Prehospital Care Protocol
02-2016
Medical Director Dr. Mark Swift, DO

Trumbull Memorial Hospital
Center for Prehospital Care

Patient Care Protocols – 2016 – Version 1.2 (02/2016)

Legend	Definition
EMR	Emergency Medical Responder Standing Orders
EMT	Emergency Medical Technician Standing Orders
AEMT	Advanced Emergency Medical Technician Standing Orders
Paramedic	Paramedic Standing Orders
Extended	Special Permission Granted by Medical Direction
	General information to consider

This document outlines the standing orders for providers of the appropriate level acting under the medical direction provided by Trumbull Memorial Hospital. These standing orders have been written and approved by the present EMS Board and Medical Director prior to publishing. These orders should be considered a "living document" and are subject to edits and updates on a regular basis to ensure the continuity of evidence based practices.

This protocol may not be altered or tampered with in any way without the exclusive written permission of the EMS Medical Director. Any deviation from this protocol must reside within the State of Ohio EMS Scope of Practice and be justified to the EMS Medical Director and the EMS Coordinator as a decision that was in the best interest of the patient.

This document may be reproduced and distributed for free to EMS providers and agencies operating under the medical direction of Trumbull Memorial Hospital or others for educational purposes.

Questions and comments should be directed to:

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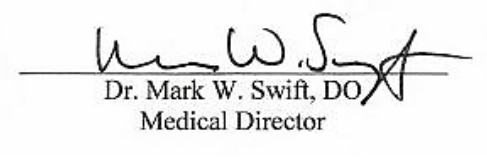
As the EMS Medical Director for Trumbull Memorial Hospital, I do authorize use of the medical treatments, procedures, and guidelines contained in this document to agencies operating under these standing orders.


Dr. Mark W. Swift, DO
Medical Director

DISCLAIMER: Although the authors of this document have made great efforts to ensure that all the information is accurate, there may be errors. The authors cannot be held responsible for any such errors, and any suspected error should be immediately reported to the EMS Medical Director or the EMS Coordinator.

Notary Page for Entire Document

Witness of Signature

State of Ohio
County of Trumbull
On this 20 day of January, 20 14.
Before me, the undersigned notary public, personally appeared Mark W Swift DO
Name of Person Acknowledging

proved to me through satisfactory evidence of identification to be the person whose name is signed on this document and acknowledged to me that he/she signed it voluntarily for its stated purpose.

Signature of Notary Public

April 23, 2017
Commission Expiration Date of Notary Public

MARY ELLEN OZANICH - NOTARY PUBLIC
COMM. EXP: APR 23, 2017
STATE OF OHIO

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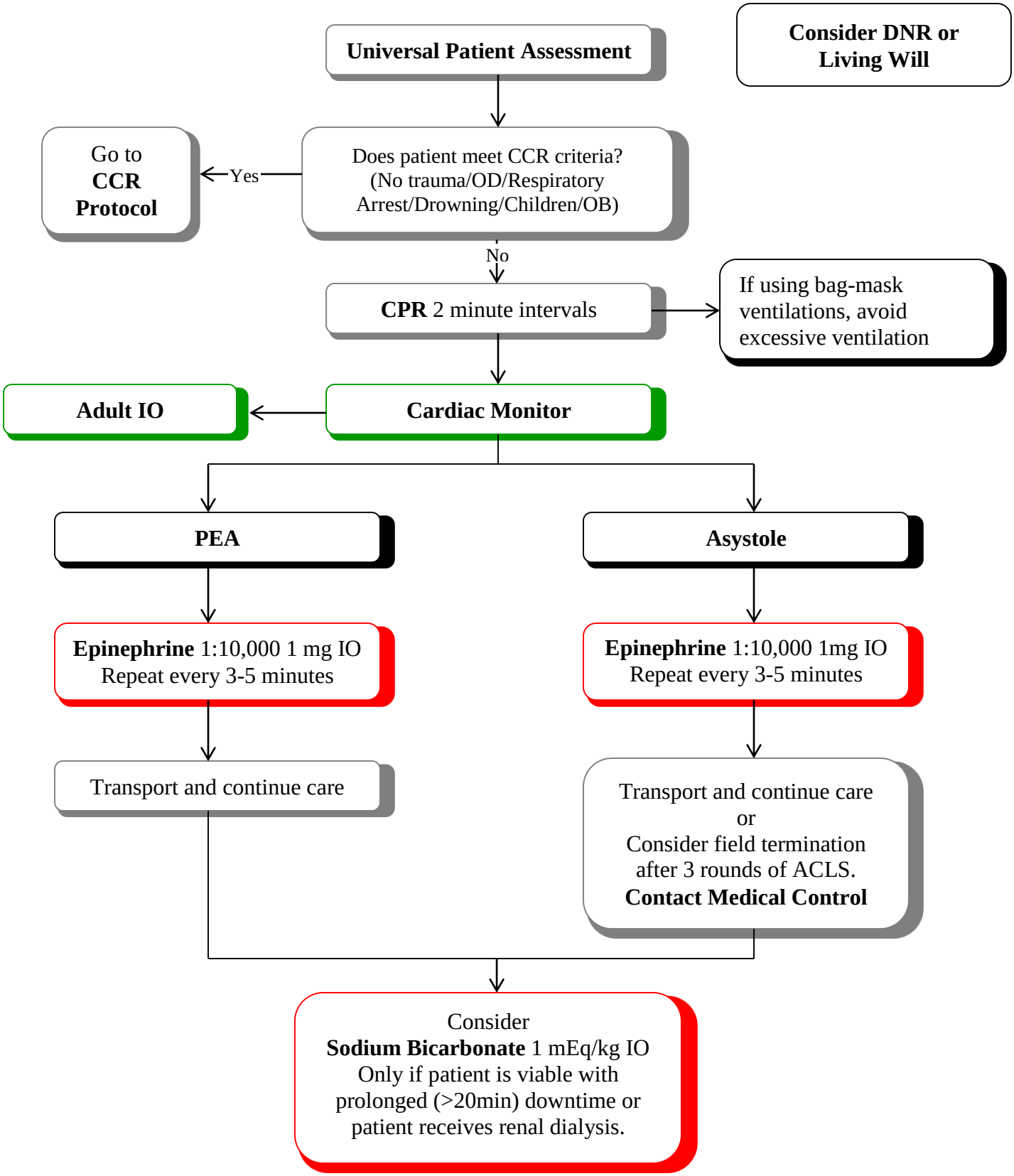
Adult Protocols

EMR | EMT | AEMT | Paramedic | Extended

Cardiovascular

Asystole/PEA



EMR | EMT | AEMT | Paramedic | Extended

Bradycardia

Only base treatment on the palpable pulse rate, not the monitor's rate!

Universal Patient Assessment

Cardiac Monitor
12-Lead ECG
If **EMT** or STEMI, transmit

Adult IV/IO

Symptomatic?
Blood Pressure <90 Systolic
Chest Pain, Altered Mental Status

Suspect Inferior MI with bradycardia and low BP. Perform right sided 12 Lead ECG.

No → Monitor

Yes → **Atropine** 0.5mg IV/IO
May repeat in 5 minutes
Maximum 3mg

Epinephrine Push-Dose Pressor
0.5-2 mL every 2-5 min

Consider **Sedation**
Ketamine 0.4mg/kg IV/IO/IM

Second Degree Type II or Third Degree Heart Block → **Transcutaneous Pacing**

If pacing, activate the cardiac cath lab

Bradycardia has many causes. Consider reversing the cause (hypoxia, MI). Slow heart rates may be normal in patients who are physically fit or on blood pressure medications.

EMR | EMT | AEMT | Paramedic | Extended

Cardiac Dysrhythmias

Only base treatment on the palpable pulse rate, not the monitor's rate!

Treat your patient, not the monitor!

Often it is best to discover and treat the underlying cause of the dysrhythmia, rather than directly treating the dysrhythmia.

Universal Patient Assessment

↓

Consider the need for rapid transport or ALS response.

↓

Adult IV/IO

↓

Cardiac Monitor
12-Lead ECG
If **EMT** or STEMI, transmit

↓

Assess for the cause of the dysrhythmia and treat accordingly.
Considerations:
- Myocardial Infarction
- Hypoxia
- Sepsis
- Electrolyte Imbalance
- Dehydration
- Anxiety
- Exercise
- Caffeine
- Asthma Medications

EMR | EMT | AEMT | Paramedic | Extended

Cardiocerebral Resuscitation

Not appropriate for trauma/OD/Respiratory Arrest/Drowning/Children/OB

O2 NRB 15 LPM

CCR Pit Crew
Begin 200 Compressions

Adult IO

200 Compressions

Analyze Rhythm and Pulse
Defibrillate if indicated

200 Compressions

Epinephrine 1:10,000
1mg IO

200 Compressions

Asystole?

Yes

Consider **Termination of Resuscitation**
Contact Medical Control

No

Go to appropriate protocol:
V-Fib/Pulseless V-Tach
Asystole/PEA

Do not spend longer than 5 seconds on a pulse check.

Clinical Considerations
If signs of puberty are present, treat as an adult in cardiac arrest.

EMR | EMT | AEMT | Paramedic | Extended

Chest Pain / STEMI

EMTs may assist patient with their prescribed Nitro.

< 15 minute scene time ideal with 12-Lead performed within 5 minutes of patient contact

Any suspected inferior STEMI receives a right sided 12-Lead

Universal Patient Assessment

Oxygen
Titrate SpO2 to 94%

Cardiac Monitor
12-Lead ECG
If **EMT** or STEMI, transmit

Aspirin 324 mg PO

Obtain a thorough OPQRST and SAMPLE.
Remember other pertinent symptoms: SOB, nausea, vomiting, sweating, pale/ashen skin, past history of cardiac disease.

When giving report to receiving facility, start conversation by identifying your unit, and say "I have a STEMI," then explain why.

Suspected Inferior STEMI

Systolic BP >100mmHg
Patient appears hemodynamically stable.

Yes

Rapid Transport

Adult IV/IO

Withhold if pulse <70bpm
Nitro Paste 1"
or
Nitro Tab 0.4mg SL
EMT Call-In Order
Be prepared for hypotension
May repeat tab once

No

Rapid Transport

Adult IV/IO

Fluid Boluses as necessary to maintain perfusion
Monitor for pulmonary edema

Other Cardiac Chest Pain/STEMI

Nitro Paste 1"
or
Nitro Tab 0.4mg SL
EMT Call-In Order
Repeat tab every 3 min
Withhold if BP <100mmHg Systolic

Adult IV/IO

Consider
Fentanyl 50mcg IV/IO

EMR | EMT | AEMT | Paramedic | Extended

Hypertension

Clinical Considerations
Hypertension is defined as:
- SBP ≥ 200 mmHg
- DBP ≥ 120mmHg

Pertinent history to obtain includes:
- CVA
- Current pregnancy
- History of heart failure

Clinical Considerations
Hypertension can be reactive. Assess for the underlying cause:
- Stroke
- Intracranial Pressure
- Stress / Anxiety
- Medications

Universal Patient Assessment

↓

Adult IV/IO

↓

Cardiac Monitor
12-Lead ECG
If **EMT** or STEMI, transmit

↓

Go to appropriate protocol based on signs and symptoms.

↓

Continuous Reassessment

EMR | EMT | AEMT | Paramedic | Extended

Narrow Complex Tachycardia

SVT originating in the atria (A-fib/A-flutter) does not respond to Adenosine.

Only base treatment on the palpable pulse rate, not the monitor's rate!

Universal Patient Assessment

Oxygen
Titrate SpO2 to 94%

Adult Airway Protocol

Cardiac Monitor
12-Lead ECG
If **EMT** or STEMI, transmit

Palpable Pulse?

No → **Appropriate Arrest Protocol**

Adult IV/IO

Narrow Complex Tachycardia

Consider screening for the underlying cause of the tachycardia.

Vagal Maneuvers:
Valsalva

Manufacturer's Doses
- Zoll – 75 J initial
  - ✓120, 150, 200, 200, 200
- Physio – 50-100 J initial
  - ✓150, 200, 200, 200, 200
- Philips – 50-100 J initial
  - ✓150, 200, 200, 200, 200

Stable / Unstable

PSVT
Heat Rate >150

Vagal Maneuvers

Adenosine 6mg rapid IVP

Adenosine 12mg rapid IVP
May repeat once if there was any change following first 12

A-fib/A-flutter
Heart Rate >150

Fluid Bolus
1000mLNormal Saline
Repeat x1 if lung sounds are clear.

PSVT
A-fib/A-flutter
Heart Rate >150

Synchronized Cardioversion
at **Manufacturer's Doses**
Consider ketamine 0.4mg/kg IM prior, but do not delay cardioversion

If patient converts at any time with cardioversion, reassess, monitor, oxygenate, and transport.

EMR | EMT | AEMT | Paramedic | Extended

Non-Traumatic Shock

Non-Traumatic Shock could present with dizziness, pale, cool, clammy skin, anemia, and orthostatic hypotension.

Non-Traumatic Shock could have origins that are cardiac, immunologic, obstructive, or resulting from dehydration.

Epi Push-Dose Conversion
Once mixed properly to 10 mcg/mL, this is the conversion:

Every 2 Minutes
- 0.5mL q 2 min = 2.5 mcg/min
- 1mL q 2 min = 5 mcg/min
- 1.5mL q 2 min = 7.5 mcg/min
- 2mL q 2 min = 10 mcg/min

Every 5 Minutes
- 1mL q 5 min = 2 mcg/min
- 1.5mL q 5 min = 3 mcg/min
- 2mL q 5 min = 4 mcg/min

Universal Patient Assessment

↓

Oxygen
Titrate SpO2 to 94%
→ Consider Rapid Transport

↓

Cardiac Monitor
12-Lead ECG
If **EMT** or STEMI, transmit

↓

Adult IV/IO

↓

Fluid Bolus
1000mLNormal Saline
if lung sounds are clear.
→ Maintain SBP 90 mmHg

Still hypotensive

↓

Repeat Fluid Bolus
1000mLNormal Saline
if lung sounds are clear.

Still hypotensive

↓

Repeat Fluid Bolus
1000mLNormal Saline
if lung sounds are clear.

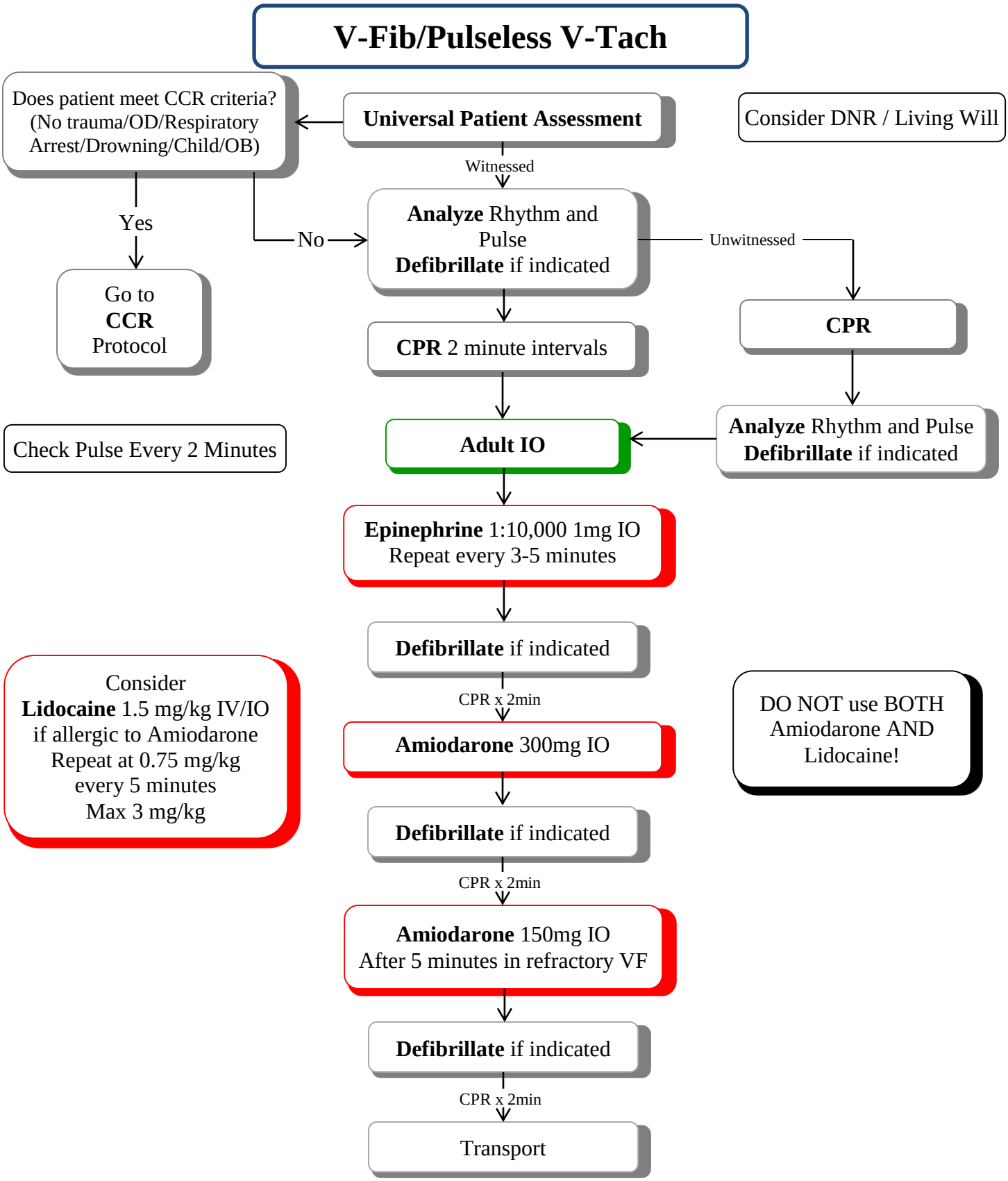
Still hypotensive

↓

If systolic BP < 80 mmHg and you suspect anaphylactic, spinal, or septic shock:
Epinephrine Push-Dose Pressor
0.5-2 mL every 2-5 min

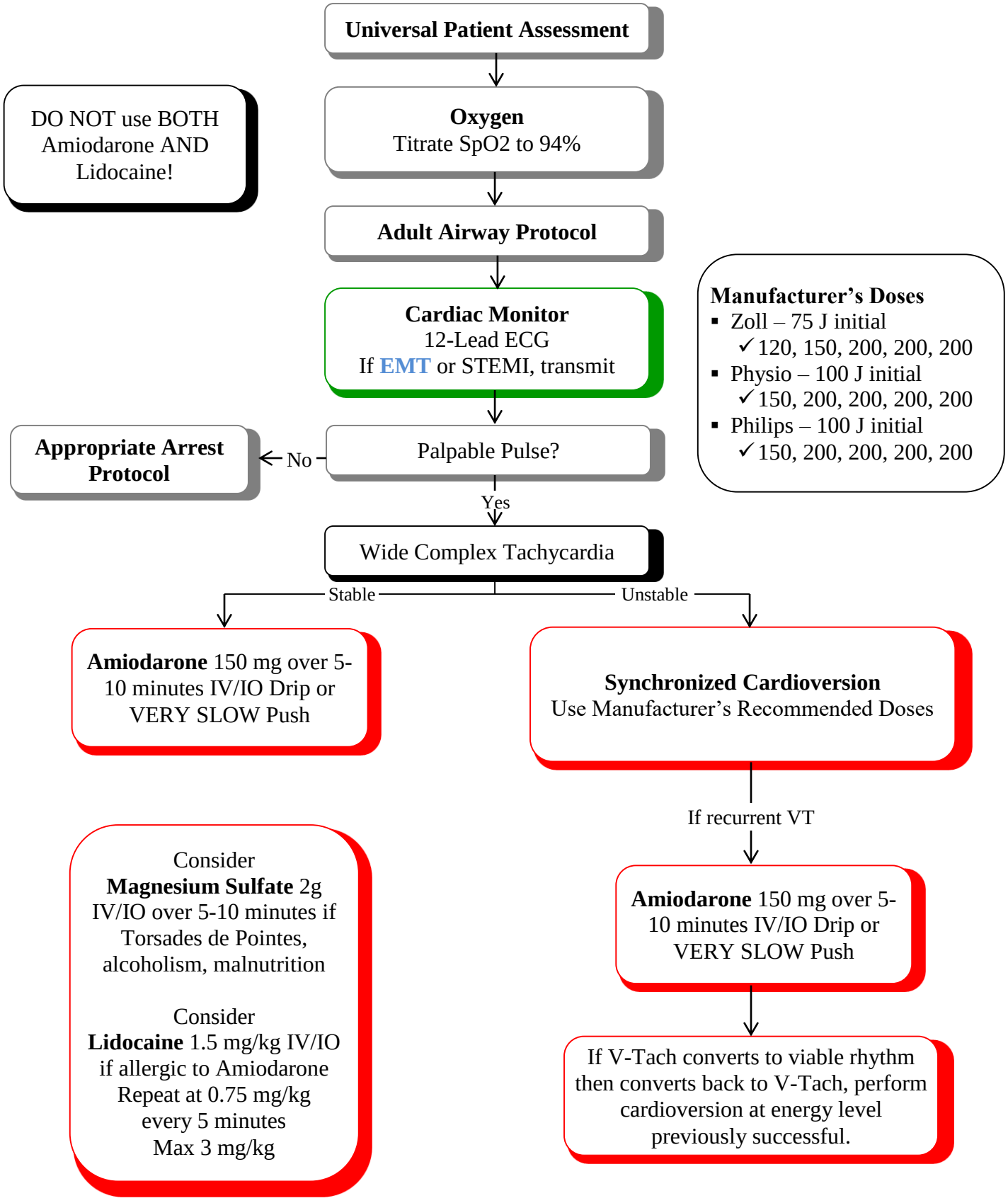
EMR | EMT | AEMT | Paramedic | Extended

V-Fib/Pulseless V-Tach



EMR | EMT | AEMT | Paramedic | Extended

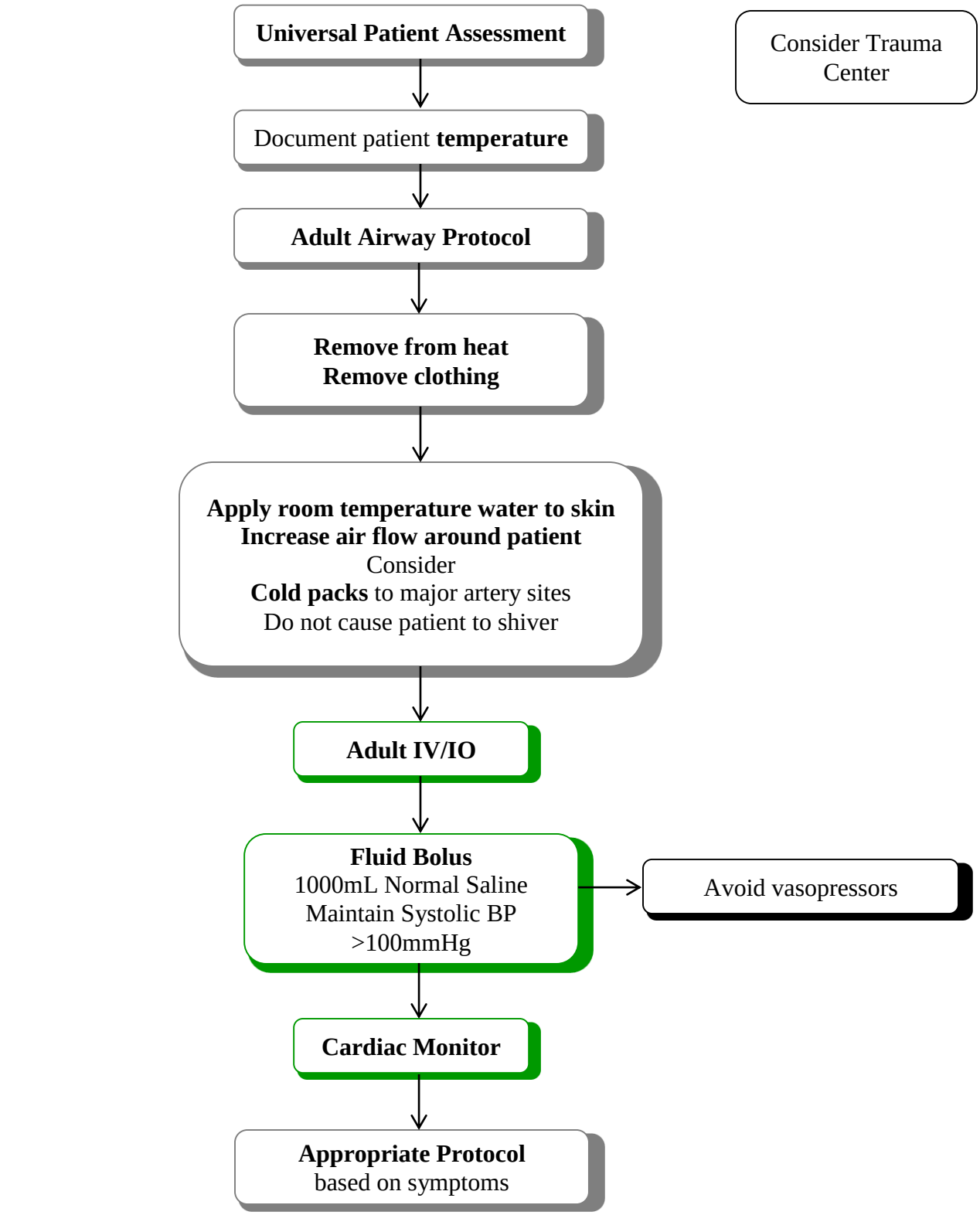
Wide Complex Tachycardia



EMR | EMT | AEMT | Paramedic | Extended

Environmental

Hyperthermia



EMR | EMT | AEMT | Paramedic | Extended

Hypothermia/Drowning

Axillary and oral temperatures are poor measures of core temperature. Rectal temperatures are more accurate.

Universal Patient Assessment

Consider Trauma Center

Remove from source
Remove clothing
Handle gently

In hypothermia if any pulse is present, no matter how slow, do not begin chest compressions

Apply **c-collar**

Document patient **temperature**

Passive rewarming

Adult IV/IO (warmed)

Severe Hypothermia
<86° F (30°C)

CPR if necessary

Avoid medications or limit to 1 dose, flush with 50cc warm saline.

Consider limiting **Defibrillation** to 1 dose at 120/200J
Use MFG recommended defibrillation dose

Moderate Hypothermia
86-92°F (30-34°C)

CPR if necessary

Use longer intervals for medications

Do not stop treatment until warm and dead

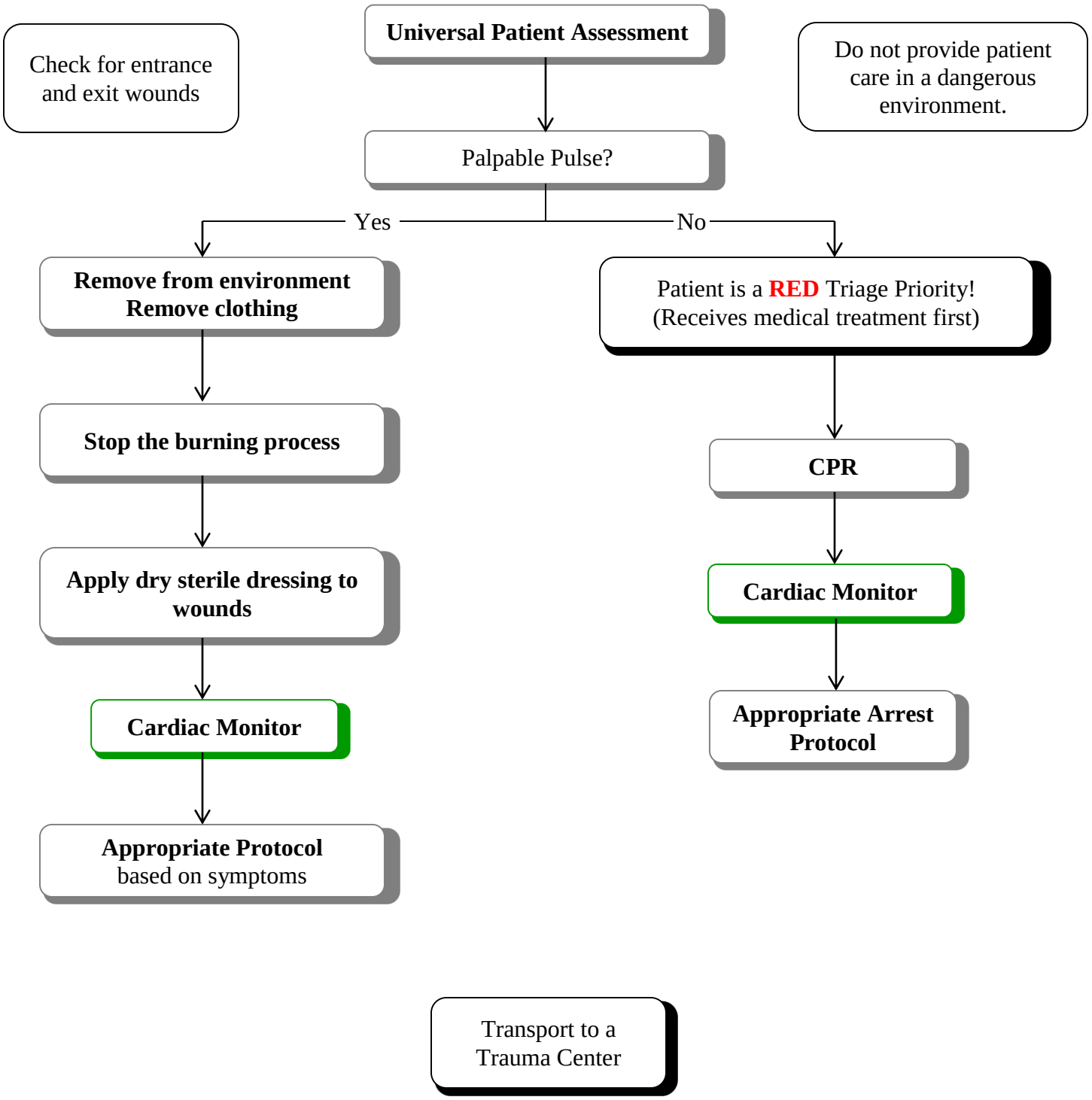
Mild Hypothermia
92-96°F (34-36°C)

Support Vital Functions

Appropriate Protocol based on symptoms

EMR | EMT | AEMT | Paramedic | Extended

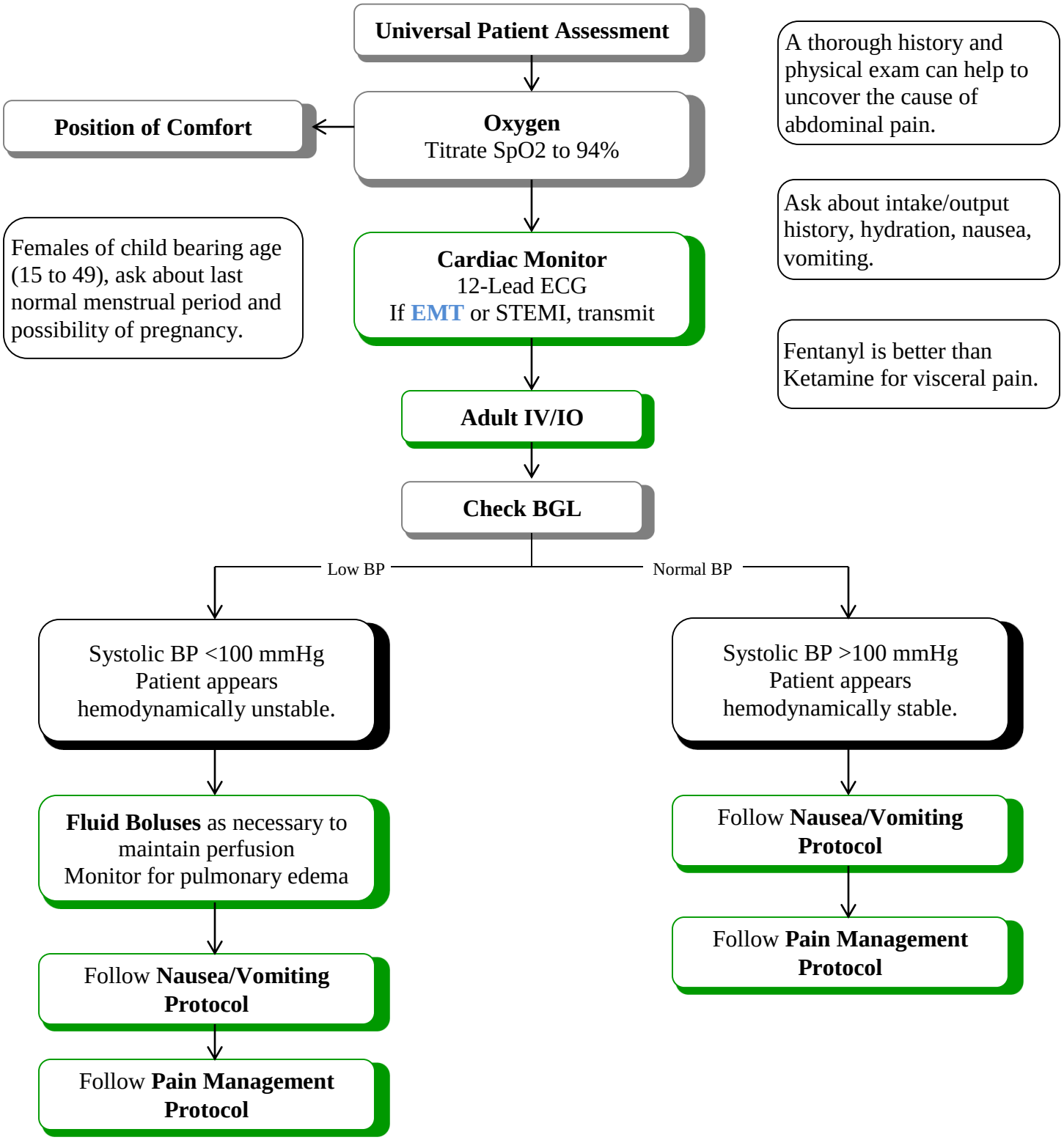
Lightning Strike



EMR | EMT | AEMT | Paramedic | Extended

Gastrointestinal

Abdominal Pain



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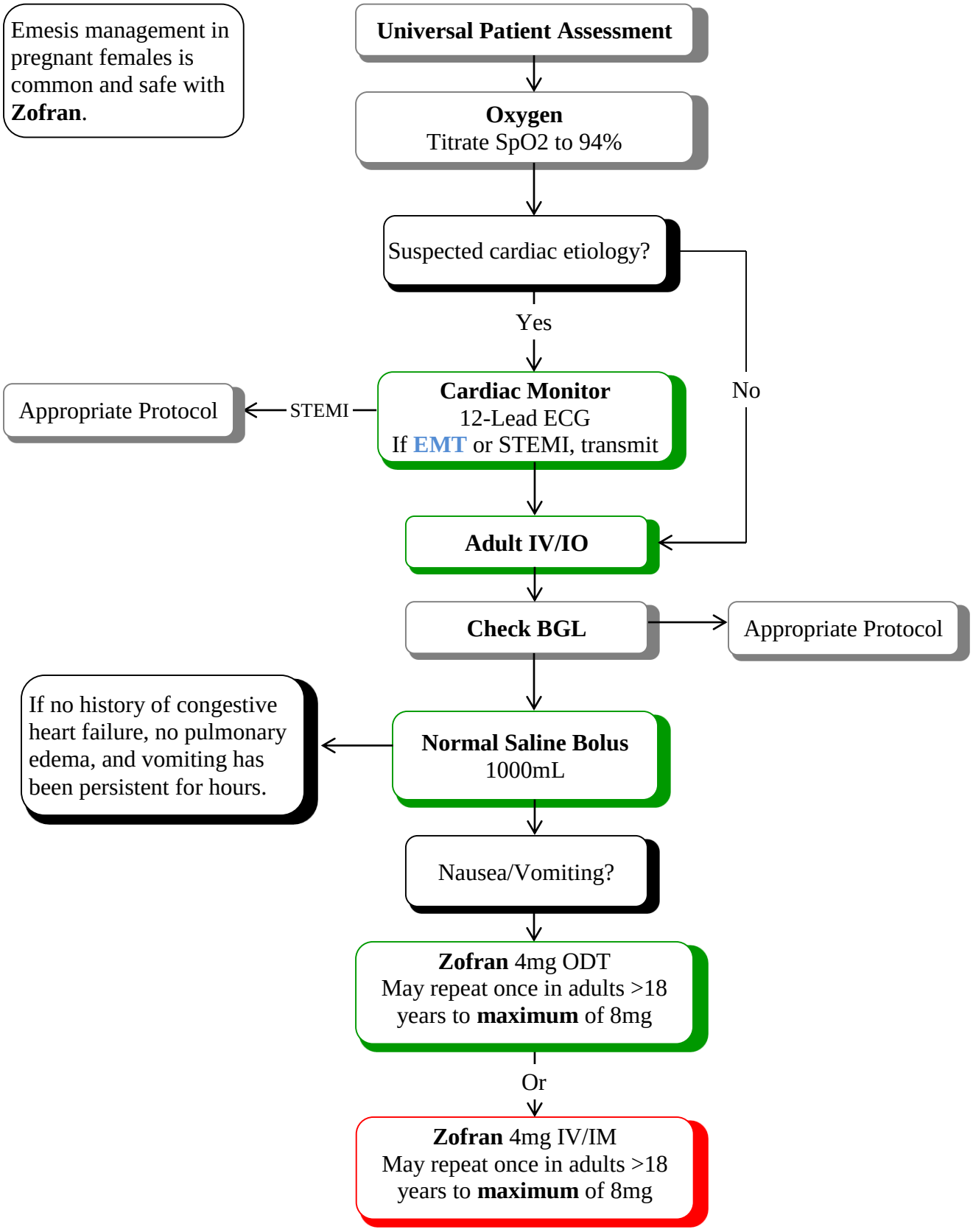
Nausea / Vomiting



EMR | EMT | AEMT | Paramedic | Extended

General

Adult IV/IO

IV Therapy
- Administer fluids
- Administer medications

Universal Patient Assessment

Clinical Considerations
- Inform patient of IV insertion
- Use aseptic technique
- Assess patient and equipment
- Prepare dressings and ensure safe practices
- Instructions to patient
- Documentation
- The preferred site for EZ-IO and NIO devices is the **proximal humerus**

Assess need for IV 0.9 NS Emergent or potentially emergent medical or trauma condition

Use warmed fluids for hypothermic patients

Peripheral IV
No more than four (4) attempts unless patient is critical

If patient is in cardiac arrest, go immediately to IO

If patient is critical consider IO after (2) IV attempts

Successful

Intraosseous EZ-IO®

If patient is critical or in cardiac arrest and has an external venous catheter, see **Central Venous Catheter Access Protocol**

Monitor infusion

Conscious patient with an IO

Administer 20mg of **Lidocaine** over 2 minutes prior to infusing fluids or other medications.

Clinical Considerations
Approved Adult Devices
- EZ-IO®
- NIO®
- BIG®
- FASTResponder®

Clinical Considerations
EZ-IO Insertion Sites (Adult)
- Proximal Humerus
- Proximal Tibia
- Distal Tibia

NIO Insertion Sites
- Proximal Humerus
- Proximal Tibia

EMR | EMT | AEMT | Paramedic | Extended

Central Venous Catheter Access

Subcutaneous Venous Access Ports
- Never access without the appropriate needle (Huber needle)
- Never access without the appropriate training
- This protocol is not for subcutaneous devices

Watch for Signs of Infiltration
- Swelling
- Redness
- Pain
- Leakage/drainage

Failure to properly handle and reclamp the device will lead to an air embolism

Universal Patient Assessment

Assess need to access the external central venous catheter.
- Critical Patient
- Cardiac Arrest

Uncap and **diligently clean** the intended port and maintain sterility throughout the procedure

Connect syringe and **unclamp** the intended lumen

Draw back 10mL of blood from intended port and set syringe aside

Flush port with 10mL of normal saline to ensure patency

Administer intended medications

Flush port, **reclamp**, and **recap**. **Monitor** site for complications.

Clinical Considerations
- Failure to use aseptic technique could result in sepsis, hemorrhage, or loss of access site.
- Diligently wipe all accesses with alcohol preps prior to every use.
- Be sure to unclamp/ reclamp and uncap/ recap all sites appropriately.
- Many non-intravenous routes are available. Consider an alternative route of administration.
- If the device is used prehospitally, the hospital will likely need to replace it.

Do not access dual lumen ports intended for hemodialysis unless patient is in cardiac arrest and you have no alternative.

EMR | EMT | AEMT | Paramedic | Extended

Interfacility Transport

SBAR
- Situation
- Background
- Assessment
- Recommendation

Obtain oral SBAR report from facility-appropriate staff

Universal Patient Assessment

Is the patient on a **medical device or medication** within the **Ohio EMS Scope of Practice?**

No

First time encountering unknown device? Provide a reasonable assessment of whether or not the device can be discontinued. **If continued, there must be NO REASONABLE ALTERNATIVE**

Yes

Transport to appropriate facility

Follow appropriate protocol for symptom management

Document patient vital signs throughout transport

Provide oral SBAR report to facility-appropriate staff

No

Per the Ohio EMS Scope of Practice, scheduled transport of patients on medications or devices beyond the appropriate scope may not occur if there was an awareness of the device when scheduled. Training on the device cannot occur at the time of transfer. If uncomfortable with the medication or device, **DO NOT TRANSPORT!** Know your scope of practice.

Yes

Maintain pre-existing medical devices and medications as appropriate per the **Ohio EMS Scope of Practice.**

Transport to appropriate facility

Follow appropriate protocol for symptom management

Document patient vital signs throughout transport

Provide oral SBAR report to facility-appropriate staff

EMR | EMT | AEMT | Paramedic | Extended

Pain Control

Information to Record
- Time of arrival
- HR, RR, BP, GCS
- Time of each dose
- Dose Given
- Time and results of pain score/quality
- Cause and location of pain

Universal Patient Assessment

Position of Comfort
Calm the Patient

> 16 years old

Adult IV/IO
If unable to obtain, **use alternative route**

Determine the cause of pain

Visceral Pain

Fentanyl 1 mcg/kg via IV/IO/IM/MAD
(0.5mcg/kg for frail elderly)
Maximum single dose 100mcg
Consider
Fentanyl 3 mcg/kg IV/IO/IM
For patients with a tolerance to opioids

May **repeat Fentanyl** at original dose in **10** minutes if justified
Maximum total dose 300mcg

Orthopedic Pain

Consider
Midazolam 1-2mg IV/IO/MAD
For side effects and anxiety

Ketamine 0.1-0.2mg/kg IV/IO/IM/MAD
Maximum single dose 20mg

May **repeat Ketamine once** at 0.1mg/kg in **10** minutes

If pain is still severe, vitals are stable, and medication is justified, add **Fentanyl** 1mcg/kg

Painful Procedures

Consider
Ketamine 0.4mg/kg IV/IO/IM
Maximum 40mg.
Be **prepared** for **side effects**
- Hallucinations
- Nausea
- Nystagmus

Throughout pain control protocol perform a continuous reassessment
- **Cardiac Monitor**
- **Pulse Oximetry**
- **Capnography**

Pain Management Considerations
- Ketamine is better than Fentanyl for orthopedic pain. Fentanyl is better than Ketamine for visceral pain.
- Consider giving 1-2mg of **Midazolam** with your **Ketamine** dose to produce somnolence and reduce hallucinations, if the blood pressure is adequate.
- Consider **Zofran** for nausea before or after Fentanyl or Ketamine.
- Fentanyl and Ketamine potentiate one another, increasing effectiveness.
- Remember to **dilute** ketamine for the **IV/IO** route
- When properly **diluted**, the ketamine syringe contains **5 mg/mL**, and **4 mL** is the **maximum** single dose
- Ketamine **IM/IN** should **not** be diluted, and may be less effective via those routes.
- Ketamine is contraindicated in schizophrenia.

EMR | EMT | AEMT | Paramedic | Extended

Universal Patient Assessment

Scene Safety and BSI

↓

Airway/Trauma Bag, Drug Bag, and Monitor on all calls

↓

Adult Primary Assessment
Patient Assessment-Medical
Patient Assessment-Trauma

↓

AVPU Mental Status

↓

Vital Signs

↓

Adult Airway Protocol

↓

Pulse Oximetry / Capnography as appropriate

↓

Cardiac Monitor
Consider:
12-Lead ECG
If **EMT** or STEMI, transmit

↓

Appropriate Protocol

The universal patient assessment protocol should be used as a primary guide to all patient assessments.

AVPU
- Alert
- Verbal
- Painful
- Unresponsive

When eliciting a noxious stimulus, the preferred method is the nasopharyngeal airway. If the patient accepts it, they need it. Ammonia capsules are second, and in extreme cases the sternal rub is acceptable.

Vital Signs (as appropriate)
- Pulse
- Respirations
- Blood Pressure
- GCS
- Pulse Oximetry
- Capnography
- Temperature
- Carbon Monoxide Oximetry
- Blood Glucose Level

Neurological

Agitation / Combativeness

Clinical Considerations
Agitation causes may include:
- Excessive heat/cold
- Hypoxia
- Lack of blood flow to brain
- Head injury or stroke
- High or low BGL
- Metabolic disorders
- Neurologic disease

Keep in mind that many accidental needle sticks occur on medical personnel while dealing with violent or agitated patients.

Scene Safety
Law Enforcement should always be requested

Only restrain the patient if they are threatening the safety of themselves, the crew, or others. Do not attempt to subdue or restrain unless adequate personnel are present and law enforcement is on the scene. Evacuate if they are not.

Universal Patient Assessment

Remove patient from stressful environment

Try to identify and treat the underlying cause of the agitation.

If there is no treatable cause and the patient remains a threat to themselves or others, the paramedic may choose to attempt medical sedation

History of Schizophrenia or Allergy to Ketamine

Yes

Haldol 5mg IM
And / Or
Versed 5mg IM
Have suction, BVM, and intubation equipment ready, be prepared to protect the airway, consider extra resources.
Monitor SpO2 and ETCO2.

May **repeat Haldol** 5mg IM in 10 minutes if patient is still combative and vital signs are adequate.

No

Ketamine 1mg/kg IM

Have suction, BVM, and intubation equipment ready, be prepared to protect the airway, consider extra resources.
Monitor SpO2 and ETCO2.

EMR | EMT | AEMT | Paramedic | Extended

CVA / TIA

Universal Patient Assessment

↓

Cincinnati Pre-Hospital Stroke Scale

↓

Check BGL

- If positive Cincinnati stroke scale → **Document time of onset < 3 hours = rapid transport to ED** → **Elevate head of cot 30° and document** → **Nothing by mouth**
- **Adult IV/IO** → **Oxygen** Titrate SpO2 to 94% → **Cardiac Monitor** 12-Lead ECG If **EMT** or STEMI, transmit → If headache present, check COHb if available
- Glucose <60mg/dL See **Hypoglycemia/ Unresponsiveness Protocol**

Clinical Considerations
Time of onset may include:
- Exact time symptoms started, if onset is witnessed
- The last time the patient was seen normal, if onset is not witnessed

Clinical Considerations
Stroke may present with:
- Dysrhythmias
- Hypertension
- Aphasia
- Vertigo
- Headaches
- Weakness or paralysis
- Head trauma
- Tumors

Assess for time of onset and progression of symptoms.

