%: 1 - 2 ml/kg IVP, IO Maximum 25 ml
Newly Born Dextrose 12.5%: 1 - 2 ml/kg IVP, IO

**Contra-
indications**

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

**Adverse
Reactions**

Febrile response, Infection at injection site, Tissue necrosis, Venous thrombosis or phlebitis, Extravasation, Hypovolemia, Dehydration, Mental Confusion or unconsciousness. May produce allergic reactions in corn-sensitive persons. Use the largest available peripheral vein. Rapid infusion may cause a generalized flush.

Precautions

Inject slowly so that extravasation does not occur. If thrombosis occurs, injection should be stopped.

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.

Action: Calcium channel blocker.
Decreases heart rate, Slows the ventricular rate in patients with rapid response during atrial fibrillation or atrial flutter.

Onset: Peak effect 2 - 3 hours.

Indications

Atrial Fibrillation **Supraventricular Tachycardia**

Adult Dose

Atrial Fib: 0.25 mg/kg IV over 5 – 10 minutes **Maximum 20 mg**
0.35 mg/kg IV over 5 – 10 minutes **Maximum 20 mg**
SVT: 0.25 mg/kg IV over 5 – 10 minutes **Maximum 20 mg**

Pediatric Dose



Contra-Indications

Hypersensitivity, Patients with sick sinus syndrome, 2nd or 3rd degree blocks, except with functioning ventricular pacemaker.
Severe hypotension or cardiogenic shock. WPW, or short PR syndrome. Patient's with wide complex tachycardia, Acute MI, CHF

Adverse Reactions

Hypotension, Itching, or burning at injection site, Vasodilation (flushing), Asystole, A-V Block, Chest Pain, CHF, Syncope, V-Fib., V-Tach., Ectopy, Dizziness, Headache, Nausea, Vomiting, Edema

Precautions

Use with caution in patients with a BP <110; consider ½ dose in these situations. If blood pressure remains adequate greater than 110 and heart rate remains >110, you may administer the other half of the initial loading bolus in 5 minutes.

Contraindications

Indications

Adult Dose

Adverse Reactions

Precautions

Pediatric Dose

Medical Considerations

Do not mix with other drugs. Flush tubing after use.

Following injection, response usually occurs within 3 minutes, rarely converting atrial fibrillation or atrial flutter to NSR, but decreases heart rate; lasting 1 to 3 hours.

Diphenhydramine (Benadryl)

Action: Antihistamine

Advanced EMT can Administer Medication

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

Indications

Allergic Reaction

Pediatric Allergic Reaction

Adult Dose

25 - 50 mg IVP, IM

Pediatric Dose

1 mg/kg IVP, IM **Maximum 25 mg**

Contra-indications

Hypersensitivity, Newborns, Lactating females

Adverse Reactions

Cardiovascular: Hypotension, Headache, Palpitations, Tachycardia, extrasystoles
CNS: Sedation, Sleepiness, Dizziness, Fatigue, Confusion, Restlessness, Excitation, Nervousness, Tremor, Irritability, Blurred Vision, Vertigo, Tinnitus, Convulsions
Gastrointestinal: Nausea, Vomiting, Diarrhea
Respiratory: Thickening of Bronchial Secretions, Tightness of Chest and Wheezing, Nasal Stuffiness

Precautions

Has Atropine-like action and should be used with caution in patients with a history of bronchial asthma, increased intraocular pressure, cardiovascular disease or hypertension. Use caution in patients with lower respiratory disease, including asthma. Also pregnant patients. Use caution in elderly patient, may cause dizziness, extreme calm and hypotension.

Contraindications

Indications

Adult Dose

Adverse Reactions

Precautions

Pediatric Dose

Medical Considerations

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

Dopamine (Intropin)

Action: Increases heart rate & cardiac contractility

Onset: < 5 minutes

Indications

Bradycardia Hypotension/Shock Non-Trauma Post Resuscitation
Fever/Suspected Sepsis

Adult Dose

Bradycardia: 2 - 20 mcg/kg/min

Hypotension/Shock, Post Resuscitation, Fever/Sepsis: 5 – 10 mcg/kg/min

Pediatric Dose



Contra-indications

Tachyarrhythmias, 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

Adult Dose

Adverse Reactions

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.

Action: Bronchodilator, sympathomimetic/anticholinergic agent

Advanced EMT can
Administer Medication

Onset: improvement within 5 min.
Peak effect 2 hours

Indications

Respiratory Distress

Pediatric Respiratory Distress

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
Urogenital: 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

Pedi 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.

Epinephrine 1:1,000

Action: Sympathomimetic & Cardiac stimulant

EMR can Administer by autoinjector

Advanced EMT can Administer Medication (SQ or IM only)

Onset: 5 - 10 minutes SQ

Indications

Allergic Reaction **Respiratory Distress**
Pediatric Bradycardia **Pediatric Pulseless Arrest** **Pediatric Allergic Reaction**
Pediatric Respiratory Distress

Adult Dose

Allergic Reaction: 0.3 mg IM
Respiratory Distress: 0.3 mg SQ, IM

Pediatric Dose

Bradycardia, Pulseless Arrest: 0.1 mg/kg ET may repeat every 3 – 5 minutes
Maximum 1 mg
Allergic Reaction, Respiratory Distress: 0.01 mg/kg IM **Maximum 0.3 mg**
Respiratory Distress: 0.01 mg/kg SQ, IM **Maximum 0.3 mg Nebulized 0.3 ml**

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.

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.

Action: Sympathomimetic & Cardiac stimulant

Onset: < 5 minutes

Indications

Asystole **Pulseless Electrical Activity (PEA)** **V-Fib/Pulseless V-Tach**
Allergic Reaction **Respiratory Distress**
Pediatric Bradycardia **Pediatric Pulseless Arrest** **Pediatric Allergic Reaction**
Pediatric Respiratory Distress

Adult Dose

Asystole, PEA, V-Fib/Pulseless V-Tach: 1 mg IVP, IO every 3 - 5 minutes
Bradycardia: 0.2 – 0.3 mg IVP, IO
Allergic Reaction 0.3 mg IVP
Respiratory Distress: 0.3 mg/ 3 ml NS Nebulized for severe cases 0.3 mg IVP

Pediatric Dose

Bradycardia, Pulseless Arrest:
 0.01 mg/kg IVP, IO Repeat every 3 - 5 minutes **Maximum 1 mg (10 ml)**
Allergic Reaction: 0.01 mg/kg IVP PRN **Maximum 0.3 mg (3 ml)**

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.

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

Adult Dose

Adverse Reactions

Precautions

Pediatric Dose

Medical Considerations

None

Action: Hypnotic, Sedative**Onset:** 1 minute
Duration: 5 - 7 minutes**Indications****Adult Dose**

0.3 mg/kg IVP, IO SLOWLY (over 30 - 60 seconds)

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 Myoclonus should be anticipated, but will not interfere with intubation efforts

Contraindications**Indications****Adult Dose****Adverse Reactions****Precautions****Pediatric Dose****Medical Considerations**

None

Fentanyl (Sublimaze)

Action: Narcotic analgesic

Advanced EMT can Administer Medication
(Pain control only)

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

Indications

Chest Pain **Pain Control** **Head Trauma**
Pediatric Pain Control
Medication Assisted Intubation (MAI)

Adult Dose

Pain: 50 – 100 mcg IVP, IN, IM
Head Trauma: 1 - 3 mcg/kg IVP **Maximum** 3 mcg/kg
MAI: 0.5 - 1 mcg/kg IVP **Maximum** 3 mcg/kg

Pediatric Dose

Pain: 0.5 - 1 mcg/kg IVP, IN

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 debilitated patients. Also, patients with elevated BP with or without pre-existing hypertension. Fentanyl in high doses can result in "stiff chest" with inability to ventilate patient. Stiff chest is treated with IV succinylcholine and intubation.

Contraindications

Indications

Adult Dose

Adverse Reactions

Precautions

Pediatric Dose

Medical Considerations

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

Action: Anti-hypoglycemic

Advanced EMT can Administer Medication

Onset: Patient should respond within 15 minutes

Indications

Pulseless Electrical Activity (PEA) **Altered Mental Status** **Seizure**
Suspected Stroke **Syncope**
Pediatric Bradycardia **Pediatric Hypotension/Shock Non-Trauma**
Pediatric Altered Mental Status **Pediatric Seizure**
Pediatric Overdose/Toxic Exposure **Pediatric Head Trauma**

Adult Dose

1 mg IM, IN

Pediatric Dose

0.025 mg/kg IM Maximum 1 mg

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

Adult Dose

Adverse Reactions

Precautions

Pediatric Dose

Medical Considerations

Do not mix with saline

Haloperidol (Haldol)

Action: Blocks CNS dopamine receptors

Onset: 20 – 30 minutes IM

Indications**Adult Dose**

5 – 10 mg IM

Pediatric Dose**Contra-indications**

Hypersensitivity to the drug, Seizures, Hemodynamic instability

Adverse Reactions

CNS: Extrapyramidal reactions, restlessness, anxiety, agitation, lethargy, fatigue, weakness, tremor, headache, confusion, vertigo, grand mal seizures
Cardiovascular: Tachycardia, ECG changes, hypotension
GI: Dry mouth, nausea & vomiting, diarrhea
Other: Blurred vision

Precautions

Patient with arrhythmia or seizures

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

Medical Considerations

None

Action: Bronchodilator

Advanced EMT can Administer Medication

Onset: Peak effect: 1.5 - 2 hours**Indications****Respiratory Distress****Pediatric Respiratory Distress****Adult Dose**

0.5 mg (500 mcg) nebulized

Pediatric Dose

0.5 mg (500 mcg) nebulized

**Contra-
indications**

Allergy to soy or peanut products, Glaucoma,
Suspected hypersensitivity to Ipratropium Bromide or to Atropine and/or its derivatives,
Caution in OB patients

**Adverse
Reactions**

Dry mouth, Headache, Cough, Nausea, Vomiting, Dizziness, Nervousness,
Palpitations, Glaucoma patients may experience pain or blurred vision if contact with
eyes

Precautions

May cause bronchoconstriction to worsen. This is thought to be related to the
hypotonicity of the solution or to additives, such as benzalkonium chloride. It is for this
reason that beta-adrenergic agonists should be given first or in combination with
ipratropium bromide. Use caution in patients with narrow angle glaucoma, prostatic

Contraindications**Indications****Adult Dose****Adverse Reactions****Precautions****Pediatric Dose****Medical
Considerations**

None

Ketamine (Ketalar)

Action: Non-barbiturate anesthetic

Advanced EMT can Administer Medication

Onset: IV 30 seconds – 2 minutes
IM 3 – 4 minutes

Indications

Atrial Fibrillation **Bradycardia** **Ventricular Tachycardia/Wide Complex w/Pulse**
Pain Control **Behavioral/Agitated Delirium** **Pulmonary Edema**
Pediatric Pain Control **Medication Assisted Intubation (MAI)**

Adult Dose

Atrial Fibrillation 0.2 mg/kg IVP, IN, IM
Behavioral/Agitated Delirium: 4 mg/kg IM or IN
Medication Assisted Intubation (MAI): 1 - 1.5 mg/kg IVP, IN, IM

Pediatric Dose

Medication Assisted Intubation: 1 - 1.5 mg/kg IVP

Contraindications

Not for use in patients with head injury or other neurogenic cause for intubation (increases intracranial pressure).
Those whom a significant elevation of blood pressure would constitute a serious hazard and in those who have shown hypersensitivity to the drug.

Adverse Reactions

Cardiovascular: BP and pulse rate are frequently elevated following administration. Hypotension and bradycardia have been observed. Arrhythmia has also occurred
Gastrointestinal: Nausea / vomiting; increased salivation
Neurological: Enhanced skeletal muscle tone may be manifested by tonic and clonic movements sometimes resembling seizures.
Respiratory: Although respiration is frequently stimulated, severe depression of the respiration or apnea may occur following rapid IV administration of high doses. Laryngospasms and other forms of airway obstruction have occurred.

Precautions

Resuscitative equipment should be ready for use. IV dose should be administered over 1 minute. More rapid administration may result in respiratory depression or apnea and enhanced pressor response. Use caution in the chronic alcoholic and the acutely alcohol-intoxicated patient.

Contraindications

Indications

Adverse Reactions

Adult Dose

Precautions

Pediatric Dose

Medical Considerations

Monitor vital signs frequently. Use caution with elderly and pediatric patients and use low end of dosing range.

Action
Antihypertensive

Onset: 30 - 90 seconds

Indications

Hypertension

Adult Dose

20 mg IVP

Pediatric Dose



Contraindications

Bronchial asthma, overt cardiac failure, greater than first degree block, cardiogenic shock, severe bradycardia, other conditions associated with severe and prolonged hypotension, and in patients with a history of hypersensitivity. Beta-blockers, even those with apparent cardioselectivity, should not be used in patients with a history of obstructive airway disease, including asthma.

Adverse Reactions

Cardiovascular: Ventricular arrhythmia
CNS & Peripheral System: Dizziness, tingling of the scalp/skin, hypoesthesia (numbness) and vertigo
Gastrointestinal: Nausea, vomiting, dyspepsia (epigastric discomfort)
Metabolic Disorders: Transient increases in blood urea nitrogen and serum creatinine levels occurred, associated with drops in BP, generally in patients with prior renal insufficiency
Psychiatric: Somnolence/yawning
Respiratory: Wheezing

Precautions

Impaired hepatic function may diminish metabolism of labetalol. Following coronary artery bypass surgery in one uncontrolled study, patients with low cardiac indices and elevated systemic vascular resistance following IV injection experienced significant declines in cardiac output with little change in systemic vascular resistance. High dose labetalol, several patients experienced hypotension and bradycardia.

