



OHIO

ALS GUIDELINES



One Energy Training Institute
12385 Township Road 215
Findlay, OH 45840
(877) 298-5853

To provide the best care possible to our teammates.

MEDICAL CONTROL
KEY TO ALGORITHMS

The guideline format is for quick reference with expectation of individual providers based upon scope of practice pertaining to patient assessment, interpretation or interventions. EMS personnel are accountable for all patient care and documentation to their level of training and lower.

All algorithms are color coded to denote procedures, which may be performed by each level of certification. To perform procedures color - coded blue, Medical Control must be contacted for permission. Higher levels of certification will perform lower level evaluations and procedures when interpreting the algorithms.

LEGEND		
	Emergency Medical Technician	
	Advanced Emergency Medical Technician	
	Emergency Medical Technician - Paramedic	
	Physician	
	Medical Control Order	

TABLE OF CONTENTS

TAB 1 – OPERATIONAL GUIDELINES – RED	Pg 1
GUIDELINE 1 – CLINICAL PRACTICE STANDARDS FOR EMS	Pg 2
GUIDELINE 2 – EMS SCOPE OF PRACTICE.....	Pg 3
GUIDELINE 3 – DOCUMENTATION OF VITAL SIGNS	
GUIDELINE 4 – CRITERIA FOR UTILIZATION OF ALS AND TRANSFER CARE	
GUIDELINE 5 – ON-LINE MEDICAL CONTROL CONTACT	
GUIDELINE 6 – ACTIVATION OF AIR AMBULANCE MOBILE ICU COAST GUARD	
GUIDELINE 7 – COMMUNICATION PROCEDURES FAILURE	
GUIDELINE 8 – MEDICAL LEGAL CONSIDERATIONS	
GUIDELINE 9 – MEDICAL LEGAL CONSIDERATIONS – CRIME SCENE	
GUIDELINE 10 – MEDICAL LEGAL CONSIDERATION – ON-SCENE- EMS NURSE PHYSICIAN INTERVENER	
GUIDELINE 11 – MEDICAL LEGAL CONSIDERATIONS – REFUSAL OF TREATMENT OR TRANSPORT RELEASE AT SCENE	
GUIDELINE 12 – INFECTION CONTROL	
GUIDELINE 13 – INFECTION CONTROL – BED BUGS	
GUIDELINE 14 – INFECTION CONTROL - OUTBREAK	
GUIDELINE 15 – PRACTITIONER DISCIPLINARY POLICY	
GUIDELINE 16 – CONTROLLED SUBSTANCE	
GUIDELINE 17 -UNIVERSAL PATIENT CARE	
TAB 2 – CARDIAC GUIDELINES – BLUE	
GUIDELINE 1 – CHEST PAIN ACUTE CORONARY SYNDROME	
GUIDELINE 2 – CONGESTIVE HEART FAILURE ACUTE PULMONARY EDEMA	
GUIDELINE 3 – CARDIOGENIC SHOCK	
GUIDELINE 4 – 2018 AHA GUIDELINES	
GUIDELINE 5 – CARDIAC ARREST – ADULT PEDIATRIC	
GUIDELINE 6 – CARDIAC ARREST – “PIT CREW” CPR GUIDELINE	
GUIDELINE 7 – CARDIAC ARREST - HYPOTHERMIC	

GUIDELINE 8 – CARDIAC ARREST - TRAUMATIC

GUIDELINE 9 – ASYSTOLE | PULSELESS ELECTRICAL ACTIVITY (PEA)

GUIDELINE 10 – VENTRICULAR FIBRILLATION | PULSELESS VENTRICULAR

TACHYCARDIA

GUIDELINE 11 – POST CARDIAC ARREST GUIDELINE

GUIDELINE 12 – BRADYCARDIA | HEART BLOCKS

GUIDELINE 13 – ATRIAL FIBRILLATION | ATRIAL FLUTTER

GUIDELINE 14 – SUPRAVENTRICULAR TACHYCARDIA (SVT)

GUIDELINE 15 – WIDE COMPLEX VENTRICULAR TACHYCARDIA – WITH PULSE

GUIDELINE 16 – PEDIATRIC BRADYCARDIA WITH PULSE

GUIDELINE 17 – PEDIATRIC TACHYCARDIA WITH PULSE

GUIDELINE 18 – DEAD ON ARRIVAL (DOA) GUIDELINE

GUIDELINE 19 – TERMINATION OF RESUSCITATION (TOR)

GUIDELINE 20 – DNR COMFORT CARE GUIDELINE

GUIDELINE 21 – LEFT VENTRICULAR ASSIST DEVICES (LVAD)

TAB 3 – ADULT MEDICAL EMERGENCY GUIDELINES

GUIDELINE 1 – ABDOMINAL AORTIC ANEURYSM

GUIDELINE 2 – ABDOMINAL PAIN

GUIDELINE 3 – ALCOHOLIC INTOXICATION

GUIDELINE 4 – ALLERGIC REACTION | ANAPHYLAXIS

GUIDELINE 5 – ALTERED MENTAL STATUS | COMA

GUIDELINE 6 – AORTIC DISSECTION

GUIDELINE 7 – BACK PAIN

GUIDELINE 8 – BEHAVIORAL | EXCITED DELIRIUM

GUIDELINE 9 – DENTAL PAIN

GUIDELINE 10 – DIALYSIS | RENAL FAILURE | HYPERKALEMIA

GUIDELINE 11 – EPISTAXIS (NOSEBLEED)

GUIDELINE 12 – FOREIGN BODY AIRWAY OBSTRUCTION - ADULT

GUIDELINE 13 – HYPERTENSIVE EMERGENCY

GUIDELINE 14 – HYPOTENSION (SHOCK)

GUIDELINE 15 – INFLUENZA LIKE ILLNESS (ILI)

GUIDELINE 16 – POISONING | OVERDOSE | TOXIC INGESTION

GUIDELINE 17 – POISONING | OVERDOSE | OPIATE

GUIDELINE 18 – PSYCHIATRIC PATIENT

GUIDELINE 19 – RESPIRATORY DISTRESS

GUIDELINE 20 – SEIZURE

GUIDELINE 21 – SEPSIS

GUIDELINE 22 – STROKE - SCENE

GUIDELINE 23 – SUSPECTED ABUSE | NEGLECT

GUIDELINE 24 – SYNCOPE

GUIDELINE 25 – VOMITING AND DIARRHEA

GUIDELINE 26 – WELL PERSON CHECK

GUIDELINE 27 – ADULT PAIN CONTROL GUIDELINE

Tab 4 – OBSTETRICAL | GYNECOLOGICAL GUIDELINES

GUIDELINE 1 – OBSTETRICAL PATIENT TRANSPORT

GUIDELINE 2 – VAGINAL BLEEDING | POST PARTUM HEMORRHAGE

GUIDELINE 3 – OBSTETRICAL EMERGENCY

GUIDELINE 4 – OBSTETRICAL – NAUSEA | VOMITING

GUIDELINE 5 – FETAL DELIVERY

GUIDELINE 6 – FETAL DELIVERY PROCEDURES

GUIDELINE 7 – FETAL DELIVERY COMPLICATIONS

GUIDELINE 8 – NEONATAL RESUSCITATION

TAB 5 – PEDIATRIC MEDICAL EMERGENCY GUIDELINES

GUIDELINE 1 – PEDIATRIC TABLES

GUIDELINE 2 – ABDOMINAL PAIN

GUIDELINE 3 – ALLERGIC REACTION | ANAPHYLAXIS

GUIDELINE 4 – ALTERED MENTAL STATUS

GUIDELINE 5 – BEHAVIORAL | EXCITED DELIRIUM

GUIDELINE 6 – BRIEF RESOLVED UNEXPLAINED EVENT (BRUE)

GUIDELINE 7 – FOREIGN BODY AIRWAY OBSTRUCTION - CHILD

GUIDELINE 8 – FOREIGN BODY AIRWAY OBSTRUCTION – INFANT

GUIDELINE 9 – HYPOTENSION (SHOCK)

GUIDELINE 10 – POISONING | OVERDOSE | TOXIC INGESTION

GUIDELINE 11 – POISONING | OVERDOSE | OPIATE

GUIDELINE 12 – PSYCHIATRIC PATIENT

GUIDELINE 13 – RESPIRATORY DISTRESS

GUIDELINE 14 – SEIZURE

GUIDELINE 15 – SEPSIS

GUIDELINE 16 – SUSPECTED ABUSE | NEGLECT

GUIDELINE 17 – VOMITING AND DIARRHEA

GUIDELINE 18 – CHILDREN WITH SPECIAL HEALTHCARE NEEDS

GUIDELINE 19 – PEDIATRIC PAIN CONTROL GUIDELINE

TAB 6 – ENVIRONMENTAL | EXPOSURE GUIDELINES

GUIDELINE 1 – BITE AND VENOMATION

GUIDELINE 2 – DROWNING AND NEAR DROWNING

GUIDELINE 3 – HYPERTHERMIA

GUIDELINE 4 – HYPOTHERMIA | FROSTBITE

GUIDELINE 5 – HAZARDOUS MATERIAL (HAZMAT) DECONTAMINATION

GUIDELINE 6 – NERVE | BIOLOGICAL INCIDENT

GUIDELINE 7 – RADIATION INCIDENT

TAB 7 – TRAUMA GUIDELINES

GUIDELINE 1 – GENERAL TRAUMA CRITERIA

GUIDELINE 2 – MCI START TRIAGE AND JUMPSTART

GUIDELINE 3 – HEMORRHAGE CONTROL

GUIDELINE 4 – ABDOMINAL TRAUMA

GUIDELINE 5 – BURN TRAUMA

GUIDELINE 6 – CHEST TRAUMA

GUIDELINE 7 – CRUSH INJURY | COMPARTMENT SYNDROME MANAGEMENT

GUIDELINE 8 – HEAD TRAUMA

GUIDELINE 9 – MULTI-SYSTEM TRAUMA

GUIDELINE 10 – MUSCULOSKELETAL TRAUMA | AMPUTATED BODY PART

GUIDELINE 11 – OBSTETRICAL TRAUMA

GUIDELINE 12 – OCULAR TRAUMA

GUIDELINE 13 – PEDIATRIC TRAUMA

GUIDELINE 14 – SPINAL TRAUMA

TAB 8 – MEDICAL PROCEDURES, GUIDELINES AND EQUIPMENT

GUIDELINE 1 – NOTIFICATION TO MEDICAL DIRECTOR

GUIDELINE 2 – PULSE OXIMETER

GUIDELINE 3 – NEBULIZED AEROSOL TREATMENT

GUIDELINE 4 – CONTINUOUS POSITIVE AIRWAY PRESSURE (CPCAP)

GUIDELINE 5 – AIRWAY MANAGEMENT

GUIDELINE 6 – AIRWAY MANAGEMENT – BIAD – KING LTS-D AIRWAY

GUIDELINE 7 – AIRWAY MANAGEMENT – BIAD – IGEL AIRWAY

GUIDELINE 8 – AIRWAY MANAGEMENT – PRE-INTUBATION CHECKLIST

GUIDELINE 9 – AIRWAY MANAGEMENT – POST-INTUBATION CHECKLIST

GUIDELINE 10 – AIRWAY MANAGEMENT – ENDOTRACHEAL -ADULT / PEDIATRIC)

INTUBATION

GUIDELINE 11 – AIRWAY MANAGEMENT – FAILED AIRWAY (ADULT)

GUIDELINE 12 – AIRWAY MANAGEMENT – FAILED AIRWAY (PEDIATRIC)

GUIDELINE 13 – AIRWAY MANAGEMENT – DIGITAL INTUBATION

GUIDELINE 14 – AIRWAY MANAGEMENT – NASOTRACHEAL INTUBATION

GUIDELINE 15 – ENDOTRACHEAL TUBE INTRODUCER (GUM ELASTIC BOUGIE)

GUIDELINE 16 – CAPNOGRAPHY

GUIDELINE 17 – NEEDLE CRICOTHYROTOMY

GUIDELINE 18 – SURGICAL CRICOTHYROTOMY

GUIDELINE 19 – TRACHEOSTOMY TUBE CARE

GUIDELINE 20 – SEDATION GUIDELINE

GUIDELINE 21 – NEEDLE -PLEURAL) DECOMPRESSION

GUIDELINE 22 – INTRAVASCULAR (IV) INTRAOSSEOUS (IO) ACCESS | ALTERNATIVE

VENOUS ACCESS

GUIDELINE 23 – SCENE REHABILITATION: GENERAL

GUIDELINE 24 – SCENE REHABILITATION: RESPONDER

GUIDELINE 25 – CARDIAC MONITORING

GUIDELINE 26 – 12 LEAD EKG PROCEDURE

GUIDELINE 27 – AUTOMATED EXTERNAL DEFIBRILATOR

GUIDELINE 28 – CARDIAC DEFIBRILATION

GUIDELINE 29 – SYNCHRONIZED CARDIOVERSION

GUIDELINE 30 – TRANSCUTANEOUS PACING

GUIDELINE 31 – BLOOD GLUCOSE MONITORING

GUIDELINE 32 – MEDICATION ADMINISTRATION – INHALATION MUCOSAL
ATOMIZATION DEVICE (MAD)

GUIDELINE 33 – MEDICATION ADMINISTRATION – INTRAMUSCULAR (IM)

GUIDELINE 34 – MEDICATION ADMINISTRATION – NERVE AGENT |
ORGANOPHOSPHATE

GUIDELINE 35 – NARCOTIC MEDICATION DOSE EQUIVALENT

GUIDELINE 36 – RESTRAINT GUIDELINE

GUIDELINE 37 – CHEST SEAL

GUIDELINE 38 – HELMET REMOVAL

GUIDELINE 39 – LACERATION REPAIR

GUIDELINE 40 – SELECTIVE SPINAL IMMOBILIZATION

GUIDELINE 41 – SPLINTING

GUIDELINE 42 – TOURNIQUET APPLICATION

GUIDELINE 43 – WEIGHT CHART: POUNDS TO KILOGRAMS

TAB 9 – MEDICATION GUIDE

ACETAMINOPHEN (TYLENOL)

ADENOSINE (ADENOCARD)

ALBUTEROL SULFATE

AMIODARONE (CORDARONE)

ANTIDOTE TREATMENT NERVE AGENT AUTO-INJECTOR (DUODOTE)

ASPIRIN

ATROPINE SULFATE

CALCIUM CHLORIDE | GLUCONATE

DEXTROSE

DILTIAZEM (CARDIZEM)

DIPHENHYDRAMINE (BENADRYL)

EPINEPHRINE (ADRENALIN)
ETOMIDATE (AMIDATE)
FENTANYL CITRATE (SUBLIMAZE)
GLUCAGON
GLUCOSE – ORAL (GLUTOSE)
IBUPROFEN (ADVIL/MOTRIN)
KETAMINE HYDROCHLORIDE
LACTATED RINGER'S (LR)
LIDOCAINE (XYLOCAINE)
LIDOCAINE JELLY (XYLOCAINE)
MAGNESIUM SULFATE
METOPROLOL (LOPRESSOR)
MIDAZOLAM (VERSED)
METHYLPREDNISOLONE (SOLUMEDROL)
MORPHINE SULFATE
NALOXONE (NARCAN)
NITROGLYCERIN (TRIDIL | NITROSTAT)
ONDANSETRON (ZOFRAN)
2-OCTYL-CYANOACRYLATE (DERMABOND)
OXYGEN
PREDNISON
SODIUM BICARBONATE
SODIUM CHLORIDE (NORMAL SALINE)
TETRACAINE



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	Medical Control Order	

TABLE OF CONTENTS

TAB 1 – OPERATIONAL GUIDELINES – RED	11
GUIDELINE 1 – CLINICAL PRACTICE STANDARDS FOR EMS	Pg 2
GUIDELINE 2 – EMS SCOPE OF PRACTICE	Pg 3
GUIDELINE 3 – DOCUMENTATION OF VITAL SIGNS	
GUIDELINE 4 – CRITERIA FOR UTILIZATION OF ALS AND TRANSFER CARE	
GUIDELINE 5 – ON-LINE MEDICAL CONTROL CONTACT	
GUIDELINE 6 – ACTIVATION OF AIR AMBULANCE MOBILE ICU COAST GUARD	
GUIDELINE 7 – COMMUNICATION PROCEDURES FAILURE	
GUIDELINE 8 – MEDICAL LEGAL CONSIDERATIONS	
GUIDELINE 9 – MEDICAL LEGAL CONSIDERATIONS – CRIME SCENE	
GUIDELINE 10 – MEDICAL LEGAL CONSIDERATION – ON-SCENE- EMS NURSE PHYSICIAN INTERVENER	
GUIDELINE 11 – MEDICAL LEGAL CONSIDERATIONS – REFUSAL OF TREATMENT OR TRANSPORT RELEASE AT SCENE	
GUIDELINE 12 – INFECTION CONTROL	
GUIDELINE 13 – INFECTION CONTROL – BED BUGS	
GUIDELINE 14 – INFECTION CONTROL - OUTBREAK	
GUIDELINE 15 – PRACTITIONER DISCIPLINARY POLICY	
GUIDELINE 16 – CONTROLLED SUBSTANCE	
GUIDELINE 17 -UNIVERSAL PATIENT CARE	
TAB 2 – CARDIAC GUIDELINES – BLUE	
GUIDELINE 1 – CHEST PAIN ACUTE CORONARY SYNDROME	
GUIDELINE 2 – CONGESTIVE HEART FAILURE ACUTE PULMONARY EDEMA	
GUIDELINE 3 – CARDIOGENIC SHOCK	
GUIDELINE 4 – 2018 AHA GUIDELINES	
GUIDELINE 5 – CARDIAC ARREST – ADULT PEDIATRIC	
GUIDELINE 6 – CARDIAC ARREST – “PIT CREW” CPR GUIDELINE	
GUIDELINE 7 – CARDIAC ARREST - HYPOTHERMIC	

GUIDELINE 8 – CARDIAC ARREST - TRAUMATIC

GUIDELINE 9 – ASYSTOLE | PULSELESS ELECTRICAL ACTIVITY (PEA)

GUIDELINE 10 – VENTRICULAR FIBRILLATION | PULSELESS VENTRICULAR

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GUIDELINE 13 – ATRIAL FIBRILLATION | ATRIAL FLUTTER

GUIDELINE 14 – SUPRAVENTRICULAR TACHYCARDIA (SVT)

GUIDELINE 15 – WIDE COMPLEX VENTRICULAR TACHYCARDIA – WITH PULSE

GUIDELINE 16 – PEDIATRIC BRADYCARDIA WITH PULSE

GUIDELINE 17 – PEDIATRIC TACHYCARDIA WITH PULSE

GUIDELINE 18 – DEAD ON ARRIVAL (DOA) GUIDELINE

GUIDELINE 19 – TERMINATION OF RESUSCITATION (TOR)

GUIDELINE 20 – DNR COMFORT CARE GUIDELINE

GUIDELINE 21 – LEFT VENTRICULAR ASSIST DEVICES (LVAD)

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GUIDELINE 1 – ABDOMINAL AORTIC ANEURYSM

GUIDELINE 2 – ABDOMINAL PAIN

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GUIDELINE 7 – BACK PAIN

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GUIDELINE 18 – PSYCHIATRIC PATIENT

GUIDELINE 19 – RESPIRATORY DISTRESS

GUIDELINE 20 – SEIZURE

GUIDELINE 21 – SEPSIS

GUIDELINE 22 – STROKE - SCENE

GUIDELINE 23 – SUSPECTED ABUSE | NEGLECT

GUIDELINE 24 – SYNCOPE

GUIDELINE 25 – VOMITING AND DIARRHEA

GUIDELINE 26 – WELL PERSON CHECK

GUIDELINE 27 – ADULT PAIN CONTROL GUIDELINE

Tab 4 – OBSTETRICAL | GYNECOLOGICAL GUIDELINES

GUIDELINE 1 – OBSTETRICAL PATIENT TRANSPORT

GUIDELINE 2 – VAGINAL BLEEDING | POST PARTUM HEMORRHAGE

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GUIDELINE 4 – OBSTETRICAL – NAUSEA | VOMITING

GUIDELINE 5 – FETAL DELIVERY

GUIDELINE 6 – FETAL DELIVERY PROCEDURES

GUIDELINE 7 – FETAL DELIVERY COMPLICATIONS

GUIDELINE 8 – NEONATAL RESUSCITATION

TAB 5 – PEDIATRIC MEDICAL EMERGENCY GUIDELINES

GUIDELINE 1 – PEDIATRIC TABLES

GUIDELINE 2 – ABDOMINAL PAIN

GUIDELINE 3 – ALLERGIC REACTION | ANAPHYLAXIS

GUIDELINE 4 – ALTERED MENTAL STATUS

GUIDELINE 5 – BEHAVIORAL | EXCITED DELIRIUM

GUIDELINE 6 – BRIEF RESOLVED UNEXPLAINED EVENT (BRUE)

GUIDELINE 7 – FOREIGN BODY AIRWAY OBSTRUCTION - CHILD

GUIDELINE 8 – FOREIGN BODY AIRWAY OBSTRUCTION – INFANT

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GUIDELINE 16 – SUSPECTED ABUSE | NEGLECT

GUIDELINE 17 – VOMITING AND DIARRHEA

GUIDELINE 18 – CHILDREN WITH SPECIAL HEALTHCARE NEEDS

GUIDELINE 19 – PEDIATRIC PAIN CONTROL GUIDELINE

TAB 6 – ENVIRONMENTAL | EXPOSURE GUIDELINES

GUIDELINE 1 – BITE AND ENVENOMATION

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GUIDELINE 4 – HYPOTHERMIA | FROSTBITE

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GUIDELINE 6 – NERVE | BIOLOGICAL INCIDENT

GUIDELINE 7 – RADIATION INCIDENT

TAB 7 – TRAUMA GUIDELINES

GUIDELINE 1 – GENERAL TRAUMA CRITERIA

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GUIDELINE 4 – ABDOMINAL TRAUMA

GUIDELINE 5 – BURN TRAUMA

GUIDELINE 6 – CHEST TRAUMA

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GUIDELINE 8 – HEAD TRAUMA

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GUIDELINE 10 – MUSCULOSKELETAL TRAUMA | AMPUTATED BODY PART

GUIDELINE 11 – OBSTETRICAL TRAUMA

GUIDELINE 12 – OCULAR TRAUMA

GUIDELINE 13 – PEDIATRIC TRAUMA

GUIDELINE 14 – SPINAL TRAUMA

TAB 8 – MEDICAL PROCEDURES, GUIDELINES AND EQUIPMENT

GUIDELINE 1 – NOTIFICATION TO MEDICAL DIRECTOR

GUIDELINE 2 – PULSE OXIMETER

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GUIDELINE 6 – AIRWAY MANAGEMENT – BIAD – KING LTS-D AIRWAY

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GUIDELINE 8 – AIRWAY MANAGEMENT – PRE-INTUBATION CHECKLIST

GUIDELINE 9 – AIRWAY MANAGEMENT – POST-INTUBATION CHECKLIST

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INTUBATION

GUIDELINE 11 – AIRWAY MANAGEMENT – FAILED AIRWAY (ADULT)

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GUIDELINE 22 – INTRAVASCULAR (IV) INTRAOSSEOUS (IO) ACCESS | ALTERNATIVE

VENOUS ACCESS

GUIDELINE 23 – SCENE REHABILITATION: GENERAL

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GUIDELINE 25 – CARDIAC MONITORING

GUIDELINE 26 – 12 LEAD EKG PROCEDURE

GUIDELINE 27 – AUTOMATED EXTERNAL DEFIBRILATOR

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GUIDELINE 32 – MEDICATION ADMINISTRATION – INHALATION MUCOSAL
ATOMIZATION DEVICE (MAD)

GUIDELINE 33 – MEDICATION ADMINISTRATION – INTRAMUSCULAR (IM)

GUIDELINE 34 – MEDICATION ADMINISTRATION – NERVE AGENT |
ORGANOPHOSPHATE

GUIDELINE 35 – NARCOTIC MEDICATION DOSE EQUIVALENT

GUIDELINE 36 – RESTRAINT GUIDELINE

GUIDELINE 37 – CHEST SEAL

GUIDELINE 38 – HELMET REMOVAL

GUIDELINE 39 – LACERATION REPAIR

GUIDELINE 40 – SELECTIVE SPINAL IMMOBILIZATION

GUIDELINE 41 – SPLINTING

GUIDELINE 42 – TOURNIQUET APPLICATION

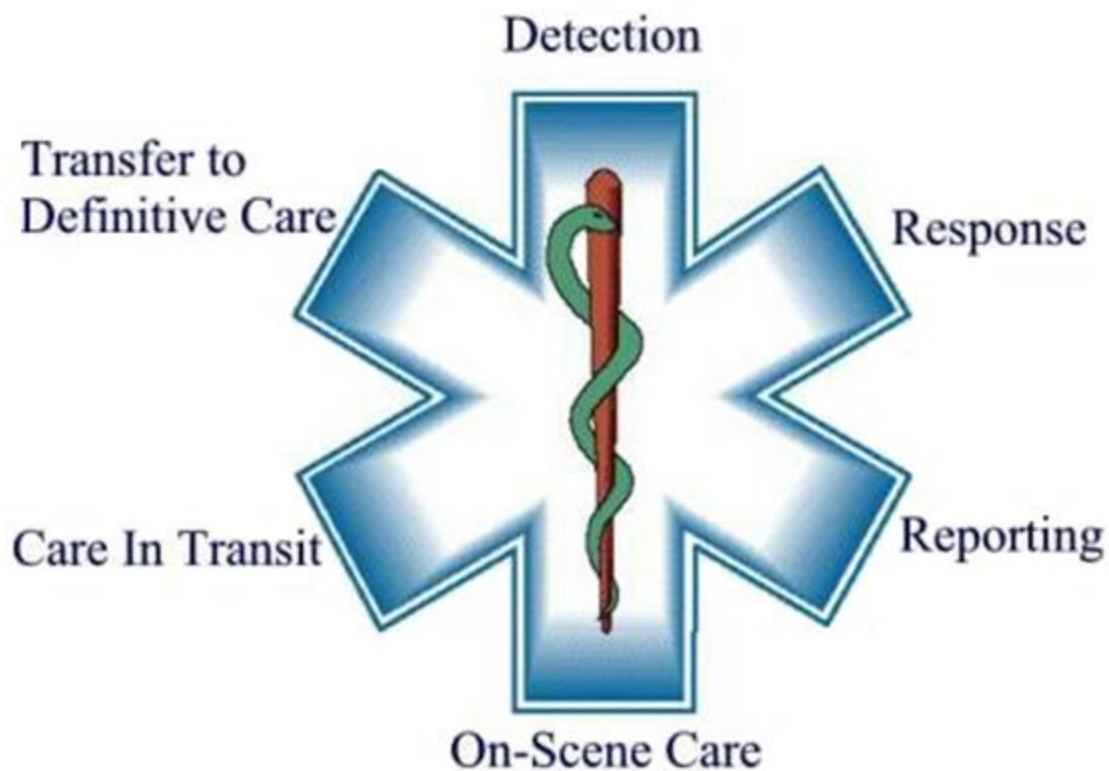
GUIDELINE 43 – WEIGHT CHART: POUNDS TO KILOGRAMS

TAB 9 – MEDICATION GUIDE

GUIDELINE 1 –

TAB 1

OPERATIONAL GUIDELINES



TAB 1 GUIDELINE 1

CLINICAL PRACTICE STANDARDS FOR EMS

1. Medical Direction:

a. Medical Director

i. Daniel L Schwerin, MD, FACEP, FAEMS, FAAEM

1. (419) 250-5215
2. dschwerin@gedimei.org

b. Associate Medical Director

i. Dan Neumeyer, DO

1. (419) 350-3617
2. dneumeyer@nwoems.com

2. Guideline Specific Definitions:

a. Incident

- i. A dispatch of emergency resources to a location by a person or third party.

b. Patient

- i. Any person who has a physical or medical complaint or condition from an illness or injury.

1. **Infant patient** (less than 2 years of age)
2. **Pediatric patient** (age 2 – 16 years of age); Age of consent ≥ 18
3. **Adult patient** (16 years or older)
4. **Geriatric patient** (70 years or older)
5. **No patient contact is defined as a disregard by the requesting person or agency or would be patient is gone upon arrival.**

- c. Intoxicated – any person presenting with “diminished” physical, mental control or ability to make decisions by reason of the influence of alcohol, drugs or other substance.

- d. Patient Care Report (PCR) – this is the form (either electronic or written) that documents the assessment and medical care provided to a patient.

3. Policy

- a. EMS agencies shall utilize their individual operational policies and procedures (SOP / SOG) and utilize this medical guideline for patient care. **EMS personnel will work within the State of Ohio Scope of practice for their level of certification. EMR, EMT's and Advanced EMT's shall maintain BLS certification.**

- b. All newly hired medical personnel will undergo an orientation and evaluation to ensure that the crew member understands the One Energy Training Institute guidelines and the state of Ohio Scope of Practice. This orientation and evaluation will also include company protocols for scene management, patient assessment, and medical skills assessment.
- c. Responsibility
 - i. It is the responsibility of the member with the highest level of medical training at the scene to guide the medical decisions regarding patient care and transportation.
- d. Assessment
 - i. All subjects identified as a patient as defined above will be assessed using criteria consistent with the provider's level of training. This will include but not limited to the following:
 - 1. Vital signs – blood pressure, pulse rate, respiratory rate and pulse oximetry reading, Temperature and Capnography when applicable.
 - 2. Mental status – evaluate to establish the patient's level of consciousness (alert and oriented to person, place, time and situation) using the AVPU method within the context of the expected developmental level.
 - 3. History of present illness / injury.
 - 4. Medications – ALL current medications and allergies to medications.
 - 5. Focused assessment / physical examination to include all pertinent positive or pertinent negative symptoms.
- e. Treatment
 - i. All patients assessed by EMS personnel will be treated as directed by the guidelines contained herein based on the initial patient history of the presenting illness and physical examination.
 - 1. **Within this guideline, not all of the medications in Tab 9 and on the individual EMS drug formularies will be utilized or made available to the EMS crews.**
 - 2. **Individual medications are potentially made available at different time periods depending on drug shortages and / or special need situations. Having the medication in this guideline and / or on the drug formulary and not available for use does not constitute a breach of duty or neglect from the EMS crew member.**
 - ii. Appropriate body substance isolation precautions should be taken.

- iii. Maintain airway.
- iv. Establish IV / IO if potentially needed.
- v. Apply cardiac monitor if appropriate and available.
- vi. EMS Provider should request ALS back-up or intercept if they feel the patient's condition and needs exceed or may exceed their level of training / care.
- vii. OE providers shall always request outside public EMS when there is a life threat or a reasonable chance of progressing to a life threat.

4. Documentation

- a. All aspects of the patient's medical assessment, treatment and transportation will be documented in the PCR. Each EMS unit that interacts with the patient shall complete a PCR on that patient:
 - i. Member completing the PCR will sign the form as a medical document.
 - ii. Activities performed by any person involved with the patient's care will be documented on the unit's PCR.
 - iii. All patients will, as a minimum, have assessment criteria documented as above. If assessment criteria are not obtained, documentation supporting the inability to gather an assessment will be included.
 - iv. All records of cardiac rhythms (including heart monitoring and AED tracing if able) should be collected and archived as part of the patient's record.

5. **Standard of care will be provided for all patients**

- a. Scene safety and ensure appropriate patient care area
- b. Primary survey (A, B, C, D, E)
- c. Vital signs with GCS
- d. Chief complaint
- e. History, allergies and medications
- f. Secondary survey when appropriate
- g. Excess time should not be spent on scene completing all treatment of the patient. Most treatment may be completed during transport.
- h. Treatment and transport must be done expeditiously and according to guidelines
 - i. Oxygen where indicated in the guideline and/or provider's discretion
 - ii. Monitor vital signs every 5 minutes for the unstable patient, and as needed for the stable patient (at minimal every 15 minutes)

- iii. Cardiac monitor and pulse oximetry where indicated in guideline and/or at provider's discretion. A strip of the cardiac rhythm should be attached to all copies of the patient care chart (PCR)
- iv. All patients in restraints will have frequent assessment and documentation of distal circulation, motor and sensation. The patient will also have continuous monitoring of their airway and breathing status.
- i. Base hospital contact must be made at any time the provider has a question regarding patient care.
- j. All crew members are expected to function as a team. While the highest level of licensure/certification is ultimately responsible for the care of the patient, they are not required to perform all patient care or documentation. Crew members are encouraged to allow their fellow crew members to function up to their level of expertise and training. All crew members are responsible for patient care.

TAB 1 GUIDELINE 2
EMS SCOPE OF PRACTICE

 State Board Emergency Medical, Fire and Transportation Services Division of EMS/Department of Public Safety					
Updated June 20, 2018					
	Airway Management	EMR	EMT	AEMT	PARAMEDIC
1	Open and maintain the airway	X	X	X	X
2	Oropharyngeal airway adjunct	X	X	X	X
3	Nasopharyngeal airway adjunct	X	X	X	X
4	Manual removal of obstructed airway	X	X	X	X
5	Laryngoscopy for removal of airway obstruction			X	X
6	Oral suctioning	X	X	X	X
7	Endotracheal (ET) tube suctioning via through a previously established airway or a stoma		X	X	X
8	Tracheostomy tube replacement			X	X
9	Cricothyrotomy, surgical				X
10	Cricothyrotomy, needle				X
11	Apply and obtain readings of pulse oximeter, CO-oximeter, and capnography or capnometry equipment	X	X	X	X
12	Oxygen administration				
	a. Nasal cannula	X	X	X	X
	b. Non-rebreather mask	X	X	X	X
	c. Mouth-to-barrier devices	X	X	X	X
	d. Partial rebreather mask		X	X	X
	e. Venturi mask		X	X	X
13	Ventilation management				
	a. Bag valve mask	X	X	X	X
	b. Ventilation with a flow-restricted oxygen-powered device	X	X	X	X
	c. Positive pressure ventilation devices (manually triggered or automatic ventilators)		X	X	X
14	Ventilator management - 16 years of age or older				X
15	Orotracheal intubation				X
	a. Apneic patients			X	X
	b. Pulseless <u>and</u> apneic patients			X	X
16	Nasotracheal intubation				X
17	Dual lumen airway				X
	a. Apneic patients			X	X
	b. Pulseless <u>and</u> apneic patients		X	X	X
18	Extraglottic airways				X
	a. Apneic patients			X	X
	b. Pulseless <u>and</u> apneic patients		X	X	X
19	CPAP administration and management		X	X	X
20	BiPAP administration and management				X
21	Positive end-expiratory pressure (PEEP)				X

22	End tidal CO ₂ monitoring and detecting		X	X	X
23	Oxygen humidifier equipment application and monitoring		X	X	X
24	Chest tube monitoring and management				X
25	Nasogastric (NG) tube placement				X
26	Orogastric (OG) tube placement				X

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

^A An EMT or AEMT may set up and apply a 12-lead electrocardiogram when assisting a Paramedic or for the purposes of electronic transmission if all of the following conditions are met: 1) performed in accordance with written protocol; 2) EMT or AEMT shall not interpret the electrocardiogram; 3) delay in patient transport is minimized; and 4) EKG is used in conjunction with destination protocols approved by the local medical director.

	Medical Management	EMR	EMT	AEMT	PARAMEDIC
1	Epinephrine administration via auto-injector	X	X	X	X
2	Epinephrine administration via SQ or IM routes			X	X
3	Epinephrine administration via IV or IO route				X
4	Aspirin administration		X	X	X
5	Oral glucose administration		X	X	X
6	Activated charcoal administration		X	X	X
7	Nitroglycerin administration (patient assisted) ^B		X	X	X
8	Nitroglycerin administration (non-patient assisted)			X	X
9	Aerosolized or nebulized medications administration (patient assisted) ^B		X	X	X
10	Administration of aerosolized or nebulized medications (non-patient assisted)			X	X
11	Naloxone administration via auto-injector	X	X	X	X
12	Naloxone administration via intranasal route	X	X	X	X
13	Naloxone administration via ETT, IM, IV, IO, or SQ routes			X	X
14	Medication administration (protocol-approved) ^C			X	X
15	Administration of intranasal medications (in addition to naloxone)			X	X

16	Immunizations for influenza to firefighters, EMTs, AEMTs, or paramedics (ORC 4765.391)				X
17	Set up of IV administration kit in the presence of an AEMT or Paramedic		X		
18	Ultrasound-guided peripheral venous access when approved by the medical director and appropriately trained [NOT APPROVED; PENDING RULES UPDATE]				X
19	Transport of central/peripheral IV without an infusion		X	X	X
20	IV maintenance and fluid administration			X	X
21	Maintenance of medicated IV fluids				X
22	Central line monitoring				X
23	IV infusion pump				X
24	Intraosseous needle insertion			X	X
25	Saline lock initiation			X	X
26	Peripheral IV blood specimens			X	X
27	Maintenance of blood administration				X
28	Thrombolytic therapy initiation and monitoring				X

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

^C See "AEMT Medications Approved by the EMFTS Board."

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

	Basic Performances	EMR	EMT	AEMT	PARAMEDIC
1	Body substance isolation precaution/administration	X	X	X	X
2	Taking and recording of vital signs	X	X	X	X
3	Patient Care Report (PCR) documentation	X	X	X	X
4	Trauma triage determination per OAC 4765-14-02	X	X	X	X

	Additional Services	EMR	EMT	AEMT	PARAMEDIC
1	Emergency childbirth management ^B	X	X	X	X
2	Glucose monitoring system use (with Clinical Laboratory Improvement Amendments (CLIA) waiver in place)		X	X	X
3	Blood analysis [+ BODY FLUID WITH THE EXCEPTION OF				X

	AMINIOTIC FLUID; NOT APPROVED; PENDING RULES UPDATE]				
4	Eye irrigation	X	X	X	X
5	Eye irrigation with Morgan lens				X
6	Maintenance of blood administration				X
7	Thrombolytic therapy initiation and monitoring				X

^D An EMR may only assist with emergency childbirth management.

Emergency Medical Services in Hospital	EMR	EMT	AEMT	PARAMEDIC
An EMS provider may perform emergency medical services in the hospital emergency department (ED) or while moving a patient between the ED and another part of the hospital. The EMS provider shall be under physician medical direction and has received appropriate training. (ORC 4765.36)	X	X	X	X
Additional Services in a Declared Emergency	EMR	EMT	AEMT	PARAMEDIC
In the event of an emergency declared by the governor that affects the public's health, an EMS provider may perform immunizations and administer drugs or dangerous drugs, in relation to the emergency, provided the EMS provider is under physician medical direction and has received appropriate training regarding the administration of such immunizations and/or drugs. (OAC 4765-6-03)	X	X	X	X
Nerve Agent or Organophosphate Release	EMR	EMT	AEMT	PARAMEDIC
An EMS provider may administer drugs or dangerous drugs contained within a nerve agent antidote auto-injector kit, including a MARK I® kit, in response to suspected or known exposure to a nerve or organophosphate agent provided the EMS provider is under physician medical direction and has received appropriate training regarding the administration of such drugs within the nerve agent antidote auto-injector kit. (OAC 4765-6-05)	X	X	X	X

AEMT Medication Administration Approved by the EMFTS Board

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

Benzodiazepines	Lidocaine for pain relief after intraosseous needle insertions
Bronchodilators	Nalbuphine
Dextrose in water	Naloxone
Diphenhydramine	Narcotics or other analgesics for pain relief
Epinephrine 1 mg per 1 ml (subcutaneous or intramuscular)	Nitrous oxide
Glucagon	Oral ondansetron ^E
Ketamine	Sublingual nitroglycerin

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

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

TAB 1 GUIDELINE 3

DOCUMENTATION OF VITAL SIGNS

Every patient encounter by EMS in excess of first aid shall be documented. Vital signs are a key component in the evaluation of any patient and a complete set of vital signs is to be documented in the patient care report (PCR) for any patient who receives any assessment component.

Purpose:

1. To ensure:
 - a. Objective evaluation of every patient's general clinical status
 - b. Documentation of a complete set of vital signs

Procedure:

1. An **initial** complete set of vital signs includes:
 - a. Pulse rate
 - b. Systolic **AND** diastolic blood pressure (cap refill may be substituted in children < 3)
 - Initial blood pressure should be a manual blood pressure
 - Generally, children > 3 years of age should have a BP measured, and cap refill measured for < 3 years of age.
 - For young children, the need for BP measurement should be determined on a case-by-case basis considering the provider's rapport with the child and the child's clinical condition.
 - c. Respiratory rate
 - d. Pain / severity (when appropriate to patient complaint)
 - e. GCS for Injured Patients
2. When no ALS treatment is provided, palpated blood pressures are acceptable for **REPEAT** vital signs.
3. Based on patient condition, complaint, and guideline used, vital signs may also include:
 - a. Pulse Oximetry, Temperature, End Tidal CO₂
4. If the patient refuses evaluation, an assessment of capacity (Medical Legal Considerations Guideline) and a patient disposition form must also be completed. In addition, providers should record any vital signs that the patient or situation allows (e.g. a respiratory rate may be obtained by observation alone), and include an explanation of the clinical situation and refusal in the PCR narrative. When there is a life threat or potential for life threat, a public EMS Agency must be called, and they will handle the refusal of care.

5. When any components of vital signs were obtained using the cardiac monitor, the data should be exported electronically to the PCR if available. Where values are inconsistent with manually obtained values, values may be appropriately edited to reflect the manually obtained values.
6. Record the time that vital signs were taken

TAB 1 GUIDELINE 4
CRITERIA FOR UTILIZATION OF ALS
AND TRANSFER OF CARE

These guidelines are not meant to be definitive in calling for an Advanced Life Support unit, but are meant to give direction as to the possible need for such. The EMS personnel, using his / her skills in patient assessment and the listed criteria should exercise his / her best judgment in determining the need for ALS care. Any time a patient meets the criteria listed below, and the patient is not assessed by an ALS unit, justification for such, should be noted on the run sheet. All ALS incidents also require activation of public EMS.