EMR | EMT | AEMT | Paramedic | Extended

Excited Delirium

Clinical Considerations
Agitation causes may include:
- Excessive heat/cold
- Hypoxia
- Lack of blood flow to brain
- Head injury or stroke
- High or low BGL
- Metabolic disorders
- Neurologic disease

Keep in mind that many accidental needle sticks occur on medical personnel while dealing with violent or agitated patients.

Paramedics who are not RSI certified may elect to call in for **Online Medical Direction** to give **Ketamine** 5mg/kg IM for **Excited Delirium**

Scene Safety
Law Enforcement should always be requested

↓

Universal Patient Assessment

↓

Remove patient from stressful environment

↓

Try to identify and treat the underlying cause of the agitation.

↓

Excited Delirium
N-O-T A C-R-I-M-E
- Naked (they strip)
- Object (violence against)
- Tough (they are strong)
- Acute (onset)
- Confused
- Resistant (to commands)
- Incoherent speech
- Mental health issues -or- Makes you uneasy
- Early request of backup

↓

Ketamine 5mg/kg IM

Have suction, BVM, and intubation equipment ready, be prepared to protect the airway, consider extra resources. Monitor SpO2 and ETCO2.

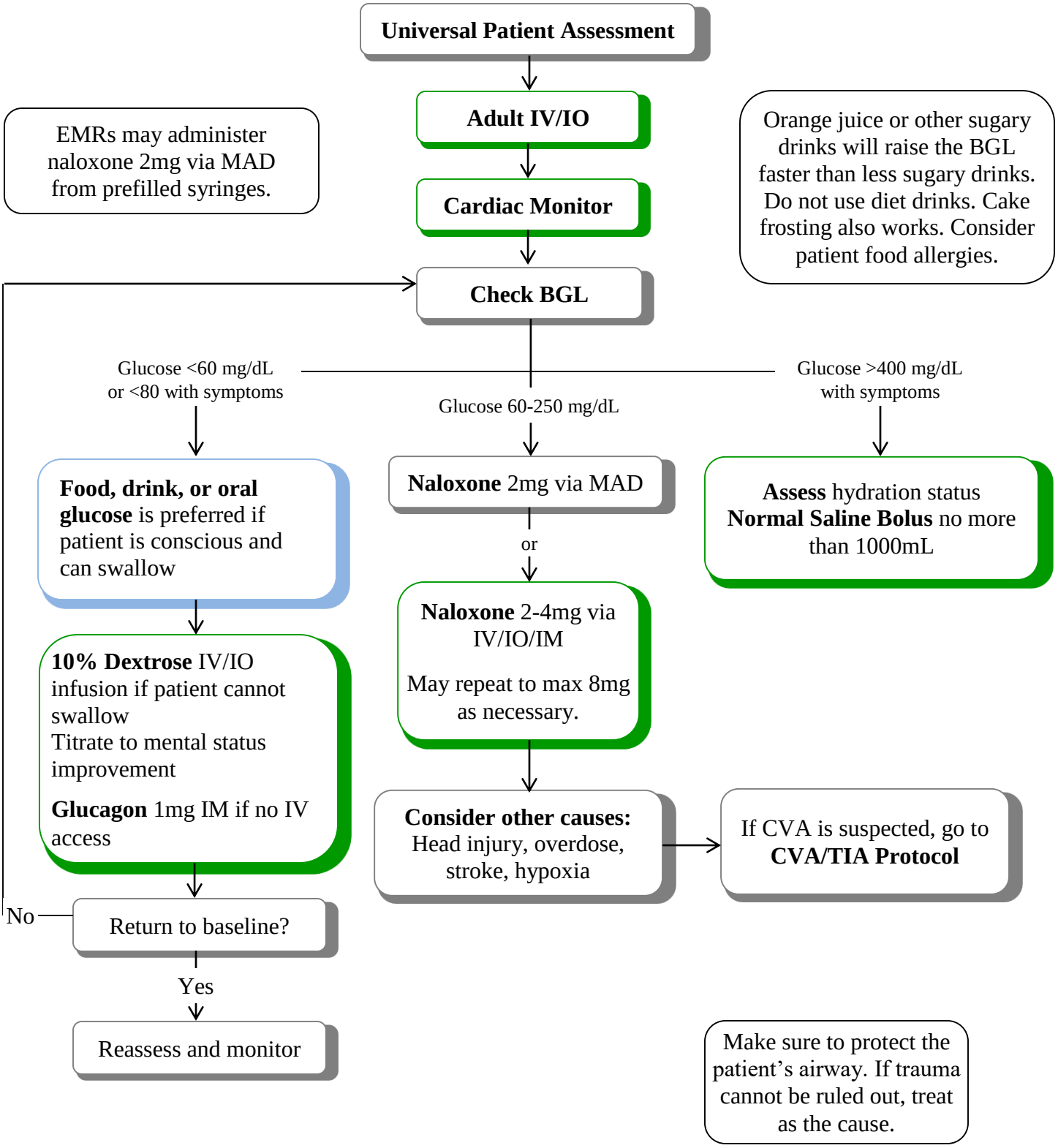
↓

If an IV/IO line is already established:
Ketamine 2mg/kg IV/IO

Only restrain the patient if they are threatening the safety of themselves, the crew, or others. Do not attempt to subdue or restrain unless adequate personnel are present and law enforcement is on the scene. Evacuate if they are not.

EMR | EMT | AEMT | Paramedic | Extended

Hypoglycemia / Unresponsiveness



EMR | EMT | AEMT | Paramedic | Extended

Seizure

Clinical Considerations
Seizure may be caused by:
- Hypoxia
- Head trauma
- Toxicity
- Electrolyte imbalance
- Eclampsia
- CNS disturbance (CVA/TIA)

Universal Patient Assessment

↓

Protect patient's head but do not restrain patient.

↓

Adult Airway Protocol

↓

Cardiac Monitor

↓

Clinical Considerations
If eclampsia is the suspected cause, see **Eclampsia / Preeclampsia Protocol**

Consider the need for rapid transport or ALS response.

↓

Check BGL

Abnormal → **Hypoglycemia Protocol**

Normal ↓

Clinical Considerations
- The IM route is chosen for speed of seizure termination.
- DO NOT wait to start an IV before giving Versed.
- Give Versed IM, then attempt the IV/IO.
- DO NOT give Versed IV at these doses.

If actively seizing:
Versed 10mg IM only
- May **repeat** once in 3-5 minutes at 5mg if necessary.
- Versed should be given IM regardless of IV presence.

↓

Adult IV/IO

Clinical Considerations
Seizures are common and not necessarily a life threat.
Status Epilepticus is a life threat.
- Duration > 5 minutes
- > 2 seizures without consciousness between them
- Repeated seizures for > 30 minutes

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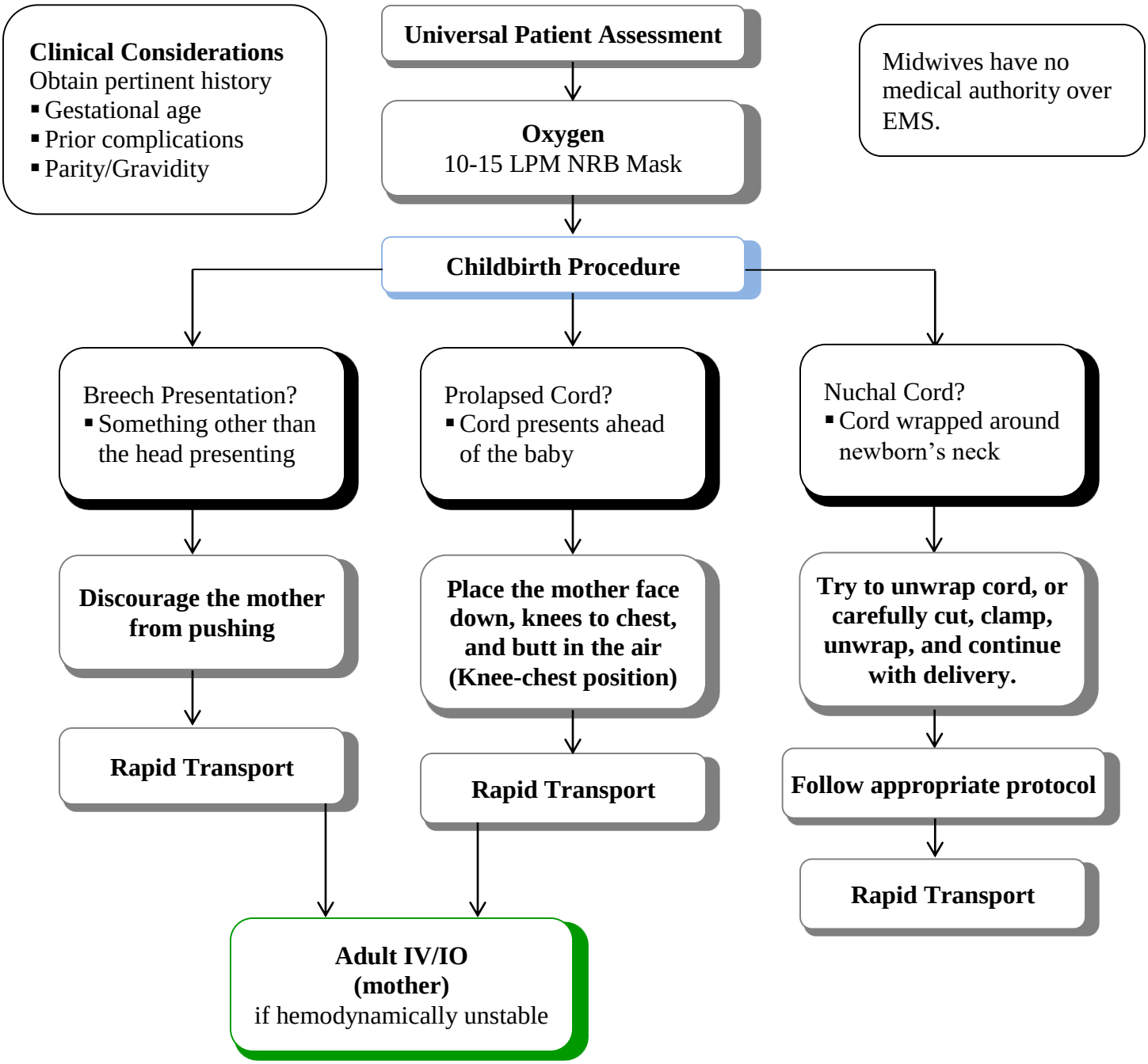
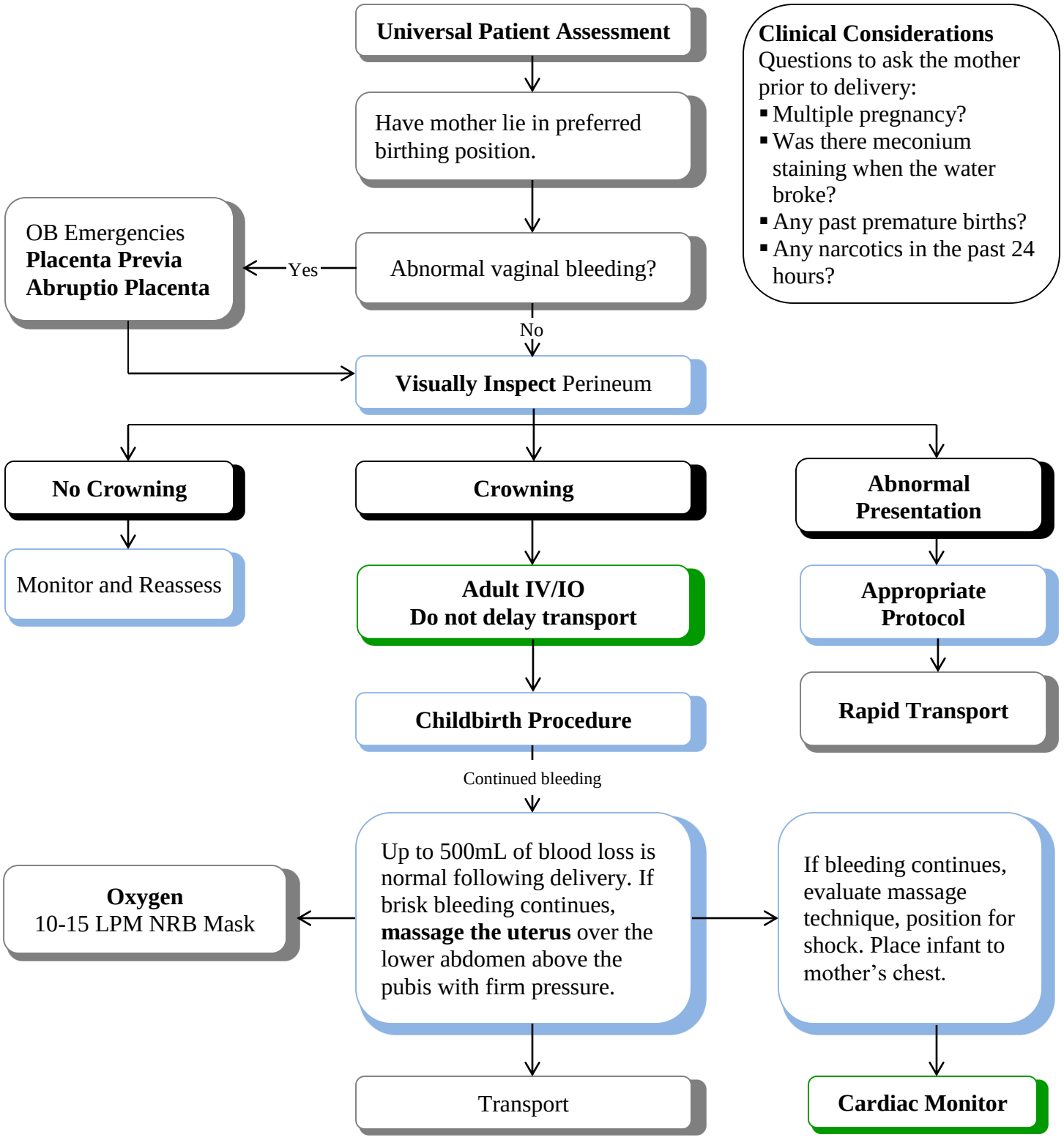
OB/GYN

Abnormal Deliveries – Breech / Prolapsed Cord



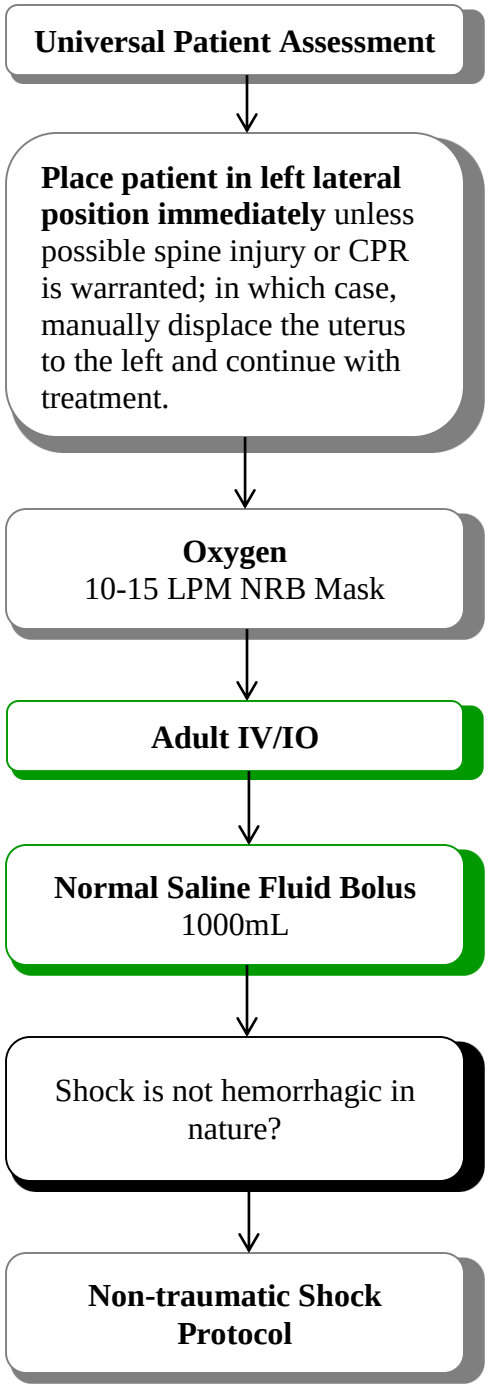
EMR | EMT | AEMT | Paramedic | Extended

Childbirth / Labor



EMR | EMT | AEMT | Paramedic | Extended

Maternal Hypotension

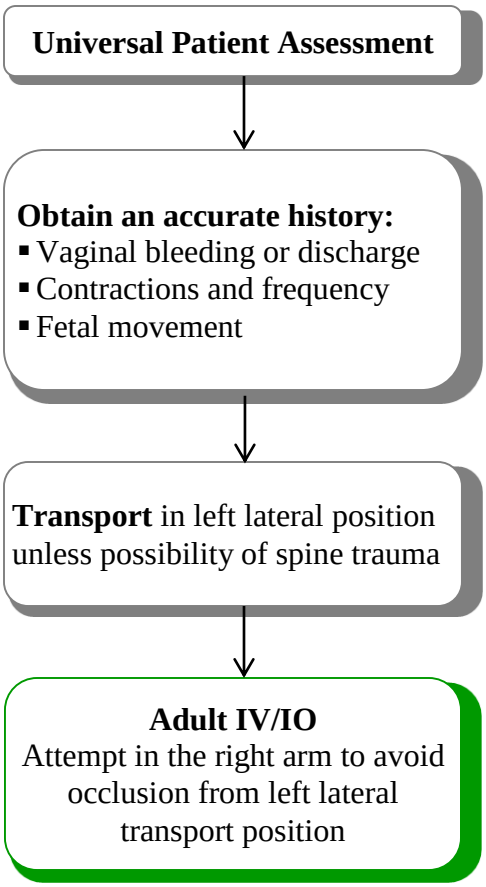


Clinical Considerations

- Hemorrhage
- Inferior Vena Cava Syndrome
- Cardiac Insufficiency
- Dehydration

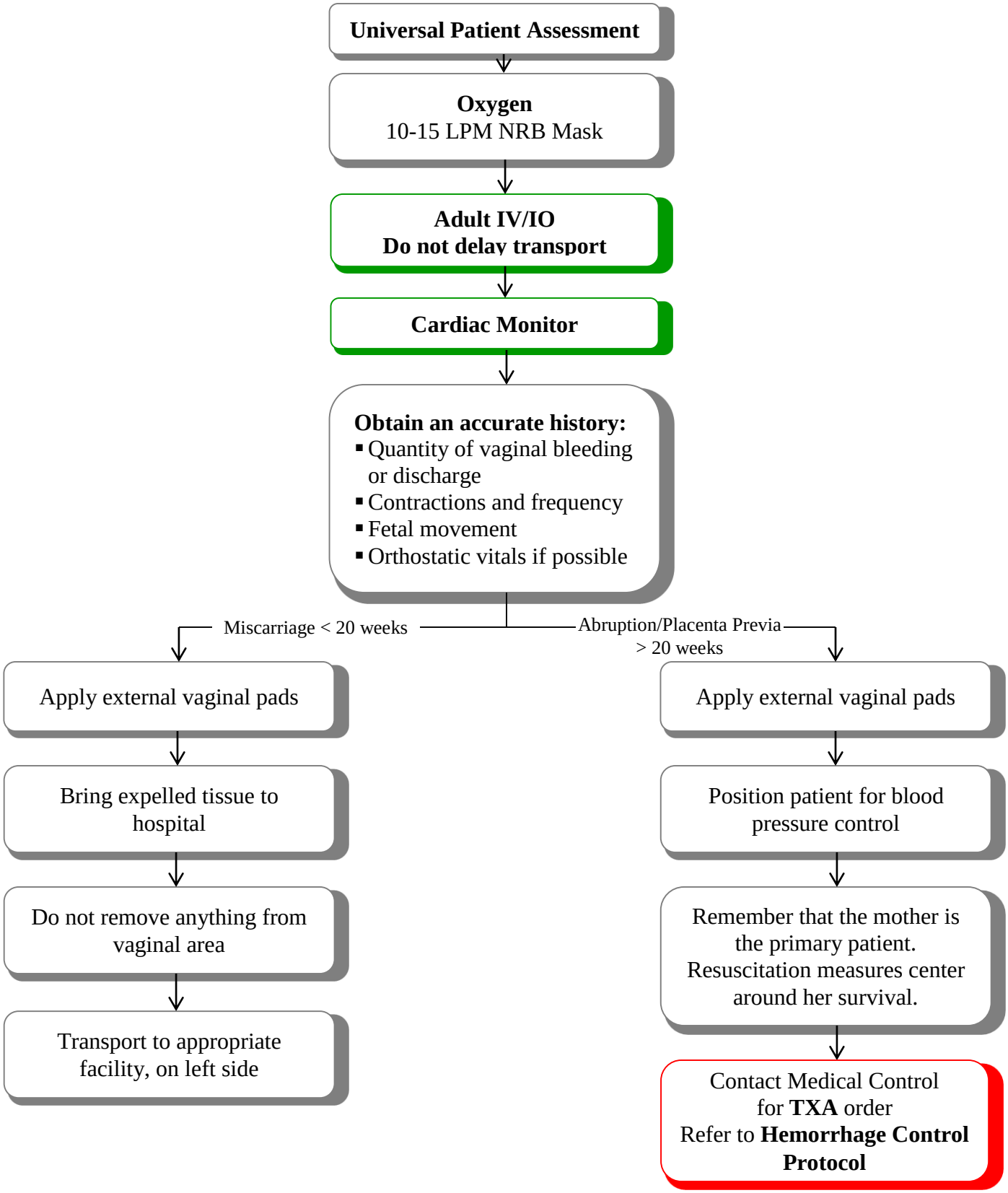
EMR | EMT | AEMT | Paramedic | Extended

Mother with Normal Physiology



EMR | EMT | AEMT | Paramedic | Extended

OB Emergencies – Placenta Previa / Placental Abruption



EMR | EMT | AEMT | Paramedic | Extended

OB Emergencies – Pre-Eclampsia/Eclampsia

Clinical Considerations
Signs of Pre-eclampsia:
- BP > 140/90
- Visual Disturbances
- Abdominal (RUQ) Pain
- Headache
- Pulmonary Edema

Clinical Considerations
Eclampsia:
- Seizures in a patient with pregnancy induced hypertension not caused by other conditions (epilepsy, stroke, hypoglycemia, etc)

Universal Patient Assessment

↓

Adult IV/IO

↓

Cardiac Monitor

↓

Assess for imminent delivery

↓

Assessment and history of pregnancy

↓

Magnesium Sulfate 2g IV/IO
Over 5-10 minutes

↓

If actively seizing and no IV access:
Versed 10mg IM only

May repeat once in 3-5 minutes at 5mg if necessary.
Versed should be given IM regardless of IV presence.

↓

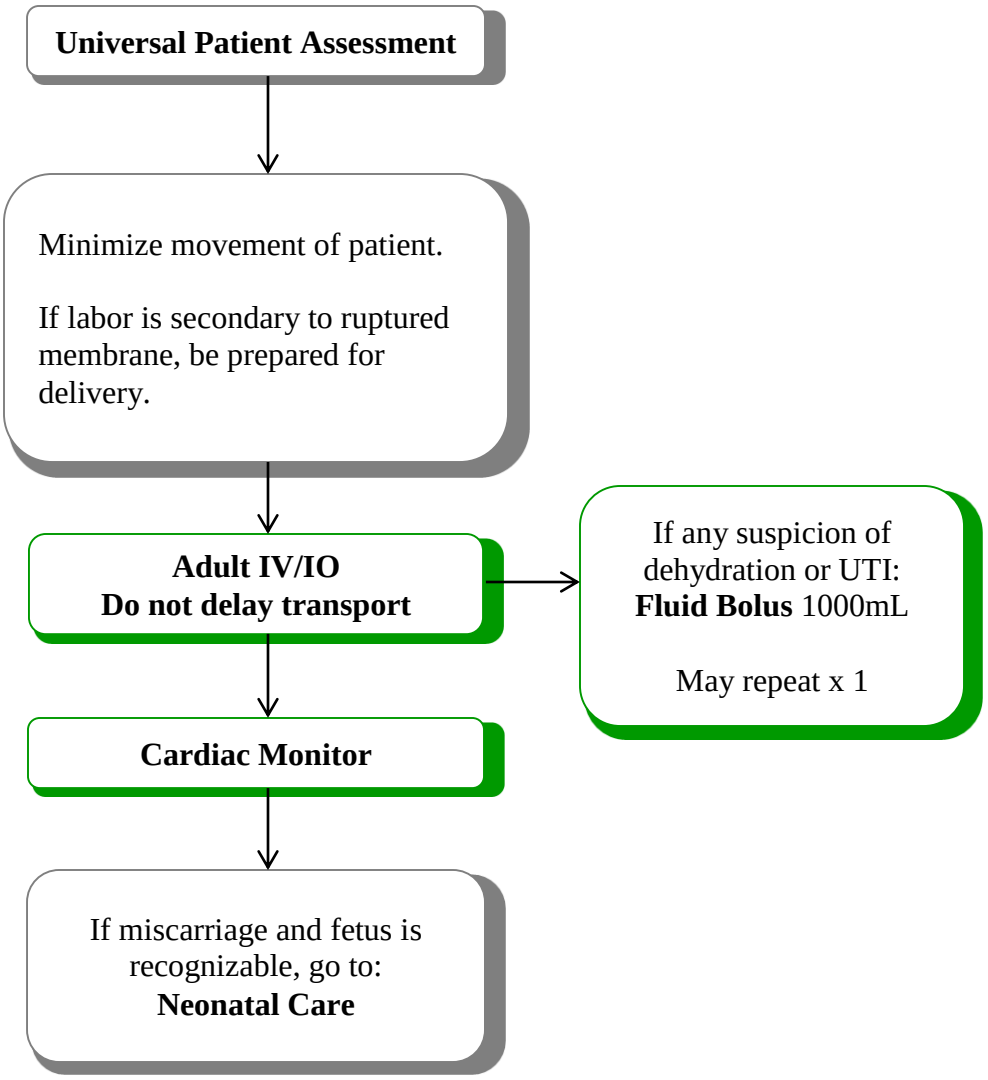
Rapid Transport

EMR | EMT | AEMT | Paramedic | Extended

Pre-Term Labor

Clinical Considerations
Uterine contractions that occur prematurely (prior to 36wks) at least every 10 minutes lasting for 30 seconds are commonly caused by:

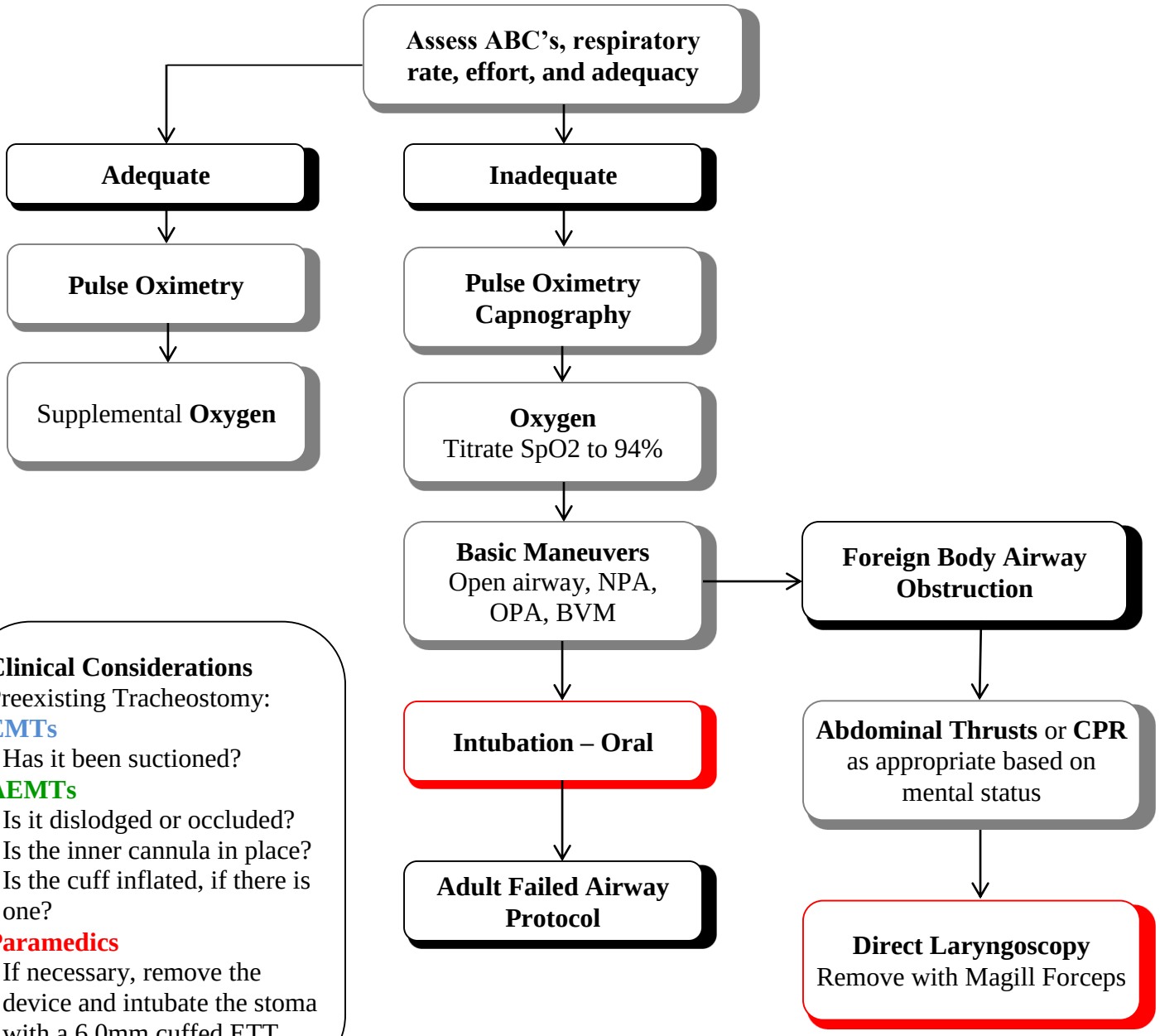
- Dehydration
- UTI
- Ruptured Membrane
- Fetal Death
- Cocaine Use



EMR | EMT | AEMT | Paramedic | Extended

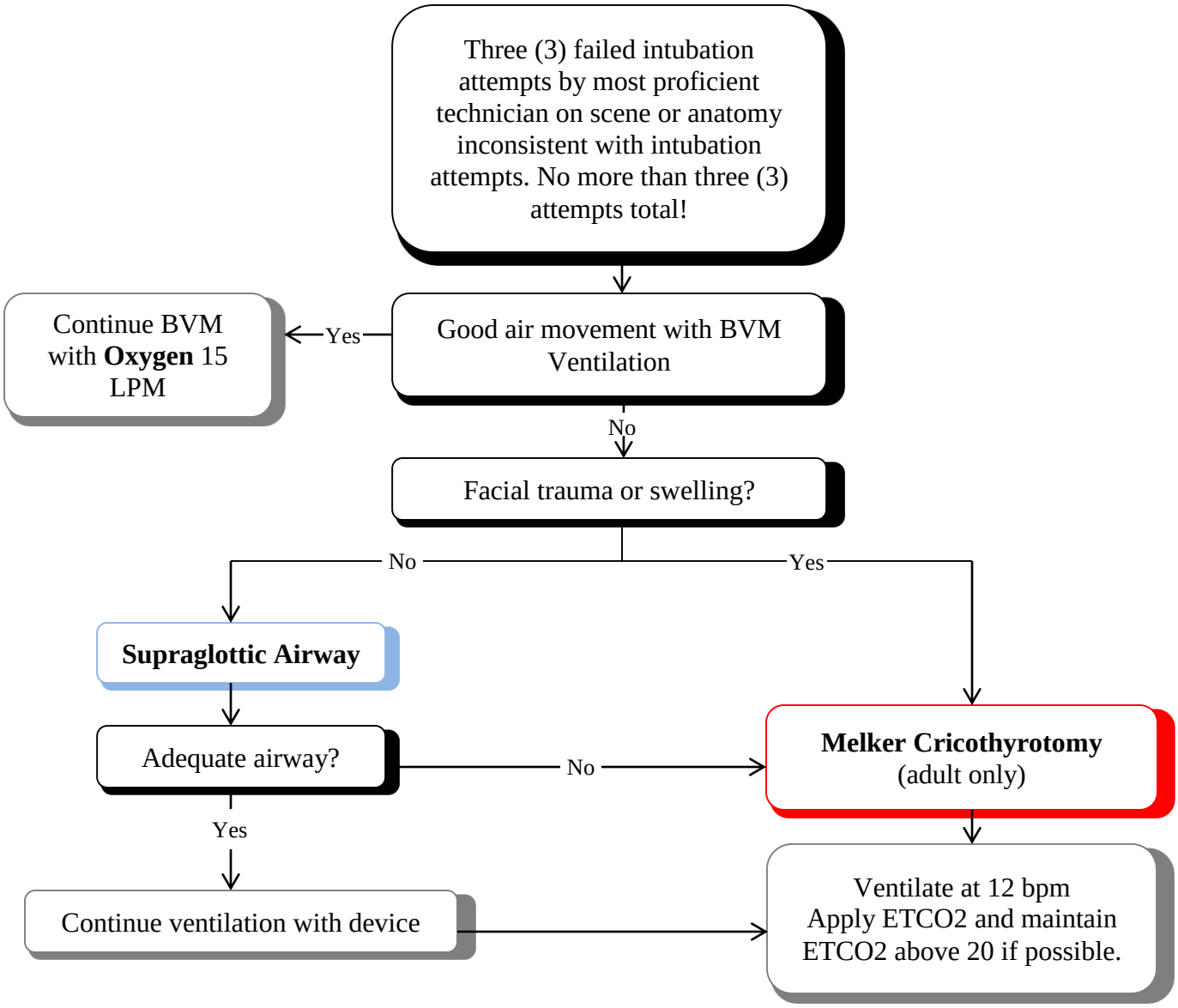
Respiratory

Adult Airway



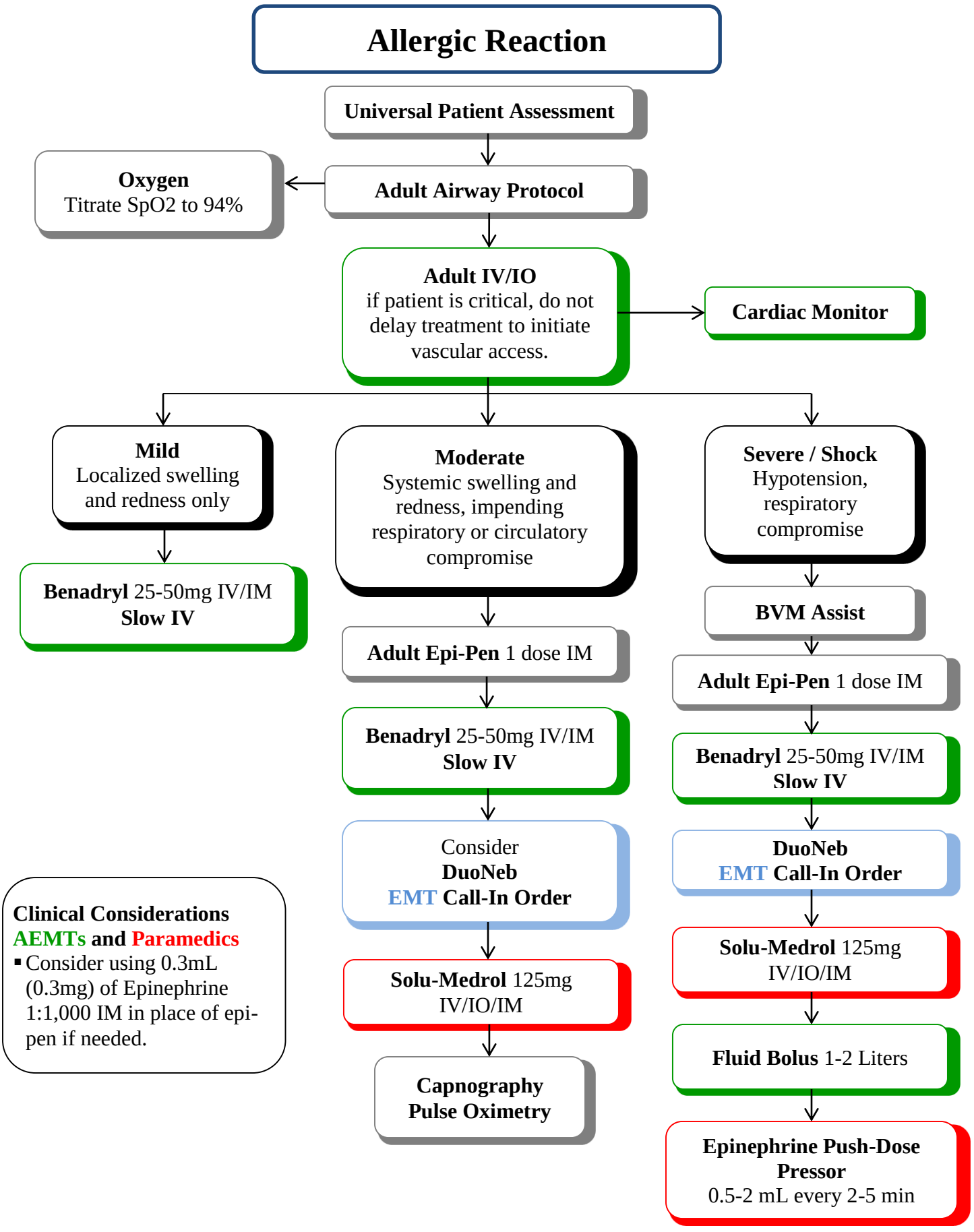
EMR | EMT | AEMT | Paramedic | Extended

Adult Failed Airway



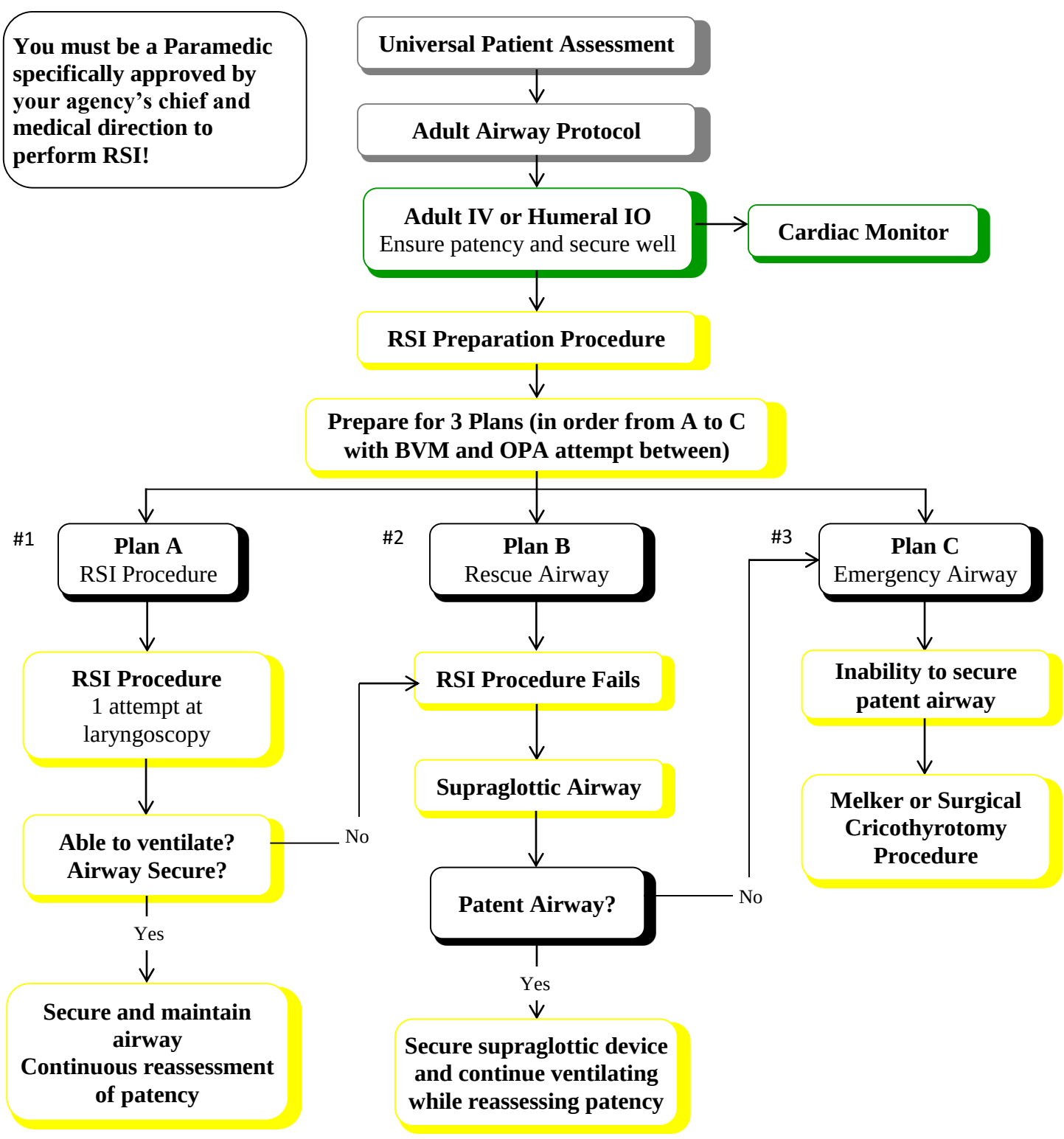
EMR | EMT | AEMT | Paramedic | Extended

Allergic Reaction



EMR | EMT | AEMT | Paramedic | Extended

Rapid Sequence Induction



EMR | EMT | AEMT | Paramedic | Extended

Respiratory Distress

Universal Patient Assessment

Adult Airway Protocol

Oxygen
Titrate SpO2 to 94%

Position of Comfort

Cardiac Monitor
12-Lead ECG
If **EMT** or STEMI, transmit

Adult IV/IO

Consider
CPAP 5 cmH2O
Watch for air trapping

Known Asthmatic / COPD Exacerbation / Wheezes

Consider
DuoNeb
EMT Call-In Order

Consider
Solu-Medrol 125mg
IV/IO/IM

Consider
Adult Epi-Pen 1 dose
EMT Call-In Order
if treating asthma with epi-pen

Known asthmatics, consider
Magnesium Sulfate 2g
IV/IO over 10 minutes

Crackles and CHF Signs with CHF History

Consider
CPAP 10 cmH2O

If hypertensive
Nitro Paste 1”
Or **Nitro Tab** 0.4mg SL
Repeat tab every 5 minutes.
Maintain SBP >100
EMTs may call-in for this order.

Clinical Considerations
AEMTs and Paramedics
- Consider using 0.3mL (0.3mg) of Epinephrine 1:1,000 IM in place of epi-pen if needed.

Suspected Pneumonia / Unknown / Other

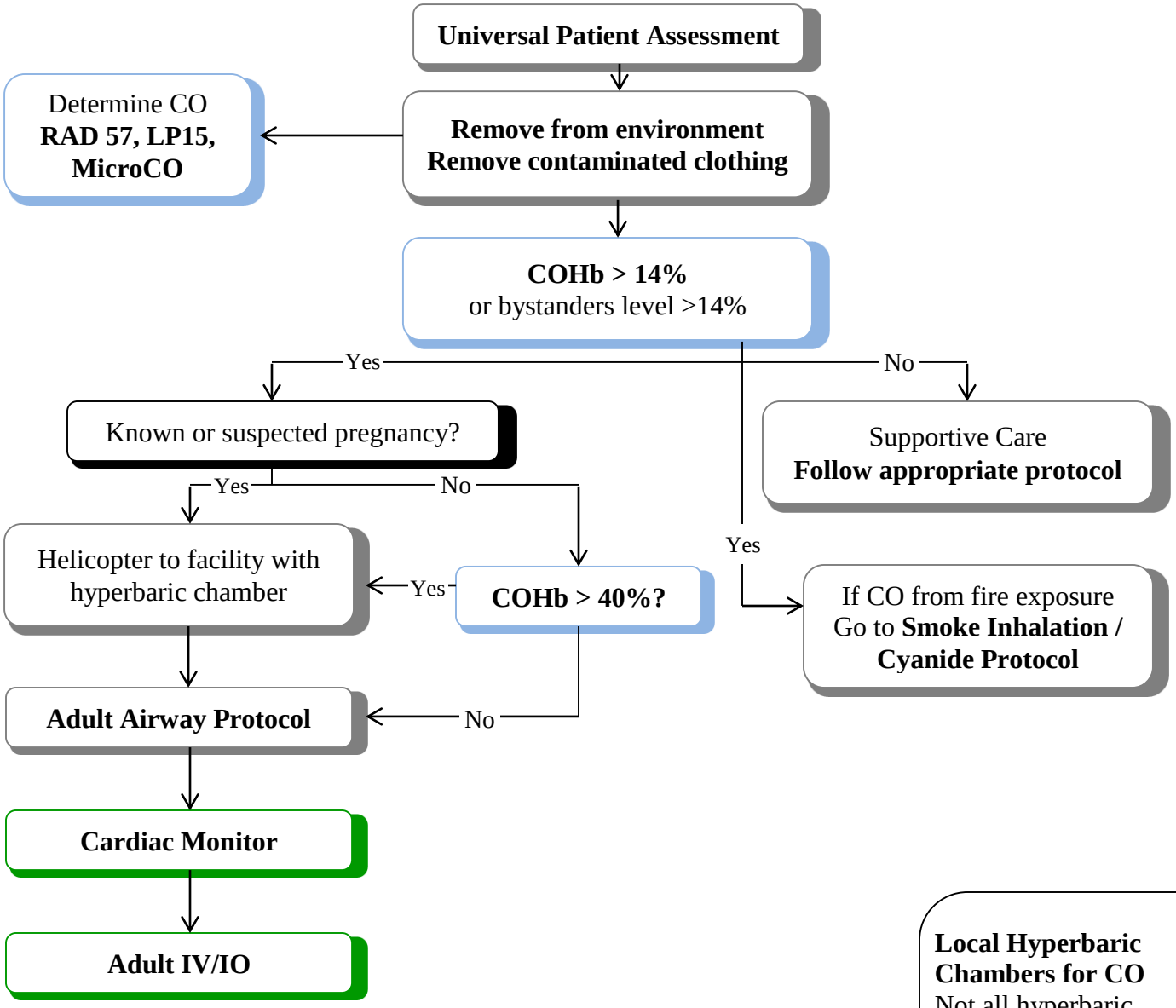
Support Symptoms

Clinical Considerations
If etiology of respiratory distress is unknown:
- Oxygenate
- Attempt CPAP
- Support symptoms
- Avoid overmedication, as some meds that are good for COPD are bad for CHF and vice versa.