Contraindications

Indications

Adult Dose

Adverse Reactions

Precautions

Pediatric Dose

Medical
Considerations

None

Lidocaine (Xylocaine)

Action: Anti-arrhythmic

Advanced EMT can Administer Medication

Onset: 30 - 90 seconds

Indications

Vascular Access-Intraosseous

Adult Dose

10 – 20 mg **Maximum 60 mg**

Pediatric Dose



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. DC 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.

Contraindications

Indications

Adult Dose

Adverse Reactions

Precautions

Pediatric Dose

Medical Considerations

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

Magnesium Sulfate

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

Onset: immediate
Lasts about 30 minutes

Indications

V-Fib/Pulseless V-Tach Obstetrical Emergency Respiratory Distress

Adult Dose

V-Fib/Pulseless V-Tach: 2 g IVP
Obstetrical Emergency: 4 g IVP Slow over 10 - 20 minutes
Respiratory Distress: 2 g IVP over 20 minutes

Pediatric Dose



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

Use caution on renal impairment patients because drug is solely removed by the kidneys. Clinical indications of a safe dosage regimen include the presence of the patellar reflex (knee jerk) and absence of respiratory depression. When barbiturates, narcotics, or other hypnotics are given in conjunction with Magnesium, their dosage should be adjusted because of the additive central depressive effects. Use caution in patients receiving digitalis.

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

Contraindications

Indications

Adult Dose

Adverse Reactions

Precautions

Pediatric Dose

Medical Considerations

Not compatible with Sodium Bicarbonate

Action: Anti-inflammatory steroid

Onset: 1 – 2 hours

Indications

Allergic Reaction **Respiratory Distress**
Pediatric Allergic Reaction **Pediatric Respiratory Distress**

Adult Dose

125 mg slow IVP, IM

Pediatric Dose

Allergic Reaction: 1 mg/kg IVP, IM Maximum 125 mg
Respiratory Distress: 1 - 2 mg/kg IVP

Contraindications

There are no contraindications, precautions or side effects associated with a single dose used in emergencies.

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

Adult Dose

Pediatric Dose

Adverse Reactions

Precautions

Medical Considerations

None

Action: Sedative, Amnesic,
Short acting benzodiazepine CNS
depressant

Advanced EMT can Administer Medication

Onset: 2 - 5 minutes

Indications

Atrial Fibrillation **Bradycardia** **Supraventricular Tachycardia**
Ventricular Tachycardia/Wide Complex w/Pulse **Bites and Envenomation's**
Behavioral/Agitated Delirium **Seizure** **Obstetrical Emergency** **Adult Airway**
Pulmonary Edema **Head Trauma**
Pediatric Supraventricular Tachycardia **Pediatric Seizure** **Pediatric Head Trauma**

Adult Dose

Atrial Fibrillation: 2 – 5 mg IVP
Bradycardia: 2 mg IVP, IO
Supraventricular Tachycardia: 2 – 5 mg
Ventricular Tachycardia/Wide Complex w/Pulse: 2.5 – 5 mg IVP, IM, IN
Bites and Envenomation's: 2 – 5 mg IVP Maximum 5 mg
Behavioral/Agitated Delirium: 2 – 5 mg IVP, IM, IN
Seizure: 2 – 5 mg Slow IVP, or 5 mg IM, IN May be repeated x 1
Obstetrical Emergency: 2 – 5 mg Slow IVP
Adult Airway: 2 – 5 mg IVP, IO
Pulmonary Edema: 1 – 2 mg IVP, or 2 mg IN
Head Trauma: 2 – 5 mg IVP

Pediatric Dose

SVT: 0.1 mg/kg IVP, IN **Maximum 2 mg**
Pediatric Seizure: 0.05 - 0.1 mg/kg IVP **Maximum 5 mg** if no IV 0.2 mg/kg IM, IN
Pediatric Heat Trauma: 0.1 mg/kg IVP **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 in pregnancy; refer to Magnesium Sulfate for Eclampsia.

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.

Action: Narcotic (Opiate) agonist

Advanced EMT can Administer Medication

Onset: 2 - 3 minutes

Indications

Pain Control

Pediatric Pain Control **Pediatric Burns**

Adult Dose

Chest Pain: 2 – 4 mg Slow IVP **Maximum 10 mg**

Pain Control: 2 – 5 mg IVP, IM

Pulmonary Edema: 2 mg Slow IVP

Pediatric Dose

Pain Control: 0.1 mg/kg IVP, IM May repeat in 10 minutes x 1

Burns: 0.1 mg/kg IVP Maximum 2 mg/dose

Contra-indications

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

Adverse Reactions

Major hazards are Respiratory Depression and lesser degree circulatory depression. Respiratory Arrest, Shock and Cardiac Arrest have occurred, particularly with overdose or rapid IV administration.

Cardiovascular: Tachycardia, Bradycardia, Palpitation, Faintness, Syncope, and Orthostatic Hypotension

CNS: Euphoria, Dysphasia, Weakness, Headache, Agitation, Tremor, Uncoordinated muscle movements, Hallucinations and Disorientation, visual Disturbances

Allergic: Reactions to Opiates, Urticaria, Anaphylactic Reactions

Other: Face Sweating, Local Tissue Irritation and pain

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

Adult Dose

Adverse Reactions

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.

Action: Narcotic analgesic

Advanced EMT can Administer Medication

Onset: IV 2 – 3 minutes
IM < 15 minutes

Indications

Pain Control

Adult Dose

5 mg IVP, 10 mg IM

Pediatric Dose



Contra-indications

Hypersensitivity, patients physically dependent to opioids and who have not been detoxified

Adverse Reactions

Respiratory: Respiratory Depression, Apnea, Laryngospasm
Cardiovascular: Bradycardia, Hypertension, Hypotension
CNS: Dizziness, blurred vision, headache, sedation
Gastrointestinal: Nausea & Vomiting, dry mouth
Skin: Sweating
Other: Rigidity, Diaphoresis

Precautions

Head trauma, increased ICP, severe renal, hepatic, or pulmonary disease, hypothyroidism, adrenal insufficiency, alcoholism, undiagnosed abdominal pain.

Contraindications

Indications

Adverse Reactions

Adult Dose

Precautions

Pediatric Dose

Medical Considerations

May be reversed with Narcan

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

Advanced EMT can Administer Medication

EMT can administer medication-Intranasal (IN) only

Onset: 2 minutes.

Indications

Pulseless Electrical Activity (PEA) **Altered Mental Status**
Overdose/Toxic Ingestion
Pediatric Bradycardia **Pediatric Pulseless Arrest** **Pediatric Newly Born**
Pediatric Altered Mental Status **Pediatric Overdose/Toxic Exposure**

Adult Dose

PEA: 2 - 4 mg IVP, IO, IN
Altered Mental Status: 2 mg IVP, IN, IM
Overdose/Toxic Ingestion: 0.4 - 2 mg IVP, IN May repeat until breathing normally

Pediatric Dose

Bradycardia: 0.2 mg/kg IVP, IO, IN, IM **Maximum 2 mg**
Pediatric Pulseless Arrest: 0.1 mg/kg IVP, IO, ETT
Newly Born: 0.1 mg/kg IVP, IO
Altered Mental Status: 0.1 mg/kg IVP, IN, IM
Overdose/Toxic Exposure: 0.1 mg/kg IVP, IN, IM

Contra-indications

Known Hypersensitivity

Adverse Reactions

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

Precautions

Nausea, Vomiting, Sweating, Tachycardia, Increased Blood Pressure, Tremulousness, Seizures, and Cardiac Arrest

Contraindications

Indications

Adult Dose

Pediatric Dose

Adverse Reactions

Precautions

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.

Nitroglycerin

Action: Antianginal agent
(coronary vasodilator)

Advanced EMT can Administer Medication (SL only)

EMT can Assist if patient prescribed medication.

Onset: 2 minutes

Indications

Chest Pain **Hypertension** **Pulmonary Edema**

Adult Dose

Chest Pain: 0.4 mg SL every 5 minutes if SBP > 90 mmHg

Hypertension: spray SL every 5 minutes until mean arterial pressure (MAP) is 110 mmHg

Pulmonary Edema: 0.4 mg SL every 2 – 3 minutes if systolic BP > 110 mmHg

Pediatric Dose



Contraindications

Known Hypersensitivity,
Pericardial tamponade, Restrictive Cardiomyopathy, Constrictive pericarditis Do not
administer Nitroglycerin if the following medications were taken, until after hours stated:

Drug	Hours
Cialis	48
Levitra	24
Viagra	24+

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

Adult Dose

Adverse Reactions

Precautions

Pediatric Dose

Medical Considerations

Check for
transdermal patch
prior to initiating
spray/tablet.

Norepinephrine (Levophed)

Pharmacologic Action - Strong beta-1 and alpha-adrenergic effects and moderate beta-2 effects, which increase cardiac output and heart rate, decrease renal perfusion and peripheral vascular resistance, and cause variable BP effects

Class – Alpha/beta adrenergic agonist

Indications

Hypotension/Shock Non-Trauma **Post Resuscitation** **Fever/Suspected Sepsis**

Adult Dose

0.1 – 0.5 mcg/kg/min IV

Pediatric Dose



Contraindications

Hypersensitivity, hypotension due to blood volume deficit, peripheral vascular thrombosis (except for lifesaving procedures)
RELATIVE CONTRAINDICATIONS: concomitant use with some general anesthetics: chloroform, trichloroethylene, cyclopropane, halothane
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WARNING: Norepinephrine is a vesicant and can cause severe tissue damage if extravasation occurs. Do not use in the same IV line as alkaline solutions as these may deactivate it

Adverse Reactions

Cardiovascular: Hypertension, ventricular arrhythmia, bradycardia
Neurological: Headache
Dermal: Necrosis if the drug extravasates

Precautions

Norepinephrine (Levophed) causes tissue necrosis if infused into the interstitial space. Use large veins and verify IV patency prior to administration of **Norepinephrine (Levophed)**. Do not interrupt the infusion of **Norepinephrine (Levophed)** to ensure a consistent therapeutic blood level, establish an additional venous access site for the administration of fluids or additional medications.
Norepinephrine (Levophed) is inactivated by **Sodium Bicarbonate**. Do not administer **Sodium Bicarbonate** in the same IV line with **Norepinephrine (Levophed)**.

Contraindications

Indications

Adverse Reactions

Adult Dose

Precautions

Pediatric Dose

Medical Considerations

Prefer Central line administration but may temporarily give through large bore IV that flushes well. Monitor closely for extravasation.

Action: Nonpyrogenic solution for fluid and electrolyte replacement

Advanced EMT can Administer Medication

Indications

Used throughout protocol

Adult Dose

KVO
Fluid Bolus

Pediatric Dose

KVO
Fluid Bolus

Contra-indications

None known

Adverse Reactions

Reactions which may occur because of the solution or the technique of administration include febrile response, infection at the site of injection, venous thrombosis or phlebitis extending from the site of injection, extravasation, and hypervolemia. If adverse reaction does occur, discontinue infusion.

Precautions

Geriatric use: In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal, or cardiac function, and of concomitant disease or drug therapy. Do not administer unless solution is clear and seal is intact.

Contraindications

Indications

Adult Dose

Adverse Reactions

Precautions

Pediatric Dose

Medical Considerations

None

Action: Antiemetic

Advanced EMT can Administer Medication ODT

Onset: Rapid
Peak effect: 15 – 30 minutes

Indications

Chest Pain **Abdominal Pain** **Vomiting/Diarrhea** **Eye Injury/Complaint**
Pediatric Vomiting/Diarrhea

Adult Dose

Chest Pain: 4 mg IVP, IM, ODT
Abdominal Pain, Vomiting/Diarrhea, Eye Injury/Complaint: 4 mg IVP, IM, ODT

Pediatric Dose

0.2 mg/kg IVP, ODT **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.

Contraindications

Indications

Adult Dose

Adverse Reactions

Precautions

Pediatric Dose

Medical Considerations

Do not use in 1st
 TM pregnancy

Action: Natural sugar**EMT can Administer Medication.****Onset:** 1 - 2 minutes

Indications

Altered Mental Status

Adult Dose

15 grams

Pediatric
DoseContra-
indications

Do not administer to unconscious person or unable to swallow

Adverse
Reactions

Precautions



Contraindications

Adverse Reactions

Precautions

Indications

Adult Dose

Pediatric Dose

Medical
Considerations

None

Action: Medical gas

EMT can Administer Medication.

Indications

Throughout protocol

Adult Dose

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

Pediatric Dose

2 - 6 LPM via nasal cannula
10 - 15 LPM via non-rebreather mask
10 - 15 LPM or greater via 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 hypercarbic drive (Respiratory depression with COPD patients)

Precautions



Contraindications

Indications

Adult Dose

Adverse Reactions

Precautions

Pediatric Dose

Medical Considerations

None

Action:
antiarrhythmic

Onset: Immediate
Peak effect 25 – 60 minutes

Indications

Ventricular Tachycardia/Wide Complex w/Pulse

Adult Dose

20mg/min until conversion, QRS widens by 50%, hypotension
or Maximum dose reached **17 mg/kg IV**

Pediatric Dose



Contraindications

Hypersensitivity, A-V Block, myasthenia gravis, hypersensitivity to tartrazine

Adverse Reactions

CNS: Seizures, confusion, dizziness
Cardiovascular: asystole, heart block,, ventricular arrhythmias, hypotension
Gastrointestinal: Diarrhea, anorexia, bitter taste, nausea, vomiting
Skin: rashes
Miscellaneous: Chills

Precautions

Use cautiously in: MI or cardiac glycoside toxicity; **Geriatric:** CHF, renal or hepatic insufficiency, geriatric patients (dose reduction or increased dosing intervals).