ABNORMAL VITAL SIGNS	TRAUMA
• BP ○ SBP < 90 mmHg with symptoms ○ SBP > 180 mmHg with symptoms ○ DBP > 110 mmHg with symptoms • Pulse < 60 or > 110 with symptoms • Respirations < 8 or > 24 with symptoms • SpO₂ < 92% with symptoms • Glucose < 60 or > 250 or HHH (on glucose meter) with symptoms ABDOMINAL PAIN • Altered level of consciousness • Abnormal vital signs of signs of shock • Pregnancy or a possibility of pregnancy ○ Imminent birth ○ 1st pregnancy with labor pains 2 minutes apart ○ 2nd pregnancy with labor pains 5 minutes apart ○ 2nd or 3rd trimester bleeding ○ Miscarriage in the 2nd trimester or beyond ○ Multiple births (twins) • Major bleeding • Vomiting blood or a coffee ground like emesis • Rectal bleeding or bloody / tarry stools Pulsating mass in the abdominal area	ANATOMY • Penetrating wounds to the head, chest, abdomen • Penetrating trauma to extremities proximal to knee or elbow with neurovascular compromise • Significant injuries to head, neck, torso • Abdominal tenderness, distention or seatbelt sign • Pelvic fracture • Two or more proximal long bone fractures • Flail chest or multiple rib fractures • Amputations proximal to the wrist or ankle • Extremity injury with crush or neurovascular compromise • Signs of suspected spinal cord injury • Burns > 10% or to airway, face, feet, hands, genitalia PHYSIOLOGY • Altered level of consciousness; Glasgow coma ≤ 13 • Loss of consciousness or deterioration of LOC at scene • Failure to localize to pain; GCS ≤ to 4 • Respiratory rate < 10 or > 29 • Pulse > 110 with evidence of hemorrhagic shock • SBP < 90 mmHg or absent radial pulse with carotid pulse • Patient requires intubation or relief of tension pneumothorax

CHEST PAIN WITH

- Altered level of consciousness
- Abnormal vital signs or signs of shock
- History:
 - Age > 40 or 30 with risk factors
 - Without provocation
 - Drug abuse – cocaine or stimulants
 - Female > 40 with fatigue, SOB or syncope
- Risk factors include:
 - diabetes, increased cholesterol, family history, hypertension or smoking
- Breathing difficulty with
- Altered level of consciousness
- Abnormal vital signs or signs of shock
- Abnormal breathing pattern or rate < 8 or > 24
- Audible signs
 - Stridor or Wheezing
- Complaint of breathing difficulty with
 - History of asthma
 - COPD / emphysema
 - Congestive heart failure

MENTAL STATUS CHANGES

- Any decline in mental status from baseline
- Seizure / diabetic emergencies
 - Altered level of consciousness
 - Abnormal vital signs or signs of shock
 - Adult seizure with no previous history and loss of consciousness

STROKE

- Altered level of consciousness
 - Abnormal vital signs or signs of shock
 - Airway compromise
- Onset < two (2) hours with deficits

BURNS

- Altered level of consciousness
- Abnormal vital signs or signs of shock
- Full thickness burns involving the hands, feet, face, upper airway or genitalia area
- Full thickness burns covering
- Adult > 10% of total body surface
- Children < 5 or adults > 55; 2 – 10% of total body surface
- Partial thickness burns covering
- Adults > 30% of total body surface
- Children < 5 or adults > 55; 15 – 30% of total body surface
- Burns associated with respiratory injury
- Burns complicated by a painful, swollen and deformed extremity
- Superficial burns covering > 50% on children < 5 or adult > 55

MECHANISM OF INJURY

- Fall > 20 feet with injuries
- Ejection from auto with injuries
- Dead passenger in same auto
- Auto pedestrian with injuries
- Motorcycle collision with demonstrable injuries
- Extended extrication

GERIATRIC TRAUMA (age > 70 years with changes to above criteria)

- Altered level of consciousness or GCS < 14 with suspected head injury
- Altered level of consciousness GCS < 13
- SBP < 100 mmHg or absent radial pulse with carotid pulse
- Fracture to one (1) proximal long bone sustained in vehicular crash
- Pedestrian struck by a motor vehicle
- Fall from any height with evidence of Traumatic Brain Injury (TBI)

Care of the following patients cannot be transferred to a lower level credential (i.e. to an Advanced EMT or EMT from a Paramedic):

1. Any patient who requires or might reasonably require additional or ongoing medications, procedures and/or monitoring beyond the scope of practice of the lower credentialed provider. This includes any critically ill or unstable patient as advanced airway management may be required in any decompensating patient. EMT and Advanced EMT providers may be credentialed to perform some but not all airway management, and medications associated with airway management are limited to Paramedic scope of practice.
2. Any patient for whom ALL EMS providers on scene do not agree can be safely transported without an ALS provider in attendance in the patient care compartment. As a general rule, if BLS providers are questioning who should attend the patient, the ALS provider should attend the patient.
3. Any patient suffering from chest pain of suspected cardiac origin, cardiac arrhythmia, moderate to severe respiratory distress, multiple trauma, or imminent childbirth.
4. Post-ictal seizure patients due to the possibility of a re-occurrence of a seizure.
5. Patients who have been medicated on the scene may only be transferred to a technician of lower credential whose formulary includes the medications that were administered.

TAB 1 GUIDELINE 5
ON-LINE MEDICAL CONTROL CONTACT

1. An EMS provider in the One Energy Training Institute system operates under a Medical Director's supervision and obtains his/her immediate direction from assigned On-Line Medical Control. Upon radio or telephone contact, a doctor/patient relationship has been established between the patient and On-Line Medical Control.
2. Contact with On-Line Medical Control should occur when time permits to allow for:
 - a. Early notification of patient assessment
 - b. Notification of treatments rendered in the field
 - c. Request of additional therapies outlined within the guidelines as Medical Control Order
 - d. Patient refusal of treatment and/or transport
 - e. Treat and Release authorization
 - f. Transport capabilities and transport decisions. (i.e., transport by BLS vs. ALS)
 - g. Intervener on-scene physicians
3. Patients deemed BLS following ALS evaluation does not require On-Line Medical Control contact. A completed patient care report (PCR) is required detailing patient assessment, any interventions, justification for deeming patient BLS, and disposition of the patient
4. In the event a paramedic (or paramedic officer) on a first responding ALS vehicle renders ALS care, and the ALS squad is subsequently canceled prior to patient contact, the first responding paramedic must make On-Line Medical Control contact to detail the assessment and events of patient contact. A completed patient care report (PCR) is required detailing patient assessment, any interventions and disposition of the patient. (Example: ALS care by first response paramedic with patient improvement and refusal of transport).

TAB 1 GUIDELINE 6

ACTIVATION OF AIR AMBULANCE | MOBILE ICU | COAST GUARD

1. Air transport should be utilized whenever patient care can be improved by decreasing transport time or by giving advanced care not available from ground EMS services, but available from air medical transport services (i.e., blood).
2. Aero-medical helicopter should be placed on stand-by status or launched whenever the EMS provider believes, from the information available, that the potential to utilize the helicopter may exist. This should be done through the dispatch agency having jurisdiction for the incident.
3. Personnel should consider mobilization of aero medical helicopter in the following circumstances:
 - a. Time dependent medical conditions such as acute STEMI or acute stroke that could benefit from the resources at a specialty center.
 - b. Any patient meeting the State or Regional Trauma Triage Guidelines criteria when ground transport to an appropriate trauma center is more than **thirty (30) minutes** (this can include extrication time) or to provide direct access to a burn center from the scene.
 - c. Entrapped patients with greater than 10-minutes estimated extrication time.
 - d. Multi-trauma or medical patient requiring life-saving treatment not available in the prehospital environment (ie blood / plasma transfusion, invasive procedure, operative intervention)
 - e. Multiple critically ill and / or injured patients that would constitute a mass causality setting.
 - f. Transport from an area not readily accessible by conventional land transports.
 - g. When the transport of critically ill and / or injured patients may take an extended period of time with the potential for deterioration of the patient's condition.
4. Minimal Information which should be provided to the air medical transport service include:
 - a. Number of patients
 - b. Age of patients
 - c. Sex of patients
 - d. Mechanism of injury or complaint (MVC, fall, etc.)
5. Patient arrival time at the tertiary care facility is the key metric, and on-scene personnel will determine the fastest mode to deliver the patient to definitive care. Patient transportation via ground ambulance should not be delayed waiting for helicopter transportation if delivery can be accomplished more expeditiously by ground. If the helicopter does not arrive prior to, during or immediately after the extrication of a trauma patient, and the transport time to the closest trauma center is less than 30 minutes, then the patient should be placed in the ambulance and transport

and treatment should be initiated. Inversely, if by briefly extending the scene time the patient can be more rapidly delivered to definitive care, then the delay is acceptable.

6. In most suburban or urban areas, transport to the closest Trauma Center by ground is often the best / fastest option as use of the Aero-medical helicopter resources may actually prolong the definitive transport of critically injured Trauma patients.
7. If the scene conditions or patient situation improves after activation of the air medical transport service and air transport is determined not to be necessary, Paramedic or administrative personnel should cancel the request by communicating face-to-face with the on-scene Fire Department Incident Commander.
8. The following guidelines will be used for setting up a LZ (landing zone) for Aero-medical Helicopter.
 - a. It is preferred that the landing surface be flat and hard such as a roadway. One person not involved with patient care should be in charge of the LZ as the landing zone officer and establish direct communication with the pilot on your local or police frequency.
 - b. Daylight hours:
 - i. LZ is required to be 100' x 100'.
 - ii. Double check for overhead wires or any other obstruction.
 - iii. The LZ should be somewhat removed from the scene as possible so loose items will not create a hazard.
 - c. Nighttime hours:
 - i. All corners of the LZ must be illuminated with lights or fire apparatus.

TAB 1 GUIDELINE 7
COMMUNICATION PROCEDURES | FAILURE

1. It is beneficial when communicating with on-line medical control to use a recorded line.
2. When transporting a patient from the pre-hospital environment into the emergency department, on-line Medical Control should be established at the **receiving** hospital.
3. When contacting facility to give report use MIST Reporting system

M	Mechanism or Medical Complaint	Name, Age, Sex Mechanism: Speed, Mass, Height, Restraints, Number and Type of Collisions, Helmet Use and Damage, Weapon Type Medical: Onset, Duration, History
I	Injuries or Illness Identified	Head to Toe Pain, Deformity, Injury Patterns STEMI—12-Lead / Stroke— Cincinnati
S	Signs and Symptoms	Symptoms and Vitals Initial, Current, Lowest Confirmed BP HR, BP, SPO ₂ , RR, ETCO ₂ , BG GCS: Eyes ____ Verbal ____ Motor ____
T	Treatments	Tubes, Lines (Location and Size), Fluids, Medications and Response, Dressings, Splints Defibrillation / Pacing

Allen County			
Lima Memorial Hospital	419-226-5002	St Rita Medical Center	419-226-9024
Auglaize County			
Joint Township Hospital	419-394-9508	Squad phone	419-394-7773
Crawford County			
Bucyrus Hospital	419-563-9338	Galion Community Hospital	419-468-0738
Defiance County			
Defiance Regional Med Ctr	419-783-6954	Mercy Defiance Med Ctr	419-782-8444
Erie County		Firelands Regional	419-626-7455
Hancock County			
Blanchard Valley Hospital	419-423-5207	Squad phone	419-423-5219
Fostoria Comm Hospital	419-436-6640		

Fulton County		Fulton County Health Ctr	419-330-2626
Hardin County		St Rita's Putnam County	419-538-6288
Henry County		Henry County Hospital	419-591-3800
Huron County			
Fisher-Titus	419-668-8101	Squad phone	419-660-2527
Mercy Willard Hospital	419-964-5600	Squad phone	419-964-5601
Lucas County			
Bay Park Hospital	419-690-7911	Mercy Sylvania	567-455-5819
Flower Hospital	419-824-5678	St Luke Hospital	419-893-5920
Mercy St Anne Hospital	419-407-1444	Toledo Hospital	419-291-4622
Mercy St Charles Hospital	419-696-7500	UT Medical Center	419-383-3888
Mercy St Vincent Hospital	419-251-4354		
Marion County			
Marion General Hospital	740-383-8999	Squad Phone	740-383-8443
Ottawa County		Magruder Hospital	419-734-3131
Paulding County		Paulding County Hospital	419-399-1140
Richland County			
Med Central Mansfield	419-526-8599	Shelby Hospital	419-342-1730
		Squad Phone	419-342-1790
Sandusky County			
Bellevue Hospital	419-483-4040	Fremont Memorial	419-332-7321
Seneca County		Mercy Tiffin Hospital	419-455-7913
Williams County			
Bryan Hospital	419-630-2101	Montpelier Hospital	419-485-6491
Wood County			
Mercy Perrysburg	567-368-1000	Wood County Hospital	419-354-8910
Squad phone	567-368-1911	Squad phone	419-354-8959
Wyandot County		Wyandot Memorial	419-294-4357
Ft Wayne, IN			
Lutheran Hospital	800-900-7828	Parkview Regional Med Ctr	260-266-1700

Air Ambulance Service

CareFlight	937-208-3838	Cleveland Metro Life Flight	800-233-5433
Mercy Health Life Flight	419-251-4668	MedFlight	800-222-5433
Lutheran Air	800-900-7828	Promedica Air	419-291-8820
Samaritan Flight	800-727-6911	Survival Flight	800-822-2233

4. Communication failure

- a. If there is a communications failure that prevents contact with on-line MEDICAL CONTROL, the EMT may proceed with Medical Guidelines past the point in the Standing Orders where contacting on-line MEDICAL CONTROL is indicated, if the life of the patient is in immediate danger. Such a communication failure should be documented and forwarded to the EMS coordinator through the EMT's chain of command.
- b. **On-line MEDICAL CONTROL can always be obtained through the medical director.**

TAB 1 GUIDELINE 8
MEDICAL LEGAL CONSIDERATIONS

1. Legal complications, which may occur during an emergency medical situation, are best managed by direct communication between the providers and on-line MEDICAL CONTROL or ideally between the patient and on-line MEDICAL CONTROL.

Consent	Decisional Capacity
• Consent is “informed” if the patient allows you to treat them • Consent is “implied” when the patient is unable to consent to treatment • Age 1. Age of consent is 18 years of age 2. Or between 15 and 18 years in an emancipated adult (living apart from his / her parents). This requires a court order • Mental status • Medical condition • If the patient is a minor, consent should be from: • Competent natural parent • Adopted parent • Legal guardian	• A patient has decisional capacity if he / she: 1. Is able to understand the nature and consequences of his / her illness or injury. 2. Is able to understand the nature and consequences of the proposed treatment. 3. Have sufficient emotional control, judgment and discretion to manage own affairs. • Consent should be obtained from another responsible party who must have decisional capacity and legally “of age” such as a: 1. Spouse 2. Adult son or daughter 3. Parent 4. Adult brother or sister 5. Legal guardian

2. If the patient does not have decisional capacity and none of the above persons can be reached, the person should be treated and transported to the hospital.

3. DUTY TO ACT

- a. While working at OE you do not have a duty to act as an EMS professional. You do have a duty to activate Pubic EMS. If you elect to begin care in your EMS capacity, you have a duty to continue that care as an EMS professional.

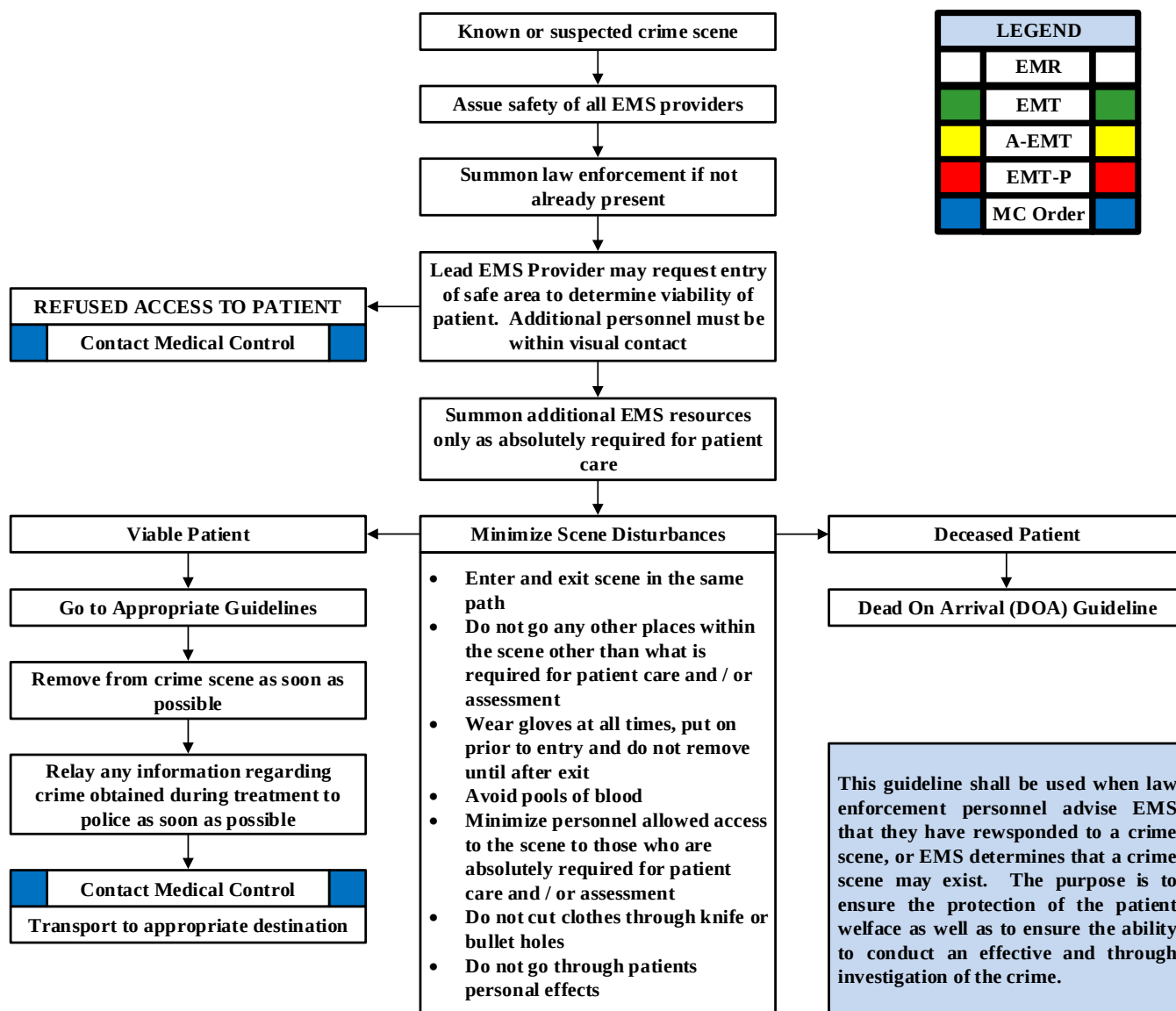
- b. Once treatment has been rendered, the prehospital care provider has a duty to care for the patient until care can be transferred to a competent health care provider who accepts responsibility for the patient.

4. **CONFIDENTIALITY**

- a. The patient-physician relationship, the patient-registered nurse relationship, and the patient-EMS relationship are recognized as privileged unless:
 - i. The patient consents
 - ii. The disclosure is allowable by law (such as Medical Board or Nursing Board proceedings, or criminal or civil litigation in which the patient's medical condition is in issue)
- b. The prehospital provider must keep the patient's medical information confidential. The patient likely has an expectation of privacy, and trusts that personal, medical information will not be disclosed by medical personnel to any person not directly involved in the patient's medical treatment.
 - i. Exceptions:
 - 1. The patient is not entitled to confidentiality of information that does not pertain to the medical treatment, medical condition, or is unnecessary for diagnosis or treatment.
 - 2. The patient is not entitled to confidentiality for disclosures made publicly.
 - 3. The patient is not entitled to confidentiality with regard to evidence of a crime.
- c. **HIPAA Compliance**
 - i. All protected health information collected and shared will be performed per HIPAA guidelines / protocols. At no time, will information be shared with non-essential personnel. Absolutely no information will be put on social media including but not limited to Facebook / twitter / Instagram. No information should leave the base site unless purpose of quality improvement or billing or with permission from the EMS or Fire Chief.
 - ii. Exercise confidentiality on the scene by:
 - 1. Not sharing information with bystanders.
 - 2. Limiting radio transmissions that identify patients.
 - 3. Avoid disclosure of unnecessary information to police (appropriate info includes patient's name, DOB, and destination hospital.)

4. Protecting patient's privacy whenever possible.
 5. Don't volunteer patient medical information with people at the scene.
- iii. Hospital contact
 1. The relationship of the hospital and prehospital providers are not really affected by HIPAA. The process of Performance Improvement is an important element of patient care that is worked on at each department under Medical Control and then the issues are addressed by the Medical Director during Run Reviews at each station.
 2. Information about the patient may be given to the Emergency Department by radio, phone, fax, or electronically. The information is needed for treatment of the patient and becomes part of the medical record.
 - d. Additional Considerations:
 - i. Any disclosure of medical information should not be made unless necessary for the treatment, evaluation or diagnosis of the patient.
 - ii. Any disclosures made by any person, medical personnel, the patient, or law enforcement should be treated as limited disclosures and not authorizing further disclosures to any other person.
 - iii. Any discussions of prehospital care by and between the receiving hospital, the crewmembers in attendance, or at in-services or audits are done strictly for educational or performance improvement purposes. Further disclosures are not authorized.
 - e. Radio communications should not include disclosure of patient names unless warranted to help improve delivery of care prior to the patient getting to the hospital.

TAB 1 GUIDELINE 9
MEDICAL LEGAL CONSIDERATIONS – CRIME SCENE



SPECIAL CONSIDERATIONS:

1. Reporting concern of abuse, neglect or exploitation

- Per Ohio Revised Codes (ORC) 2151.421 and 5101.61 EMS and Fire personnel are required to report abuse, neglect or exploitation of adult (elderly) or child (under the age of 18)
- Report suspected child abuse, neglect or exploitation to Ohio's Public Children Service Agencies for your respective county or free hotline at 855-642-4453
- Report suspected elderly abuse, neglect or exploitation to Ohio's Adult Protective Services for your respective county or free hotline at 855-644-6277

TAB 1 GUIDELINE 10

MEDICAL LEGAL CONSIDERATIONS –

ON-SCENE EMS | NURSE | PHYSICIAN INTERVENER

1. The medical direction of prehospital care at the scene of an emergency is the responsibility of those most appropriately trained in providing such care. **EMS Personnel operate under the One Energy Training Institute Medical Director's supervision and obtain his / her immediate direction from assigned on-line MEDICAL CONTROL. A doctor / patient relationship IS established between the patient and on-line MEDICAL CONTROL.**
2. An “intervener physician” is a licensed physician wishing to assume on-scene medical control, and who is:
 - a. Willing to provide evidence of his / her license (State of Ohio).
 - b. Willing to accompany the patient to the hospital should such control be granted by on-line MEDICAL CONTROL through a recorded line.
 - c. On-line MEDICAL CONTROL may transfer control to the “intervener physician”. **On-line MEDICAL CONTROL maintains right of managing the case entirely, working with the “intervener physician” or allowing him / her to assume responsibility.**
 - d. All orders to the EMT are documented on the run report, EMT's are not allowed to go outside of their Scope of Practice and will decline any orders that are contrary to, or exceed the level of their training.
 - i. The “intervener physician” must sign the run sheet containing any orders he / she has given.
 - e. **On-line MEDICAL CONTROL is ultimately responsible if there is any disagreement between the “intervener physician” and on-line MEDICAL CONTROL, the EMT should take orders from the EMS on-line MEDICAL CONTROL physician.**
3. On - Scene Intervener Physician:
 - a. This is a Physician with no previous relationship to the patient, who is not the patient's private Physician, but is offering assistance in caring for the patient. The following criteria must be met for this Physician to assume any responsibility for the care of the patient:
 - i. Ideally, if no further assistance is needed, offer should be declined.
 - ii. **The Physician should have expertise in the medical field for which the patient is being treated:**
 1. Emergency medicine physicians are preferred
 2. Family practice, Internal medicine, Pediatrician or Surgeon

3. OB-GYN / Midwife for pregnant patients
 4. Orthopedic surgeon for fractures / musculoskeletal problems
 5. Anesthesiologist / CRNA for airway management
- iii. The physician must have proof they are a Physician. They should be able to show you their medical license and medical Control must be informed and give approval. Encourage Physician to Physician contact.
 - iv. Notation of Physician name, address and license numbers must be documented on the run report.
 - v. The Physician must be willing to assume responsibility for the patient until relieved by another Physician, usually at the Emergency Department.
 - vi. The Physician must not require the EMT to perform any procedures or institute any treatment that would vary from their level of scope of practice.
 - vii. **The “intervener physician” must accompany the patient to the hospital in the emergency vehicle in cases of single patient encounters.** However, in the case of a multiple casualty incident or a disaster, patient care may require that the “intervener physician” remain at the scene.
 - viii. If the Physician is not willing or able to comply with all the above requirements, his / her assistance must be declined.

4. On - Scene Personal Care Physician:

- a. This is a Physician with a current relationship to the patient, who is offering assistance in caring for the patient. The following criteria must be met for this Physician to assume further responsibility for the care of the patient:
 - i. EMS should perform its duties as usual under the supervision of Medical Control or by protocol.
 - ii. Physician to ED Physician contact is optimal.
 - iii. The Physician may elect to treat the patient in his office.
 - iv. EMS should not provide any treatment under the Physician's direction that varies from guidelines. If asked, EMS should decline until contact is made with Medical Control.
 - v. Once the patient has been transferred into the EMS unit, the patient's care comes under Medical Control.

5. The Medical Directors or approved Emergency Medical Resident may assume on-scene medical control if they arrive on scene and request such. If necessary these physicians will sign the run form, assume patient care responsibility and accompany the patient to the hospital.
6. EMT / Nurse / Healthcare - Intervener:
 - a. On an EMS run where an unknown EMT / Nurse / Healthcare - Intervener from outside the responding EMS agency wishes to intervene in the care of patients, the following steps should be initiated:
 - i. Ideally, if no further assistance is needed, the offer should be declined.
 - ii. If the intervener's assistance is needed or may contribute to the care of the patient:
 1. An attempt should be made to obtain proper identification of a valid license / certification. Notation of intervener name, address and certification numbers must be documented on the run report.
 2. Medical Control should be contacted and permission given.

PHYSICIAN ON SCENE FORM

This EMS service would like to thank you for your effort and assistance. Please be advised that the EMS Professionals are operating under strict guidelines established by the medical directors of One Energy Training Institute and the State of Ohio. As a licensed physician, you may assume medical care of the patient. In order to do so, you will need to:

1. Show proper identification including a current State of Ohio Medical Board Licensure.
2. **Have expertise in the medical field for which the patient is being treated.**
3. Receive approval to assume the patient's medical care from the EMS agencies Online Medical Control Physician.
4. Accompany the patient to the hospital.
5. Carry out any interventions that do not conform to the One Energy Training Institute EMS Guidelines. EMS personnel cannot perform any interventions or administer medications that are not included in their guidelines or scope of practice.
6. Sign all orders on the EMS Patient Care Report.
7. Assume all medico-legal responsibility for all patient care activities until the patient's care is transferred to another physician at the destination hospital.
8. Complete the "Assumption of Medical Care" section of this form below.

ASSUMPTION OF MEDICAL CARE

I, _____, MD / DO; License #: _____,
(Please Print your Name Here)

have assumed authority and responsibility for the medical care and patient management for

(Insert Patient's Name Here)

I understand that I must accompany the patient to the Emergency Department. My malpractice insurance may not cover me performing medical care. I further understand that all EMS personnel must follow the State of Ohio's EMS scope of practice as well as the One Energy Training Institute EMS Guidelines.

_____, MD Date: ____/____/____ Time: ____ AM / PM
(Physician Signature Here)

_____, EMS _____ Witness
(EMS Signature Here) (Witness Signature Here)

TAB 1 GUIDELINE 11

MEDICAL LEGAL CONSIDERATIONS –

REFUSAL OF TREATMENT OR TRANSPORT | RELEASE AT SCENE

1. Competent patients have the right to accept or refuse any or all prehospital care and transportation provided the decision to accept or refuse treatment or transportation is made on an informed basis and these patients have the decisional capacity to make and understand the implications of such a decision. Patients who are REFUSING TREATMENT or TRANSPORT (this includes to the closest appropriate facility) should be made fully aware of the nature of the problem and the possible consequences of their specific condition. It is OE policy that in the case of life threat or potential life threat, outside public EMS shall be called, and refusal of care shall be handled by them.
2. **Who may refuse care:**
 - a. Patient.
 - i. If a patient is legally, mentally and situational competent, the patient has the right to refuse care.
 - b. Parent or guardian.
 - i. A custodial parent / guardian may refuse on behalf of a minor child (less than 18 years of age).
 - ii. Legal guardian is one who appointed by a court to act as “guardian of person” of an individual who has been found by a court to be incapacitated.
 1. Person indicating that they are a legal guardian to the patient, attempt to obtain documentation of the fact. If no such documentation is available, may obtain refusal signature from the guardian as long as you are doing so in good faith.
3. **The patient must be considered alert, oriented and not under the influence of alcohol, drugs or a medical condition that can impede his / her decision-making ability.** The patient must also have decisional capacity.
 - a. When repeated efforts to reason with the patient fail, then a release for the release of treatment or transport shall be signed and witnessed.
 - b. In the event of refusal to sign by the patient, a family member’s signature is acceptable as long as the family member is aware of the consequences of the patient’s action.

- c. In the event that a patient, who refuses to sign, refuses care and no relatives are present, witness of refusal by two (2) persons (preferably not EMS crew) and clear documentation of all information must be placed on the run report.
- 4. If the patient is under the influence of alcohol, drugs or a medical condition that can impede his / her decision-making ability, neither the patient nor the family member can refuse treatment. The patient must be treated and transported as medically appropriate unless on-line MEDICAL CONTROL is contacted with an assessment and they say the patient is “OK” to sign the release form. Police assistance and / or transportation to the hospital are to be a consideration if needed.
 - a. Patients that are intoxicated and with responsible caregivers in their own home may refuse treatment / transport.
- 5. The patient who has attempted suicide or who has suicidal ideation may not refuse treatment or transport. Police assistance and / or transportation to the hospital should be considered if needed.
- 6. Release at scene (RAS)
 - a. Low risk patients that have received medical treatment may be released at the scene under their own care / cared by others.
 - b. EMS personnel concur with the appropriateness of scene release and the medical appropriateness of the follow-up plan.
 - c. Situations include:
 - i. Diabetic patient with low blood sugar that responded to therapy.
 - ii. Asthmatic patient that has responded to nebulizer therapy and is back to baseline.
 - iii. Minor injuries not requiring additional medical assistance.
 - 1. Minors determined to have only a minor injury or illness not requiring immediate treatment or transportation may be released to themselves after online medical control is obtained.
 - iv. Tased / Conducted energy weapon patient that is in custody of law enforcement who is not complaining of any symptoms.
 - v. Patient has a clearly articulated plan (including reasonable and prudent transportation) for medical assessment and/or follow-up if necessary.
 - d. EMS personnel should attempt to contact the patient’s parent or designated caregiver prior to release if the patient is a minor being released to himself / herself.
 - e. Online medical control shall be made by the highest medical authority on scene in close proximity to the patient is required prior to releasing the following classes of patients:
 - i. Patients who have been released at scene within the previous 24 hours.

- ii. Children 3 years of age or under.
 - iii. Patients age 4 – 17 years old without a responsible adult signature.
7. **False calls or other “third party” calls where the person states they did not call for EMS assistance; the EMS provider does not need to obtain a written refusal / release at scene.**
 8. Calls for assistance for transfer, where no mechanism of injury exists, the EMS provider does not need to obtain a written refusal / release at scene. An EMS report still needs to be completed by the EMS provider for the emergency response.
 9. **SPECIAL CONSIDERATIONS:**
 - a. Be certain that the patient with decisional capacity understands not only the nature of his / her illness or injury, but also understand the nature and consequences of the proposed treatment and of refusing this treatment before you obtain his / her signature refusing treatment or transport.
 - b. It is also appropriate to let on-line MEDICAL CONTROL talk directly to the patient via the radio to reinforce the consequences of the patient’s decisions.
 - c. You should also read out loud to the patient the refusal form and ask them if they understand what you have read to them.
 - d. Remember to fill out both the medical refusal form and the patient care report. Include all information to adequately document the refusal of medical treatment and / or transport.
 - e. Patients may refuse all / or portions of treatment offered, c-spine precautions, or transportation to the closest facility. Patients must be made aware of the risks and benefits of such refusal and sign the refusal form of these specific measures. You should document such refusals on the refusal form and in the narrative of the patient care report.
 - f. **Notification to the supervisor / chief, and then “if necessary or indicated” to the Medical Director or his / her designee, of all patient treatment / transport refusals should occur within 24 hours of patient refusal for quality assurance purposes.**
 10. **All patients should receive a patient instruction sheet if they are refusing treatment or transport and instructed to call 911 or local emergency number immediately for any additional assistance**

PATIENT INSTRUCTIONS

- **YOU HAVE NOT RECEIVED A COMPLETE MEDICAL EVALUATION. SEE A PHYSICIAN AS SOON AS POSSIBLE.**
- **YOU SHOULD CALL TO MAKE AN APPOINTMENT WITH YOUR PHYSICIAN IMMEDIATELY OR GO TO AN URGENT CARE OR THE EMERGENCY DEPARTMENT FOR YOUR CONDITION**
- **IF YOU WERE PRESCRIBED MEDICATION FOR YOUR CONDITION FROM A PHYSICIAN, THEN YOU SHOULD TAKE THAT MEDICATION AS DIRECTED**
- **ALWAYS TAKE MEDICATION AS DIRECTED ON THE LABEL. NEVER TAKE SOMEONE ELSE'S PRESCRIPTION MEDICATION**
- **IF ANY TIME YOU TAKE A MEDICATION AND BECOME SHORT OF BREATH, START WHEEZING, GET HIVES OR A RASH, OR HAVE AN UNEXPECTED REACTION, CALL 9-1-1 OR YOUR LOCAL EMERGENCY NUMBER IMMEDIATELY**
- **IF YOU CHANGE YOUR MIND OR YOUR CONDITION BECOMES WORSE AND YOU DECIDE TO ACCEPT TREATMENT AND TRANSPORT BY EMERGENCY MEDICAL SERVICES, PLEASE DO NOT HESITATE TO CALL US BACK**

ABDOMINAL PAIN - Abdominal pain is also called belly pain. Many illnesses can cause abdominal pain and it is very difficult for EMS to identify the cause - Take your temperature every 4 hours - If you take medication for abdominal pain, take your medication as directed	BACK PAIN - If the injury is less than 72 hours, then apply ice to the area, otherwise apply heat to the painful area to help relieve pain for 10 – 20 minutes every hour - Begin normal activities when you can do them without causing pain - When picking things up, squat down. Never bend from the waist only	CHEST PAIN - Chest pain can be caused by a number of causes. You may be having a heart attack or other potential life threatening condition that requires a physician - If you smoke, QUIT - If you take medication for chest pain, take your medication as directed
Call or see a physician, go to the emergency department, or call 911 immediately if: - Your pain gets worse or is now only in 1 area - You vomit (throw up) blood or find blood in your bowel movement - You become dizzy or faint - Your abdomen becomes enlarged or swollen - You have a temperature over 101 F - You have trouble passing urine - You have trouble breathing	Call or see a physician, go to the emergency department, or call 911 immediately if: - You have shooting pains into your buttocks, groin, legs or arms or the pain increases - You have trouble urinating or lose control of your stools or urine - You have numbness or weakness in your legs, feet, arms or hands	Call or see a physician, go to the emergency department, or call 911 immediately if: - Your pain gets worse, travels to your arms, neck or back - You develop shortness of breath, nausea or vomiting, cough, chills fever, see blood in your urine, fever greater than 101 F - You have blood come up when you cough - You develop black or sticky stools - You faint (pass out)
EXTREMITY INJURY - Apply ice on the injured part or area for 15 – 20 minutes each hour for the first (2) days - Elevate the injured part above the level of the heart as much as possible for the first (2) days to help decrease pain and swelling - Use the injured part as pain allows - Take Tylenol or Motrin for pain as directed on the bottle	FAINTING - Many things can cause fainting which can include: heart rhythms, heart attacks, low blood pressure from bleeding or dehydration, low blood sugar, stroke, heat stroke and head injury - Fainting can indicate a serious problem - If you have been having vomiting or diarrhea, refer to that section in these instructions - If you take medication for fainting, take your medication as directed	FEVER - Take your temperature every (4) hours - Always take medicine as directed on the label. Acetaminophen (Tylenol) and ibuprofen (Motrin) can be taken at the same time. - If you are taking antibiotics, take them until they are gone, not until you feel better - Drink extra non-caffeinated liquids (1 glass of water, soft drink, gatorade every hour of fever for an adult)
Call or see a physician, go to the emergency department, or call 911 immediately if: - Temperature above 101 F - The bruising, swelling or pain gets worse despite the treatment listed above - Any problem listed on the WOUND CARE instructions are noted - You are not able to move the injured part or if you have numbness or tingling in the injured part - You are not improving in (3) days or you are not using the injured part in (1) week	Call or see a physician, go to the emergency department, or call 911 immediately if: - You faint again - You have any kind of a seizure - You have chest pain or a headache - You have any weakness or numbness to your face, body, arms or legs or have any vision problems - The room starts spinning - You have a temperature above 101 F - You throw up blood or stuff that look like coffee ground or have black and sticky stools	Call or see a physician, go to the emergency department, or call 911 immediately if: - Temperature is greater than 101 F for 24 hours - A child becomes less active or alert - Start vomiting (throwing up) and cannot keep down liquids or medications - You develop a rash - Your fever does not come down with acetaminophen (Tylenol) or ibuprofen (Motrin)

HEADACHE - There are many causes of a headache which can include migraines, tension headaches, infection and bleeding in your brain - The cause of your headache cannot be determined by EMS - Rest in a quiet, dark room for 20 – 30 minutes - If you take medication for headaches, take your medication as directed	HEAD INJURY - You may have a headache, nausea or vomiting after a blow to the head - Ice may be applied to the injured area to decrease pain - Drink clear, non-alcoholic liquids for the first 12 hours after the injury - Acetaminophen (Tylenol) may be used for pain	INSECT BITE / STING - A bite or sting typically is a red lump that may have a hole in the center. You may have pain, swelling and a rash. Severe stings may cause a headache or upset stomach - Some people will have an allergic reaction to a bite or sting. Difficulty breathing, throat or tongue swelling or chest pains are emergencies that require immediate care - Elevation of the injured part and ice applied to the area will help decrease pain and swelling - Diphenhydramine (Benadryl) may be used as directed to control itching and hives
Call or see a physician, go to the emergency department, or call 911 immediately if: - Your headache worsens or does not improve within 24 hours - Your vision changes or you become sensitive to light - You develop a fever greater than 101 F or have a seizure - You have a rash - Your family cannot awaken you - You are not acting as you normally do	Call or see a physician, go to the emergency department, or call 911 immediately if: - Your headache worsens or is not improving with Acetaminophen (Tylenol) - The injured person is vomiting multiple times, is not able to be awakened, has trouble walking or using an arm or leg, has a seizure, develops unequal pupils, has clear or blood fluid coming from the ears or nose or has strange behavior	Call or see a physician, go to the emergency department, or call 911 immediately if: - You develop chest pain, difficulty breathing, swelling of the tongue or throat, start vomiting or have intense abdominal cramping or pain - The area becomes warm, tender and swollen beyond the area of the bite or sting - You develop a fever above 101 F
LOW BLOOD SUGAR - Today your blood sugar was _____ mg / dl - Taking too much insulin / diabetes medicine, too much exercise, delayed or skipping meals can cause low blood sugar - Test your blood sugar. If it is below 80 your should drink 8 ounces of whole milk, eat a candy bar or use glucose tablets. Then you should eat a light meal to help keep your blood sugar up - Be sure to tell your doctor of this event	OVERDOSE - Today you were found to have an overdose on a medication that was corrected by a medication called Narcan (naloxone) which only corrects opioid types of drugs - You should seek help for a potential drug addiction problem - If you are injected, this can cause you to have a series infection that can kill you	SHORTNESS OF BREATH - Respiratory distress is also known as shortness of breath or difficulty breathing - There are many causes for respiratory distress - You should avoid substances that cause you any difficulty breathing - If you take medication for difficulty breathing, take your medication as directed
Call or see a physician, go to the emergency department, or call 911 immediately if: - Any new or severe symptoms - Blood sugar below 60 - Shakiness, sweating, irritability, pounding heart, feeling faint, weakness, sleepiness, having a seizure, confusion, slurring words, or stumbling - You have a fever above 101 F	Call or see a physician, go to the emergency department, or call 911 immediately if: - Any new or severe symptoms - Someone sees that you are not breathing, pupils are pinpoint, you cannot be woken up - You are not acting as you normally do - You have any seizure activity	Call or see a physician, go to the emergency department, or call 911 immediately if: - The cough, wheeze or difficulty breathing becomes worse or does not improve, even if taking medication - You have chest pain - You sputum (spit) turns colors - You are not able to perform normal activities - Temperature is greater than 101 F
SEIZURES - Today you had a convulsion or seizure - A seizure can be caused from multiple conditions including low blood sugar, infection, trauma or epilepsy - If you take medication to control seizures, take your medication exactly as directed. Seizure medication require you to take them every day to keep the right level in your blood. - If you had a seizure and are taking medication then call your doctor	VOMITING / DIARRHEA - Many things can cause vomiting (throwing up). It can occur in anyone and should be watched closely - Diarrhea can also occur in anyone and can be a reaction to food or infection - Dehydration (loss of water) can occur with either vomiting or diarrhea - Drink clear liquids without alcohol (water, juice or Gatorade) for the first 12 hours. Begin with small sips and slowly increase the amount you drink	WOUND CARE - Wounds include cuts, scrapes, bites, abrasions or puncture wounds - Clean the wound twice daily with soapy water and keep the wound dry. It is safe to shower but do not place the wound in a bath or dish water. - Change the bandage at least daily or when dirty - You will need a tetanus shot if you have not had one in (10) years
Call or see a physician, go to the emergency department, or call 911 immediately if: - You have another seizure and it lasts for more than 5 minutes - You have a fever, neck stiffness or headache followed by a seizure - You do not wake up between seizures - Temperature is greater than 101 F	Call or see a physician, go to the emergency department, or call 911 immediately if: - Vomiting or diarrhea lasts longer than 24 hours, you notice blood in the vomit or diarrhea or have black or sticky stools - You cannot keep fluids down or you have not urinated in 8 hours (less than 4 wet diapers for babies) - Temperature is greater than 101 F	Call or see a physician, go to the emergency department, or call 911 immediately if: - Bruising, swelling or pain gets worse or bleeding is not controlled with direct pressure and bandage - Any signs of infection such as redness, pus, red streaks, intense pain, or a bad smell from the wound

TAB 1 GUIDELINE 12

INFECTION CONTROL

1. Scope and Purpose.

- a. This policy will reflect recommendations and provide information regarding infection control precautions and procedures commonly referred to as ***standard precautions***.
- b. EMS providers are in a high-risk group for infectious disease exposure. Infection control is a shared responsibility between the employer and employee.