EMR | EMT | AEMT | Paramedic | Extended

Toxicological

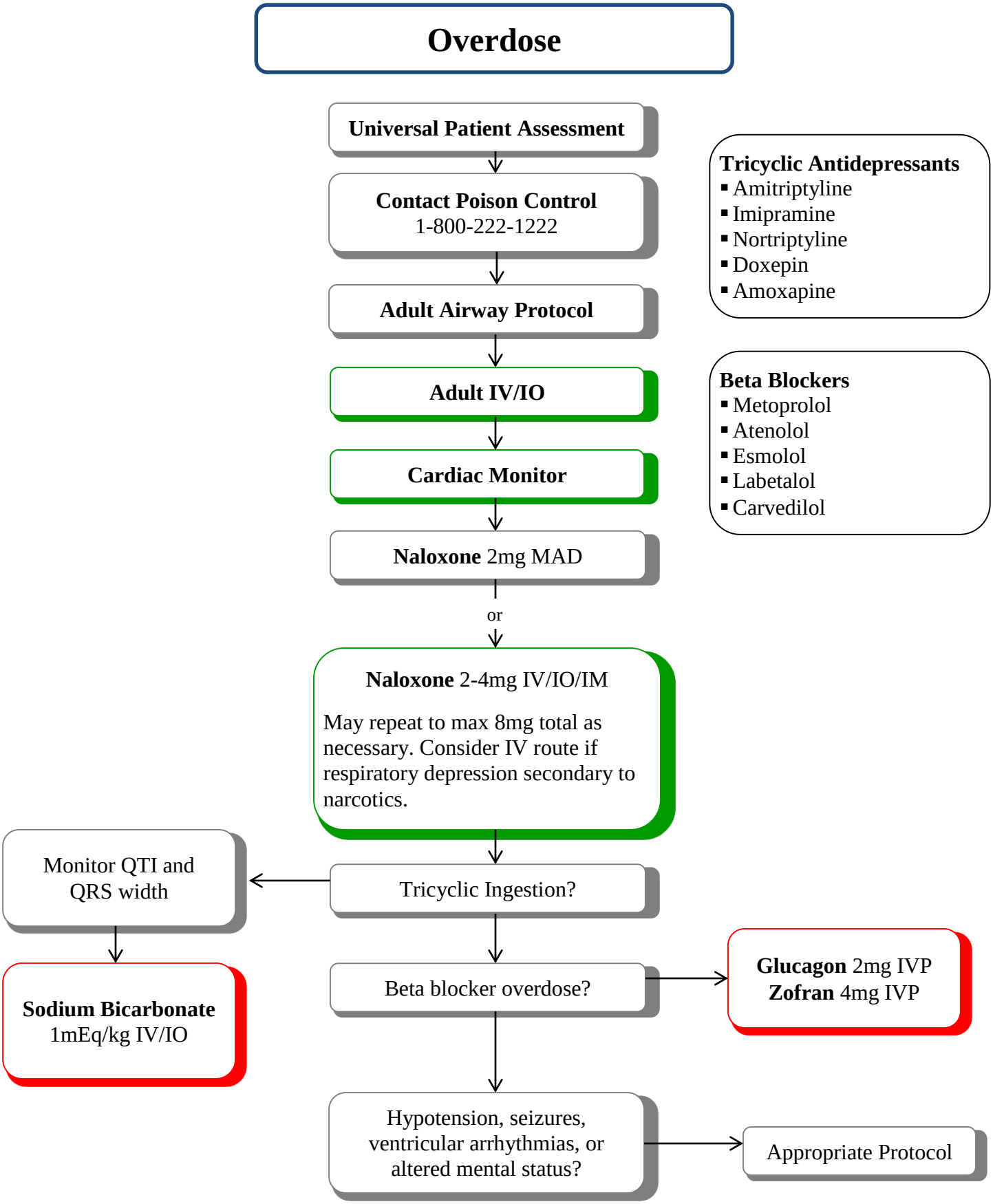
Carbon Monoxide Poisoning



Local Hyperbaric Chambers for CO
Not all hyperbaric chambers are appropriate
Consider:
- SEMC
- UPMC

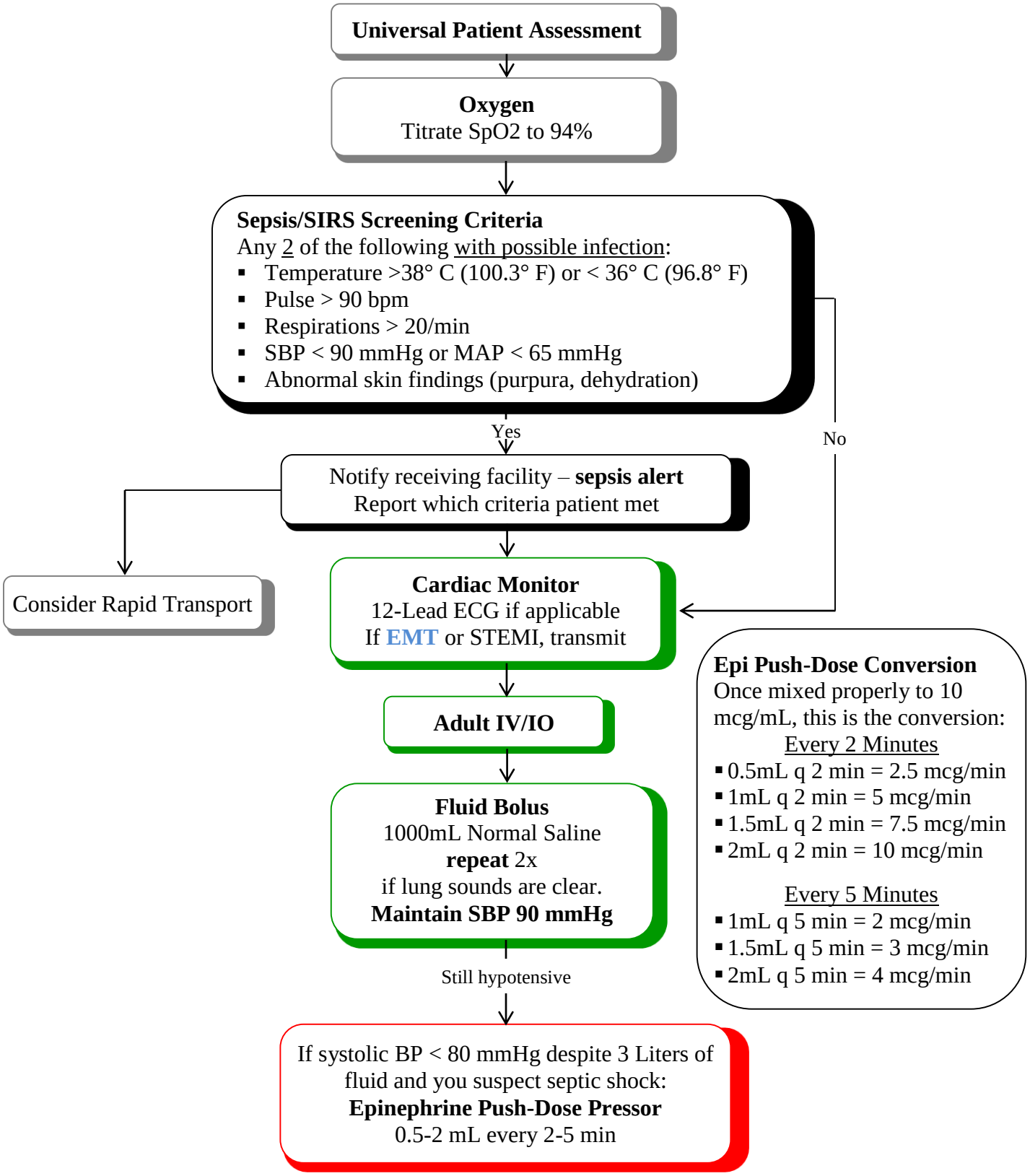
EMR | EMT | AEMT | Paramedic | Extended

Overdose



EMR | EMT | AEMT | Paramedic | Extended

Sepsis



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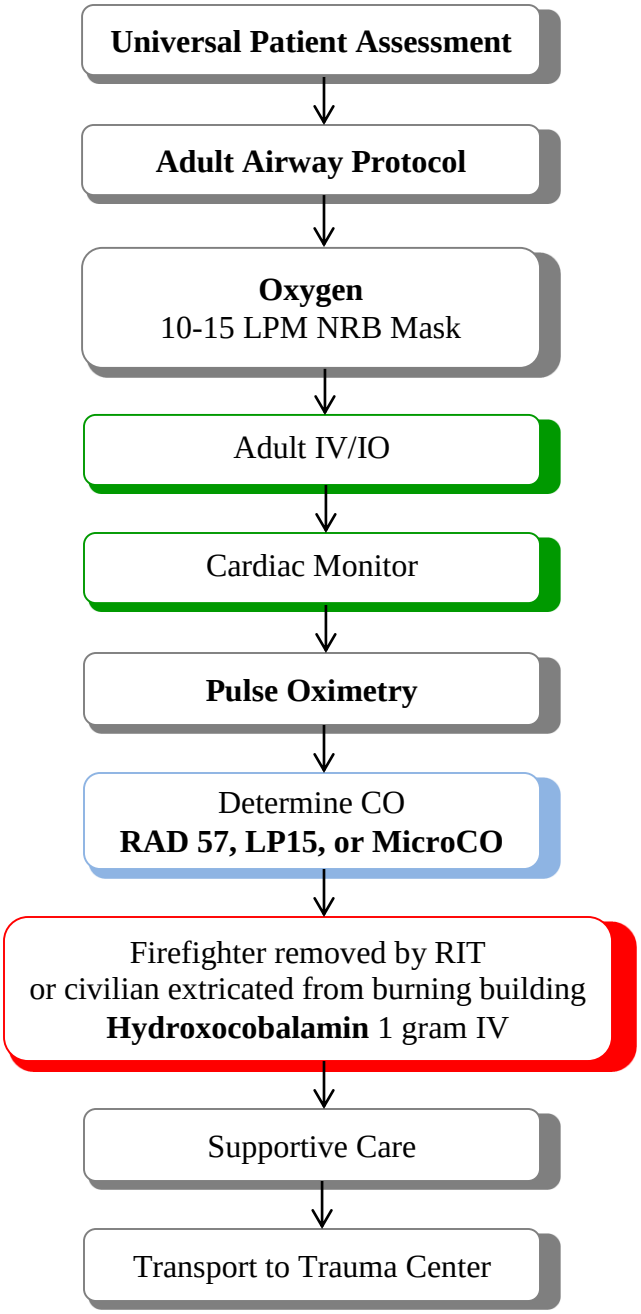
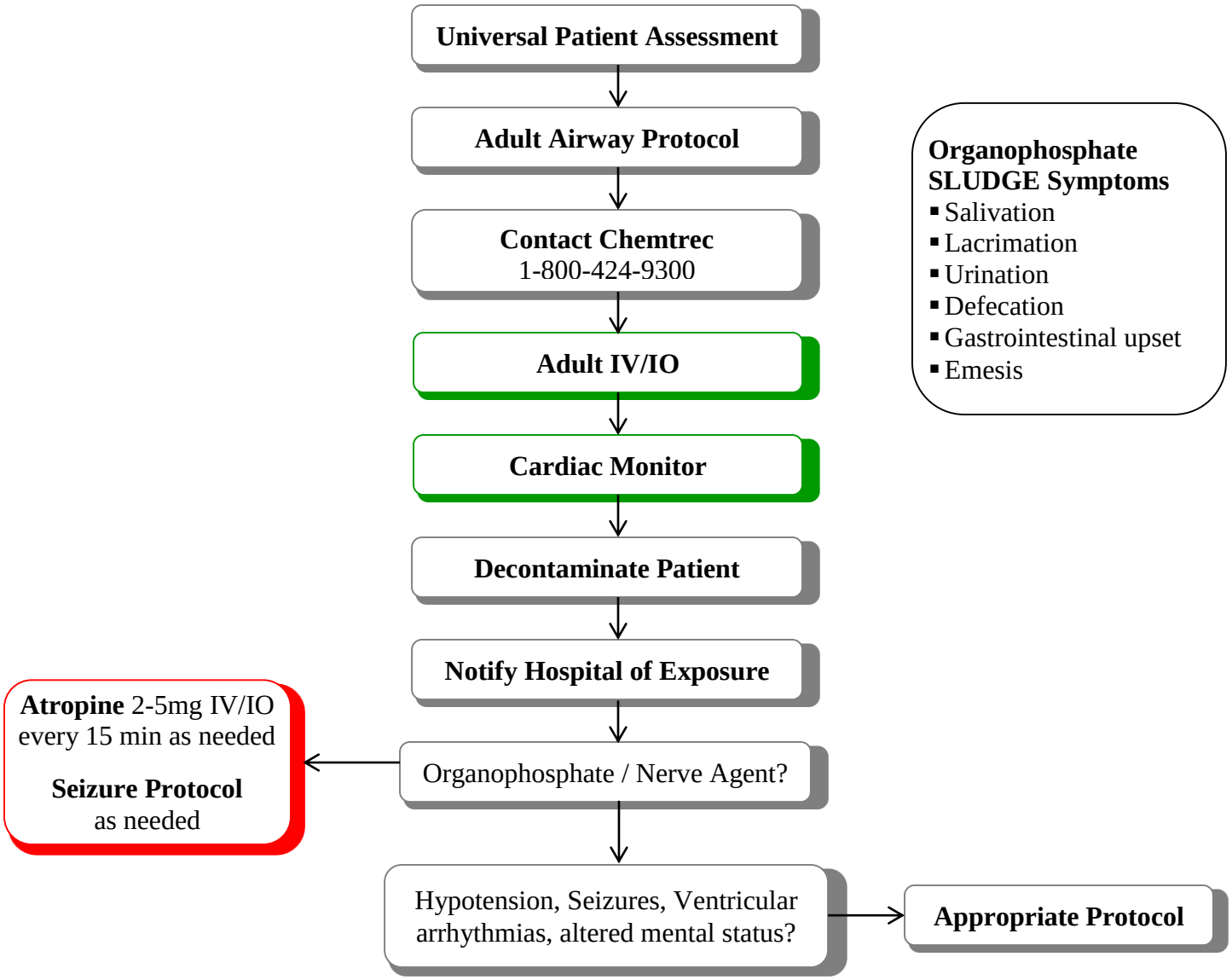
Smoke Inhalation / Cyanide



EMR | EMT | AEMT | Paramedic | Extended

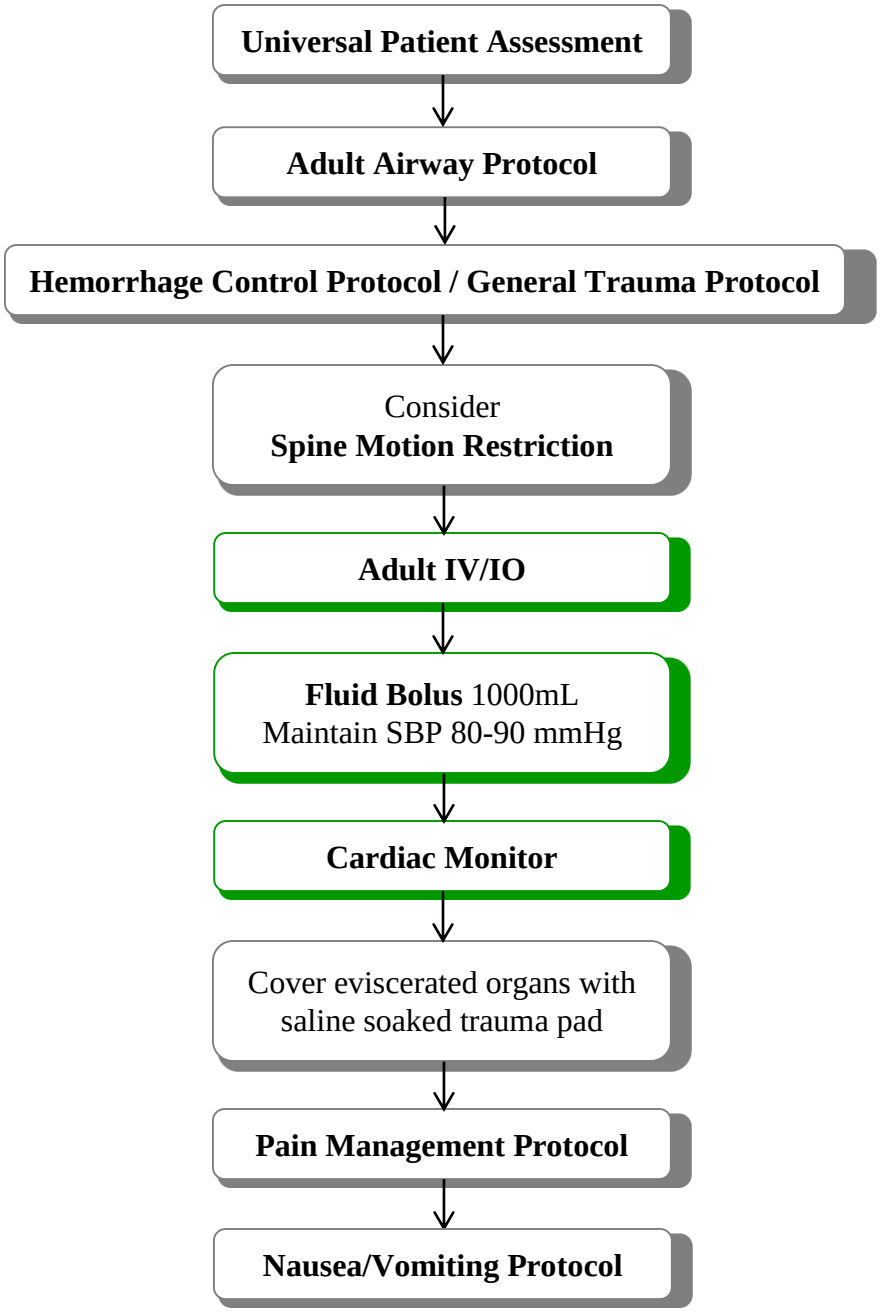
Toxic Exposure



EMR | EMT | AEMT | Paramedic | Extended

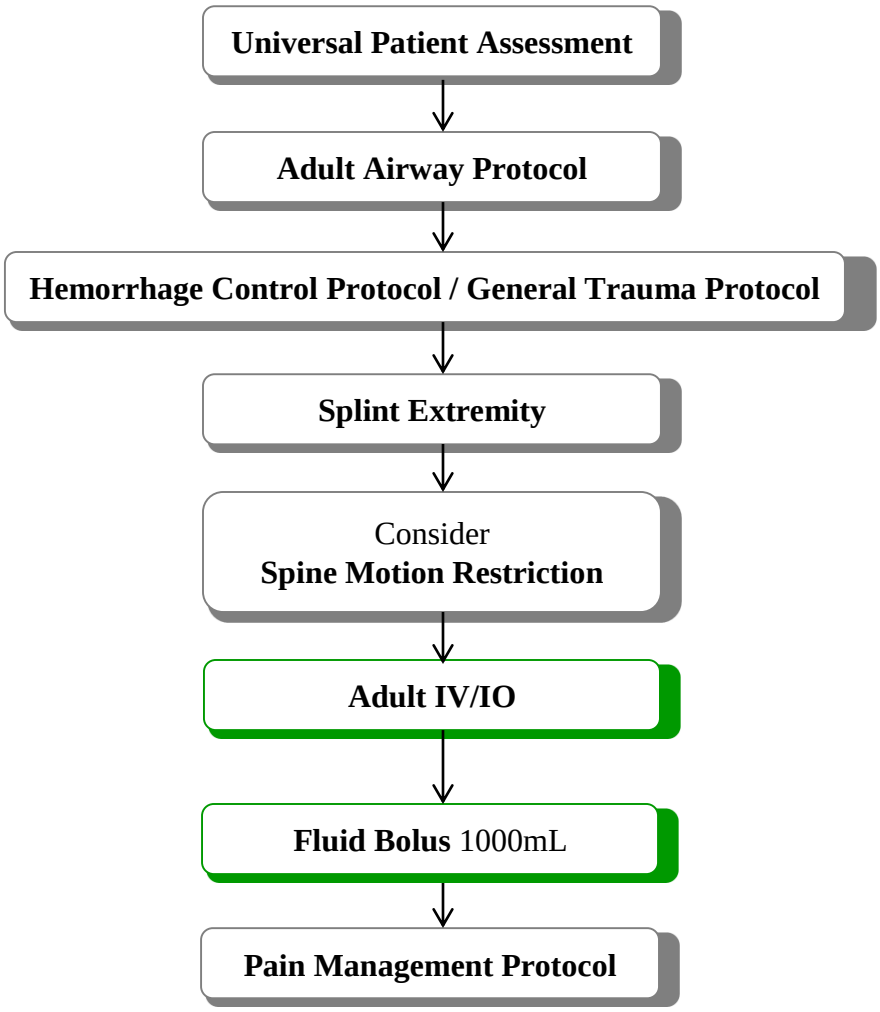
Trauma

Abdominal Trauma



EMR | EMT | AEMT | Paramedic | Extended

Avulsion / Amputation



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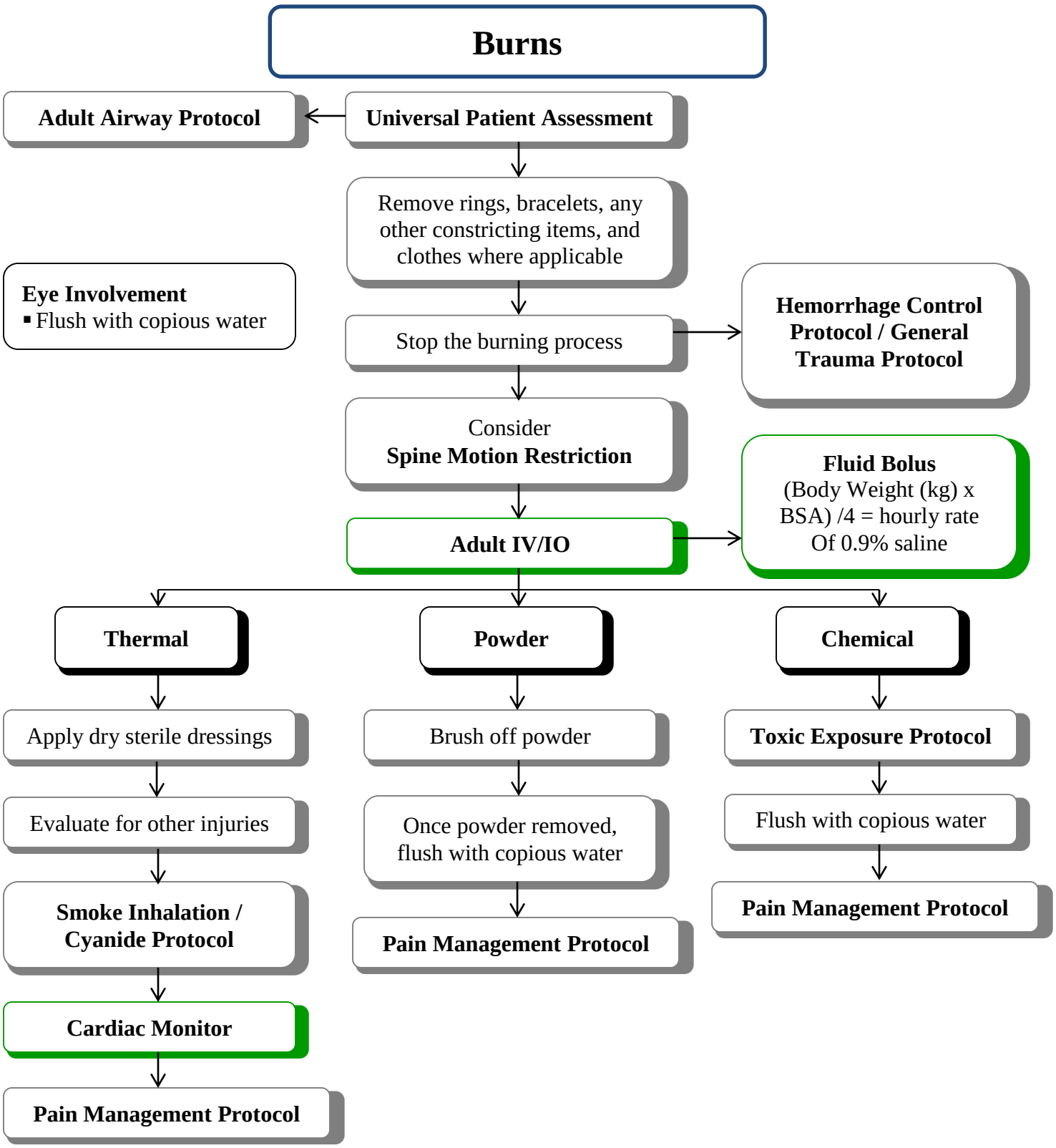
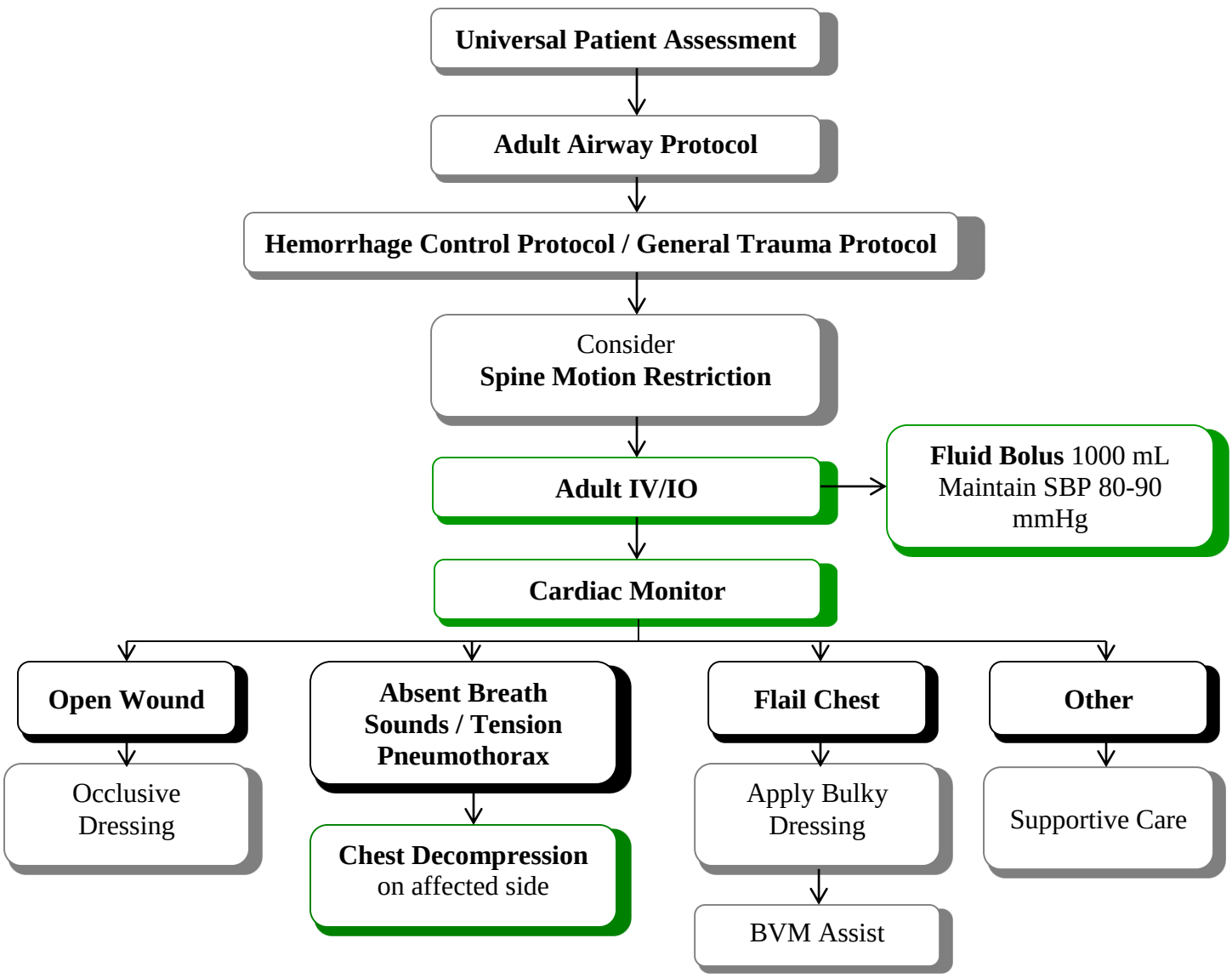
Burns



EMR | EMT | AEMT | Paramedic | Extended

Chest Trauma



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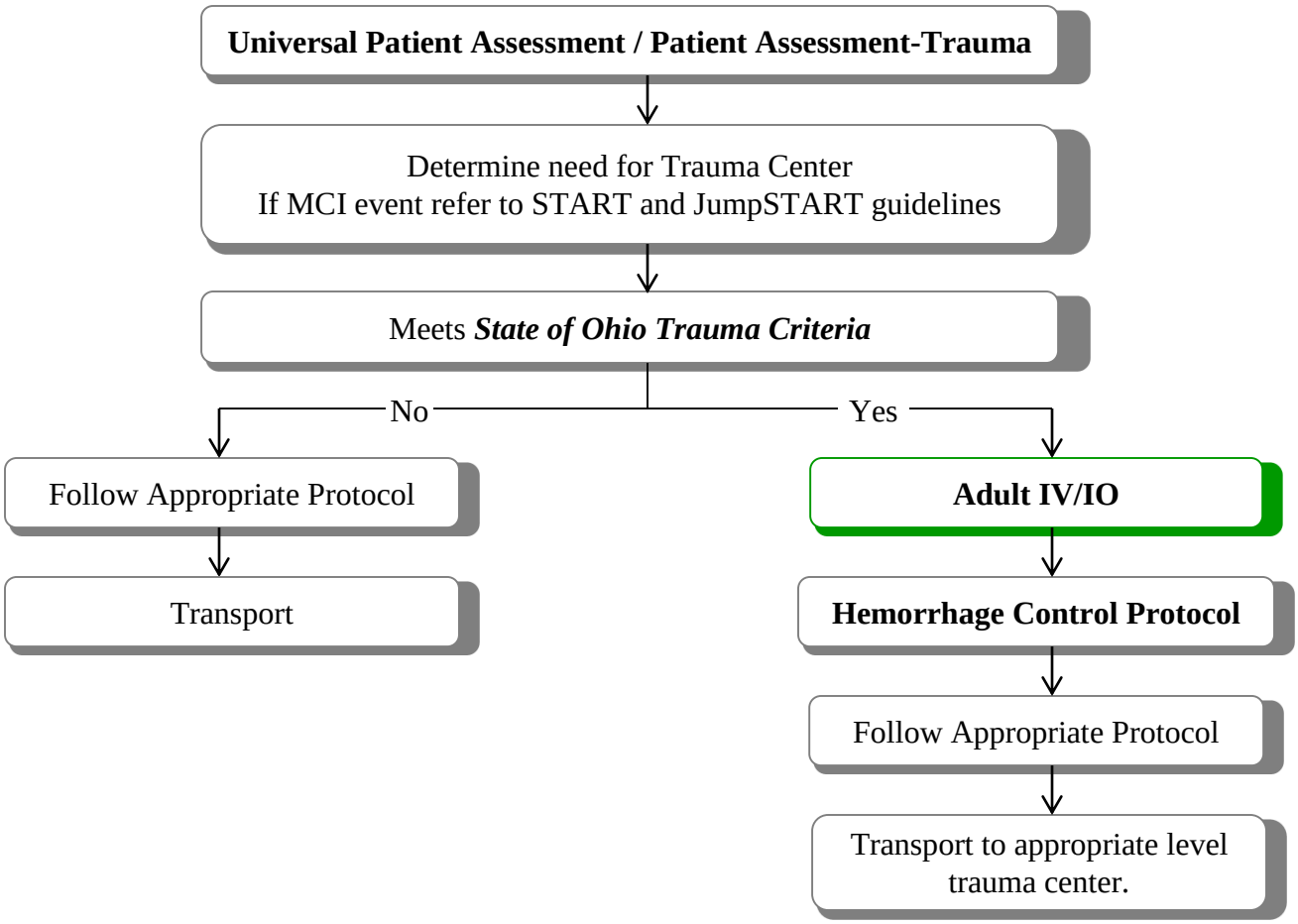
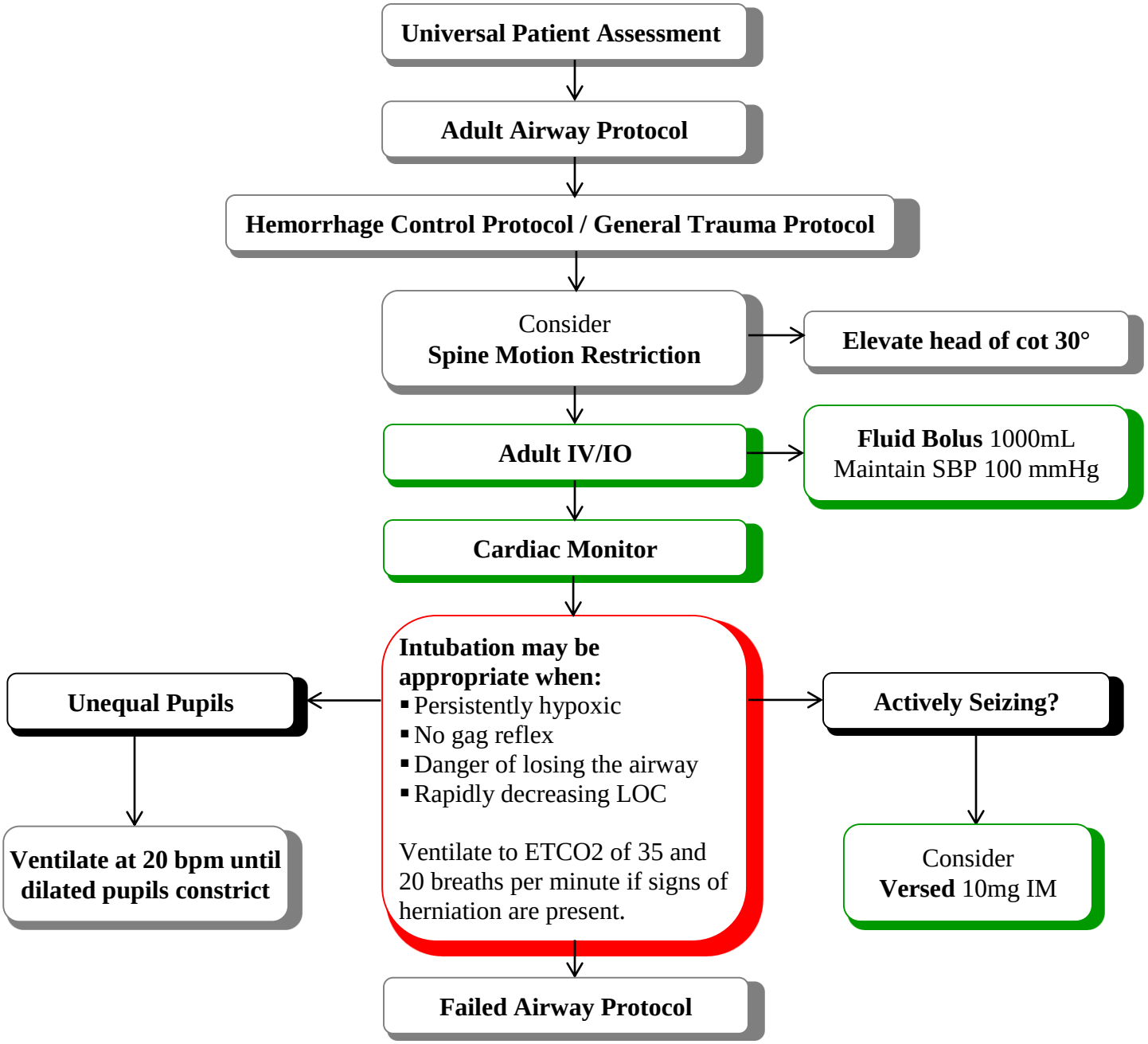
General Trauma



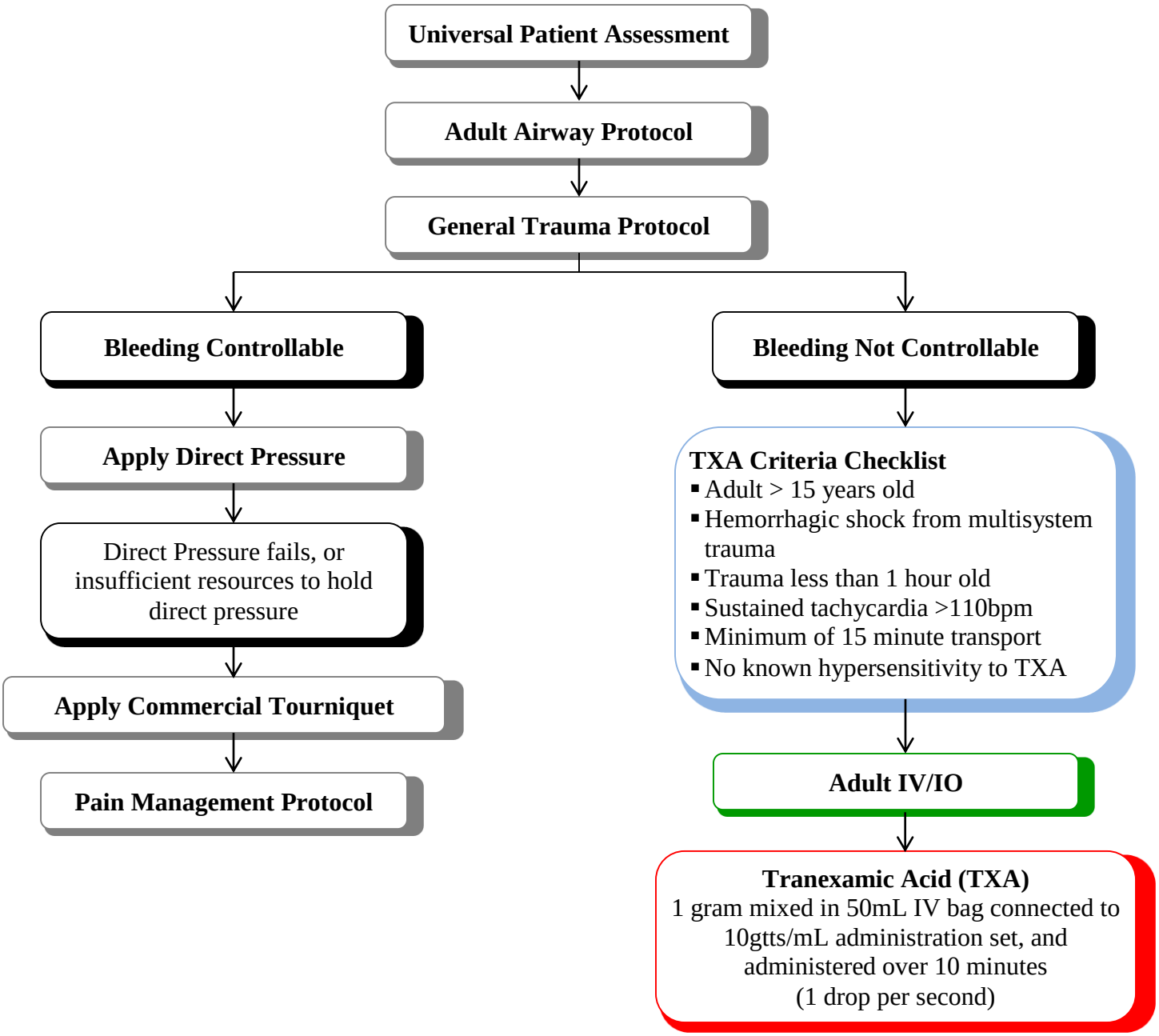
EMR | EMT | AEMT | Paramedic | Extended

Head Trauma



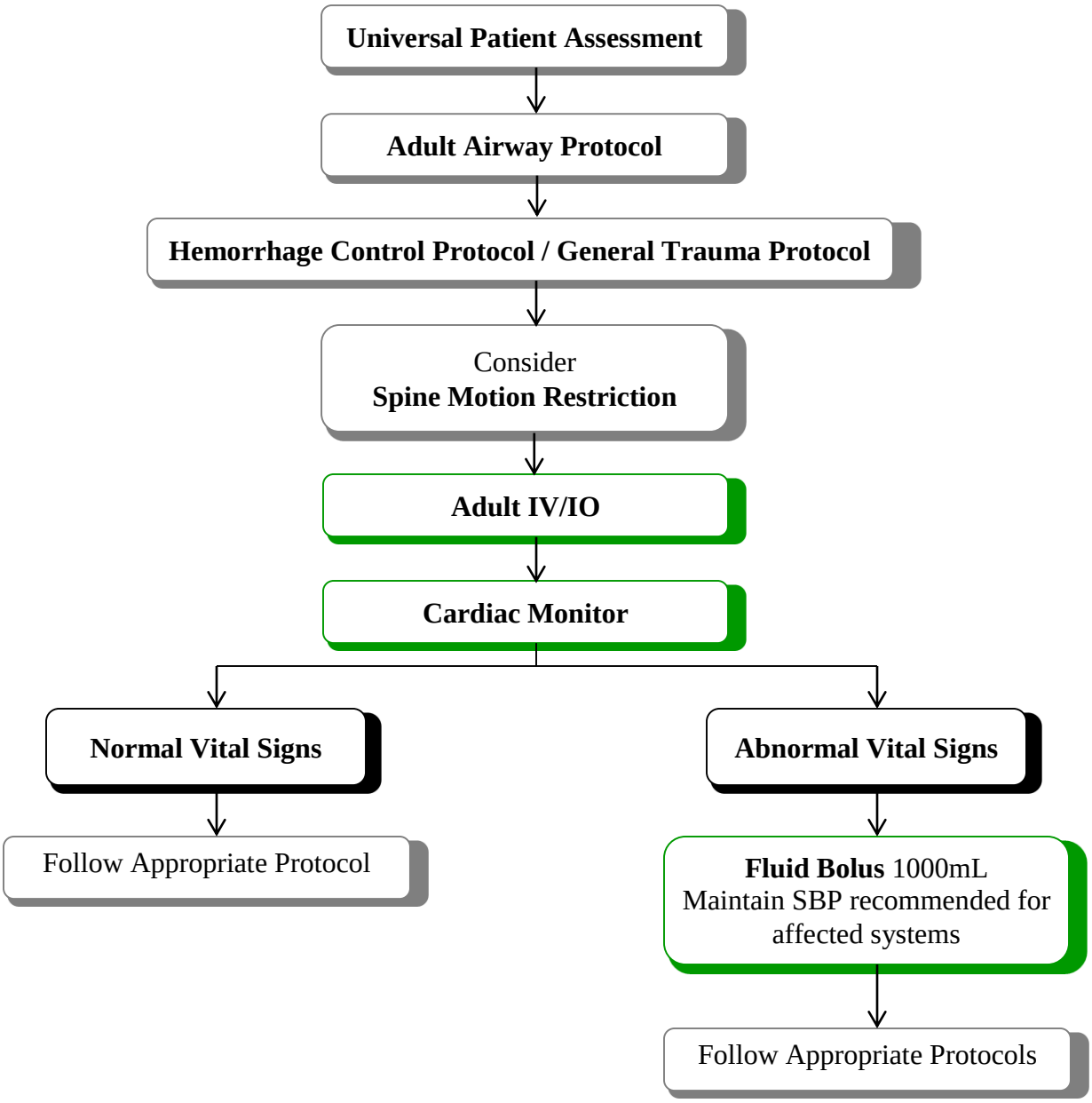
EMR | EMT | AEMT | Paramedic | Extended

Hemorrhage Control



EMR | EMT | AEMT | Paramedic | Extended

Multisystem Trauma

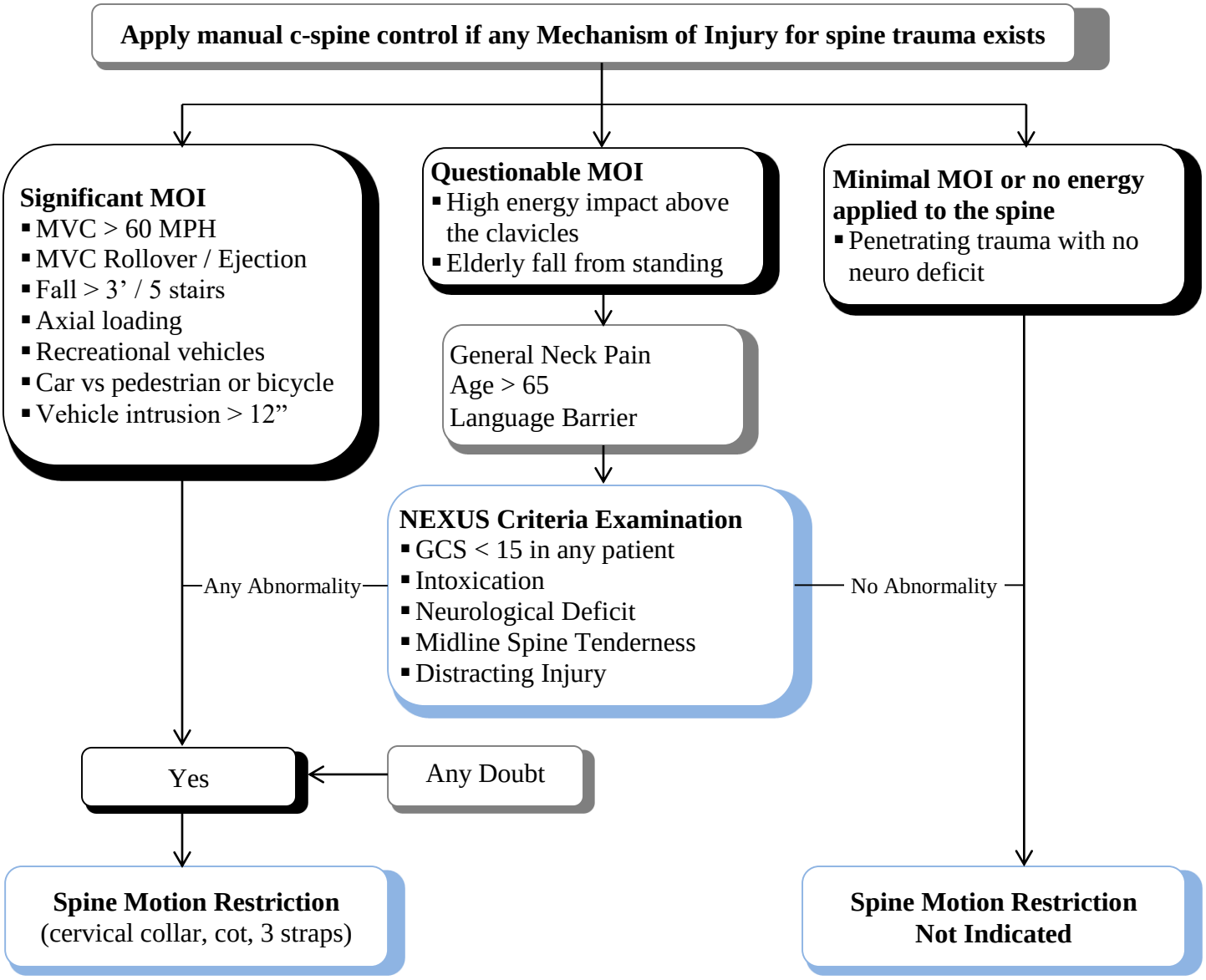


EMR | EMT | AEMT | Paramedic | Extended

Spinal Assessment

Clinical Considerations

- C-spine control is used in almost all non-isolated trauma
- Anyone who would have traditionally been backboarded will get a c-collar
- The intent of the rigid spine board is to facilitate movement
- Remove the rigid device prior to arrival at the receiving facility
- There is no longer a place for the standing takedown
- Patients who are ambulatory on scene should be instructed to sit on the cot
- Providers must still actively use spinal precautions and document what precautions were taken
- Providers should use a slide board to facilitate movement between the cot and other surfaces
- If any doubt exists whether or not a patient has a spine injury, utilize spine motion restriction



EMR | EMT | AEMT | Paramedic | Extended

Spine Injured Athletes

Clinical Considerations

- Current NATA recommendations are designed to guide clinical judgment. They are not law.
- Athletes with potential spine injury wearing protective gear complicates lifting, movement, and assessment
- Care should be taken to move the spine injured athlete in the most effective way to reduce spine motion.
- Patients who are ambulatory on scene should be instructed to sit on the cot.
- The intent of the rigid spine board is to facilitate movement and extrication. It provides no benefit and may cause harm to a patient once they are on the ambulance cot.
- Every effort should be taken to remove the patient from the rigid spine board as soon as it is possible
- If any doubt exists whether or not a patient has a spine injury, utilize spine motion restriction

Apply manual c-spine control if any Mechanism of Injury for spine trauma exists

Significant MOI
- Head-to-head collision
- Head-down tackle
- Axial loading
- Recreational vehicles

Questionable MOI
- Player down after tackle, unknown injury pattern
- Hit/punched above clavicles
- Any doubt

Minimal MOI or no energy applied to the spine
- Isolated extremity injuries

Evaluate need for **protective equipment removal**
Remove if indicated

Apply **Rigid Spine Board** or **Scoop-Style Stretcher**

Move patient to ambulance cot

Continue with transport
As soon as it is feasible, remove from rigid device.