Contraindications

Indications

Adult Dose

Adverse Reactions

Precautions

Pediatric Dose

Medical Considerations

Do not routinely administer amiodarone and procainamide together

Action: Antihistaminic, Sedative, Anti-motion-sickness

Onset: 3 - 5 minutes

Indications

Abdominal Pain

Adult Dose

25 mg IM

Pediatric Dose



Contraindications

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, Altered Mental Status, Asthma, Patient receiving Epinephrine.

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 phlebitis.

Contraindications

Indications

Adult Dose

Adverse Reactions

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.

Action: Bronchodilator**Onset:** Lasts 90 – 120 minutes**Indications****Adult Dose**

0.5 ml of 2.25% in 3 ml saline Nebulized May repeat x 1

Pediatric Dose

0.5 ml of 2.25% in 3 ml saline Nebulized May repeat x 1

Contra-indications

Epiglottitis, Hypersensitivity

Adverse Reactions

In excessive dosage, epinephrine may cause bronchial edema and inflammation, palpitation, precordial ache or anginal pain, tremor, nervousness, restlessness, sleeplessness, dizziness, headache, nausea and sweating.

Precautions

Vital signs should be constantly monitored. Do not use concurrently with other bronchodilators

Contraindications**Indications****Adult Dose****Adverse Reactions****Precautions****Pediatric Dose****Medical Considerations**

Will increase heart rate.

Action

Neuromuscular blocking agent

Onset:

Less than 2 minutes

Half Life: 1 – 2 minutes

Indications**Adult Dose**

RSI: Normotensive: 1.2 mg/kg IVP Hypotensive: 1.6 mg/kg IVP
 Post Intubation: 0.6 - 1.2 mg/kg IVP

Pediatric Dose

RSI: 1.2 mg/kg IVP

Contra-indications

Hypersensitivity

Adverse Reactions

Cardiovascular: arrhythmia, abnormal electrocardiogram, tachycardia
Digestive: nausea, vomiting
Respiratory: asthma (bronchospasm, wheezing, or rhonchi), hiccup
Skin and Appendages: rash, injection site edema, pruritus

Precautions

Severe anaphylaxis has been reported. Consider cross-reactivity among neuromuscular blocking agents.

Contraindications**Indications****Adult Dose****Pediatric Dose****Adverse Reactions****Precautions****Medical Considerations**

Avoid use of long acting neuromuscular blockers like rocuronium in neurologic emergencies if possible

Action: Alkalinizing agent,
Antacid, Electrolyte

Onset: Immediate

Indications

Pulseless Electrical Activity (PEA) **Overdose/Toxic Ingestion**
Pediatric Pulseless Arrest **Pediatric Overdose/Toxic Exposure**

Adult Dose

Cardiac Arrest: 1 mEq/kg IVP, IO
Overdose/Toxic Exposure: 1 mEq/kg IVP

Pediatric Dose

Pediatric Pulseless Arrest: 1 mEq/kg IVP, IO **Maximum 50 mEq**
Pediatric Overdose/Toxic Exposure: 1 mEq/kg IVP, IO **Maximum 50 mEq**

Contra- indications

Hypertension, Convulsions, CHF, and other situations where administration of sodium can be dangerous

Adverse Reactions

Hypernatremia, alkalosis, hypokalemia

Precautions

Over dosage and alkalosis should be avoided, may cause vascular irritation or sloughing if given extravascularly, Avoid scalp vein use. Risks of over dosage and alkalosis should be avoided. Use caution in patient with CHF or other edematous or sodium-retaining states

Contraindications

Indications

Adult Dose

Adverse Reactions

Pediatric Dose

Precautions

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.

Action: Depolarizing skeletal muscle relaxant.
Neuromuscular blocker.

Onset: 0.5 - 1 minute

Indications

Adult Dose

1.5 - 2 mg/kg IVP, IO

Pediatric Dose



Contraindications

Family hx. Of malignant hyperthermia, Skeletal muscle myopathies, Hypersensitivity, After acute phase of: Major burns, multiple trauma, major crush injury, or abdominal sepsis (over 24 hours) and denervating conditions (CVA, Parkinson's disease, ALS, spinal cord injury), Succinylcholine administered to such individuals may result in severe hyperkalemia which may result in cardiac arrest.

Adverse Reactions

Profound muscle relaxation, respiratory depression & apnea-profound, causes hyperkalemia, cardiac arrest, malignant hyperthermia, arrhythmias, bradycardia, tachycardia, hypertension, hypotension, increased intraocular pressure, muscle fasciculations, jaw rigidity, excessive salivation, and rash

Precautions

Patients with fractures or muscle spasm because of muscle fasciculations, may cause additional trauma. May cause a transient increase in intracranial pressure. May cause intragastric pressure, which could result in regurgitation and possible aspiration. Neuromuscular blockade may be prolonged in patients with hypokalemia or hypocalcemia. **Use caution in patients with: Penetrating eye injury & closed head injuries, Glaucoma**

Contraindications

Indications

Adult Dose

Adverse Reactions

Precautions

Pediatric Dose

Medical Considerations

Causes visible fasciculation's, or disorganized muscle contractions.

Action: Ophthalmic anesthetic

Indications

Eye Injury/Complaint

Adult Dose

2 drops in affected eye

Pediatric Dose**Contra-indications**

Penetrating injury to eye or extrusion of scleral contents

Adverse Reactions

CNS: Dizziness, Drowsiness, sweating, muscle twitching, trembling
Cardiovascular: irregular heart rate
Respiratory: Shortness of breath
Gastrointestinal: Nausea & Vomiting
General: Unusual excitement, Nervousness, Restlessness
Less common occurrences: Burning, Stinging, Redness
Rare occurrences: Itching, Pain, Swelling of eye or eyelid, watering of eyes

Precautions

Do not rub or wipe eye until anesthetic has worn off and feeling in eye returns. To do so may cause injury or damage to the eye.

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

Medical Considerations

None

Action:

Vitamin B1, a cofactor needed for the utilization of glucose.

Onset: hours

Indications

Altered Mental Status Seizure Suspected Stroke Syncope

Adult Dose

100 mg IVP

Pediatric Dose**Contra-indications**

Known hypersensitivity

Adverse Reactions

Anaphylaxis, Hypotension

Precautions

Should be given prior to the administration of D50 because administration of glucose may precipitate acute symptoms of thiamine deficiency in marginally nourished subjects

Contraindications**Indications****Adult Dose****Adverse Reactions****Precautions****Pediatric Dose****Medical Considerations**

None

Action: Antifibrinolytic
hemostatic

Onset: 3 hour half life.

Indications**Adult Dose**

1 gram/50 ml NS IV over 10 minutes

Pediatric Dose**Contra-
indications**

Isolated traumatic brain injury, **More than 3 hours since injury.**
Do not give to known pregnancy.

**Adverse
Reactions**

HTN, increased ICP.

Precautions

Monitor for symptoms of severe allergic reaction and changes in vision

Contraindications**Indications****Adult Dose****Adverse Reactions****Pediatric Dose****Precautions****Medical
Considerations**

None

Action: Paralytic
Non-depolarizing
neuromuscular blocking agent

Onset: < 1 minute

Indications

Drug Shortage Procedure

Adult Dose

0.1 mg/kg IVP

Pediatric Dose**Contra-indications**

Hypersensitivity / Allergy

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 cerebation. Administration must be accompanied by adequate anesthesia or sedation.

Storage: Protect from light.

Contraindications**Indications****Adult Dose****Adverse Reactions****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.

DRUG	CONCENTRATION	TYPICAL DOSING
AMIODARONE	150 mg or 300 mg in 100 ml normal saline or D5W (remember filter)	1 mg/min
CEFTRIAZONE	1 gram in 50 or 100 ml of NS or D5W	Infuse over 30 min
DILTIAZEM	100 mg/100 ml NS = 1 mg/ml	10 – 15 mg/hour
DOBUTAMINE	1 gram/250 ml NS = 4 mg/ml	2 – 20 mcg/kg/min
DOPAMINE	400 mg/250 ml NS = 1.6 mg/ml	2 – 20 mcg/kg/min
EPINEPHRINE	4 mg/250 ml NS = 16 mcg/ml	1 - 4 mcg/min
HEPARIN	25,000 units/500 ml NS = 50 units/ml	see protocol
LIDOCAINE	2 grams/250 ml NS = 8 mg/ml	1 – 4 mg/minute
NICARDIPINE	25 mg/50 ml NS = 0.5 mg/ml 5mg/hour to	15 mg/hour
NITROGLYCERINE	50 mg/250 ml NS = 200 mcg/ml	5 – 200 mcg/min
NOREPINEPHRINE	8 mg/250 ml NS = 32 mcg/ml	0.02 - 0.5 mcg/kg/min
PHENYTOIN	1 gram in 100 ml NS (remember filter)	Not faster than 50 mg/min
PROCAINAMIDE	2 grams/250 ml NS = 8mg/ml	17 mg/kg bolus at 20 mg/min to 1 gram then 1 – 4 mg/min

Lima Memorial Health System EMS Protocol
Standard Drug Formulary List

Brand Name	Trade Name	Strength	Dose Form	Supplied
<i>Adenocard</i>	Adenosine	3mg/ml	Injection	Vial
<i>Anectine</i>	Succinylcholine	20mg/ml - 10ml	Injection	Vial
<i>Aspirin, Children's</i>	Aspirin, Low Dose	81 mg	Tablet	Chewable
<i>Atropine Sulfate</i>	Atropine Sulfate	0.1mg/ml - 10ml	Injection	Syringe
<i>Atrovent</i>	Ipratropium bromide	0.5mg/2.5 ml UD	Inhalation	U/D amp
<i>Benadryl</i>	Diphenhydramine	50mg/ml	Injection	Vial
<i>Calcium Chloride</i>	Calcium Chloride	100mg/ml	Injection	Syringe
<i>Cardizem</i>	Diltiazem HCL	5mg/ml	Injection	Vial
<i>Cordarone</i>	Amiodarone HCL	150mg/ml	Injection	Vial
<i>Cyklocapron</i>	Tranexamic Acid	150mg/ml	Injection	Syringe
<i>Dextrose 25% "Infant"</i>	Dextrose 25%	2.5GM/10ml	Injection	Syringe
<i>Dextrose 5% Water</i>	D5W	1000ml	Injection	Bag
<i>Dextrose 50%</i>	Dextrose 50%	25GM/50ml	Injection	Syringe
<i>Duo Neb</i>	Albuterol/Atrovent	3ml	Aerosol	Vial
<i>Epinephrine</i>	Epinephrine	1mg/ml	Injection	30ml Vial
<i>Epinephrine</i>	Epinephrine	0.1mg/ml - 10ml	Injection	Syringe
<i>Epinephrine</i>	Epinephrine 1:1000	1mg/ml 1ml	Injection	Amp
<i>EpiPen Auto Injector</i>	Epinephrine	0.3mg/0.3ml	Injection	Syringe
<i>EpiPen Jr. Auto Injector</i>	Epinephrine	0.15mg/0.3ml	Injection	Syringe
<i>Etomidate</i>	Amidate	10ml	injection	Vial
<i>Fentanyl Citrate</i>	Fentanyl Citrate	50mcg/ml - 2ml	Injection	Amp
<i>Glucagon</i>	Glucagon	1mg/ml	Injection	Vial
<i>Glucose 15</i>	Glucose Oral Gel	15gm/dose	Oral Gel	Tube
<i>Haloperidol</i>	Haldol	10mg/ml	Injection	Vial
<i>Intropin</i>	Dopamine	40mg/ml - 10ml	Injection	Vial
<i>Ketamine</i>	Ketalar	500 mg/10ml	Injection	Vial
<i>Labetalol</i>	Trandate	20mg/4ml	Injection	Syringe
<i>Levophed</i>	Norepinephrine	4mg ampule	Injection	Amp
<i>Lidocaine HCL</i>	Lidocaine HCL	2% - 20ML MDV	Injection	Vial
<i>Lidocaine HCL</i>	Lidocaine HCL	20mg/ml - 5ml	Injection	Syringe
<i>Magnesium Sulfate</i>	Magnesium Sulfate	5gm/10ml	Injection	Syringe
<i>Morphine Sulfate</i>	Morphine Sulfate	10mg/ml	Injection	Tubex
<i>Narcan</i>	Naloxone	2mg/2ml	Injection	Syringe

January 2019

Lima Memorial Health System EMS Protocol

Standard Drug Formulary List

Nitro-Lingual Spray	Nitroglycerin	0.4mg/spray	Spray	Bottle
Nitrostat	Nitroglycerin	0.4mg	Tablet	Sublingual
Nubain	Nalbuphine	10mg/ml	Injection	Amp
Oxygen	Oxygen	100%	Inhalation	
Phenergen	Promethazine	25mg/ml	Injection	Vial
Proventil	Albuterol	2.5mg/3ml	Inhalation	U/D amp
Racemic Epi	S2 Inhalant	2.25%	Nebulizer	Vial
Rocuronium	Zemuron	10mg/ml	Injection	Vial
Sodium Bicarbonate	Sodium Bicarbonate	50mEq/50ml	Injection	Syringe
Sodium Chloride	Sodium Chloride	0.9% - 1000ml	Injection	Bag
Sodium Chloride	Sodium Chloride	0.9% - 1000ml	Irrigation	Bottle
Solu-Medrol	methylprednisolone	125mg/ml - 2ml	Injection	Vial
Tetracaine HCL	Tetracaine HCL	10mg/ml - 2ml	Injection	Solution
Thiamine	Thiamine (Vit. B-1)	100mg/ml	Injection	Vial
Versed	Midazolam	5mg/ml	Injection	Vial
Water, Sterile	Water, Sterile	1000 ml	Irrigation	Bottle
Zofran	Ondansetron HCL	4mg/2ml	Injection	Vial
Zofran ODT Tablet	Ondansetron ODT	4mg	Tablet	Tablet

January 2019

Indications:

An air ambulance may be utilized at the discretion of the incident commander. Conditions that may warrant use of Air Ambulance resources include but are not limited to the following:

- 1 Patient meets criteria for Trauma/Stroke/STEMI center evaluation.
- 2 The patient is entrapped and extrication is expected to last greater than 20 minutes.
3. The ground transport time is greater than 15 minutes.
- 3 The patient is not in traumatic cardiac arrest.