2. Goals.

- a. To regard all patient contacts as potentially infectious and institute standard precautions on all patients.
- b. To provide or assist system providers with personal protection equipment (PPE) and the necessary training to utilize this equipment.
- c. Recommend the need for proper immunizations.
- d. To recognize the need for work restrictions based upon infection control concerns.
- e. To inform personnel of proper procedures for the exchange or cleaning of equipment and supplies.
- f. To inform personnel of the proper disposal procedure for infectious waste.
- g. To inform personnel of the proper procedures after an exposure.

3. Front Line Personnel Protection.

- a. Available PPE should include (all items may not be available at all locations):

Disposable gloves	Infection control kit (pouch)
Head covers	Hazardous waste bags
N95 Healthcare Particulate Respirators	Various sharps containers
Disposable Gowns / facemasks	Germicidal hand wipes
Eye protection	Germicidal spray cleaner
Shoe Covers	

- b. Front-line field EMS providers are in a high-risk group for infectious disease transmission.

In addition to standard precautions, the following procedures should be followed:

- i. Gloves should be changed after each patient contact and hands cleaned with an appropriate germicidal agent.
- ii. All extraordinary exposure incidents should be reported to the receiving hospital and the employee's supervisor.

- iii. The amount, type, and location of personal protection equipment (PPE) should be standardized on all first response units.
 - c. Non-rebreather masks or surgical masks should be placed on patients with possible communicable respiratory disease.
 - d. Care should be taken to not cross contaminate other equipment while wearing gloves.
4. N95 Healthcare Particulate Respirators.
- a. The N95 Healthcare Respirators are intended to minimize but not eliminate wearer to exposure to specific airborne particles. The respirators should meet the CDC guidelines for TB exposure control and certified by NIOSH.
 - b. Fit Test.
 - i. If appropriate to expected work, each system EMT | paramedic will be issued a respiratory mask through their respective department with a qualitative test being performed by a recognized fit-test instructor.
 - c. High Risk Groups (Infectious Disease Transmission).

Patient Population	Environmental Concern	Signs / Symptoms
• HIV positive persons • Sheltered or homeless persons • Alcoholics • IV drug abusers • Inmates • Nursing home residents	• Medical facilities • Hospice • Correctional facilities • Long term care facilities • Drug treatment centers	• Productive cough • Coughing up blood • Weight loss • Loss of appetite • Weakness • Night sweats • Fever

- d. Medical procedures performed in the field increase the risk of infectious disease transmission. Respiratory masks should be considered for use when performing:
 - i. Aerosolized medications.
 - ii. Endotracheal intubation.
 - iii. Suctioning.
 - iv. Transporting in a closed vehicle.
 - v. Surgical cricothyrotomy.
 - vi. Chest decompression.

TAB 1 GUIDELINE 13

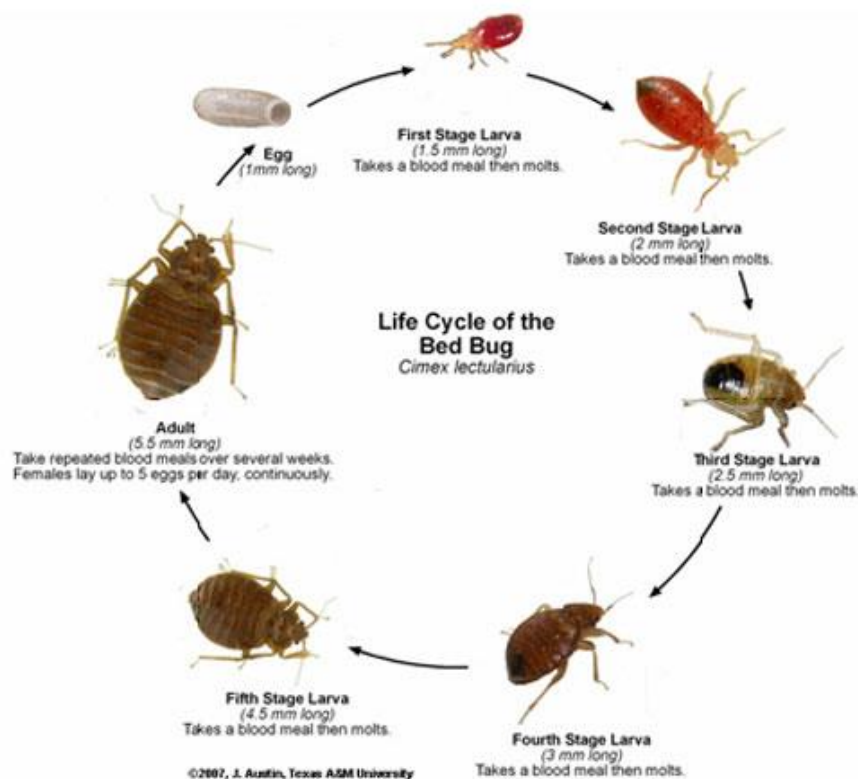
INFECTION CONTROL – BED BUGS

PURPOSE:

- To provide personal protection recommendations to EMS providers who are presented with a patient in a known or suspected bed bug infestation.

PROCEDURE:

- Take universal precautions.
- Take only needed equipment into the area of infestation to minimize exposure.
- Seal equipment in plastic bags when necessary to prevent exposure.
- Avoid sitting on beds or furniture. If you have to sit, do so on a hard surface.
- If you feel you have been infested, shower and seal clothes in a plastic bag.
- Place potentially exposed clothing in a hot dryer for 10 minutes to kill the bugs.
- Footies, caps, and gloves should be worn if available during care.
- Remove these items before entering the vehicle and place in a plastic bag.
- Dispose of trash bags containing used PPE equipment in sealed containers.
- Keep patients wrapped during transport as much as possible to prevent transfer of bed bugs to the ambulance, or locations other than the hospital room the patient is put into.
- Clean and disinfect the vehicle as soon as possible.
- Notify the receiving facility as soon as possible regarding potential for bed bug exposure.



TAB 1 GUIDELINE 14

INFECTION CONTROL – OUTBREAK

Scope and Purpose:

- This guideline is presented for the use of multiple organizations within varying EMS systems. The Medical Directors strongly encourage individual departments to implement these guidelines for the protection of their prehospital providers as well as their patients.
- Protect the health and safety of our personnel during a public health emergency.

Public Safety Answering Points (PSAP):

- Dispatchers should screen all callers for any symptoms of acute febrile respiratory illness. Callers should be asked if they or anyone else at the incident location have any of the following signs and symptoms:
 - Fever
 - Nasal congestion
 - Runny nose (rhinorrhea)
 - Cough or difficulty breathing
 - Sore throat
 - Coughing up blood
 - Or other symptoms in accordance with the specific disease involved
- Dispatch the call as normal
- When the squad advises that they are responding, advise them that the patient or someone else at the scene has signs and / or symptoms of an acute febrile respiratory illness.

Personal Protective Equipment:

Disposable gloves	Infection control kit (pouch)
Head covers	Hazardous waste bags
N95 Healthcare Particulate Respirators	Various sharps containers
Disposable Gowns / facemasks	Germicidal hand wipes
Eye protection	Germicidal spray cleaner
Shoe Covers	

Patient Assessment:

- A minimal number of personnel should enter the scene in order to avoid unnecessary exposure. In most cases the first arriving crew should assess the patient and only have additional personnel enter the scene if needed.

- If the outbreak has been reported in our region, then don appropriate PPE prior to entering the scene
- EMS personnel should maintain a distance of at least six (6) feet (when possible) from anyone with suspected acute febrile respiratory illness while exercising appropriate respiratory droplet precautions.
- A patient history should be obtained to determine if the patient is likely suffering from the suspected disease. Do they have fever plus one or more of the following:
 - Nasal congestion
 - Runny nose (rhinorrhea)
 - Cough or difficulty breathing
 - Sore throat
 - Coughing up blood
- If no symptoms of acute respiratory illness, then process with normal EMS care.
- If symptoms of acute febrile respiratory illness, then assess for travel to an affected geographic area or close contact with someone who has traveled to affected area in the last seven days or close contact with someone who is known or suspected to have the disease.
 - If possible exposure, don appropriate PPE if not already done and place a standard surgical mask on the patient (if tolerated). If oxygen therapy is necessary, use a non-rebreather mask. If possible, avoid droplet producing procedures including nebulizer, bag-valve mask, suctioning or intubation. If bag-valve-mask ventilation is needed use a BVM with a HEPA filter if available.
 - If no exposure, place a standard surgical mask on the patient (if tolerated) and use appropriate PPE for cases of acute febrile illness.
 - Isolate the driver's compartment from the patient compartment by closing the door / window.
 - Alert the receiving facility that you are bringing in a suspected case.

Vehicle Cleaning:

- After the patient has been transferred, open all the doors and windows and leave the ventilation system running.
- Routine cleaning methods should then be used throughout the vehicle and on non-disposable equipment. In general, an agent that is tuberculocidal and effective against HIV / HBV should be sufficient.

TAB 1 GUIDELINE 15
PRACTITIONER DISCIPLINARY POLICY

1. A practitioner's right to practice medicine affiliated with the One Energy Training Institute is based on written and verbal authorization from the EMS Medical Directors per Ohio Law [4765.35(D)(1), 4735.37(D)(1), 4765.38(C)(1), 4765.39(C)(1)].
2. For the purposes of this procedure, a "practitioner" is any individual practicing in the One Energy Training Institute at the level of Medical Responder or higher level of certification. If, in the opinion of the Medical Director, an action (or failure to act) on the part of a practitioner is of such a nature that the action or failure to act is inconsistent with, or a violation of, these procedures, or the practice standard generally accepted in the medical community, the actions described below shall occur.
3. The Medical Director and the General Manager each maintain the absolute right to prohibit any individual from practicing under the authority of One Energy. Either the Medical Director or the General manager may serve written notice of termination of rights to the individual or to one another (Medical Director or General Manager).

TAB 1 GUIDELINE 16

CONTROLLED SUBSTANCE

1. One Energy Training Institute provides the opportunity for controlled substance (medication) use by ALS First Responder units. As an ALS provider the controlled substances are authorized for use following strict guidelines and procedures as outlined in: 1) The State of Ohio Administrative Code Chapter 4729-33, DEA regulations; 2) US Department of Justice Drug Enforcement Administration Office of Diversion Control, Title 21 CFR, Part 1300 – 1399; and 3) One Energy Training Institute ALS Guidelines.
2. The Controlled Substance Policy has been established to ensure that advanced EMTs and paramedics adhere to appropriate laws, procedures and policies regarding the possession and use of Controlled Substances. All crew members shall adhere to all procedures contained within this Controlled Substance Policy. This Controlled Substance Policy has been approved by the Medical Director.
3. **Initial receipt of controlled substance stock**
 - a. The General Manager of One Energy Training Institute may order Controlled Substances for initial stock and restock.
 - b. Controlled Substances will only be handled by designated personnel per discretion of the General Manager in conjunction with the Medical Director
 - c. Upon receipt of any Controlled Substance(s) at the training institute, two (2) of the Designated Personnel shall count and record the Controlled Substance(s) on the Controlled Substance Central Supply Inventory / Disbursement Log.
4. **Storage of controlled substances**
 - a. Upon receipt and inventory at the training institute, all Controlled Substances shall be placed in the locked safe / cabinet. Access to the safe / cabinet shall be strictly limited to the Designated Personnel. The safe and cabinet shall be in a locked room that is again limited to the Designated Personnel.
 - b. Controlled Substances disbursed to field personnel will be stored in either the medication vault or in respective medication box.
 - c. **Apparatus inventory – Medication Box**
 - i. Par levels of medications carried in the medication box have been established per individual department CONTROLLED SUBSTANCE Policy.
 - ii. The plastic storage compartment for Controlled Substances will be tagged with a numbered seal at all times **except** when it is in the immediate possession of an

advanced EMT or paramedic who is either transferring possession of a Controlled Substance or administering a Controlled Substance to a patient.

5. **Controlled substance daily verification procedure**

- a. **At the beginning of every shift, the assigned advanced EMT or paramedic shall inspect the medication box for an intact numbered seal and the appropriate medications per the training institutes' par level.**
- b. Advanced EMTs and Paramedics must also check the expiration dates of the Controlled Substances for currency.
- c. If an irregularity or discrepancy is apparent in a Controlled Substance container, the General Manager and Medical Director must be notified.
- d. Interns, paramedic students or other persons not employed by the One Energy Training Institute are **not authorized** to inspect, count, or sign for Controlled Substances.
- e. **Expired Medications**
 - i. **Drug boxes shall be checked to assess for expired medications**
 - 1. **Ideally the drug check should occur on a weekly basis, but at minimum on a monthly basis**
 - ii. **All expired medications will be removed from the drug boxes and given to the delegated departmental person to destroy the medications. All narcotic medications must follow board of pharmacy protocol for destruction**

6. **Administration of controlled substances**

- a. The administration and use of Controlled Substances shall be limited to the following scope and application. Advanced EMTs and Paramedics are not authorized to administer Controlled Substances unless the following requirements are met:
 - i. The advanced EMT or paramedic is administering the Controlled Substance under a specific One Energy Training Institute EMS guideline.
 - ii. The advanced EMT or paramedic has received a Medical Control Order, if needed, for the specific Controlled Substance.
- b. When the above requirements have been met, an advanced EMT or paramedic is authorized to administer a Controlled Substance to the patient under their care. The advanced EMT or paramedic must then inspect the Controlled Substance and see that it possesses **ALL** of the following qualities:
 - i. Appropriate labeling for the type, amount, and concentration to be used

- ii. An intact control number label on the Controlled Substance container
- iii. Inspection of the Controlled Substance reveals no discoloration, cloudiness, or particulate matter.
- iv. The Controlled Substance's expiration date has not been exceeded
- v. **If any detected irregularity is noted, the Controlled Substance shall not be used. The General Manager and Medical Director must be informed of any and all noted discrepancies upon completion of a response or medical call.**

7. Discarding (wasting) the unused portion of a controlled substance

- a. Any remnants of Controlled Substances that were not administered to a patient must be discarded in the following manner:
 - i. The advanced EMT or paramedic who initially accesses the Controlled Substance remains responsible for the Controlled Substance until any portion that may be remaining is discarded. The responsible advanced EMT or paramedic must discard the Controlled Substance in the presence of another advanced EMT or paramedic crew member.
 - ii. All of the remaining Controlled Substance must be discarded. The unused portion may be discarded in a sink, sharps disposal, placed in a secured bag and then back into the secured drug cabinet to be sent back to the pharmacy for disposal.
 - iii. The names and training level of the personnel involved in the disposal process must be thoroughly documented on the Controlled Substance Administration Report that corresponds with the control number on the Controlled Substance.
 - iv. Interns or paramedic students are not authorized to sign for or witness the discarding of a Controlled Substance.

8. Restocking Controlled Substances

- a. Controlled Substances must be restocked immediately if the par level of any controlled substance falls to zero (0).
- b. Expired Controlled Substances should be removed from circulation, placed in a sealed Controlled Substance evidence bag, and stored:
 - i. Designated secured area within the EMS station (i.e., office, officer's room)
 - ii. ALS crews taking possession of partially stocked Controlled Substances from an off-going crew should have all Controlled Substances, Controlled Substance Administration Card(s), and expired meds (if any) accounted for during the daily verification procedure.

9. Documentation

- a. Controlled Substance Logs – Information, Purpose, and Use
 - i. An advanced EMT or paramedic, by his or her acceptance of the possession of a Controlled Substance, thereby accepts complete responsibility for the security, handling, and use of the Controlled Substance.
 - ii. Random monthly audits shall be performed by the General Manager or his designee for quality control purposes, and the findings reported to the Medical Director.
- b. Patient Care Reports (PCRs) must be complete in order to thoroughly document the use of a Controlled Substance, and should be clear regarding the following:
 - i. The patient assessment must justify the administration of a Controlled Substance according to One Energy Training Institute treatment guidelines.
 - ii. The **On-Line Medical Control** order must be clearly stated (if applicable).
 - iii. The amount of Controlled Substance actually administered to the patient and time(s) of administration must be clearly documented.
 - iv. The patient's vital signs before and after administration of the Controlled Substance must be clearly documented.
 - v. The patient's condition and vital signs must be clearly documented upon the patient's arrival at the receiving facility.
 - vi. The name of the advanced EMT or paramedic administering the Controlled Substance must be documented.

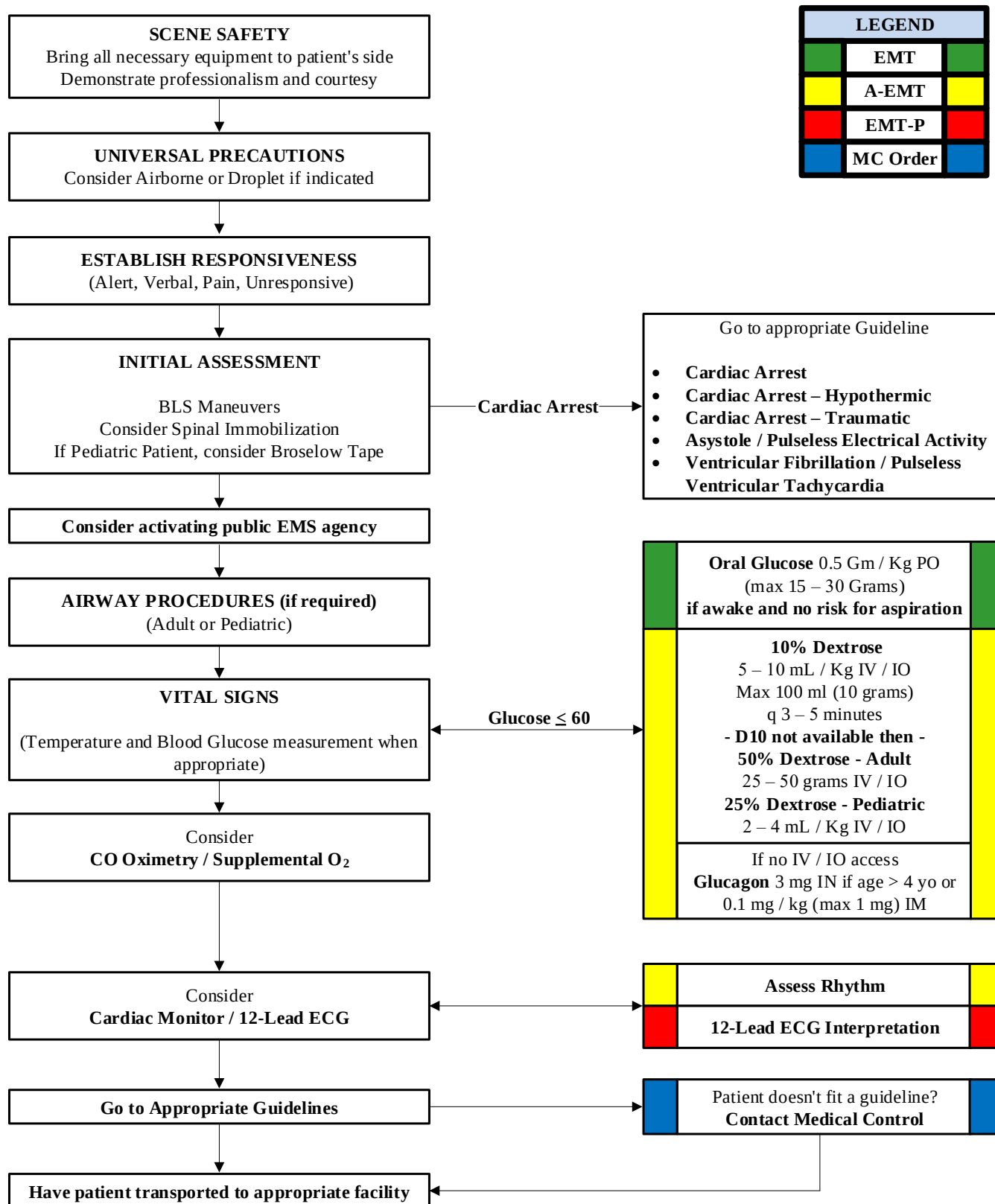
10. Controlled substance discrepancies

- a. The strict adherence to the Controlled Substance policy will prevent discrepancies. Any discrepancy involving Controlled Substances shall result in the immediate, mandatory notification of the General manager and Medical Director.
- b. The advanced EMT or paramedic(s) involved must complete and submit a Controlled Substance Discrepancy Report the General Manager, who will provide to Medical Director.
- c. On duty and/or off-going personnel may be asked to submit the ALS Controlled Substance Log(s) for the entire shift prior to the discovery of the discrepancy.
- d. All evidence must be retained for inspection by the General Manager or his designee. Any evidence (if applicable) will be sealed in a Controlled Substance evidence bag.
- e. **If at any time theft of narcotics are found, then immediate notification to the General Manager and law enforcement (including local and DEA). Notification should then be made to Medical Director.**

11. Quality improvement

- a. The following procedures shall be performed to maintain Quality Improvement for the Controlled Substance Policy:
 - i. All ALS Controlled Substance Daily Verification Logs shall be maintained at the respective EMS departments.
 - ii. The Medical Director may perform random audits of field units, logs, inventory and related materials. Logs shall be signed to indicate an audit has been performed.
 - iii. In cases of serious discrepancies, the General Manager will review all documentation pertaining to discrepancies and notify the Medical Director and others as appropriate.
- b. **Monthly notification of controlled substances**
 - i. At the beginning of every month, the assigned advanced EMT or paramedic shall send using the Controlled Substance Notification Form the end count, used / administered, purchased and expired / wasted controlled substance for the previous month and any discrepancy information to the General Manager and Medical Director

TAB 1 GUIDELINE 17
UNIVERSAL PATIENT CARE



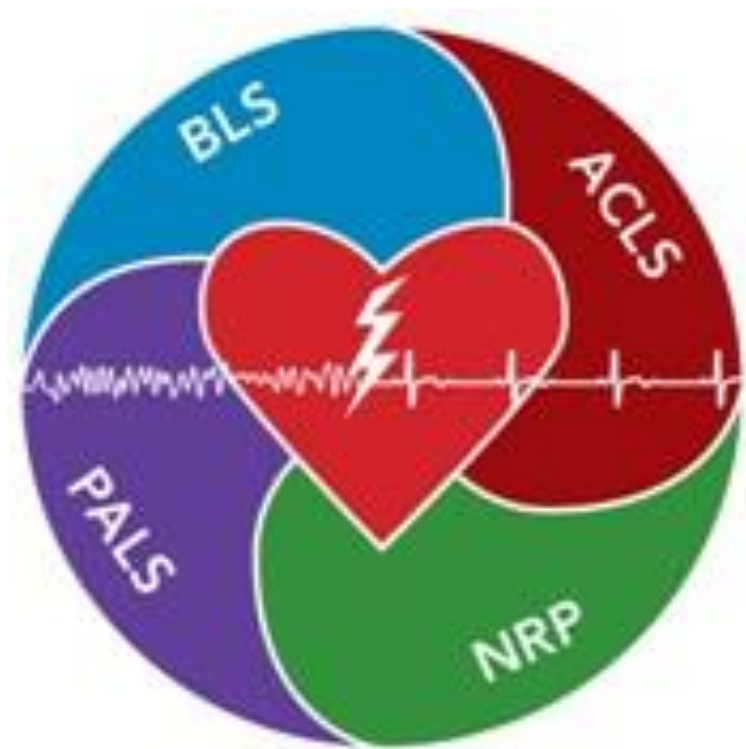
SPECIAL CONSIDERATIONS:

1. **Scene Safety Evaluation:** Identify potential hazards to rescuers, patient and public. Identify number of patients and utilize triage guideline if indicated. Observe patient position and surroundings
2. **General:** All patient care must be appropriate to your level of training and documented in the PCR
3. **Special note on oxygen administration and utilization:** Oxygen is a pharmaceutical agent with indications, contraindications as well as untoward side effects. Recent research demonstrates a clear link with increased mortality when given in overdose (hyperoxia / hyperventilation) in cardiac arrest. Utilize oxygen when indicated and not because it is available. **Reasonable target oxygen saturation for most patients is 94 – 99 % regardless of delivery device**
4. **Pearls**
 - a. **Recommended Exam: Minimal exam if not noted on the specific guideline is vital signs, mental status with GCS, and location of injury or complaint**
 - b. **AIRWAY:** Follow the airway management guideline (adult versus pediatric)
 - c. **BREATHING:** Listen for audible sounds
 - i. Hoarseness / Wheezing / Fragmented Sentences / Stridor / Inspect chest and auscultate lung sounds
 - d. **CIRCULATION:**
 - i. Inspect for uncontrolled hemorrhage (control as appropriate)
 - ii. Palpate a pulse (carotid, radial, femoral, or brachial)
 - iii. Check capillary refill
 - iv. Look for JVD
 - e. **DISABILITY:**
 - i. Inspect for gross deformities
 - ii. Pupillary response
 - iii. Glasgow Coma Scale / Cincinnati stroke scale
 - iv. Distal pulses, motor function, and sensation
 - f. **SAMPLE HISTORY:**
 - i. Signs and Symptoms / Allergies / Medications / Past Medical History / Last Oral Intake / Events leading to illness / injury
 - g. Prepare for transport and perform ongoing exam

TAB 2

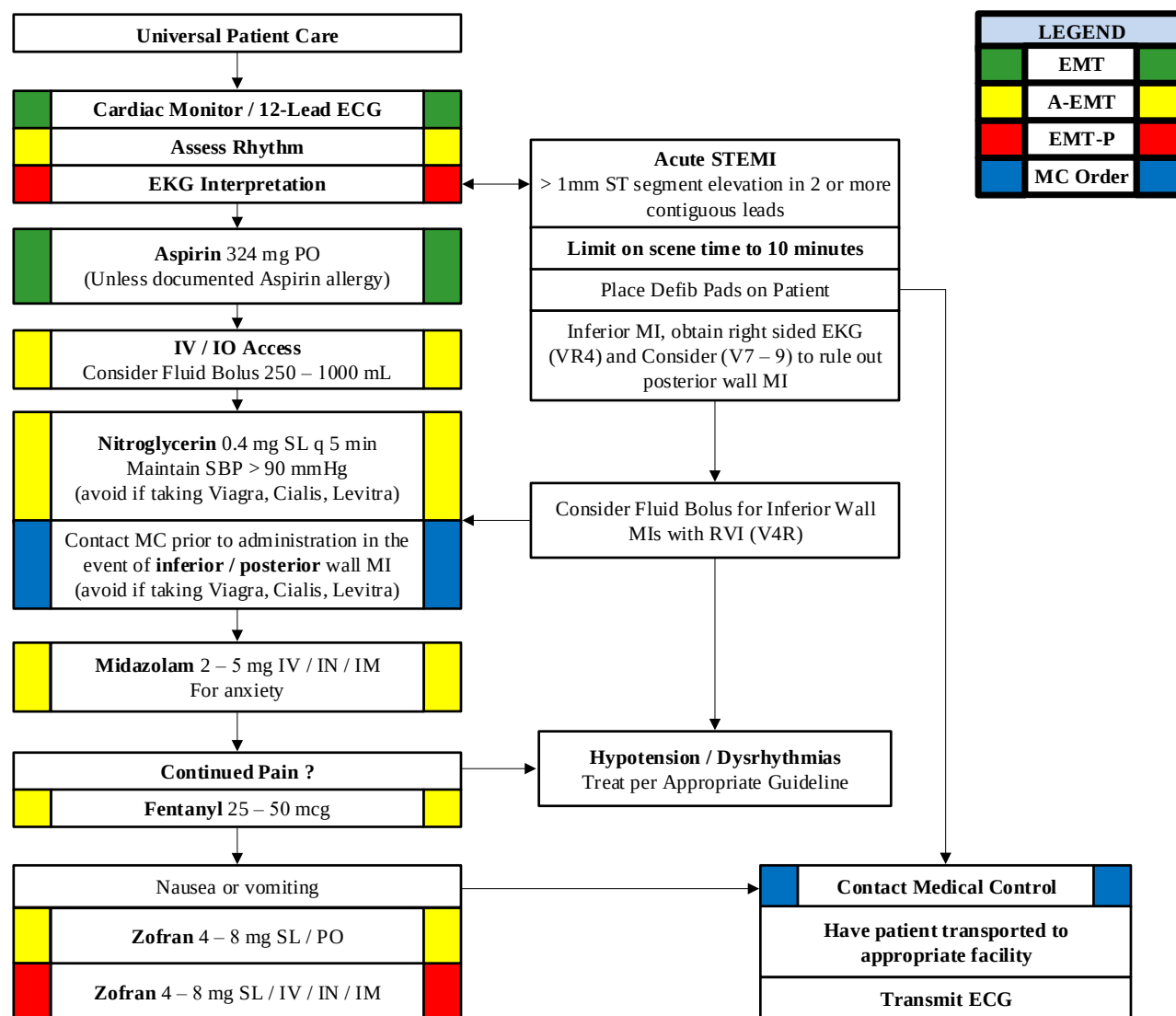
CARDIAC

GUIDELINES



TAB 2 GUIDELINE 1
CHEST PAIN | ACUTE CORONARY SYNDROME

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
• Age • Medications (Viagra, Levitra, Cialis) • MI, Angina, Diabetes, Post Menopausal • Allergies • Recent physical exertion • Onset • Palliation / Provocation • Quality • Region / Radiation / Referred • Severity (1-10) • Time (duration / repetition)	• CP (pain, pressure, aching, vice-like tightness) • Location (substernal, epigastric, arm, jaw, neck, shoulder) • Radiation of pain • Pale, diaphoresis • Shortness of Breath • Nausea, vomiting, dizziness • Atypical presentations • Anginal equivalents	• Trauma vs. Medical • Angina vs. Myocardial Infarction • Pericarditis • Pulmonary embolism • Asthma / COPD • Pneumothorax • Aortic dissection or aneurysm • GE reflux or Hiatal hernia • Esophageal spasm • Chest wall injury or pain • Pleural pain • Overdose (Cocaine)

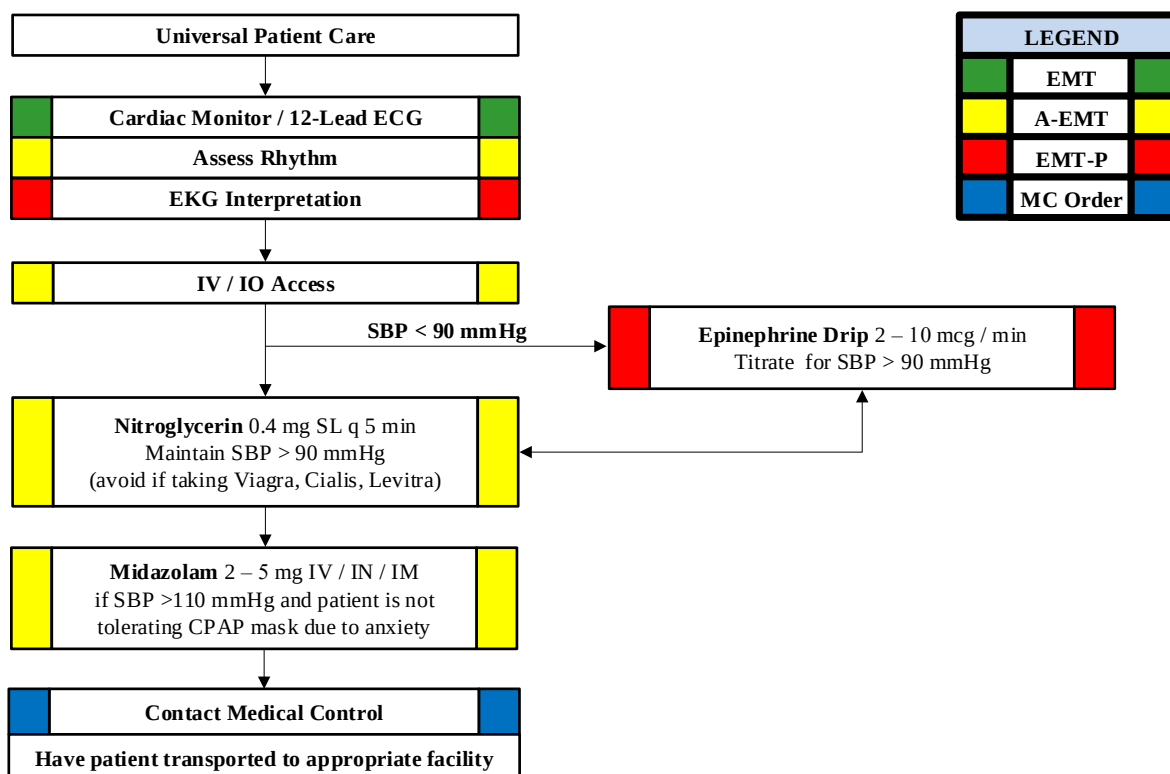


SPECIAL CONSIDERATIONS:

1. Patients with 12-Lead ECG signs indicative of ST-segment elevation myocardial infarction (STEMI) will be triaged to the closest available PCI (Percutaneous Coronary Intervention) facility for treatment.
2. **STEMI Criteria:**
 - a. ST-segment elevation, measured at the J-point, of 1mm or more.
 - b. ST-segment elevation must be present in two anatomically contiguous leads.
 - c. Probable new-onset BBB.
3. STEMI ALERT Procedure:
 - a. Acquire 12-Lead ECG as outlined in the 12-Lead ECG guideline.
 - b. 12-Lead interpretation indicative of myocardial injury (STEMI).
 - i. Localize area of injury (Septal, Anterior, Inferior, etc.).
 - ii. Rule out possible ACS imitators.
 1. Bundle branch block (BBB).
 2. Left ventricular hypertrophy (LVH).
 3. Ventricular Rhythms.
 4. Benign Early Repolarization (BER).
 5. Pericarditis.
 - c. Declare a “STEMI ALERT” with EMS Dispatch and transport to the closest PCI facility. Patients who display patterns on the 12-Lead ECG that mimic ACS (i.e., BBB, LVH, etc) should be transported to the closest appropriate hospital.
4. **All inferior wall MI’s should have a V4R and should consider V7 – 9 to rule out posterior wall MI.**
5. Transmit 12-Lead ECG to the assigned receiving PCI facility as time permits. Notify On-Line Medical Control, during patient assessment transmission, that 12-Lead ECG has been sent.
6. **Avoid the administration of NTG if the patient has taken Sildenafil (Viagra) or Vardenafil (Levitra) in the prior 24 hours or Tadalafil (Cialis) in the prior 48 hours.**
7. Avoid administration of supplemental oxygen (> 2 L / min) unless oxygen saturation < 94%

TAB 2 GUIDELINE 2
CONGESTIVE HEART FAILURE | ACUTE PULMONARY EDEMA

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
• Congestive heart failure • Past medical history • Medications (Digoxin, Lasix) • Viagra, Levitra, Cialis • Cardiac history - past myocardial infarction	• Respiratory distress, Bilateral rales • Apprehension • Orthopnea / Paroxysmal Nocturnal Dyspnea • Jugular vein distention • Pink, frothy sputum • Peripheral edema, diaphoresis • Hypotension, shock • Chest pain • Diaphoresis	• Myocardial infarction • Congestive heart failure • Asthma / COPD / Pneumonia • Anaphylaxis • Aspiration • Pleural effusion • Pulmonary embolus • Pericardial tamponade • Toxic exposure

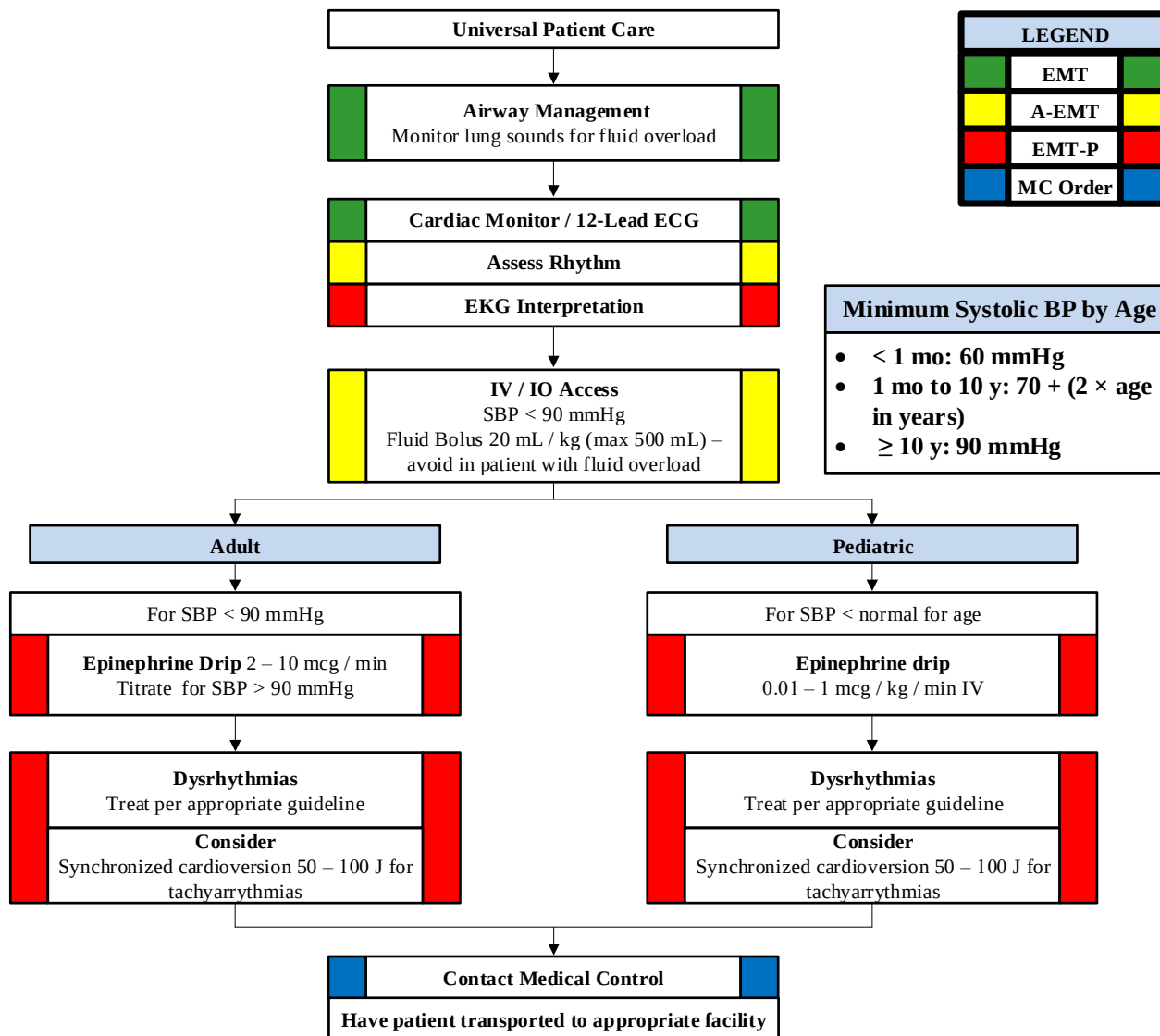


SPECIAL CONSIDERATIONS:

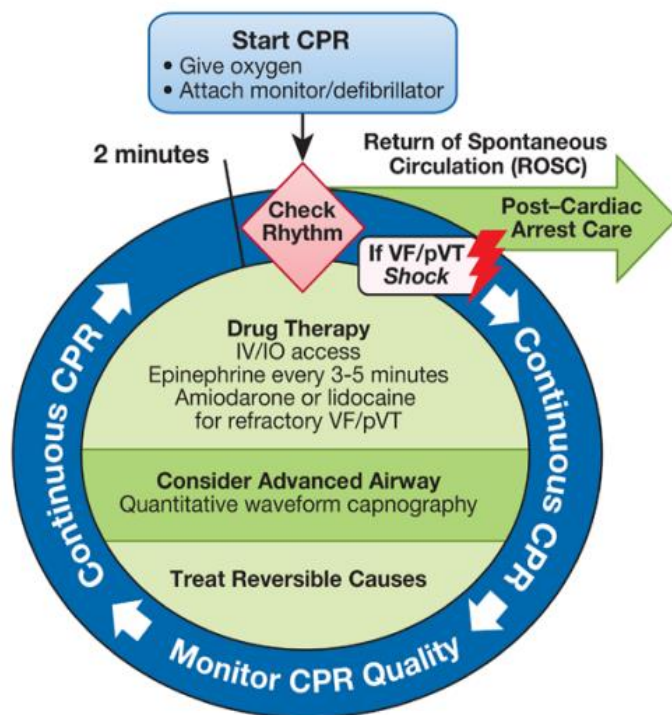
1. Immediately begin administration of oxygen and titrate for $\text{SpO}_2 > 92\%$. This will maximize oxygen concentration and fully saturate circulating hemoglobin.
2. If a patient is in extreme distress, it may be appropriate to proceed to immediate intubation and ventilation (Paramedic only).
3. For patients who have moderate to severe pulmonary edema, noninvasive ventilations should be started (CPAP). CPAP provides positive airway pressure and reduces the work of breathing. Preload and afterload are also both reduced by CPAP, which is very beneficial in CHF patients.
4. Initial therapy with Nitroglycerin (NTG) is a preload-reducing agent that also decreases the workload of the heart. **Administer Nitroglycerin q 3 – 5 minutes as long as SBP > 90 mmHg.**
 - a. Avoid the administration of NTG if the patient has taken Sildenafil (Viagra) or Vardenafil (Levitra) in the prior 24 hours or Tadalafil (Cialis) in the prior 48 hours.
5. Some patients with decompensated CHF will have such poor perfusion they would be classified as having cardiogenic shock. This small subset of patients may not tolerate any preload or afterload reduction and may, in fact, need inotropic support (epinephrine) to maintain any blood pressure. Unfortunately, the mortality rate for this group of patients is very high, despite therapy.