NEXUS Criteria Examination
- GCS < 15 in any patient
- Intoxication
- Neurological Deficit
- Midline Spine Tenderness
- Distracting Injury

Any Abnormality

No Abnormality

Spine Motion Restriction Not Indicated

Stabilize injury and transport

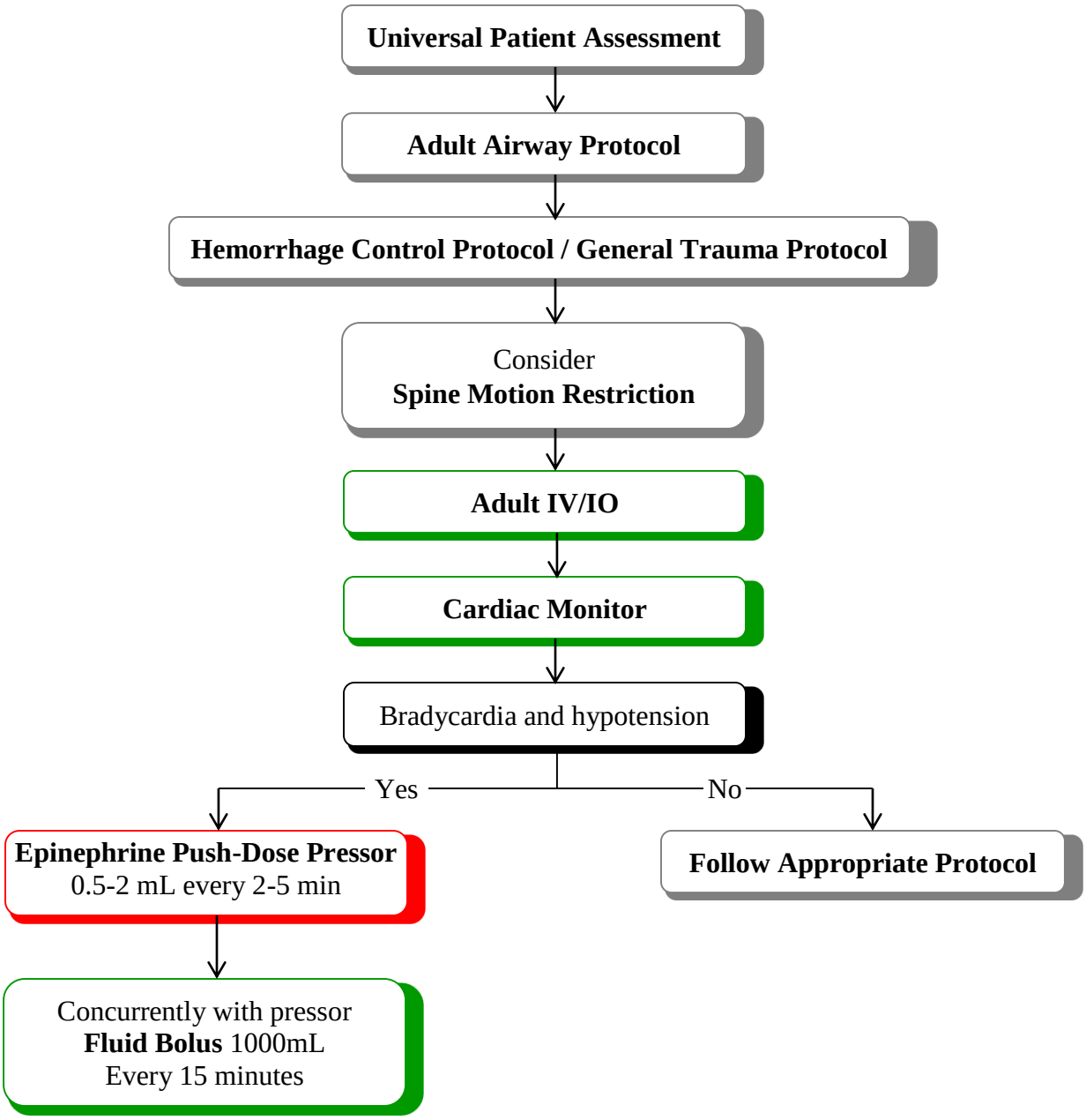
Consider **Pain Management**

Clinical Considerations

- Protective equipment removal is indicated in loss of consciousness, airway compromise, suspected hidden injuries, or any life threats.
- Be a patient advocate. It is *critical* that the patient spends *minimal* time on a rigid spine device.
- Weigh the risks/benefits of rigid device removal vs. management of life threats, scene time, patient comfort, and difficulty of removal
- Do not logroll the spine injured athlete to a backboard unless found prone; use the NATA recommended 8 person slide technique
- If the helmet must be removed, so must the shoulder/torso pads

EMR | EMT | AEMT | Paramedic | Extended

Spine Trauma



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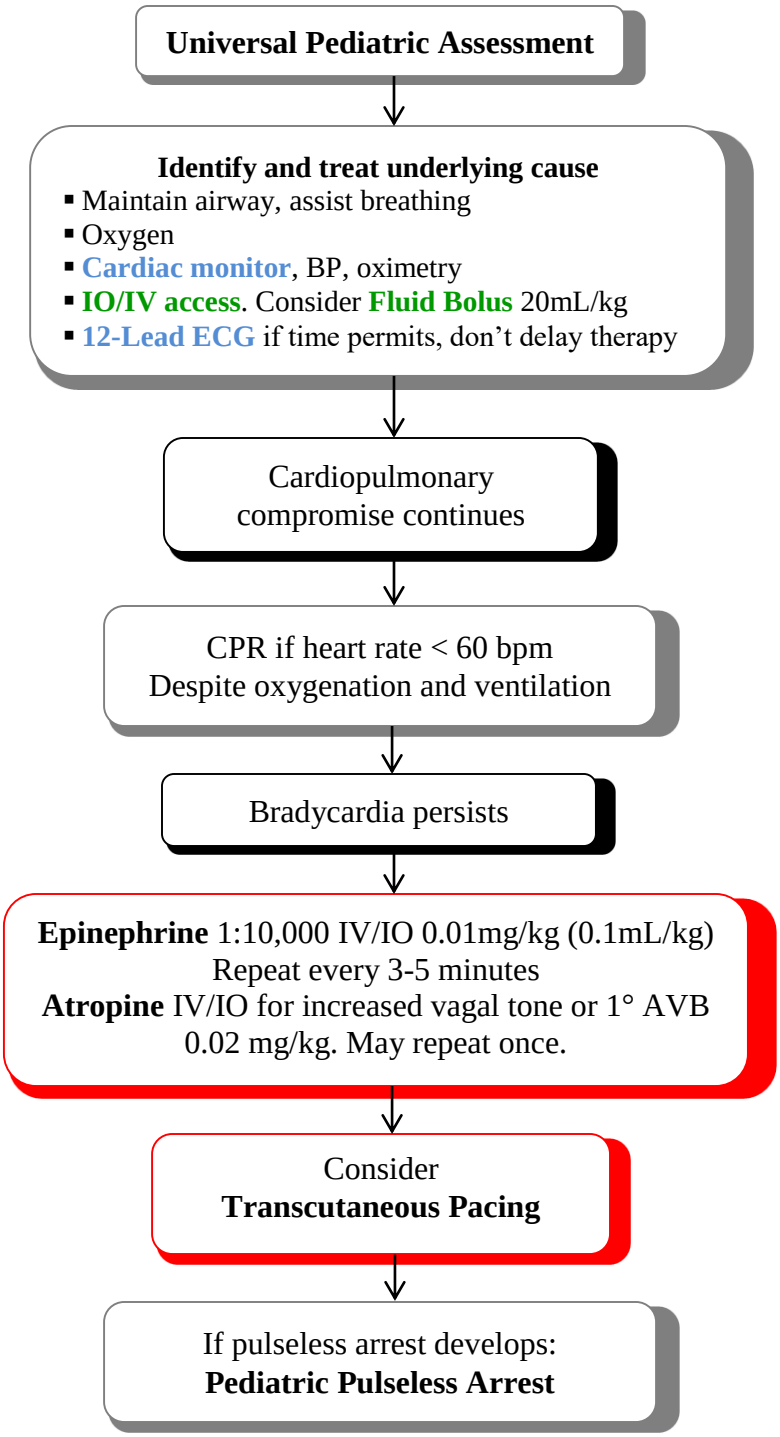
Pediatric Protocols

EMR | EMT | AEMT | Paramedic | Extended

Pediatric Cardiovascular

Pediatric Bradycardia



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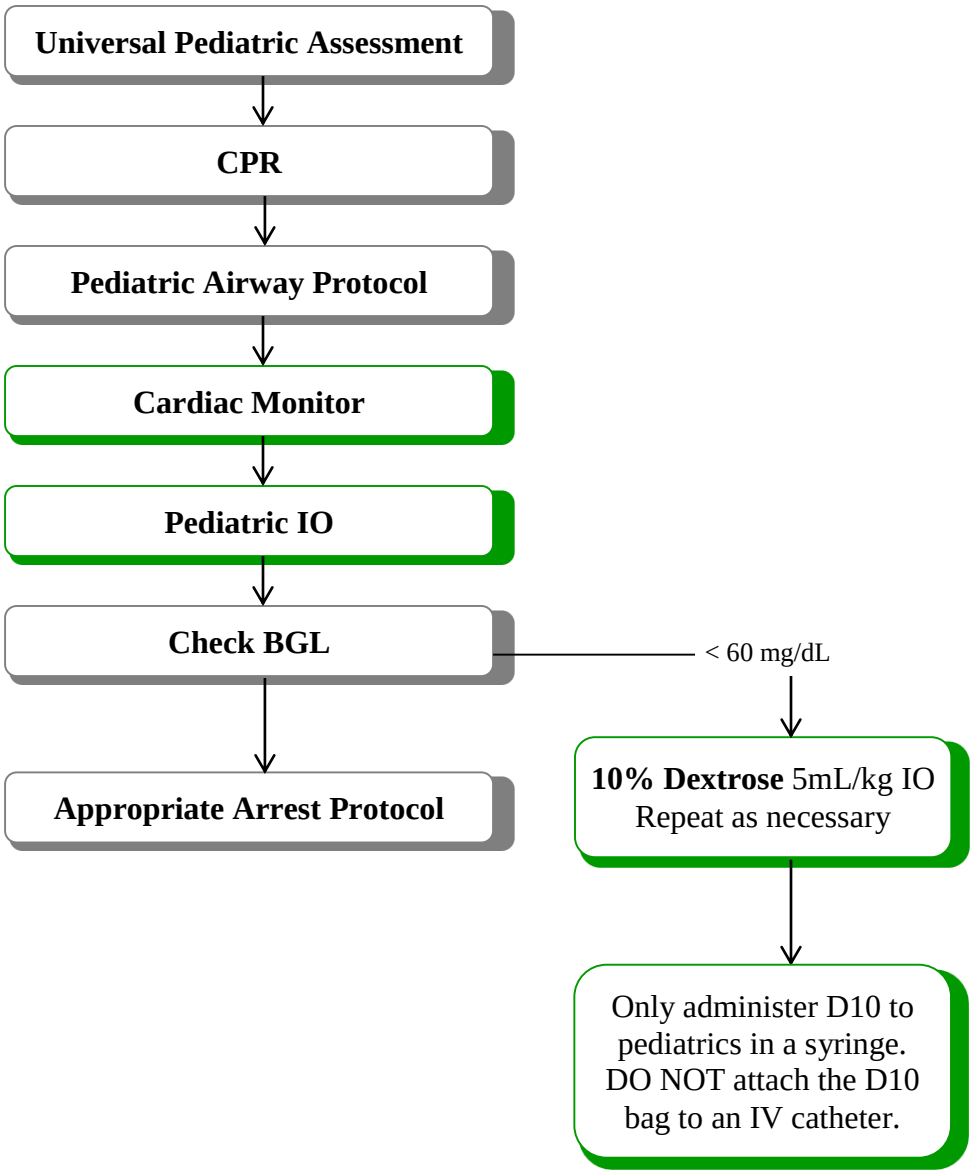
Pediatric Cardiac Arrest



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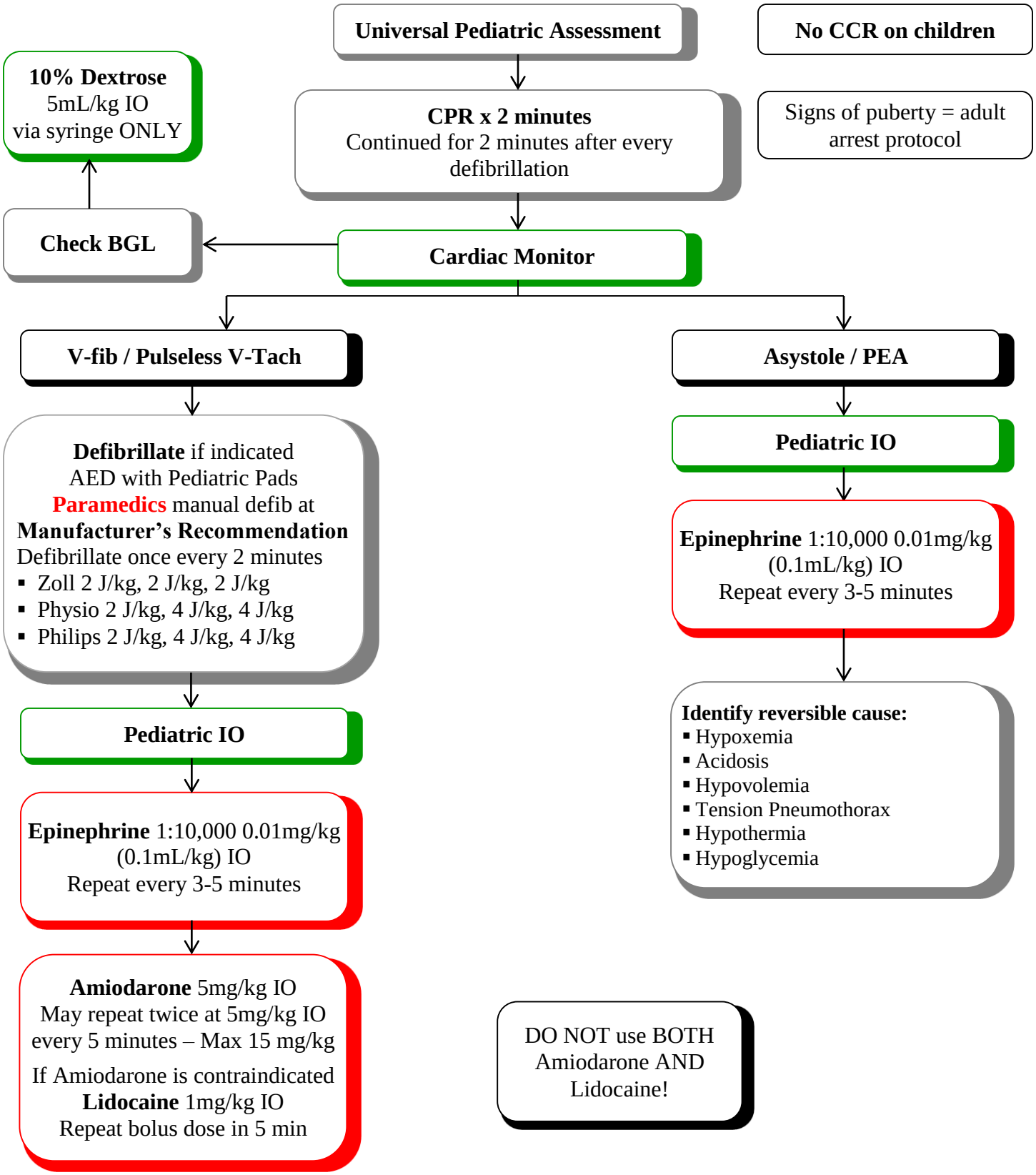
Pediatric Pulseless Arrest



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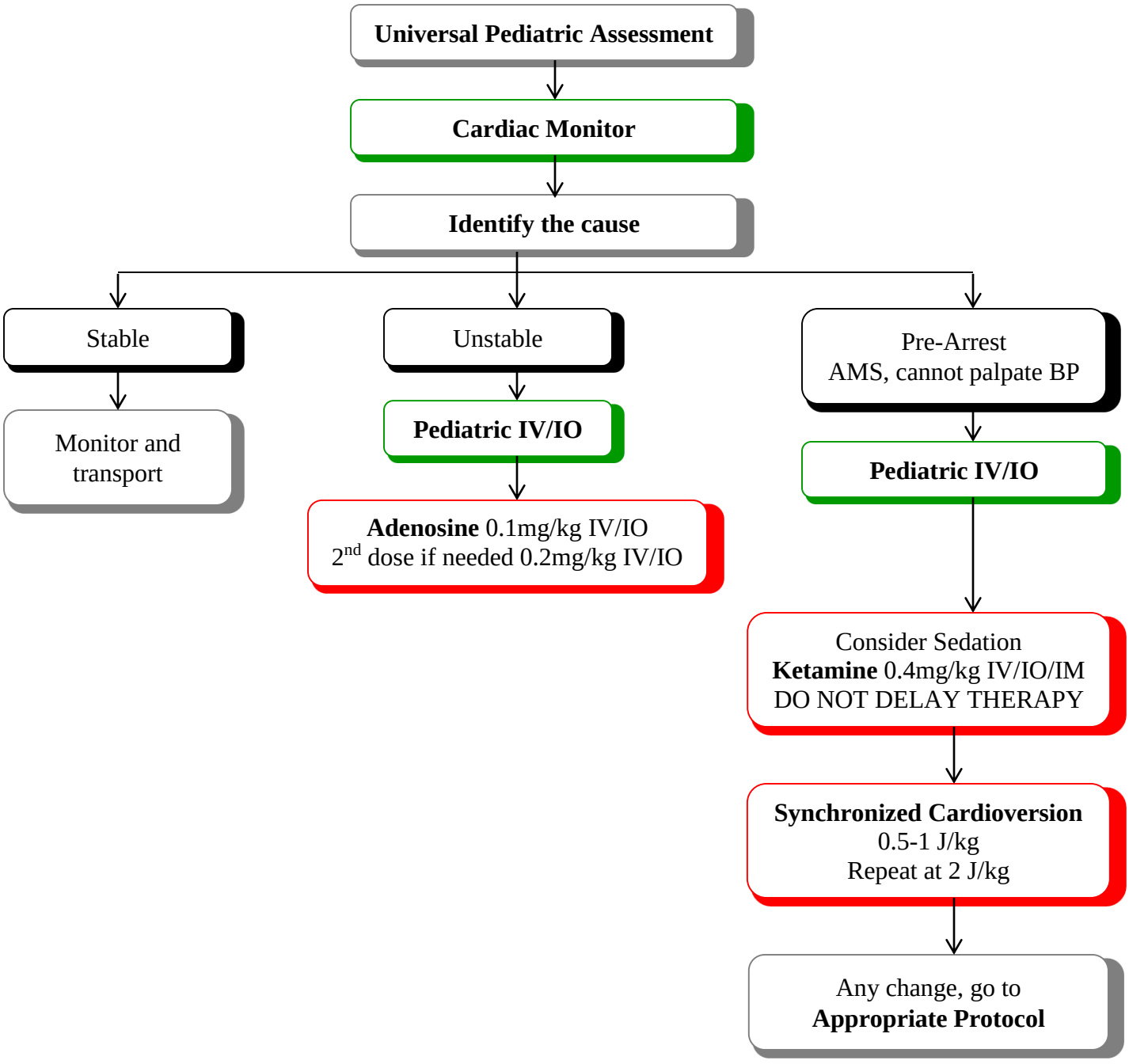
Pediatric SVT



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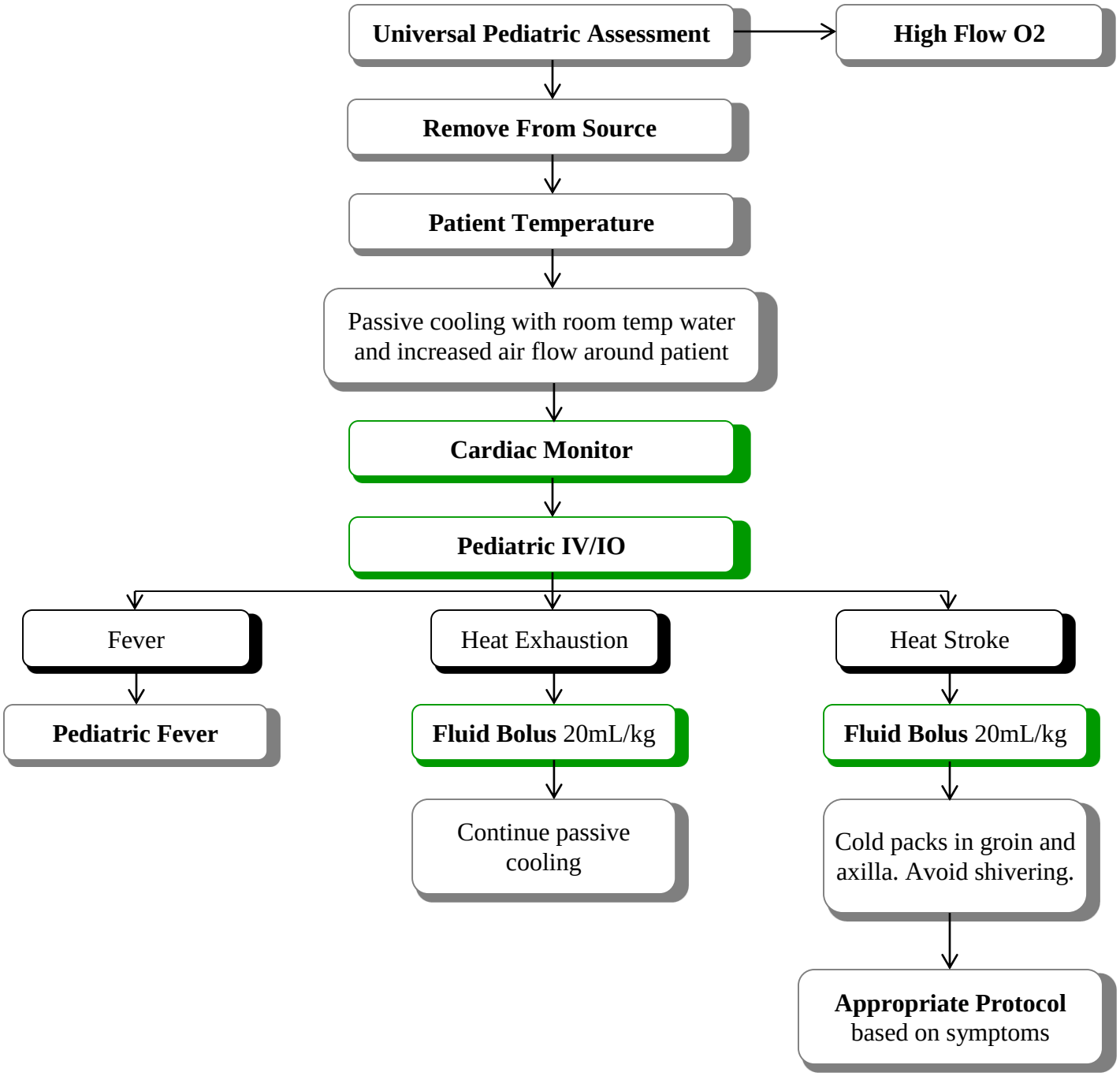
Pediatric Environmental

Pediatric Heat Illness



EMR | EMT | AEMT | Paramedic | Extended

Pediatric Hypothermia

Axillary and oral temperatures are poor measures of core temperature. Rectal temperatures are more accurate.

Universal Pediatric Assessment

Consider Trauma Center

In hypothermia if any pulse is present, no matter how slow, do not begin chest compressions

Remove from source
Remove clothing
Handle gently

Apply **c-collar**

Document patient **temperature**

Passive rewarming

Pediatric IV/IO

Severe Hypothermia
<86° F (30°C)

CPR if necessary

Avoid medications or limit to 1 dose, flush with 50cc warm saline.

Consider limiting **Defibrillation** to 1 dose at 2-4 J/kg until warmed
Use MFG recommended defibrillation doses

Moderate Hypothermia
86-93°F (30-34°C)

CPR if necessary

Use longer intervals for medications

Do not stop treatment until warm and dead

Mild Hypothermia
93-95°F (34-35°C)

Support Vital Functions

Appropriate Protocol
based on symptoms

EMR | EMT | AEMT | Paramedic | Extended

Pediatric Gastrointestinal

Pediatric Vomiting

Have suction ready

Universal Pediatric Assessment

Tachycardia?

Yes

Cardiac Monitor

No

Pediatric IV/IO

Check BGL

Appropriate Protocol

Fluid Bolus 20mL/kg

Consider:
- Transport time >10min?
- Persistent vomiting with longer transport time?
- Airway in jeopardy?

Zofran
1 month to 12 years old
<30kg/66lbs: 0.1mg/kg IV/IO x 1 or ½ ODT
>30kg/66lbs: 4mg IV/IO/ODT
Maximum 4mg

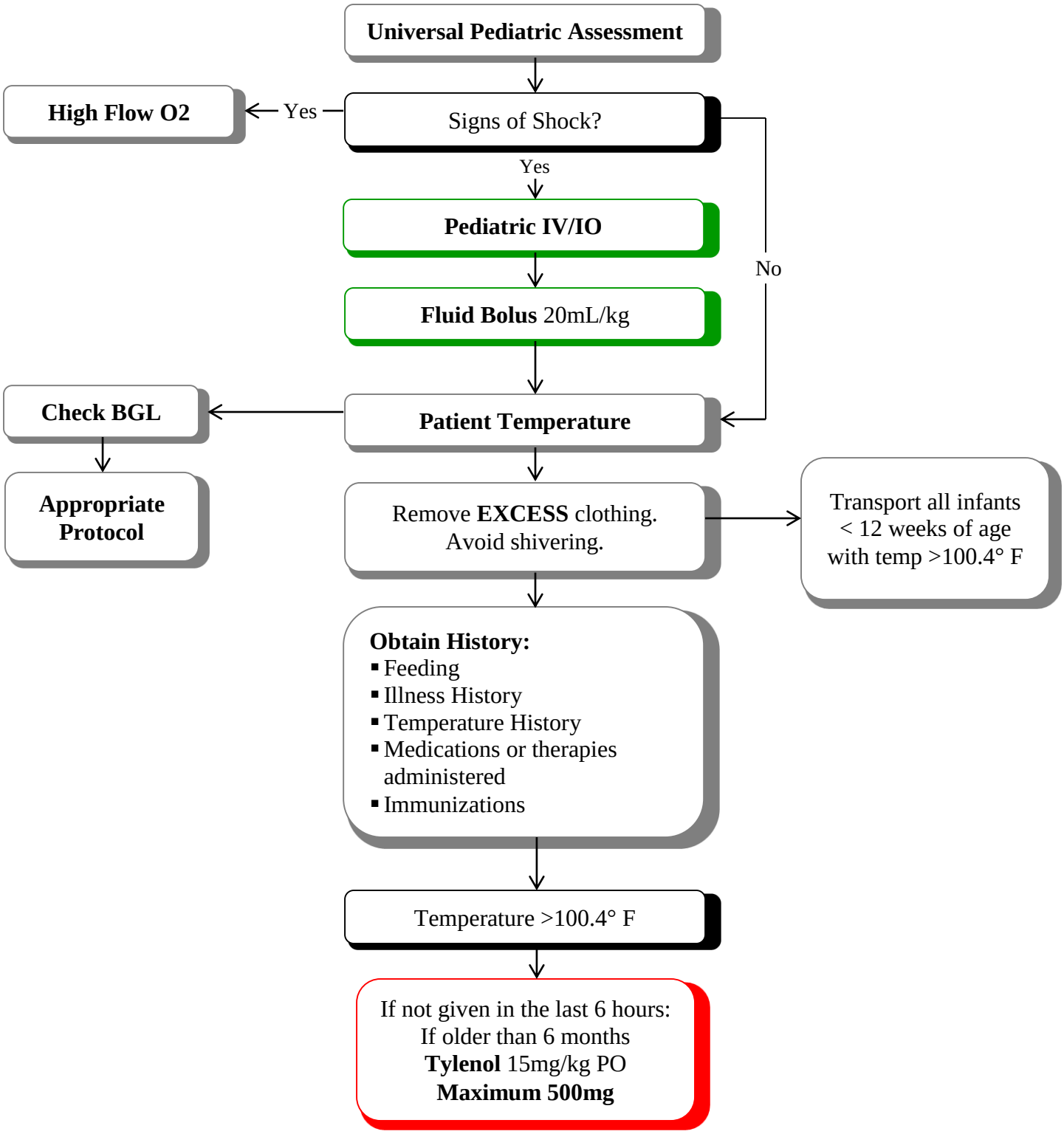
Clinical Considerations
Possible etiologies:
- Fever
- Ear or other infections
- Viruses

Monitor for:
- Dehydration

EMR | EMT | AEMT | Paramedic | Extended

Pediatric General

Pediatric Fever



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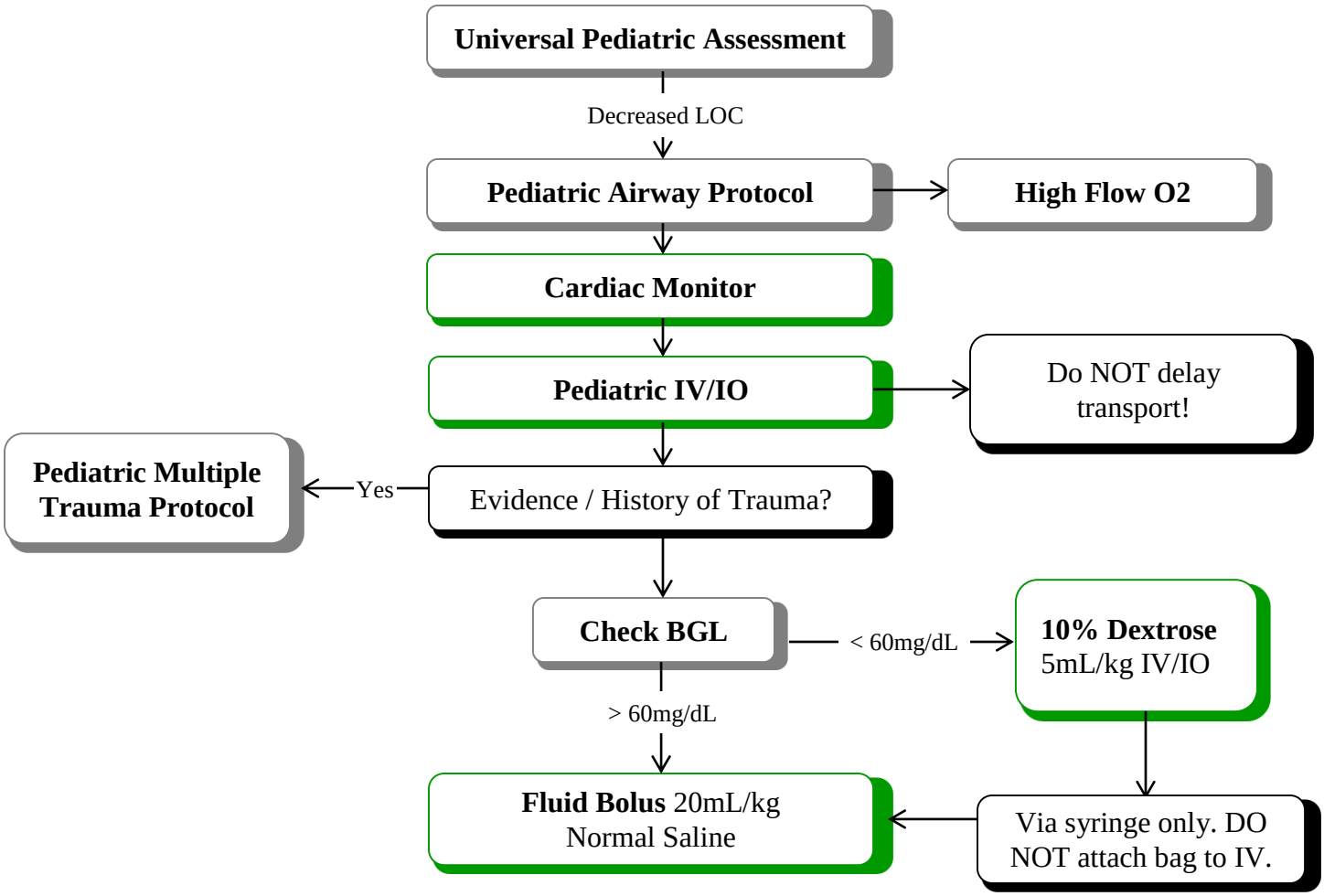
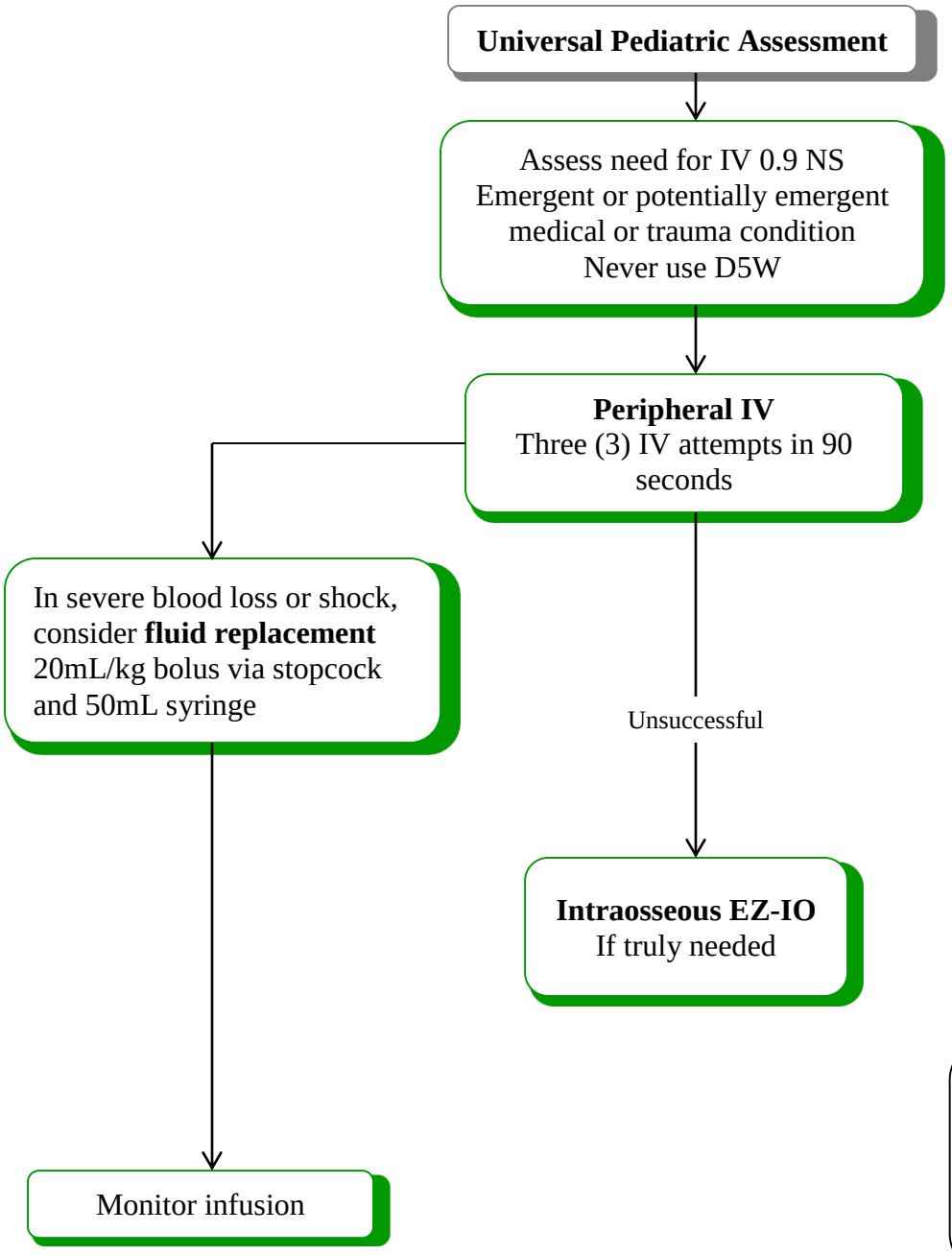
Pediatric Hypovolemic Shock



EMR | EMT | AEMT | Paramedic | Extended

Pediatric IV / IO



Clinical Considerations
EZ-IO sites (Pediatric):
- Proximal Humerus
- Proximal Tibia
- Distal Tibia
- Distal Femur

BIG or Jamshidi
- Proximal Tibia

Clinical Considerations
Pediatric Approved IO Devices:
- EZ-IO
- Jamshidi or Illinois
- BIG

EMR | EMT | AEMT | Paramedic | Extended

Pediatric Pain Control

Clinical Considerations
- Ketamine IV/IO must be diluted to 5mg/mL
- Do not dilute ketamine for MAD or IM routes
- Ketamine may be less effective via MAD or IM
- Alternative routes are offered to minimize patient anxiety and facilitate administration
- Biovailability of alternative routes guides the dose ranges

Universal Pediatric Assessment

↓

Keep patient calm

↓

Use Wong-Baker Faces pain scale

↓

Determine cause of pain

↓

Pediatric IV/IO

↓

< 16 years old

Clinical Considerations
Make parents aware:
- Ketamine is a hallucinogen
- Ketamine causes nystagmus

Second dose must be clearly justified

Clinical Considerations
Ketamine Contraindications:
- Patients < 2 months old
- Schizophrenia
- Allergy to ketamine

Visceral Pain
Non-obvious Sources

↓

If not given in the last 6 hours:
If older than 6 months:
If clearly justified:
Tylenol 15mg/kg PO
Maximum 500mg

Orthopedic Pain
Obvious Sources of Pain

↓

Ketamine 0.2mg/kg IV/IO/IM
or
Ketamine 0.3 mg/kg Nebulized
or
Ketamine 1 mg/kg via MAD
Repeat IV/IO dose in 10 minutes if source of obvious pain

↓

Zofran
1 month to 12 years old
<30kg/66lbs: 0.1mg/kg IV/IO x 1 or ½ an ODT
>30kg/66lbs: 4mg IV/IO/ODT
Maximum 4mg

Painful Procedures
Cardioversion
TCP

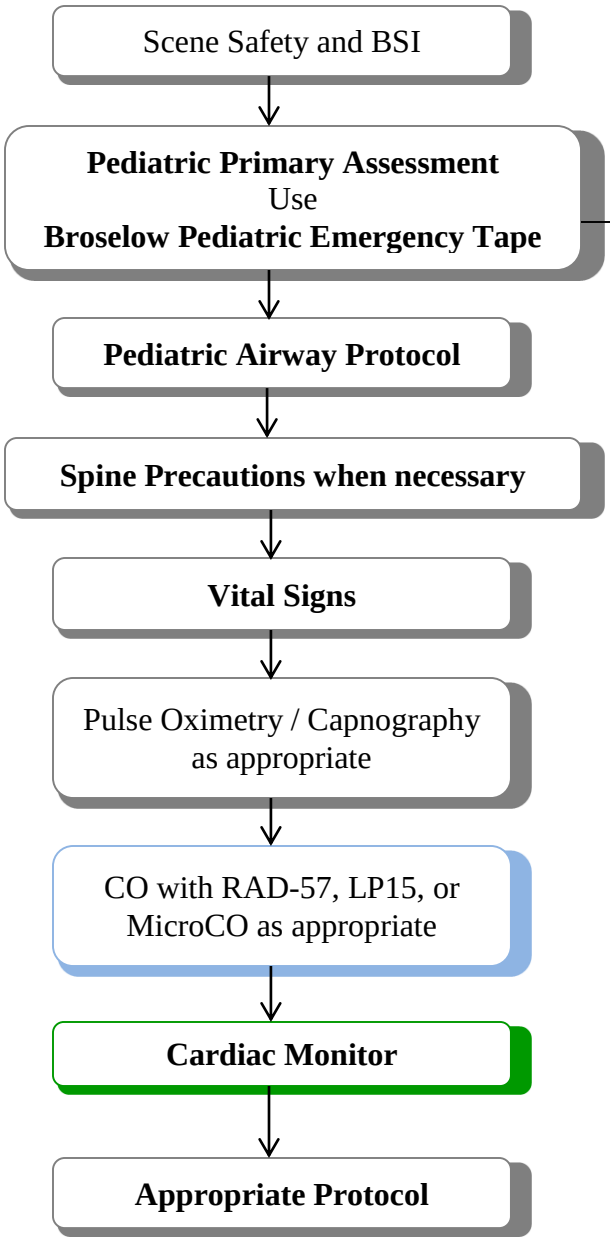
↓

Consider
Ketamine 0.4mg/kg IV/IO/IM
Maximum 40mg.
Be **prepared** for **side effects**
- Hallucinations
- Nausea
- Nystagmus

Clinical Considerations
Never delay a lifesaving therapy such as cardioversion or TCP to provide sedation.

EMR | EMT | AEMT | Paramedic | Extended

Universal Pediatric Assessment



The universal patient assessment protocol should be used as a primary guide to all patient assessments.

Pediatric Cardiac Arrest

Vital Signs (as appropriate)
- Pulse
- Respirations
- Blood Pressure
- GCS
- Pulse Oximetry
- Capnography
- Temperature
- Carbon Monoxide Oximetry
- Blood Glucose Level

EMR | EMT | AEMT | Paramedic | Extended

Pediatric Neonatal

Pediatric Neonatal Care

Clinical Considerations
- Meconium suctioning is no longer recommended by the AHA as a routine practice.
- The recommendation is to intubate and perform suctioning only when the neonate is nonvigorous and other BLS interventions have failed.

Universal Patient Assessment for mother

Assess and document amniotic fluid

Dry infant and keep warm

Stimulate and note APGAR Score: immediate score and score at 5 minutes

Targeted SpO2 minutes after birth
- 1 minute 60-65
- 2 minutes 65-70%
- 3 minutes 70-75%
- 4 minutes 75-80%
- 5 minutes 80-85%
- 10 minutes 85-95%

Check BGL

< 40mg/dL

10% Dextrose 2mL/kg IV/IO via syringe ONLY

Respirations Present?