A helicopter may also be utilized when any of the following is present.

- ~ A situation approved by the medical director or medical control physician - or -
- ~ Mass Casualty Incident (MCI).

Procedure:

1. The Incident Commander determines that a helicopter is needed for the patient.
2. The Incident Commander notifies dispatch to contact the closest helicopter service for a scene transport. The dispatch center determines which air ambulance is nearest and utilize this resource.
3. A safe landing zone should be established.
4. **Do not delay transport of an ill or injured patient while waiting for a helicopter resource.**

Indications:

- A pulseless, nonbreathing patient who normally would require resuscitation
~ AND ~
- When out of a medical facility has, on scene, a properly completed, state approved DNR form
~ Or ~
- When in a medical facility has, on scene, either:
 - A properly completed state-approved DNR form,
 - OR a physician-signed DNR document,
 - OR a physician-signed order in the facility's chart for that patient.

Procedure:

- Verify that the patient is the person named in the DNR form or order. (If in doubt, resuscitate.)
- Cease all resuscitation efforts.
- Notify law enforcement of patient's death.
- Attach original DNR form or photocopy of the physician's DNR orders to be completed PCR.

Notes:

- When the patient is not in cardiac arrest, requires care, and has a properly completed DNR form, provide care up to the limits of the DNR form and transport both the patient and the DNR form to the hospital.
- Prehospital care professionals cannot honor other legal documents, such as living wills, without first contacting Medical Control for permission. Telephone orders from a patient's physician will not be accepted.
- "Medical facility" is defined to be a facility with continual physician or nursing care during its hours of operation; e.g. hospital, nursing home, physician's office.

A Medical Control Physician only may approve exceptions to this procedure.

Indications:

One or more of the following is present:

- Rigor mortis and/or dependent lividity.
- Decapitation.
- Incineration
- If arrest is traumatic in origin, go to Trauma Arrest protocol.

Procedure:

1. Do not resuscitate any patient who meets the above criteria. If resuscitation efforts are in progress, consider discontinuing the resuscitation efforts (Paramedic Only).
2. Notify law enforcement of the patient's death (or a patient's physician if patient is in a medical facility with continual physician or nursing care during its hours of operation; e.g. hospital, nursing home, physician's office).

Note:

If you are unsure whether the patient meets the above criteria, resuscitate.

Policy:

Any patient presenting to any component of ProMedica Transportation Network with a completed Ohio **Do Not Resuscitate** (DNR) form shall have the form honored and CPR and ALS therapy withheld in the event of cardiac arrest.

Purpose:

- To honor the terminal wishes of the patient.
- To prevent the initiation of unwanted resuscitation.

Procedure:

1. When confronted with a patient or situation involving DNR, the following conditions must be present in order to honor the DNR form and withhold CPR and ALS therapy:
 - Ohio DNR form
 - Effective date and expiration date filled out and current
 - Form signed by a physician, physician's assistant, or nurse practitioner
 - Patient in cardiac arrest
2. A valid DNR form may be overridden by the request of:
 - The patient
 - The guardian of the patient
 - An on-scene physician
3. A living will or other legal documentation that identifies the patient's desire to withhold CPR or ALS therapy may be honored with the approval of **Medical Control**. This should be done when possible in consultation with the patient's family and personal physician.

Policy:

For every patient contact, the following must be documented at a minimum:

- 1) A clear history of the present illness including chief complaint, time of onset, associated complaints, pertinent negatives, mechanism of injury, etc. This should be included in the subjective/taped portion of the PCR. The section should be thorough enough to re-create the clinical situation after it has faded from memory.
- 2) An appropriate physical assessment that may include pupil assessment, breath sounds, motor function, abdominal exam, chest exam, head exam, extremity exam, etc. When appropriate, this information should be included in the procedures section of the PCR.
- 3) At least two complete sets of vital signs (pulse, respiration, and one auscultated blood pressure). These vital signs should be repeated and documented after every drug administration, prior to patient transfer, and as needed during transport of an ALS Patient. Children age < 6 do not need a BP documented.
- 4) Non-standard medical abbreviations should be avoided.
- 5) For drug administrations, you must document dosage of the drug, route of administration, time of administration, and response to drug.
- 6) A complete listing of treatments performed in chronological order. Any response to these treatments should also be listed.
- 7) For patients with an extremity injury, neurovascular status must be noted before and after immobilization.
- 8) For patients with spinal immobilization, document motor function before and after spinal immobilization.
- 9) For IV administration, the size of the IV catheter, placement of IV, number of attempts, type of fluid, and flow rate.
- 10) A lead II strip should be attached for all patients placed on the cardiac monitor. Any significant rhythm changes should be documented. For cardiac arrests, the initial strip, ending strip, pre and post defibrillation, pacing attempts, etc. should be attached.
- 11) 12 lead EKGs, when performed, should also be included in the report and transmitted to the receiving facility.
- 12) For patients that receive intubation, please note the centimeter mark at teeth, methods to confirm placement, size of ET tube, and number of attempts.
- 13) Any requested orders, whether approved or denied, should be documented clearly.
- 14) Any waste of narcotics should include the quantity wasted, and name of the person who witnessed the waste. Hospital personnel should be utilized (if available).
- 15) All crew members should review the content of the PCR for accuracy..
- 16) Once the call is completed, patient care information may not be modified for any reason. Corrections or additions should be in the form of an addendum.
- 17) For all patients who receive EMS medications or procedures (beyond KVO IV), the PCR shall be completed prior to leaving the hospital. Exceptions must be approved by the receiving facility. When possible, all PCRs should be completed prior to leaving the hospital. All PCRs should be available to the receiving facility within 4 hours.

Policy:

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

Purpose:

To insure:

- Evaluation of every patient's volume and cardiovascular status
- Documentation of a complete set of vital signs

Procedure:

- 1) An **initial** complete set of vital signs includes:
 - a) Pulse rate
 - b) Systolic **AND** diastolic blood pressure
 - c) Respiratory rate
 - d) Pain/severity (when appropriate to patient complaint)
- 2) When no ALS treatment is provided, palpated blood pressures are acceptable for **repeat** vital signs.
- 3) Based on patient condition and complaint, vital signs may also include:
 - a) Pulse Oximetry
 - b) Temperature
 - c) ETCO₂
 - d) Carbon Monoxide (CO) level if available
- 4) If the patient refuses this evaluation, the patient's mental status and the reason for refusal of evaluation must be documented. A patient disposition form must also be completed.
- 5) Document situations that preclude the evaluation of a complete set of vital signs.
- 6) Record the time vital signs were obtained.
- 7) Any abnormal vital sign should be repeated and monitored closely.

Indications: · A single Paramedic crew or a non-Paramedic/Advanced EMT staffed ambulance, when applicable

Policy: Generally, the highest care provider should attend the patient in the patient care area. A lower level provider may attend the patient if and only if the higher level provider documents patient stability and is responsible to supervise.

· The provider with the highest level of certification on scene shall conduct a detailed physical assessment and subjective interview with the patient to determine their chief complaint and level of distress. If the ALS provider determines that the patient is stable and all patient care needs can be managed by the lower level provider, patient care can be transferred to a provider of lower certification for transport to a hospital.

All personnel are encouraged to participate in patient care while on-scene; regardless of who "attends" with the patient while enroute to the hospital. The determination of who attends should be based upon the patient's immediate treatment needs and any reasonably anticipated treatment needs while enroute to the hospital. The transporting provider must write a narrative documentation that covers all aspects of assessment, care, and disposition. This should be done on one PCR.

The following patients cannot be transferred to a lower level of certification, have the Paramedic unit cancelled, or be transported by a non-Paramedic ambulance without requesting ALS intercept:

- Postictal seizure patients due to the possibility of a re-occurrence of a seizure.
- Patients who have been medicated on the scene may only be transferred to a technician of lower certification whose formulary includes the medications that were administered.
- Any patient suffering from chest pain of suspected cardiac origin, respiratory distress, hypertensive emergencies, multiple trauma, or imminent childbirth.
- Any patient in which transport would be delayed by waiting for a unit with lesser certification to arrive.

All Levels of Certification

- Competent patients maintain the right to refuse care and/or transport. If unsure, contact On-Line Medical Control.
- All patients refusing service will be:
 - o Informed of the availability of service and offered treatment and transport in a nonconfrontational, polite manner,
 - o Advised to call 911 for emergency service if desired, and
 - o Advised that they accept full responsibility for their actions.
- Contact Medical Control if ALS has been started and patient declines transport. Give the Medical Control Physician an explanation by recorded device of the situation and request permission to discontinue ALS. The name of the physician who gave the order must be documented in the PCR.
- The only exception to contacting Medical Control is after treating hypoglycemia and the patient meets the criteria for declining transport.
- Documentation:
 - o In the report narrative, describe the patient encounter, vital signs, advice given, that the patient is alert and orientated to person, place, and time, and that the patient understands instructions given to him/her.
 - o If possible, have the patient sign the AMA form, have a third party witness the signature, and give a copy to the patient.
 - o Complete the "Patient Refusal of Care" procedure in the electronic call report.
- At no time will EMS professionals mention cost of transport, patient's insurance status, hospital billing or insurance practices, status of system/unit availability, or any other non-clinical subject in an attempt to influence a patients decision to accept or decline transport.

All Levels of Certification

Indications:

- A patient who wishes to take his/her own medication or prescription.

Procedure:

- Patient assisted Auto-Injector Epinephrine==>EMR and above
- Patient assisted Nitroglycerin==>EMT and above
- Patient assisted aerosolized/nebulized medications==>EMT and above

Policy:

Anyone requesting EMS service will receive emergent evaluation, care, and an offer of transportation in a systematic, orderly fashion regardless of the patient's problem or condition.

Purpose:

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

Procedure:

- 1) Treatment and medical direction for all patient encounters, which can be triaged into an EMS patient protocol, is to be initiated by protocol.
- 2) When confronted with an emergency or situation that does not fit into an existing EMS patient care protocol, the **Universal Patient Care Protocol** should be used to treat the patient, and a **Medical Control Physician** should be contacted for further instructions.

Policy:

- The medical direction of prehospital care at the scene of an emergency is the responsibility of those most appropriately trained in providing such care. All care should be provided within the rules and regulations of the State of Ohio

Indications:

- An Ohio licensed physician at the scene who wishes to assume medical responsibility for the patient. .

Procedure:

- If a pre-existing "physician-patient" relationship does not exist, contact On-Line Medical Control for physician authorization; the Medical Control physician will decide if the on-scene physician will be allowed to take control of patient care and issue medical orders.
- If a pre-existing "physician-patient" relationship does exist, the physician is authorized to take control of patient care and issue medical orders.
- Follow the orders of the authorized physician even if they conflict with the existing local protocols provided they encompass skills and medications approved by both the Lima Memorial Health Systems Medical Director and the State Medical Board.

In the Lima Memorial Health Systems EMS System, a practitioner's right to practice medicine is based on extension of the Medical Director's license to practice medicine. If, in the opinion of the Medical Director, an action (or failure to act) on the part of a practitioner is of such a nature that the action of failure to act is inconsistent with, or a violation of, these procedures, or the BLS/ALS practice standard generally accepted in the medical community, the actions described below shall occur.

- 1) The practitioner will be notified in writing of the issues/concerns that merit the attention of the Medical Director. Notwithstanding this written notice provision, the provisions of 2 and 3 below, and based on the severity and nature of the act (or failure to act), the Medical Director may suspend a practitioner's right to practice BLS/ALS skills upon receipt of information sufficient in the judgment of the Medical Director or EMS Manager to support immediate suspension in the interest of patient safety.
- 2) A written explanation by the individual explaining the incident shall be presented to the Medical Director and EMS Manager within three (3) working days of receipt of the Medical Director's issues/concerns. If no written explanation of the incident is sent to the Medical Director by that deadline, the Medical Director may base his decision upon such information that is available to him as of that deadline.
- 3) The Medical Director or the individual may request a second meeting to further discuss the issues/concerns. If this option is exercised, the meeting shall occur within five (5) working days of receipt of the request.
- 4) After reviewing all materials, the Medical Director will issue a disposition of the matter. The Medical Director may exercise one or more of the following options:
 - a) No action taken/matter resolved
 - b) Remediation training
 - c) Warning
 - d) Require to precept at the approved level again
 - e) Temporary suspension of all BLS/ALS practice privileges or suspension of specific BLS/ALS practice privileges
 - f) Revocation of BLS/ALS practice privileges

Such suspension and/or revocation of BLS/ALS practice privileges will extend to all jurisdictions where the BLS/ALS practitioner's right to practice relies on the extension of the LMHS EMS Medical Director's license to practice medicine.