TAB 2 GUIDELINE 3
CARDIOGENIC SHOCK

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Age - Medications - Past medical history (MI, Angina, Diabetes) - Allergies - Recent events - Onset	- Chest pain - Systolic BP < 100 mmHg - Rales or crackles ("wet" lung sounds) - Pedal edema - Dyspnea - Diaphoresis - Nausea / Vomiting	- Trauma vs. Medical - Myocardial infarction - Pulmonary embolism - Pneumothorax - Chest wall injury or pain - Sepsis



TAB 2 GUIDELINE 4
2018 AHA GUIDELINES



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CPR Quality

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Change compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
 - If $PETCO_2$ <10 mm Hg, attempt to improve CPR quality.
- Intra-arterial pressure
 - If relaxation phase (diastolic) pressure <20 mm Hg, attempt to improve CPR quality.

Shock Energy for Defibrillation

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic:** 360 J

Drug Therapy

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
 - **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.
- OR-**
- **Lidocaine IV/IO dose:** First dose: 1-1.5 mg/kg. Second dose: 0.5-0.75 mg/kg.

Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

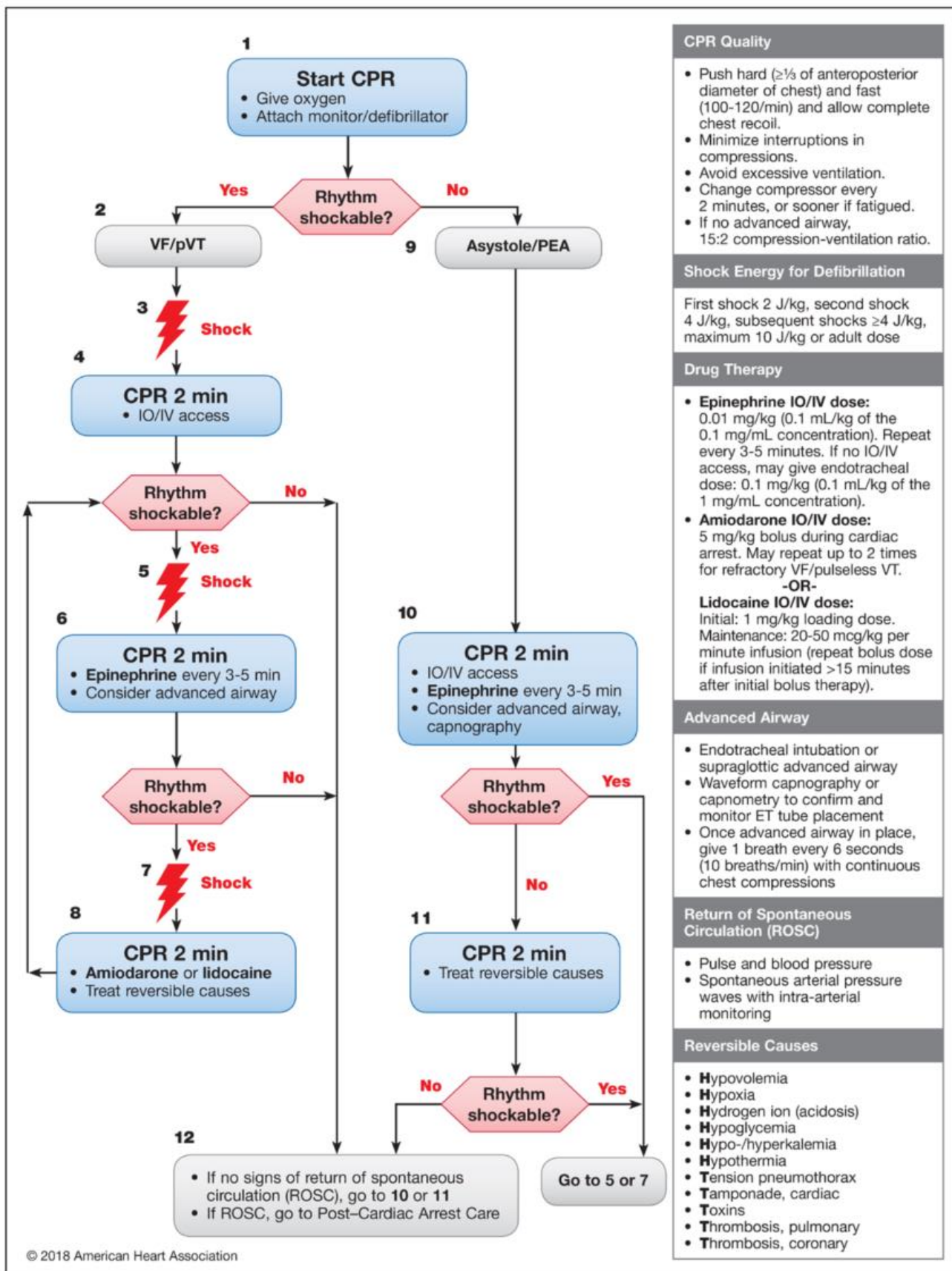
Return of Spontaneous Circulation (ROSC)

- Pulse and blood pressure
- Abrupt sustained increase in $PETCO_2$ (typically ≥ 40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

Reversible Causes

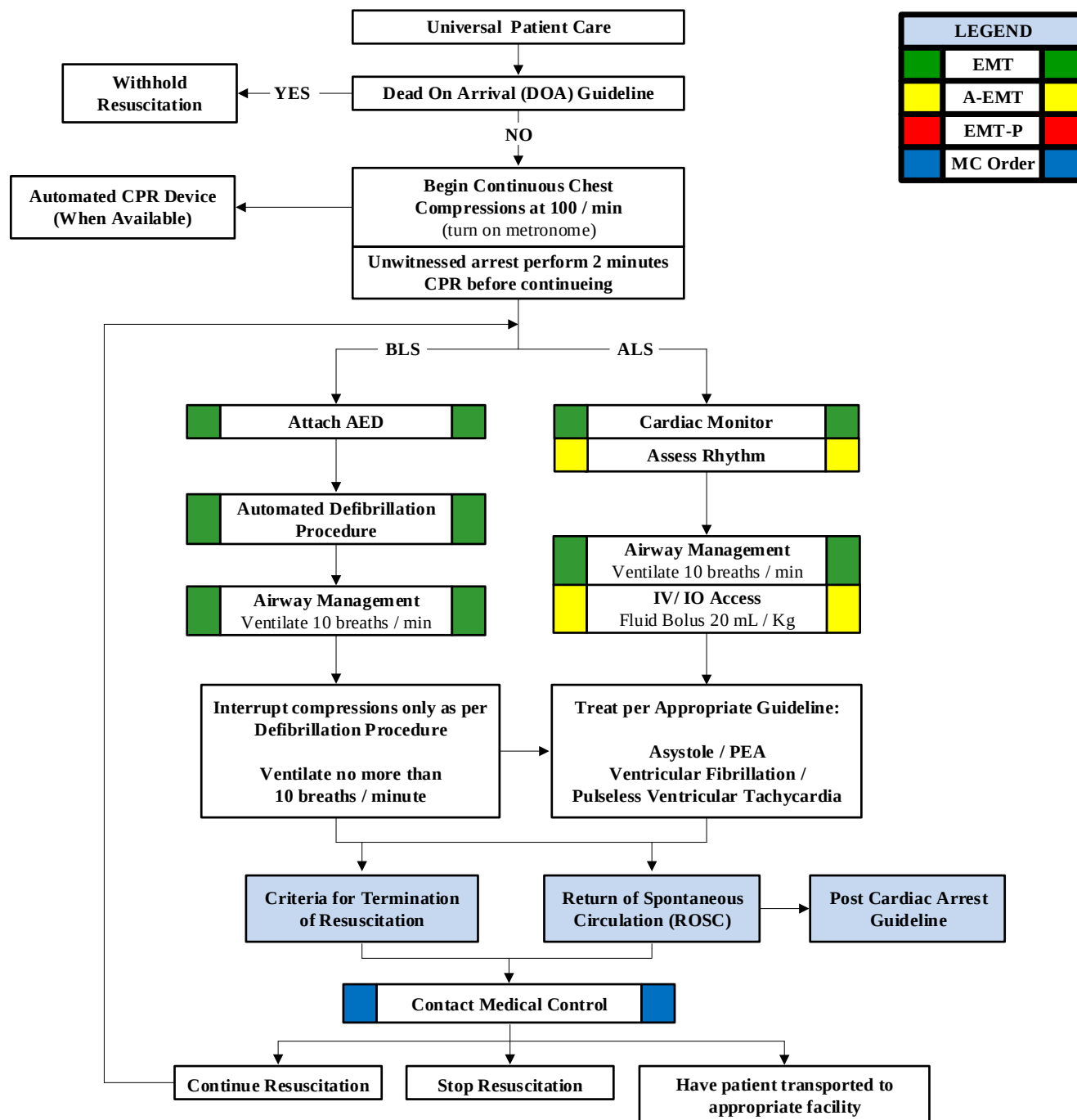
• Hypovolemia	• Tension pneumothorax
• Hypoxia	• Tamponade, cardiac
• Hydrogen ion (acidosis)	• Toxins
• Hypo-/hyperkalemia	• Thrombosis, pulmonary
• Hypothermia	• Thrombosis, coronary

PEDIATRIC CARDIAC LIFE SUPPORT



TAB 2 GUIDELINE 5
CARDIAC ARREST – ADULT | PEDIATRIC

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Time of onset, time lapse until CPR initiated - Events leading to arrest - Estimated down time - Past medical history - Medications - Existence of terminal illness - DNR	- Unresponsive - Apneic - Pulseless - Signs of lividity, rigor mortis - Evidence of drug ingestion - Trauma - Hypothermia	- Medical vs. Trauma - Ventricular Fibrillation vs. Pulseless Ventricular Tachycardia - Asystole - Pulseless Electrical Activity (PEA)



SPECIAL CONSIDERATIONS:

1. **Resuscitation is based on proper planning and organized execution. Procedures require space and patient access. Make room to work. Utilize Team Focused Approach (PIT Crew CPR) assigning responders to predetermined tasks.**
2. **Unless patient / crew is in an unsafe environment all resuscitative measures should be performed where the cardiac arrest occurred. Sustained ventricular tachycardia / fibrillation greater than 20 minutes should be discussed with online medical control for potential transport.**
3. **Efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated.**
 - a. **Pre-charging the defibrillator 30 seconds before the pre-shock pause should occur to reduce the amount of perishock pause**
4. **MCMAID** acronym for Cardiac Arrest Priorities:
 - a. **Metronome** – Rate 100-120 beats per minute but allow complete chest recoil
 - b. **Compression** – harder, deeper, faster (continuous with advanced airway in place)
 - i. **INTERRUPTION IN COMPRESSIONS NEEDS TO BE KEPT TO A MINIMUM**
 - ii. “Push Hard and Push Fast” at a rate of 100 – 120 beats per minute
 1. Allow chest to recoil from compressions
 2. Limit interruptions to chest compressions
 - iii. **If no advanced airway (BIAD, ETT) compressions to ventilations are 30:2. If advanced airway in place ventilate at 10 breaths per minute with continuous, uninterrupted compressions.**
 - iv. Deploy and utilize resqCPR system or automated CPR device when appropriate and available.
 1. With the efficacy of automated CPR devices, compressions should not be stopped during defibrillation
 - c. **Monitor** – defibrillate after 2 minutes of CPR if down > 4 minutes or unwitnessed
 - i. AED should be used on all children over the age of 1 year
 - ii. AED should deliver one (1) shock and then CPR should immediately begin
 - d. **Airway**
 - i. **DO NOT HYPERVENTILATE**

- ii. Breathing / Airway management after second shock and / or 2 rounds of compressions (2 minutes each round.)
- iii. **DO NOT STOP CPR TO INTUBATE EARLY IN THE ARREST.** Initiate basic airway (King LT or LMA preferred) with Bag Valve Mask, **VENTILATE AT A RATE OF 10 BREATHS / MINUTE** with oxygen source at flow rate of 15 LPM.
- iv. Utilize EZ cap or capnography device if available, evaluate CPR ($\text{EtCO}_2 > 10$ mmHg).
 - 1. In patients with return of spontaneous circulation (ROSC), the first visualized sign may be a significant increase in capnographic waveform and capnogram value. CO_2 washout through the lungs upon return of mechanical circulation proves a valuable sign of ROSC and should prompt the EMS providers in the field to assess patient circulation (pulses).
 - 2. Rescue breaths over one (1) second
 - 3. Limit ventilations one (1) every six (6) seconds or ten (10) per minute
 - 4. Limit tidal volumes to 500 ml for adults if using oxygen
- v. Upon placing and evaluating an advanced airway (ET, KING LTD, iGel), it is **strongly recommended** that the patient's head be immobilized with a C-collar and/or CID to maintain airway control.
- a. IV Access or IO if no success within 90 seconds or after 2 attempts
- b. Drugs – ACLS guidelines per AHA.
 - i. **Perform CPR for 2 minutes immediately following any pharmacologic intervention and after defibrillation, before the rhythm is checked.**
 - ii. Medications that may be given via the endotracheal tube:
 - 1. Atropine (concentration of 0.8 mg / 20 ml)
 - a. Adult – 2 – 2.5 mg
 - b. Pediatric – 0.04 mg / kg (minimum single dose 0.2 mg – max total dose 2 mg)
 - 2. Epinephrine
 - a. Adult – 2 – 2.5 mg
 - b. Pediatric – 0.1 mg / kg (0.1 ml / kg 1:1000)
 - 3. Lidocaine
 - a. Adult – 100 mg

- b. Pediatric – 2 mg / kg
 - 4. Versed
 - a. Adult – 2 – 4 mg
 - b. Pediatric – 0.2 mg / kg (max 10 mg)
 - iii. The dosage of these medications, when administered into the tracheal bronchial tree, should be 2 times the dose otherwise given IV / IO. Followed with a **5 – 10 mL saline flush and 5 ventilations after the medication is administered.**
 - iv. **NOTE: No medications should be delivered through the KING LTD airway, iGel or other supraglottic device.**
 - v. Amiodarone is **NOT to be administered via the endotracheal route.** Lidocaine should be administered via the ETT in lieu of Amiodarone when absent IV / IO access.
 - 1. Given the setting where Lidocaine was given initially via the ETT, and IV / IO access is then achieved, Amiodarone should **NOT be administered.** Lidocaine administration should be continued (if necessary). In the event that ROSC is achieved following Lidocaine administration, a Lidocaine drip infused at 1-4mg/min would be required.
 - vi. **With Return of Spontaneous Circulation, the last antiarrhythmic medication given should be initiated in an IV drip format.**
- 5. Consider correctable causes of “H’s and T’s”:
 - Hypoxia
 - Hydrogen Ion
 - Hyper / Hypokalemia
 - Hypothermia
 - Hypovolemia
 - Hypoglycemia
 - Tablets / Toxins
 - Tamponade (cardiac)
 - Tension pneumothorax
 - Thrombus (myocardial infarction)
 - Thrombus (pulmonary embolism)
 - Trauma
- 6. **Maternal Arrest** - Treat mother per appropriate guideline with immediate notification to Medical Control and rapid transport as per Cardiac Arrest Destination Plan. Place mother supine and perform Manual Left Uterine Displacement moving the uterus to the patient’s left side. IV/IO access preferably above the diaphragm. Defibrillation is safe at all energy levels.
- 7. If any underlying cause of arrest is suspected (i.e., hypothermia, diabetes, overdose), it would be appropriate to integrate those treatment guidelines during the resuscitative process. Do not,

however, delay administration of cardiac medications while integrating treatments from other guidelines.

- a. **The most common cause of pediatric cardiac arrest is HYPOXIA** for this reason our primary responsibilities differ somewhat from that of an adult. If intervention is swift and effective, the child can often be restored to full health. This makes the psychological burden and reward for you as providers all the greater.
 - b. Refer to Dialysis / Renal Failure guideline caveats when faced with dialysis / renal failure patient experiencing cardiac arrest.
 - a. Consider Opioid Overdose: Naloxone 2 mg IM / IV / IO / IN. EMT-B may administer Naloxone via IN route only.
8. Reassess, document endotracheal tube placement and EtCO₂ frequently, after every move, and at transfer of care.

COMPONENT	ADULT	CHILD	INFANT
Recognition	Unresponsive (for all ages)		
	No breathing, not breathing normal (gasping)	Not breathing or only gasping	
ACTIVATE Emergency response	Activate when victim found unresponsive. HCP: if respiratory arrest likely, call after 5 cycles (2 minutes of CPR)	Activate after performing 5 cycles of CPR. For sudden, witness collapse, activate after verifying that victim unresponsive	
CPR Sequence	CAB	CAB	CAB
CIRCULATION HCP: Pulse check (≤ 10 sec)	Carotid (HCP can use femoral in child)		Brachial or femoral
Compression landmarks	Center of chest, between nipples		Just below nipple line
Compression method	2 hands: Heel of 1 hand, other hand on top	2 Hands: Heel of 1 hand with second on top or 1 Hand: Heel of 1 hand only	1 rescuer: 2 fingers HCP: 2 rescuers: 2 thumb-encircling hands
Compression depth	At least 2 inches	At least 1/3 AP diameter of the chest	
Compression rate	Approximately 100 – 120 beats / minute (push hard, fast, allow full chest recoil)		
Compression - ventilation ratio (5 cycle / 2 minutes)	30 to 2 (1 or 2 rescuers)	30 to 2 (single rescuer) HCP: 15 to 2 (2 rescuers)	
	(1 cycle should take 18 - 23 seconds)		
AIRWAY	Head tilt-Chin Lift (HCP: suspected trauma, use jaw trust)		
BREATHS			
Initial	2 breaths at 1 second / breath	2 breaths at 1 second / breath	
HCP: Rescue breathing without chest compressions	10 to 12 breaths / minute (approximately 1 breath every 5 to 6 seconds)	12 to 20 breaths / minute (approximately 1 breath every 3 to 5 seconds)	
HCP: Recue breaths for CPR with advanced airway	10 breaths / minute (approximately 1 breath every 6 seconds)		
DEFIBRILLATION			
AED	USE adult pads. Do not sue child pads / child system. HCP: For out-of-hospital response may provide 5 cycles / 2 minutes of CPR before shock. If response > 4 to 5 minutes and arrest not witnessed.	HCP: Use AED as soon as available for sudden collapse and in-hospital All: After 5 cycles of CPR (out-of-hospital). Use child pads / child system for child 1 to 8 years if available. If child pads / system not available, use adult AED and pads.	No recommendation for infants < 1 year of age.

TAB 2 GUIDELINE 6
CARDIAC ARREST – “PIT CREW” CPR GUIDELINE

1. Clinical Indications:
 - a. Patient in cardiac arrest.
2. Contraindications:
 - a. < 1 year or patient size prohibits access.
3. Procedure
 - a. Establish prior to arriving at patient’s side, the following responsibilities:
 - b. Position 1 (**ALWAYS on patient’s right side.**)
 - i. Assesses responsiveness/pulses.
 - ii. Initiates chest compressions immediately if needed.
 - iii. Alternates chest compressions w/ Position 2.
 - iv. May operate BVM when not performing chest compressions.
 - v. Assembles, applies & operates automated CPR device when available.
 - c. Position 2 (**ALWAYS on patient’s left side.**)
 - i. Applies AED pads immediately.
 - ii. Operates AED after each 2-minute cycle of compressions.
 - iii. Alternates chest compressions w/ Position 1.
 - iv. May operate BVM when not performing chest compressions.
 - v. May assist with inserting / securing King Airway.
 - d. Position 3 (**ALWAYS at patient’s head.**)
 - i. Assembles and appropriately applies all equipment for airway and ventilations.
 - ii. Opens/clears airway, Suction as needed.
 - iii. Assembles King Airway.
 - iv. Inserts & secures King Airway.
 - v. Ventilate at appropriate intervals w/ BVM.
 - vi. Alternates w/ Positions 1 & 2 for chest compressions as needed.
 - vii. Operates BVM when not performing chest compressions.
 - e. Position 4 (**ALWAYS outside of CPR “Triangle”.**)
 - i. Functions as a “Team Leader”, assesses quality of compressions/ventilations.
 - ii. Assembles O2, BVM and ResQPod, Thomas Tube Holder (or alternative means of securing King airway).
 - iii. Turns on audible metronome (if available) and/or timing lights on ResQPod .

- iv. Gathers patient information (may delegate to Police Officer if available).
- f. Position 5 (**ALWAYS at an extremity outside the CPR “Triangle”.**)
 - i. Advanced prehospital provider.
 - ii. Initiates IV / IO access.
 - iii. Administers medications requested by “Code Commander.
 - iv. Position 6 (**ALWAYS at an area outside the CPR “Triangle” near a lower leg.**)
 - v. Advanced prehospital provider.
 - vi. Code Commander.
 - vii. Operates the Monitor.
 - viii. Communicates / Interfaces with Team Leader.
 - ix. Makes all patient treatment decisions.
- 4. SPECIAL CONSIDERATIONS:
 - a. **Minimally interrupted compressions at a rate of 100 BPM.**
 - b. **Appropriate depth and quality of compressions.**
 - c. **Consider compressor fatigue and change compressors as needed. Change at the minimum every (2) minutes.**
 - d. Team approach.
 - i. Infants and small children may require modification of the procedure due to size.
 - ii. This procedure is based on a 4-person crew of providers.
 - iii. If there is only a 3-person crew, Position 3 will incorporate Position 4 responsibilities.
 - iv. If only a 2-person crew, follow standard AHA CPR Guidelines.

“Pit Crew” CPR Positions

Position 4 –

- Team Leader
- Turns on audible metronome if available
- Assembles BVM / O₂ / ResQPod
- Gathers patient information
- Assesses compressions / ventilations



Position 3 –

- Readies & Inserts Blind Insertion Device (King LT / LMA)
- Ventilates (1 breath every 6 seconds)

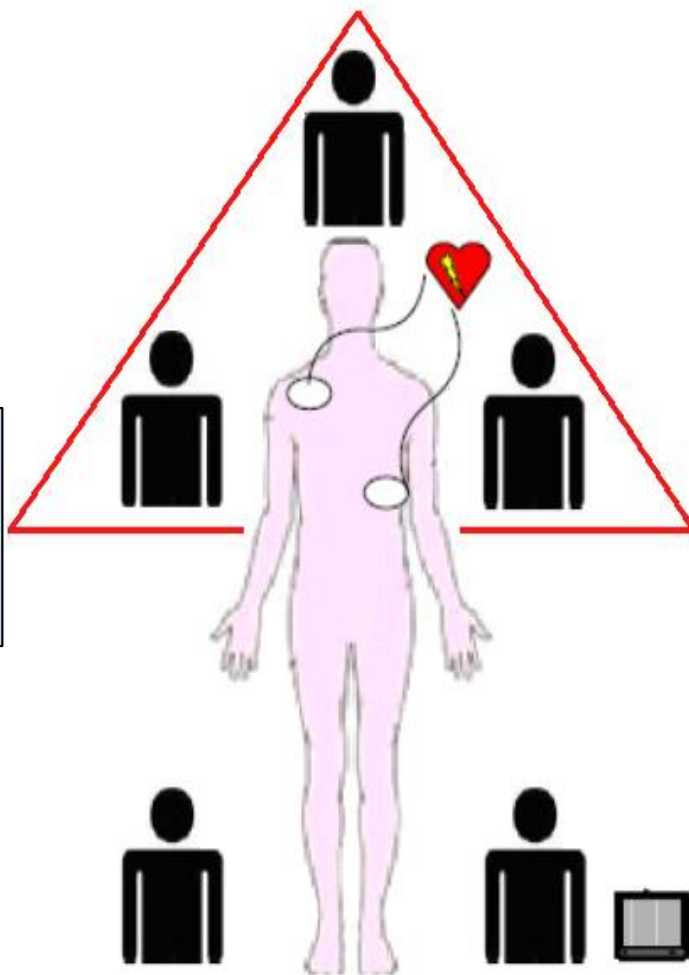


Position 1 –

- Quick Pulse Check
- Chest Compressions (100 / min)
- Alternate compressions w/ Position # 2
- Operates automated CPR Device if available

Position 2 –

- Applies AED Patches
- Alternates compressions w/ Position #1
- Attach patches to AED after 2 minutes of CPR



Position 5 –

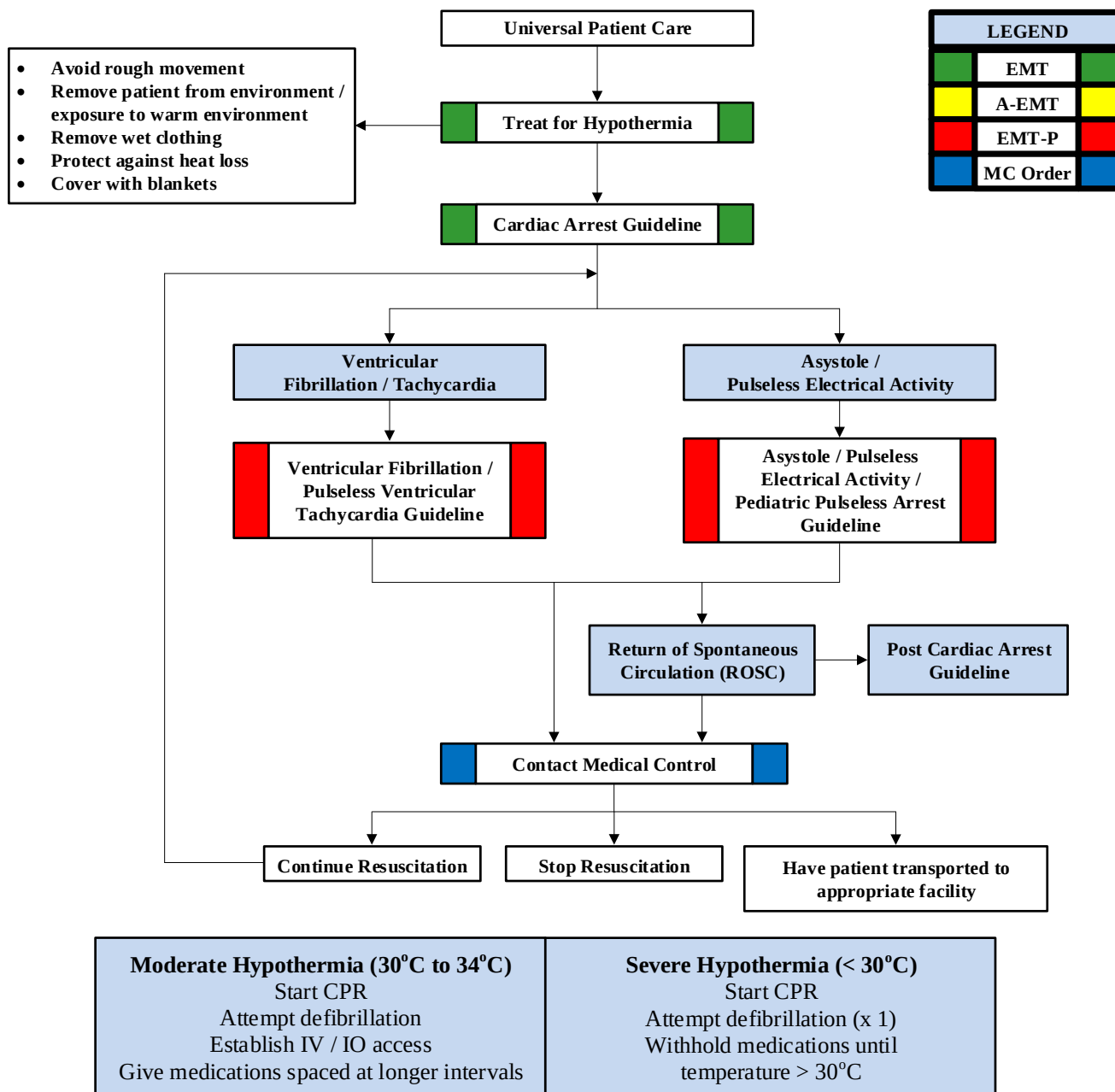
- Advanced provider always at an extremity outside the CPR “Triangle”
- Initiates IV / IO access
- Administers medications requested by “Code Commander”

Position 6 –

- Advanced provider always at an extremity outside the CPR “Triangle”
- Code Commander
- Operates the Monitor
- Communicates / Interfaces with Team Leader
- Makes all patient treatment decisions

TAB 2 GUIDELINE 7
CARDIAC ARREST – HYPOTHERMIC

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Hypothermia - Time of arrest - Medical history - Medications	- Unresponsive - Cardiac arrest	- Hypothermia - Exposure - H's and T's

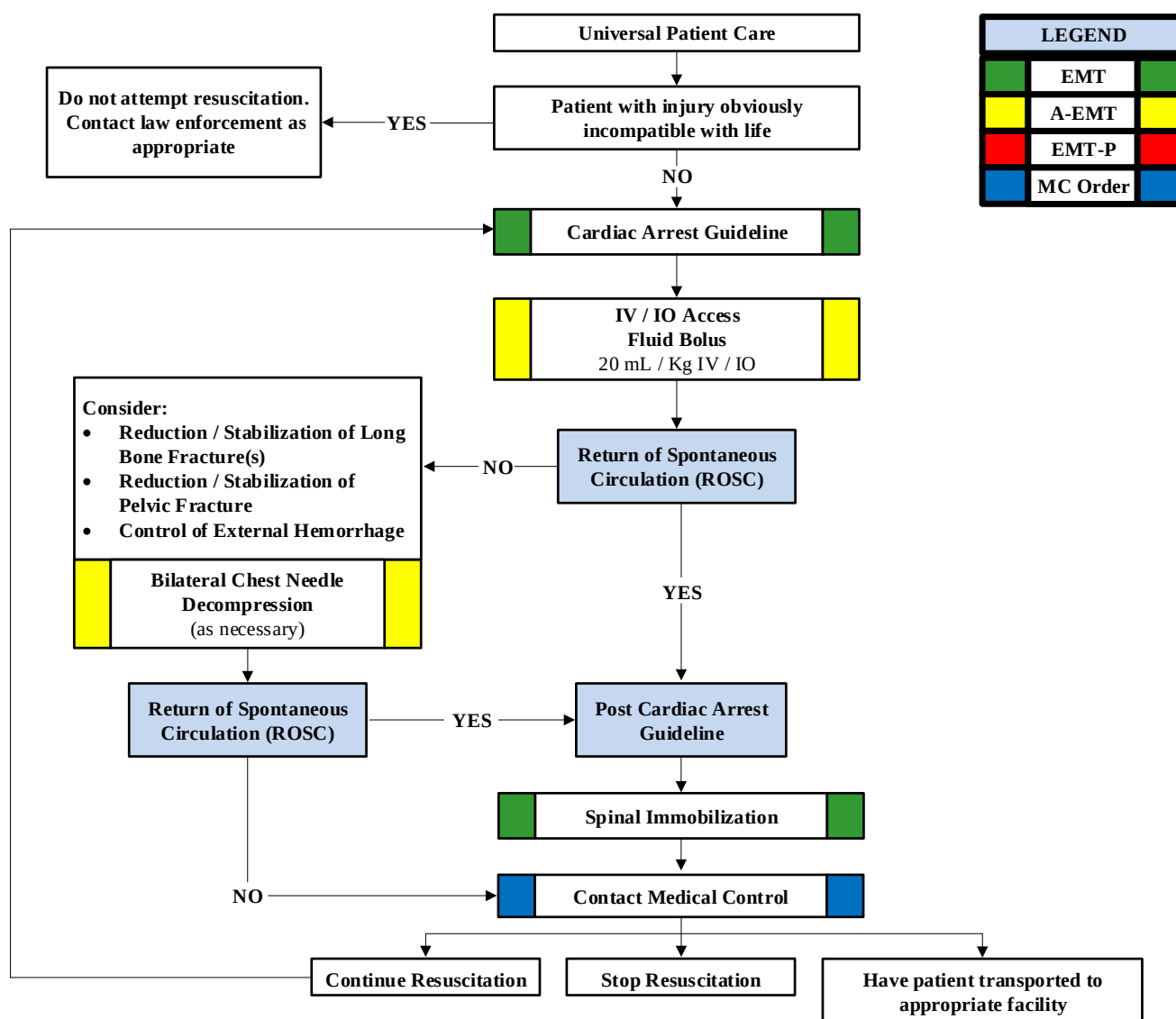


SPECIAL CONSIDERATIONS:

1. This guideline applies to patients with suspected hypothermic cardiac arrest (less than 32 °C). These patients are **LOAD** and **GO** situations.
2. Patients in hypothermic cardiac arrest will require CPR with some modifications of conventional BLS and ACLS care.
 - a. When the victim is hypothermic, pulse and respiratory rates may be slow or difficult to detect.
 - b. For these reasons breathing and pulse should be assessed for 30-45 seconds to confirm respiratory arrest, pulseless cardiac arrest, or bradycardia that is profound enough to require CPR.
 - c. ACLS management of cardiac arrest due to hypothermia focuses on more aggressive active core re-warming techniques as the primary therapeutic modality.
3. The hypothermic heart may be unresponsive to cardiovascular drugs, pacemaker stimulation, and defibrillation. In addition, drug metabolism is reduced and cardioactive medications can accumulate to toxic levels in the peripheral circulation if given repeatedly.
 - a. **Acquire tympanic temperatures in the hypothermic arrest patient and factor into the overall approach to treatment.**
 - b. The temperature at which defibrillation should first be attempted in the severely hypothermic patient and the number of defibrillation attempts that should be made have not been established. The following guidelines should be considered:
 - i. **Moderate Hypothermia (30°C to 34°C):** Start CPR, attempt defibrillation, establish IV / IO access, give IV / IO medications spaced at longer intervals, initiate re-warming.
 - ii. **Severe Hypothermia (<30°C):** Start CPR, attempt defibrillation (x 1), withhold medications until temperature > 30°C, initiate re-warming.
 - c. If the patient fails to respond to the initial defibrillation attempt or initial drug therapy, defer subsequent defibrillation attempts or additional boluses of medication until the core temperature rises above 30°C (86°F).
4. Passive re-warming can be initiated in the field with application of blankets and movement of the victim to a warm environment. Severely hypothermic patients will require active internal warming upon arrival to the emergency department. To prevent further core heat loss, remove wet garments and protect the victim from further environmental exposure.

TAB 2 GUIDELINE 8
CARDIAC ARREST – TRAUMATIC

HISTORY	SIGNS/ SYMPTOMS	DIFFERENTIAL
• Patient who has suffered traumatic injury and is now pulseless • Mechanism of injury • Time of arrest • Medical history • Medications	• Evidence of penetrating trauma • Evidence of blunt trauma • Unresponsiveness • Cardiac arrest	• Medical condition preceding traumatic event as cause of arrest • Tension Pneumothorax • Hypoxia secondary to respiratory arrest • Hypovolemic shock • External hemorrhage • Unstable pelvic fracture • Displaced long bone fracture(s) • Hemothorax • Intra-abdominal hemorrhage • Retroperitoneal hemorrhage • Injury to vital structures • Head injury with secondary cardiovascular collapse

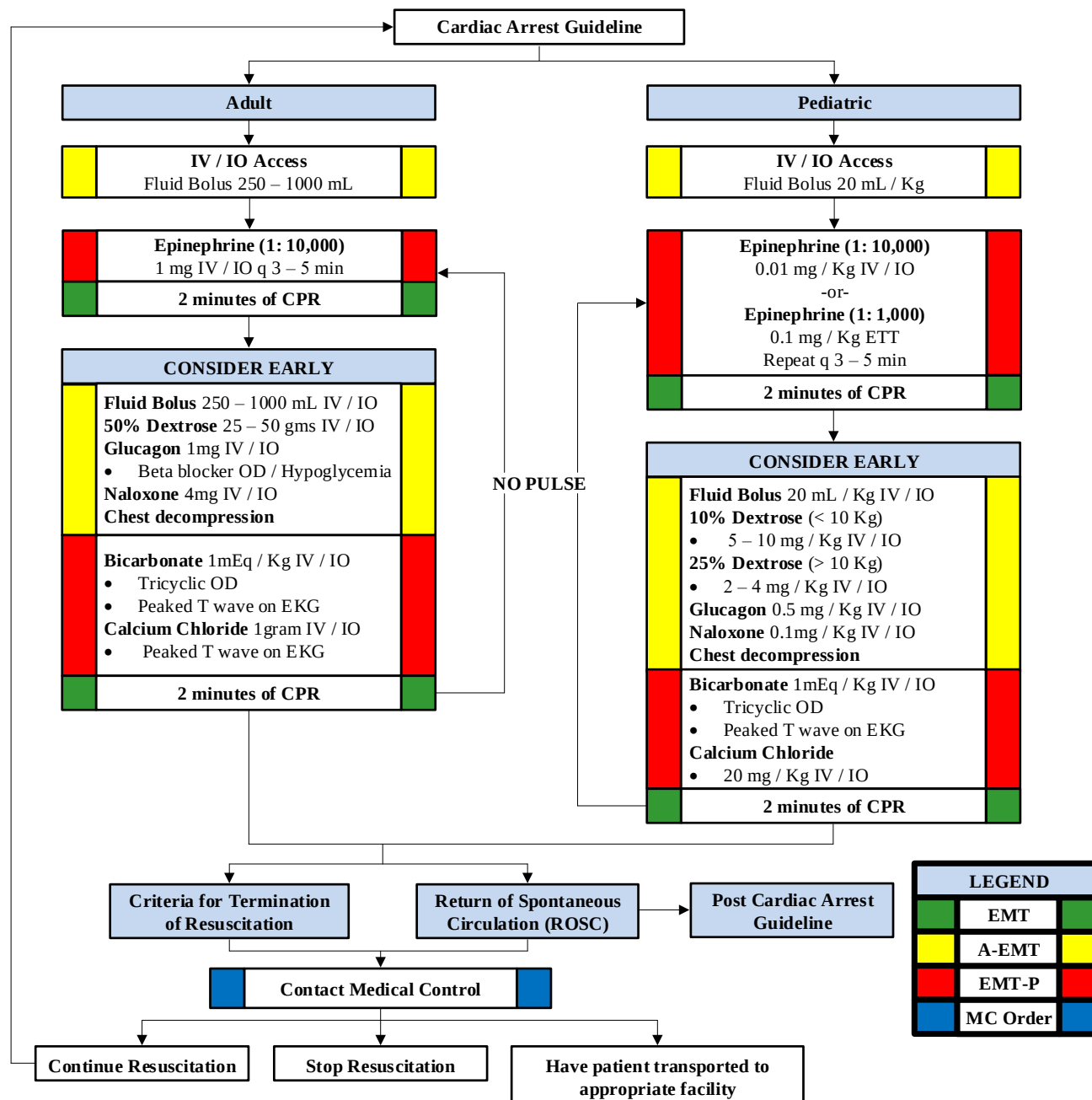


SPECIAL CONSIDERATIONS:

1. Traumatic arrest patients have a high mortality rate. **Patient transport if necessary, should be to the closest emergency department.**
 - a. Common errors in adult and pediatric trauma resuscitation include failure to open and maintain the airway, failure to provide appropriate fluid resuscitation, and failure to recognize and treat internal bleeding.
2. For patients with long extrications, a helicopter / mobile doctor should be considered so a physician and / or nurse will be on the scene. The patient should have no delay in transport after extrication, except as needed for c-spine and airway control.
3. When the mechanism of injury is compatible with spinal injury, restrict motion of the cervical spine and avoid traction or movement of the head and neck. Open and maintain the airway with a jaw thrust, and do not tilt the head.
4. In cases of suspected head injury, do not hyperventilate the patient.
5. Suspect thoracic injury in all thoracoabdominal traumas, even in the absence of external injuries. Tension pneumothorax, hemothorax, or pulmonary contusion may impair breathing.
6. Consider intra-abdominal hemorrhage, tension pneumothorax, pericardial tamponade, spinal cord injury in infants and children. Consider intracranial hemorrhage in infants with signs of shock.
7. Treat signs of volume depletion with a bolus of 20 mL / Kg of lactated ringer. Repeat (x 2) as necessary. Any additional bolus amounts should be approved through On-Line Medical Control.