No

BVM 30 seconds 40-60bpm with O2

Yes

Cardiac Monitor

Reassess heart rate

HR < 100

HR > 100

Monitor and reassess

Pediatric Airway Protocol

CPR

Pediatric IV/IO

Appropriate Protocol

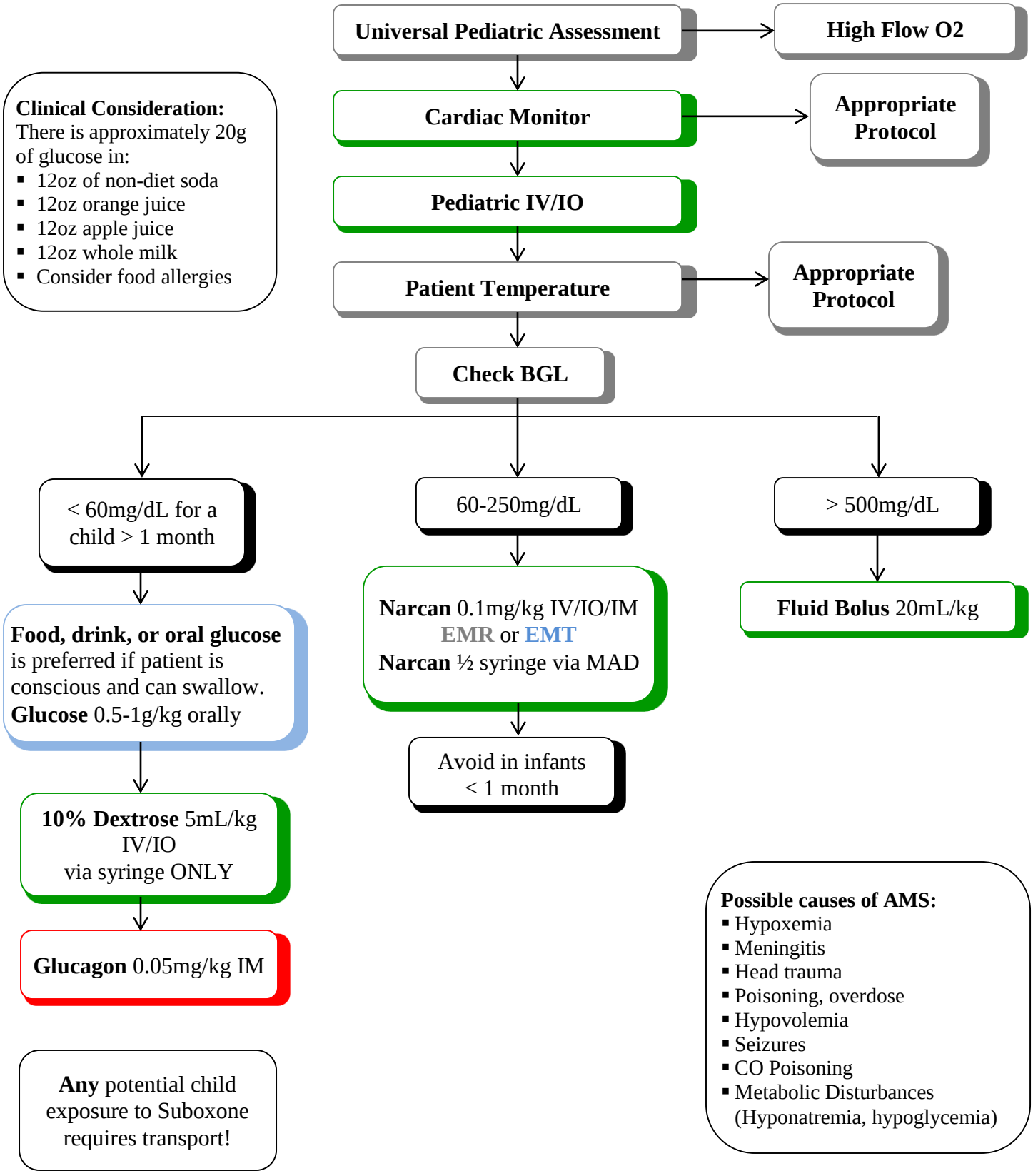
Consider **Fluid Bolus** 10mL/kg

Use **only** blow-by oxygen for neonates

EMR | EMT | AEMT | Paramedic | Extended

Pediatric Neurological

Pediatric Altered Mental Status



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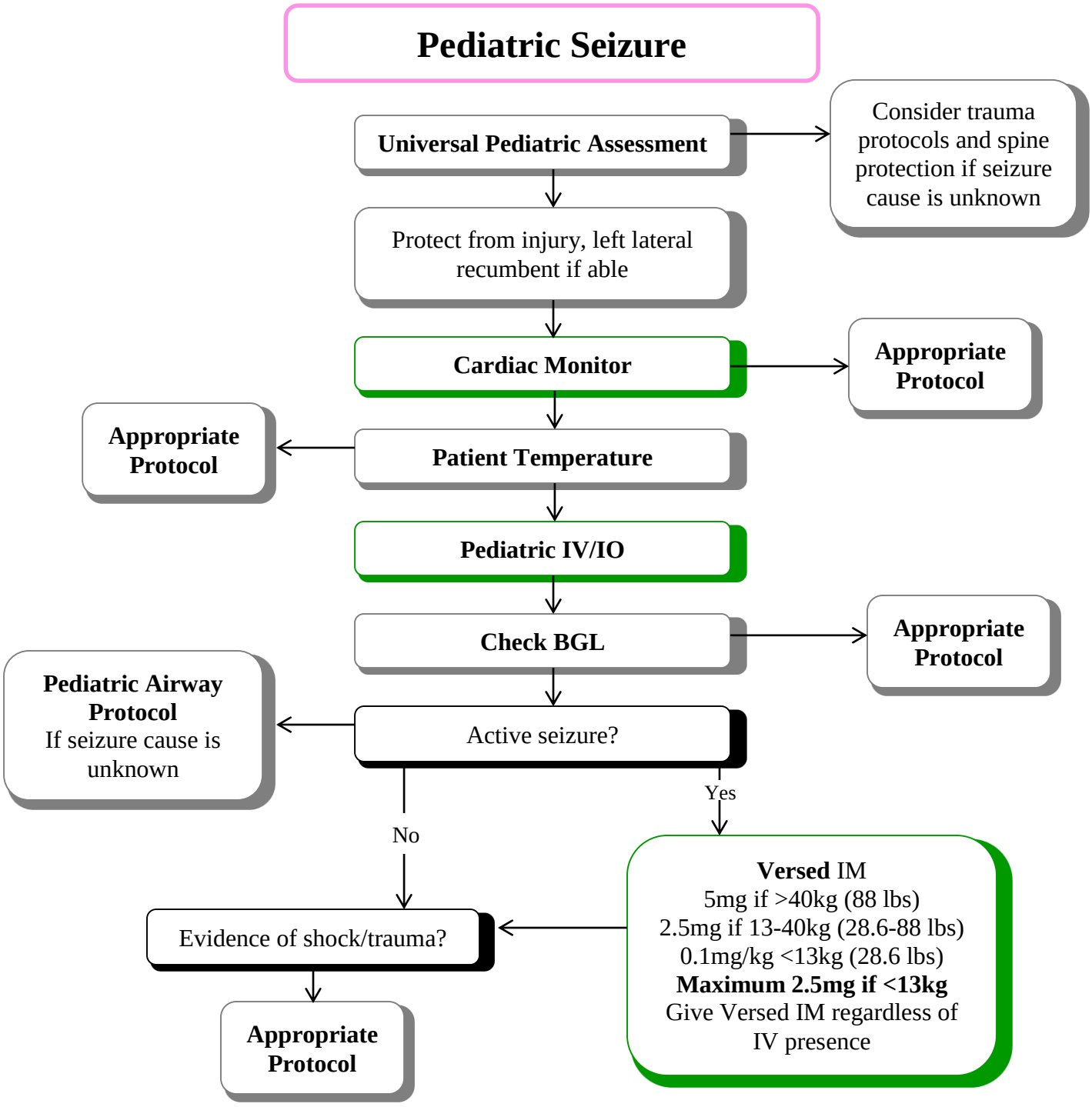
Pediatric Seizure



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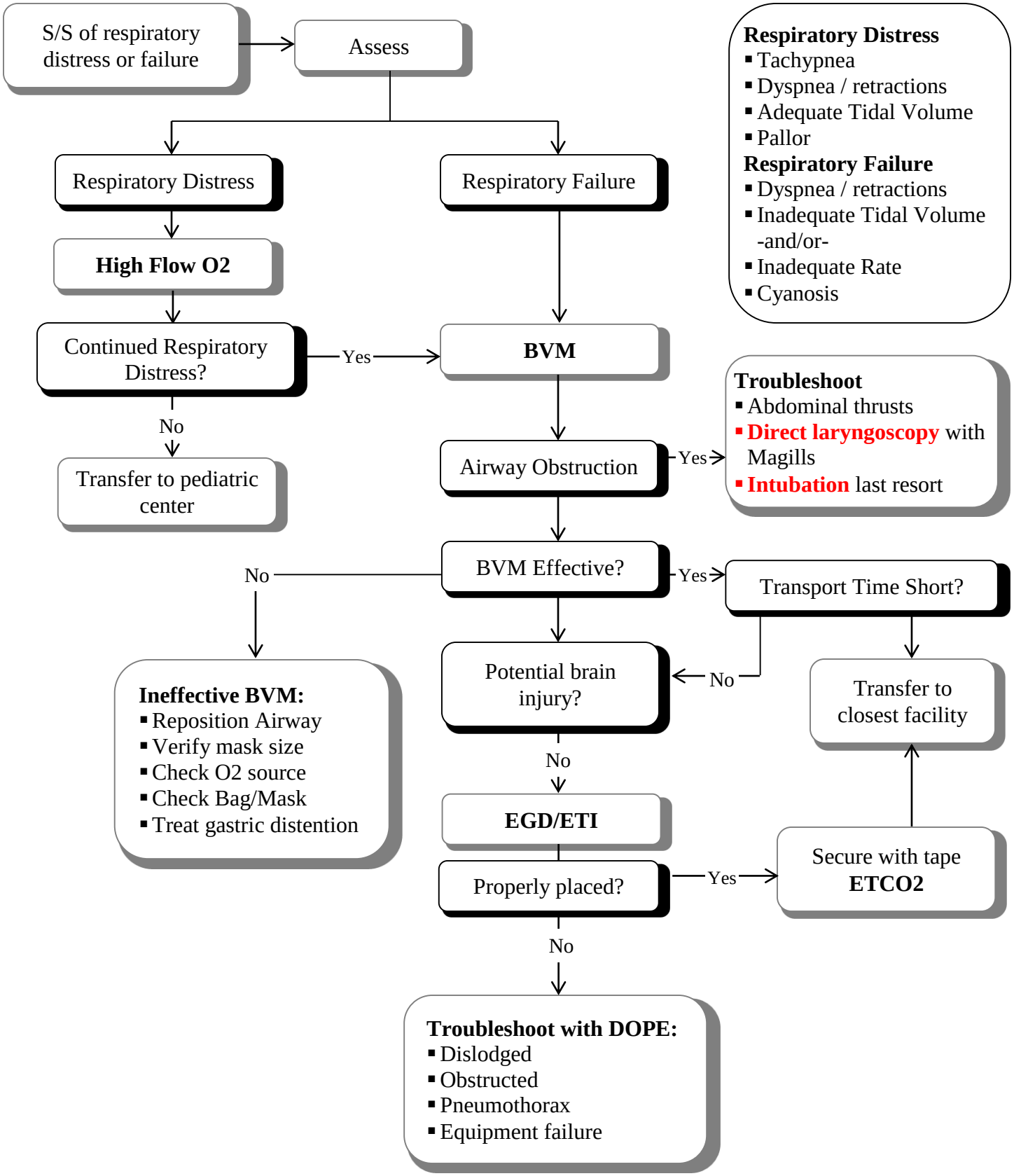
Pediatric Respiratory

Pediatric Airway



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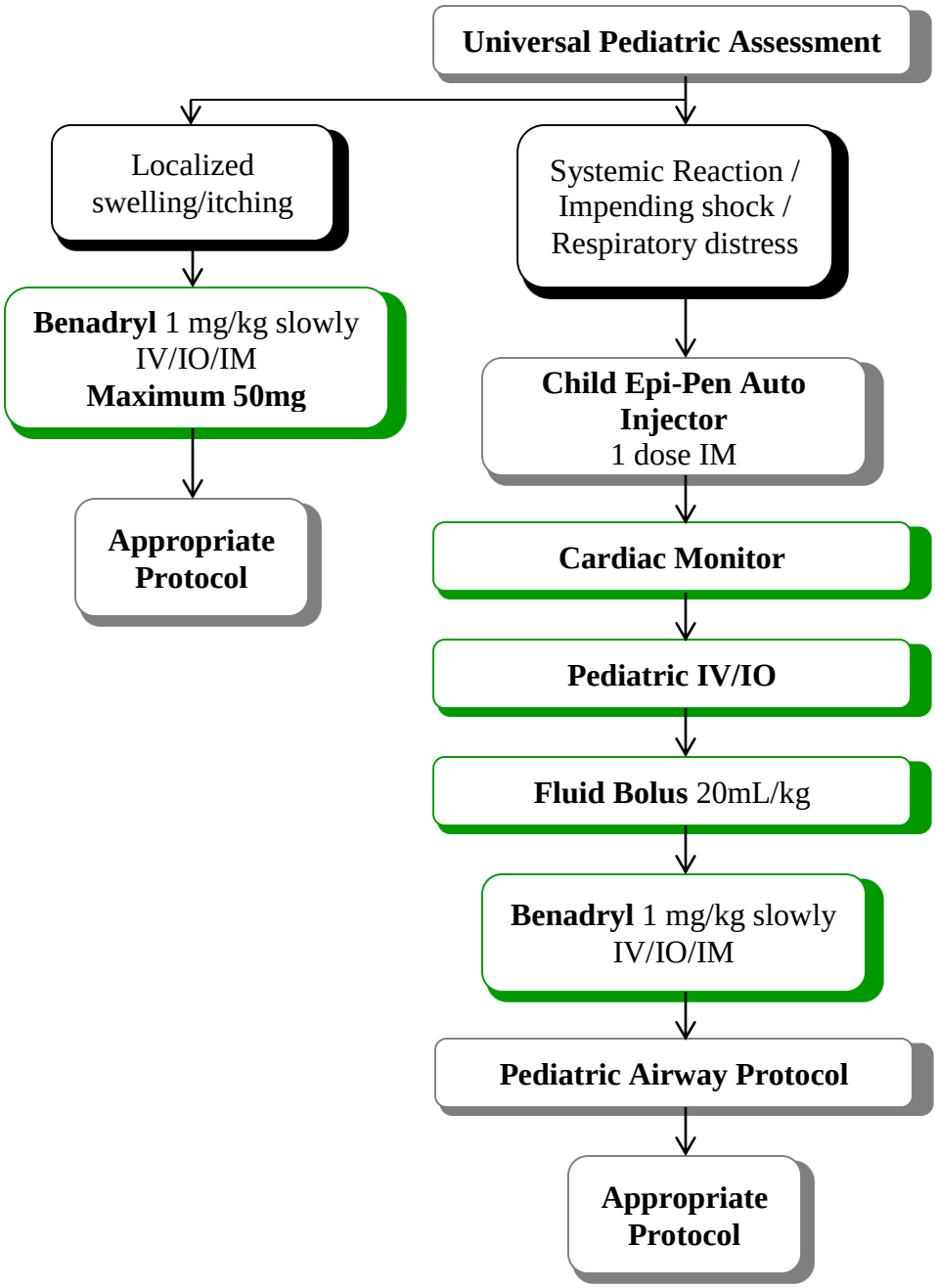
Pediatric Allergic Reaction



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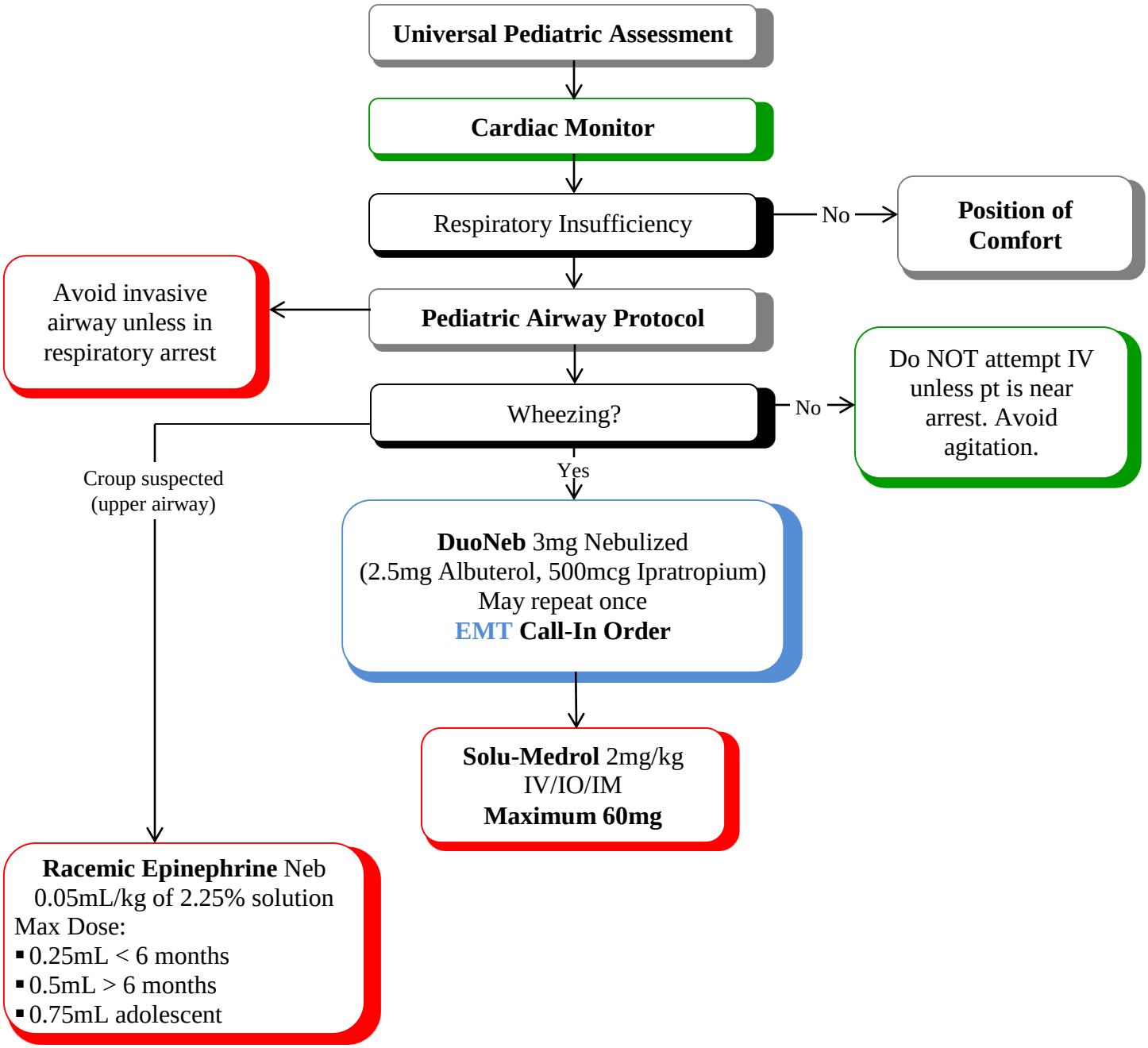
Pediatric Respiratory Distress (Lower Airway)



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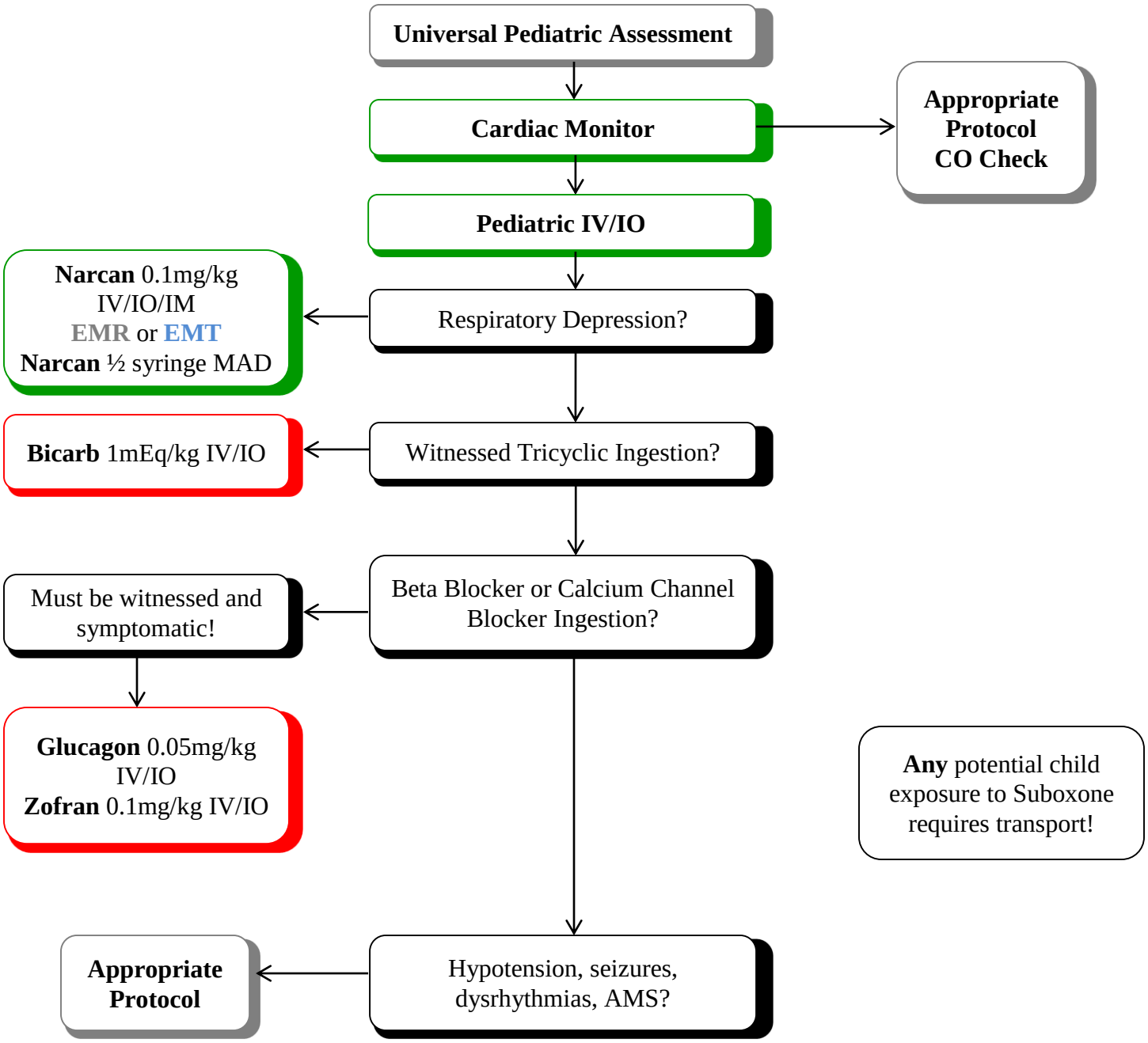
Pediatric Toxicology

Pediatric Overdose



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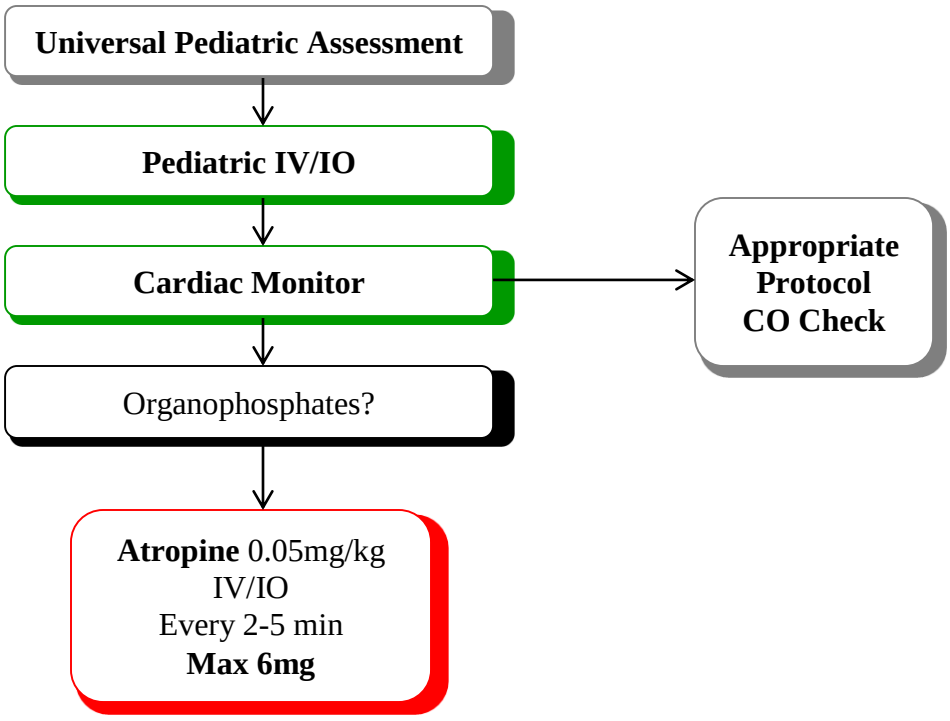
Pediatric Toxic Overdose



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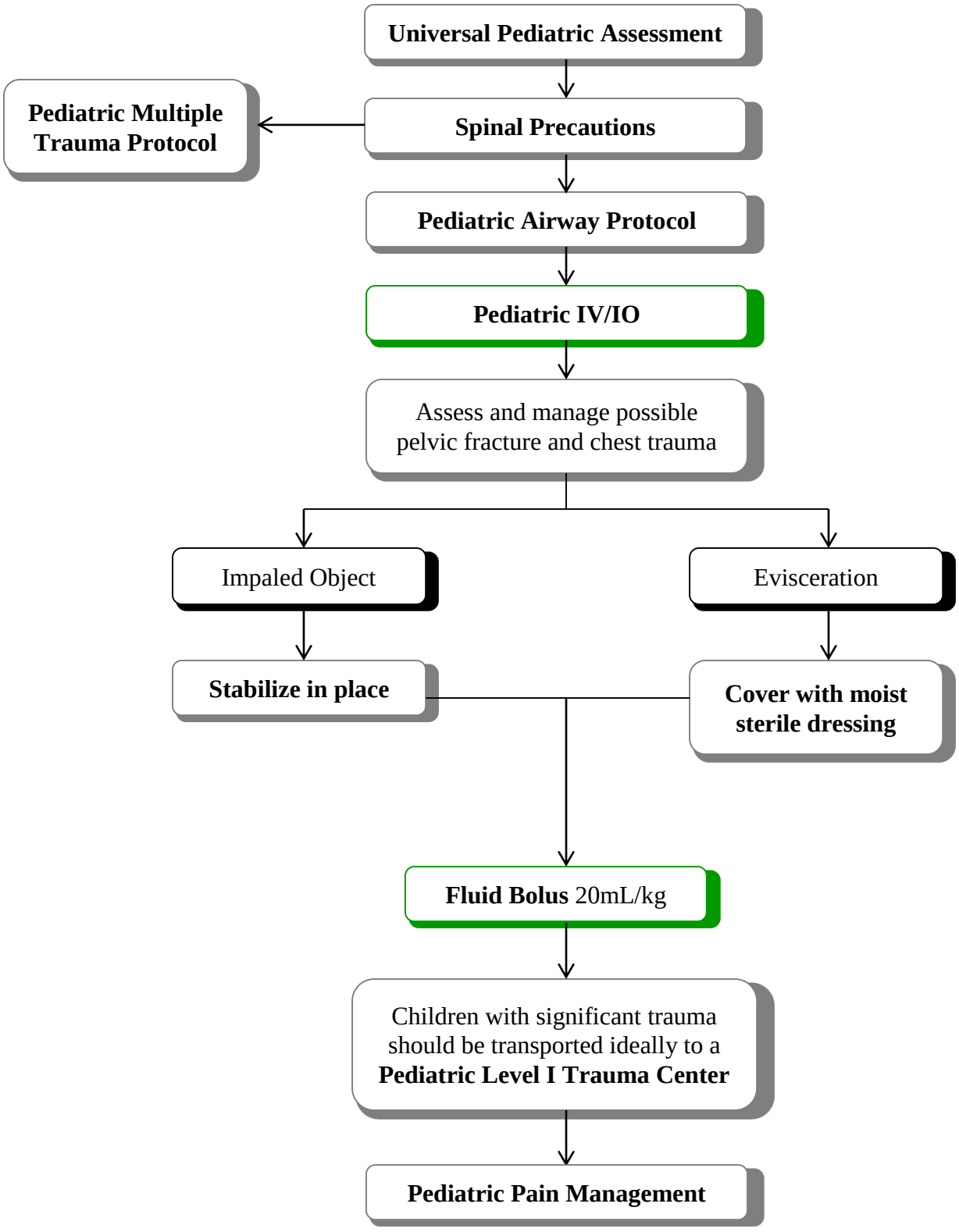
Pediatric Trauma

Pediatric Abdominal Trauma



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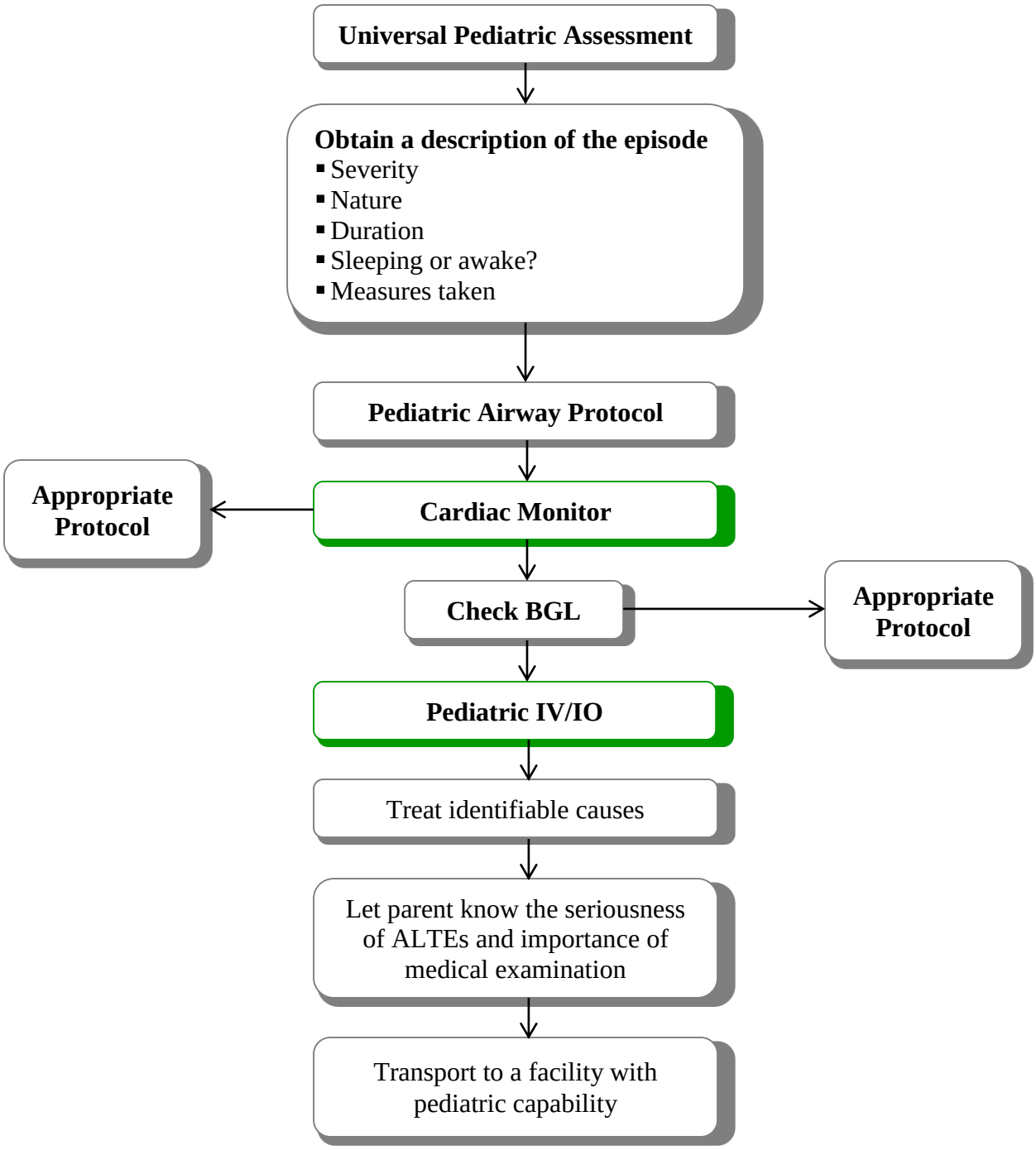
Pediatric Apparent Life Threatening Event



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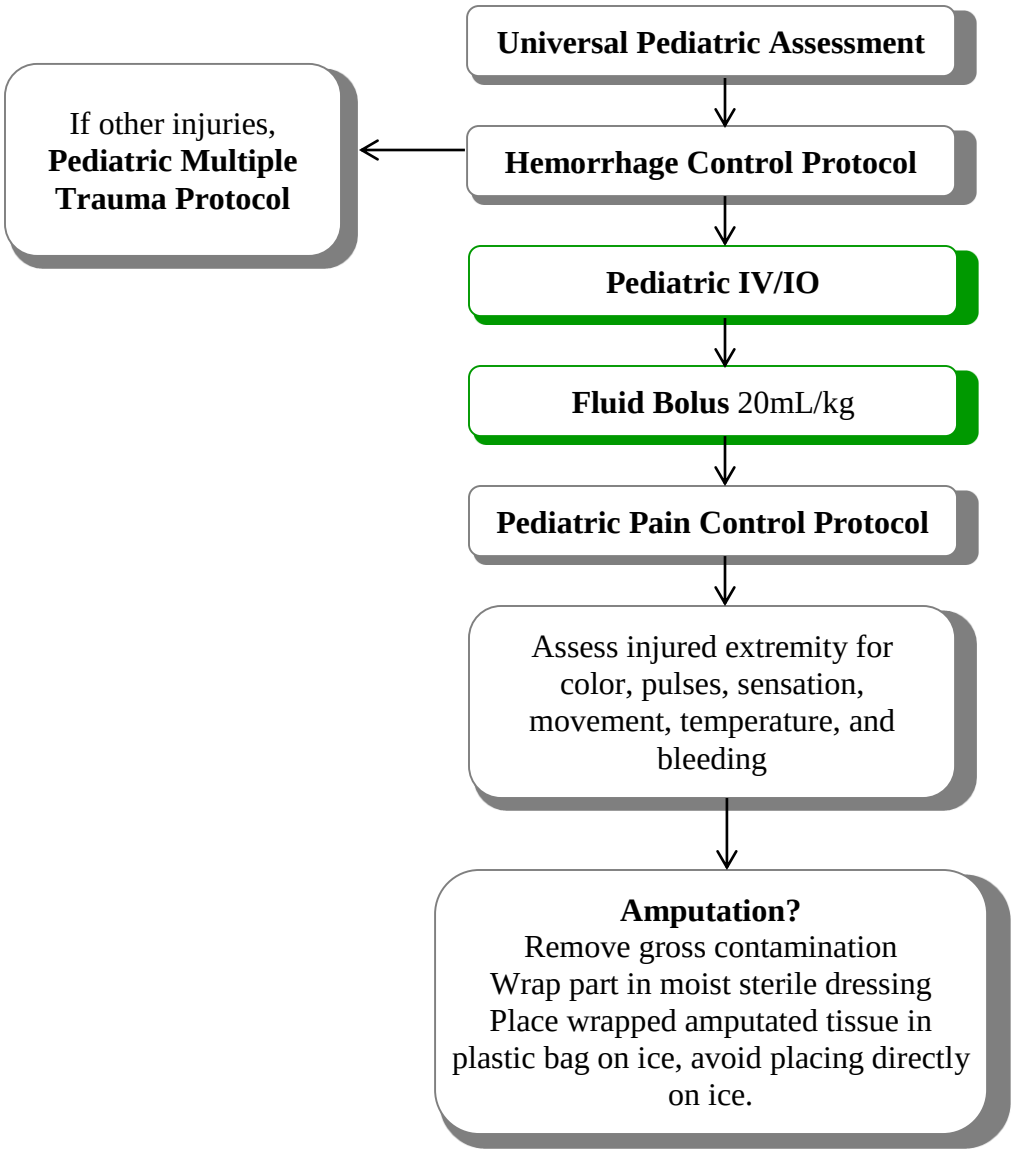
Pediatric Avulsion / Amputation



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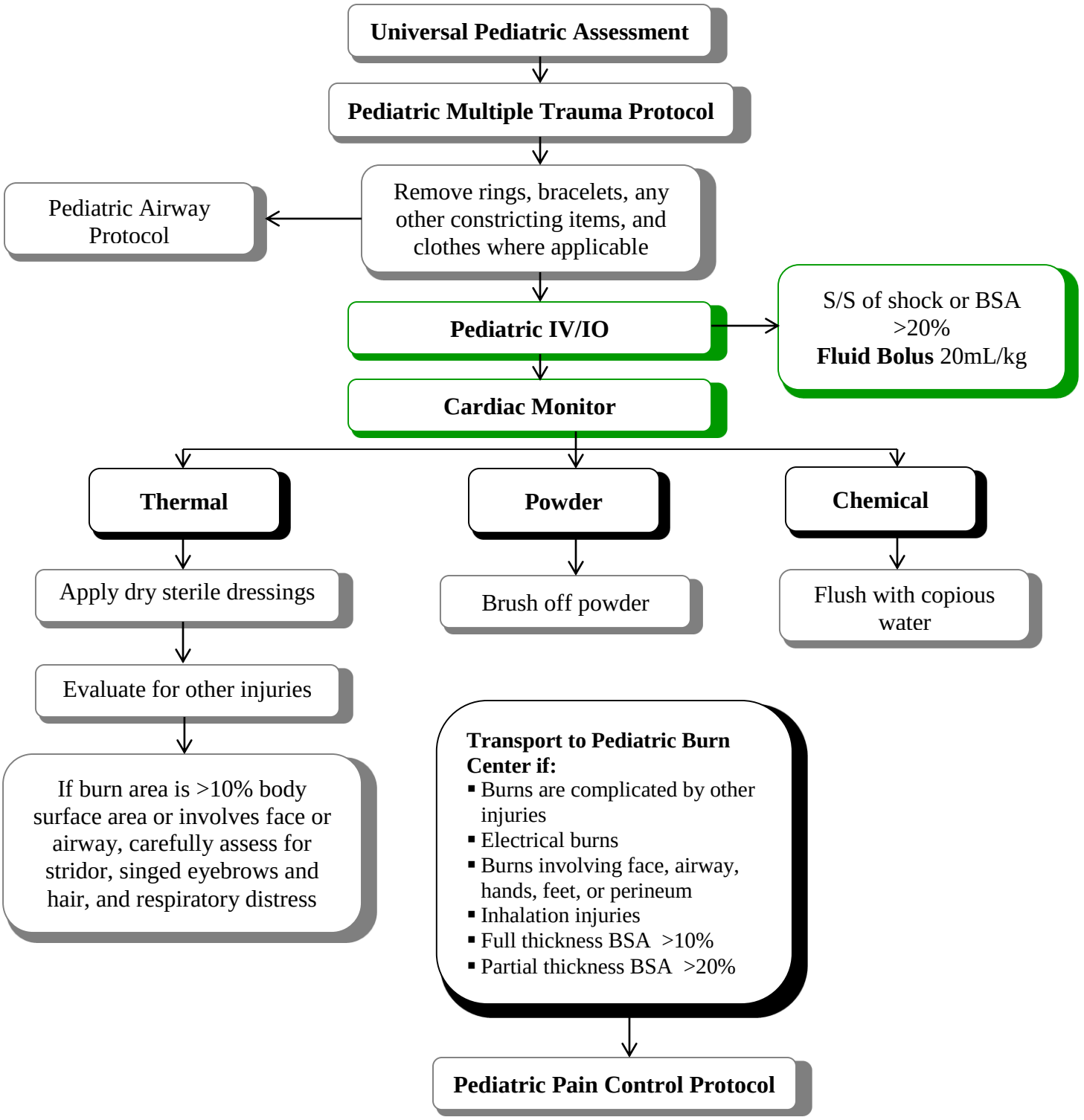
Pediatric Burns



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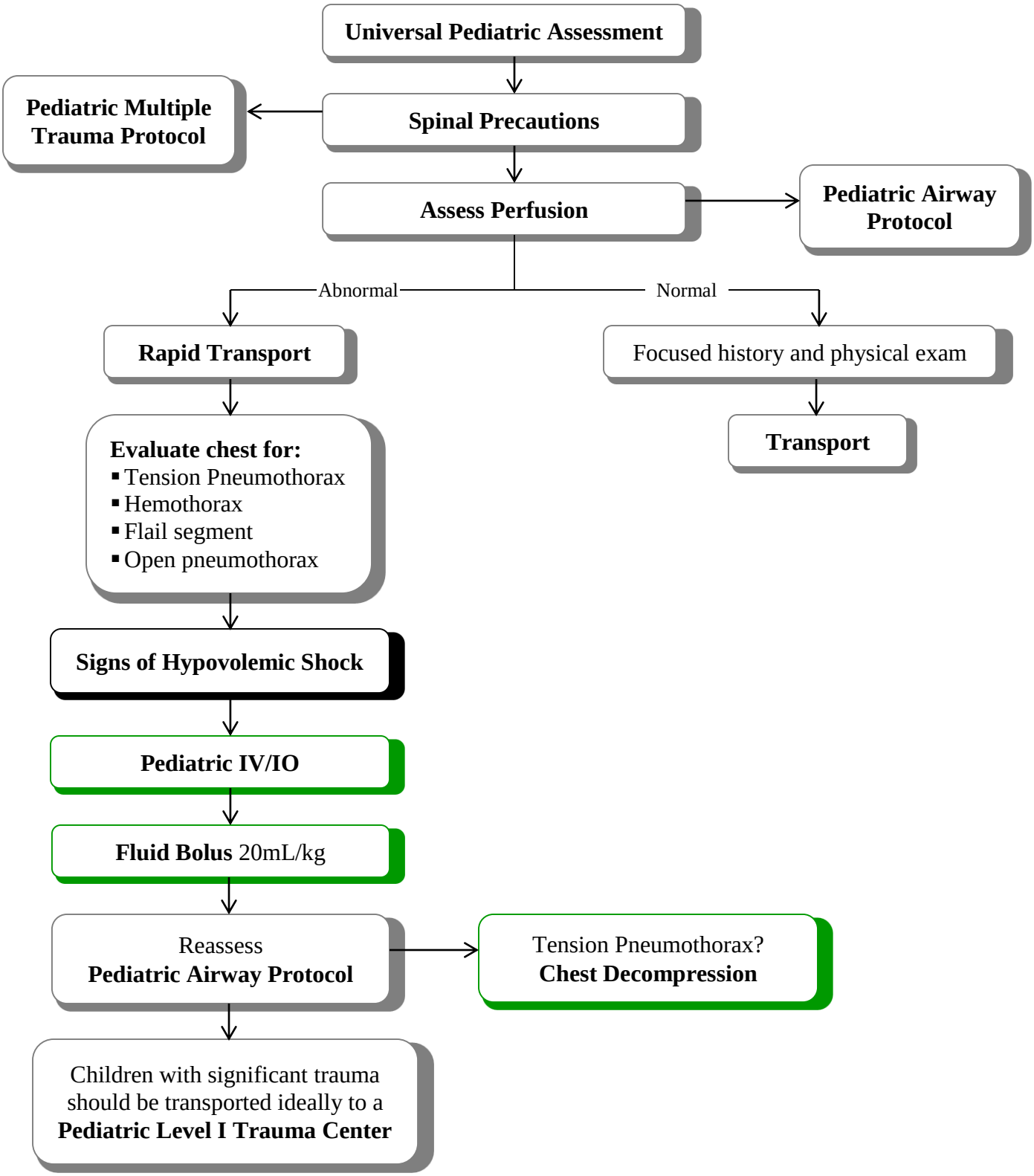
Pediatric Chest Trauma



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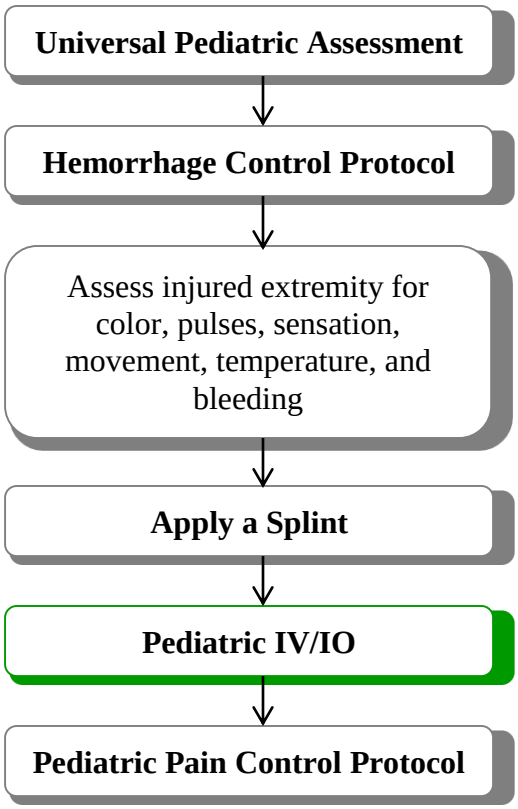
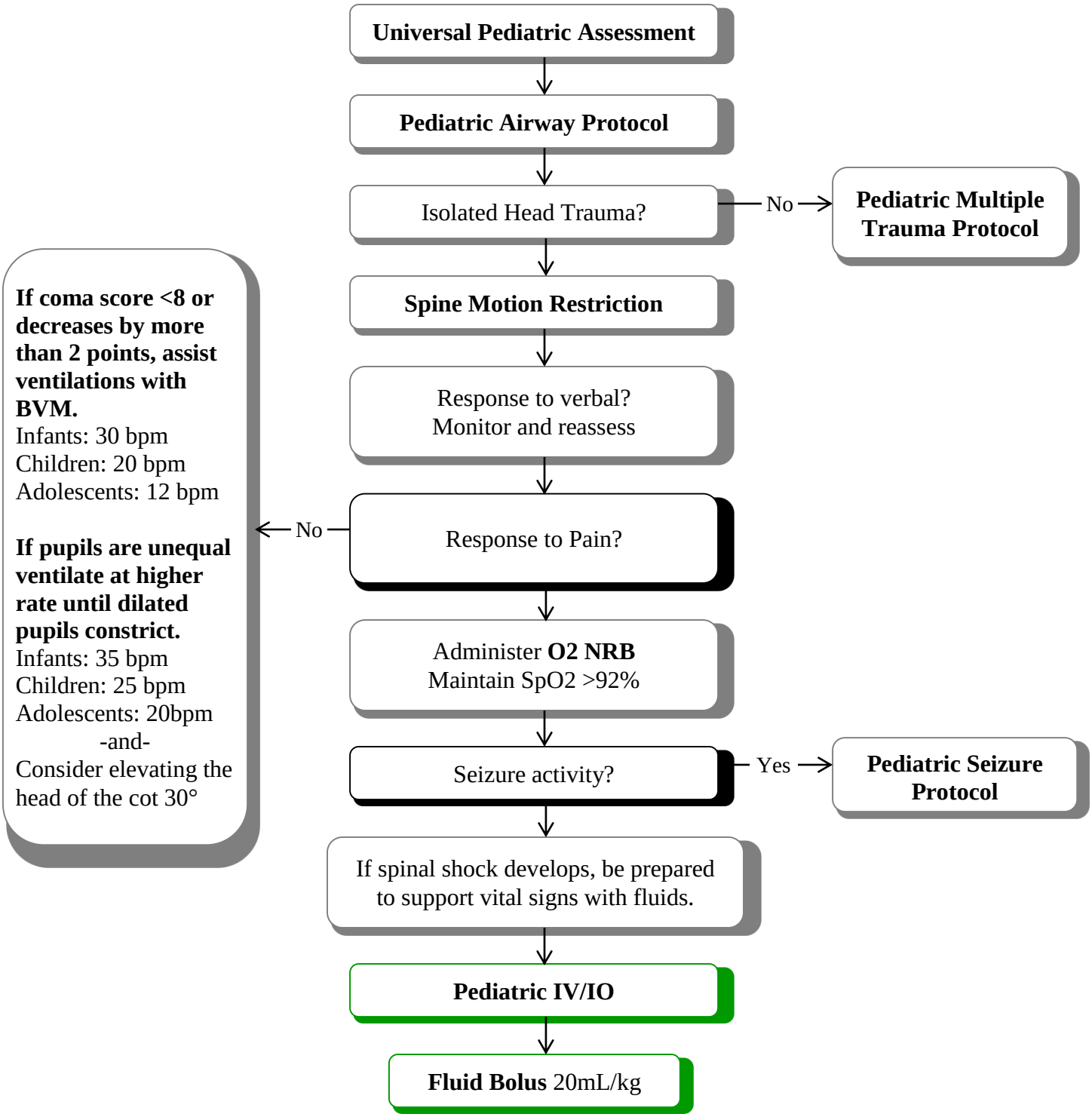
Pediatric Extremity Trauma



EMR | EMT | AEMT | Paramedic | Extended

Pediatric Head Trauma



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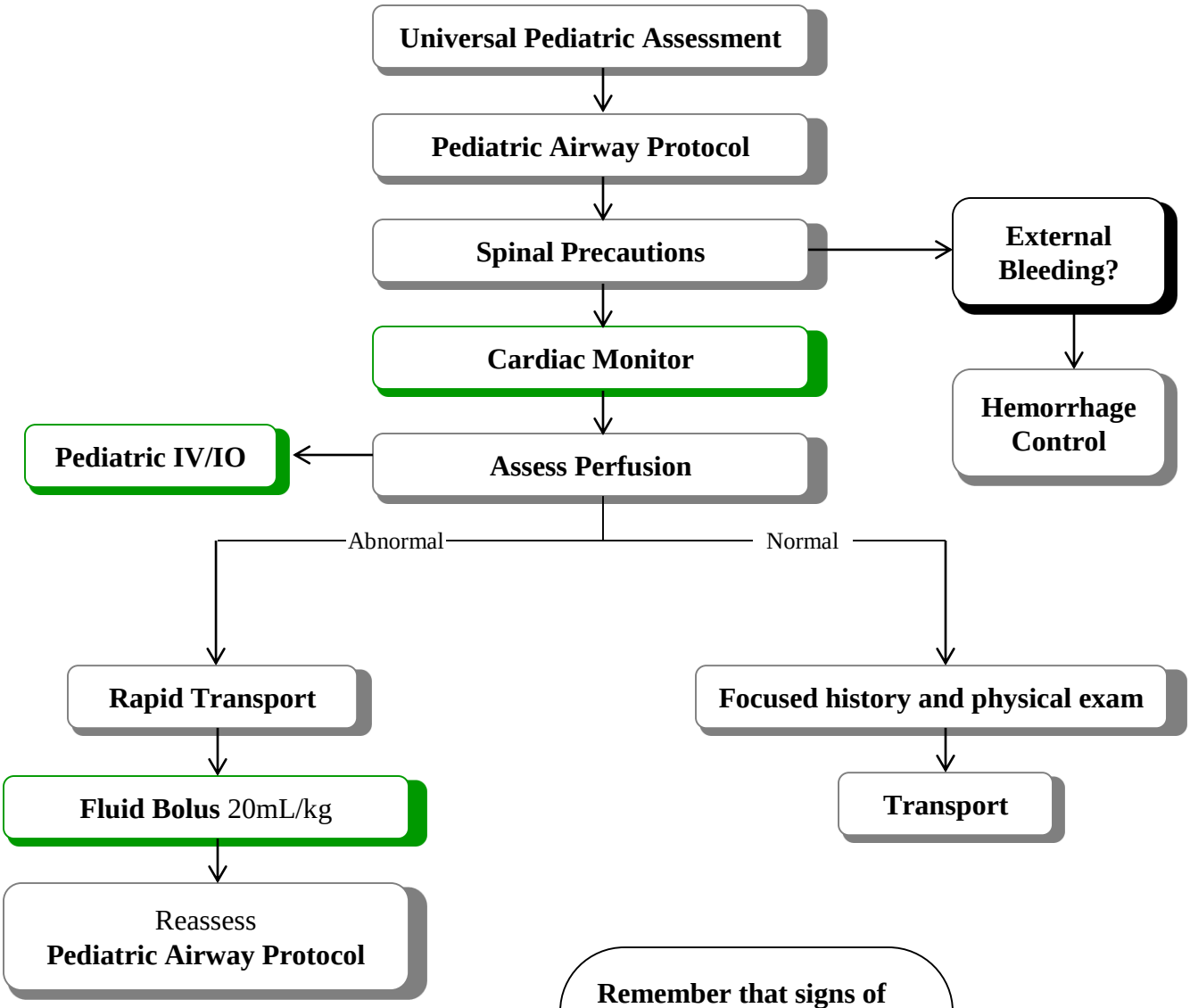
Pediatric Multiple Trauma



Remember that signs of hypovolemic shock are subtle and may include:

- Tachycardia
- Tachypnea
- Restlessness
- Poor peripheral perfusion

Hypotension is a LATE and ominous sign

EMR | EMT | AEMT | Paramedic | Extended

Pediatric Suspected Child Abuse

Universal Pediatric Assessment

↓

Spinal Precautions

↓

If significant trauma, isolated head injury, decreased level of consciousness, or other injury exists, treat per appropriate protocol.