- 5) After the individual is notified in writing of the Medical Director's decision, he/she may appeal to the Medical Director. This appeal request must be presented within five (5) working days of the decision of the Medical Director to the Medical Director or the EMS Manager for referral to the EMS Liaison Team.
- 6) The EMS Liaison Team will meet within ten (10) working days of receipt of the appeal request. It shall consist of the following representatives:
 - a) The EC Medical Director
 - b) The EMS Medical Director
 - c) The EMS Manager
 - d) The EC Director
 - e) The Trauma Program Manager
 - f) The EC Clinical Manager

- 7) The EC Medical Director will function as the presiding officer for purposes of hearing an appeal. The EMS Liaison Committee may hear witnesses (the participation of which is the responsibility of the party calling the witness) and consider documentary and other evidence. The decision of the EMS Liaison Committee shall be in the form of written findings of fact and imposition of action(s) consistent with those findings of fact.
- 8) The decision of the EMS Liaison Committee is final. The written finding of facts and actions decision will be presented to the appellant ALS practitioner within five (5) working days of the conclusion of the EMS Liaison Team hearing.
- 9) Until the Patient Safety Subcommittee of the Peer Review Committee EMS Liaison Team meets in hearing, the Medical Director's action(s) as described in 4, above, will stand.
- 10) If a permanent revocation of ALS privileges is approved, the State Office of EMS will be notified of the decision.

The authority conferred herein does **not** apply to conduct or behavior outside the sphere of BLS/ALS practice that relies upon the Medical Director's extension of right-to-practice. It does **not** authorize actions other than warnings, warnings with limitation on certain practices, temporary suspension of BLS/ALS practice rights or revocation of BLS/ALS practice rights. Actions taken pursuant to this Procedure shall be reported to the BLS/ALS practitioner's employer, who may undertake disciplinary actions independent of the actions referred to herein.

Policy:

Without special considerations children are at risk of injury when transported by EMS. EMS must provide appropriate stabilization and protection to pediatric persons during EMS transport.

Purpose:

To provide:

- A safe method of transporting pediatric persons within an ambulance.
- Protection of the EMS system and personnel from potential harm and liability associated with the transportation of pediatric patients.

Procedure:

- 1) Drive cautiously at safe speeds observing traffic laws.
- 2) Tightly secure all monitoring devices and other equipment.
- 3) Insure EMS personnel, the patient, and any other occupants use available restraint systems.
- 4) Transport adults and children who are not patients, properly restrained, in an alternate passenger vehicle whenever possible.
- 5) Do not allow parents, caregivers, or other passengers to be unrestrained during transport.
- 6) Do not have the child/infant held in the parent's, caregiver's or EMS personnel's arms or lap during transport.
- 7) For patients with respiratory distress or other medical conditions that can be worsened by stress, make every attempt to optimize safety while comforting the child.

Policy:

Discontinuation of cardiopulmonary resuscitation and other advanced life saving interventions may be considered

when ALL of the following criteria have been met:

Procedure:

- _____ Adequate CPR has been administered for at least 25 minutes without ROSC
- _____ Endotracheal intubation and/or supraglottic airway (SGA) placement has been successfully accomplished with adequate ventilation (as per Airway protocol);
- _____ IV/IO access has been achieved (Unless BLS ONLY crew on scene, No ALS available)
- _____ Rhythm-appropriate medications and defibrillations for shockable rhythms have been administered according to protocol; **BLS** = No shock advised by AED 3 times during 20 minutes of high quality CPR
- _____ Persistent asystole or agonal rhythm is present and no reversible causes are identified; BLS= No Shock advised 3 times during high quality CPR with BLS only crew.
- _____ Failure to establish spontaneous circulation =ROSC as described above.
- _____ Patient must be at least 18 years of age.
- _____ Body temperature is at least 35 centigrade (95°F) for a patient who is submerged in cold water (water temperature less than 47°F (8.5 centigrade)
- _____ Medical control contacted for permission to terminate resuscitation

- Family members and others present must be acknowledged and assisted.
- Disposition of the body as per the Deceased Persons Protocol.

_____	_____	_____
Patient's Name	Time Resuscitation Discontinued	Run Number
_____	_____	_____
Paramedic Printed Name	Paramedic Signature	Date
_____	_____	_____
Crew Members Printed Name	Crew Member Signature	Date
_____	_____	_____
Printed name of Law Enforcement Official	Physician	Date/Time

- Goal:** To provide quality care to all trauma patients while maximizing utilization of resources in the most cost efficient manner.
- Rationale:** Some trauma patients require a full range of trauma services while a percentage need only modified trauma resources. A tiered system will ensure availability of services based upon clinical presentation of the trauma patient.
- Procedure:** Pre-hospital personnel will provide clinical information to the Emergency Department. The Emergency Department Physician, in collaboration with pre-hospital personnel, will make a determination as to resources required by the patient, either full trauma resources or modified trauma resources. The Emergency Department Physician will make the final decision on level of resources. **The Emergency Department Physician will make the final decision on level of resources.**

Trauma Level I

Level I Criteria:

Trauma Physician within 15 minutes

GCS < 14

Systolic BP < 90, age 6-adult, <70 age 0-5

Heart Rate > 130

Respiratory Rate <10 or > 29

Facial Trauma with impending airway compromise

Intubated prior to arrival

Flail chest or open pneumothorax

Penetrating injury to head, neck, torso, or extremities proximal to knee or elbow

Bleeding uncontrolled proximal to wrist/ankle

Inhalation injury with or without burns

Trauma with 20% BSA burns

Suspected two or more long bone fractures proximal to knee or elbow

Amputation proximal to wrist or ankle

Suspected pelvic fracture

Paralysis in the field

Emergency Center Physician Discretion, related to EMS suspicion of high-energy impact and /or presence of co-morbid factors.

Trauma Level II

Level II Criteria

Trauma Physician within 15 minutes

Open Fractures proximal to elbow or knee

Crush injury proximal to wrist or elbow

Pedestrian, bicycle struck by vehicle > 5 MPH impact thrown over or run over

Motorcycle, ATV crash with separation of rider from bike and speed > 20 MPH

Ejected from vehicle

High speed collision (>60 MPH or > 40 MPH unrestrained) or major vehicle deformity (20")

Falls >12' (Adult) or > 3 times a child's height

Trauma with burns >5% and < 20% BSA

Death in passenger compartment

Extrication time of > 20 minutes

Emergency Center Physician Discretion

Hanging/traumatic asphyxiation

Certification Requirements:

Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the LMHS EMS System.

Clinical Indications

- Suspected cardiac patient (Chest pain, dyspnea, weakness, fatigue)
- Electrical injuries
- Syncope
- CHF

EMT

Set-up & transmit only

AEMT

Steps

Was performed ?

YES

NO

1. Assess patient and monitor cardiac status

☐☐

2. If patient is unstable, definitive treatment is the priority. If patient is stable or stabilized after treatment, perform a 12 Lead ECG

☐☐

3. Prepare ECG monitor and connect patient cable with electrodes.

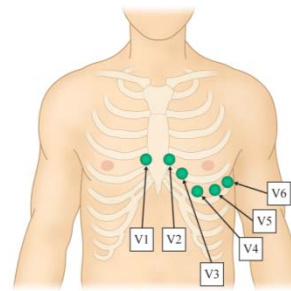
☐☐

4. Expose chest and prep as necessary. Modesty of the patient should be respected.

☐☐

5. Apply chest leads and extremity leads using the following landmarks:

- RA -Right arm or as directed by manufacturer
- LA -Left arm or as directed by manufacturer
- 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 mid-clavicular line
- V5 -Level with V4 at left anterior axillary line
- V6 -Level with V5 at left mid-axillary line

☐☐

6. Instruct patient to remain still.

☐☐

7. Press the appropriate button to acquire the 12 Lead ECG.

☐☐

8. Print data as per guidelines and attach a copy of the 12 lead to the PCR. Place the name and age of the patient on the paper copy of the ECG.

☐☐

9. If STEMI suspected, if able, transmit 12-Lead ECG and notify hospital of STEMI alert.

☐☐

10. Document the procedure, time, and results on/with the patient care report (PCR)

☐☐

11. An EMT may obtain and transmit a 12 Lead ECG; a Paramedic, however, should interpret it before implementing any treatment modalities.

☐☐

General

EMR

EMT

AEMT

Paramedic

Med Control

AEMT

Clinical Indications:

- Patients with unprotected airway/hypoxia/critical condition/Sepsis
- Multiple trauma patient
- Respiratory arrest/ Cardiac arrest:

Contraindications:

- Presence of gag reflex.
- Relative contraindications: o Blood clotting abnormalities o Upper neck hematomas or infections

Steps**Was performed ?**

1. Prepare, position and oxygenate the patient with 100% oxygen

YES

NO

2. Select proper ET tube (and stylette, if used), have suction ready.

☐☐

3. Using laryngoscope, visualize vocal cords. (Use Sellick maneuver/BURP to assist you).

☐☐4. Limit each intubation attempt to 30 seconds with BVM between attempts. **AVOID HYPOXIA**☐☐

5. Visualize tube passing through vocal cords.

☐☐

6. Inflate the cuff with 3 to 10 cc of air; secure the tube to the patient's face.

☐☐

7. Auscultate for bilaterally equal breath sounds and absence of sounds over the epigastrium. If you are unsure of placement, remove tube and ventilate patient with bag-valve mask.

☐☐

8. Consider using King LTS-D / i-gel if ET intubation efforts are unsuccessful.

☐☐9. **Apply waveform capnometry and record readings on scene, enroute to the hospital, and at the hospital. Maintain ETCO2 between 35-45 mmHg. Avoid overventilation**☐☐

10. Document ETT size, time, result (success), and placement location by the centimeter marks either at the patient's teeth or lips on/with the patient care report (PCR). Document all devices used to confirm initial tube placement. Also document positive or negative breath sounds before and after each movement of the patient.

☐☐

General

EMR

EMT

AEMT

Paramedic

Med Control

Clinical Indications:

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

EMT

Steps**Was performed ?**

YES

NO

1. Ensure suction device is in proper working order with suction tip in place.

2. Preoxygenate the patient as is possible.

3. Explain the procedure to the patient if they are coherent.

4. Examine the oropharynx and remove any potential foreign bodies or material that may occlude the airway if dislodged by the suction device.

5. If applicable, remove ventilation devices from the airway.

6. Use the suction device to remove any secretions, blood, or other substance.

7. The alert patient may assist with this procedure.

8. Reattach ventilation device (e.g., bag-valve mask) and ventilate or assist the patient.

9. Record the time and result of the suctioning in the patient care report (PCR).

General

EMR

EMT

AEMT

Paramedic

Med Control

Clinical Indications:

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

EMT

Steps**Was performed ?**

1. Ensure suction device is in proper working order.

☐ YES
☐ NO

2. Preoxygenate the patient,

☐ YES
☐ NO

3. Attach suction catheter to suction device, keeping sterile plastic covering over catheter.

☐ YES
☐ NO

4. For all devices except King, use the suprasternal notch and the end of the airway into which the catheter will be placed as guides, measure the depth desired for the catheter (judgement must be used regarding the depth of suctioning with cricothyrotomy and tracheostomy tubes). If using a King, suction only from the lumen of the King. Do not attempt to suction beyond the length of the King as this may promote laryngospasm.

☐ YES
☐ NO

5. If applicable, remove ventilation devices from the airway.

☐ YES
☐ NO

6. With the thumb port of the catheter uncovered, insert the catheter through the airway device.

☐ YES
☐ NO

7. Once desired depth (measured in number 4 above) has been reached, occlude the thumb port and remove the suction catheter slowly.

☐ YES
☐ NO

8. Small volume (< 10 ml) of normal saline lavage may be used as needed.

☐ YES
☐ NO

9. Reattach ventilation device (e.g., bag-valve mask) and ventilate the patient.

☐ YES
☐ NO

10. Document time and result in the patient care report (PCR)

☐ YES
☐ NO

General

EMR

EMT

AEMT

Paramedic

Med Control

Blood Glucose Analysis

Clinical Indications:

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

EMT

Steps

Was performed ?

YES

NO

1. Gather and prepare equipment

☐
☐

2. Blood samples for performing glucose analysis should be obtained simultaneously with intravenous access when possible

☐
☐

3. Place correct amount of blood on reagent strip or site on glucometer per the manufacturer's instructions.

☐
☐

4. Time the analysis as instructed by the manufacturer.

☐
☐

5. Document the glucometer reading and treat the patient as indicated by the analysis and protocol.

☐
☐

6. Repeat glucose analysis as indicated for reassessment after treatment and as per protocol.

☐
☐

7. Perform Quality Assurance on glucometers at least once every 7 days, if any clinically suspicious readings, and/or as recommended by the manufacturer and document in log.

☐
☐

General

EMR

EMT

AEMT

Paramedic

Med Control

Paramedic
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.	☐	☐	General
2. Have all equipment prepared for unsynchronized cardioversion/defibrillation if the patient fails synchronized cardioversion and the condition worsens.	☐	☐	EMR
3. Consider the use of pain and/or sedating medications (i.e. midazolam/fentanyl) dosing listed under appropriate protocol)	☐	☐	EMT
4. Set energy selection to the appropriate setting.	☐	☐	AEMT
5. Set monitor/defibrillator to synchronized cardioversion mode.	☐	☐	Paramedic
6. Make certain all personnel are clear of patient.	☐	☐	Med Control
7. Press and hold the shock 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 be a delay between activating the cardioversion and the actual delivery of energy.	☐	☐	
8. Note patient response and perform immediate unsynchronized cardioversion/defibrillation if the patient's rhythm has deteriorated into pulseless ventricular tachycardia/ventricular fibrillation, following the procedure for Defibrillation-Manual.	☐	☐	
9. If the patient's condition is unchanged, repeat steps 2 to 8 above, using escalating energy settings.	☐	☐	
10. Repeat until maximum setting or until efforts succeed.	☐	☐	
11. Note procedure, response, and time in the patient care report (PCR)	☐	☐	

EMR

Clinical Indications:

Basic life support for the patient in cardiac arrest

Steps

Was performed ?