TAB 2 GUDELINE 9
ASYSTOLE | PULSELESS ELECTRICAL ACTIVITY (PEA)

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Past medical history - Medications - Events leading to arrest - Do Not Resuscitate Paperwork - End Stage Renal Disease - Estimated down time - Suspected hypothermia - Suspected overdose - Suspected trauma - Family history of SIDS - Possibility of Foreign body	- Pulseless - Apneic - Airway obstruction - Electrical Activity on ECG - Peaked T waves on EKG - Dialysis fistula / catheter - No auscultated heart tones	- Hypovolemia (Trauma, AAA, other) - Cardiac tamponade - Hypothermia - Drug overdose (Tricyclics, Digitalis, Beta Blockers, Calcium channel blockers) - Massive myocardial infarction - Hypoxia - Tension Pneumothorax - Pulmonary embolus - Hyperkalemia



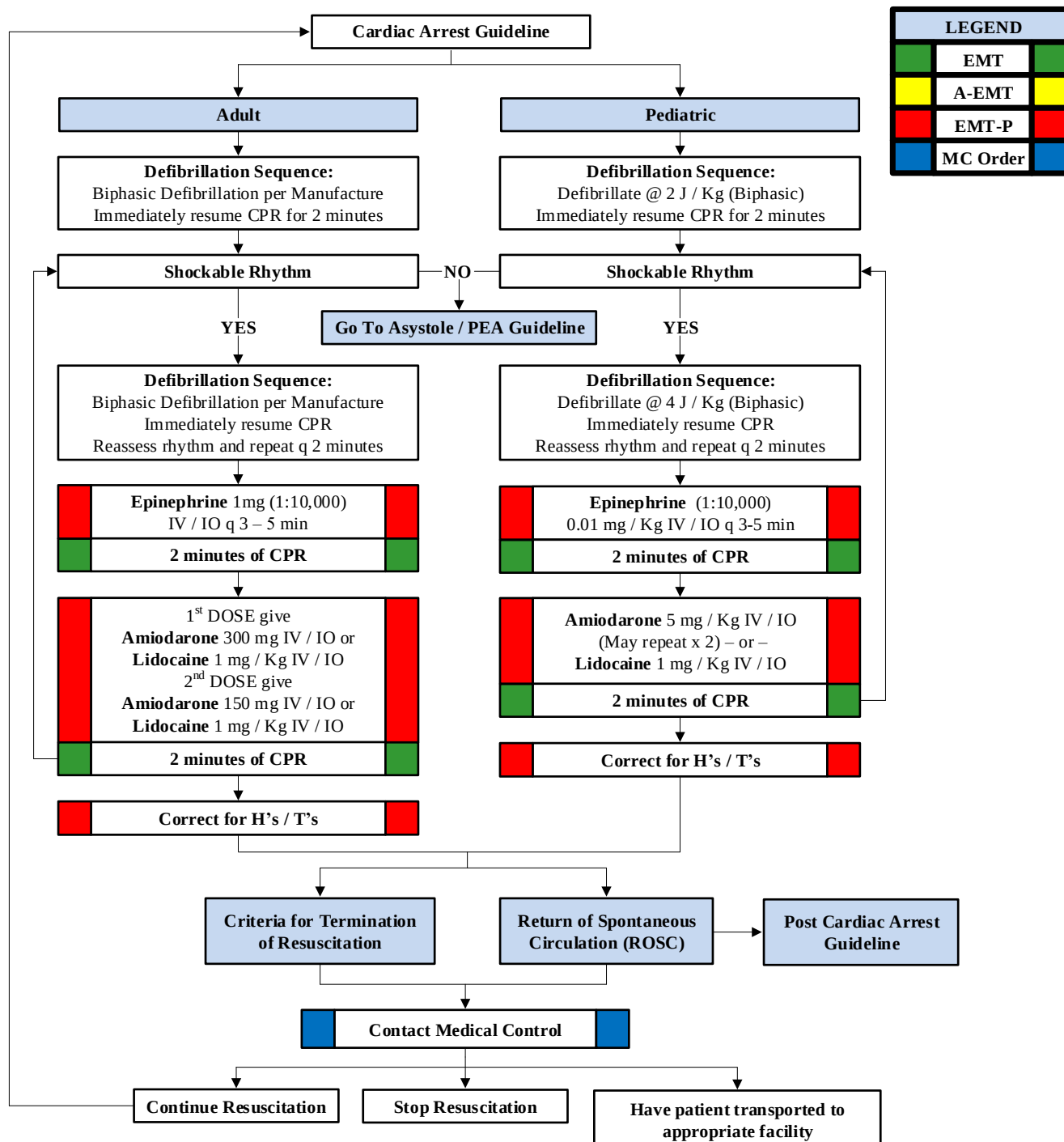
SPECIAL CONSIDERATIONS:

1. This guideline applies to any non-perfusing rhythm other than VF or VT including:
 - Asystole
 - EMD (Electrical Mechanical Dissociation)
 - Pseudo EMD
 - Idioventricular Rhythm
 - Post Defibrillation Idioventricular Rhythms
 - Ventricular Escape Rhythms
2. Consider correctable causes of “H’s and T’s”:
 - Hypoxia
 - Hydrogen Ion
 - Hyper / Hypokalemia
 - Hypothermia
 - Hypovolemia
 - Hypoglycemia
 - Tablets / Toxins
 - Tamponade (cardiac)
 - Tension pneumothorax
 - Thrombus (myocardial infarction)
 - Thrombus (pulmonary embolism)
 - Trauma
3. **SPECIAL CONSIDERATIONS:**
 - a. Atropine is no longer recommended in the Asystole PEA algorithm
 - b. Pacing is no longer recommended in the Asystole algorithm.

TAB 2 GUIDELINE 10

VENTRICULAR FIBRILLATION | PULSELESS VENTRICULAR TACHYCARDIA

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Estimated down time - Past medical history - Medications - Events leading to arrest - Renal failure/ dialysis - DNR	- Unresponsive, apneic, pulseless - Ventricular fibrillation or ventricular tachycardia on ECG	- Asystole - Artifact/ Device failure - Cardiac - Endocrine/ Metabolic - Drugs - Pulmonary



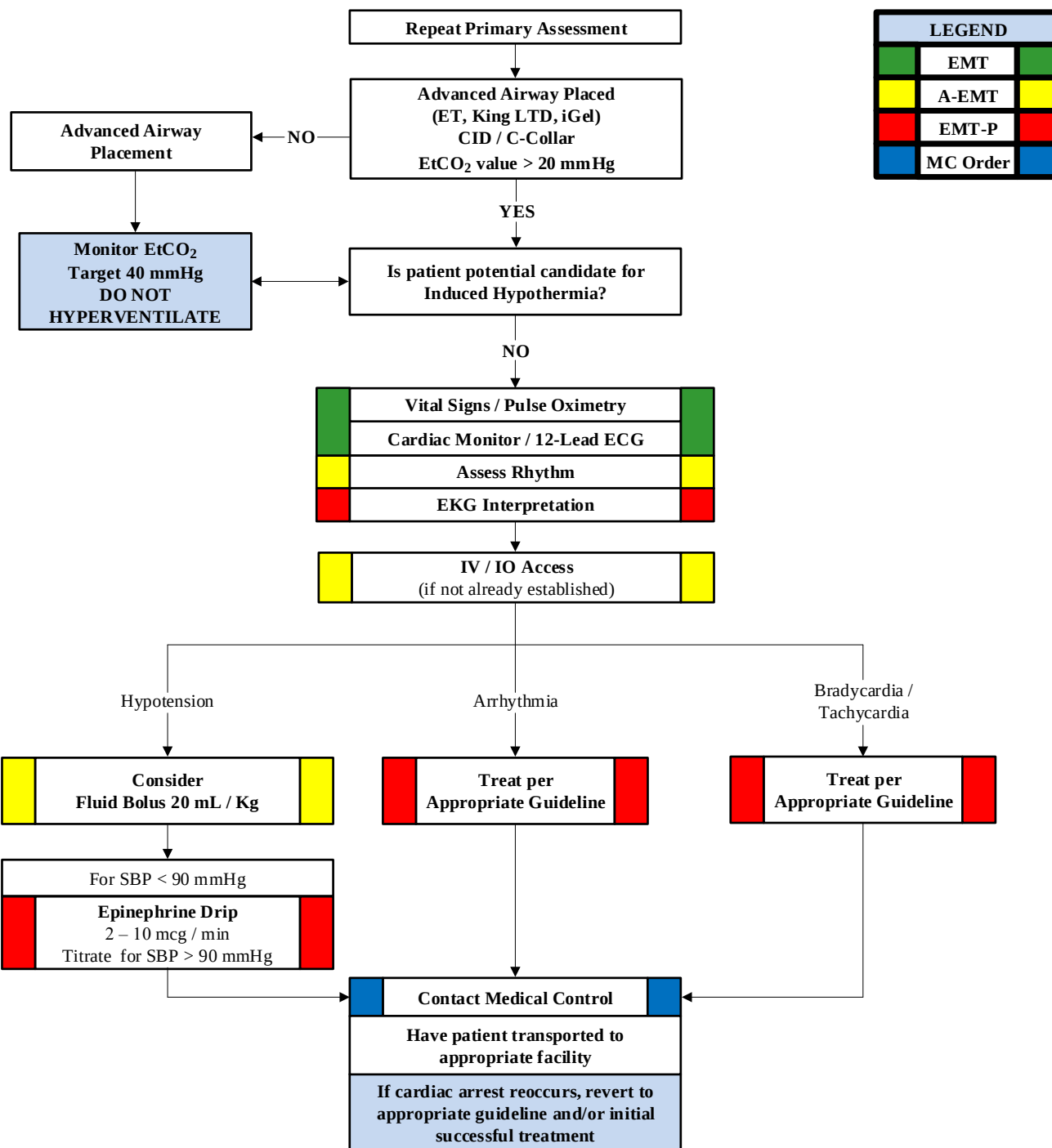
SPECIAL CONSIDERATIONS:

1. Effective CPR and prompt defibrillation are the keys to successful resuscitation.
2. **Defibrillation sequence:**
 - a. Per manufacture recommendations.
 - b. Immediately resume CPR.
 - c. Reassess rhythm and repeat q 2 minutes.
3. Reassess and document advanced airway placement and EtCO₂ frequently, after every move, and upon delivery to ED.
4. In the absence of IV / IO access, drugs that can be given via ET route should have doses doubled and then flushed with 5 – 10 mL saline. IV / IO is the preferred route when available.

TAB 2 GUIDELINE 11

POST CARDIAC ARREST GUIDELINE

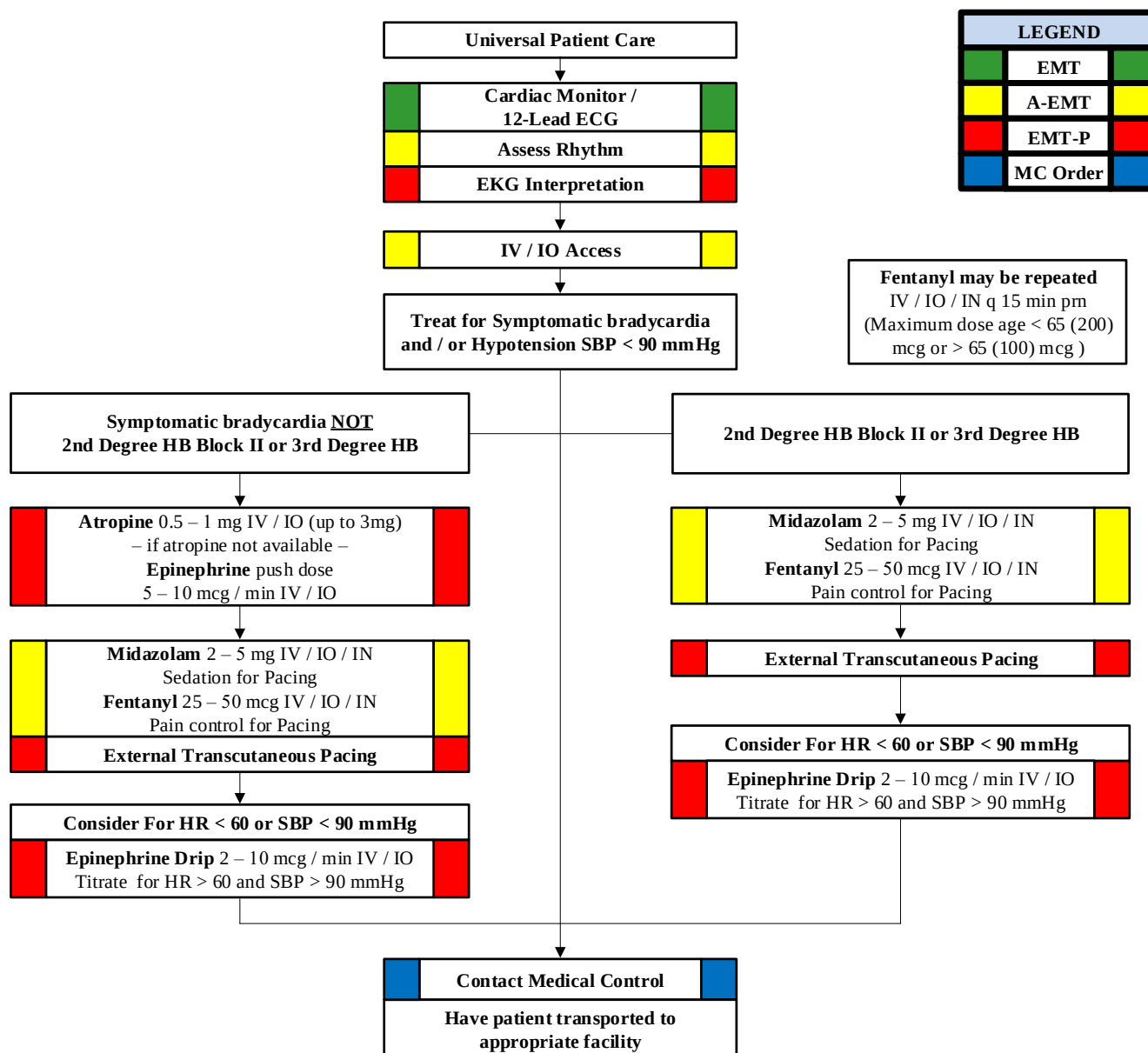
HISTORY	SIGNS/ SYMPTOMS	DIFFERENTIAL
Cardiac Arrest	Return of Pulse (ROSC)	- Continue to address specific differentials associated with the original dysrhythmia - Shock



SPECIAL CONSIDERATIONS:

1. Perform complete exam:
 - a. Mental Status, Neck, Skin, Lungs, Heart, Abdomen, Extremities, Neurologic
2. Common causes of post-resuscitation hypotension include hyperventilation, hypovolemia, pneumothorax, and medication reaction to ALS drugs.
3. Most patients during post-resuscitation care will require ventilatory assistance.
4. Titrate epinephrine to maintain SBP > 90 mmHg. Ensure adequate fluid resuscitation.
5. The condition of post-resuscitation patients fluctuates rapidly and continuously, and they require close monitoring.
 - a. Almost all patients with ROSC will need vasopressor support after their epinephrine wears off.
 - b. Vitals should be checked every 1-3 minutes since BP will likely drop precipitously about 3 – 5 minutes after ROSC.
 - c. The post-arrest brain is very sensitive to hypotension and therefore EMS providers should have a low threshold for starting epinephrine drip

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Past medical history - Medications - Beta Blockers - Calcium channel blockers - Clonidine - Digitalis - Pacemaker	- HR < 60/min - Chest pain - Respiratory Distress - Hypotension or shock - Altered Mental Status - Syncope	- Acute myocardial infarction - Hypoxia - Hypothermia - Sinus Bradycardia - Athletes - Head Injury (elevated ICP) or Stroke - Spinal cord lesion - Sick sinus syndrome - Junctional rhythms - AV Blocks (1st, 2nd, 3rd degree) - Overdose



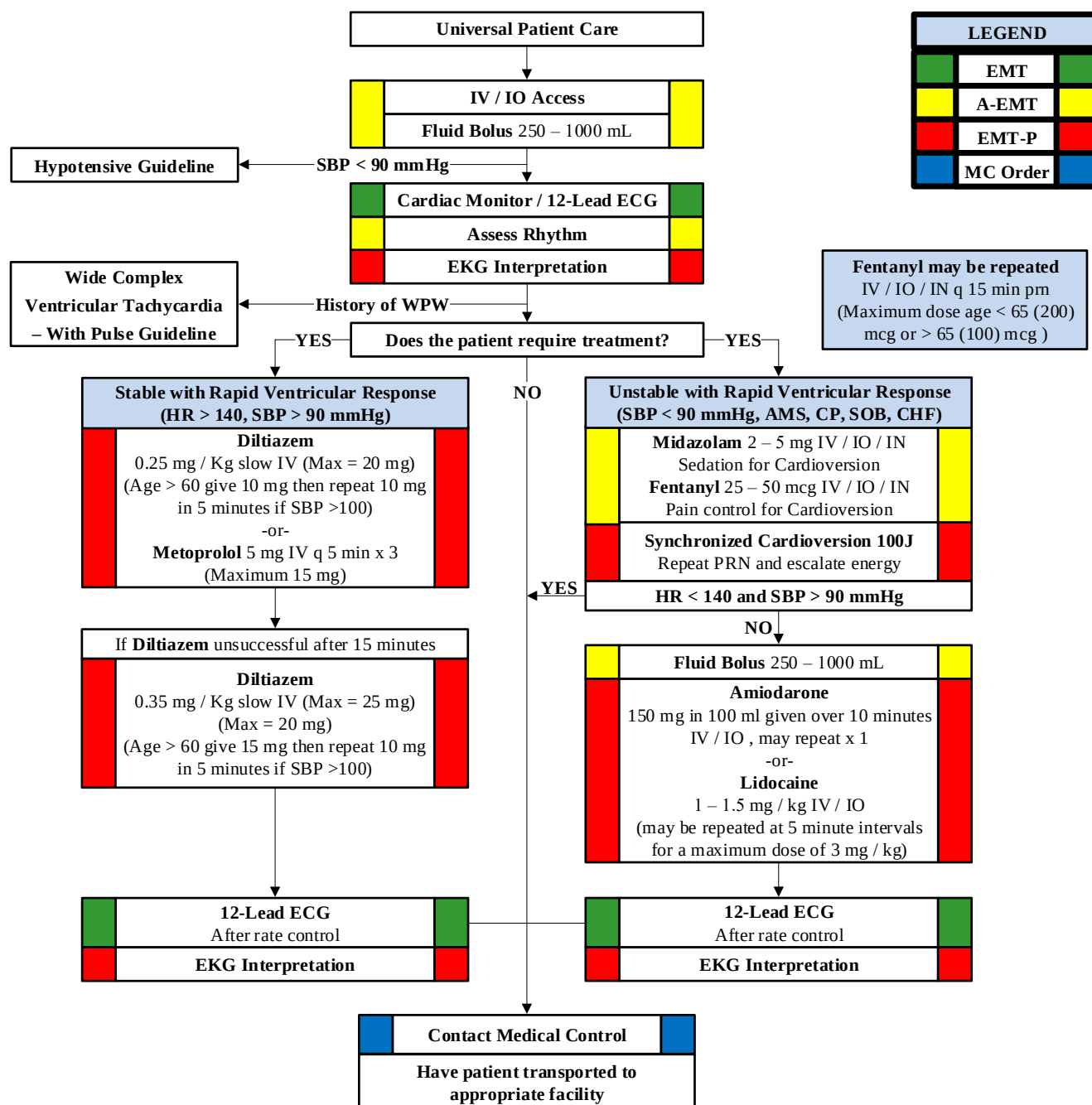
SPECIAL CONSIDERATIONS:

1. This guideline applies to the following rhythms:
 - a. Sinus bradycardia.
 - b. First Degree AV Block.
 - c. Second Degree Block – Mobitz II.
 - d. Second Degree Block – Mobitz I (Wenchebach).
 - e. Third Degree Block.
 - f. This guideline does not apply to any patient in cardiac arrest.
2. **Bradycardia does not require treatment unless patient is symptomatic.**
 - a. Hypotension, mental status changes, CHF or Chest Pain
3. Bradycardia can be caused by many underlying factors. Possible causes include the “H’s and T’s”. These should be considered and, if verified, the appropriate treatment administered
 - a. Hypoxemia, acidosis, and hypotension interfere with sinus node function and slow cardiac conduction. In addition, excessive vagal stimulation (i.e. suctioning) may produce bradycardia
4. It should also be noted that if IV access is delayed, go immediately to Transcutaneous Pacing (TCP)
5. Denervated transplanted hearts (patients who have had a heart transplant) will not respond to Atropine
6. Transcutaneous pacing should be considered early in patients with severe hemodynamic compromise due to bradycardia. Denervated transplanted hearts will not respond to Atropine and TCP is indicated as the initial intervention for symptomatic bradycardia
7. For severely symptomatic patients, and refractory to Atropine dosing, initiate transcutaneous pacing at 80 BPM. Increase milliamperage until electrical capture is realized
8. Epinephrine
 - a. Drip
 - i. Mix 1 mg epinephrine (1:10,000 or 1:1000 concentration) in 250 ml bag normal saline or D5W to give 4:1 concentration, mix in 500 ml bag normal saline or D5W to give 2:1 concentration. Titrate 2 – 10 mcg / min
 - b. Push dose
 - i. Mix 0.1 mg (1 ml) epinephrine (1: 10,000) in 9 ml NS to give 10:1 concentration. Give 0.5 – 1 ml dose pushes every 1 – 2 minutes for heart rate < 60 BPM

TAB 2 GUIDELINE 13

ATRIAL FIBRILLATION | ATRIAL FLUTTER

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Medications - Aminophylline - Diet pills - Thyroid supplements - Decongestants - Digoxin - Diet (caffeine, chocolate) - Drugs (nicotine, cocaine) - Past medical history - Hx of palpitations / heart racing - Syncope / near-syncope	- HR > 140 / min - QRS < 0.12 sec - Dizziness, CP / MI, SOB, Syncope, CHF / Pulmonary Edema, AMS / Decreased LOC, Hypotension with inadequate perfusion - Potential presenting rhythm: - Sinus Tachycardia - Atrial Fibrillation / Flutter - Multifocal Atrial Tachycardia	- Heart disease (WPW, Valvular) - Sick sinus syndrome - Myocardial infarction - Electrolyte imbalance - Exertion, pain, emotional stress - Fever - Hypoxia - Hyovolemia or anemia - Drug effect / Overdose - Hyperthyroidism - Pulmonary embolus



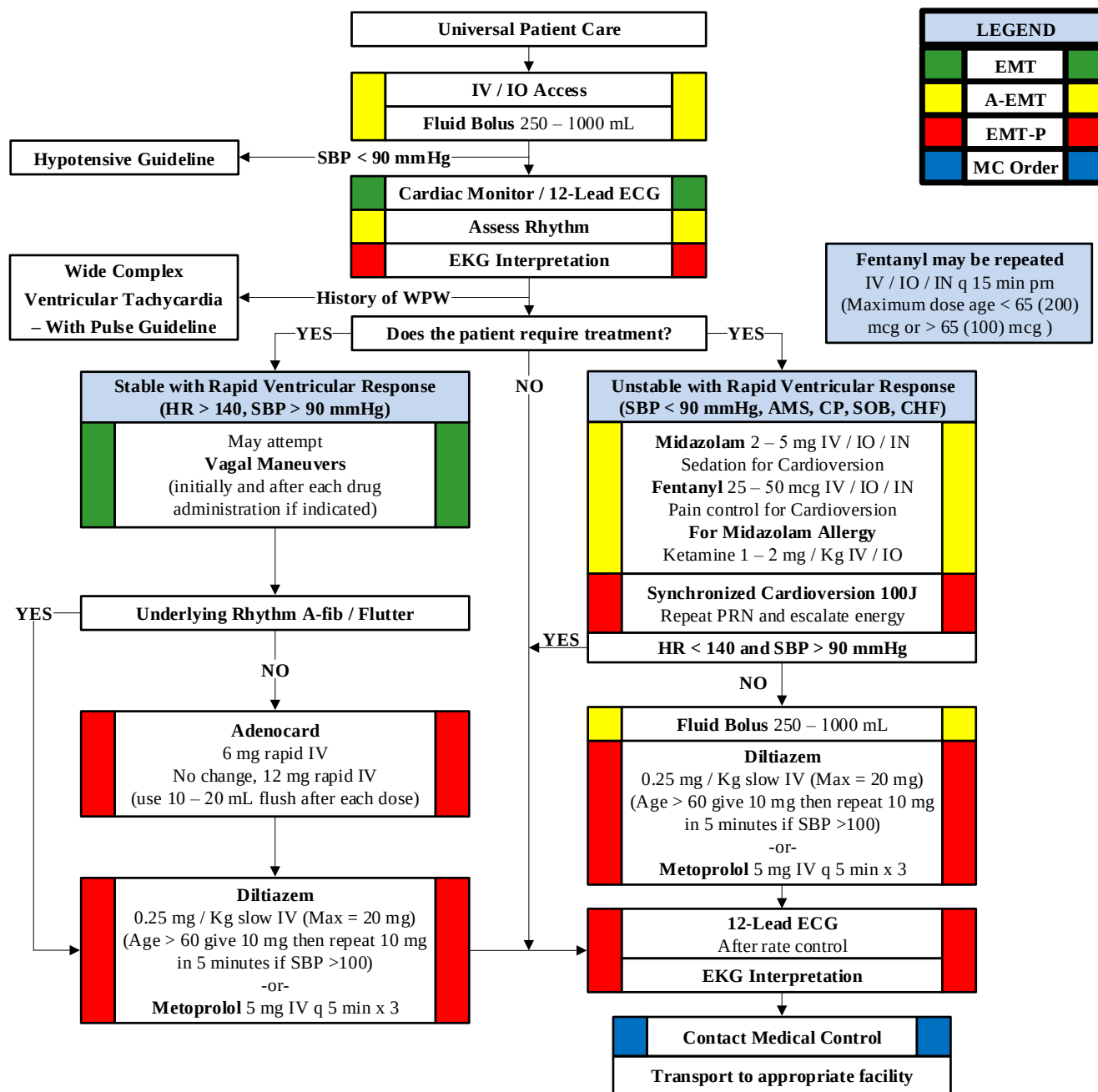
SPECIAL CONSIDERATIONS:

1. **Not all patients will require therapy for the atrial fibrillation.**
2. This guideline applies to patients with narrow QRS complex tachycardia suggestive of Atrial Fibrillation | Atrial Flutter with irregularly irregular rhythm. A-flutter commonly has a 2:1 AV block resulting in heart rate in the 150 BPM range.
3. There are multiple causes for atrial fibrillation / flutter including pulmonary embolism, sepsis, acute myocardial infarction, overdose, hyperthyroidism and metabolic imbalances, AHA H's / T's.
4. **Signs and symptoms of the unstable patient are as follows:**
 - a. Chest pain with hypotension (SBP < 90 mmHg).
 - b. Shortness of breath with tachypnea.
 - c. Decreased level of consciousness / Altered mental status.
 - d. Hypotension (SBP < 90 mmHg with other indications of inadequate perfusion).
 - e. Pulmonary edema from heart failure.
 - f. Syncope.
 - g. Evidence of Acute Myocardial Infarction.
5. Cardioversion
 - a. If allergic to Versed, administer:
 - i. Fentanyl IV (< 50 Kg = 1 mcg / Kg; > 50 Kg = 50 mcg).
 - ii. Absent IV access, administer Fentanyl (weight appropriate dose) IN.
6. If the patient develops an adverse reaction to Diltiazem infusion (i.e., hypotension, bradycardia, heart-block), administer Calcium Chloride 1 gram over 5 minutes.
 - a. Mix 1 gram of Calcium Chloride in a 50 mL bag of D5W. With (10 gtt) administration set, run at 100 gtts / minute.
 - b. Continue Calcium Chloride drip until adverse symptoms resolve.
7. If a known pre-excitation syndrome is identified by either ECG or patient history (i.e., Wolff-Parkinson-White Syndrome [WPW]), do not administer Diltiazem. This may cause a paradoxical increase in the ventricular response to the rapid atrial impulses passing through an accessory AV pathway.
8. **If WPW is suspected, treat per the Ventricular Tachycardia / Wide Complex with a Pulse Guideline.**

TAB 2 GUIDELINE 15

SUPRAVENTRICULAR TACHYCARDIA (SVT)

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Medications - Aminophylline - Diet pills - Thyroid supplements - Decongestants - Digoxin - Diet (caffeine, chocolate) - Drugs (nicotine, cocaine) - Past medical history - Hx of palpitations / heart racing - Syncope / near-syncope	- HR > 150 / min - QRS < 0.12 sec - QRS > 0.12 sec - Go to V-Tach Protocol - If history of WPW, go to V-Tach Protocol - Dizziness, CP, SOB - Potential presenting rhythm - Sinus Tachycardia - Atrial Fibrillation / Flutter - Multifocal Atrial Tachycardia	- Heart disease (WPW, Valvular) - Sick sinus syndrome - Myocardial infarction - Electrolyte imbalance - Exertion, pain, emotional stress - Fever - Hypoxia - Hyovolemia or anemia - Drug effect / Overdose - Hyperthyroidism - Pulmonary embolus



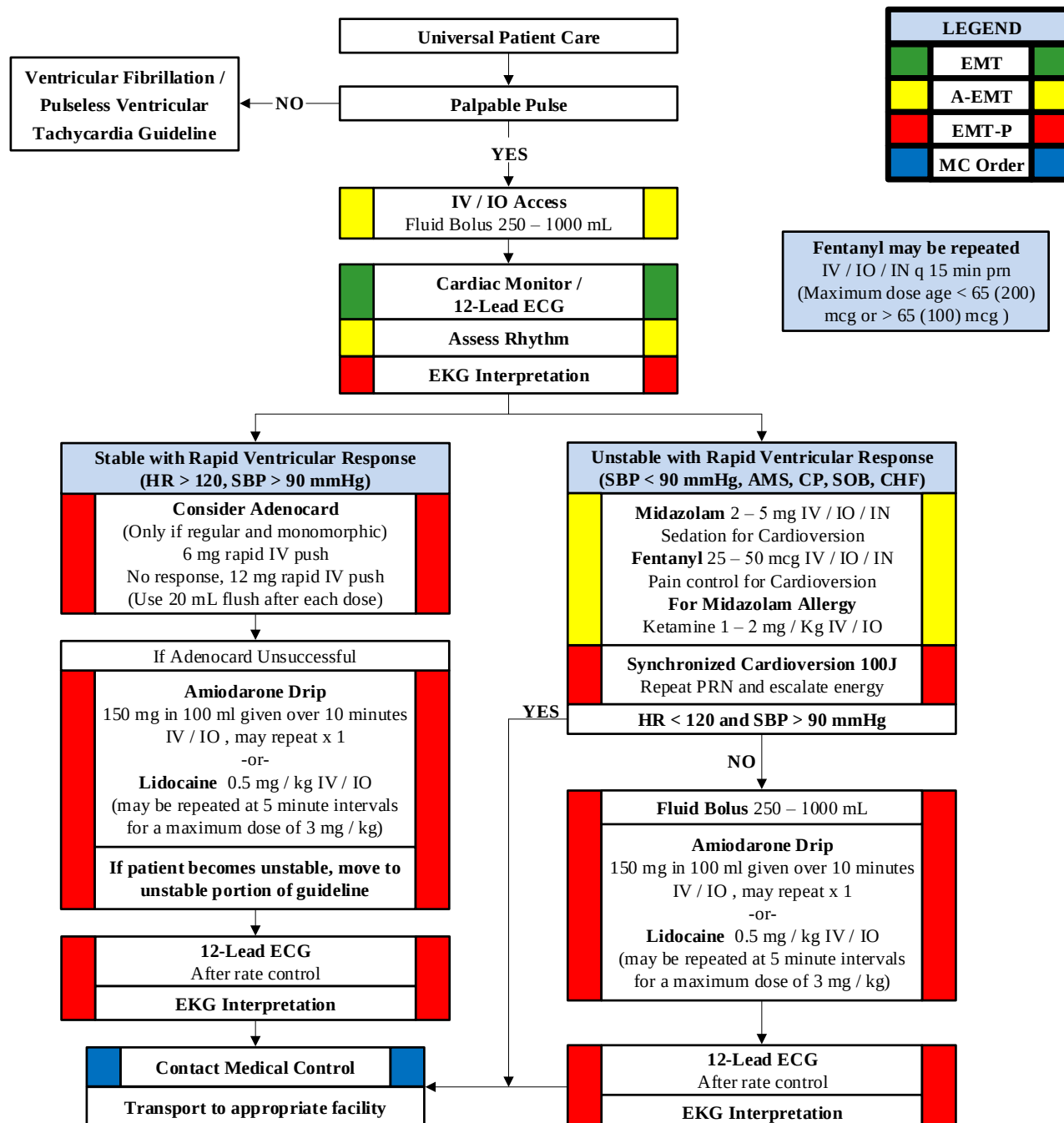
SPECIAL CONSIDERATIONS:

1. This guideline applies to the patient who is slightly symptomatic or whose condition has deteriorated since initial assessment.
2. Signs and symptoms of the unstable patient are as follows:
 - a. Chest pain / Shortness of breath.
 - b. Decreased level of consciousness.
 - c. Hypotension (SBP < 90 mmHg with other indications of inadequate perfusion).
 - d. Pulmonary edema from heart failure.
 - e. Evidence of Acute Myocardial Infarction or Ischemia.
3. Reentry SVT is a regular tachycardia that is caused by reentry, an abnormal rhythm circuit that allows a wave of depolarization to travel in a circle. The rate of reentry SVT exceeds the typical upper limits of sinus tachycardia at rest (> 150 beats per minute) with or without discernible P waves. Vagal maneuvers and Adenosine are the preferred initial therapeutic choices for the termination of stable reentry SVT.
4. If patient develops an adverse reaction to Diltiazem infusion (i.e., hypotension, bradycardia, heart-block), administer Calcium Chloride 1 gram over 5 minutes.
 - a. Mix 1 gram of Calcium Chloride in a 50 mL bag of D5W. With (10 gtt) administration set, run at 100 gtts / min.
 - b. Continue Calcium Chloride drip until adverse symptoms resolve.
5. If a known pre-excitation syndrome is identified by either ECG or patient history (i.e., Wolff-Parkinson-White Syndrome [WPW]), do not administer Adenosine or Diltiazem. These drugs can cause a paradoxical increase in the ventricular response to the rapid atrial impulses passing through an accessory AV pathway. **If WPW is suspected, treat per the Ventricular Tachycardia / Wide Complex with a Pulse Guideline.**

TAB 2 GUIDELINE 16

WIDE COMPLEX VENTRICULAR TACHYCARDIA – WITH PULSE

HISTORY	SIGNS/ SYMPTOMS	DIFFERENTIAL
- Past medical history / medications, diet, drugs - Syncope / near syncope - Palpitations - Pacemaker - Allergies: lidocaine / novocaine	- Ventricular Tachycardia on ECG (Runs or sustained) - Conscious, rapid pulse - Chest pain, shortness of breath - Dizziness - Rate usually 150-180 bpm for sustained V-Tach - QRS > 0.12 sec	- Artifact / Device failure - Cardiac - Endocrine / Metabolic - Hyperkalemia - Drugs - Pulmonary



LEGEND		
	EMT	
	A-EMT	
	EMT-P	
	MC Order	

Fentanyl may be repeated
IV / IO / IN q 15 min prn
(Maximum dose age < 65 (200) mcg or > 65 (100) mcg)

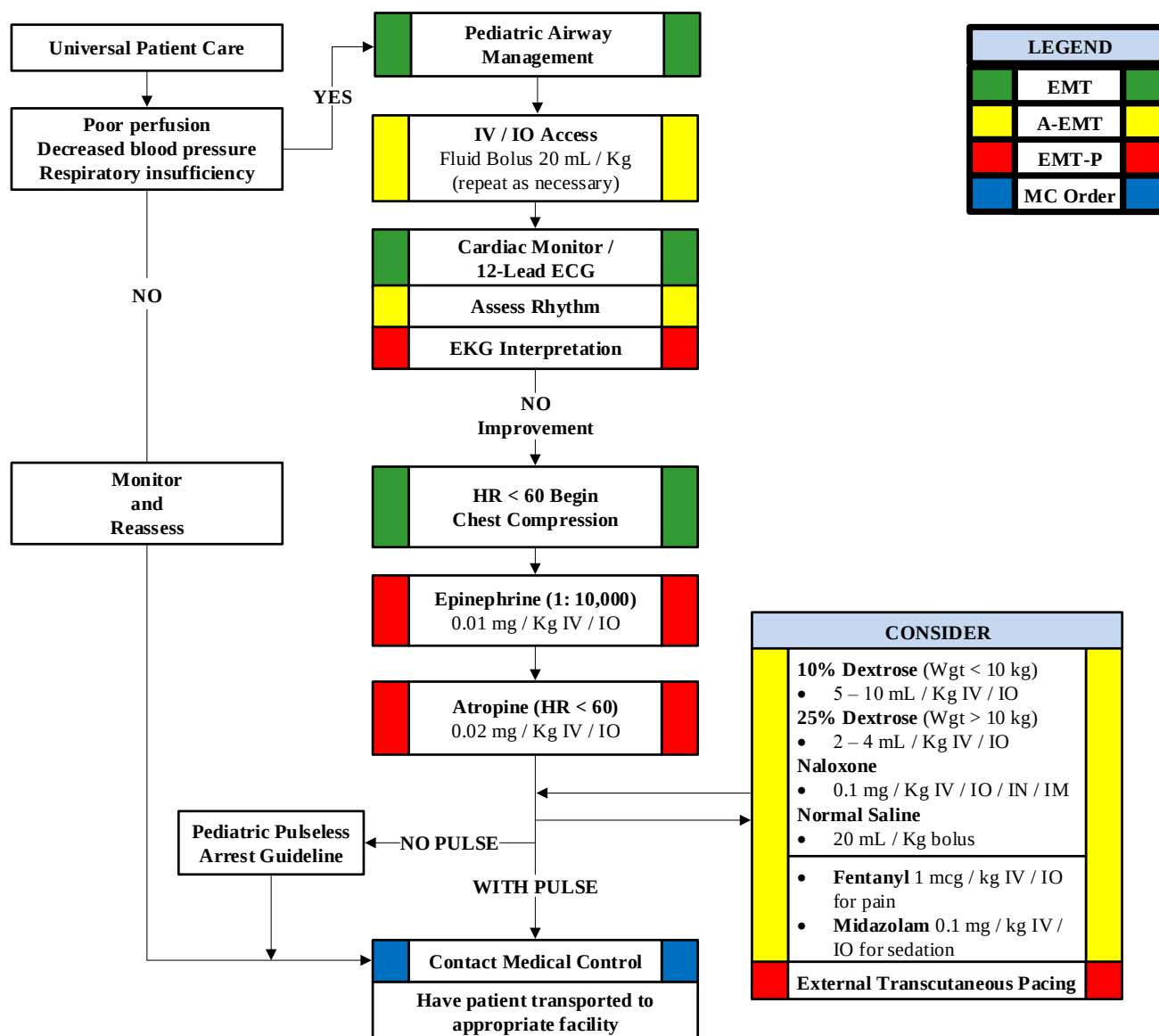
SPECIAL CONSIDERATIONS:

1. Signs and symptoms of the unstable patient are as follows:
 - a. Chest pain
 - b. Shortness of breath
 - c. Decreased level of consciousness
 - d. Hypotension (SBP < 90 mmHg with other indications of inadequate perfusion)
 - e. Pulmonary edema from heart failure
 - f. Evidence of Acute Myocardial Infarction
2. Stable Ventricular Tachycardia may terminate with an increase in vagal tone. Have the patient cough several times, bear down like having a bowel movement or perform a carotid massage in an attempt to terminate the arrhythmia
3. Cardioversion
 - a. If allergic to Versed, administer
 - i. Fentanyl IV (< 50 Kg = 1 mcg / Kg; > 50 Kg = 50 mcg)
 - ii. Absent IV access, administer Fentanyl (weight appropriate dose) IN
4. Lidocaine Toxicity
 - a. Symptoms of lidocaine toxicity progress in the following predictable pattern.
 - b. Begins with numbness of the tongue, lightheadedness, and visual disturbances and progresses to muscle twitching, unconsciousness, and seizures, then coma, respiratory arrest, and cardiovascular depression
 - c. Maximum dose of lidocaine is 3 mg / kg

TAB 2 GUIDELINE 16

PEDIATRIC BRADYCARDIA WITH PULSE

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
< 16 years of age - Past medical history - Foreign body exposure - Respiratory distress or arrest - Apnea - Possible toxic or poison exposure - Congenital disease - Medication (maternal or infant)	- Decreased heart rate - Delayed capillary refill or cyanosis - Mottled, cool skin - Hypotension or arrest - Altered level of consciousness	- Respiratory effort - Respiratory obstruction - Heart Block - Hypovolemia / Hypothermia - Infection / Sepsis - Medication or Toxin - Hypoglycemia - Trauma

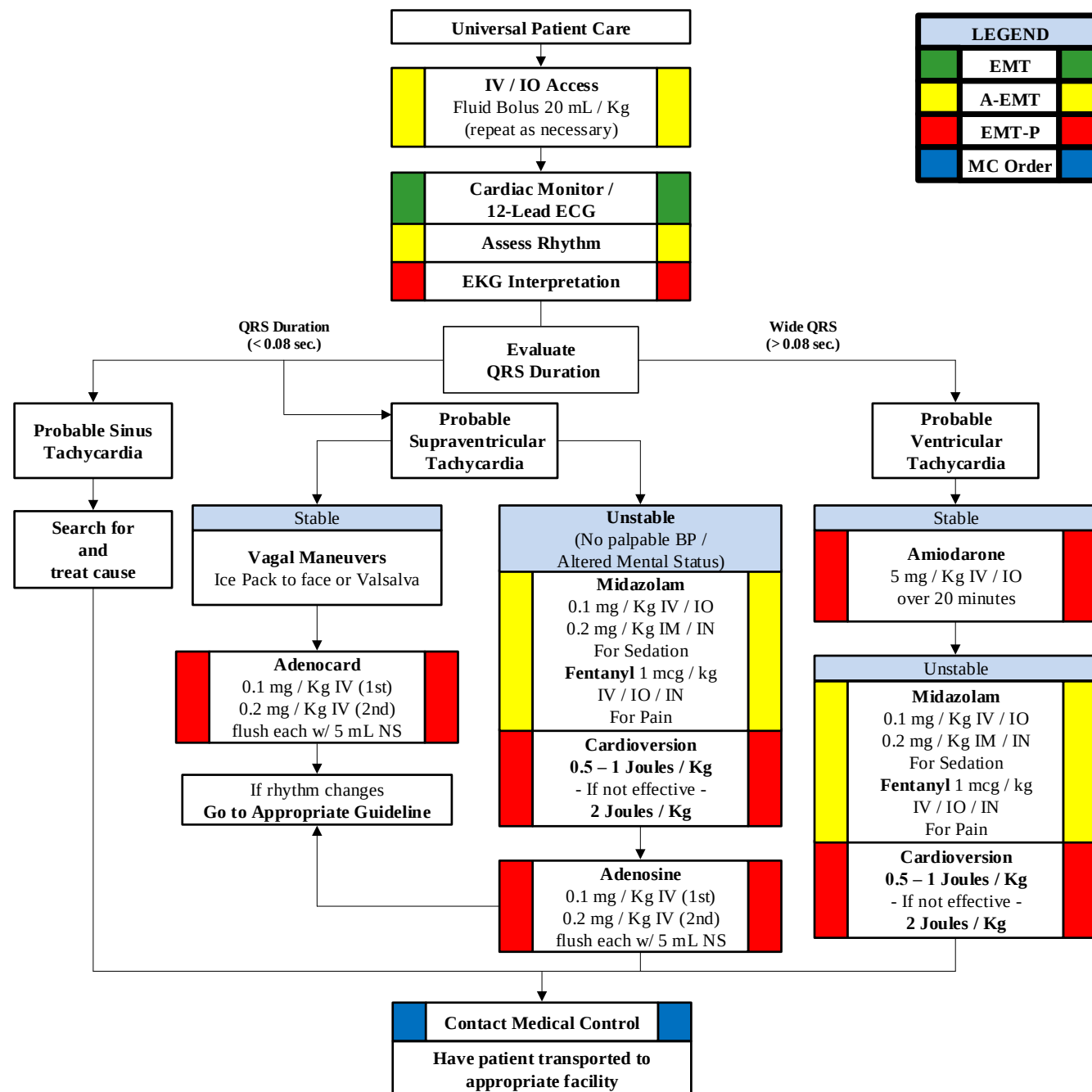


SPECIAL CONSIDERATIONS:

1. This guideline applies to pediatric patients (< 16 years of age) who are in a symptomatic bradyarrhythmia (i.e., Sinus Bradycardia, First Degree Heart Block, Relative Bradycardia, Absolute Bradycardia, Second Degree Heart Block Mobitz I, Second Degree Heart Block Mobitz II, and Third Degree Heart Block). **Treatment is not indicated if the patient is asymptomatic.**
2. If the patient displays any of the following symptoms, treatment should be initiated:
 - a. Shortness of breath
 - b. Decreased level of consciousness
 - c. Hypotension
 - d. Multiple PVC's
3. Hypoxemia, acidosis, and hypotension interfere with sinus node function and slow cardiac conduction. In addition, excessive vagal stimulation (i.e. suctioning) may produce bradycardia.
4. AV Block or vagal induced bradycardia may respond better to Atropine than Epinephrine unless accompanied by hypotension.
5. Atropine is administered at 0.02mg / Kg IV/IO/ET. The minimum dosage of Atropine is 0.1mg. The following Atropine dosing guidelines are recommended:
 - a. Child: Single dose maximum = 0.5mg
 - b. Adolescent: Single dose maximum = 1 mg
6. Hypoglycemia, severe dehydration and narcotic effects may produce bradycardia. The following Dextrose concentrations and dosing are recommended:
 - a. Pediatrics < 10 kg – Dextrose 10 % give 5 – 10 mL / Kg
 - b. Pediatrics > 10 kg – Dextrose 25 % give 2 – 4 mL / Kg
7. Pediatric patients requiring external transcutaneous pacing require the use of pads appropriate for pediatric patients per manufacturer's guidelines.
8. Transcutaneous pacing for the pediatric patient should be initiated at 100 BPM and 20mA. Increase milliamperage by increments of 5 until electrical capture is realized.