Extricate child from scene as soon as possible. Avoid pressing for detailed history of event.

← **Pediatric Multiple Trauma Protocol**

Remember EMS is a mandated reporter of child abuse. Our responsibility is ONLY to report, not investigate.

↓

Law enforcement should be summoned (if not already present) to the scene if parents or caregivers refuse transport after the EMT deems it necessary.

Report and carefully document all suspected cases of child abuse. Documentation should include size, shape, color, degree of healing, and location of each injury.

Identify individual county resources for child protective services.

→

Child abuse should be suspected when any of the following exist:

- History is inconsistent with the extent of injury or development age
- The injury reflects an outline of an object or mode of infliction
- There is a delay in seeking medical attention
- There are other unexplained injuries in various stages of healing
- The explanation seems vague or confusing

Procedures

EMR | EMT | AEMT | Paramedic | Extended

List of Procedures

12 Lead ECG

Steps	Performed? Yes	No
1. Prepare ECG monitor and connect patient cable with electrodes.	☐	☐
2. Enter the required patient information into the 12-Lead ECG device. ▪ First and Last Name ▪ Date of Birth ▪ Age ▪ Gender ▪ Cardiologist (if able to enter)	☐	☐
3. Expose chest (respecting modesty) and prep as necessary. Poor quality can be caused by lack of skin preparation. Use a gauze pad to vigorously rub the site, to remove the outer layer of dead skin. Dry the site. Alcohol preps can remove creams or lotions. Remove excess hair as needed.	☐	☐
4. Attach limb leads on or near the limbs. Avoid attaching to the torso. Attaching leads to the torso produces a cleaner rhythm, but may limit evaluation of ECG. Some changes that may occur are: ▪ Cardiac axis shift to the right ▪ R wave becomes smaller in Lead I ▪ Less prominent Q waves in inferior leads	☐	☐
5. Apply chest leads and extremity leads using the following landmarks: ▪ RA – Right arm ▪ LA – Left arm ▪ RL – Right leg ▪ LL – Left leg ▪ V1 – 4th ICS at sternal border ▪ V2 – 4th ICS at sternal border ▪ V3 – Directly between V2 and V4 ▪ V4 – 5th ICS at midclavicular line ▪ V5 – Level with V4 at anterior axillary line ▪ V6 – Level with V5 at midaxillary line	☐	☐
6. Instruct patient to remain still.	☐	☐
7. Press the appropriate button to acquire the 12-Lead ECG.	☐	☐
8. If the provider is an EMT or AEMT without a Paramedic present, transmit the 12-Lead. If a Paramedic is present and the 12-Lead shows STEMI or a life threatening arrhythmia, transmit to the receiving facility. ▪ If the Paramedic identifies a STEMI, activate the cath lab by calling the receiving facility and identifying your unit, then stating "I have a STEMI." Then explain the situation, including the leads with ST elevation, and verbally activate the cath lab.		
9. If the tracing displays too much artifact, consider the following: ▪ Check cable connection ▪ Is the equipment functioning properly? ▪ Is there interference from external electrical equipment? ▪ Are the electrodes dry? ▪ Is there poor adhesion? ▪ Are the cables touching a metal surface? ▪ Are the cables entangled or hanging? ▪ Is the snap connection secure?	☐	☐
10. Monitor the patient while continuing with the treatment protocol.	☐	☐

11. Document the procedure, time, and results on the patient care report.	☐	☐

EMR | EMT | AEMT | Paramedic | Extended

Adult Primary Assessment

Steps	Performed? Yes	No
1. Quickly assess level of consciousness using the AVPU Method. ▪ Alert: Eyes Open ▪ Verbal: Responds to vocal stimuli ▪ Pain: Responds only to pain ▪ Unresponsive: No response to verbal or painful stimuli.	☐	☐
2. Assess the airway (protect c-spine if uncertain) ▪ Responsive – no intervention needed, proceed to step 3. ▪ Unresponsive – use the appropriate medical or trauma maneuver to open the airway. ▪ If airway remains partially or totally obstructed, continue attempts to clear the airway.	☐	☐
3. Assess adequacy of breathing ▪ Observe chest rise and fall, auscultate breath sounds anteriorly, posteriorly, and peripherally. ▪ Observe for signs of distress – use of accessory muscles, cyanosis ▪ Count the respiratory rate and obtain pulse oximeter reading if available ▪ If breathing is adequate – go to step 4 ▪ If breathing is inadequate and patient is unresponsive – assist breathing with appropriate device ▪ If breathing is inadequate and patient is responsive, administer oxygen if available.	☐	☐
4. Assess the circulation / perfusion ▪ Assess rate and quality of pulses – peripheral and central pulses ▪ Stop any active bleeding, assess skin color, temperature, and condition. ▪ If there is no palpable pulse or rate is too slow to maintain cerebral blood flow, begin CPR ▪ If bleeding is present – manage bleeding	☐	☐
5. Provide care for any compromise in airway, breathing, circulation, or neurological status per protocol and perform basic life support as per current American Heart Association Guidelines.	☐	☐
6. Identify priority patients and make a transport decision. ▪ Priority patients include those with compromises in airway, level of consciousness, breathing, or circulation, which are not easily remedied with basic intervention.	☐	☐
7. Further Assessments, go to Patient Assessment – Medical or Patient Assessment - Trauma	☐	☐

Bag Mask Ventilations

Steps	Performed? Yes	No
1. Perform the appropriate Primary Assessment	☐	☐
2. Properly open the airway, considering the nature of the call (trauma or medical)	☐	☐
3. If secretions or vomitus are present, suction using the appropriate device ▪ Be sure to insert suction catheter before applying suction ▪ Apply suction once at the proper depth ▪ Suction on withdrawal of the catheter for no longer than 15 seconds	☐	☐
4. Attempt insertion of the appropriate airway adjunct ▪ Oropharyngeal airways are contraindicated in conscious patients or patients with an intact gag reflex ▪ Nasopharyngeal airways are contraindicated in severe facial trauma or patients with suspected basilar skull fracture	☐	☐
5. Ventilate the patient using a BVM device ▪ The first ventilation should be given within 30 seconds of patient contact, but ensure that an attempt at clearing the airway has been made prior to ventilating ▪ Do not connect to oxygen if the patient is a neonate ▪ In all other patients, consider supplemental oxygenation	☐	☐
6. Continuous reassessment ▪ Ventilations adequate? Chest rise and fall? ▪ Airway Clear? ▪ Adjunct functioning properly? ▪ Mask seal adequate?	☐	☐
7. Take extra care not to overventilate. Try counting to 5 as you squeeze the bag, then count to 10 prior to squeezing again (once every 6 seconds).	☐	☐

Blood Glucose

Steps	Performed? Yes	No
1. Assess for clinical indications ▪ Diabetic emergency ▪ Altered mental status ▪ Change in mental status from any baseline ▪ Bizarre behavior ▪ Syncope ▪ Generalized weakness ▪ Provider's judgment	☐	☐
2. Gather and prepare equipment	☐	☐
3. Blood samples for performing glucose analysis should be obtained simultaneously with intravenous access or by finger stick. ▪ Note that a device meant for capillary blood may have a 20% range of inaccuracy with venous samples. If ever unsure, use capillary blood on a capillary meter and venous blood on a venous meter.	☐	☐
4. Place correct amount of blood on reagent strip or site on glucometer per the manufacturer's instructions.	☐	☐
5. Time the analysis as instructed by the manufacturer.	☐	☐
6. Document the glucometer reading (ex. 100mg/dL) and treat the patient as indicated by the analysis and protocol.	☐	☐
7. Repeat glucose analysis as indicated for reassessment after treatment and as per protocol.	☐	☐

Capnography

Clinical Indications:

- All endotracheal or supraglottic airways, and any patient who is sedated.

Steps	Performed? Yes	No
1. Attach capnography sensor to endotracheal tube or nasal cannula device.	☐	☐
2. Note CO2 level and waveform changes. These will be documented on reach respiratory failure, sedated, or cardiac arrest patient. ▪ Perfusing patients should have an ETCO2 of 35-45 mmHg ▪ Maintain head injury patient's ETCO2 above 20 mmHg ▪ Maintain cardiac arrest patient's ETCO2 above 10 mmHg ▪ If fluid enters any type of CO2 detector, remove and replace.	☐	☐
3. The capnometer shall remain in place with the airway and be monitored throughout the prehospital care and transport.	☐	☐
4. Any loss of CO2 detection or waveform indicates an airway problem and should be documented.	☐	☐
5. The capnogram should be monitored as procedures are performed to verify or correct the airway problem.	☐	☐
6. Document the procedure and results on the Patient Care Report (PCR)	☐	☐
7. If using colorimetric capnography, ensure color change from Purple to Yellow, and document accordingly.	☐	☐

Cardioversion

Clinical Indications:

- Unstable patients with a tachydysrhythmia require cardioversion.
- For pulseless patients with tachydysrhythmia, refer to Defibrillation.

Steps	Performed? Yes	No
1. Ensure the patient is attached properly to a monitor/defibrillator capable of synchronized cardioversion.	☐	☐
2. Have all equipment prepared for adverse effects if the patient fails to cardiovert or if the condition worsens (ex: loss of pulse).	☐	☐
3. Consider the use of pain or sedating medications (20-40mg of Ketamine per protocol). ▪ Do NOT delay cardioversion of a life-threatening condition to premedicate the patient!	☐	☐
4. Set monitor/defibrillator to the appropriate energy based on the manufacturer's recommendations. ▪ Zoll – 75 J, 120 J, 150 J, 200 J, 200 J, 200 J ▪ Physio – 50-100 J, 150 J, 200 J, 200 J, 200 J ▪ Philips – 50-100 J, 150 J, 200 J, 200 J, 200 J	☐	☐
5. Set monitor/defibrillator to synchronized cardioversion mode ▪ Note that some ventricular tachyarrhythmias may not synchronize ▪ Torsades de Pointes can be cardioverted asynchronously (defibrillated)	☐	☐
6. Make certain all personnel are clear of patient or any wet or metal items the patient may be touching.	☐	☐
7. Press the button to cardiovert. Stay clear of the patient until you are certain the energy has been delivered. ▪ Note that the monitor may not discharge immediately. Some devices require several cycles prior to discharge. Some devices also require the provider to hold the Shock button until these cycles are complete. Know your equipment and use your head.	☐	☐
8. Note patient response and perform immediate unsynchronized cardioversion (defibrillation) if the patient's rhythm has deteriorated into pulseless VT or VF.	☐	☐
9. If the patient's condition is unchanged, repeat steps 2 to 8 above.	☐	☐
10. Consider drug therapy if the patient's condition has not improved after cardioversion. Refer to the appropriate protocol.	☐	☐
11. Note procedure, response, and time in the patient care report (PCR).	☐	☐

CCR

Indication: Cardiopulmonary resuscitation with passive insufflation for sudden cardiac arrest
Contraindications: Trauma, Overdose, Children, Drownings, Respiratory Arrest, Obstetrical

Steps		Performed? Yes	No
Component	**Recommendations**		
Recognition	Unresponsive Adults		
	No breathing or no normal breathing (i.e., gasping)	☐	☐
	No palpated pulse within 5-10 seconds		
CCR	Circulation to the brain takes several compressions to initiate	☐	☐
Compression Rate	100-120/minute	☐	☐
Compression Depth	2-2.4 inches	☐	☐
Chest Wall Recoil	Allow complete recoil between compressions Rotate compressors every 2 minutes	☐	☐
Compression Interruptions	Minimize interruptions in chest compressions Attempt to limit interruptions to < 10 seconds	☐	☐
Airway	Passive oxygen insufflation with NRB at 100% FiO2	☐	☐
Compression to Ventilation Ratio (until advanced airway is placed)	200 continuous compressions x 4 cycles	☐	☐
Ventilation with Advanced Airway	Withheld until 4 CCR cycles are complete	☐	☐
Defibrillation	Performed between cycles of compressions if indicated. Minimize interruptions in chest compressions before and after shock. Resume compressions immediately after each shock.	☐	☐
Drugs	IO Epinephrine 1:10,000 1mg between compression cycles.	☐	☐

Chest Decompression

Steps	Performed? Yes	No
1. Assess for clinical indications ▪ Progressive severe respiratory distress and/or cyanosis ▪ Hyperresonance on percussion of the affected area ▪ Tracheal shift away from the affected side ▪ Distended neck veins ▪ Hypotension ▪ Suddenly difficulty when attempting to ventilate the patient ▪ Reduced or absent breath sounds over the affected lung	☐	☐
2. Administer 100% Oxygen to patients with suspected tension pneumothorax	☐	☐
3. Expose entire chest area and clean the site vigorously with an antibacterial/antiseptic wipe. Prepare large bore over-the-needle catheter, 14 gauge or larger (16-18 gauge for children) with 10mL or larger syringe with 3-4 mL of fluid attached via PRN extension set.	☐	☐
4. Insert catheter into the second intercostal space on the midclavicular line while withdrawing the plunger of the syringe. Ensure that the needle slides over the top of the third rib until it reaches the parietal space. Air bubbles will enter the syringe when the needle is at the appropriate depth.	☐	☐
5. Once depth is confirmed, insert catheter and withdraw needle. If air is under tension, it will exit under pressure.	☐	☐
6. If no air is obtained, leave the catheter in place with syringe attached, and secure.	☐	☐
7. With a simple or open pneumothorax that shows no signs of tension, needle thoracentesis is of no value and may be harmful! Continuously reassess adequacy of ventilation.	☐	☐
8. When possible, leave syringe attached to catheter via PRN adapter extension set and secure the syringe to the patient's chest. Withdraw air as needed to prevent further tension pneumothoraces.	☐	☐

Child Birth

Steps	Performed? Yes	No
1. Ensure imminent delivery with crowning	☐	☐
2. Ensure mother's ABC's and oxygenate if necessary.	☐	☐
3. Obtain a quick history ▪ Gestational Age? ▪ Prior complications? ▪ Has the water broken? ▪ Contractions? (frequency, duration)	☐	☐
4. Place a roll of blankets or pillow under buttocks to facilitate delivery.	☐	☐
5. Once the head delivers, consider suction via bulb syringe. ▪ Note that this is no longer common practice, but if excessive secretions appear to occlude the airways please briefly suction.	☐	☐
6. Check for the presence of the umbilical cord around the neck. ▪ If present, gently slip the cord over the neck (may have multiple wraps). ▪ If the cord is wrapped too tightly, carefully clamp and cut the cord.	☐	☐
7. Deliver the shoulders by gently applying downward traction of the baby's head.	☐	☐
8. Once delivered, keep the infant at the same level as the uterus until the cord is clamped.	☐	☐
9. Clamp the cord at 7" and 10" and cut between the clamps. Follow the Neonatal Care Protocol for further treatment.	☐	☐
10. Birth time should be recorded and the infant given APGAR scores at 1 and 5 minutes.	☐	☐
11. Perform neonatal resuscitation as needed.	☐	☐
12. Place the baby across the mother's chest and keep warm. Allow the placenta to deliver and save. Do not pull on the cord.	☐	☐
13. If the mother loses an excessive amount of blood post-delivery, refer to the appropriate protocol.	☐	☐

CO RAD-57

Indications:

- Patients suffering from exposure to byproducts of combustion, including fire victims of smoke inhalation, exposure to CO, firefighters during rehab activities, patients or families with complaints of general illness or headaches.
- If atmospheric CO is detected at 10ppm or greater concentration, consider persons occupying the structure be evacuated and evaluated for carboxyhemoglobin.

Precautions:

- Very low perfusion at the monitored site may result in inaccurate readings. Consider another location.
- A misapplied sensor or a sensor that becomes dislodged may cause inaccurate readings.
- Do not use tape to secure the sensor to the site.

Steps	Performed? Yes	No
1. Press the green power On/Off button to activate unit	☐	☐
2. Place sensor on patient finger (observe top/bottom of sensor). Do NOT place on thumb or 5th digit. If available, use the pediatric sensor if pt weighs less than 30kg (66 lbs).	☐	☐
3. Four green LED's below power button indicate battery level.	☐	☐
4. Sensor calibrated to penetrate mid-nail, not cuticle area. No NOT force finger in too far	☐	☐
5. RAD-57 will calibrate on the patient in about 5-8 seconds.	☐	☐
6. Displays will come up in pulse oximeter (SpO2) mode.	☐	☐
7. Pt graph will display perfusion strength.	☐	☐
8. Display will show "SEN OFF" until sensor is on finger.	☐	☐
9. Press orange "SpCO" button.	☐	☐
10. Display will show SpCO level.	☐	☐
11. Record levels on PCR.	☐	☐
12. Press and hold the green power button to turn off unit.	☐	☐
13. For specific operations or troubleshooting, refer to owner's manual.	☐	☐

CPAP

Indications:

- Acute respiratory distress other than pneumothorax. Particularly pulmonary edema, asthma, COPD.
- Patient is alert and oriented.
- Is over 12 years of age and CPAP mask has proper seal.
- Has ability to maintain open airway.
- Has a systolic pressure above 90mmHg.
- Uses accessory muscles during respirations.
- Signs and symptoms consistent with pulmonary edema, asthma, COPD, pneumonia.

Contraindications:

- Patient is in respiratory arrest.
- Patient is suspected of having a pneumothorax.
- Decreased cardiac output and gastric distention.
- Hypotension secondary to hypovolemia.

Precautions:

- Watch for impairment of mental status during therapy.
- Patients with upper GI bleeds.
- History of recent gastric surgery. Use 5 cm H2O and no higher in these patients.
- Complaints of nausea or vomiting. Discontinue immediately and ensure patent airway.
- Patient has inadequate respiratory effort or excessive secretions.
- Patient has facial deformity that inhibits proper CPAP mask seal.

Steps	Performed? Yes	No
1. Assure spontaneous respirations. Perform appropriate patient assessment including vital signs, pulse oximeter, and heart monitor.	☐	☐
2. Ensure that the proper valve or flow rate is to be applied. Typically, start with 5 cm H2O and increase to 10cm H20. Ensure that the filter is attached to prevent infection. Many devices have a conversion chart from LPM to cmH2O. Know your equipment.	☐	☐
3. Remove mask from inner bag and attach circuit. Turn on oxygen.	☐	☐
4. Explain the procedure to the patient. ▪ Advise the patient that they will feel strange at first, then they should experience relief. ▪ Flip head strap forward and place mask on face.	☐	☐
5. Flip head strap back over patient's head, bring tabs forward on top head strap and adjust equally to proper fit. Attach bottom 2 clips and repeat above sequence.	☐	☐
6. Adjust as necessary, or per the manufacturer's recommendations. DO NOT OVERTIGHTEN HEAD STRAP.	☐	☐
7. Success is highly dependent upon patient tolerance and provider's ability to coach the patient. ▪ Anticipate and control anxiety ▪ Verbally coach breathing as needed ▪ Consider having the patient hold the mask to reduce anxiety. The provider may also hold the mask.	☐	☐
8. Adjust flow rates as necessary.	☐	☐

CPR

Indications: Pulseless patients who do not meet CCR or obvious death criteria.

- Children
- Respiratory Etiology
- Overdose
- Trauma
- Drowning
- Obstetrical

Steps				Performed? Yes	Performed? No
Component	**Recommendations**				
	Adults	**Children**	**Infants**		
Recognition	Unresponsive Adults				
	No breathing or no normal breathing (i.e., gasping)			☐	☐
	No palpated pulse within 5-10 seconds				
CPR Sequence	C-A-B (Circulation-Airway-Breathing)			☐	☐
Compression Rate	100-120/minute			☐	☐
Compression Depth	2-2.4 inches	At least 1/3 AP diameter (2 inches)		☐	☐
Chest Wall Recoil	Allow complete recoil between compressions Rotate compressors every 2 minutes			☐	☐
Compression Interruptions	Minimize interruptions in chest compressions Attempt to limit interruptions to < 10 seconds			☐	☐
Airway	Passive oxygen insufflation with NRB at 100% FiO2			☐	☐
Compression to Ventilation Ratio (until advanced airway is placed)	30:2 1 or 2 Rescuers	30:2 Single Rescuer 15:2 2 Rescuers		☐	☐
Ventilation with Advanced Airway	1 breath every 6-8 seconds, asynchronous with compressions About 1 second per breath – visible chest rise			☐	☐
Defibrillation	Attach and use defibrillator or AED as soon as available. Minimize interruptions in chest compressions before and after shock. Resume compressions immediately after each shock.			☐	☐

Cricothyrotomy - Melker

Clinical Indications:

- Emergency airway access when other airway techniques have failed.
- Inability to adequately ventilate or secure the airway by endotracheal intubation.

Steps	Performed? Yes	No
1. Have suction ready	☐	☐
2. Identify the cricothyroid membrane between the cricoid and thyroid cartilages. Prep the area with an antiseptic wipe.	☐	☐
3. Attach the supplied syringe to either the introducer needle or the catheter introducer needle.	☐	☐
4. Carefully palpate the cricothyroid membrane and while stabilizing the cartilage, advance the needle through the cricothyroid membrane into the airway at a 45 degree angle in a caudal direction, in the midline. Entrance into the airway can be confirmed by aspiration on the syringe, resulting in free air return.	☐	☐
5. If using the catheter introducer needle, remove the syringe and needle, leaving the catheter in place. If using the introducer needle, remove only the syringe, leaving the needle in place.	☐	☐
6. Advance the soft, flexible end of the guide wire through the catheter or needle and into the airway several centimeters.	☐	☐
7. Remove the catheter or needle, leaving the guide wire in place.	☐	☐
8. Make a vertical incision in the midline where the wire enters the skin. **Note**: Ensure that the incision is sufficiently large to allow passage of the dilator and airway catheter.	☐	☐
9. Advance the handled dilator, tapered end first, into the connector end of the airway catheter until the handle stops against the connector. **Note**: This step may be performed prior to beginning the procedure. Use of lubrication in the surface of the dilator may enhance fit and placement of the airway catheter.	☐	☐
10. Advance the airway catheter/dilator assembly over the guide wire until the proximal stiff end of the wire guide is completely through and visible at the handle end of the dilator. **It is important to continually visualize the proximal end of the wire guide during the airway insertion procedure to prevent its inadvertent loss into the trachea.**	☐	☐
11. Maintaining wire guide position, continue to advance the airway catheter/dilator assembly over the wire guide and into the trachea. **Take care not to advance the tip of the dilator beyond the tip of the wire guide within the trachea.**	☐	☐
12. Remove the wire guide and dilator simultaneously.	☐	☐
13. Fix the airway catheter in place with tracheostomy tape strip in standard fashion.	☐	☐
14. Connect the airway catheter, using its standard 15mm connector, to appropriate ventilator device.	☐	☐

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Defibrillation

Steps	Performed? Yes	No
1. Confirm pulseless arrest in ventricular tachycardia or ventricular fibrillation.	☐	☐
2. After application of an appropriate conductive agent (if needed), apply defibrillation paddles or hands free pads to the patient's chest in the proper position (right of sternum at 2nd intercostal space and anterior axillary line at 5th intercostal space).	☐	☐
3. Set the appropriate energy level per the manufacturer's recommendation: ▪ **Adult** Biphasic ✓ **Zoll** – 120J, 150J, 200J, 200J, 200J ✓ **Physio** – 200J, 300J, 360J, 360J, 360J ✓ **Philips** – 150J, 150J, 150J, 150J, 150J ▪ **Pediatric** Biphasic ✓ **Zoll** – 2 J/kg, 2 J/kg, 2 J/kg, 2 J/kg ✓ **Physio –** 2 J/kg, 4 J/kg, 4 J/kg, 4 J/kg ✓ **Philips** – 2 J/kg, 4 J/kg, 4 J/kg, 4 J/kg ▪ Perform **2 minutes** of **CPR** between shocks	☐	☐
4. Charge the defibrillator to the selected energy level.	☐	☐
5. Assure proper placement of the paddles or pads.	☐	☐
6. Assure proper contact by applying 25 pounds of pressure on each handle, or make sure combipads have good skin contact.	☐	☐
7. Assertively state "CLEAR" and visualize that no one, including yourself, is in contact with the patient or any wet or metal surface the patient may be touching.	☐	☐
8. Deliver the countershock by depressing the discharge button(s) when using paddles, or depress the shock button for hands free operation.	☐	☐
9. After 2 minutes of CPR immediately following defibrillation, assess the patient's response.	☐	☐
10. Document the dysrhythmia and the response to defibrillation with ECG strips on/with the PCR.	☐	☐
11. Repeat the procedure as indicated by patient response and ECG rhythm.	☐	☐

Epi-Pen Autoinjector

Steps	Performed? Yes	No
1. Use body substance isolation precautions.	☐	☐
2. Verify clinical indications ▪ Anaphylaxis ▪ Allergen or asthma related severe dyspnea ▪ Systemic reaction to an allergen	☐	☐
3. Check expiration date. If medication is expired, cloudy, empty, or malfunctioning, do not use.	☐	☐
4. Remove cap and select an injection site (side of thigh or shoulder). Take care not to touch either end of the Epi-Pen.	☐	☐
5. Push firmly against site and hold for 10 seconds.	☐	☐
6. The dosage for the Adult Epi-Pen is 0.3mg; The dosage for the Pediatric Epi-Pen is 0.15mg, and should be used on children under 12 years or under 100 pounds.	☐	☐
7. Properly discard injector.	☐	☐
8. Monitor the patient while transporting.	☐	☐

Epi Push-Dose Pressor

Steps	Performed? Yes	No
1. Use body substance precautions.	☐	☐
2. Unpack a 10mL Normal Saline flush and waste 1mL, leaving 9mL in the syringe. Attach an 18ga 1.5" intramuscular needle to the saline syringe.	☐	☐
3. Unpack a 1:10,000 epinephrine prefilled syringe and draw 1mL of the epinephrine into the saline flush syringe via the rubber plunger.	☐	☐
4. Shake the new diluted saline/epinephrine syringe briefly to mix.	☐	☐
5. Place an orange sticker on the syringe and label "Epinephrine 10mcg/mL"	☐	☐
6. To administer, start an IV/IO line of normal saline and connect the syringe to the appropriate IV tubing connector using aseptic technique.	☐	☐
7. Administer 0.5-2mL every 2-5 minutes. This equates to an infusion of 2-10mcg/min.	☐	☐
8. Monitor the heart rate and blood pressure closely.	☐	☐
9. Document the procedure, times, dosages, and any patient response in the Patient Care Report (PCR).	☐	☐

Consider the following conversions, once the dilution of 10mcg/mL is achieved:

Every 2 Minutes	Every 4 Minutes
▪ 0.5mL q 2 min = 2.5 mcg/min	▪ 0.5mL q 4 min = 1.3 mcg/min*
▪ 1mL q 2 min = 5 mcg/min	▪ 1mL q 4 min = 2.5 mcg/min
▪ 1.5mL q 2 min = 7.5 mcg/min	▪ 1.5mL q 4 min = 3.8 mcg/min
▪ 2mL q 2 min = 10 mcg/min	▪ 2mL q 4 min = 5 mcg/min
Every 3 Minutes	**Every 5 Minutes**
▪ 0.5mL q 3 min = 1.7 mcg/min*	▪ 0.5mL q 5 min = 1 mcg/min*
▪ 1mL q 3 min = 3.3 mcg/min	▪ 1mL q 5 min = 2 mcg/min
▪ 1.5mL q 3 min = 5 mcg/min	▪ 1.5mL q 5 min = 3 mcg/min
▪ 2mL q 3 min = 6.7 mcg/min	▪ 2mL q 5 min = 4 mcg/min

*Subtherapeutic dosages, not recommended.

External Transcutaneous Pacing

Steps	Performed? Yes	No
1. Identify clinical indications ▪ Critical patient secondary to bradycardia (AMS, hypotension, pulmonary edema) ▪ Other methods of correcting the critical bradycardia failed, or patient has a high degree (2° type II or 3°) AV block.	☐	☐
2. Clean and dry skin sites for pacing electrodes.	☐	☐
3. Recommended placement of pads: ▪ Anterior electrode placed over the cardiac apex (approx. the V2-V3 position on a 12-Lead) ▪ Posterior electrode placed on the left posterior chest beneath the scapula, behind the heart ▪ Avoid placing the pads directly over bony prominences such as the sternum and scapula	☐	☐
4. Rate, mode, and amperage will be adjusted by the crew to achieve an adequate degree of perfusion as indicated by the assessment of peripheral circulation. ▪ Set heart Rate no less than 60, no more than 80 bpm ▪ Assess for electrical capture (a wide complex following every pacer spike) ▪ Assess for mechanical capture (corresponding pulse with every paced beat) ▪ Assess mental status, capillary refill, blood pressure	☐	☐
5. **Pediatric Patients**: Increase to the minimum amperage necessary to maintain electromechanical capture, criteria same as adult	☐	☐
6. Synchronize pacer with intrinsic rhythm to avoid inducing ventricular arrhythmias.	☐	☐

Foreign Body Airway Obstruction

Steps	Performed? Yes	No
Conscious Patient		
1. If respirations are present but compromised, provide supportive care. ▪ Encourage patient to cough forcefully ▪ Consider oxygenation, IV, ECG ▪ Transport	☐	☐
2. If respirations are absent, or patient is increasingly hypoxic: ▪ Administer abdominal thrusts until foreign body expelled or patient loses consciousness	☐	☐
3. If airway is cleared: ▪ Reassess ABC's ▪ Oxygenate, titrate SpO2 to 94% ▪ Initiate IV and ECG ▪ Transport	☐	☐
Unconscious Patient		
1. Attempt ventilation, reposition head and try to ventilate	☐	☐
2. Attempt visualization of object. If the object can be seen, perform a finger sweep to remove it. If visualization is performed via laryngoscopy, remove with Magill forceps.	☐	☐
3. If object cannot be visualized, initiate chest compressions. If object is dislodged, repeat step 2.	☐	☐
4. If object is not becoming dislodged via BLS means or unable to remove object with Magill Forceps, consider advanced airway. ▪ Orotracheal Intubation ▪ Melker Cricothyrotomy	☐	☐
4. If airway is cleared: ▪ Reassess ABC's ▪ Oxygenate, titrate SpO2 to 94% ▪ Initiate IV and ECG ▪ Transport	☐	☐

Fundal / Uterus Massage

Steps	Performed? Yes	No
1. Ensure Clinical Indications: ▪ Excessive vaginal bleeding following delivery (>500mL) ▪ Mother is unable to breastfeed, or bleeding continues despite breastfeeding ▪ Mother displays signs and symptoms consistent with hypovolemia	☐	☐
2. Explain the procedure to the patient.	☐	☐
3. Place one hand over the proximal end of the symphysis pubis and apply pressure.	☐	☐
4. Locate the fundus with the other hand and “knead” it with firm pressure.	☐	☐
5. Monitor for changes in hemodynamic status.	☐	☐
6. Continue with hemorrhage control protocol.	☐	☐

Intraosseous EZ-IO

Clinical Indications:

- EZ-IO Blue Needle: >3kg (>7 lbs)
- EZ-IO Pink Needle: 3-39kg (7-86 lbs)
- EZ-IO Yellow Needle: >40 kg (>88lbs); excessive tissue over site; proximal humerus
- Clinically unstable patient and emergent need for intravenous access; and peripheral IV access cannot be obtained in this critical patient within 2 IV attempts or 90 seconds
- May be considered prior to IV access in cardiac arrest, severe clinical instability, or profound hypovolemia with alteration of mental status

Contraindications:

- Fracture of the bone selected for IO infusion, or IO within 24 hours (consider alternate site)
- Excessive tissue at insertion site with the absence of anatomical landmarks (consider alternate site)
- Previous significant orthopedic procedures (consider alternate site)
- Infection at the selected site (consider alternate site)

Steps	Performed? Yes	No
1. Select a site (Proximal Humerus preferred)	☐	☐
2. Prep the skin with an antiseptic solution	☐	☐
3. Prepare the EZ-IO driver and appropriate needle set	☐	☐
4. Stabilize the site and insert appropriate needle set	☐	☐
5. Remove EZ-IO driver from needle set while stabilizing catheter hub	☐	☐
6. Remove stylet from catheter, place stylet in shuttle or approved sharps container	☐	☐
7. Confirm placement, place commercial stabilizing device if available.	☐	☐
8. Connect primed EZ-Connect	☐	☐
9. Adults – slowly administer 20-40mg of Lidocaine 2% (preservative free) for pain relief Pediatrics – slowly administer 0.5mg/kg (< 20mg) Lidocaine 2% (preservative free) Do not exceed 40mg of Lidocaine 2% (preservative free) for pain relief in adults	☐	☐
10. Attach pressure bag or infusion pump for continuous infusions (unless humeral IO)	☐	☐
11. Begin infusion, dress site, secure tubing, and monitor site for patency or complications	☐	☐
12. Due to the anatomy of the IO space you will note flow rates slower than those achieved with IV catheters unless the proximal humerus is used	☐	☐

A similar procedure may be followed with manual insertion of the Jamshidi or Illinois IO needles in children, or the Bone Injection Gun or the NIO if an EZ-IO is not available.

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Intubation – Oral

Clinical Indications:

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

Steps	Performed? Yes	No
1. Prepare all equipment and have suction ready	☐	☐
2. Preoxygenate the patient when able by ventilating for 60 seconds attached to 15 LPM O2. Consider passive oxygenation with 10 LPM O2 via NC during preoxygenation and during the intubation attempt	☐	☐
3. Open the patient's airway and holding the laryngoscope in the left hand, insert the blade into the right side of the mouth and sweep the tongue to the left.	☐	☐
4. Use the blade to lift the tongue and epiglottis (either directly with the straight blade or indirectly with the curved blade).	☐	☐
5. If patient has a c-collar in place unfasten collar and have second provider control c-spine from below.	☐	☐
6. Once the glottic opening is visualized, slide the tube through the cords and continue to visualize until the cuff is past the cords.	☐	☐
7. Remove the stylet and inflate the cuff with approximately 10mL of air (until no cuff leak).	☐	☐
8. After the trachea is intubated, proper placement must be assured by: ▪ Observing rise and fall of both sides of the chest wall ▪ Confirming the presence of bilateral breath sounds ▪ Negative gastric sounds ▪ Appropriate color change noted on an end tidal CO_2 detector during ventilation ▪ Attachment to $EtCO_2$ monitor/detector with appropriate response	☐	☐
9. Secure the tube.	☐	☐
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. Document all devices used to confirm initial tube placement. Also document positive or negative breath sounds before and after each movement of the patient. Monitor and document capnography post intubation.	☐	☐

IV Therapy

Clinical Indications:

- Any patient where intravenous access is indicated
- To administer intravenous medications
- To administer intravenous fluids
- To obtain a venous blood sample where applicable

Steps	Performed? Yes	No
1. Inspect the IV fluid for the appropriate type, expiration date, discoloration, cloudiness, leaks, or the presence of particles.	☐	☐
2. Select the appropriate catheter and administration set.	☐	☐
3. Using aseptic technique, connect the IV tubing to the bag. Fill the drip chamber halfway and flush the air bubbles from the tubing. If using a flush with a PRN adapter, ensure aseptic technique when connecting, and flush all bubbles from syringe and adapter.	☐	☐
4. Prepare equipment such as tape, Tegaderm, or Veni-gard, antiseptic solution, body substance isolation, and tourniquet.	☐	☐
5. Apply the tourniquet proximal to an acceptable site. Keep in mind mastectomy patients, patients on renal dialysis, or any other condition in which restriction of blood flow could cause complications.	☐	☐
6. Palpate a suitable vein.	☐	☐
7. Cleanse the site with an antiseptic solution.	☐	☐
8. Perform venipuncture. ▪ Advance needle and catheter into the vein. DO NOT reinsert needle through catheter. ▪ Note flashback ▪ Occlude vein proximal to catheter ▪ Remove needle and dispose into the proper container without recapping ▪ Connect IV tubing or prepared/flushed PRN adapter	☐	☐
9. Release tourniquet.	☐	☐
10. Open the IV to assure free flow of the fluid and adjust the rate per protocol.	☐	☐
11. Cover the site with a sterile dressing and secure the IV and tubing.	☐	☐
12. Document the procedure, time, and result (success) on/with the patient care report.	☐	☐

KED

Steps	Performed? Yes	No
1. Take body substance isolation precautions	☐	☐
2. Take manual in-line stabilization	☐	☐
3. Assess motor, sensory, and circulatory functions in each extremity	☐	☐
4. Apply appropriately sized c-collar	☐	☐
5. Open the KED and place it between the patient's buttocks and the seat	☐	☐
6. Center the KED on the patient and position the KED snugly under the patient's armpits	☐	☐
7. Pad voids as appropriate. Fasten the chest and abdominal straps	☐	☐
8. Secure the ischial straps	☐	☐
9. Secure the head	☐	☐
10. Reassess motor, sensory, and circulatory functions in each extremity	☐	☐

Ketamine Dilution for IV Pain Management

Steps	Performed? Yes	No
1. Use body substance precautions and use aseptic technique. Explain the procedure and any potential side effects to the patient or family where appropriate.	☐	☐
2. Unpack a 10mL Normal Saline flush and waste 1mL, leaving 9mL in the syringe. Attach a hypodermic needle to the saline syringe.	☐	☐
3. Unpack your Ketamine 500mg per 10mL vial that is NOT shrink wrapped and draw 1mL of the Ketamine into the saline flush syringe via the rubber plunger.	☐	☐
4. Shake the new diluted saline/Ketamine syringe briefly to mix.	☐	☐
5. Place an orange sticker on the syringe and label “Ketamine 5mg/mL”	☐	☐
6. To administer, start an IV/IO line of normal saline and connect the syringe to the appropriate IV tubing connector using aseptic technique.	☐	☐
7. Administer up to a maximum of 2mL for adults, preferably IV but you can administer IM in the absence of an IV. The 2mL equates to 10mg of Ketamine.	☐	☐
8. Monitor the heart rate, blood pressure, airway, and respirations closely.	☐	☐
9. Document the procedure, times, dosages, and any patient response in the Patient Care Report (PCR).	☐	☐

Mucosal Atomizer Device (MAD)

Medications to consider:

- Naloxone 2mg/2mL for adult overdose
- Fentanyl 50mcg/mL for adult pain management
- Versed 10mg/2mL for seizures (IM is much preferred)
- Ketamine 100mg/mL diluted to 10mg/mL for pediatric pain management (IV is much preferred)

Steps	Performed? Yes	No
1. Load syringe with appropriate mL volume of medication (1mL maximum per nostril). Consider adding 0.1 mL of volume per nostril to account for dead space.	☐	☐
2. Attach the Mucosal Atomizer Device (MAD).	☐	☐
3. Place the MAD tip within nostril approximately 1.5cm.	☐	☐
4. Briskly compress syringe to administer ½ of the volume as atomized spray. Do not use more than 1mL per nostril. More than 1mL per nostril may result in medication drainage from the nostril.	☐	☐
5. Remove and repeat in other nostril, so all medication is administered.	☐	☐

Nebulizer

Scope of Practice Notes:

- AEMTs have standing orders to administer nebulized bronchodilators.
- EMTs must obtain a verbal order from online medical direction or the direct supervision of a Paramedic on scene.

Steps	Performed? Yes	No
1. Gather the necessary equipment ▪ Mask or Pipe Nebulizer setup ▪ Oxygen tubing ▪ DuoNeb Bullet	☐	☐
2. Assemble the nebulizer kit.	☐	☐
3. Instill the contents of the bullet into the reservoir of the nebulizer.	☐	☐
4. Connect the nebulizer device to oxygen at 6-8 liters per minute.	☐	☐
5. Instruct the patient to breathe calmly, deeply, and evenly throughout the treatment. If using a pipe nebulizer, ensure the patient has a good lip seal around the mouthpiece and observe the mist at the end of the reservoir to make sure it disappears with inspiration.	☐	☐
6. The treatment should last until the solution is depleted. Tapping the reservoir well near the end of the treatment will assist in utilizing all of the solution.	☐	☐
7. Monitor the patient for medication effects. This should include the assessment of the patient's response to the treatment and reassessment of vital signs, ECG, and breath sounds.	☐	☐
8. Document the treatment, dose, and route on/with the patient care report.	☐	☐

Orthostatic Vitals

Clinical Indications:

- Patient situations with suspected blood / fluid loss / dehydration
- Patients > 8 years of age, or patients larger than the Broselow-Luten tape

Steps	Performed? Yes	No
1. Assess the need for orthostatics.	☐	☐
2. Obtain the patient's pulse and blood pressure while supine.	☐	☐
3. Have patient stand for one minute.	☐	☐
4. Obtain patient's pulse and blood pressure while standing.	☐	☐
5. If diastolic blood pressure decreased by 10mmHg or systolic blood pressure decreased by 20mmHg, the orthostatics are considered positive.	☐	☐
6. If patient is unable to stand, orthostatics may be taken while the patient is sitting with feet dangling.	☐	☐
7. If positive orthostatic changes occur while sitting, DO NOT continue to the standing position.	☐	☐
8. Document the time and vital signs for supine and standing positions on the patient care report.	☐	☐
9. Determine appropriate treatment based on protocol.	☐	☐

Pain Assessment - Adult

Clinical Considerations:

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

Steps	Performed? Yes	No
1. Initial and ongoing assessment of pain intensity and character is accomplished through the patient's self-report.	☐	☐
2. Pain should be assessed and documented during initial assessment, before starting pain control treatment, and with each set of vitals.	☐	☐
3. Pain should be assessed using the appropriate approved scale.	☐	☐
4. 0-10 Scale: the most familiar scale used by EMS for rating pain in adults. Avoid coaching the patient. Simply ask them to rate their pain on a scale from 0 to 10, where 0 is no pain and 10 is the worst pain ever.	☐	☐

Patient Assessment – Medical

Steps	Performed? Yes	No
1. History of Present Illness including but not limited to: ▪ O – Onset of the problem (how fast did it occur) ▪ P – Provocation/Palliation (what makes it better or worse) ▪ Q – Quality (Crushing, Pressure, Stabbing) ▪ R – Radiation (does the pain go anywhere) ▪ S – Severity (1-10 scale) and intermittence ▪ T – Time of onset (when did this start)	☐	☐
2. Provide appropriate interventions as per protocols. Splint injured, painful, or swollen extremities. Apply dressings and bandage all wounds. Consult medical control with any questions, further treatments, or omission of interventions as written.	☐	☐

Priority Medical Patients Rapid Assessment

1. Rapidly assess the patient from "head to toe" (60-90 seconds total) ▪ HEENT Exam: Check ears for fluid and foreign bodies, check eyes for pupillary response, check nose for fluid and patency, check neck for pain, stiffness, injury, distended veins, tracheal deviation, pulse, or any other signs of trauma. Consider the need for a cervical collar.	☐	☐
2. Chest and Abdomen ▪ Check chest for visible injury, assess breath sounds as well as chest movement, symmetry, and effort. The chest should be palpated for pain. The abdomen should be assessed for visible injury, pain, tenderness, rigidity, and guarding. The pelvis should be palpated for stability if any history of trauma or possible dislocation.	☐	☐
3. Extremities and Back ▪ The lower as well as the upper extremities should be examined and assessed for presence of pulses, sensation, and motor function. Note if edematous or signs of poor perfusion exist. The back should be examined for signs of pain. For patients with possible spine injury, assess the back during the logroll procedure.	☐	☐
4. A SAMPLE history should also be obtained if possible. This should include: ▪ S – Signs and Symptoms ▪ A – Allergies ▪ M – Medications ▪ P – Past medical history ▪ L – Last oral intake ▪ E – Events of the injury or illness	☐	☐
5. Obtain baseline vital signs and prepare the patient for transport.	☐	☐

Patient Assessment – Trauma

Steps	Performed? Yes	No
Non-Priority Trauma Patients		
1. Assess injuries based on chief complaint ▪ Obtain Vital Signs ▪ Provide care based on signs and symptoms ▪ Continue with Detailed Assessment as appropriate	☐	☐
Priority Trauma Patients Rapid Trauma Assessment		
1. Rapidly assess the patient 'head to toe' (60-90 seconds total) ▪ HEENT Exam: The head should be examined for signs of abnormality. The ears should be examined for presence of fluid and foreign bodies. The pupils should be checked for symmetry and response to light. The nose should be examined for presence of fluid and patency. Examine the throat for signs of obstruction, redness, and patency. The neck should be examined for pain, stiffness, or injury. The neck veins should be assessed for signs of extreme distention. If there is any evidence of neck injury, employ cervical spine precautions. Assess for any signs of trauma.	☐	☐
2. Chest and Abdomen ▪ The chest should be examined for signs of visible injury. Assess for breath sounds as well as chest movement, symmetry, and effort. The chest should be palpated for pain. The abdomen should be assessed for signs of injury, pain, tenderness, rigidity, and guarding. The pelvis should be palpated for stability if any history of trauma.	☐	☐
3. Extremities and Back ▪ The lower as well as the upper extremities should be examined and assessed for presence of pulses, sensation, and motor function. Note if edematous or signs of poor perfusion exist. The back should be examined for signs of pain. For patients with possible spinal injury, assess the back during the log roll procedure.	☐	☐
4. Neurological Survey ▪ If not already done, a neurological evaluation as well as a history should be obtained. The pupils should be assessed for equality and reaction to light. The level of consciousness should be assessed using the AVPU method.	☐	☐
5. A SAMPLE history should be obtained if possible. This should include: ▪ S – Signs and Symptoms ▪ A – Allergies ▪ M – Medications ▪ P – Past illnesses ▪ L – Last oral intake ▪ E – Events of the injury or illness	☐	☐
6. Exposure ▪ A thorough exam cannot be accomplished without properly exposing a patient. Make sure to keep the patient warm in the process of exposure and examination.	☐	☐
7. Perform a Continuous Reassessment as appropriate to identify change in status.	☐	☐

Pediatric Primary Assessment

Clinical Indication:

- Any child that can be measured with the Broselow-Luten Resuscitation Tape.