1. Assess the patient's responsiveness (No breathing or no normal breathing)

☐ YES
☐ NO

2. Activate Emergency Response/Get Defibrillator

☐ YES
☐ NO

3. Start CPR -->Push Hard and Fast-->adequate rate and depth with complete chest recoil after each compression, MINIMIZE Interruptions in compressions, AVOID Excessive ventilation

☐ YES
☐ NO

4. C-A-B (Not ABC): Compressions--Airway--Breathing

☐ YES
☐ NO

Age	Location	Depth	Rate
Infants (Age less than 1 year, excluding newborns)	Over sternum between nipples (inter-mammary line), 2-3 fingers	0.5 to 1 inch (1/3 the anteriorposterior Chest dimension)	100-120/minute
Children (Age 1 year to puberty)	Over sternum, just cephalad from xiphoid process, heel of one hand	1 to 1.5 inches (1/3 the anteriorposterior Chest dimension)	100-120/minute
Adults and Adolescents	Over sternum, just cephalad from xiphoid process, hands with interlocked fingers	Over sternum, just cephalad from xiphoid process, heel of one hand	100-120/minute

5. Go to Cardiac Arrest procedure. Begin ventilations in the adult as directed in the Cardiac Arrest Procedure.

☐ YES
☐ NO

6. Provide no more than 12 breaths per minute with the BVM. Use EtCO₂ to guide your ventilations as directed in the Cardiac Arrest Procedure.

☐ YES
☐ NO

7. Chest compressions should be provided in an uninterrupted manner. Only brief interruptions are allowed for rhythm analysis, defibrillation, and performance of procedures.

☐ YES
☐ NO

8. Document the time and procedure in the Patient Care Report (PCR).

☐ YES
☐ NO

9. If an automatic CPR device (i.e. Lucas Device) is available, apply device to patient and follow manufacturer instructions for use (Adult patients only)

☐ YES
☐ NO

10. 30 Degree Head Up positioning for CPR

☐ YES
☐ NO

General

EMR

EMT

AEMT

Paramedic

Med Control

Indications:

EMR

- * Basic life support for patient in Cardiac Arrest

Procedure: ALL CERTIFICATION LEVELS: **EMR, EMT, AEMT, Paramedic**

- * Assess Level of consciousness (Not breathing, Abnormal breathing)
- * Bring AED to patient's side and activate
- * Begin CPR with adequate rate and depth and achieving complete chest recoil between compressions.
 - Minimize interruptions
 - Avoid over-ventilation
 - Push "hard and fast"
 - Utilize automated CPR device if available per manufacturer recommendations
- * C-A-B (not ABC's any more) Focus on effective Compressions, then position airway with oral airway; Place non-rebreather mask with high flow Oxygen. Avoid ventilations for first 4 cycles of CPR. Thereafter, Begin ventilations with low tidal volumes (400-600 ml) slowly with ResQPod in place. 6-8 breaths/minute

Age	Location	Depth	Rate
Infant	Sternum between nipples 2-3 fingers	0.5 inches	100-120/min
Child	Sternum Heel of one hand	1-1.5 inches	100-120/min
Adult	Sternum Both hands	1.5-2 inches	100-120/min

- * Go to Cardiac Arrest Procedure
- * 6-8 breaths/minute with ResQPod ITD
- * Avoid interruptions in compressions (load shock on defibrillator; dump charge if non-shockable rhythm or AED advises "NO SHOCK ADVISED")
- * Document time CPR started in Patient care report (PCR)
- * Always follow most current AHA Guidelines for CPR

Cricothyrotomy

Cricothyrotomy -Front of Neck Airway (FONA) "Scalpel-Finger-Bougie- Cric"

Paramedic

Indications:

A patient in need of definitive airway in which you are unable to adequately ventilate due to an obstructed airway. A patient that can be adequately ventilated by other means (BVM, Nasopharyngeal/oral airway, supraglottic airway) does not require a cricothyrotomy. The only patients that qualify for a cricothyrotomy are those with an obstructed airway and inadequate ventilation.

Types of patients with obstructed airways that may need cricothyrotomy

- Direct trauma to larynx
- Anaphylactic reactions
- Food or other object in the airway (choking)

Steps

Was performed ?

	YES	NO	
1. Assemble all equipment (suction, BVM, ETT, Scalpel, end-tidal CO2 monitor, oxygen)	☐	☐	General
2. Extend the head if not contra-indicated (spine fracture)	☐	☐	EMR
3. Identify landmarks (Thyroid cartilage, cricothyroid membrane)	☐	☐	EMT
4. Make vertical incision over the cricothyroid membrane with #11 scalpel down to the cricothyroid membrane.	☐	☐	AEMT
5. Make horizontal incision through cricothyroid membrane: Slide bougie into trachea	☐	☐	Paramedic
6. Place appropriately sized endotracheal tube over bougie into trachea. The bougie is then removed and tube left in place	☐	☐	Med Control
7. Ventilate patient and measure end-tidal CO2 with waveform capnography	☐	☐	
8. Secure tube in place. Avoid migration of tube and main-stem bronchus intubation	☐	☐	
9. Control bleeding at site of incision with gauze and direct pressure	☐	☐	
10. Contact Medical Control as soon as possible and transport to closest appropriate facility	☐	☐	

Clinical Indications:

Patients in cardiac arrest (pulseless, non-breathing).
Age < 8 years, use Pediatric Pads if available.

(MANUAL Defibrillation)

EMR

Contraindications:

Pediatric patients who body habitus is such that the pads cannot be placed without touching one another.

Steps

Was performed ?

YES

NO

1. If multiple rescuers are available, one rescuer should provide uninterrupted chest compressions while the AED is being prepared for use.
2. Apply defibrillator pads per manufacturer recommendations. Use alternate placement when implanted devices (pacemakers, AICDs) occupy preferred pad positions.
3. Remove any medication patches on the chest and wipe off any residue.
4. If necessary, connect defibrillator leads: white to the anterior chest pad and the red to the posterior pad.
5. Activate AED for analysis of rhythm.
6. **Stop CPR and clear the patient** for rhythm analysis. Keep interruption in CPR as brief as possible.
7. Defibrillate if appropriate by depressing the "shock" button. **Assertively state "CLEAR" and visualize that no one, including yourself, is in contact with the patient prior to defibrillation.** The sequence of defibrillation charges is pre-programmed for monophasic defibrillators. Biphasic defibrillators will determine the correct joules accordingly.
8. Begin CPR (chest compressions and ventilations) immediately after the delivery of the defibrillation.
9. After 2 minutes of CPR, analyze rhythm and defibrillate if indicated. Repeat this step every 2 minutes.
10. If "no shock advised" appears, perform CPR for two minutes and then reanalyze.
11. Transport and continue treatment as indicated.
12. **Keep interruption of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation.**

General

EMR

EMT

AEMT

Paramedic

Med Control

If pulse returns:

See: Post Resuscitation protocol.

(MANUAL Defibrillation)

AEMT

Clinical Indications:

Cardiac arrest with ventricular fibrillation or pulseless ventricular tachycardia.

Steps	Was performed ?		
	YES	NO	
1. Ensure chest compressions are adequate and interrupted only when necessary.	☐	☐	General
2. Clinically confirm the diagnosis of cardiac arrest and identify the need for defibrillation.	☐	☐	EMR
3. Apply hands free pads to the patient's chest in the proper position (Anterior-Posterior position)	☐	☐	EMT
4. Set the appropriate energy level.	☐	☐	AEMT
5. Charge the defibrillator to the selected energy level. Continue chest compressions while the defibrillator is charging.	☐	☐	Paramedic
6. Hold compressions, assertively state, "CLEAR" and visualize that no one, including yourself, is in contact with the patient.	☐	☐	Med Control
7. Deliver the countershock by depressing the shock button for hands free operation.	☐	☐	
8. Immediately resume chest compressions and ventilations for 2 minutes. After 2 minutes of CPR, analyze rhythm and check for pulse only if appropriate for rhythm.	☐	☐	
9. Repeat the procedure every two minutes as indicated by patient response and ECG rhythm.	☐	☐	
10. Keep interruption of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation.	☐	☐	

Clinical Indications:

Patient without IV access requiring urgent medication administration (e.g., active seizure; opiat

EMR (Narcan only)

AEMT

Steps**Was performed ?**

1. Determine appropriate medication dose per applicable protocol.

YES

NO

2. Draw medication into syringe and carefully dispose of any sharps.

YES

NO

3. Place mucosal atomizer on the end of the syringe and screw into place.

YES

NO

4. Gently insert the atomizer into the naris. Stop once resistance is met.

YES

NO

5. Rapidly administer the medication, 1/2 of dose desired in each nare. Not more than 2 ml of fluid may be administered per nostril

YES

NO

6. Document the results in the PCR.

YES

NO

Medications approved for use IntraNasal are:

1. Fentanyl (Sublimaze)
2. Glucagon
3. Ketamine (Ketalar)
4. Naloxone (Narcan) (2 mg/2ml only)
5. Midazolam (Versed)
6. Ondansetron (Zofran)

General

EMR

EMT

AEMT

Paramedic

Med Control

EMT

Clinical Indications:

- The ITD should be utilized to assist with control of ventilatory rate and improve cardiac preload for adult patients (age 15 or older) who are receiving CPR.
- It may be utilized with an endotracheal tube or with a BVM or SupraGlottic Airway(SGA).

Contraindications:

The ITD should NOT be utilized for patients who have spontaneous respirations. It should be removed from the endotracheal tube/BVM/SGA once spontaneous respirations have returned.

General

Steps**Was performed ?**

YES

NO

1. Ensure the airway is adequate per airway protocol.

☐☐

EMR

2. Place the ITD between the bag and the EtCO₂ detector (for intubated patients) or between the bag and mask (for patients ventilated with the BVM). The elbow O₂ device should be between the ITD and the bag.

☐☐

3. Flip the red switch to the "on" position so that the respiratory timing lights flash.

☐☐

EMT

4. Provide a low tidal volume breath (100 ml) after each flash on the LED timing lights.

☐☐

5. Perform chest compression per the CPR procedure.

☐☐

6. Once there is return of spontaneous circulation and the EtCO₂ climbs above 40, remove the ITD. Allow the EtCO₂ value to control your respiratory rate (bag faster if EtCO₂ >50, bag slower if EtCO₂ < 30). The ITD should also be removed if the patient has spontaneous respirations.

☐☐

AEMT

7. Carefully monitor the placement of the endotracheal tube after movement of the patient, placement of the ITD, and/or removal of the ITD.

☐☐

Paramedic

8. Document the procedure and results in the Patient Care Report (PCR).

☐☐

Med Control

Permissive Hypotension

EMT

Clinical Indications:

An ITD (ResQGard) may be used to provide therapeutic resistance to inspiration in **spontaneously** breathing patients who are **experiencing** symptoms of low blood circulation or hypotension which is secondary to a variety of causes including by not limited to:

- | | |
|-------------------------|----------------------------|
| a. Traumatic Blood Loss | b. Burns |
| c. Dehydration | d. Drug Overdose |
| e. Shock | f. Orthostatic Intolerance |
| g. Sepsis/Toxins | |

Contraindication:

The use of an ITD for Trauma Patients is contraindicated in the following:

- | | | |
|----------------|---------------------------|--------------------|
| a. Flail Chest | b. Respiratory Distress | c. Chest Pain |
| d. CHF | e. Pulmonary Hypertension | f. Aortic Stenosis |

Steps**Was performed ?**

YES

NO

1. Obtain baseline vital signs and monitor cardiac rhythm.

2. Explain to the patient that the device will make it slightly more difficult to breath but the resistance will make them fell better.

3. Apply the ResQGard per the manufacturers guidelines

4. Have the patient breathe in slowly (over 2-3 seconds) and deeply; exhale normally.

5. If **supplemental** oxygen is used,attach the tubing to the oxygen port on the ITD and deliver up to 15 LPM.

6. If available, attach ETCO2 to the exhalation port of the device.

7. Reassess the patients vitals every 3 - 5 minutes.

8. Once the patients blood pressure has stabilized or risen to an acceptable level, continue the use of the ITD for approximately 5 minutes, before discontinuing use.

9. Document the use **of** the the ITD in the Patient Care Report along with initiation time, vital sign response and discontinuation time.

10. Patients with on-going blood loss from trauma should undergo **permissive hypotension** by maintaining systolic blood pressure between 60 and 90mmHg to avoid "blowing off" a clot that has formed on the end of the injured vessel. See also TXA protocol

General

EMR

EMT

AEMT

Paramedic

Med Control

Paramedic

Indication: To be used in securing an endotracheal tube in patients who require aggressive airway management. (ie: Combative Head Injury).