TAB 2 GUIDELINE 17
PEDIATRIC TACHYCARDIA WITH PULSE

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
< 16 years of age - Past medical history - Medications or toxic ingestion - Drugs - Congenital heart disease - Respiratory distress - Syncope or near-syncope	- Heart rate: Child > 180/bpm Infant > 220/bpm - Pale or cyanosis - Diaphoresis - Tachypnea - Vomiting - Hypotension - Altered level of consciousness - Pulmonary congestion - Syncope	- Heart disease (congenital) - Hypo / Hyperthermia - Hypovolemia or Anemia - Electrolyte imbalance - Anxiety / Infection / Sepsis - Hypoxia - Hypoglycemia - Medication / Toxin / Drugs - Pulmonary embolus - Trauma / Tension pneumothorax



SPECIAL CONSIDERATIONS:

1. This guideline applies to pediatric patients (< 16 years of age) who present with symptomatic tachycardia which may include:
 - a. Atrial Fibrillation / Flutter
 - b. SVT (Supraventricular Tachycardia)
 - c. Ventricular Tachycardia with a pulse
 - d. Wide Complex Tachycardia of uncertain type
2. If there are no palpable pulses proceed with the Pulseless Arrest Guideline. If pulses are palpable, look for signs of hemodynamic compromise (i.e., poor perfusion, tachypnea, weak pulses).
3. Sinus tachycardia should be differentiated from SVT:

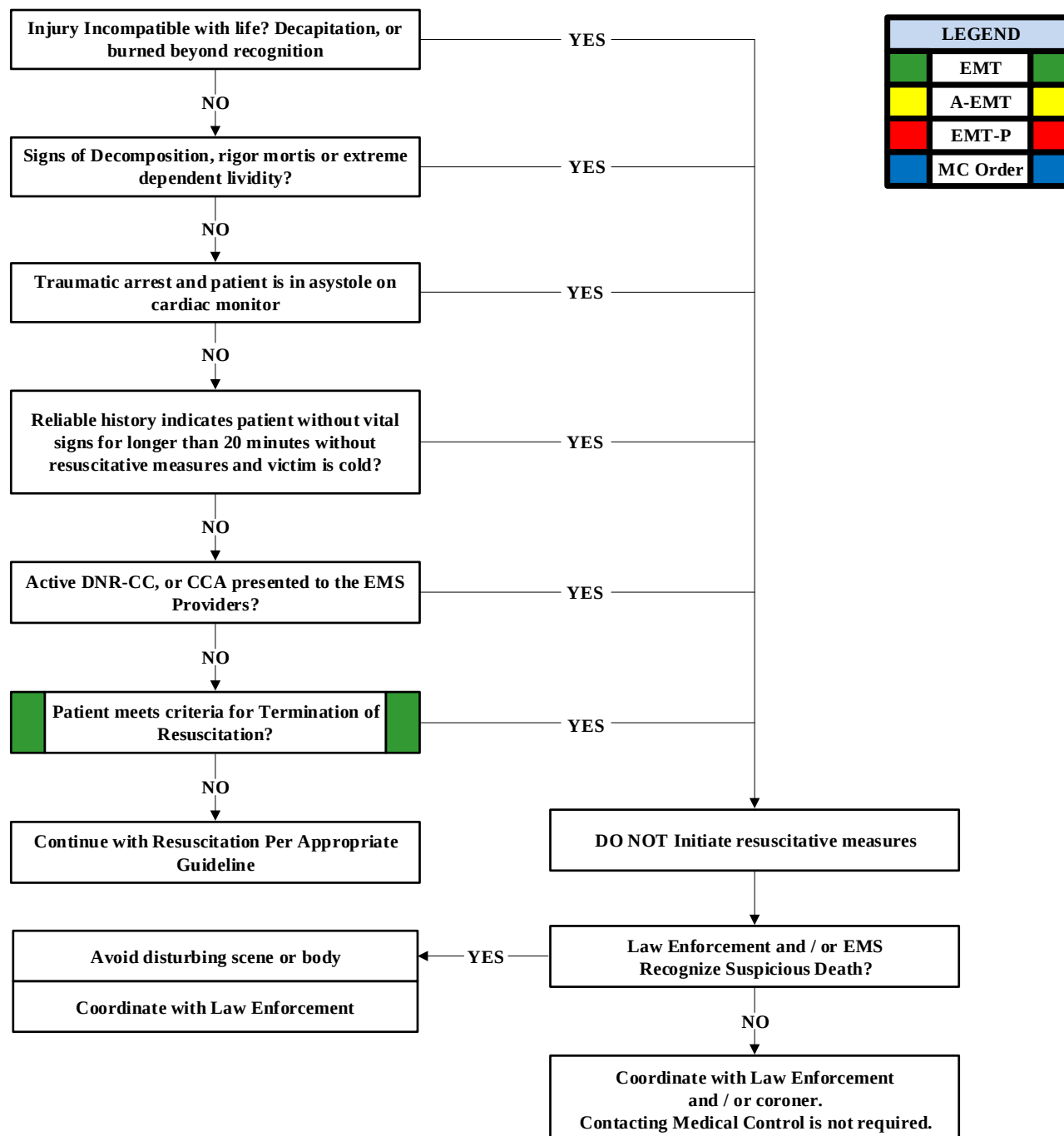
Sinus Tachycardia	SVT
Compatible history consistent with known cause	Compatible history (vague, nonspecific); history of abrupt rate changes
P waves present / normal	P waves absent / abnormal
Variable R-R; constant PR	HR not variable
Infants: rate usually < 220bpm	Infants: rate usually > 220 bpm
Children: rate usually < 180bpm	Children: rate usually > 180 bpm

4. For symptomatic SVT, attempt vagal stimulation first unless the patient is very unstable and if it does not unduly delay chemical or electrical cardioversion. In infants and young children, apply ice to the face without occluding the airway. In older children, Valsalva maneuvers are safe.

TAB 2 GUIDELINE 18

DEAD ON ARRIVAL (DOA) GUIDELINE

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Known medical conditions - Last time known to be alive - Patient encountered by EMS who meet criteria for obvious death - Patient with DNR order in place who is pulseless and apneic - Patient for whom resuscitation efforts are ceased on-scene	- Apnic / pulseless - Signs of decomposition - Decapitated - Burned beyond recognition - Rigor mortis - Dependent lividity	- Death of apparent medical causes - Suspicious death (law enforcement)



TAB 2 GUIDELINE 20

TERMINATION OF RESUSCITATION (TOR)

1. All decisions to withhold or terminate CPR and resuscitation efforts should be sufficiently documented and readily supported by this guideline.
2. Criteria:
 - a. For patient's meeting **Do Not Resuscitate** criteria refer to DNR Guideline.
 - i. Whenever resuscitative measures are instituted, they must be continued until an appropriate DNR Form is verified.
 - b. For patient with obvious death refer to DOA guideline.
 - c. Blunt traumatic arrest and the patient is in **ASYSTOLE** on the monitor, resuscitative measures can be immediately terminated.
 - d. All EMS personnel involved in the patient's care agree that discontinuation of the resuscitation is appropriate.
 - e. **Requirements to be met for termination of resuscitative efforts:**
 - i. If a reliable history indicates that the patient has been without vital signs for longer than 20 minutes without any resuscitative measures being instituted.
 - ii. Non-hypothermic.
 1. Any victim, who appears dead but is hypothermic from environmental cold, should be provided with resuscitative measures immediately via the Cardiac Arrest – Hypothermic Guideline.
 - iii. ECG of Asystole is confirmed and documented in two (2) leads, ventricular standstill or pulseless idioventricular rhythm with a rate < 10 beats per minute; or AED does not advise "shock".
 1. ECG confirmation of death is not required for:
 - a. Injuries incompatible with life.
 - b. Victim exhibits signs of decomposition, rigor mortis or extreme dependent lividity.
 - iv. If resuscitative measures were initiated, then cardiac arrest guidelines have been followed for at least 20 minutes, including adequate CPR, successful intubation or advanced alternative airway with End-Tidal CO₂ levels < 10 mmHg after 20 minutes of resuscitation or a falling EtCO₂ sustained below 20 mmHg after 20 minutes of resuscitation., IV / IO access with appropriate pharmacologic therapy

(if applicable), and there has been no return of a perfusing cardiac rhythm at any time.

- v. Appropriate emotional support by family, neighbors, clergy or police is available at the scene if the family is present.
3. For patients who have had CPR initiated prior to the squad arrival, and the EMS Provider determines the patient meets the criteria set forth by the DOA Policy CPR may be stopped.
 - a. If, while obtaining a reliable history, the patient indeed does meet the criteria for DOA, all life support measures may be stopped with permission from on-line MEDICAL CONTROL.
 - b. Avoid disturbing a potential crime scene unless it is necessary to do so to effect patient resuscitative efforts.
 4. If the EMS Provider is unsure if the patient meets the exact criteria set forth by the DOA policy, then on-line MEDICAL CONTROL should be contacted, and the case discussed. CPR should be continued during this time period.
 5. For patients who have had CPR initiated prior to the squad arrival and it is determined that the patient has a DNR Comfort Care or DNR Comfort Care / Comfort Care Arrest order in place, CPR will be discontinued.
 6. **In any case where doubt exists, clear documentation cannot be distinguished, or EMS feels that discontinuation of efforts at the scene would not be appropriate, the patient is to receive full resuscitative efforts and transported to the closest available hospital.**

TAB 2 GUIDELINE 21

DNR COMFORT CARE GUIDELINE

1. The State of Ohio has enacted legislation (2133.21 to 2133.26) that provides guidelines to manage the class of patients designated as Do Not Resuscitate or DNR. Paramedics and EMT's are protected under Ohio's law from the following, resulting from withholding or withdrawal of CPR after a DNR Comfort Care is discovered, and after reasonable efforts have been made to determine that the DNR applies to their patient:
 - a. Criminal prosecution.
 - b. Professional disciplinary action.
 - c. Liability damages in a tort or other civil action.
2. There are two (2) official types of DNR orders:
 - a. DNR Comfort Care.
 - i. DNR Comfort Care guidelines are activated immediately when DNR order is issued or when an appropriate living will specify "no CPR".
 - ii. Comfort care means a dying person receives care that eases the pain and suffering during the final days or hours of life, but no resuscitative measures to sustain life will be implemented.
 - iii. DNR Comfort Care does **NOT** mean, "Do Not Treat".
 - iv. For patients that have a valid DNR Comfort Care order:

YOU WILL	YOU WILL NOT
• Suction the airway • Administer oxygen • Place in position of comfort • Splint or immobilize • Control bleeding • Provide pain medication • Provide emotional support • Contact other appropriate health care providers such as Hospice, Home health care, attending physician / Certified Nurse Practitioner (CNP) / Certified Nurse Specialist (CNS)	• Administer chest compressions • Insert an artificial airway • Administer resuscitative drugs • Defibrillate or cardiovert • Provide respiratory assistance (other than that listed above) • Initiate resuscitative IV (this does not include an IV for providing pain medications) • Initiate cardiac monitoring

- v. For those patients where any of the **will not** measures have been initiated prior to confirmation of the DNR Comfort Care status, discontinue these actions upon DNR Comfort Care confirmation.
- b. DNR Comfort Care – Arrest.
 - i. Unlike DNR Comfort Care, which is effective at the time the order is written, DNR Comfort Care – Arrest is activated only when a patient experiences a cardiac or respiratory arrest.
 - ii. “Cardiac Arrest” means the absence of a palpable pulse and / or absence of spontaneous respirations and / or presence of agonal breathing.
 - iii. DNR Comfort Care – Arrest allows for interventions to forestall cardiac and / or respiratory arrest. Interventions to forestall cardiac arrest include:
 - 1. Insert oral / nasal airway.
 - 2. Administer resuscitative drugs.
 - 3. Initiate resuscitative IV.
 - 4. Initiate cardiac monitoring.
- 3. Identification of status.
 - a. The following page shows the types of identification being used in Ohio for the DNR Comfort Care Policy.
 - b. EMS workers are not required to search a person to see if they have DNR identification. If an EMS or other health care worker discovers one of these items in the possession of the patient, the worker must make reasonable effort to establish identity of the patient, in appropriate circumstances. Examples of ways to verify identity include:
 - i. The patient, family member, caregiver or friend gives the patients name.
 - ii. The health care worker knows the patient personally.
 - iii. Institution identification band.
 - iv. Driver’s license, passport or other picture ID.
- 4. Interaction with patient, family and bystanders.
 - a. The patient always may request resuscitation even if he or she is a DNR Comfort Care patient and this guideline has been activated. The request for resuscitation amounts to a revocation of the DNR Comfort Care status.
 - b. If family or bystanders request or demand resuscitation for a person for whom the DNR Comfort Care Guideline has been activated, **DO NOT** proceed with resuscitation. Provide

comfort measures as outlined above and try to help the family understand the dying process and the patient's choice not to be resuscitated.

5. Documentation.

- a. If the EMS provider implements the DNR Comfort Care Guideline, the following shall be documented.
 - i. The item that identified the patient as DNR Comfort Care.
 - ii. The method of verifying the patient's identity, if any was found through reasonable efforts.
 - iii. Whether the patient was a DNR Comfort Care or DNR Comfort Care – Arrest patient.
 - iv. The actions taken to implement the DNR guideline.

6. The DNR law does not govern all DNR orders; it applies only to DNR orders, which specific the Comfort Care Guideline. Physicians, CNS or CNP may write DNR orders which use a different guideline, and which may better meet the patient's needs.

3701-62-04

APPENDIX A



DNR IDENTIFICATION FORM

(Check only one box)

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

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

Patient Name:		
Address:		
City:	State:	Zip:
Birthdate:	Gender: ☐ M ☐ F	
Signature: (optional)		

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

(Check only one box)

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

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

Printed name of physician*:	
Signature:	Date:
Address:	Phone:
City/State:	Zip:

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

See reverse side for DNR Protocol

Page 1 of 2

3701-62-04



DO NOT RESUSCITATE COMFORT CARE PROTOCOL

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

WILL:

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

WILL NOT:

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

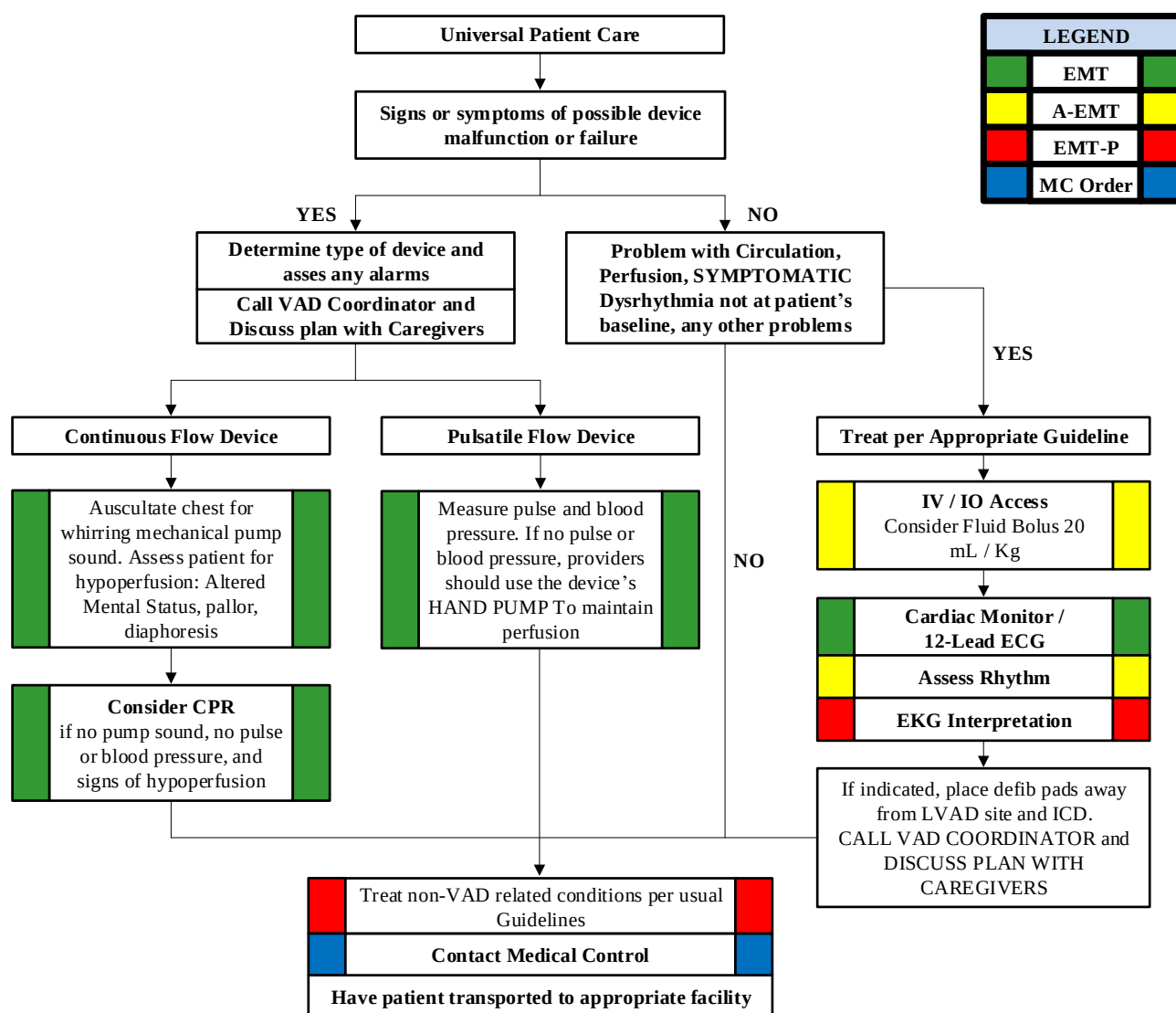
If you have responded to an emergency situation by initiating any of the WILL NOT actions prior to confirming that the DNR Comfort Care Protocol should be activated, discontinue them when you activate the Protocol. You may continue respiratory assistance, IV medications, etc., that have been part of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

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

TAB 2 GUIDELINE 22

LEFT VENTRICULAR ASSIST DEVICES (LVAD)

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- End-Stage Heart Failure - Patient has surgically-implanted pump that assists the action of one or both ventricles - Patient may or may not be on a list for cardiac transplantation	- The flow through many of these devices is not pulsatile, therefore THE PATIENT MAY NOT HAVE A PULSE AT BASELINE. For this reason pulse oximetry readings may also be inaccurate - Altered Mental Status may be the only indicator of a problem - Consider both VAD-related and non-VAD-related problems	- Stroke - Cardiac Arrest - Dysrhythmia different from patient's baseline - Infection - Bleeding - Dehydration - Cardiac Tamponade - Device problem such as low battery or disconnected cable



LEGEND		
	EMT	
	A-EMT	
	EMT-P	
	MC Order	

1. **ALWAYS talk to family / caregivers as they have specific knowledge and skills. CALL THE VAD COORDINATOR EARLY as per patient / family instructions or as listed on the device. They are available 24 / 7 and should be an integral part of the treatment plan**

2. There are a growing number of patients in the area who have a LVAD system. The LVAD system is continuously augments the left ventricle with pumping of blood

- a. System Components:

- System Controller
- Power Base Unit (PBU) and cable
- Batteries and battery clips
- Emergency Power Pack (EPP)
- System Monitor
- Display Module

2. **Precautions / Warning Specific to EMS Assessment and Treatment**

- a. LVAD patients will pose a challenge in the approach to assessment and treatment. ALS transport is strongly encouraged for an ill patient even with normal LVAD function.
- b. Peripheral pulses may be absent with normal LVAD function and blood pressures may be unobtainable. Assessment must be based upon overall patient presentation including respiratory status, skin color and temperature, mentation and ECG findings.
 - i. Patient may have VF / VT and be asymptomatic
 - ii. In the event of cardiac arrest, external chest compressions pose a risk to the location of the outflow graft on the aorta and the inflow conduit in the left ventricular apex.
 - iii. Patients who present in cardiac arrest with a functioning LVAD unit should **NOT** have CPR performed.
 - iv. LVAD function can be assessed by placing a stethoscope over the device and listening for a whirling sound. All other standard therapies should be rendered as per guideline (i.e., airway control, defibrillation, medication administration).
- c. The LVAD System Controller has a number of “advisory” and “hazard” alarms that may have to be addressed for optimal LVAD function. Rely on the patient or family member’s familiar with the device to troubleshoot the operation. Patients and family members have been educated in the function of the LVAD device.

3. **SPECIAL CONSIDERATIONS:**

- a. Batteries and the emergency power pack can provide 24 – 36 hours of power
- b. Patients are frequently on three different anticoagulants and are prone to bleeding complications
- c. **Precautions / Warnings Specific to Patient or System Management**

- i. The LVAD should NOT be disconnected during external defibrillation or cardioversion
 - ii. In the event that the LVAD stops operating, attempt to restore pump function immediately. In the event that the LVAD stops operating and blood is stagnant in the pump for more than a few minutes, there is a risk of stroke or thromboembolism should the device be restarted. There is also a risk for retrograde flow within the LVAD
 - iii. Disconnecting both System Controller power leads at the same time will result in loss of pump function. One System Controller power lead must be connected to a power source (i.e., batteries, PBU, or EPP) at all times to maintain support
 - iv. Avoid unnecessary pulling or moving of the external portion of the percutaneous lead, especially as the exit site is healing
 - v. The use of automated blood pressure monitoring devices may not yield accurate blood pressure data. Manual auscultation to assess blood pressure is recommended. In circumstances where the flow is not sufficient for auscultation, Doppler or invasive blood pressure monitoring may be required
4. Utilizing the emergency contact information supplied, EMS Providers are encouraged to contact the LVAD specialists for questions related to LVAD function, power management, alarms, device management or patient assessment and treatment

TAB 3

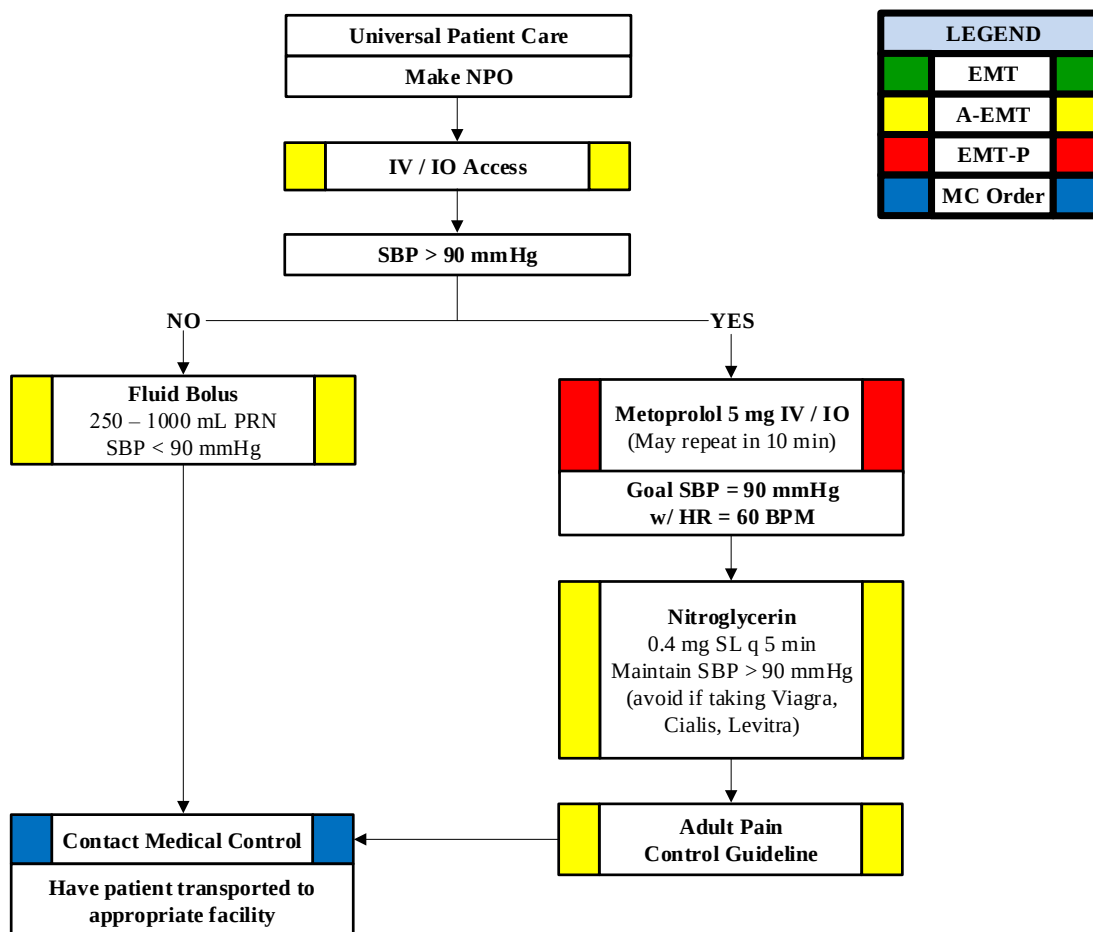
ADULT MEDICAL EMERGENCY GUIDELINES



TAB 3 GUIDELINE 1

ABDOMINAL AORTIC ANEURYSM

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Age - Past medical / surgical history - Medications - Onset of pain / injury - Previous back injury - Location of pain - Palliation / Provocation - Region / Radiation / Referred - Severity (1-10) - Time (duration / repetition)	- Pain (paraspinous, spinous process) - Swelling - Pain with range of motion - Extremity weakness - Extremity numbness - Shooting pain into an extremity - Bowel / bladder dysfunction	- Muscle spasm / strain - Herniated disc with nerve compression - Sciatica - Spine fracture - Kidney stone - Pyelonephritis - Aneurysm

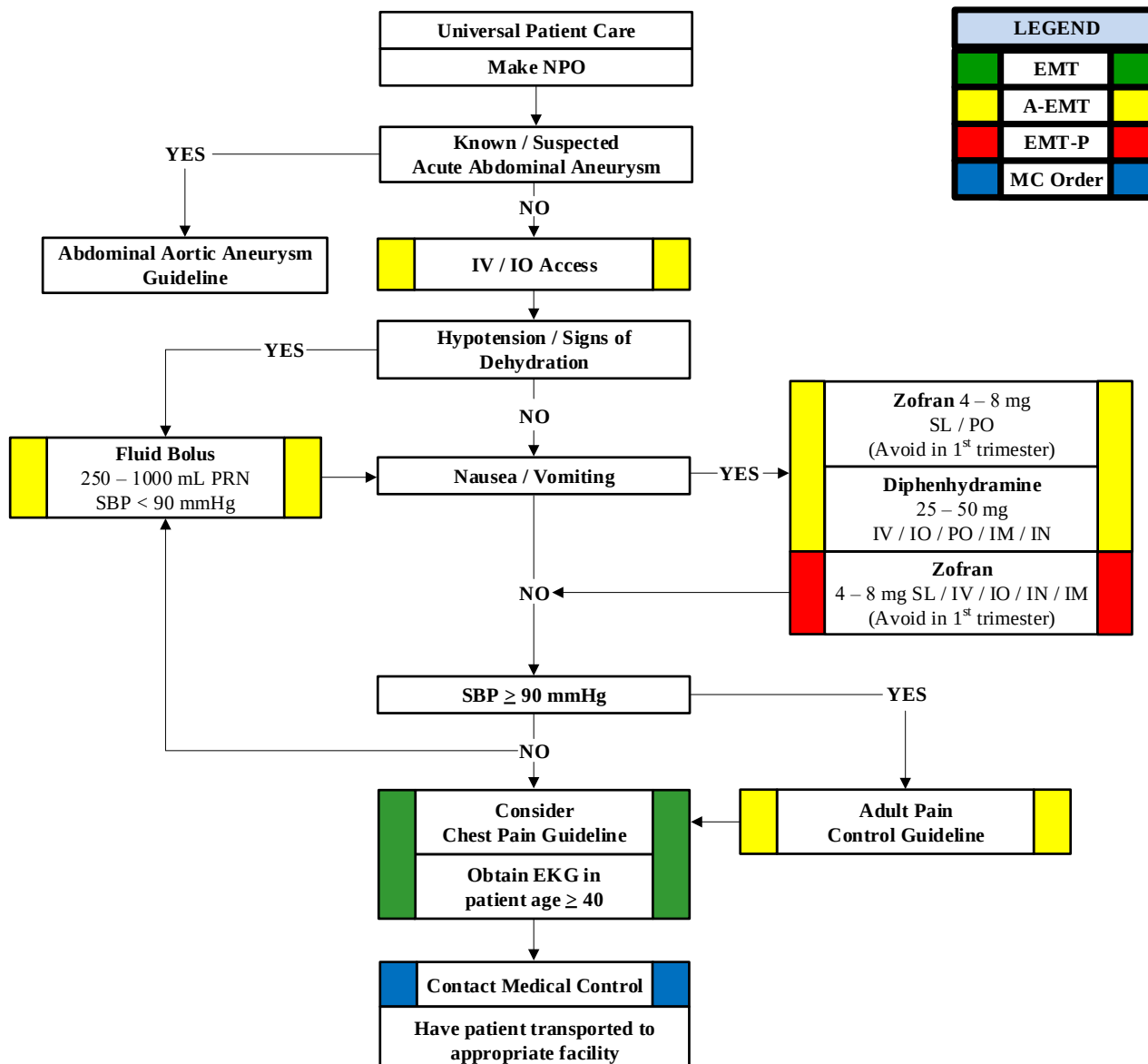


SPECIAL CONSIDERATIONS:

- Nitroglycerin not limited to the (3) sublingual tablet maximum. Want SBP > 90 mmHg but as close to 90 mmHg as can be maintained. Administer fentanyl for the abdominal pain and headache associated with the nitroglycerin.

TAB 3 GUIDELINE 2
ABDOMINAL PAIN

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Age - Past medical / surgical history - Medications - Onset - Palliation / Provocation - Quality (crampy, constant, sharp, dull, etc) - Region / Radiation / Referred - Severity (1-10) - Time (duration / repetition) - Fever - Last meal eaten - Last bowel movement - Menstrual history (pregnancy)	- Pain (location / migration) - Tenderness - Nausea - Vomiting - Diarrhea - Dysuria - Constipation - Vaginal bleeding / discharge - Pregnancy ASSOCIATED SYMPTOMS: - Fever, headache, weakness, malaise, myalgias, cough, headache, mental status changes, rash	- Pneumonia or Pulmonary embolus - Liver (hepatitis, CHF) - Peptic ulcer disease / Gastritis - Gallbladder / Pancreatitis - Myocardial infarction - Kidney stone - Abdominal aneurysm - Appendicitis / Diverticulitis - Bladder / Prostate disorder - Pelvic (PID, Ectopic pregnancy, Ovarian cyst) - Spleen enlargement - Bowel obstruction - Gastroenteritis (infectious)

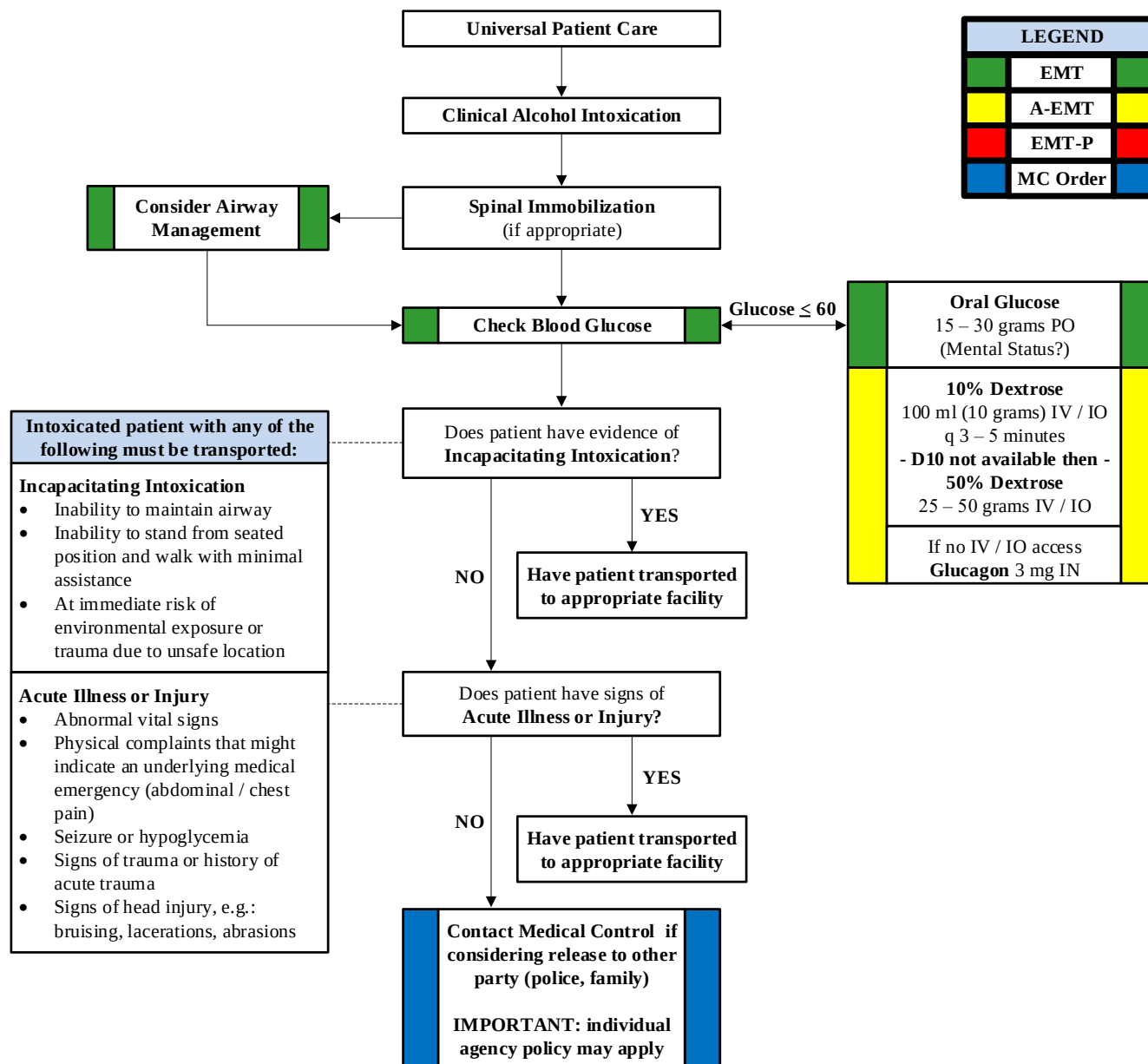


SPECIAL CONSIDERATIONS:

1. The differential (causes) of abdominal pain is numerous, with origin rarely identified in a field setting. Assessment should be centered upon gathering as much information as possible related to the complaint of “abdominal pain.”
2. Consider internal hemorrhage with an associated shock presentation. For blood pressure < 90 mmHg, consider initial fluid bolus of 250 – 500 mL NS (repeat PRN for perfusing BP). Elderly patients may have significant hypovolemic shock with blood pressures above 90mmHg.
3. Abdominal pain in women of childbearing age should be treated as an ectopic pregnancy until proven otherwise.
4. The diagnosis of abdominal aneurysm should be considered with abdominal pain in patients over age 50.
5. Appendicitis presents with vague, peri-umbilical pain which migrates to the RLQ over time.
6. Symptoms of dehydration
 - a. Increased thirst / dry mouth
 - b. Headache
 - c. Weakness / confusion
 - d. Dizziness / lightheaded / fainting
 - e. Palpitations
 - f. Decreased urine output