Steps	Performed? Yes	No
1. Scene size-up ▪ Universal precautions, scene safety, environmental hazards, need for additional resources, by-stander safety, and patient/caregiver interaction. Consider the number of patients, mechanism of injury or nature of the illness. Request additional help if necessary.	☐	☐
2. Priorities of management are established on a life-threatening basis. ▪ Begin an ABC approach to the patient to form a general impression and establish the presence of a life threatening injury or illness. Obtain and record the chief complaint of the patient. Quickly assess level of consciousness using the AVPU method.	☐	☐
3. Evaluate for the presence of increased intracranial pressure. ▪ In the infant, increased ICP may be manifested by a full or bulging anterior fontanel, a weak, shrill, or irritable cry, and poor muscle tone. Pupillary responses, level of consciousness, recognition of parents, and Glasgow Coma Score should also be documented.	☐	☐
4. Assess the airway (protect c-spine if uncertain) ▪ When establishing an airway, remember the differences between the adult and pediatric airway. The young child has a disproportionately large tongue, which can easily occlude the airway. A small amount of blood or vomitus can also obstruct the airway. Deciduous, or "baby teeth", are poorly anchored and easily dislodged. ▪ If responsive – no intervention needed ▪ If unresponsive – use the appropriate medical or trauma maneuver to open the airway ▪ If airway remains partially or totally obstructed, continue steps to clear the airway	☐	☐
5. Assess adequacy of breathing ▪ If patient is not breathing, ventilate patient ▪ Observe chest rise and fall; auscultate breath sounds, observe for signs of distress – use of secondary muscles, nasal flaring, and tripod position. If oxygen is indicated and the child has a patent airway and good respiratory effort, administer oxygen via NRB. ▪ If the child requires ventilatory assistance, administer 100% oxygen via bag valve mask. It is strongly recommended to use the appropriate size mask for the patient. ▪ When possible, monitory oxygen saturation with continuous pulse oximetry and document findings as appropriate.	☐	☐
6. Assess circulation/perfusion ▪ Assess rate and quality of pulses – peripheral and central pulses. Early signs and symptoms of shock in children include a rapid heart rate and respiratory rate (remember age-related vital signs), agitation, and poor peripheral perfusion (capillary refill >2sec). Hypotension is a LATE and ominous finding. Document vital signs (including temperature and blood pressure if appropriate) and peripheral perfusion. ▪ Stop any active bleeding, assess skin color, temperature, and obtain blood pressure. ▪ If there is no palpable pulse or rate is too slow to maintain cerebral blood flow, begin CPR.	☐	☐
7. Further assessments, go to Patient Assessment – Medical or Patient Assessment – Trauma	☐	☐

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Procedure for Reporting a Death

Clinical Indications:

- Obvious Death (lividity, rigor mortis, decapitation, injuries inconsistent with life)
- Field Termination of Resuscitation
- Any death encountered in the field which is not transported to a hospital should be reported by the EMS agency

Steps	Performed? Yes	No
1. Ensure the clinical indications are met and gather pertinent information ▪ Once the determination of death is made in the field, no one will come into contact with the patient's body without permission of the coroner's office representative ▪ Ensure the evidence is preserved in a potential crime scene ▪ Ensure police are en route, if not on scene already	☐	☐
2. Contact the Trumbull County Coroner's Office at (330) 675-2516 and report: ▪ Name, age, race, and sex of the decedent ▪ Address and location of the incident ▪ Telephone number and location of next of kin ▪ The time of pronouncement, and who made the pronouncement ▪ If the individual was transported, who made the transport ▪ A brief narrative of the circumstances surrounding the death ▪ Where the decedent was found and by whom, if known ▪ Any past medical history ▪ Current medications, if known ▪ The name and telephone number of the attending physician, if known Ensure no delay in notification, even when all of the information cannot be obtained	☐	☐
3. Ensure the coroner's office representative will: ▪ Contact the family physician and request that they sign the death certificate ▪ Arrange transport of the patient's body	☐	☐
4. In a potential crime scene, ensure the police have taken control	☐	☐
5. Once the coroner's office has been notified and the EMS crew has received confirmation that the coroner's office representative will arrange transport, the EMS crew may choose to: ▪ Return to service for pending 911 calls ▪ Return to a more centralized location for the purpose of adequate 911 response ▪ Remain on scene for grievance counseling (if trained) or customer service	☐	☐

Pulse Oximetry

Steps	Performed? Yes	No
1. Turn the machine on and allow for self-tests.	☐	☐
2. Apply probe to patient's finger or any other digit as recommended by the device manufacturer.	☐	☐
3. Allow machine to register saturation level.	☐	☐
4. Record time and initial saturation percent on room air if possible on the patient care report.	☐	☐
5. Verify pulse rate on machine with actual pulse of the patient.	☐	☐
6. Monitor critical patients continuously until arrival at the hospital. If recording a one-time reading, monitor patients for a few minutes as oxygen saturation can vary.	☐	☐
7. Document percent of oxygen saturation every time vital signs are recorded and in response to therapy to correct hypoxemia.	☐	☐
8. Normal Saturation is 94-100%. Below 94% in a healthy individual or below 92% in a patient with COPD.	☐	☐
9. Use the pulse oximeter as an added tool for patient evaluation. Treat the patient, not the data provided by the device.	☐	☐
10. The pulse oximeter reading should never be used to withhold oxygen from a patient in respiratory distress.	☐	☐
11. Factors which may reduce the reliability of the pulse oximetry reading include: ▪ Poor peripheral circulation (blood volume, hypotension, hypothermia) ▪ Excessive pulse oximeter sensor motion ▪ Fingernail polish (may be removed with acetone pad) ▪ Carbon monoxide bound to hemoglobin ▪ Irregular heart rhythms (atrial fibrillation, SVT, etc) ▪ Jaundice	☐	☐

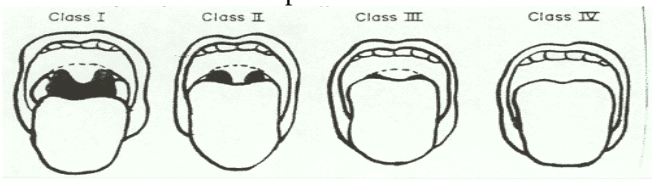
Rapid Sequence Induction Preparation

Clinical Indications:

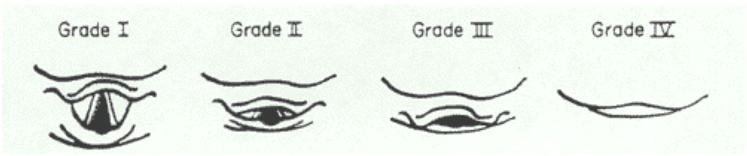
- Paramedics approved by EMS Medical Director only.
- Patient is in a hypoxic and combative state where implied consent would be utilized.
- Critical illness or injury that requires immediate control of the airway by intubation to prevent mortality or severe morbidity **AND** the airway cannot be controlled by conventional means of orotracheal intubation without sedation or paralysis (the patient is fighting away other airway techniques because of their hypoxic state).

Steps	Performed? Yes	No
1. If patient is so hypoxic that they become combative to more basic airway techniques, this protocol is warranted under implied consent. This is NOT an elective procedure. Confirm DNR status when able.	☐	☐
2. Confirm indications for the procedure. ▪ Inadequate ventilatory effort, rate, or volume. ▪ Oxygenation failure (such as CHF nonresponsive to CPAP and nitrates). ▪ Patient fights away other airway techniques because of their hypoxic state.	☐	☐
3. Confirm no contraindications for the procedure. ▪ Inadequate personnel on scene to manage the patient. ▪ Allergies or contraindications to any of the RSI medications. ▪ High likelihood of not being able to intubation due to physical, mechanical, or traumatic alterations of the anatomy. ▪ Lack of patent, well secured IV access. ▪ Lack of appropriate equipment or knowledgeable assistant. ▪ Dangerous environment that may require moving the patient before the airway is secured. ▪ Presence of a valid DNR order or refusal of procedure by the patient.	☐	☐
4. Perform assessment of the airway anatomy to determine difficulty (LEMON). ▪ **L**ook at the patient's neck for deformities, abnormal growths, adipose tissue, foreign objects, scars, stomas, height, and width. Can you effectively provide bag-mask ventilations? ▪ **E**valuate with the 3-3-2 method. 3 fingers between the teeth, 3 fingers from the tip of the chin (mentum) to the hyoid, and 2 fingers from the hyoid to the thyroid cartilage indicates the potential for easier airway access. ▪ **M**allampati and Cormack-Lehane grades. ▪ **O**bstruction such as swelling, burns, foreign bodies, excessive adipose tissue. ▪ **N**eck mobility assessment, such as ability to position the airway as needed.	☐	☐
5. Check equipment. ▪ Functional laryngoscope, tube, bougie, and suction. ▪ Bag- mask device and oxygen supply. ▪ Oximeter and heart monitor. Continuous waveform capnography is **strongly recommended**. ▪ Drug dosages calculated and drawn into syringes, labeled appropriately. ▪ Back up device, surgical or fast cricothyroidotomy equipment available.	☐	☐

Mallampati Classes



Cormack-Lehane Grades



EMR | EMT | AEMT | Paramedic | Extended

Rapid Sequence Induction

Steps	Performed? Yes	No
1. Follow **Rapid Sequence Induction Preparation** Procedure	☐	☐
2. Pre-treatment ▪ Pre-oxygenation via NRB, BVM, or CPAP (provider's discretion). Attempt CPAP prior to RSI in any case where CPAP is not otherwise contraindicated. ▪ Remove cervical collar if in place	☐	☐
3. Apneic Oxygenation ▪ Prior to laryngoscopy, place the patient on 15 lpm O_2 via nasal cannula to maintain oxygen saturation during the intubation attempt.	☐	☐
4. If elevated intracranial pressure is suspected, then: ▪ Administer **Lidocaine** 1.5 mg/kg slow IVP over 1 minute prior to the intubation attempt.	☐	☐
5. Administer **Fentanyl** 3 mcg/kg via IVP. Skip this step in shock patients.	☐	☐
6. Administer **Ketamine** 2 mg/kg via IVP.	☐	☐
7. Ensure effective sedation. Consider noxious stimulus to confirm. Continue talking to the patient as if they can hear you.	☐	☐
8. Once sedation is ensured, **Succinylcholine** 1 mg/kg via IVP. ▪ **Contraindications** to succinylcholine include recent spine injury, thermal/multisystem trauma greater than 24 hours old, massive crush injury, penetrating eye injury, hyperkalemia, patients with neuromuscular disease (previous hemiplegic CVA, Parkinsons's Disease, ALS (Lou Gehrig's Disease).	☐	☐
9. Visualize the glottis with a laryngoscope, insert bougie device through the chords **first**, then perform Orotracheal Intubation, inflate cuff, confirm tube placement. ▪ **Continuous Waveform Capnography** is the most accurate confirmation device. ▪ Other methods include direct visualization, presence of bilateral lung sounds, absence of epigastric sounds, adequate tidal volume upon ventilation, condensation in the tube, change of colorimetric device from purple to yellow, pulse oximetry maintains.	☐	☐
10. In the setting of trauma, apply cervical collar. If collar was removed to intubate, reapply cervical collar at this point.	☐	☐
11. Consider the need for additional sedative if necessary. Ensure sedation throughout transport. Muscle movement in ketamine sedation is normal. The patient may need additional sedation if tachycardia presents. **Consider:** ▪ **Versed** 5-10mg **slow IVP** if SBP > 90mmHg	☐	☐
12. Continuously assess patency of the patient's airway. **Recognize a dislodged tube IMMEDIATELY** and provide corrective action.	☐	☐

Spine Motion Restriction

Steps	Performed? Yes	No
1. Gather cot and c-collar appropriate for patient's size	☐	☐
2. Explain the procedure to the patient and that their movement could affect their condition	☐	☐
3. Place the patient in an appropriately sized c-collar while maintaining in-line stabilization of the c-spine. This stabilization to be provided by a second rescuer, should not involve retraction or tension, but rather simply maintaining the head in a neutral, midline position, while the first rescuer applies the collar.	☐	☐
4. Once the collar is secure, re-emphasize that the patient needs to maintain a neutral position of their head and neck as they are moved and positioned to the cot.	☐	☐
5. Place or have the patient move themselves onto the cot in a position of comfort, preferably supine but fowler's/semifowler's is acceptable (any patient with a history of car sickness should be transported fowler's/semifowler's). Utilize the safest method to get them on the cot as possible. Note: do not force a patient into a non-neutral position to immobilize them; a patient's anatomy should be taken into account.	☐	☐
6. Prophylactic Zofran if car sickness is a problem.	☐	☐
7. Secure the patient to the cot utilizing all straps per the manufacturer's recommendation.	☐	☐
8. Document the time of the procedure in the patient care report.	☐	☐

Spine Protection – Spine Boards

Clinical Indications

- To facilitate movement of the spine injured patient.

Steps	Performed? Yes	No
1. Gather a backboard, straps, c-collar appropriate for patient's size, tape, and head rolls or similar device to secure the head.	☐	☐
2. Explain the procedure to the patient.	☐	☐
3. Place the patient in an appropriately sized c-collar while maintaining in-line stabilization of the c-spine. This stabilization, to be provided by a second rescuer, should not involve traction or tension, but rather simply maintaining the head in a neutral, midline position, while the first rescuer applies the collar.	☐	☐
4. Once the collar is secure, the second rescuer should still maintain their position to ensure stabilization.	☐	☐
5. Place the patient on the long spine board with the log-roll technique if the patient is supine or prone. For the patient in a vehicle or otherwise unable to be placed prone or supine, place them on a backboard by the safest method available that allows maintenance of in-line spinal stability.	☐	☐
6. Stabilize the patient with straps and head rolls/tape or other similar device. Once the head is secured to the backboard, the second rescuer may release manual in-line stabilization.	☐	☐
7. NOTE: Some patients, due to size or age, will not be able to be immobilized through in-line stabilization with standard backboards and c-collars. Never force a patient into a non-neutral position to immobilize them.	☐	☐
8. Patient will be removed from backboard prior to arrival at receiving facility.	☐	☐
9. If c-collar is affecting patient's airway it should be removed and alternative c-spine precautions taken.	☐	☐
10. Document the time of the procedure in the patient care report.	☐	☐

Splinting

Clinical Indications

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

Steps	Performed? Yes	No
1. Assess and document pulses, sensation, and motor function prior to placement of the splint. If no pulses are present and a fracture is suspected, consider reduction of the fracture prior to placement of the splint.	☐	☐
2. Remove all clothing from the extremity.	☐	☐
3. Select a site to secure the splint both proximal and distal to the area of suspected injury, or the area where the medical device will be placed.	☐	☐
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 and manufacturer 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, reassess for the cause.	☐	☐
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: ▪ Assess neurovascular function as in Step 1. ▪ Secure the ankle device to the ankle. ▪ Secure the proximal device to the extremity, being careful not to put undue pressure on the genitalia or open wounds. ▪ Extend the distal part of the splint at least 6 inches beyond the foot. ▪ Attach the ankle device to the traction crank. ▪ Twist until moderate resistance is met. ▪ Reassess alignment, pulses, sensation, and motor function. If there has been deterioration in any of these 3 parameters, reassess for the cause.	☐	☐
8. Document the time, type of splint, and the pre and post assessment of pulse, sensation, and motor function in the patient care report.	☐	☐
9. Suggested Splints ▪ Long bone fracture: Board splint, vacuum splint, air splint ▪ Femur fracture: traction splint, long board splint ▪ Pelvic fracture: Antishock garment at low pressure, sheet splint ▪ Shoulder, humerus, clavicle: sling and swathe ▪ Supracondylar humeral fracture: carefully immobilize as found ▪ Joint fracture: Board splint, vacuum splint, pillow splint	☐	☐

Suction – Basic

Steps	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 which may occlude the airway if dislodged by the suction device.	☐	☐
5. If applicable, remove ventilation devices from the airway.	☐	☐
6. Use the suction device to remove any secretions, blood, or other substance. Do not suction for longer than 15 seconds.	☐	☐
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.	☐	☐

Supraglottic Airway

Clinical Indications:

- Failed intubation attempt
- Unresponsive patient in need of ventilatory assistance
- Bag mask ventilations are delivering insufficient volume despite clearing the airway and OPA/NPA placement

Steps	Performed? Yes	No
1. Recognize the need for SGA placement, consider clinical indications	☐	☐
2. Preoxygenate patient as is possible	☐	☐
3. Prepare SGA device ▪ Ensure appropriate size device based on device chart ▪ Check cuffs for leaks, where applicable ▪ Lubricate device as appropriate per manufacturer's recommendations	☐	☐
4. Position the head as appropriate to perform a tongue-jaw lift. Consider c-spine precautions.	☐	☐
5. Insert device to the appropriate depth, per manufacturer's recommendations. ▪ Most modern SGA devices have two to three black lines that serve as a depth indicator	☐	☐
6. Inflate the cuffs with the manufacturer recommended volume of air	☐	☐
7. Ventilate patient and confirm proper ventilation ▪ Adequate tidal volume ▪ Equal chest rise and fall considering other factors which would prevent this (tension pneumo, flail chest) ▪ Absence of epigastric sounds and presence of breath sounds	☐	☐
8. Adjust ventilation as necessary ▪ Adjust depth of device, check cuffs, ventilate through secondary lumen, etc	☐	☐
9. Apply capnography to ensure initial and continued placement	☐	☐
10. Secure the device with tape or a commercial holder	☐	☐
11. Continue to ventilate the patient at the appropriate rate	☐	☐

Termination of Resuscitation

Clinical Indications:

- A patient currently receiving the CCR protocol
- Four rounds of 200 compressions provided with ACLS support protocols
- Persistent asystole following the four rounds of CPR/ACLS

Steps	Performed? Yes	No
13. Ensure the CCR protocol is being followed ▪ Four rounds of 200 compressions with ACLS support ▪ Persistent asystole is confirmed on the ECG	☐	☐
14. Once four rounds of CCR have been followed with no success, begin explaining the situation to the family and prepare them for the next steps	☐	☐
15. Continue with the CCR protocol while contacting Trumbull Memorial Hospital and requesting to speak with an attending ER physician for field termination of resuscitation	☐	☐
16. Provide the ER physician with the following information: ▪ Patient name, age, sex ▪ Location of the incident ▪ Time patient was last seen normal ▪ Length and content of resuscitation effort (CPR, epi, defib, etc) ▪ Results of resuscitation effort (persistent asystole, no change, etc) ▪ Request termination of resuscitative efforts	☐	☐
17. If given a time of pronouncement, cease resuscitation efforts ▪ Document the time of pronouncement and the physician's name	☐	☐
18. Contact the Trumbull County Coroner's Office at (330) 675-2516 and follow the **Procedure for Reporting a Death**	☐	☐
19. Ensure the coroner's office representative will: ▪ Contact the family physician and request that they sign the death certificate ▪ Arrange transport of the patient's body	☐	☐
20. If given permission by the coroner's office, prepare the body for the family to mourn ▪ Remove medical devices and cover the patient's body with a blanket as appropriate	☐	☐
21. Once the coroner's office has been notified and the EMS crew has received confirmation that the coroner's office representative will arrange transport, the EMS crew may choose to: ▪ Return to service for pending 911 calls ▪ Return to a more centralized location for the purpose of adequate 911 response ▪ Remain on scene for grievance counseling (if trained) or customer service	☐	☐

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Tourniquet Application

Clinical Indications:

- Life-threatening hemorrhage from an extremity that cannot be controlled by direct pressure (whether direct pressure alone is inadequate, or inadequate resources exist to hold pressure while attending to the patient)

Clinical Considerations:

- Recent science has indicated that tourniquet use is very safe if released within a two hour window
- Recent science has also indicated that tourniquets may be used in place of direct pressure, if resources on scene to maintain pressure while providing adequate patient care are limited
- Tourniquets are painful. Provide pain management.

Steps	Performed? Yes	No
1. Apply commercial tourniquet to the skin proximal to the area of bleeding ▪ 2" proximal when able ▪ Do not apply to a joint	☐	☐
2. Secure the tourniquet in place with the Velcro strap	☐	☐
3. Continue to tighten the tourniquet until hemorrhage is controlled ▪ Depending on the severity of the bleed, it may be very uncomfortable for the patient ▪ Avoid over-tightening the tourniquet, only apply as much pressure is needed to control the hemorrhage	☐	☐
4. Note the time the tourniquet was applied in the patient care report	☐	☐
5. Continuously reassess the extremity for bleeding	☐	☐
6. If bleeding recurs, leave the initial tourniquet in place and consider: ▪ Direct pressure ▪ Application of a second tourniquet proximal to the first	☐	☐
7. After reassessment, follow pain management protocol and document effect.	☐	☐
8. Notify the receiving hospital that a tourniquet is in place.	☐	☐

Vagal Maneuvers

Clinical Indications:

- PSVT requiring conversion

Clinical Considerations:

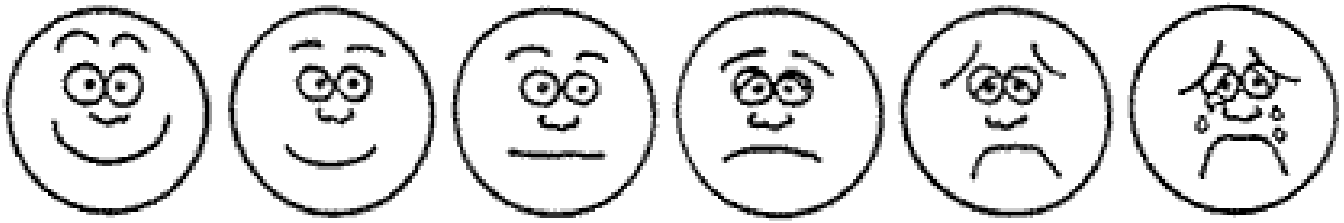
- Vagal Maneuvers will not work on tachycardias originating in the atria (Afib/Aflutter)
- This protocol is for the Valsalva maneuver

Steps	Performed? Yes	No
1. Ensure the clinical indications are met	☐	☐
2. Explain the need for the procedure to the patient	☐	☐
3. Instruct the patient to: ▪ Inhale deeply ▪ Flex abdominal and chest muscles ▪ "Bear down" as if making a bowel movement or cough deeply ▪ Results are typically seen in 10-15 seconds	☐	☐
4. If the procedure is ineffective, wait 1 minute, obtain vital signs, and repeat step 3.	☐	☐
5. Document the time and results of the procedure in the patient care report.	☐	☐

Wong-Baker Faces Scale

Clinical Indications:

- Assessment of pediatric pain



	0	1	2	3	4	5
	NO HURT	HURTS LITTLE BIT	HURTS LITTLE MORE	HURTS EVEN MORE	HURTS WHOLE LOT	HURTS WORST
Alternate coding	0	2	4	6	8	10

Wound Care

Clinical Indications:

- Active bleeding

Steps	Performed? Yes	No
1. Use BSI precautions as indicated	☐	☐
2. Observe for and control obvious bleeding	☐	☐
3. Evaluate and treat all life threatening injuries first	☐	☐
4. Control bleeding by (as appropriate): ▪ Direct pressure ▪ Tourniquet ▪ Splinting	☐	☐
5. Uncontrolled bleeding: ▪ Assess for life threatening injuries and resuscitate if necessary ▪ Apply tourniquet for extremity injuries ▪ Watch for signs and symptoms of hypoperfusion	☐	☐
6. Obtain history ▪ Time of injury ▪ Area of occurrence and infection risk ▪ Mechanism of injury ▪ Amount of blood loss ▪ Severity of pain ▪ Patient's medical history and medications ▪ Tetanus immunization	☐	☐
7. Wound care ▪ Assess for size, depth, location, contamination, and type of wound ▪ Abrasion, avulsion, contusion, incised, laceration, puncture ▪ Irrigate wound if necessary ▪ Apply appropriate dressing ▪ Secure dressing	☐	☐
8. Further Evaluation and Care: Many times open wounds need further evaluation and care by a physician, including: ▪ Neural, muscular, or vascular ▪ Tendon or ligament compromise ▪ Contamination ▪ Foreign bodies ▪ Medical history – diabetes, immunocompromised, etc ▪ Vascular problems	☐	☐

Guidelines

List of Guidelines

Children Requiring Evaluation/Transport

NHTSA Recommendations for the Safe Transport of Pediatric Patients

The National Highway Traffic Safety Administration (NHTSA), Department of Transportation, is the federal agency responsible for establishing and monitoring safety criteria for child restraints and vehicles. Federal Motor Vehicle Safety Standard 213 (FMVSS 213) sets child restraints performance standards during dynamic sled tests using child dummies of various sizes. Car seat manufacturers must self-certify that their products comply with performance criteria established by applicable Federal Motor Vehicle Safety Standards.

Currently, there are no Federal Motor Vehicle Safety Standards to define performance criteria for child restraint use in ambulance patient compartments. Although research regarding crash dynamics in ambulances is limited, "fundamental principles of occupant restraint can still be used to develop useful and effective procedures" in ambulances.

In 2009, NHTSA initiated its "Solutions for Safely Transporting Children in Emergency Vehicles" project, a partnership between the NHTSA Occupant Protection Division and NHTSA's Office of Emergency Medical Services. The objectives of this project were to develop a set of recommendations for the EMS community on how to safely and appropriately transport children in a ground ambulance from the scene of a crash or other emergency. Components of this two-year project include a literature review, the development of draft recommendations, and the convening of a national meeting to discuss and finalize the recommendations. The over arching goal was to provide a set of consistent recommendations that would be embraced by local, State and national EMS and stakeholder organizations. These recommendations were the basis for the development of a course for EMS providers entitled "Improving Occupant Protection for Non-Critical Pediatric Patients in Ambulances".

NHTSA currently recommends that non-critical pediatric patients be properly restrained in either a size appropriate, conventional safety seat on the cot or on the attendant's seat or in an integrated child restraint located in the attendant's seat. Use of a convertible child safety seat on a locked, front facing attendant's seat is the same configuration as that in a normal passenger car.

Recommendations for the use of conventional "convertible" child restraints on ambulance cots is based on the findings of research conducted and policies developed by the Automotive Safety Program at Riley Hospital for Children in Indianapolis, Indiana in collaboration with the University of Michigan Transportation Research Institute (UMTRI). Recommendations based on crash testing were published by Bull et. al (2001) entitled: "Crash Protection for Children in Ambulances", 45th Annual Proceedings, AAAM, Sept. 2001.

According to the Automotive Safety Program's test results, convertible child safety seats can be used on an ambulance cot and crash test results are compliant with FMVSS 213. The fact that convertible child restraints have two separate belt paths makes them compatible with ambulance cot use as they can be tightly secured to the cot with the upper torso cot strap and lower leg cot strap.

Critical Injuries – Load and Go

1. Airway obstruction unrelieved by mechanical methods (i.e. suction, forceps, etc)

2. Conditions resulting in possible inadequate breathing:
    a. Large open chest wound (sucking chest wound)
    b. Large flail chest
    c. Tension pneumothorax
    d. Major blunt chest injury

3. Traumatic cardiopulmonary arrest – transport to the nearest ED. Do not wait for a helicopter.

4. Shock – severe:
    a. Hemorrhagic
    b. Spinal
    c. Myocardial contusion
    d. Pericardial tamponade

5. Head injury with decreased level of consciousness.

6. Any traumatic condition with:
    a. Respiratory difficulty
    b. Signs and symptoms of shock
    c. Decreased level of consciousness

7. Scene times on critical injuries should be as short as possible. If the patient requires transport to a trauma center, burn unit, or children's hospital, consider helicopter transport.

Dead at Scene

1. There could be two instances when EMS would not attempt resuscitation of a lifeless patient: potential crime scene, or a patient found when the time down is unknown. In either event, no attempt at resuscitation will be made if the patient exhibits any of the following:
    a. Decapitation or brain matter showing
    b. Exsanguination
    c. Lividity
    d. Any sign of decomposition

2. If no resuscitation is to be attempted, no EMS personnel will approach the body; the scene will be left with the police department

3. If there is any doubt as to the viability of the patient, an assessment will be conducted by as few personnel as possible until a determination of viability can be made.

4. If resuscitation is in progress prior to arrival of the EMS unit, resuscitation will continue unless the patient meets any of the following:
    a. Decapitation or brain matter showing
    b. Exsanguination
    c. Lividity
    d. Any sign of decomposition
    e. DNR paperwork is presented
    f. Patient is unresponsive to resuscitative efforts
    g. Termination of resuscitation and time of pronouncement is provided by the attending TMH emergency physician

Do Not Resuscitate / Supportive Care

BACKGROUND

In 1999, the Ohio Department of Health successfully established a Do-Not-Resuscitate Comfort Care (DNR

Comfort Care) Protocol within the Ohio Revised Code. In the past, do-not-resuscitate (DNR) orders could not be honored without contacting medical direction when EMS or the 911 system was activated. The DNR Comfort Care Protocol will permit EMS to honor DNR orders without immediately contacting medical direction and provides guidelines for the prehospital management of these patients.

A DNR Comfort Care patient has completed a living will or has been issued a DNR order. The DNR Comfort Care protocol can be performed immediately by EMS for these patients. There is a subset of patients who are DNR Comfort Care-Arrest patients. This protocol is to be activated only in the event or a cardiac or respiratory arrest for these patients. EMS should follow the State of Ohio EMS Guidelines for these cases unless they present as a cardiac or respiratory arrest. In the event of a cardiac or respiratory arrest in a DNR Comfort Care-Arrest patient, the patient care should then be diverted to the Do Not Resuscitate (Comfort Care) Protocol. For the purposes of this protocol, a cardiac arrest is defined as the absence of a palpable pulse, and a respiratory arrest is defined as the absence of spontaneous respirations or presence of agonal respirations. The patient's DNR order or DNR identification should be checked very carefully to distinguish between the DNR Comfort Care and the DNR Comfort Care-Arrest classifications.

A DNR Comfort Care designation does not imply that the patient does not want to be treated for illnesses or injuries unrelated to a terminal disease process. For example, if the patient sustained a bee sting and was developing anaphylaxis, EMS providers should follow the anaphylaxis protocol. Medical direction should be contacted as soon as possible for further guidance and potential temporary revocation of the DNR Comfort Care order.

A reasonable effort should be made to positively identify the patient with DNR orders, but it is not required for the performance of this protocol. Patients of health care facilities do not require verification of identity when the DNR order is present on the patient chart. Acceptable methods of patient identification verification include a driver's license, passport, picture ID, institution identification band, or personal identification by a family member, caregiver, friend, or health care worker.

A patient's DNR Comfort Care or DNR Comfort Care-Arrest status can be confirmed by one of the following:

1. A DNR Comfort Care card or form completed for the patient.
2. A completed State of Ohio living will (declaration) form that states that the patient does not want CPR (in the case of a patient who has been determined by two doctors to be in a terminal or permanently unconscious state).
3. A DNR Comfort Care necklace or bracelet bearing the DNR Comfort Care official logo.
4. A DNR order signed by the patient's attending physician or, when authorized by section 2 133.211 of the Ohio Revised Code, a certified nurse practitioner (CNP) or clinical nurse specialist (CNS).
5. A verbal DNR order is issued by the patient's attending physician, CNP, or CNS.

EMS providers are not required to search a patient to locate DNR identification. Copies of the documents listed under items 1, 2, or 4 are sufficient. The EMS provider must verify the identity of a physician or CNP/CNS issuing a verbal DNR order. Acceptable methods of verification include personal knowledge of the physician or CNP/CNS, a return telephone call to verify the information provided, or a list of practitioners with other identifying information such as addresses.

Do Not Resuscitate / Supportive Care (Cont'd)

A DNR order is considered current if it is present in a health care facility's records or patient chart. A DNR order for a patient outside of a health care facility is considered current unless it is revoked by the patient or by the patient's attending physician or CNP/CNS. EMS providers are not required to research whether a DNR order that appears to be current has been discontinued.

The DNR Comfort Care patient always retains the right to request resuscitation even if the protocol has been activated. A request for resuscitation by the patient revokes the DNR Comfort Care status and the EMS providers should immediately follow the resuscitation procedures in the State of Ohio EMS Guidelines.

Once the DNR Comfort Care protocol has been activated, the wishes of family members or bystanders demanding or requesting resuscitation should not be honored. Any and all resuscitative measures should continue to be withheld. Attempts should be made to help the family understand the dying process and the patient's choice not to be resuscitated.

When the DNR Comfort Care Protocol has been activated, EMS personnel will provide the following care as clinically indicated:

1. Suction the airway.
2. Administer oxygen.
3. Position for comfort.
4. Splint or immobilize.
5. Control bleeding.
6. Provide pain medication.
7. Provide emotional support.
8. Contact medical direction.
9. Contact other appropriate health care providers such as hospice, home health, attending physician, CNP/CNS as time or patient scenario permits.

When the DNR Comfort Care Protocol has been activated, EMS personnel will not perform the following:

1. Administer chest compressions.
2. Insert an artificial airway.
3. Administer resuscitative drugs.
4. Defibrillate or cardiovert.
5. Provide respiratory assistance other than the methods listed above.
6. Initiate resuscitative IV access.
7. Initiate cardiac monitoring.

NOTE: If any of these actions have been initiated prior to confirmation of the patient's DNR Comfort Care status, discontinue them when the DNR Comfort Care protocol is activated. Any and all respiratory assistance, IV medications, or other therapies that have been part of a patient's ongoing course of treatment for an underlying disease may be continued.

Do Not Resuscitate / Supportive Care (Cont'd)

When the DNR Comfort Care protocol is performed, the suggested documentation on the patient care report should include the following information:

1. The document identifying the DNR Comfort Care status of the patient.
2. The method of verification of the patient's identity, if any was found through reasonable efforts.
3. DNR Comfort Care or DNR Comfort Care-Arrest classification.
4. All actions taken to implement the DNR Comfort Care protocol.
5. Any and all unusual events occurring enroute or on scene including interactions with family members, bystanders, or health care providers.

Any and all questions or concerns that arise during the management of DNR Comfort Care patients may be directed to and discussed with medical direction for assistance and guidance.

Documentation

1. An EMS report will be generated on each patient evaluated by the EMS crew. To be included are assists when the patient is evaluated for an injury, or a medical condition is suspected.

2. Documentation will include, but not be limited to:
    a. Initial and repeat vital signs
    b. Initial assessment, including "view from the door" and repeat vital assessments
    c. All necessary interventions and the results of those interventions
    d. Abnormal occurrences, such as a combative patient, patient condition, or location requiring extended scene time, etc
    e. Equipment failure
    f. Chemical or physical restraint of a patient
    g. Discussion with patient that refused any or all treatment and transport
        Will include:
            i. Advisement of potential consequences
            ii. Advisement of alternative medical care
            iii. Advisement to call EMS if he or she desires treatment or transport
    h. Discussion with patient that did not refuse treatment but was not transported
        Will include:
            i. Alternative transportation documented, if needed
            ii. Detailed description of instructions given to patient
            iii. Advisement to call EMS if he or she desires treatment or transport

    i. When dispatched for a possible ill or injured person who states he/she did not request assistance, document the following:
            i. The individual states he/she did not request or want assistance
            ii. Who (if known) called for assistance
            iii. The individual does not appear to need aid
            iv. The individual does not appear to be under the influence of alcohol or mind altering drugs
    j. Status of patient upon arrival at the emergency department or landing zone
    k. Bed that patient was placed in
    l. Who report was given to (name preferred)

EMS Transportation

EMT

1. The decision to transport should be a crew decision, with the patient's best interest in mind. **The highest trained, in-charge person is ultimately responsible**. The patient has the right to refuse treatment and transport as described under the Patient Rights section.

2. The patient's condition and their needs should help determine method of transportation and destination. Consideration should include, but not limited to, need for Paramedic versus time to closest hospital, number of crew on your vehicle, and appropriateness of closest hospital.

3. Medical helicopter transportation shall be considered on policies set forth under the Helicopter Transportation section.

4. During transport, treatment shall continue and reassessment of the patient shall continue.

5. All patients with acute mental status changes that have any life threatening complaint or condition are to be transported to the hospital by EMS. A person with altered mental status cannot refuse transport if they have a condition that is a threat to life or limb. **A suicidal patient has a life threatening condition and is not considered to be in a normal state of mind**; therefore **all suicidal patients should get transported to the most appropriate facility for evaluation**. If they have a medical condition that requires treatment or monitoring then EMS must transport. **EMS cannot legally take an alert, oriented, and medically competent person against their will without a civil commitment (pink slip), even if they express suicidal tendencies.** Family and friends are not to transport suicidal patients once EMS has gotten involved, unless the patient refused care and there is no pink slip. In any situation that a patient with altered mental status or suicidal/homicidal tendencies tries to refuse care, get law enforcement involved immediately.

AEMT

1. All guidelines for EMT's shall apply to AEMT's.

2. If IV's are in place, they are to be monitored.

Paramedic

1. All guidelines for EMT's and AEMT's shall apply to Paramedics.

EMT Responsibilities

This protocol represents a revision of the previously established guidelines and changes must be noted by each individual that works under these directives. It is the responsibility of each EMR, EMT, AEMT, and Paramedic to read and understand the changes that have been made. Changes are effective November 1, 2014.

The first point of order is that all providers must be familiar with the Ohio State EMS Scope of Practice for their appropriate level and only function at the level allowed by this EMS protocol. Any order within the provider's scope of practice that requires a call-in permission may be performed after receiving direct online medical control or with the direction and direct supervision of an on-scene Paramedic. Deviation beyond your scope of practice or this protocol may warrant disciplinary or even legal actions to be taken.

Secondly, there will also, at some point, be a tiered protocol for Paramedics. This protocol includes some procedures that are designated for these "Category 2" Paramedics. Every Paramedic working under this protocol will be cleared as a "Category 1" Paramedic, but eventually we will be designating a select few as "Category 2" Paramedics after completion of some specialized training. The selection of "Category 2" Paramedics will be based on a number of factors including years of experience, annual run involvement, approval by the appropriate Chief Officer, EMS Coordinator, and Medical Director. Becoming a "Category 2" Paramedic is strictly on a volunteer basis, applies only to the designated procedures and in no way alters the chain of command. Those procedures labeled as 'only for Category 2 Paramedics' are otherwise off limits to those not approved as Category 2 Paramedics. Any deviation or practice outside of your approved scope of practice will lead to disciplinary and possibly legal actions.

My signature indicates that I have read and understand this statement as well as the medical protocol to which it pertains.

Name _____

Signature _____ Date _____

EMR | EMT | AEMT | Paramedic | Extended

Equipment

The appropriate available equipment is to be summoned and utilized at the outset of all EMS encounters. This means that for any given call that is dispatched, the appropriate equipment is to be utilized early if possible. **For all ALS runs the cardiac monitor, oxygen, and house bag is the minimal equipment required; they are to be taken into the scene on the first entry.** On cases that may require an emergent airway, the airway kit and drug box is to be taken into the residence as well.

Helicopter Transport

When to call:

1. To transport any patient that requires rapid transport to a specialized hospital (Trauma Center, Burn Unit, etc)

2. For manpower in multiple victim runs

3. For search and rescue (medical reasons only)

4. For delayed ground transport due to weather or traffic.

5. Factors for possible use:
    a. MVA in which extrication > 15 minutes
    b. Pedestrian struck and thrown > 15 feet
    c. MVA with patient ejected from vehicle
    d. Smooth rapid transport required
    e. MVA with death in same car
    f. Fall from > 15 feet
    g. 2nd and 3rd degree burns over 15% of body surface

How to call:

1. Ask dispatch to put helicopter on standby. This is to be used if the need is not yet certain. This improves the response time when / if you need the helicopter. If you do not need the helicopter, cancel the standby.

-or-

1. Start helicopter or helicopters to your location. One critical patient or two stable patients per helicopter.

2. Helicopter dispatcher should be given:
    a. Number of patients
    b. Location
    c. Radio frequencies to be used
    d. Give any specific information that may be needed

3. Prepare landing zone (LZ) free from wires, trees, and stumps on a fairly level ground. Clear area should be marked with flares in a minimum of 60’ x 60’ to 100’ x 100’.

4. Monitor radio for helicopter call. Give them the LZ information and any update that they may need to know. Do not approach the aircraft without helicopter crew approval. Work with the crew to ensure smooth transfer of patient care.

Multiple Casualty Incident

1. Triage starts by the first EMS provider on the scene. Note the number of victims, severity of injuries, and resources needed to complete the incident.

2. Incident Command System (ICS) shall be set up as soon as possible.

3. The first EMS provider begins triage and assumes the position of Incident Commander. It is his/her responsibility to oversee the operation until higher-ranking officers are available to take over.

4. Triage starts by asking the non-injured and those only slightly injured to move to an area set up for them. Have them stay in a group.

5. The triage officer moves quickly through the victims manually opening airways only. Do not stop to do treatment.

6. A second EMS provider starts behind the triage officer and assesses patients with primary ABC's. At this time the patient receives a ribbon. Attempt to place ribbons consistently on the same limb, or in obvious view.

Black	Dead or has no chance for survival
Red	Is in very critical condition and needs first treatment and transportation
Yellow	Serious condition, can wait for treatment and transport
Green	Good condition, can wait until last to be treated

No treatment can be provided yet if limited on help.

7. It is very important to complete steps 5 and 6 before tying yourself up with treatment. This is particularly true when very short staffed.

8. The next sector needs to be assigned to the treatment area. The red tags shall be treated first. The most critical patients shall be given to the next sector officer (transportation officer).

9. The transportation officer has the responsibility to ensure that adequate and appropriate transportation is available (squads, medics, helicopters). It is very important that the transportation officer keeps close records of names and / or tag numbers of all patients transported and where they were sent.

10. This is the basic plan of action to be taken when you encounter multiple victims with limited help. This plan of action can be altered by the Incident Commander on the scene. As help arrives on the scene, more EMS personnel can be assigned to each sector officer as needed. As a sector finishes their task, they can be reassigned. In some cases more sector officers may need to be added for other jobs such as extrication, supply, staging, etc.

Incident Commander
*
Triage Sector
*
Tagging Sector
*
Treatment Sector
*
Transportation Sector
(Sectors can be added or deleted as needed.)

On-Scene Intervener

On an EMS run where an unknown first responder, EMT, physician, or other person rendering aid is not from the responding EMS agency the following steps should be initiated:

1. Ideally, if no further assistance is needed, the offer for assistance should be courteously declined.

2. If the intervener is known to EMS and assistance may significantly contribute to patient care, aid may be rendered in accordance with this Trumbull Memorial Hospital EMS protocol.

3. Material aid should not be provided to any provider unknown to the EMS crew.

4. Notation of intervener name and address must be documented on the run report.

In cases of the Physician in his/her office or urgent care center:

1. EMS should perform its duties as usual under the supervision of medical direction or by protocol.

2. The physician may elect to treat the patient in his/her office.

3. The EMS provider should not provide any treatment under the physician's direction, and if asked, the EMS provider should courteously decline until contact is made with medical direction.

4. Once the patient has been transferred into the squad, the patient's care comes under medical direction.

Patient Refusal of Treatment and/or Transport

A patient who is alert and oriented and is their own power of attorney may refuse any and all treatment and/or transport.

1. Alert and oriented means being able to describe where they are, distinguish the time of day and period of the year, answer common-knowledge questions (who is the President, what is the state capital, etc), knows the events which lead to the emergency they experienced, and generally will be able to carry on a conversation in a lucid manner.

2. Being their own power of attorney (POA) means that they are at least eighteen years of age or have been emancipated by a court, have not been deemed incompetent by a court, or have not signed POA over to someone else.

If a patient does not meet the criteria set forth in item 1, they may not refuse treatment.

3. If they continue to refuse and you feel the patient sincerely needs medical treatment, request law enforcement to the scene and/or contact medical control for advice.

4. A patient who has threatened to harm themselves may refuse transport. Only law enforcement or an otherwise authorized health care officer can force an alert, oriented, competent psychiatric patient to go to the hospital unwillingly.

5. When a patient refuses any treatment and/or transport, a Patient Refusal must be completed.

Patient Rights

Consent to serve.