Important: Use extreme caution when deciding to use MAI. . Simple airway maneuvers are preferred first (positioning, nasal airways, suctioning, BVM, CPAP). Special consideration must be made for obese patients. Must have video laryngoscope, bougie, Supraglottic airway, Cricothyrotomy kit, Waveform capnography mandatory

Steps	Was performed ?		
	YES	NO	
1. Hyper-oxygenate patient with NRB and 100% oxygen (3 minutes or 8 tidal volume breaths) * If SpO2 is not greater than 90% after above, add CPAP to preoxygenate * Apply nasal cannula with 15 lpm oxygen to provide "apneic oxygenation" after sedation	☐	☐	EMR
2. Assure patency of IVs. (Preferably two large bore IV's).	☐	☐	
3. Observe cardiac monitor; Pulse oximeter; End Tidal CO2; Blood pressure	☐	☐	EMT
4. Consider pre-medicating patient: Fentanyl (Sublimaze) 0.5 - 1 mcg/kg IVP Maximum 3 mcg/kg Pediatric patients < 3 yo - Atropine 0.01 mg/kg IVP Maximum 0.5 mg Adults exhibiting bradycardia - Atropine 0.5 mg IVP	☐	☐	
5. Administer Induction medication Ketamine (Ketalar) 1 - 1.5 mg/kg IVP	☐	☐	AEMT
6. Reassess patient. Wait for sedation to take place. Jaw relaxation indicates it is ok to proceed.	☐	☐	
7. Perform Intubation. A. Use External Laryngeal Manipulation (ELM) DO NOT bag the patient. Use nasal cannula during intubation attempt to provide "apneic oxygenation" 15 lpm oxygen by nasal cannula B. If still unable to intubate, immediately place SGA. Avoid Any Hypoxia	☐	☐	Paramedic
8. Once intubation is complete, inflate the ETT cuff and confirm placement by auscultation, AND capnography. (Waveform capnography is the "gold standard" for confirmation.)	☐	☐	
9. Once airway is secure, transport patient rapidly to the nearest appropriate facility.	☐	☐	Med Control
10. Post-intubation sedation may be achieved with Fentanyl and Versed assuming blood pressure parameters are met.	☐	☐	

AEMT

Clinical Indications:

- Patients with hypotension (SBP < 90), clinical signs of shock, and at least one of the following signs:
 - Jugular vein distention.
 - Tracheal deviation away from the side of the injury (often a late sign).
 - Absent or decreased breath sounds on the affected side.
 - Hyper-resonance to percussion on the affected side.
 - Increased resistance when ventilating a patient

~ OR ~

- Patients in traumatic arrest with chest or abdominal trauma for whom resuscitation is indicated. These patients may require bilateral chest decompression even in the absence of the signs above.

Steps**Was performed ?**

YES

NO

1. Don personal protective equipment (gloves, eye protection, etc.).

2. Administer high flow oxygen.

3. Identify and prep the site:

- Locate the second intercostal space in the mid-clavicular line on the same side as the pneumothorax.
- Prepare the site with povidone-iodine ointment or solution.

[Note: If unable to place anteriorly, lateral placement may be used at the fourth ICS mid-axillary line.]

4. Insert the catheter (preferred 3.25 inch ARS catheter) into the skin over the third rib and direct it just over the top of the rib (superior border) into the interspace.

5. Advance the catheter through the parietal pleura until a "pop" is felt and the air or blood exits under pressure through the catheter, then advance catheter only to chest wall.

6. Remove the needle, leaving the plastic catheter in place.

7. Secure the catheter hub to the chest wall with dressings and tape.

8. Consider placing a finger cut from an sterile exam glove over the catheter hub. Cut a small hole in the end of the finger to make a flutter valve. Secure the glove finger with tape or a rubber band. (Note - don't waste much time preparing the flutter valve; if necessary control the air flow through the catheter hub with your gloved thumb.)

General

EMR

EMT

AEMT

Paramedic

Med Control

EMT

Clinical Indications:

CPAP indicated for patients over age 12 with pulmonary edema, COPD, Asthma, CHF, pneumonia, submersion injury, respiratory failure who is cooperative and has spontaneous respirations. These patients may demonstrate hypoxia (SpO₂ < 90%), Tachypnea, retractions, accessory muscle use, rales (crackles) in lung fields

Contraindications:
Patient's requiring a secure airway (i.e. endotracheal intubation)

Contraindications:

Depressed LOC (i.e. GCS < 9; Hypotension (SBP < 90mmHg); Respiratory or Cardiac Arrest; major trauma/facial injury; uncontrolled vomiting; Known or suspected pneumothorax; gastric distention (i.e. bowel obstruction. Patients who are unable to maintain their own airway are NOT candidates for CPAP

Steps**Was performed ?**

	YES	NO	
1. Ensure adequate oxygen supply to ventilation device.	☐	☐	General
2. Explain the procedure to the patient.	☐	☐	
3. Consider placement of a nasopharyngeal airway.	☐	☐	EMT
4. Place the delivery mask over the mouth and nose. Oxygen should be flowing at this point.	☐	☐	
5. Secure the mask with provided straps starting with the lower straps until minimal air leak occurs.	☐	☐	AEMT
6. Evaluate the response by the patient. Assess breath sounds, oxygen saturation, and general appearance of the patient.	☐	☐	
7. Titrate oxygen to patient response. 5 cm H₂O for Asthma, COPD, Submersion injury, Pneumonia; 10 cmH₂O for CHF/ Acute Pulmonary Edema	☐	☐	Paramedic
8. Encourage the patient to allow forced ventilation occur. Observe closely for signs of complication. The patient must be breathing on their own for optimal use of the CPAP device.	☐	☐	
9. Document time and response on patient care report (PCR).	☐	☐	Med Control

EMR

Goals: Minimize secondary injury to spine in patients who have, or may have an unstable spinal injury

Minimize patient morbidity from immobilization procedures

Assessment: ALL LEVELS = **EMR, EMT, AEMT, PARAMEDIC**

- 1: assess scene to determine risk of injury; mechanism alone should not determine need to immobilize. High risk mechanisms = MVC's, Axial loading injuries to spine, Falls > 10 feet
- 2: assess patient in position found. Determine if C-collar needs to be applied
- 3: assess mental status, neurologic deficits, spinal pain or tenderness, evidence of intoxication or other severe injuries

Treatment:

- 1: Immobilize with c-collar if there are any of the following
 - a: Patient complains of midline neck or spine pain
 - b: Any midline neck or spinal tenderness with palpation
 - c: Any abnormal mental status, neuro deficit, extreme agitation
 - d: Any alcohol or drug intoxication
 - e: Another painful distracting injury present
 - f: Torticollis in children
- 2: Penetrating injury to neck **should not** receive spinal immobilization unless neurologic deficit is present
- 3: If extrication is required from vehicle, place c-collar if indicated and allow patient to self-extricate if able. Extricate infants and toddlers in car seats while strapped to car seat. Other situations requiring extrication may use a padded long board using lift and slide technique
- 4: **Patients should not routinely be transported on long boards** unless clinical situation warrants its use. If used, long boards should be padded or have a vacuum mattress applied to minimize secondary injury to the patient

Safety considerations: Be aware of potential airway compromise/aspiration/nausea and vomiting, facial and oral bleeding. Tight straps can limit chest excursion, pressure injures to skin possible, spine board is uncomfortable

Patients likely to benefit from immobilization should undergo this treatment

Patients who are not likely to benefit from immobilization should not be immobilized

Ambulatory patients may be safely immobilized on gurney with c-collar

Long spine boards should be reserved for patient movement in non-ambulatory patients who meet immobilization criteria and should be removed as soon as is practical

General

EMR

EMT

AEMT

Paramedic

Med Control

EMR

Clinical Indications:

- Immobilization of an extremity for transport, either due to suspected fracture, sprain or injury.
- Immobilization on 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 one joint proximal and distal to the area of suspected injury, or the area where the medical device will be placed.

☐☐

4. Do not secure the splint directly over the injury or device.

☐☐

5. Place the splint and secure with Velcro, straps, or bandage material (e.g., kling, kerlex, cloth bandage, etc.) depending on the splint manufacturer and design.

☐☐

6. Document pulses, sensation, and motor function after placement of the splint. If there has been a deterioration in any of these 3 parameters, remove the splint and reassess.

☐☐

7. If a femur fracture is suspected and there is no evidence of pelvic fracture or instability, the following procedure may be followed for placement of a femoral traction splint:

- a) Assess neurovascular function as in #1 above.

- b) Place the ankle device over the ankle.

- c) Place the proximal end of the traction splint on the posterior side of the affected extremity, being careful to avoid placing too much pressure on genitalia or open wounds. Make certain the splint extends proximal to the suspected fracture. If the splint will not extend in such a manner, reassess possible involvement of the pelvis.

- d) Extend the distal end of the splint at least 6 inches beyond the foot.

- e) Attach the ankle device to the traction crank.

- f) Twist until moderate resistance is met.

- g) Reassess alignment, pulses, sensation, and motor function. If there has been deterioration in any of these 3 parameters, release traction and reassess.

☐☐

8. Document the time, type of splint, and the pre and post assessment of pulse, sensation, and motor function in the patient care report (PCR).

☐☐

General

EMR

EMT

AEMT

Paramedic

Med Control

Clinical Indications:

- Inability to secure an endotracheal tube in a patient who does not have a gag reflex where at least one failed intubation attempt has occurred.
- Intubation is impossible due to patient access or difficult airway anatomy

EMT (apneic only)

Absolute Contraindications:

Deforming facial trauma

AEMT

Relative Clinical Contraindications:

Pulmonary fibrosis · Morbid obesity

General

Steps**Was performed ?**

YES

NO

EMR

1. Prepare, position and oxygenate the patient with 100% Oxygen.

2. Choose proper size SGA airway per package recommendations.

3. Check the tube for proper inflation and deflation. iGel does not require inflation

4. Lubricate with a water-soluble jelly.

5. Insert the King airway rotated 45 degrees into posterior pharynx. Rotate into position; insert the iGel in the midline until it seats. No inflation required

6. Inflate the cuffs per the manufacturer's recommendations until a seal is obtained.

7. Connect the SGA to a BVM and assess for breath sounds and air entry.

8. **Apply end tidal carbon dioxide monitor and record readings at the scene, enroute to the hospital, and at the hospital.**

9. Re-verify King placement after every move and upon arrival in the ED.

10. Document the procedure, time, and result on the patient care report (PCR).

EMT

AEMT

Paramedic

Med Control

EMT

Clinical Indications:

When TASER darts have been deployed by Law Enforcement Officers to subdue adult (17 years and older) perpetrators.

Steps**Was performed ?**

1. Once a TASER has been used against a perpetrator and the scene has been secured, a medical evaluation is necessary to ensure that the perpetrator is safe to be taken into custody.
2. **The default procedure is always to transport the patient to the hospital by ambulance with a Law Enforcement Officer (LEO) in attendance.**
3. Recognize that a TASER dart removal in the field should proceed only if **ALL** criteria for refusal of transport are met.
4. After a 10 minute observation period in the field (starting from arrival at the patient's side) all of the following criteria must be met:
 - The patient must have a GCS of 15
 - Patient must have a heart rate of > 110 bpm, a respiratory rate of > 12 bpm, Systolic BP of > 100mmHg and < 180 mmHg
 - The patient has no other acute medical or psychiatric conditions requiring physician evaluation
 - All TASER barbs have been accounted for
 - No tetanic muscle contractions
 - Patient does not request transport
 - Patient is > than 17 years of age
 - Patient has a current Tetanus Booster (If the patient has not had a Tetanus booster within 10 years or the status is unknown, LEO may transport to the hospital if all other criteria are met.)
 - **Law Enforcement are to be informed that it is the responsibility of the LEO to ensure that the patient receives a tetanus booster within 72 hours.**
5. Once all of the above criteria have been met, the following steps must be followed:
 - Use scissors to cut the wires.
 - Wearing PPE, grasp the dart and remove with a quick, firm pull, perpendicular to the skin of the patient.
 - Clean and cover each wound, as per Wound Care Protocol.
 - Follow Refusal of Transport Protocol.

General

EMR

EMT

AEMT

Paramedic

Med Control

Transcutaneous Pacing

- Monitored heart rate less than 60 per minute with signs and symptoms of inadequate cerebral or cardiac perfusion such as:
 - o Chest pain
 - o Hypotension
 - o Pulmonary edema
 - o Altered LOC, disorientation, confusion, etc.
 - o Ventricular ectopy.
 - Asystole, pacing must be done early to be effective.
 - PEA, where the underlying rhythm is bradycardic and reversible causes have been treated.

Paramedic

General

Steps

Was performed ?

YES

NO

1. Attach standard four-lead monitor.

☐☐

EMR

 2. Apply defibrillation/pacing pads to chest and back:

- One pad to left mid chest next to sternum, one pad to mid left posterior chest next to spine.

☐☐

3. Rotate selector switch to pacing option.

☐☐

EMT

4. Adjust heart rate to 70 BPM for an adult and 100 BPM for a child.

☐☐

5. Note pacer spikes on EKG screen.

☐☐

6. Slowly increase output until capture of electrical rhythm on the monitor.

☐☐

AEMT

7. If unable to capture while at maximum current output, stop pacing immediately.

☐☐

8. If capture observed on monitor, check for corresponding pulse and assess vital signs.

☐☐

Paramedic

9. Consider the use of sedation or analgesia if patient is uncomfortable.

☐☐

10. Document the dysrhythmia and the response to external pacing with ECG strips in the PCR.

☐☐

Med Control

AEMT

Clinical Indications:

- Inability to obtain adequate peripheral access for patient requiring emergency medication administration.
- Should not be accessed for routine use
- Access of an existing venous catheter for medication or fluid administration in emergency situation
- Central venous access in a patient in cardiac arrest.

Steps

Was performed ?

1. Clean the port of the catheter with alcohol wipe.

YES

NO

2. Using sterile technique, withdraw 5 - 10 ml of blood and place syringe in sharps box.

3. Using 5 ml of normal saline, access the port with sterile technique and gently attempt to flush the saline.

4. If there is no resistance, no evidence of infiltration (e.g., no subcutaneous collection of fluid), and no pain experienced by the patient, then proceed to step 5. If there is resistance, evidence of infiltration, pain experienced by the patient, or any concern that the catheter may be clotted or dislodged, do not use the catheter.

5. Begin administration of medications or IV fluids slowly and observe for any signs of infiltration. If difficulties are encountered, stop the infusion and reassess.