TAB 3 GUIDELINE 3
ALCOHOL INTOXICATION

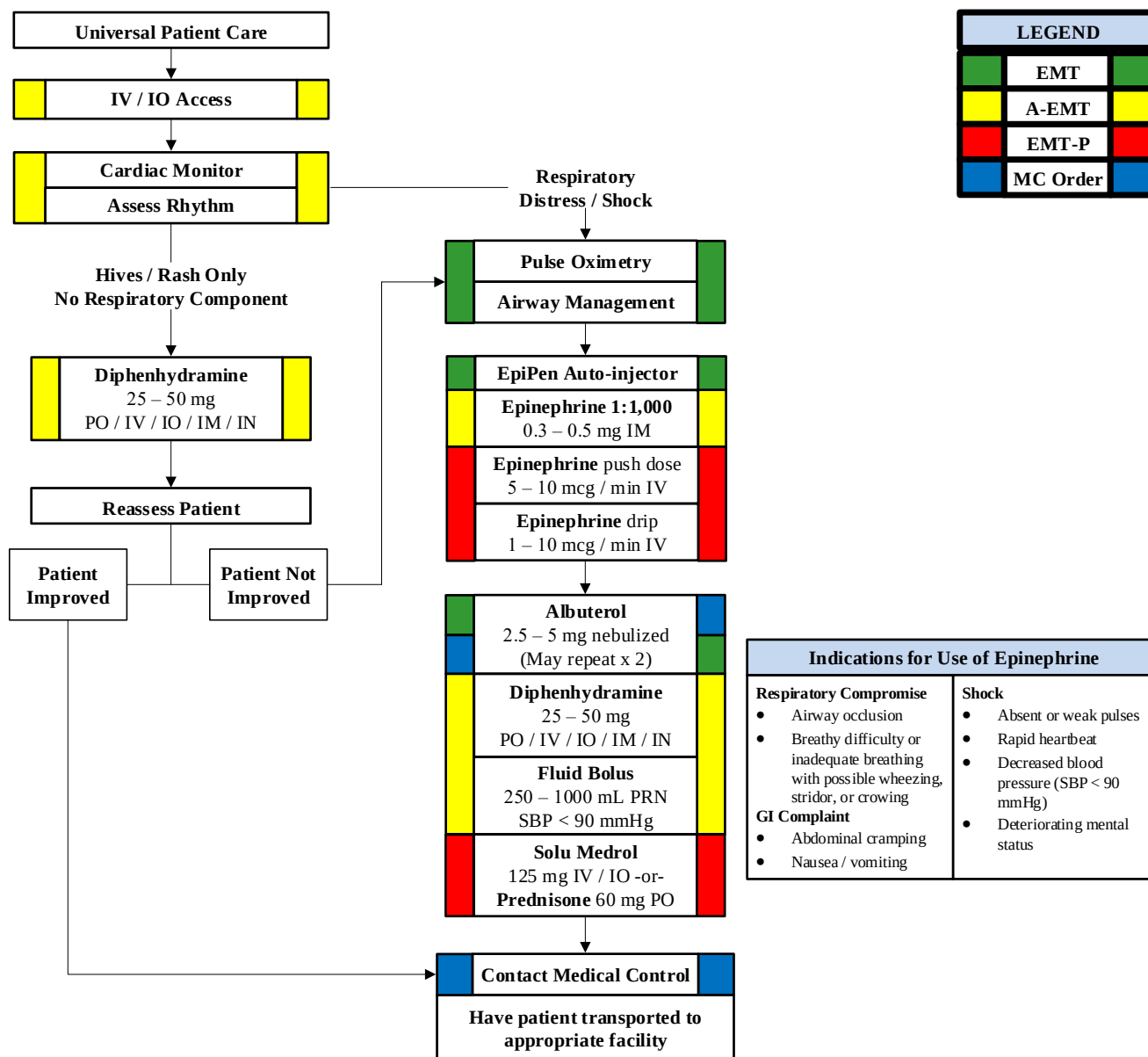
HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Known diabetic, medic alert tag - Drugs, drug paraphernalia - Report of illicit drug use or toxic ingestion - Past medical history - Medications - History of trauma - Change in condition	- Decreased mental status - Change in baseline mental status - Bizarre behavior - Hypoglycemia (cool, diaphoretic skin) - Hyperglycemia (warm, dry skin; fruity breath; Kussmaul respirations; signs of dehydration)	- Diabetes (hyper / hypoglycemia) - Toxicologic - Acidosis / Alkalosis - Environmental exposure - Electrolyte abnormality - Trauma - Sepsis



TAB 3 GUIDELINE 4

ALLERGIC REACTION | ANAPHYLAXIS

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Onset and location - Insect sting or bite - Food allergy / exposure - Medication history / allergy / exposure - New clothing, soap, detergent - Past history of reactions - Past medical history	- Itching or hives - Coughing / wheezing or respiratory distress - Chest or throat constriction - Difficulty swallowing - Hypotension or shock - Hypotension or shock / Edema - Abdominal cramps	- Urticaria (rash only) - Anaphylaxis (systemic effect) - Shock (vascular effect) - Angioedema (drug induced) - Aspiration / Airway obstruction - Vasovagal event - Asthma - CHF

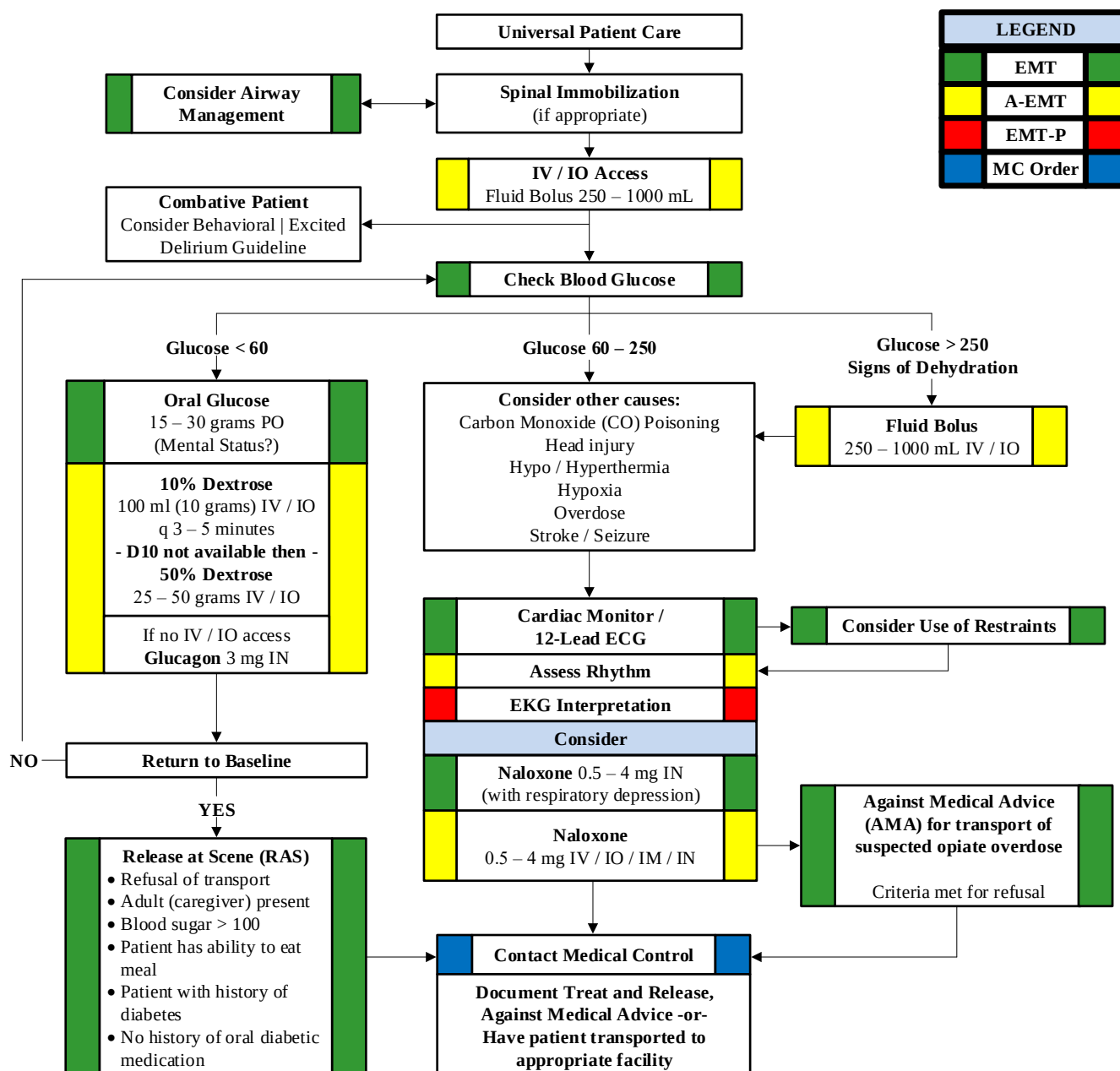


SPECIAL CONSIDERATIONS:

1. Patients with allergic reactions can deteriorate quickly. Airway is a prime concern.
2. Epinephrine should be administered for:
 - a. **Respiratory Compromise**
 - i. Airway occlusion
 - ii. Breathy difficulty or inadequate breathing with possible wheezing, stridor, or crowing
 - b. **GI Complaint**
 - i. Abdominal cramping, nausea, vomiting
 - c. **Shock**
 - i. Absent or weak pulses
 - ii. Rapid heartbeat
 - iii. Decreased blood pressure (SBP < 90 mmHg)
 - iv. Deteriorating mental status
3. Lethal edema may be localized to the tongue, uvula or other upper airway structures. Examine closely and be prepared to intubate early before swelling occurs. Nasal tracheal intubation may be preferred.
4. Any patient with respiratory symptoms or extensive reaction should receive IV or IM diphenhydramine (Benadryl).
 - a. Consider allowing the patient to take oral diphenhydramine if available on site
5. Epinephrine
 - a. If severe reaction with signs | symptoms of shock and / or airway involvement and ALS not available, then administer Epipen Auto-injector for **weight > 30 Kg (66 lbs).**
 - b. Drip
 - i. Mix 1 mg epinephrine (1:10,000 or 1:1000 concentration) in 250 ml bag normal saline or D5W to give 4:1 concentration, mix in 500 ml bag normal saline or D5W to give 2:1 concentration. Titrate 2 – 10 mcg / min
 - c. Push dose
 - i. Mix 0.1 mg (1 ml) epinephrine (1: 10,000) in 9 ml NS to give 10:1 concentration. Give 0.5 – 1 ml dose pushes every 1 – 2 minutes for blood pressure control
 - d. Contact **On-Line Medical Control** prior to administering Epinephrine to patients who are > 50 years of age, have a history of cardiac disease, or if the patient's heart rate is > 150. Epinephrine may precipitate cardiac ischemia.

TAB 3 GUIDELINE 5
ALTERED MENTAL STATUS | COMA

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Known diabetic, medic alert tag - Drugs, drug paraphernalia - Report of illicit drug use or toxic ingestion - Past medical history - Medications - History of trauma - Change in condition	- Decreased mental status - Change in baseline mental status - Bizarre behavior - Hypoglycemia - Cool, diaphoretic skin - Hyperglycemia - Warm, dry skin - Fruity breath - Kussmaul respirations - Signs of dehydration	- Head trauma - CNS (stroke, tumor, seizure, infection) - Cardiac (MI, CHF) - Infection / Toxicologic - Thyroid (hyper / hypo) - Shock (septic, metabolic, traumatic) - Diabetes (hyper / hypoglycemia) - Electrolyte abnormality - Acidosis / Alkalosis - Environmental exposure - Pulmonary (hypoxia) - Psychiatric disorder



SPECIAL CONSIDERATIONS:

1. If the patient wishes to refuse transportation to a hospital and you have administered any medications, you must contact on-line MEDICAL CONTROL prior to leaving the patient or completing the Against Medical Advice / Release At Scene form

2. Non-transport of hypoglycemic patient, Treat and Release guideline

a. Criteria:

- i. Patient must be able to refuse transport as per patient exhibiting decisional capacity to make appropriate decisions
- ii. Following treatment of a hypoglycemia state, patient is conscious, alert to time, date and place, and requests that they not be transported to the hospital
- iii. Certain patients should be informed that their hypoglycemic state may not be an isolated issue and it is recommended that they be transported:
 1. Patients with other associated findings such as hypoglycemic episode, including excessive alcohol consumption, shortness of breath, chest pain, fever, etc
 2. Patients on oral hypoglycemic medication such as glipizide, glyburide or chlorpropamide (hypoglycemic episode may last hours or days)
 3. Patients who when treated with IV Dextrose take greater than 10 minutes to return to a normal level of consciousness
 4. Patient's history does not reveal circumstances that may have contributed to the hypoglycemic episode
- iv. Repeat rapid Glucose test is > 100 mg / dl
- v. The patient has a repeat SBP > 90 mmHg, pulse rate > 60 BPM

b. Guideline for Treat and Release:

- i. If the criteria above are met, then the patient is a candidate for Treat and Release
 - ii. The patient must be released to the care of a responsible individual who will remain with the patient as an observer for a reasonable time
 - iii. The patient should be given both verbal and written instructions for follow-up care prior to being released
 - iv. If another episode occurs, request medical assistance immediately
3. Non-transport of opiate overdose, Against Medical Advice Guidelines
 - a. When dealing with patients that are suspected opiate overdose it is in their best interest to receive an evaluation and monitoring from hospital personnel. Many opiate containing

medications have the potential of causing somnolence and decreased respirations necessitating reversal medication

b. Criteria:

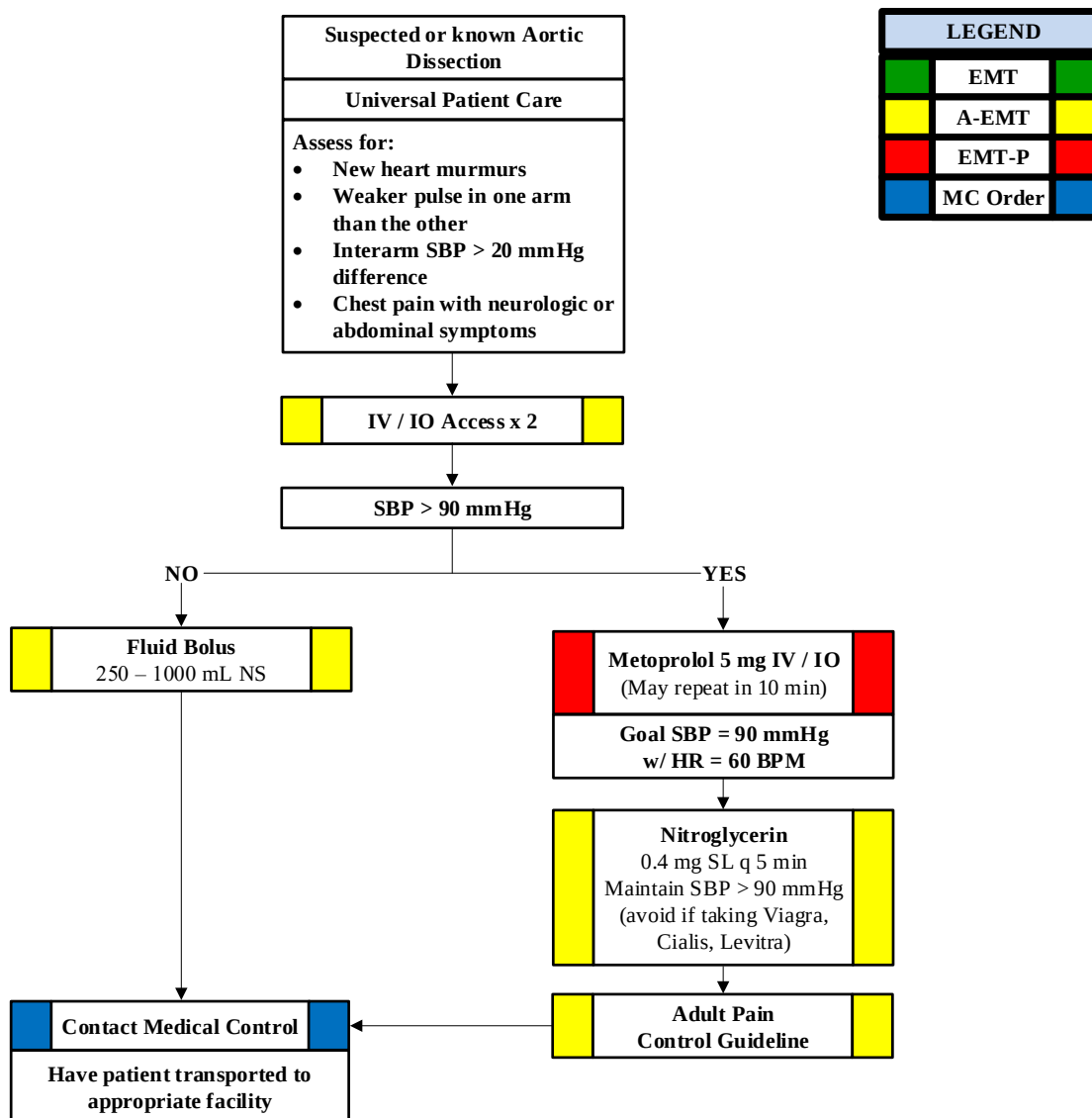
- i. Patient responded immediately to administration of opiate reversal agents (naloxone)
- ii. Age > 18 years of age
- iii. Patient must be alert, oriented to person, place, time and event
- iv. Patient must be able to refuse transport as per patient exhibiting decisional capacity to make appropriate decisions
- v. Must have been an accidental (non-suicidal) opiate overdose and did not overdose on long acting opiates
- vi. Patient is no longer exhibiting any signs of overdose with normal pupil size and vital signs with HR < 100, SBP > 90 mmHg, respiratory rate > 12
- vii. Patient **MUST** verbalize the understanding that they can die from the ingestion of opiate medication and that they are refusing transport to hospital for additional evaluation and monitoring by hospital personnel

c. Guideline for Release Against Medical Advice

- i. If the criteria above are met, then the patient is a candidate for Release Against Medical Advice
- ii. The patient must be released to the care of a responsible individual who will remain with the patient as an observer for a reasonable time
- iii. The patient should be given both verbal and written instructions for follow-up care prior to being released
- iv. If another episode occurs, request medical assistance immediately.
- v. If the patient wishes to refuse transportation to a hospital and you have administered any medications, **you MUST contact on-line MEDICAL CONTROL** prior to leaving the patient or completing the Against Medical Advice / Release At Scene form
- vi. Document in the PCR the physician that you spoke with and that the patient has decisional capacity with the ability to refuse additional medical care

TAB 3 GUIDELINE 6
AORTIC DISSECTION

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
• Age • Past medical / surgical history • Medications • Onset of pain / injury • Previous back injury • Location of pain • Palliation / Provocation • Region / Radiation / Referred • Severity (1-10) • Time (duration / repetition)	• Pain (paraspinal, spinous process, chest, abdomen) • Syncope • Difficulty speaking • Extremity weakness • Extremity numbness • Shooting pain into an extremity • Bowel / bladder dysfunction • Weaker pulse in one arm than the other	• Chest pain / Acute Coronary Syndrome • Pneumothorax • Pulmonary Embolism • Muscle spasm / strain • Herniated disc with nerve compression • Aneurysm



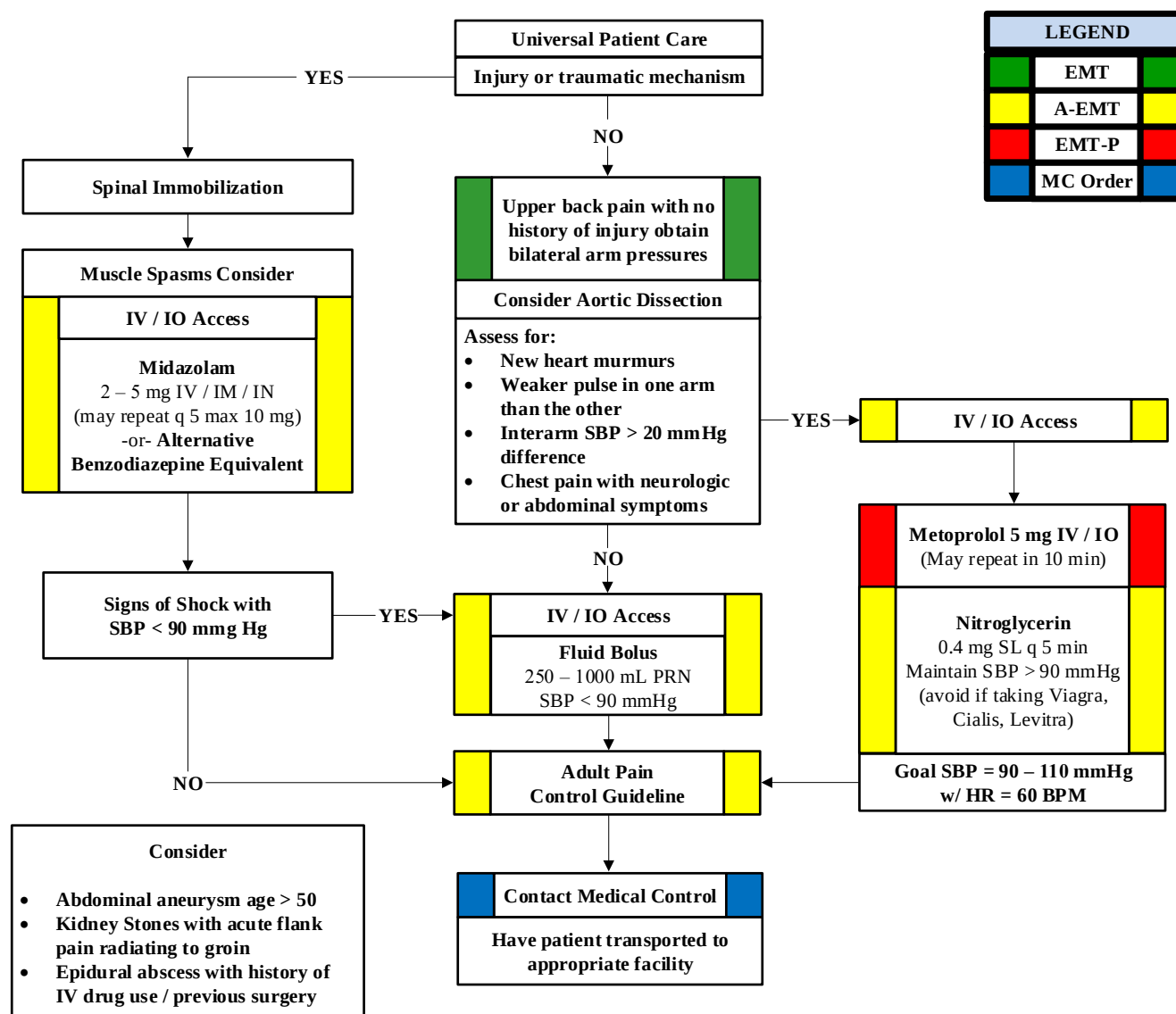
SPECIAL CONSIDERATIONS:

1. Aortic dissection begins with the formation of a tear in the aortic intima that directly exposes an underlying medial layer to the driving force (pulse pressure) of the intraluminal blood
2. There are two types of aortic dissections
 - a. Stanford type A
 - i. Involves the ascending aorta and/or aortic arch, and possibly the descending aorta
 - ii. The tear can originate in the ascending aorta, the aortic arch, or, more rarely, in the descending aorta
 - iii. It includes DeBakey types I and II and requires emergent surgical repair
 - b. The Stanford type B
 - i. Involves the descending aorta or the arch (distal to the left subclavian artery), without involvement of the ascending aorta
 - ii. It includes DeBakey type III and is typically managed medically until complications arise

TAB 3 GUIDELINE 7

BACK PAIN

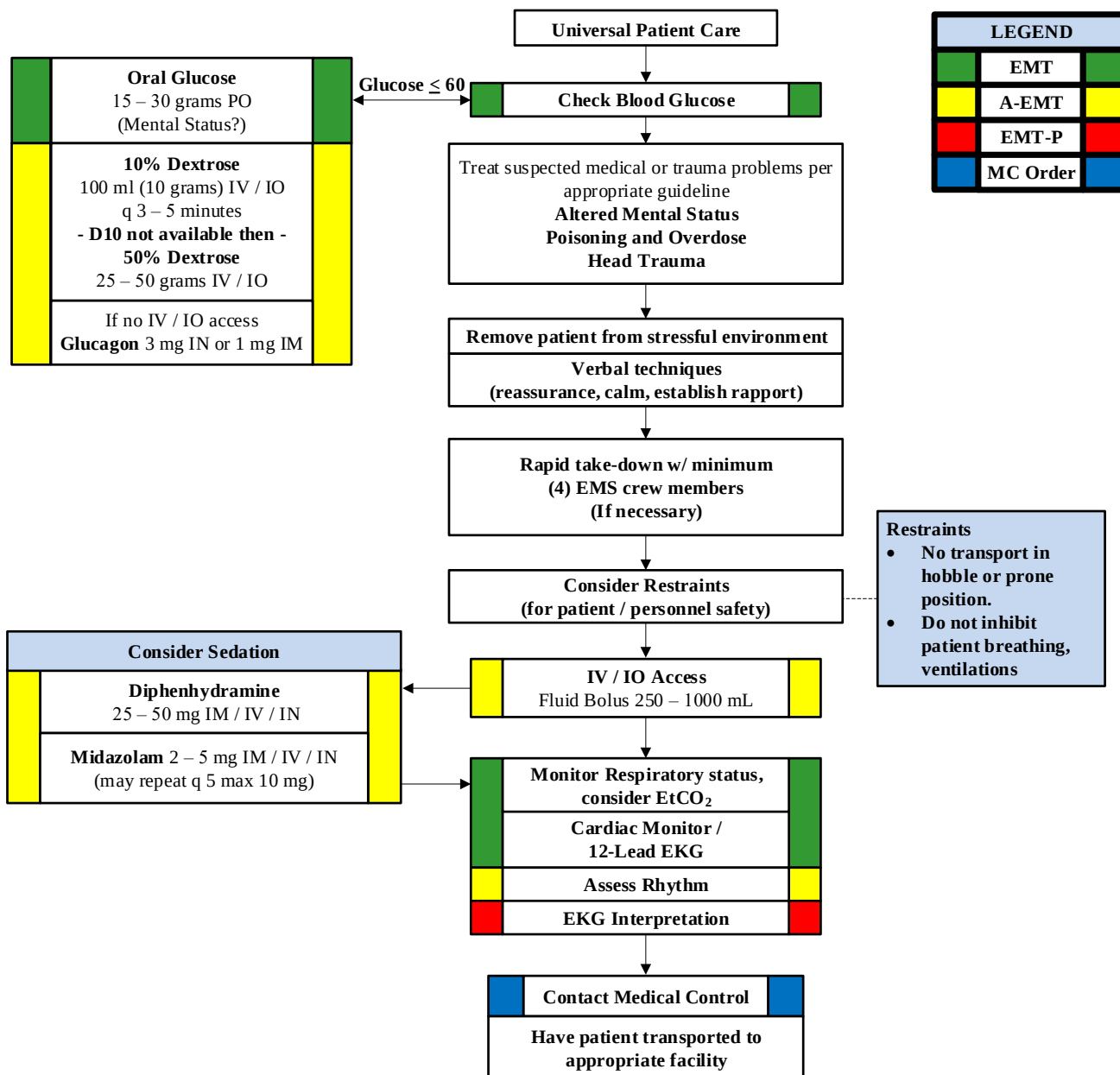
HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
• Age • Past medical / surgical history • Medications • Onset of pain / injury • Previous back injury • Traumatic mechanism • Location of pain • Palliation / Provocation • Region / Radiation / Referred • Severity (1-10) • Time (duration / repetition) • Fever	• Pain (paraspinal, spinous process) • Swelling • Pain with range of motion • Extremity weakness • Extremity numbness • Shooting pain into an extremity • Bowel / bladder dysfunction	• Muscle spasm / strain • Herniated disc with nerve compression • Sciatica • Spine fracture • Kidney stone • Pyelonephritis • Aneurysm • Pneumonia • Spinal epidural abscess • Metastatic Cancer



TAB 3 GUIDELINE 8

BEHAVIORAL | EXCITED DELIRIUM

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Situational crisis - Psychiatric illness / medications - Injury to self or threats to others - Medic alert tag - Substance abuse / overdose - Diabetes	- Anxiety, agitation, confusion - Affect change, hallucinations - Delusional thoughts, bizarre behavior - Expression of suicidal / homicidal thoughts - Poor concentration, easily distracted, psychosis - Combative, violent - Large pupils / light sensitivity - Tachycardic / Hypertension	- See Altered Mental Status differential - Hypoxia - Alcohol intoxication - Medication effect / overdose - Withdrawal syndromes - Depression - Bipolar (manic-depressive) - Schizophrenia, anxiety disorders, etc.



SPECIAL CONSIDERATIONS:

1. Excited delirium is an extreme disturbance of consciousness and mental status that occurs in individuals especially when under the influence of stimulants or anti-psychotic medications and it represents an acute **LIFE-THREATENING MEDICAL EMERGENCY**
 - a. Combination of delirium, psychomotor agitation, anxiety, hallucinations, speech disturbances, disorientation, violent / bizarre behavior, insensitivity to pain, hyperthermia and increased strength. Potentially life-threatening and associated with use of physical control measures, including physical restraints and Tasers
 - i. Need rapid take down, sedation, cooling measures and IV fluid replacement. These patients often suffer respiratory or cardiac arrest once subdued and should be closely monitored and transported by an ALS Unit to closest appropriate facility
 - b. Most commonly seen in male subjects with a history of serious mental illness and/or acute or chronic drug abuse, particularly stimulant drugs such as cocaine, crack cocaine, methamphetamine, amphetamines or similar agents
 - c. Alcohol withdrawal or head trauma may also contribute to the condition
2. Maintain objectivity during evaluation and treatment. Verbal aggression exhibited by patients can quickly escalate to physical violence. Always proceed with calm, reassuring directions for the patient. If a situation appears threatening, sufficient law enforcement presence may be necessary before patient restraint is attempted
 - a. If needing to take the patient down, at minimum, utilize (4) ems crew members / police officers to secure each limb
 - b. **If a patient suspected of excited delirium suffers cardiac arrest, consider a fluid bolus and sodium bicarbonate early**
3. Patients requiring physical restraint should be placed in the lateral recumbent position when possible. Consider your own safety and limitations when physical restraint is required.
 - a. Restrained patients should never be left unattended. Continue to evaluate effectiveness of restraints and any compromise that may be caused by the restraint process (i.e., airway, breathing, circulation)
 - b. Positional asphyxia – very large ventilation volumes are needed to oxygenate and blow off carbon dioxide overload. They should never be left prone or face down in handcuffs and should never be “hog-tied”
4. Do not overlook the possibility of associated domestic violence or abuse
5. Richmond Agitation-Sedation Scale

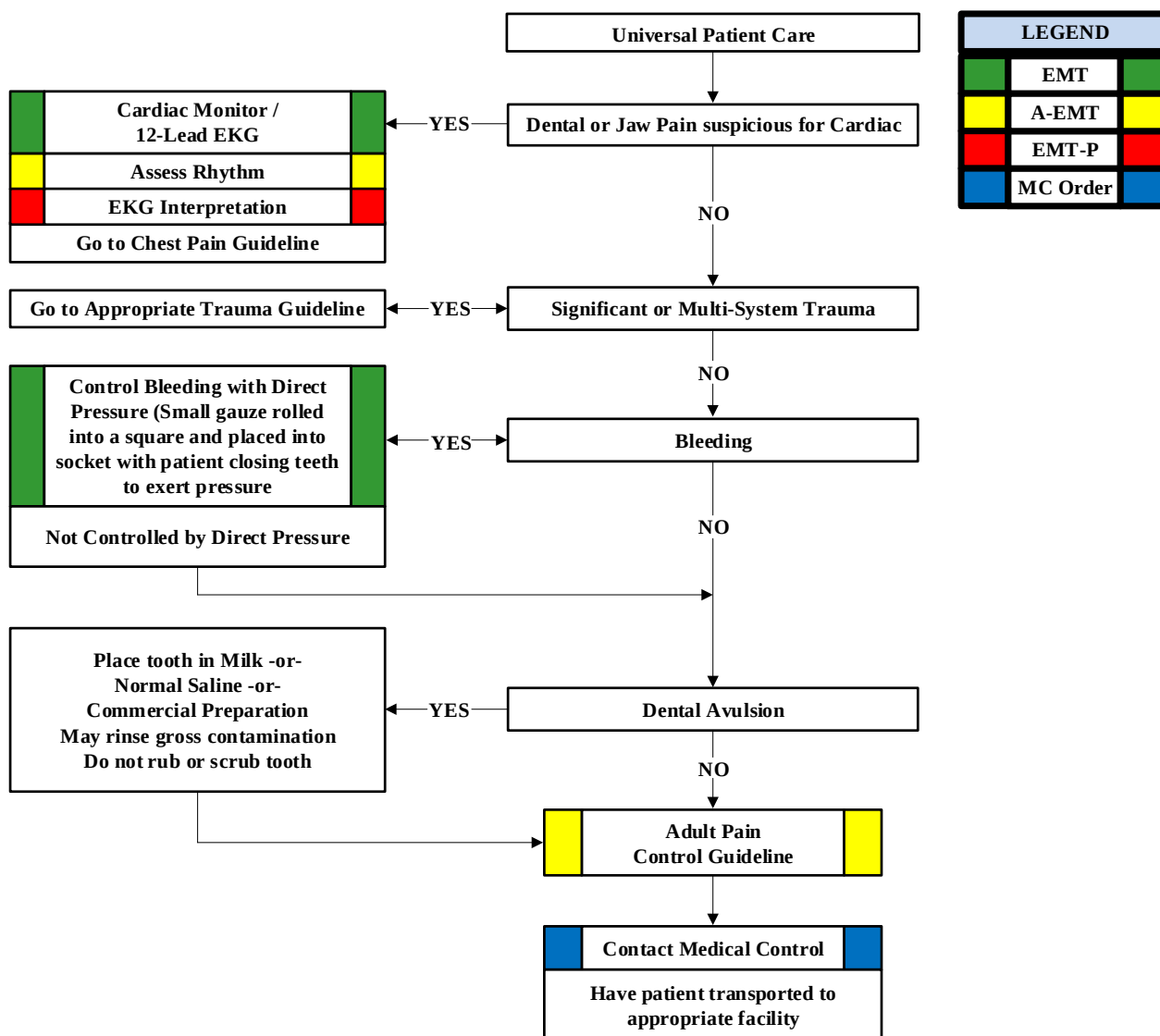
- a. Validated agitation-sedation scale from age 2 months and older
- b. Goal is for RASS between (0) to (-1)

Score	Term	Description
+ 4	Combative	Overtly combative or violent; immediate danger to staff
+ 3	Very agitated	Pulls on or removes tube(s) or catheter(s) or has aggressive behavior toward staff
+ 2	Agitated	Frequent nonpurposeful movement or patient–ventilator dyssynchrony
+ 1	Restless	Anxious or apprehensive but movements not aggressive or vigorous
0	Alert and Calm	Spontaneously pays attention to caregiver
- 1	Drowsy	Not fully alert, but has sustained (more than 10 seconds) awakening, with eye contact, to voice
- 2	Light Sedation	Briefly (less than 10 seconds) awakens with eye contact to voice
- 3	Moderate Sedation	Any movement (but no eye contact) to voice
- 4	Deep Sedation	No response to voice, but any movement to physical stimulation
- 5	Unarousable	No response to voice or physical stimulation

TAB 3 GUIDELINE 9

DENTAL PAIN

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Age - Past medical history - Medications - Onset of pain / injury - Trauma with "knocked out" tooth - Location of tooth - Whole vs. partial tooth injury	- Bleeding - Pain - Fever - Swelling of face / buccal mucosa - Tooth missing or fractured	- Decay - Infection - Fracture - Avulsion - Abscess - Facial cellulitis - Impacted tooth (wisdom) - TMJ syndrome - Myocardial infarction

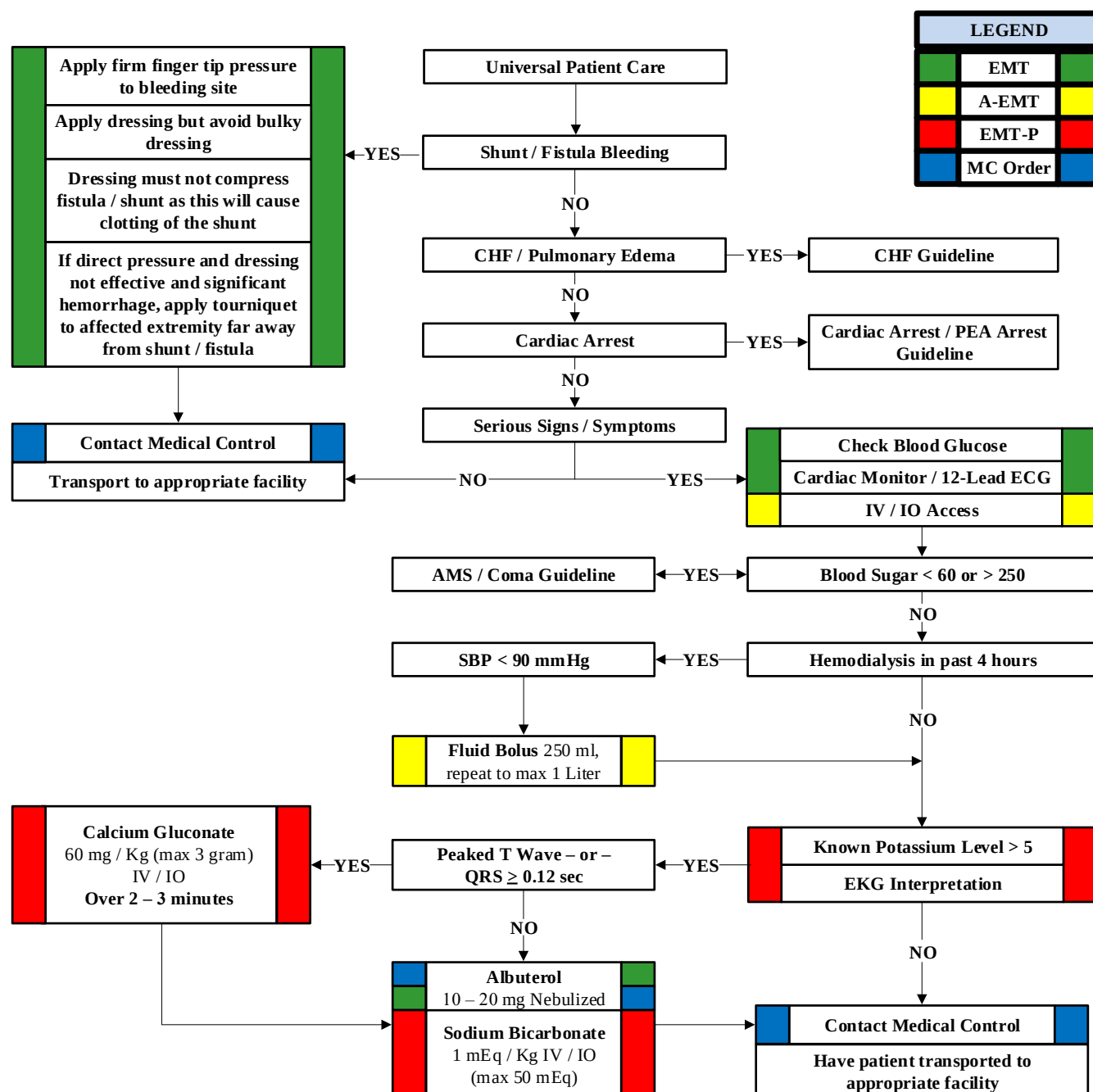


SPECIAL CONSIDERATIONS:

1. Recommended Exam: Mental Status, HEENT, Neck, Chest, Lungs, Neurology
2. Significant soft tissue swelling to the face or oral cavity can represent a cellulitis or abscess.
3. Scene and transport times should be minimized in complete tooth avulsions. Re-implantation is possible within 4 hours if the tooth is properly cared for.
4. All pain associated with teeth should be associated with a tooth which is tender to tapping or touch (or sensitivity to cold or hot).