1. All patients 18 years of age or older must give consent verbally or nonverbally, or in writing to be treated.

2. Unconscious patients 18 years of age or older give permission to treat by implied consent.

3. Patients 18 years of age or older may refuse treatment unless in your best judgment you feel the patient cannot make this decision based on psychiatric conditions, suicidal ideations, intoxication, or impaired judgment secondary to their current condition. The patient must be alert and oriented to refuse treatment. It is otherwise implied that the patient would want help if he/she was of sound mind.

4. Patients under 18 years of age cannot refuse treatment if the EMS provider feels the treatment is needed. The consent to treat or refuse treatment can only be given for a minor by his/her parents or parent, blood relative, or legal guardian. A parent or guardian cannot refuse treatment of a critically ill minor. If legal consent cannot be obtained, the EMS provider has the responsibility to make the decision for the minor.

Withdrawal of consent.

1. A mentally competent adult can withdraw consent at any time. This is true even after treatment has been started.

2. If an unconscious patient or mentally confused patient becomes alert and oriented he/she can withdraw consent.

Release of liability.

1. If a person refuses treatment or transport, he/she must be informed of the possible consequences for the lack of treatment or transport.

2. The person must sign the report for refusal. This should be done in the presence of a witness. If the patient refuses to sign the report, a witness other than one of our personnel, if possible, should sign stating that the patient refused to sign and was informed.

Pediatric Intubation Guidelines

These are general guidelines for all EMS personnel to assist in the decision making process when dealing with a critically ill or injured child. There are no absolute rules that mandate if any given child requires definitive airway versus conservative assistance such as oral airway with BVM. There are many factors that determine the need for definitive airway and all have to be considered.

Nature of the situation: Is there a corrective action that may quickly improve the condition (glucose for hypoglycemia, naloxone for narcotic overdose, aerosols for severe bronchospasm) or is the condition going to worsen over time (head trauma, hemorrhagic shock, airway edema / obstruction).

Skill level of the available providers: If the available medics are unsure of their pediatric intubation skills and the child is oxygenating well, with adequate airway protection, there should not be an imminent urgency to attempt intubation.

Oxygenation and patent airway are the most important issues in determining the need for pediatric intubation. Hypercarbia (high CO2) and Glasgow Coma Scale are determinants used in the hospital but these should not be extrapolated to the field. If a child has a patent airway and is oxygenating well, intubation is not mandatory.

If intubation of a child is needed remember the following:

1. Use a cuffed tube whenever possible but in children under 8 only inflate if needed to oxygenate / ventilate due to air leak

2. Tube size = $\frac{\text{Age} + 16}{4}$
   Length = 12 + age/2

Physician at the Scene

1. Physicians known to EMS may assist crews.
    a. The physicians may only treat to the extent that the EMS crew may treat in accordance with the Trumbull Memorial Hospital EMS Protocol.

2. EMS will not lend any material aid to a physician on the scene not known to them. This includes equipment, drugs, or any other patient care items.
    a. Politely decline to follow the physician's command unless instructed otherwise by medical control.
    b. Politely inform the physician that, if they wish to treat the patient en route to the hospital and the patient consents, they may transport the patient in their own vehicle with their own equipment.

Restraint Policy

Transportation of a violent or uncooperative patient may require physical or pharmacologic restraints. The top priority during these transports is maintenance of personal safety and injury prevention of the prehospital care providers and of the patient. Prehospital care providers should not attempt to enter or control a scene where physical violence or weapons are potentially present. The local law enforcement agency should be contacted immediately and advised of the scenario. Prehospital care providers may enter the scene for the provision of patient care after safety of the scene is confirmed by law enforcement personnel.

All restrained patients should be placed on a stretcher with adequate foam padding. Extremity restraints should be secured to the stationary portion of the stretcher frame in a fashion where they can be removed quickly in the event of an emergency. Restraints that require a key or use multiple knots are unacceptable. Stretcher straps should be placed on all patients as these serve as seatbelts during transport. Restraint of the extremities in a spread eagle fasion significantly reduces the strength the patient can generate from the large muscle groups. Restraints that may restrict chest wall motion are prohibited.

Prehospital care providers reserve the right to refuse elective transport of patients who are deemed too violent or uncooperative to be controlled by the restraint methods and devices permitted by the Trumbull Memorial Hospital EMS Protocols. The safety of prehospital care providers will be maintained at all times during transport. The prehospital care provider reserves the right to request completion of transport by law enforcement personnel. The prehospital care provider may administer an appropriate dose of Haldol and Versed as a pharmacological restraint prior to transport of the patient. Patient must be monitored by ALS after administration of medications. A decision to refuse elective transport of a violent or uncooperative patient may be made by any member of the prehospital care team or their supervisor. Medical direction may be contacted at any time for advice.

There are two acceptable positions for transport of the violent or uncooperative patient. The patient may be transported in the supine position in four or five restraints. All four extremities should be restrained to the stationary portion of the stretcher frame. A fifth restraint may be placed around the thighs just above the knees to secure that patient to the frame of the stretcher. A sheet or stretcher strap may be used for this purpose. Placement of the stretcher in the sitting position is preferable as aspiration is less likely and the strength generated by flexion of the abdominal muscle groups is reduced.

More physically uncooperative patients should be restrained in the supine or lateral decubitus position. All four extremities should be restrained to the stationary portion of the stretcher frame. The upper extremities should be positioned with one hand below the waist and one hand above the head. Additional sheets or stretcher straps may be placed around the lower lumbar region, below the buttocks, or around the thighs, knees, and legs to prevent flexion and extension of the torso, hips, and legs.

Physical assessment of all restrained patients must be performed during the entire transport. The airway, respiratory and mental status should be noted. In addition, the skin condition of the patient and the capillary refill and pulses of the extremities distal to the restraints should be noted. Pulse oximetry should be performed continuously. The physical assessment should be continuously performed and documented in writing on the prehospital care report. Cot straps and extremity restraints should be adjusted as needed to permit unrestricted respirations and adequate circulation to distal extremities.

For restraints that require a key, law enforcement must be present to adjust or remove them as needed.

Resuscitation of Patients

1. Living Wills are not honored in the prehospital setting. Only the Do Not Resuscitate order, that is filled out and signed by the doctor, the patient, and notarized shall be accepted.

2. If there is any doubt to the paperwork and the orders of paperwork, full resuscitation efforts shall be started. The patient has implied consent for help until paperwork is proven.

3. Hospice patients that have proper paperwork do not require that EMS be contacted or treated.

4. Obvious signs of a patient that are not appropriate for resuscitation do not require treatment to begin. If unsure about starting treatment, efforts should begin. See **Termination of Resuscitation**.

5. Hypothermic patients are warmed before the determination of death.

Routine for all EMS Runs

EMR

1. Crews will use universal precautions as outlined in departmental policy on all patients.
2. It is the responsibility of the highest trained personnel on scene to determine if adequate personnel are on the scene, or on the way to the scene, to handle the emergency.
3. Perform skills as appropriate at the EMR level: Manual airway maneuvers, OPA/NPA, Manual removal of obstructed airway, oral suctioning, BVM ventilation, CPR/AED, Medical and Trauma Assessment, Oxygen administration, Hemorrhage control, and splinting.
4. Drug therapy shall be administered per your training as outlined in this protocol.
5. Any other items outlined in the Ohio EMS Scope of Practice.

EMT

1. Per your training at this level, as well as all guidelines set forth for EMRs, perform the primary survey on your patient. Note level of consciousness, c-spine precautions as necessary, and airway, breathing, and circulation assessment.
2. Obtain a history of facts to determine the patient's needs.
3. Treatment should begin as soon as the primary survey is completed and/or a problem is found. Treatment continues throughout the secondary survey. Vitals are to be obtained and all findings and treatment shall be noted on the report and passed on to the person(s) assuming care of the patient.
4. The airway shall be managed by the means that are approved under your EMT license.
5. Oxygen therapy shall be by appropriate device and percentage.
6. Heart monitors may be used by EMTs only if a Paramedic is coming to assist or the EMT plans on transmitting the 12-Lead ECG to the receiving facility. Pulse oximeter and glucometers may be used by the EMT and any abnormality should prompt calling for a Paramedic. Despite device readings, if a patient clinically appears to be critical, a Paramedic should be called. It is to be made clear to the patient or family that you are gathering information for the Paramedic.
7. All other EMT skills that are needed shall be performed according to this protocol and the Ohio EMS Scope of Practice.
8. Drug therapy shall be administered per your training as outlined in this protocol.

AEMT

1. Per your training at this level, as well as all guidelines set forth for EMTs, you are to initiate patient treatment as required.
2. In addition to EMT skills, you are to establish IV lines of appropriate size and number.
3. Drug therapy shall be administered per your training as outlined in this protocol.

Paramedic

1. Per your training at this level, as well as guidelines set forth for the EMT and AEMT, you are to initiate patient treatment as required.
2. In addition to EMT and AEMT guidelines you shall manage the airway with orotracheal intubation, needle cricothyrotomy, or Melker cricothyrotomy as outlined in this protocol.
3. Drug therapy shall be administered per your training as outlined in this protocol.

Extended Paramedic

1. In addition to EMT, AEMT, and Paramedic guidelines you shall manage the airway with rapid sequence intubation or surgical cricothyrotomy.
2. Drug therapy shall be administered per your training as outlined in this protocol.

All personnel according to your training level will follow these guidelines and will complete a report of treatment and findings. This report will be completed in full and a copy given to the person or persons accepting responsibility for the patient. Any deviation of this protocol will be documented in a written statement given by the entire crew.

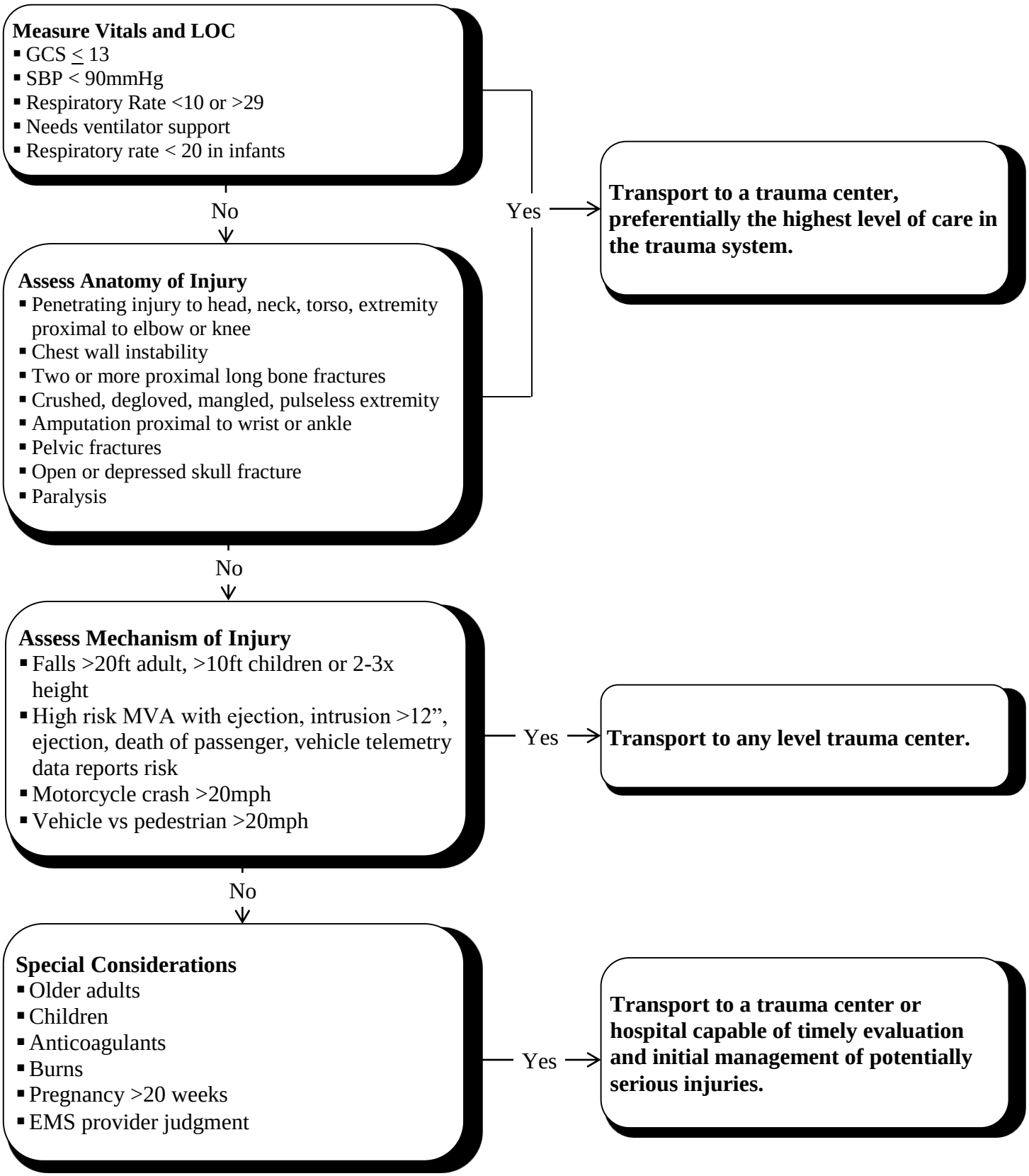
Transport of Arrestees

Transportation of arrestees presents a unique challenge to prehospital care providers. Arrestees may be a flight risk to society and a safety risk to prehospital care providers.

The safety of prehospital care providers will be maintained at all times during transport. For this specific patient population, restraints that require a key may be necessary. The restraint device selected should never interfere or delay appropriate patient treatment during transport. The custodial law enforcement officer must accompany the patient in the transport vehicle during the entire transport when restraints that require a key are in use. All restraint devices selected should be applied and secured prior to the initiation of transport. Prehospital care providers may not accept primary responsibility for possession or use of the key for the restraining device. Restraints that may restrict chest wall motion are prohibited. The acceptable positions for transport of the patient are outlined in the restraint policy. Prehospital care providers may request complete or partial removal of a restraint device if a medical emergency arises and the restraint device interferes with patient care and treatment. Physical assessment of the restrained arrestee should be performed in accordance with the restraint policy.

The decision to refuse elective transport of an arrestee may be made by any member of the prehospital care team or a supervisor at any time the arrestee is too violent or uncooperative to be controlled by the restraint methods and devices permitted by the Trumbull Memorial Hospital EMS Protocols. The prehospital care provider reserves the right to suggest to medical facilities the use of adequate pharmacological restraints prior to acceptance of the patient. The prehospital care provider reserves the right to request completion of transport by the custodial law enforcement personnel. The prehospital care provider may administer an appropriate dose of Haldol and Versed as a pharmacological restraint prior to transport of the patient. Medical direction may be contacted at any time for advice or for pharmacological orders.

Trauma Triage Guidelines



EMR | EMT | AEMT | Paramedic | Extended

Ventilator Transportation

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Ventilator Troubleshooting

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Vital Signs

Obtaining and Documenting Vital Signs

1. Every patient evaluated by EMS personnel will have his or her baseline vital signs assessed. The initial vital signs must be obtained manually. Baseline vital signs include the following:
    a. Pulse
    b. Respirations
    c. Blood pressure
        i. Blood pressures on infants and small toddlers may be difficult to obtain without upsetting the patient; therefore, the blood pressure may be omitted for these patients when the patient is stable.

2. It is not necessary to obtain vital signs on someone who did not request assistance or directly ask for aid when the following applies:
    a. The individual does not appear to be ill or injured and there does not appear to be a need for treatment.
    b. The individual is of sound mind and does not appear under the influence of alcohol or mind altering drugs.

3. Additional vital signs will be obtained as the patient's condition warrants. Examples are:
    a. Pulse oximetry
    b. Carbon monoxide oximetry
    c. Capnography
    d. Temperature

4. Each patient that is transported will have his or her vital signs reassessed at least once during transport. The only exception is a patient with a minor injury, such as a minor laceration. Patients requiring advanced care will have their vital signs reassessed every 3-5 minutes.

5. Patients that receive medications will have his or her vital signs reassessed 2-3 minutes after administration of the medication(s). Patients receiving IV boluses will have his or her vital signs assessed 1-2 minutes after the bolus is administered.

6. Repeat vital signs may be obtained via monitoring equipment. However, if there is a significant discrepancy, a manual set will be immediately obtained for comparison, and the appropriate action taken.

7. **All** vital signs must be documented.

Pharmacology

EMR | EMT | AEMT | Paramedic | Extended

List of Medications

Acetaminophen (Tylenol®)

Action
Analgesic

Onset
Peak effect 0.5-2 hours

Indications
Pediatric Fever, Pediatric Pain Control

Adult Dose
Not Indicated

Pediatric Dose
Children ages 2-11 weighing at least 11kg (24 pounds)
15 mg/kg PO via oral syringe, if not given in last 5-6 hours

Contraindications
Hypersensitivity, Avoid in patients with severe liver disease

Adverse Reactions
Hypothermia, GI bleeding

Precautions
None

Adenosine (Adenocard®)

Action	Onset
Antiarrhythmic	Half life < 10sec

Indications
Narrow Complex Tachycardia
Pediatric SVT

Adult Dose
6 mg rapid IVP
If ineffective, wait 2 minutes and administer 12 mg rapid IVP
If any change after the first 12 mg, repeat 12 mg rapid IVP as needed

Pediatric Dose
0.1 mg/kg rapid IVP (Max 6 mg)
0.2 mg/kg rapid IVP for second dose (Max 12 mg)

Contraindications
2nd and 3rd degree AVB, sick sinus syndrome, bradycardia or normal pulse rate, hypersensitivity to adenosine

Adverse Reactions
Cardiovascular: Facial flushing, headache, sweating, palpitations, chest pain, hypotension
Respiratory: Shortness of breath, chest pressure, hyperventilation
Central Nervous System: Lightheadedness, dizziness, tingling, numbness, apprehension, blurred vision, burning sensation, heaviness in arms, neck, and back
Gastrointestinal: Nausea, metallic taste, tightness in throat, pressure in groin

Precautions
Adenosine will not convert atrial fib, atrial flutter, or VT to NSR. May be rarely associated with VF. 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.

Considerations
Adults: Flush with 20mL NS after each dose
Pediatrics: Flush with 5mL NS after each dose
IV at antecubital site is important.

Albuterol with Ipratropium (DuoNeb®)

Action
Bronchodilator

Onset
Albuterol: Relief in 5 minutes
Ipratropium: Peak effect in 1.5-2 hours

Indications
Wheezes on auscultation
Known asthmatic or COPD patient who is short of breath

Adult Dose
1 Bullet (Albuterol 2.5mg and Ipratropium 0.5mg) nebulized with 6-8 LPM O2

Pediatric Dose
1 Bullet (Albuterol 2.5mg and Ipratropium 0.5mg) nebulized with 6-8 LPM O2

Contraindications
Hypersensitivity to atropine or its derivatives, or albuterol. Use with caution in tachydysrhythmias.

Adverse Reactions
Cardiovascular: Palpitations, tachycardia, hypertension
Central Nervous System: Tremors, dizziness, nervousness, headache, insomnia, blurred vision, ocular tremors
Gastrointestinal: Nausea, vomiting
Oral: Dry mouth
Respiratory: Bronchospasm, cough, bronchitis, wheezing

Precautions
Use with caution in patients with significant cardiac history, convulsive disorders, hyperthyroidism, diabetes mellitus, or glaucoma.

Considerations
None.

Amiodarone (Cordarone®)

Action	Onset
Antiarrhythmic Potassium/Sodium/Calcium Channel Blocker	1-5 minutes Peak effect 30 minutes

Indications
Pulseless VT/VF
Ventricular Tachycardia

Adult Dose
300mg Initial Cardiac Arrest Dose
150mg Second Cardiac Arrest Dose

Pediatric Dose
5mg/kg, not to exceed adult dose in Cardiac Arrest
Repeat at 5mg/kg up to 2 times. Max dose 15 mg/kg in Cardiac Arrest

Contraindications
Hypersensitivity to amiodarone or iodine, cardiogenic shock, heart blocks, sinus node dysfunction, bradycardia

Adverse Reactions
Cardiovascular: Bradycardia, hypotension, heart block, prolonged QT interval, congestive heart failure
Central Nervous System: Visual disturbances, photosensitivity, abnormal smell sensation, paresthesia, abnormal gait, involuntary movement, hallucinations, parkinsonian symptoms, dizziness, malaise, tremors
Gastrointestinal: Nausea, vomiting
Integumentary: Rash
Oral: Dry mouth
Respiratory: Pulmonary inflammation, edema, shortness of breath, pleural effusion

Precautions
Use with caution in renal impaired patients, or patients taking medications to control blood pressure.
Amiodarone may interact with most opioid pain medications.

Considerations
Pregnancy category D.

Aspirin

Action
Antiplatelet
Pain reliever
Anti-inflammatory

Onset
Peak effect: 15 minutes to 2 hours

Indications
Chest Pain / MI

Adult Dose
324 mg chewable PO (4x81mg tabs if baby aspirin)

Pediatric Dose
Do not give aspirin to children who are febrile, for fear of developing Reye's syndrome (swelling of the liver and brain)

Contraindications
Febrile children, hypersensitivity, ulcers, GI disorders, other bleeding disorders

Adverse Reactions
GI bleeding, nausea, vomiting, bronchospasm

Precautions
Use cautiously in patients with asthma or pregnancy. A one-time dose is safe if patient is on Coumadin.

Considerations
If the patient already took aspirin today and you believe the patient is experiencing an MI, have the patient take the full dose of aspirin regardless of how recent their last dose was taken.
If the patient is on Coumadin and you believe they are experiencing an MI, a one-time dose of aspirin is safe.
324 mg of aspirin is a relatively low dose. Extra strength aspirin contains 1000mg per dose.

Atropine

Action	Onset
Anticholinergic Increases heart rate	Peak effect 2-4 minutes

Indications
Symptomatic Bradycardia (Adult and Ped)
Toxic Overdose of Organophosphates (Adult and Ped)
Rapid Sequence Intubation (RSI)

Adult Dose
Cardiac: 0.5 mg IV/IO
Toxic Exposure: 2-5 mg IV/IO every 15 minutes as needed to control secretions and heart rate

Pediatric Dose
Cardiac: 0.02 mg/kg IV/IO, minimum dose 0.1mg and maximum dose 0.5 mg
Toxic Exposure: 0.01 mg/kg IV/IO every 15 minutes, maximum single dose 2 mg and max dose total 6 mg

Contraindications
Hypersensitivity, glaucoma, tachycardia, acute hemorrhage with cardiac complications, obstructive disease

Adverse Reactions
Cardiovascular: Palpitations, bradycardia, tachycardia
CNS: Headache, flushing, nervousness, drowsiness, weakness, dizziness, fever, mental confusion (elderly), 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 histories of coronary artery disease, CHF, cardiac arrhythmias, tachycardia, hypertension, infants, small children, or debilitated patients with chronic lung disease

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

Dextrose 10% Solution

Action	Onset
Natural sugar	1-2 minutes

Indications
Hypoglycemia / unresponsiveness (Adult and Pediatric)
Altered Mental Status (Adult and Pediatric)
Hypoglycemia induced seizures (Adult and Pediatric)
Pediatric Hypovolemic Shock
Cardiac Arrest with Hypoglycemia (Adult and Pediatric)

Adult Dose
Infuse via IV/IO drip until mental status improves
Alternative: Draw D10 into a syringe and bolus IVP/IO as necessary

Pediatric Dose
Neonatal Hypoglycemia 2 mL/kg via syringe ONLY
Pediatric Hypoglycemia 5 mL/kg via syringe ONLY

Contraindications
Hypersensitivity, hemorrhagic CVA, cerebral edema, hyperglycemia, delirium tremors if patient is dehydrated
Do not coadminister simultaneously with blood products

Adverse Reactions
Febrile response, infection at injection site, venous thrombosis or phlebitis, extravasation, hypervolemia, confusion or unresponsiveness. Use the largest available peripheral vein. May produce allergic reactions in corn-sensitive persons.

Precautions
Use no more than the required amount to gain the desired effect.
NEVER connect the D10 bag to an IV/IO line in a PEDIATRIC patient. Administer via SYRINGE bolus ONLY.
Never leave the D10 bag connected once an adult's mental status has improved. Once mental status has improved and patient is able to swallow, it is best if the person raise their blood glucose level naturally (eating, drinking carbohydrates). Refer to hypoglycemia protocol.
Do not administer via IM or SQ route.
If thrombosis or extravasation occur, stop the infusion.

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

Diphenhydramine (Benadryl®)

Action	Onset
Antihistamine	Onset < 15 min Peak effect 1-4 hours

Indications
Allergic Reaction (Localized and Systemic) (Adult and Pediatric)
Extrapyramidal Side Effects

Adult Dose
25-50 mg slow IV/IO, or IM, repeat 25 mg after 10 minutes if no response (Max 50 mg total)

Pediatric Dose
1 mg/kg slow IV/IO, or IM, maximum 25 mg

Contraindications
Hypersensitivity, nursing mothers (unless life threatening reaction)

Adverse Reactions
Cardiovascular: Hypotension, headache, palpitations, tachycardia, premature heart contractions
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 congestion

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 with lower respiratory disease, including asthma.

Considerations
Promethazine (Phenergan), Haldol, and Reglan may cause extrapyramidal side effects.

Epinephrine 1:1,000

Action	Onset
Sympathomimetic	< 5 minutes

Indications
Anaphylaxis
Severe Asthma Attack

Adult Dose
0.3mg Epi 1:1,000 IM

Pediatric Dose
0.01 mg/kg Epi 1:1,000 IM
Maximum single dose 0.3mg IM

Contraindications
Known hypersensitivity

Adverse Reactions
Cardiac: arrhythmias, hypertension, angina
Other: Cerebral hemorrhage, hemiplegia, subarachnoid hemorrhage

Precautions
Protect from light. Do not use if discolored or contains precipitate.

Considerations
Use IM only. Never administer Epi 1:1,000 intravenously or via intraosseous devices under any circumstances.

Epinephrine 1:10,000

Action	Onset
Sympathomimetic	< 5 minutes

Indications
Asystole/PEA, Cardiac Arrest, CCR
Vfib/Pulseless Vtach
Pediatric Arrest, Pediatric Symptomatic Bradycardia
Epi Push-Dose Pressor (diluted with 10 mL NS) See **Epi Push-Dose Pressor Procedure**

Adult Dose
Cardiac Arrest: 1 mg of 1:10,000 IVP/IO every 3-5 min
Epi Push-Dose Pressor (once diluted properly): 0.5-2 mL every 2-5 minutes (2-10 mcg/min)

Pediatric Dose
0.01 mg/kg (0.1 mL/kg) IV/IO every 3-5 min

Contraindications
Known hypersensitivity

Adverse Reactions
Cardiac: arrhythmias, hypertension, angina
Other: Cerebral hemorrhage, hemiplegia, subarachnoid hemorrhage

Precautions
Protect from light. Do not use if discolored or contains precipitate.

Considerations
Flush IV tubing well before/after using Sodium Bicarbonate through the same line. If patient has a perfusing rhythm, Epinephrine 1:10,000 should be diluted 10 times prior to using intravenously.

Epi-Pen® Adult

Action	Onset
Sympathomimetic	6-12 minutes IM

Indications
Allergic reaction, severe asthma
Patients > 30 kg (> 66 lbs)

Adult Dose
1 Autoinjector (0.3mg epinephrine) IM

Pediatric Dose
Do not use.

Contraindications
Known hypersensitivity

Adverse Reactions
Anxiety, headache, fear, and palpitations. Repeated injections can result in necrosis at injection sites.

Precautions
May be used with asthma in severe cases that show no hope for improvement with other bronchodilators.
Use caution with patients over 45 years of age or with heart disease. You should still give it when indicated, just monitor the patient for changes once you do!

Considerations
Hold autoinjector against site for 10 seconds to ensure delivery of the medication
Only inject into anterolateral aspect of the thigh (vastus lateralis). Do not inject into the buttock or intravenously.

Epi-Pen Jr®

Action	Action
Sympathomimetic	6-12 minutes IM

Indications
Allergic reaction, severe asthma
Patients < 30 kg (< 66 lbs)

Adult Dose
Do not use.

Pediatric Dose
1 Autoinjector (0.15 mg epinephrine) IM

Contraindications
Known hypersensitivity

Adverse Reactions
Anxiety, headache, fear, and palpitations. Repeated injections can result in necrosis at injection sites.

Precautions
May be used with asthma in severe cases that show no hope for improvement with other bronchodilators.

Considerations
Hold autoinjector against site for 10 seconds to ensure delivery of the medication
Only inject into anterolateral aspect of the thigh (vastus lateralis). Do not inject into the buttock or intravenously.

Fentanyl (Sublimaze®)

Action
Narcotic analgesic

Onset
Immediate
Maximal analgesic and respiratory effect may take several minutes

Indications
Pain Control

Adult Dose
1 mcg/kg IV/IO/MAD
3 mcg/kg IV/IO/MAD maximum 300 mg for patients who are opioid tolerant (cancer, chronic pain, etc)
0.5 mcg/kg IV/IO/MAD for frail elderly patients
Remember 1 mL maximum per nostril via MAD route

Pediatric Dose
Do not use.

Contraindications
Known intolerance or hypersensitivity to the drug. Use caution in BP < 100mmHg and have a plan to maintain BP. Respiratory rate < 14 bpm. Oxygen saturation < 90% and/or significant respiratory depression.

Adverse Reactions
Respiratory: Respiratory depression, apnea, laryngospasm
Cardiovascular: bradycardia, hypotension, hypertension
CNS: Dizziness, blurred vision
Gastrointestinal: nausea and vomiting
Other: muscle rigidity, diaphoresis

Precautions
Use caution in patients with head injuries and elevated ICP. Use caution with bradycardia, COPD, and decreased respiratory reserve patients, as well as patients already on narcotics. Fentanyl should be reduced in frail elderly patients. Use caution in patients with elevated BP. Fentanyl in high doses (> 2-3 mcg/kg) can result in “stiff chest” with inability to ventilate patient. Stiff chest is treated with a paralytic during RSI.

Considerations
Studies show that fentanyl is very hemodynamically neutral compared to other narcotic analgesics. If the patient is in pain, even post trauma or abdominal pain, please provide pain relief. Prepare to manage the blood pressure after administration.

Glucagon

Action
Promotes glycolysis in the liver

Onset
Patient response within 15 minutes

Indications
Hypoglycemia (Adult and Ped)
Beta Blocker Overdose (Adult and Ped)

Adult Dose
Hypoglycemia: 1 mg IM
Beta Blocker Overdose: 1-10 mg IVP

Pediatric Dose
Hypoglycemia: 0.05 mg/kg IM, maximum 1 mg
Beta Blocker Overdose: 0.05 mg/kg IVP, maximum 10 mg

Contraindications
Hypersensitivity, hyperglycemia, allergies to beef or porcine proteins, insulinoma

Adverse Reactions
Nausea, vomiting, especially in doses above 1 mg or rapid injection. Increase in blood pressure and pulse rate may occur. Allergic reactions are rare but may occur.

Precautions
Use caution in patients with diabetic patients who have coronary artery disease. Glucagon can cause hypertension.

Considerations
Patients who receive glucagon IV for the purpose of beta blocker overdose should be given ondansetron immediately afterward to manage vomiting.
Do not mix with saline.

Haloperidol (Haldol®)

Action	Onset
Blocks CNS dopamine receptors	20-30 minutes IM

Indications
Agitation / Combativeness unrelated to Excited Delirium or Dementia

Adult Dose
5 mg IM
Repeat at 5mg IM in 10 minutes

Pediatric Dose
Do not use in patients less than 16 years old.

Contraindications
Hypersensitivity, seizures, hemodynamic instability, pregnancy

Adverse Reactions
CNS: extrapyramidal reactions, restlessness, anxiety, agitation, lethargy, fatigue, weakness, tremor, headache, confusion, vertigo, grand mal seizures
Cardiovascular: tachycardia, prolonged QTI and other ECG changes, hypotension
Gastrointestinal: dry mouth, nausea, vomiting, diarrhea
Other: blurred vision

Precautions
Patients with arrhythmia or seizures

Considerations
Haloperidol administration to pregnant females may lead to birth defects.

Hydroxocobalamin (Cyanokit®)

Action	Onset
Binds with cyanide ions	Immediate

Indications
Smoke inhalation / Cyanide

Adult Dose
5 grams IVP/IO over 15 minutes

Pediatric Dose
Consult medical control
70 mg/kg IVP/IO over 15 minutes, Maximum 5 grams (5,000mg)

Contraindications
Hypersensitivity to hydroxocobalamin or cyanocobalamin

Adverse Reactions
Abnormal color of urine, erythema (red skin), rash, increased blood pressure, nausea, headache, an injection site reactions.

Precautions
Do not administer diazepam, dopamine, or sodium thiosulfate through the same line.
If administering other medications, do so through a separate IV line.

Considerations
Hydroxocobalamin interferes with some clinical laboratory blood tests performed at hospitals.
Use on any firefighter removed from a structure via RIT who had their mask off at any point.
Mothers breastfeeding should discontinue until out of their system (approx. 24 hours)

Ketamine (Ketalar®)

Action	Onset
Dissociative anesthetic Stimulates opioid receptors	IV 1 minute IM 4-5 minutes

Indications
Pain Control (Adult and Ped)
Painful Procedures / Extrication
Excited Delirium
RSI

Adult Dose
Pain Control: 0.1-0.2 mg/kg IVP/IO/IM, Maximum 20mg
Painful Procedures/Extrication: 0.4 mg/kg IVP/IO/IM, Maximum 40mg
Excited Delirium: 5 mg/kg IM or 2 mg/kg IVP/IO if the line is already established
RSI: 2 mg/kg IVP/IO

Pediatric Dose
Pain Control: 0.2 mg/kg IVP/IO or 0.3mg/kg Nebulized or 2 mg/kg MAD

Contraindications
Hypersensitivity to the drug, schizophrenia, children < 2 months old.

Adverse Reactions
Cardiovascular: BP and pulse rate are frequently elevated following administration. Hypotension and bradycardia have been observed, and arrhythmia has also occurred.
Gastrointestinal: Nausea, vomiting, increased salivation.
Neurological: Enhanced musculoskeletal tone may be manifested by tonic and clonic movements sometimes resembling seizures. Nystagmus is common.
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, but can be managed via BVM.

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 chronic alcoholics and the acutely alcohol-intoxicated patient.

Considerations
Monitor vital signs frequently. Use caution with elderly and pediatric patients.

Lidocaine

Action
Anti-arrhythmic
Sodium Channel Blocker

Onset
30-90 seconds

Indications
Vfib / Pulseless Vtach (Adult and Ped)
RSI

Adult Dose
Cardiac Arrest: 1-1.5 mg/kg IVP/IO. Repeat doses at 5 minutes are half the initial (0.5-0.75 mg/kg), Maximum 3 mg total
RSI: TBD

Pediatric Dose
Cardiac Arrest: 1-1.5 mg/kg IVP/IO. Repeat doses at 5 minutes are half the initial (0.5-0.75 mg/kg), Maximum 3 mg/kg total
RSI: TBD

Contraindications
Known hypersensitivity, Stokes-Adams Syndrome, Wolff-Parkinson-White Syndrome, or severe degrees of sinoatrial, atrioventricular, or intraventricular block in the absence of an artificial pacemaker

Adverse Reactions
Cardiovascular: Bradycardia, hypotension, cardiovascular collapse which may lead to arrest
CNS: Lightheadedness, nervousness, apprehension, euphoria, confusion, dizziness, drowsiness, tinnitus, blurred or double vision, vomiting, sensations of heat, cold, or numbness, twitching, tremors, convulsions, unconsciousness, respiratory depression, and arrest
Other: allergic reactions as a result of sensitivity to lidocaine are extremely rare. There have been cases of permanent injury to extraocular muscles requiring surgical repair

Precautions
Use caution in patients with severe liver or kidney disease because accumulation of the drug or metabolites may occur. Use caution in patients with hypovolemia, severe CHF, shock, and all forms of heart block. Elimination of ventricular ectopic beats without prior acceleration in heart rate may promote more frequent ventricular arrhythmias or complete heart block. Dosage for pediatric and debilitated and/or elderly patients should be reduced.

Considerations
Observe closely for drug toxicity: dizziness, confusion, delirium, seizures.
Treatment for toxicity is management of symptoms until the drug is removed from the body.

Magnesium Sulfate

Action	Onset
Electrolyte Anticonvulsant Calcium Channel Blocker	Immediate

Indications
Vfib / Pulseless Vtach
Torsades de Pointes
Pre-Eclampsia / Eclampsia
Severe asthma unresponsive to other bronchodilators

Adult Dose
Cardiac: 2 grams IVP/IO over 5-10 minutes.
Pre-Eclampsia / Eclampsia: 2 grams IVP/IO over 5-10 minutes.

Pediatric Dose
Not indicated.

Contraindications
Heart block or myocardial damage, known hypersensitivity, dialysis patients

Adverse Reactions
Flushing, sweating, hypotension, hypothermia, respiratory depression, hypocalcemia, circulatory collapse, cardiac depression, CNS depression

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.

Considerations
Not compatible with sodium bicarbonate.

Methylprednisolone (Solu-Medrol®)

Action	Onset
Anti-inflammatory	1-2 hours

Indications
Respiratory Distress

Adult Dose
125 mg IVP/IO (slowly) or IM

Pediatric Dose
2 mg/kg IVP/IO (slowly), Maximum 60mg

Contraindications
Hypersensitivity, GI Bleed, Severe Infection

Adverse Reactions
Fluid and Electrolyte Disturbances: CHF in susceptible patients, HTN
Musculoskeletal: Weakness
Neurological: Convulsions, headache, vertigo
Metabolic: Nausea and 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)

Midazolam (Versed®)

Action	Onset
Sedative, Amnesic Short acting benzodiazepine	2-5 minutes

Indications
Seizure
Agitation / Combativeness

Adult Dose
Seizure: 10 mg IM only, consider 5 mg if frail elderly or chronic illness
Agitation / Combativeness: 4 mg IM only

Pediatric Dose
5 mg IM if > 40 kg (88 lbs)
2.5 mg IM if 13-40 kg (28.6-88 lbs)
0.1 mg/kg IM if < 13kg (28.6 lbs), Maximum 2.5 mg

Contraindications
Hypersensitivity, glaucoma, acute alcoholic intoxication with depressed vital signs

Adverse Reactions
Fluctuations in vital signs were most frequently seen. Decreased tidal volume and/or respiratory rate, apnea, variations in blood pressure

Precautions
Doses should be decreased in frail elderly and debilitated patients.

Considerations
Consider reducing the dose on frail elderly and debilitated patients. These patients may take longer to recover from the drug. Always have airway equipment available when using.

Naloxone (Narcan®)

Action	Onset
Narcotic antagonist	2 minutes

Indications
Unresponsiveness (Adult or Ped)
Overdose (Adult or Ped)

Adult Dose
4 mg IVP/IO (slowly) or IM, may repeat once in 5 minutes if no effect
2 mg via MAD (1 mL per nostril maximum)

Pediatric Dose
0.1 mg/kg IVP/IO/MAD, may repeat in 5 minutes if no effect. Maximum 2 mg.

Contraindications
Known hypersensitivity.

Adverse Reactions
Nausea, vomiting, sweating, tachycardia, increased blood pressure, tremulousness, seizures, and cardiac arrest

Precautions
Several instances of hypotension, hypertension, ventricular tachycardia and fibrillation, and pulmonary edema have been reported. Most of whom had pre-existing cardiac disease. Have means to physically control the patient prior to administering the narcan.

Considerations
Short half-life. All patients receiving narcan regardless of state of consciousness or alertness must be transported to the hospital. They may revert to their original state when the effects of narcan diminish.

Nitroglycerin (Tab, Paste)

Action	Onset
Vasodilator	2 minutes

Indications
Chest Pain / MI
Pulmonary Edema / CHF

Adult Dose
1 tab (0.4 mg) SL every 5 minutes, maintain SBP > 100 mmHg
1" of paste, maintain SBP > 100 mmHg. If hypotension occurs, wipe paste off chest.

Pediatric Dose
Not indicated.

Contraindications
Known hypersensitivity, pericardial tamponade, restrictive cardiomyopathy, constrictive pericarditis, do not administer if patient has taken the following drugs in the hours stated:

Drug	Hours
Cialis	48
Levitra	24
Viagra	24

Adverse Reactions
Most are dose related to results from nitroglycerin's activity as a vasodilator. Headache most common. Transient episodes of lightheadedness, sometimes related to hypotension may occur. Hypotension is infrequent but may be severe in some patients. Syncope, crescendo angina, and rebound hypertension may occur but they are uncommon.

Precautions
Severe hypotension and shock can occur even with smaller doses. Use caution with volume depleted patients. Hypotension induced by nitroglycerin can be accompanied by hypotension and increased angina pectoris.

Considerations
Check for transdermal patch prior to administration.

Normal Saline

Action	Onset
Isotonic Crystalloid	Onset depends on dose and desired effect

Indications
Blood pressure management
Flushing IV ports

Adult Dose
Dose depends on the use. For blood pressure control, consider 1000mL boluses.

Pediatric Dose
Dose depends on the use. For blood pressure control, consider 20mL/kg boluses.

Contraindications
None known. Large boluses are contraindicated in pulmonary edema.

Adverse Reactions
None known.

Precautions
Avoid large boluses in the presence of pulmonary edema.
Normal Saline does not carry oxygen.

Ondansetron (Zofran®)

Action	Onset
Antiemetic	Rapid

Indications
Nausea / Vomiting

Adult Dose
4 mg IVP/IO/IM/ODT
Repeatable once to maximum of 8mg IVP/IO/IM/ODT in adults

Pediatric Dose
1 month to 12 years old
< 30kg/66lbs: 0.1 mg/kg IV/IO x 1 or ½ ODT
> 30kg/66lbs: 4 mg IV/IO/ODT, Maximum 4 mg

Contraindications
Hypersensitivity

Adverse Reactions
Headache, dizziness, diarrhea, constipation, fever, pruritis, dry mouth, increased liver function tests, malaise, fatigue, anaphylaxis, ECG alterations: arrhythmias, prolonged PR, QRS, and QTI

Precautions
Not a drug that stimulates gastric or intestinal peristalsis. Transient ECG changes including QTI prolongation. Use with caution in nursing women.

Oral Glucose (Glutose-15®)

Action	Onset
Glucose	Improvement typically within 15 minutes

Indications
Hypoglycemia in the alert patient able to swallow

Adult Dose
1 tube (15g of glucose) buccal (between gum and cheek)

Pediatric Dose
1 tube (15g of glucose) buccal

Contraindications
Hypersensitivity, delirium tremens with dehydration, intracranial hemorrhage, inability to swallow.

Adverse Reactions
Airway compromise if solution enters the glottic opening

Precautions
Make sure the patient is capable of swallowing the solution to protect their own airway

Considerations
Consider alternate oral nutrition, such as sugary drinks, or cake frosting. Keep patient food allergies in mind.

Oxygen

Action	Onset
Many	Immediate

Indications
Hypoxemia

Adult Dose
2-6 liters per minute via nasal cannula
10-15 liters per minute via non-rebreather or partial non-rebreather mask
15 liters per minute via BVM / ETT

Pediatric Dose
Blow-by oxygen as needed for younger children. Avoid persistent oxygenation of neonates.
2-6 liters per minute via nasal cannula
10-15 liters per minute via non-rebreather or partial non-rebreather mask
15 liters per minute via BVM / ETT

Contraindications
None.

Adverse Reactions
Toxicity, depressed hypercarbonic drive

Precautions
None.

Racemic Epinephrine

Action	Onset
Sympathomimetic	Immediate

Indications
Asthma (in the presence of albuterol or ipratropium allergy)
Suspected Croup

Adult Dose
0.5mL – 1mL

Pediatric Dose
0.05 mL/kg of 2.25% solution nebulized with 6-8 liters per minute of oxygen
Max Doses:
- 0.25mL < 6 months
- 0.5mL > 6 months
- 0.75mL adolescent

Contraindications
Hypersensitivity, epiglottitis, otherwise no contraindications in a life-threatening situation.

Adverse Reactions
Tachycardia, nervousness, increased blood pressure

Precautions
Not indicated for epiglottitis (may irritate the epiglottis and cause further swelling)

Sodium Bicarbonate

Action	Onset
Reverses blood pH	Immediate

Indications
Adult Pulseless Arrest
Tricyclic Antidepressant Overdose (Adult and Ped)

Adult Dose
Prolonged Cardiac Arrest: 1 mEq/kg IVP/IO of 8.4%
Tricyclic Antidepressant Overdose: 1 mEq/kg IVP/IO of 8.4%

Pediatric Dose
Pediatric Tricyclic Antidepressant Overdose: 1 mEq/kg IVP/IO 8.4% if > l1 lbs)

Contraindications
Patients losing chloride by vomiting or continuous gastrointestinal suction, metabolic and respiratory alkalosis

Adverse Reactions
Alkalosis and/or hypokalemia, extravasation of IV, tissue necrosis, ulceration, or sloughing at site

Precautions
Overdose and alkalosis should be avoided, may cause vascular irritation or sloughing if given extravascularly, avoid scalp vein use. Risks of overdose and alkalosis should be avoided. Use caution in patients with CHF or other edematous sodium-retaining states.

Considerations
Flush IV tubing before and after administration.

Succinylcholine (Anectine®)

Action	Onset
Depolarizing Neuromuscular Blocking Agent	1 minute

Indications
Rapid Sequence Induction after anesthesia is achieved.

Adult Dose
1mg/kg rapid IV Push

Pediatric Dose
Do Not Use

Contraindications
Hyperkalemia, allergy, history of malignant hyperthermia, crush injuries, glaucoma, penetrating eye injuries, neuromuscular disease, spinal trauma, abdominal sepsis, CVA, Parkinson's Disease, Lou Gehrig's Disease (ALS), presence of burns more than 24 hours old.

Side Effects and Adverse Reactions
Muscular fasciculation (disorganized muscular contractions), respiratory depression, muscle relaxation, increased ICP, rhabdomyolysis, decrease in heart rate, hyperkalemia, dysrhythmias, excessive salivation, rash.

Precautions
A proper screening for potential hyperkalemia should be performed prior to succinylcholine administration. Some considerations in potential hyperkalemic patients include tall, peaked T-waves on the ECG, paresthesia and weakness, patients who receive hemodialysis, patients taking potassium supplements (KCl, Klor-Con), patients on certain medications for blood pressure control or heart failure (digitalis, amlodipine, ACE inhibitors). Use caution in patients with closed head injuries.

Considerations
Ensure a GCS of 3 prior to succinylcholine administration. Your patient should be asleep before you paralyze them. Neuromuscular blocking agents induce paralysis; the patient's senses are still intact, unless proper anesthesia is achieved.

Tranexamic Acid (TXA)

Action	Onset
Antifibrinolytic	Immediate 3 hour half-life

Indications
Multisystem trauma with internal hemorrhage

Adult Dose
1 g mixed in 50 mL IV bag connected to 10 gtts/mL administration set, and administer over 10 minutes (1 drop per second)

Pediatric Dose
Not indicated.

Contraindications
Isolated traumatic brain injury, more than 3 hours since injury, patients < 15 years of age, nontraumatic shock

Adverse Reactions
Hypersensitivity

Precautions
Monitor for symptoms of severe allergic reaction and changes in vision

EMR | EMT | AEMT | Paramedic | Extended