6. Record procedure, any complications, and fluids/medications administered in the Patient Care Report (PCR).

General

EMR

EMT

AEMT

Paramedic

Med Control

AEMT

Clinical Indications:

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

Steps**Was performed ?**

- | | YES | NO |
|--|--------------------------|--------------------------|
| 1. Saline locks may be used as an alternative to an IV tubing and IV fluid in every protocol at the discretion of the ALS professional. (0.9% NaCl and 3 ml volume) | ☐ | ☐ |
| 2. Paramedics can use intraosseous access where threat to life exists as provided for in the Venous Access - Intraosseous procedure. | ☐ | ☐ |
| 3. Use the largest catheter bore necessary based upon the patient's condition and size of veins. | ☐ | ☐ |
| 4. Fluid and setup choice is preferably: <ul style="list-style-type: none"> • Normal Saline with a macro drip (10 drop/cc) for trauma, hypovolemia, or medical conditions, and • Normal Saline with a micro drip (60 drop/cc) for medical infusions. | ☐ | ☐ |
| 5. Rates are preferably: <ul style="list-style-type: none"> • Adult: KVO: 60 ml/hr (1 drop/6 sec for a macro drip set) • Pediatric KVO: 30 ml/hr (1 drop/12 sec for a macro drip set) | ☐ | ☐ |
| 6. If shock is present: <ul style="list-style-type: none"> • Adult: 500 ml fluid boluses repeated as long as lungs are dry and BP < 90.
- Consider a second IV line • Pediatric: 20 ml/kg boluses repeated PRN for poor perfusion. | ☐ | ☐ |

General

EMR

EMT

AEMT

Paramedic

Med Control

Clinical Indications:

Patients where rapid, regular IV access is unavailable with any of the following:

- Cardiac arrest.
- Multisystem trauma with severe hypovolemia.
- Severe dehydration with vascular collapse and/or loss of consciousness.
- Respiratory failure/respiratory arrest.

Contraindications:

- Fracture proximal to proposed intraosseous site.
- History of Osteogenesis Imperfecta.
- Current or prior infection at proposed intraosseous site.
- Previous intraosseous insertion or joint replacement at the selected site.

AEMT

General

EMR

EMT

AEMT

Paramedic

Med Control

Steps**Was performed ?**

YES

NO

1. Personal protective equipment (gloves, eye protection, etc.).

2. Identify anteromedial aspect of the proximal tibia (bony prominence below the knee cap). The insertion location will be 1-2 cm (2 finger widths) below this. If this site is not suitable, and patient > 12 years of age, identify the anteriomedial aspect of the distal tibia (2 cm proximal to the medial malleolus). If available, may use yellow EZIO needle in the humeral head. Must have attended training session to use the humeral head site

3. Prep the site with alcohol swab.

4. For manual pediatric devices, hold the intraosseous needle at a 60 to 90 degree angle, aimed away from the nearby joint and epiphyseal plate, twist the needle handle with a rotating grinding motion applying controlled downward force until a "pop" or "give" is felt indicating loss of resistance. Do not advance the needle any further.

5. For the EZ-IO intraosseous device, hold the intraosseous needle at a 60 to 90 degree angle. Aimed away from the nearby joint and epiphyseal plate, power the driver until a "pop" or "give" is felt indicating loss of resistance. Do not advance the needle any further.

6. Remove the stylette and place in an approved sharps container.

7. Attach a syringe filled with at least 5 cc NS; aspirate bone marrow for manual devices only, to verify placement: then inject at least 5 cc NS to clear the lumen of the needle.

8. Attach the IV line and adjust flow rate. A pressure bag may assist with achieving desired flows.

9. Stabilize and secure the needle with dressings and tape.

10. You may administer, through the IO needle, 10 to 20 mg (1 to 2 ml) of cardiac **Lidocaine** in adult patients who experience infusion-related pain. This may be repeated prn to a Maximum of 60 mg (6 ml).

11. Following the administration of any IO medications, flush the IO line with 10 ml of IV fluid.

12. Document the procedure, time, and result (success) on/with the Patient Care Report (PCR).

EMR

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. | ☐ | ☐ | General |
| 2. If active bleeding, hold direct pressure and elevate the affected area if possible. Do not rely on "compression" bandage to control bleeding. Direct pressure is much more effective. | ☐ | ☐ | |
| 3. Once bleeding is controlled, irrigate contaminated wounds with saline as appropriate (this may have to be avoided if bleeding was difficult to control). Consider analgesia per protocol prior to irrigation. | ☐ | ☐ | EMR |
| 4. Cover wounds with sterile gauze/dressings. Check distal pulses, sensation, and motor function to ensure the bandage is not too tight. | ☐ | ☐ | |
| 5. Monitor wounds and/or dressings throughout transport for bleeding. | ☐ | ☐ | EMT |
| 6. Document the wound and assessment and care in the Patient Care Report (PCR). | ☐ | ☐ | |

General

EMR

EMT

AEMT

Paramedic

Med Control

Capnography

Considered the ventilation vital sign

Capnography gives a true accurate picture of ventilation status frequently before patient symptoms are recognized by health care providers.

Gives objective data regarding clinical course of management and treatment

Arterial blood gas CO₂ has a normal range of 35 – 45.

EtCO₂ will normally be within 0 – 5 mm of ABG CO₂ value

ETCO₂ can be used to estimate ABG PaCO₂

Elevated ETCO₂ = Hypoventilation / ROSC / increased metabolism

Decreases ETCO₂ = Hyperventilation / decreased metabolism

Prehospital Airway

- *Intubated Patients*
 - Maintains Airway Presence during transport and patient movement
 - Quality of Ventilation
 - Early notification of problems or ROSC
 - Advantages to head trauma patients by maintaining ventilation rates in head injured patients
- *Non Intubated Patients*
 - Assesses ventilation status in patients with respiratory distress
 - Shows bronchodilator effectiveness
 - Indicates patients ventilation rate
 - Diabetics patients
- *The diagnostic element of CO₂ is in the waveform not in the numeric value!!!*

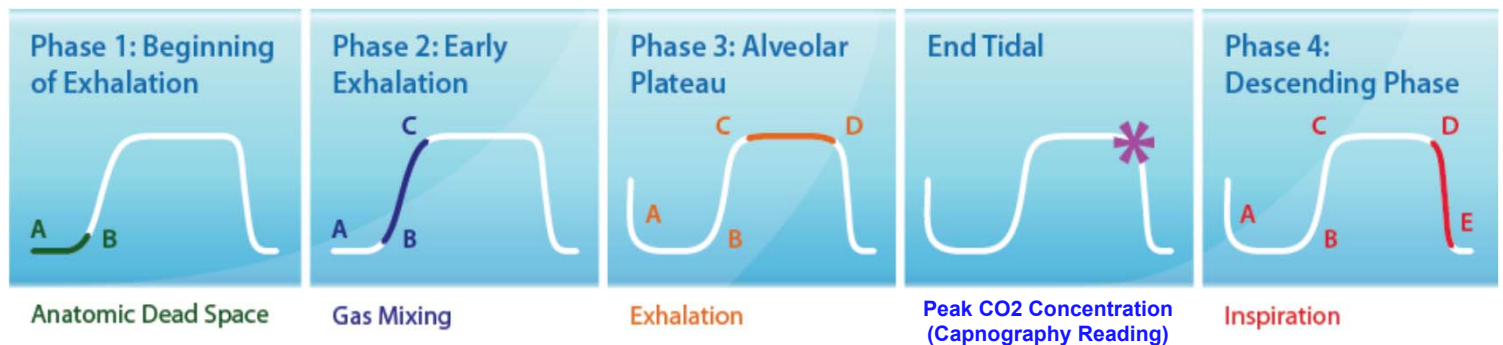
False Positives Possible?

After recent ingestions of a carbon beverages or alcohol, this can give a false positive EtCO₂ for 2 – 3 ventilated breaths.

Several ventilations should wash out stomach CO₂ content.

Displacement of ETT against the lateral tracheal wall can cause flat wave

Phases of the Capnogram



Normal Capnography Waveform



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 captured 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 - Decrease levels when determined 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 hypopharynx and decrease if you remove it from the hypopharynx and move toward the esophagus.(5)

Diabetic – In DKA patients, Kussmaul 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 in the seizure patient due to the 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 airway presence 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 resolve 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 the cannula with CPAP as long as you can good get a good seal.

It is a good idea to place it on the patient to monitor respiratory status of your patient during CPAP use. Prevents missing apnea in CPAP patients

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.

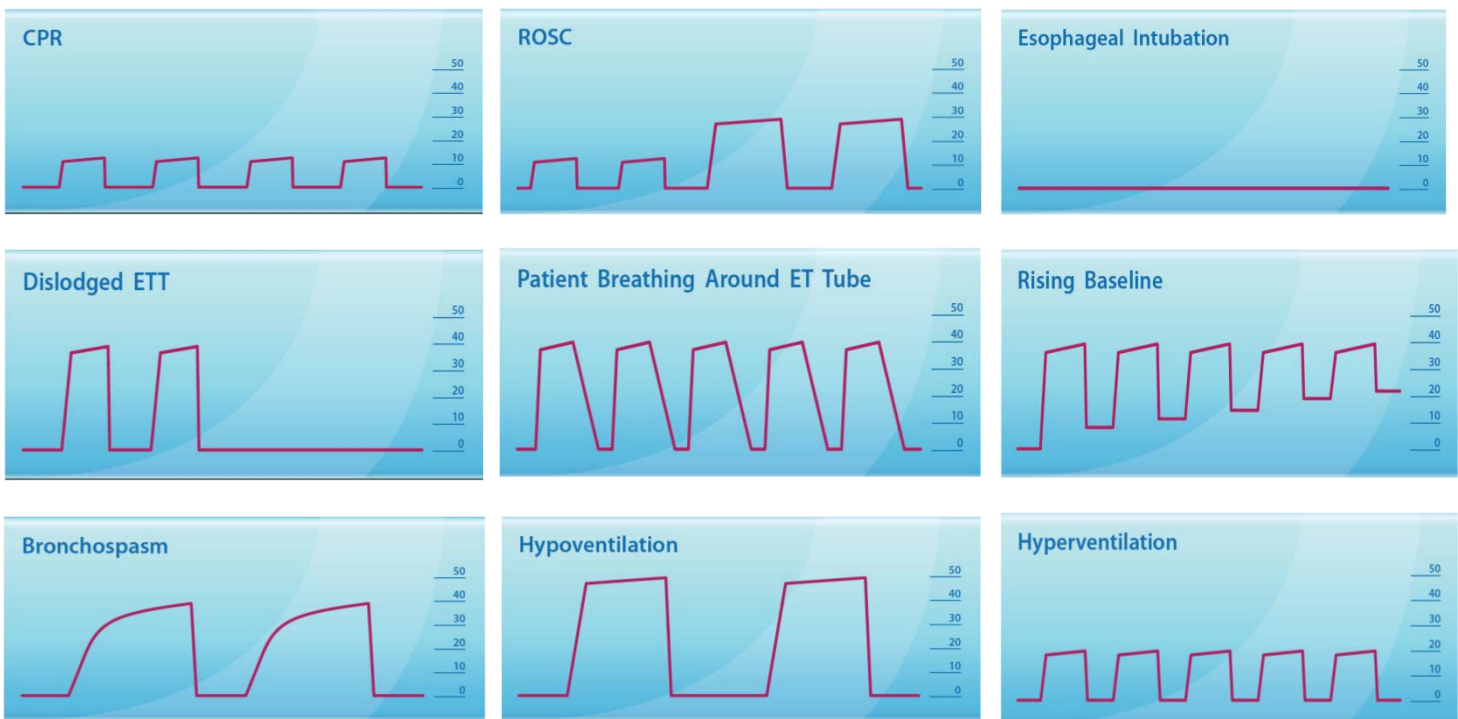
Note: Shark-fin waveform appearance in pregnant patients can be a normal finding and does not specifically indicate bronchoconstriction.

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



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- (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 1997;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

Facial palsy - weakness on one side of face with smile.	Absent = 0	Mild = 1	Moderate to Severe (little to no facial movement) = 2
Arm motor function - the same test as Cincinnati and Los Angeles scales.	Normal to mild = 0	Moderate (able to lift arm, but unable to hold it for 10 seconds) = 1	Severe (unable to raise arm) = 2
Leg motor function - ask the patient to lift each leg.	Normal to mild (able to lift leg and hold for five seconds) = 0	Moderate (able to lift, but unable to hold for five seconds) = 1	Severe (unable to lift one leg off of bed at all) = 2
Head and gaze deviation - if the patient's head or eyes are towards one side, ask them to look towards the other side.	Absent = 0	Present (unable shift gaze past midline) = 1	
If a right-side deficit is found, check for aphasia (inability to say or hear words correctly). Ask the patient to close their eyes and make a fist.			
	Performs both tasks correctly = 0	Performs 1 task correctly = 1	Performs neither task = 2
If a left-side deficit is found, check for agnosia (an inability to process sensory information). Touch their arm and ask "whose arm is this?" Then ask them to raise both hands and clap.	Patient recognizes his/her arm = 0	Does not recognize his/her arm or the impairment = 1	Does not recognize his/her arm nor the impairment = 2
A stroke is likely with a score above 1, and ELVO is likely if the cumulative score is above 5.			

2. Cincinnati Stroke Scale**Facial Droop**☐

Normal: Both sides of face move equally

☐

Abnormal: One side of face does not move at all

Arm Drift☐

Normal: Both arms move equally or not at all

☐

Abnormal: One arm drifts compared to the other (Close eyes and hold out both hands)

Abnormal Speech☐

Normal: Patient uses correct words with no slurring "You can't teach an old dog new tricks"

☐

Abnormal: Slurred or inappropriate words or mute