TAB 3 GUIDELINE 10
DIALYSIS | RENAL FAILURE | HYPERKALEMIA

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Past medical history - Medications - Peritoneal or Hemodialysis - Shunt access noted - Crush Injury	- EKG abnormality - Peaked T waves - Wide complex, bizarre appearance with slow rhythm - Shortness of breath - Hypotension - Bleeding - Seizure - Altered Mental Status	- End Stage Renal Disease - Electrolyte imbalance - Crush Injury - Prolonged immobilization - Rhabdomyolysis - Congestive Heart Failure



SPECIAL CONSIDERATIONS:

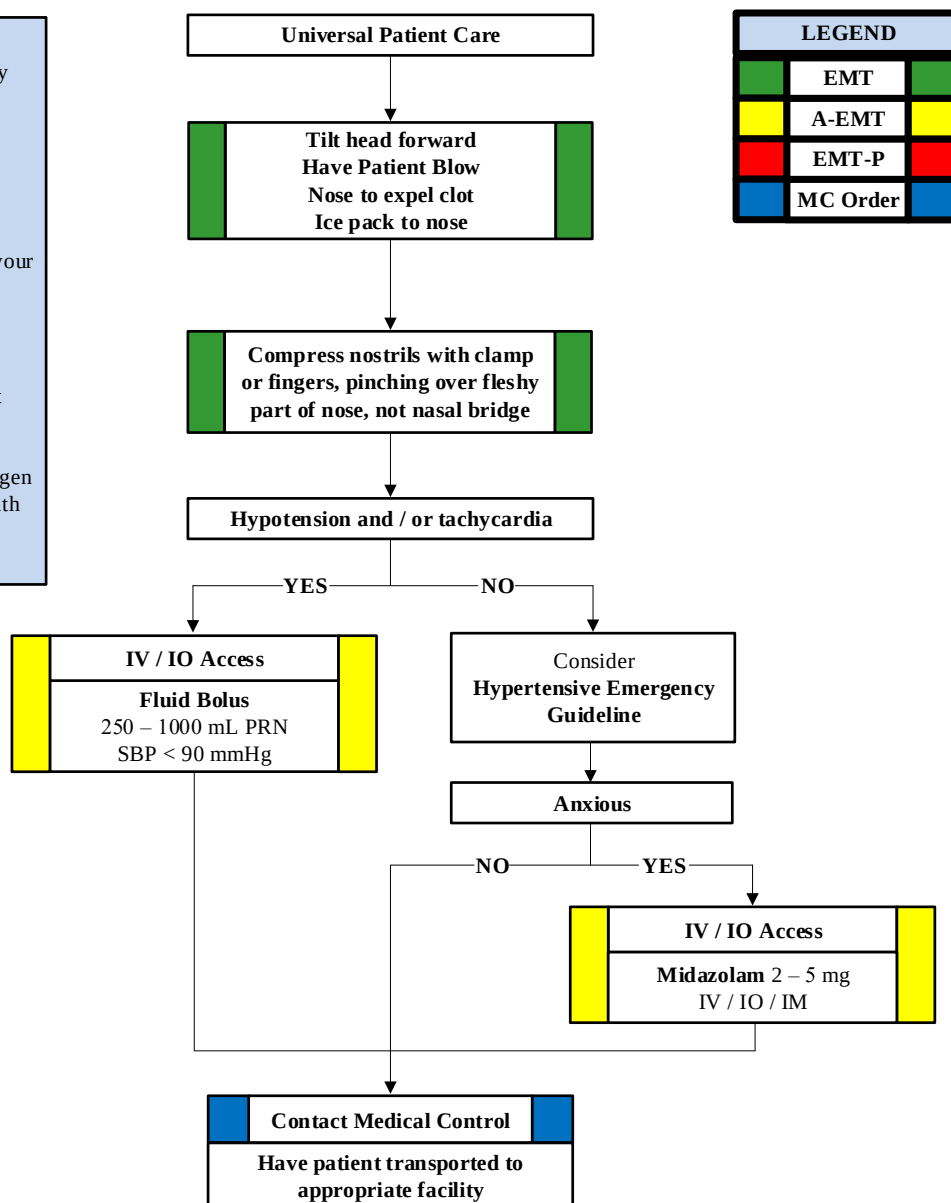
1. Do not take blood pressure or start IV in extremity which has a shunt / fistula in place.
2. Access of shunt or dialysis catheter is indicated in the dead or near-dead patient only with no other available access. Utilize IO if available.
3. Always consider Hyperkalemia in all dialysis or renal failure patients.
4. Patient with suspected cardiac arrest secondary to hyperkalemia will potentially need multiple dosages of calcium and sodium bicarbonate to correct

TAB 3 GUIDELINE 11

EPISTAXIS (NOSEBLEED)

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Age - Past medical history - Medications (HTN, anticoagulants, ibuprofen / OTC headache relief powder) - Previous episodes of epistaxis - Trauma - Duration of bleeding - Quantity of bleeding	- Bleeding from nasal passage - Pain - Nausea - Vomiting	- Trauma - Infection (viral URI or Sinusitis) - Allergic rhinitis - Lesions (polyps, ulcers) - Hypertension

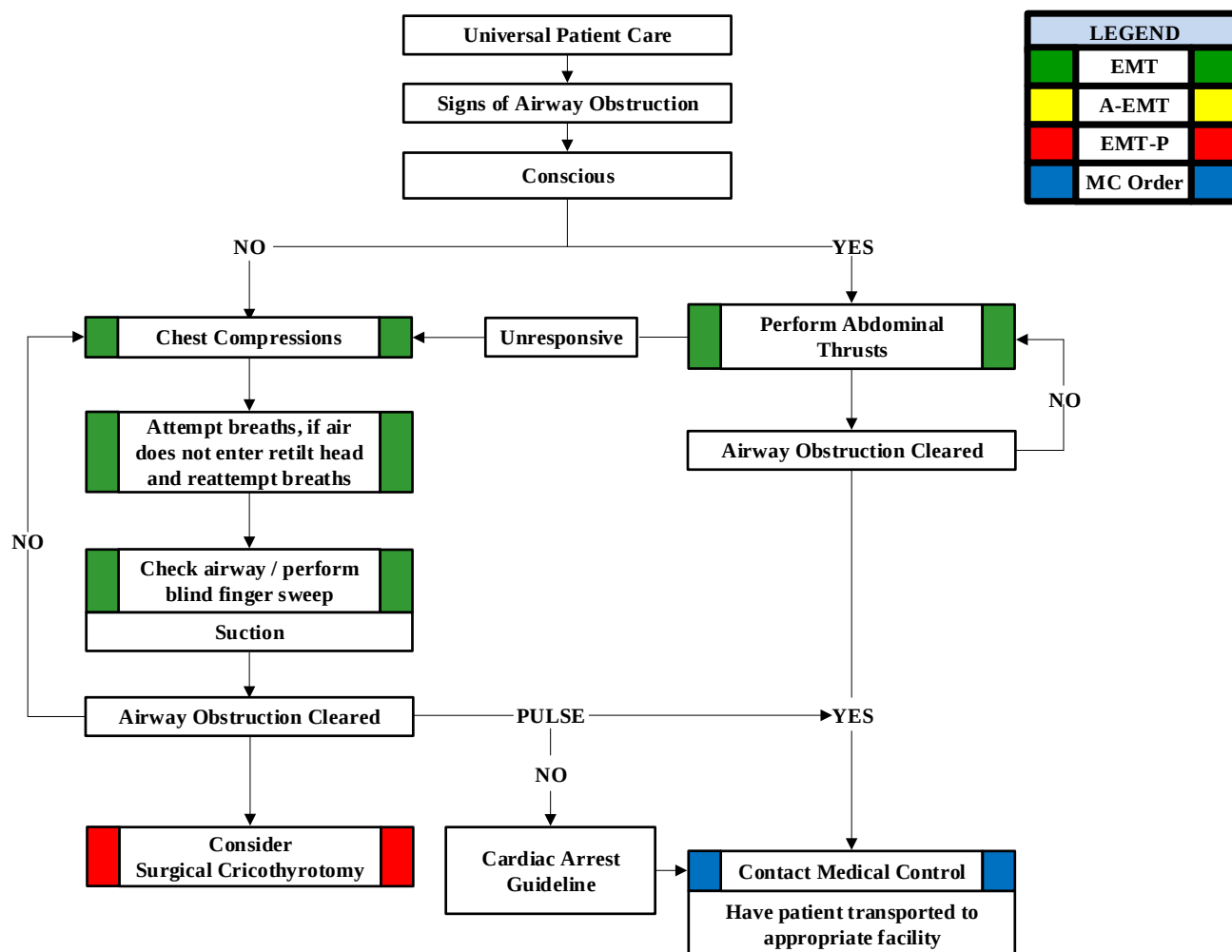
- Most nose bleeding is from an anterior source and may be easily controlled
- Avoid phenylephrine in pts with known CAD
- Anticoagulation with aspirin, clopidogrel (Plavix), warfarin (Coumadin) will make epistaxis much harder to control. Note if your patient is taking these or other anticoagulant medications
- Posterior epistaxis is a true emergency and may require advanced ED techniques. Do not delay transport. Be prepared for potential airway issues.
- Patients using nasal cannula oxygen may have cannula placed in mouth while nares are clamped or compressed for nosebleed



TAB 3 GUIDELINE 12

FOREIGN BODY AIRWAY OBSTRUCTION - ADULT

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Events leading up to incident - Trauma - Aspiration - Medication - Allergic reaction	- Anxiety - No air movement - Clutching throat - Unresponsive - Sore throat, fever, “Hot potato” voice, drooling	- Foreign Body - Infection - Trauma - Laryngeal or tracheal fracture - Oropharyngeal laceration



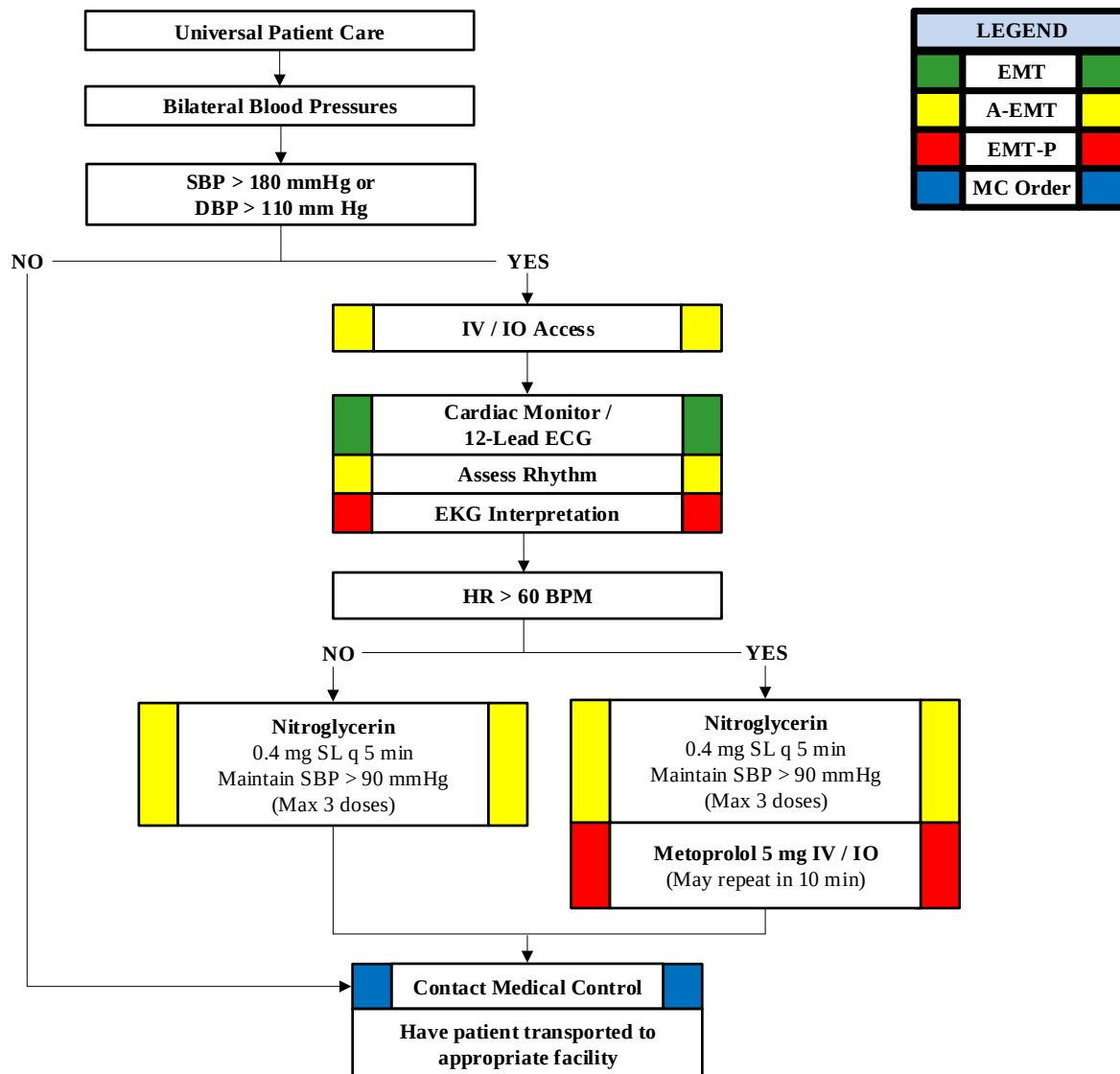
LEGEND			
	EMT		
	A-EMT		
	EMT-P		
	MC Order		

Mild Airway Obstruction Signs	Severe Airway Obstruction Signs
- Good air exchange - Responsive and can cough forcefully - May wheeze between coughs	- Poor or no air exchange - Weak, ineffective cough or no cough at all - High-pitched noise while inhaling or no noise at all - Increased respiratory difficulty - Possible cyanosis (turning blue) - Unable to speak or move air - Clutching the neck with the thumb and fingers - Unresponsive

TAB 3 GUIDELINE 13

HYPERTENSIVE EMERGENCY

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Documented hypertension - Related diseases: diabetes, CVA, renal failure, cardiac - Medications (compliance?) Viagra, Levitra, Cialis - Pregnancy	One of these: - Systolic BP 180 or greater - Diastolic BP 110 or greater And at least one of these: - Chest Pain - Headache / Blurred Vision - Nosebleed - Dizziness	- Hypertensive encephalopathy - Primary CNS injury (Cushing's response = bradycardia with hypertension) - Myocardial infarction - Aortic dissection (aneurysm) - Pre-eclampsia / Eclampsia



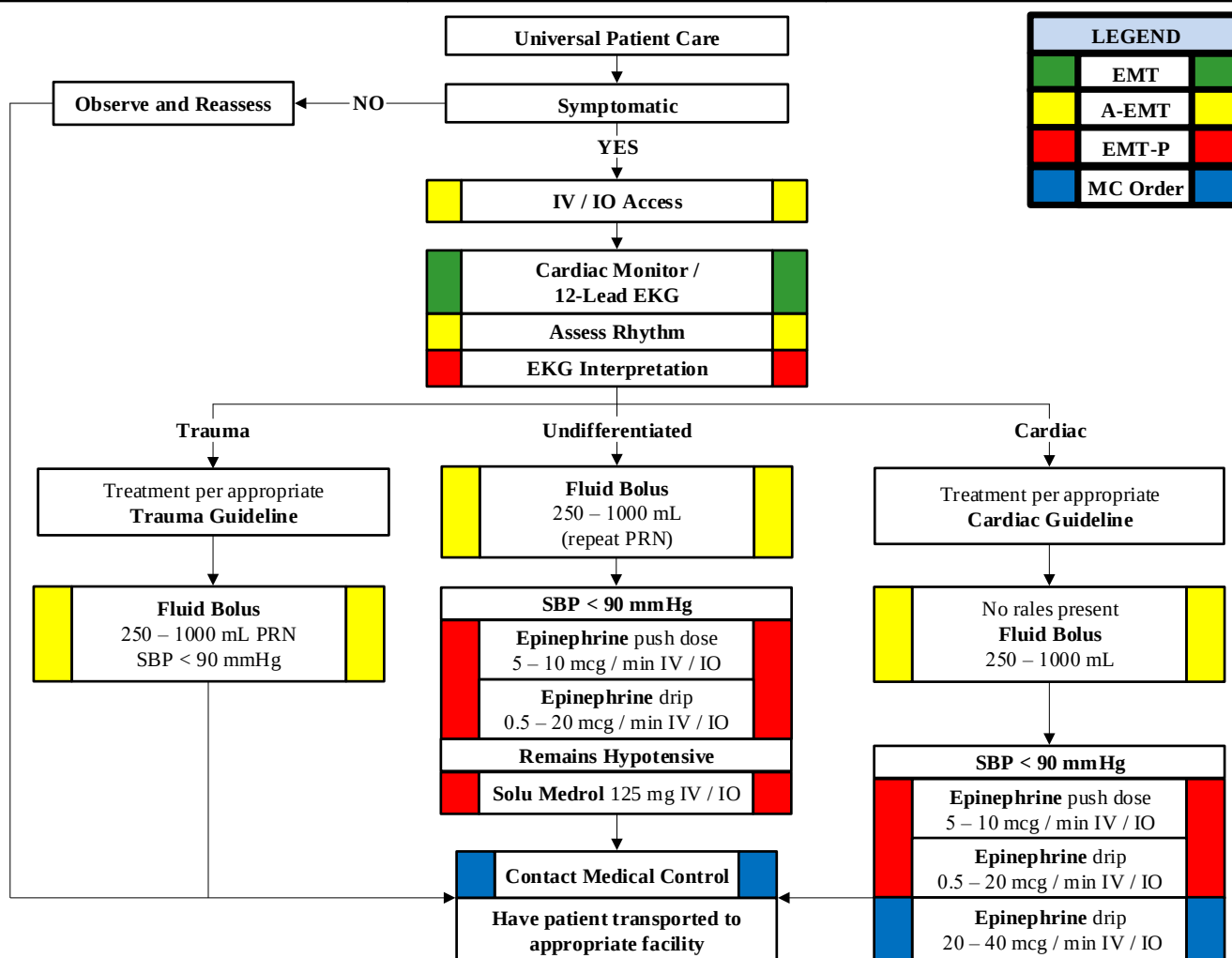
SPECIAL CONSIDERATIONS:

1. **Elevated blood pressure of itself rarely requires emergency therapy.**
 - a. Initial triage should quickly identify those patients who have an elevated BP without any evidence of significant target organ damage or any other impending cardiovascular events.
 - i. Secondary hypertension in response to stress or pain is a common field finding. It does not require field treatment.
 - ii. Hypertension can also be from a severe head injury and intracranial bleeding. Treatment should be for the actual intracranial problem and not the blood pressure problem.
 - b. A careful cardiovascular examination, as well as a thorough neurologic examination, including mental status, should be conducted.
 - c. Improper BP cuff size can produce falsely high or low blood pressure measurements
2. Initial goal for BP reduction is not to obtain a normal BP, but to achieve a progressive controlled reduction to minimize the risk of hypoperfusion to vital organs.
 - a. **Initial reduction in mean arterial pressure should not exceed 20 – 25% below the pretreatment BP. As an alternative, mean arterial pressure can be reduced within the first 30 – 60 minutes to 110 – 115mmHg.**
 - b. Excessively rapid reductions in BP have been associated with acute deterioration in renal function, ischemic cardiac or cerebral events, and occasional retinal artery occlusion and acute blindness.
3. Signs and symptoms of a hypertensive emergency:
 - a. Rapid rise in diastolic pressure over 130mmHg
 - b. New onset symptoms that accompany rise in BP:
 - i. Chest pressure / Difficulty breathing.
 - ii. Mental confusion / Agitation.
 - iii. Severe headache.
 - iv. Light-headed / Dizziness.
 - v. Nausea / vomiting.
 - vi. Visual impairment (may include transient blindness).

TAB 3 GUIDELINE 14

HYPOTENSION (SHOCK)

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Blood loss - vaginal or gastrointestinal bleeding, AAA, ectopic pregnancy - Fluid loss - vomiting, diarrhea, fever - Infection - Cardiac ischemia (MI, CHF) - Medications - Allergic reaction - Pregnancy - History of poor oral intake	- Restlessness, confusion - Weakness, dizziness - Weak, rapid pulse - Pale, cool, clammy skin - Delayed capillary refill - Hypotension - Coffee-ground emesis - Tarry stools - Blood pressure - SBP < 90 mmHg - MAP < 60 mmHg	- Shock - Hypovolemia - Cardiogenic - Septic - Neurogenic - Anaphylactic - Ectopic pregnancy - Dysrhythmias - Pulmonary embolus - Tension pneumothorax - Medication effect / overdose - Vasovagal - Physiologic (pregnancy)



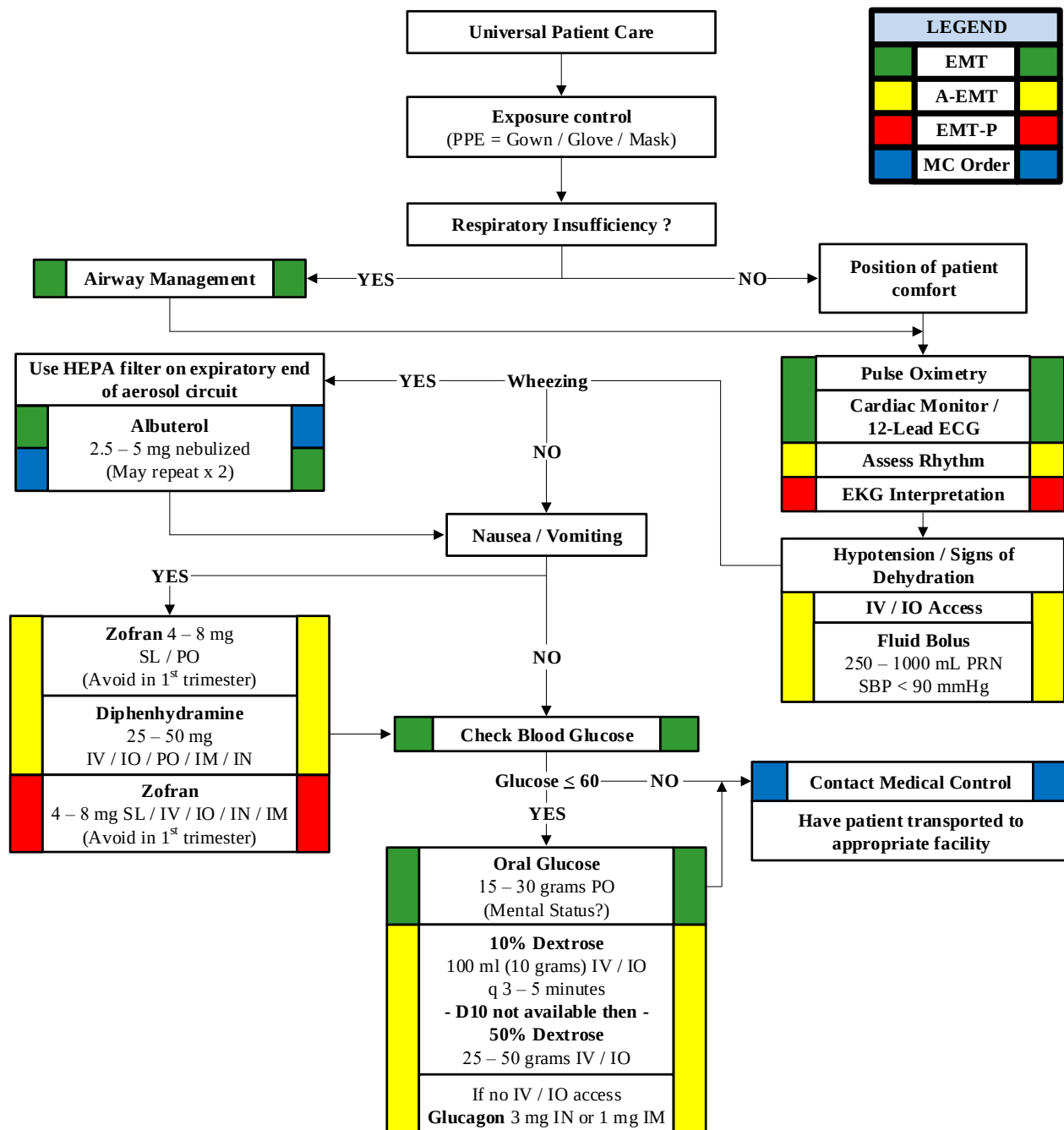
SPECIAL CONSIDERATIONS:

1. Hypotension can be defined as a mean arterial pressure (MAP) < 65 mmHg
2. Consider all possible causes of shock and treat per appropriate guideline
 - a. Anaphylactic – reaction to substance to which patient is hypersensitive or allergic
 - b. Cardiogenic – myocardial infection with damage to heart muscle
 - c. Hemorrhagic – severe bleeding or loss of body fluid from trauma, burns, surgery or dehydration from severe nausea and vomiting
 - d. Metabolic – body homeostasis impaired; have disturbance in acid-base balance
 - e. Neurogenic – injury or trauma to the nervous system
 - f. Obstructive – compression of the great vessels leading back to the heart or compression on the heart itself by masses, fluid, etc that causes a limitation on preload
 - g. Septic – acute infection
3. If no evidence of cardiogenic cause, institute general treatment measures.
 - a. Patients should **always** have adequate intravascular fluid load **prior** to the use of vasopressors
 - b. Limit normal saline or lactated ringer bolus to 2 liters unless septic shock suspected
4. Epinephrine
 - a. Drip
 - i. Mix 1 mg epinephrine (1:10,000 or 1:1000 concentration) in 250 ml bag normal saline or D5W to give 4:1 concentration, mix in 500 ml bag normal saline or D5W to give 2:1 concentration. Titrate 2 – 10 mcg / min
 - b. Push dose
 - i. Mix 0.1 mg (1 ml) epinephrine (1: 10,000) in 9 ml NS to give 10:1 concentration. Give 0.5 – 1 ml dose pushes every 1 – 2 minutes for blood pressure control

TAB 3 GUIDELINE 15

INFLUENZA LIKE ILLNESS (ILI)

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Immunization - Previous influenza - Pregnancy - Diabetic - HIV / Immunocompromised - Medication – chemotherapy, steroids, immunosuppressant	- Fever / Chills - Coughing - Sore throat - Runny or stuffy nose - Headaches - Body aches - Fatigue - Vomiting / Diarrhea	- Common cold - Carbon monoxide poisoning - Other viral syndromes - Pneumonia - Meningitis - Mononucleosis - HIV



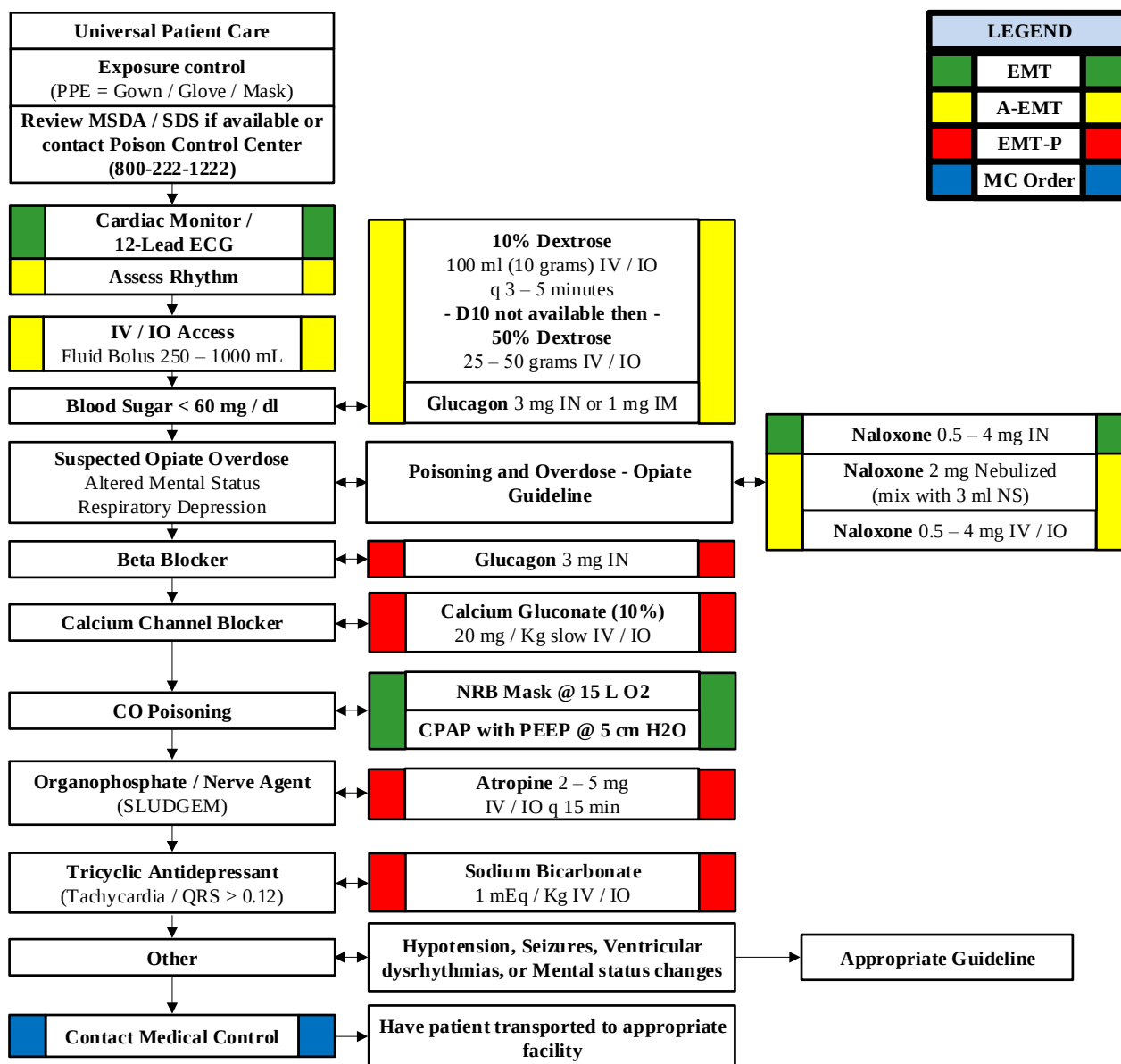
SPECIAL CONSIDERATIONS:

1. Influenza or “the flu” is caused by a number of unique influenza viruses. The patient is contagious for 48 hours prior to the onset of symptoms and as long as febrile or coughing which may be over 1 week after onset of symptoms.
2. Required personal protective equipment (PPE).
 - a. Gloves / Goggles or eye shields.
 - b. Fit tested N-95 respirator or Air Purifying Respirator (APR) or Powered APR (PAPR).
 - c. Gown if gross contamination possible.
 - d. Place plain surgical mask on patient and apply oxygen on top (**patients never use N-95 respirators**).
3. Disinfection.
 - a. Vehicle will be left open for 5 – 10 minutes with ventilation running and doors and windows open.
 - b. Fully recommended PPE will be used during decontamination process.
 - c. Gross contamination will be removed and washed with soap / water.
 - d. All exposed surfaces will be cleaned with approved hospital grade disinfectant and allowed to air dry to include benches, cots, counters and exposed walls.
 - e. PPE will be removed with no cross contamination (remove one glove, remove mask by straps).
 - f. Strict hand washing from elbows down with soap and water for minimal of 20 seconds or if unavailable waterless hand cleaner will be used.

TAB 3 GUIDELINE 16

POISONING | OVERDOSE | TOXIC INGESTION

HISTORY	SIGNS / SYMPTOMS	ENVIRONMENT
- What type of ingestion - When did ingestion occur - How Much - Reason for ingestion - Actions of bystanders - Previous psychiatric disorders - Diseases / Medications: ie depressants - Medical alert tags	- Increased salivation - Soot or burns in mouth - Irritation of the eyes - Sweating and skin burns - Decreased respiratory rate - Lung findings (ie edema) - Delayed capillary refill - Tachycardia / Arrhythmias - Seizures	- Acetaminophen - Anticholinergic - Aspirin - Cardiac medications - Insecticides (organophosphates) - Solvents, alcohols, cleaning agents - Stimulants



SPECIAL CONSIDERATIONS:

1. General:

- a. Improve the care of patients with poisonings, and environmental/biochemical terrorism exposures in the pre-hospital setting. Provide for the most timely and appropriate level of care to the patient, including the decision to transport or treat on the scene
- b. If no immediate life threat or need for transport is identified, EMS personnel may conference the patient/caller with the Poison Center Specialist at the **Poison Control Center at 800-222-1222**.
 - i. The Poison Center Specialist at the State Poison Center will evaluate the exposure and make recommendations regarding the need for on-site treatment and/or hospital transport in a timely manner
 - ii. If the patient is determined to need EMS transport, the poison control center Specialist will contact the receiving hospital and provide information regarding the poisoning, including treatment recommendations. EMS may contact medical control for further instructions or to discuss transport options.
 - iii. If the patient is determined not to require EMS transport, personnel will give the phone number of the patient/caller to the Poison Control Center Specialist. The Specialist will initiate a minimum of one follow-up call to the patient/caller to determine the status of patient.
 - iv. Minimal information that should be obtained from the patient for the state poison center includes:

Name and age of patient	Substance(s) involved
Time of exposure	Any treatment given
Signs and symptoms	
 - v. Minimal information which should be provided to the State Poison Center for mass poisonings, including biochemical terrorism and HazMat, includes:

Substance(s) involved	Time exposure
Signs and symptoms	Any treatment given
- c. Do not induce vomiting for

• Hydrocarbons	• Strong Acids	• Strong Base Iodides
• Silver Nitrate	• Strychnine	• Who are not alert
- d. Do not neutralize acids with alkali or Do not neutralize alkali with acids
- e. Product labels and home kits may be misleading and dangerous

- f. All empty containers of ingested material should accompany patient to the hospital
 - g. Do not rely on patient history of ingestion, especially in suicide attempts
2. Overdose / Ingestion concerns:
- a. **Acetaminophen:** Initial presentation normal or nausea/vomiting. If not detected and treated, will cause irreversible liver failure
 - b. **Anticholinergic:** Increased HR, increased temperature, dilated pupils, mental status changes
 - c. **Aspirin:** Early signs consist of abdominal pain, vomiting ringing in the ears. Tachypnea and altered mental status may occur later. Renal dysfunction, liver failure, and or cerebral edema among other things can take place later
 - d. **Cardiac Medications:** Dysrhythmias and mental status changes
 - e. **Depressants:** Decreased HR, decreased BP, decreased temperature, decreased respirations, non-specific pupils
 - f. **Insecticides:** Increased or decreased HR, increased secretions, nausea, vomiting, diarrhea, pinpoint pupils
 - g. **Solvents:** Nausea, vomiting, and mental status changes
 - h. **Stimulants:** Increased HR increased BP, increased temperature, dilated pupils, and seizures
 - i. **Tricyclics:** 4 major areas of toxicity: seizures; dysrhythmias; hypotension; decreased mental status or coma; rapid progression from alert mental status to death

Condition	Treatment
Carbon Monoxide	- Carbon monoxide is produced from a variety of sources such as vehicles, gasoline engines, camp stoves, lanterns, burning charcoal and wood, gas ranges, heating systems and poorly vented chimneys. Structural fires are another common source of CO exposure. - Normal Carbon Monoxide Levels (ages 3 – 74). - Nonsmokers = $0.83 \pm 0.67\%$. - Smokers = $4.30 \pm 2.55\%$. - Factors which may reduce the reliability of carbon monoxide readings: - Poor peripheral circulation (hypovolemia, hypotension, hypothermia). - Excessive sensor motion.

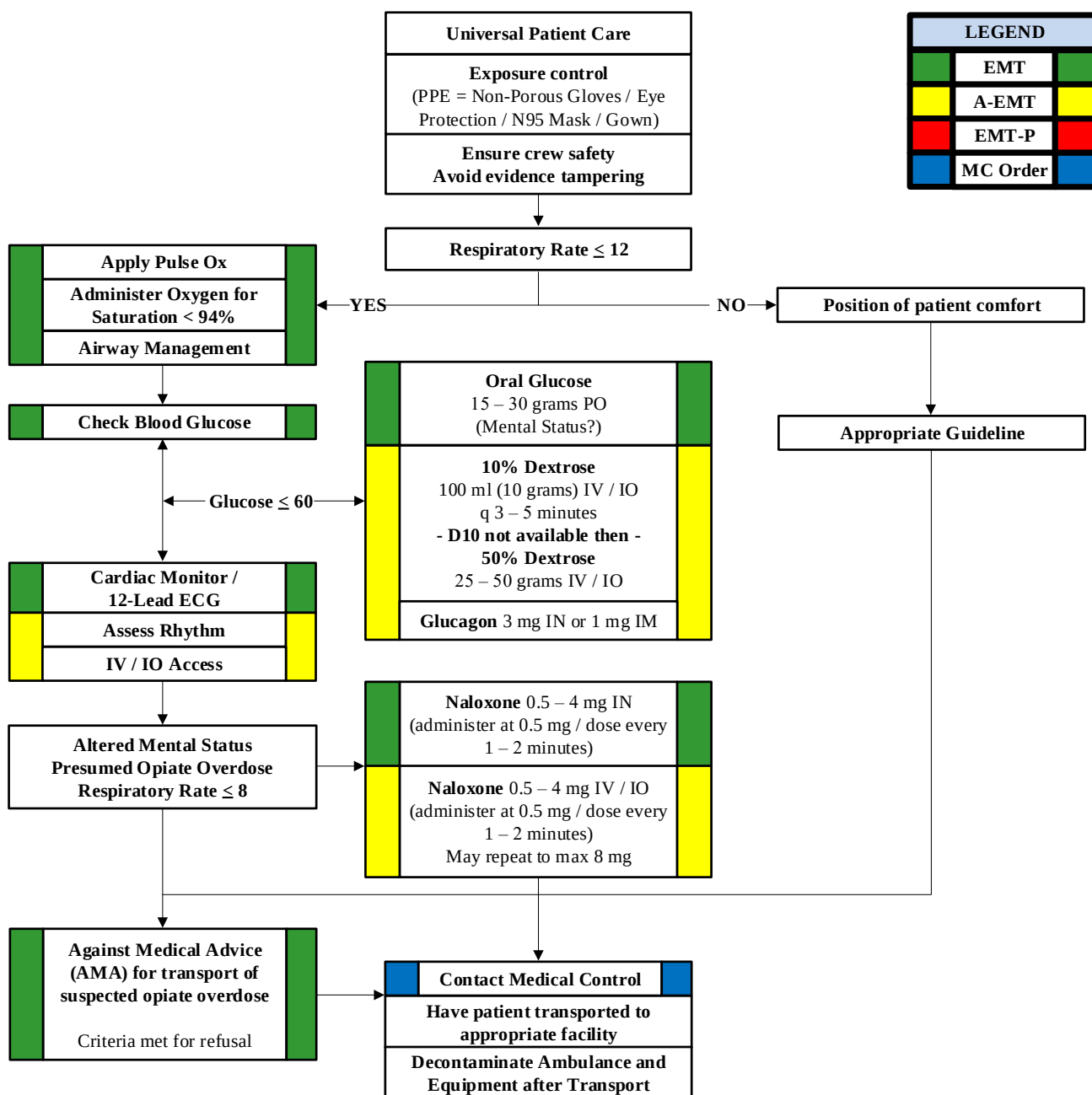
	- Fingernail polish (may be removed with finger nail polish remover). - Irregular heart rhythms (atrial fibrillation, SVT, etc.). - Jaundice. Consider transport to hospital with hyperbaric chamber for potential hyper oxygen therapy. Consult with On-Line Medical Control for diversion approval.
Cyanide	- Any smoke inhalation victim with mental status changes should also be treated for Cyanide Poisoning if medication is available, or if known exposure to Cyanide. Any patient or firefighter that goes into cardiac arrest after exposure to smoke from a fire. - Present history: when last well, progression of present state, prior symptoms such as increase in respirations, convulsions, coma. - Check for bottles and read ingredient label. If patient is in an industrial setting, ask if they use Cyanide. - Principal manifestations of poisoning with these compounds are rapid respirations, blood pressure fall, convulsions and coma; may also cause lightheadedness, vomiting, flushing, headache, drowsiness, hypotension, rapid pulse and unconsciousness. - Check for odor of “BITTER ALMONDS”. Alternative therapy includes Hydroxocobalamin (5 grams in 200 ml NS / D5W) administered over 5 minutes
Hydrofluoric Acid	- Skin exposure - 2.5% Calcium Gluconate gel applied to affected area, may be reapplied every 10-15 minutes. - Inhalation exposure - 2.5% Calcium Gluconate may be administered by aerosol. - Eye exposure - 1% Calcium Gluconate continuous irrigation. - EMT or Advanced EMT should continue the therapy initiated by previous EMS providers in regards to dermal or inhalation therapy of Calcium Gluconate.
Nerve Agent Exposure /	- Symptoms S.L.U.D.G.E: Salivation, Lacrimation, Urination, Defecation, GI distress, Emesis

Organophosphate Poisoning	• D.U.M.B.B.E.L.S: Diarrhea, Urination, Miosis, Bradycardia, Bronchorrhea, Emesis, Lacrimation, Salivation • Mild symptoms: • 1 Duodote • Atropine 1mg IVP every 15 min until heart rate reaches 180 • Moderate: Unable to ambulate but still conscious • 1 Duodote • Atropine 2 mg IVP every 15min until heart rate reaches 180 • Severe: Unconscious / seizures • 3 Duodote • Atropine 5 mg IVP every 15min until heart rate reaches 180 Do not administer more than three (3) DuoDote Auto-Injectors or three (3) Mark 1 Kits unless definitive medical care is available. The limit of 3 doses is specific to the pralidoxime component of the DuoDote and Mark 1 Kit. If necessary, additional doses of atropine can be administered if the 3 doses of DuoDote or Mark 1 Kit injections do not produce an adequate response.

TAB 3 GUIDELINE 17

POISONING | OVERDOSE | OPIATE

HISTORY	SIGNS / SYMPTOMS	ENVIRONMENT
- What type of ingestion - When did ingestion occur - How Much - Reason for ingestion - Actions of bystanders - Previous psychiatric disorders - Diseases / Medications: ie depressants - Medical alert tags	- Increased salivation - Soot or burns in mouth - Irritation of the eyes - Sweating and skin burns - Decreased respiratory rate - Lung findings (ie edema) - Delayed capillary refill - Tachycardia / Arrhythmias - Seizures	- Acetaminophen - Anticholinergic - Aspirin - Cardiac medications - Insecticides (organophosphates) - Solvents, alcohols, cleaning agents - Stimulants



LEGEND		
	EMT	
	A-EMT	
	EMT-P	
	MC Order	

SPECIAL CONSIDERATIONS:

1. The main focus for treatment is to ensure proper respiratory and oxygen saturation status. The goal is “**NOT TO WAKE**” the patient up, but to ensure adequate oxygenation and ventilation. Naloxone administration should be at no more than 0.5 mg aliquots every 1 – 2 minutes. While naloxone is being administered ensure that proper ventilation is being performed with bag-valve mask and oxygen
2. All suspected patients with opiate overdose should be handled using non-porous type gloves (nitrile style, non-latex) and eye protection. Consider wearing N-95 mask and gowns for any patient that has visible powder on body, or if there is visible powder in patient care area
3. Non-transport of opiate overdose, Against Medical Advice Guidelines
 - a. When dealing with patients that are suspected opiate overdose it is in their best interest to receive an evaluation and monitoring from hospital personnel. Many opiate containing medications have the potential of causing somnolence and decreased respirations necessitating reversal medication
 - b. **Criteria:**
 - i. Patient responded immediately to administration of opiate reversal agents (naloxone)
 - ii. Age > 18 years of age
 - iii. Patient must be alert, oriented to person, place, time and event
 - iv. Patient must be able to refuse transport as per patient exhibiting decisional capacity to make appropriate decisions
 - v. Must have been an accidental (non-suicidal) opiate overdose and **DID NOT** overdose on long acting opiates (methadone, oxycontin, buprenorphine, long acting morphine)
 - vi. Patient is no longer exhibiting any signs of overdose with normal pupil size and vital signs with HR < 100, SBP > 90 mmHg, respiratory rate > 12
 - vii. Patient **MUST** verbalize the understanding that they can die from the ingestion of opiate medication and that they are refusing transport to hospital for additional evaluation and monitoring by hospital personnel
 - c. **Guideline for Release Against Medical Advice**
 - i. If the criteria above are met, then the patient is a candidate for Release Against Medical Advice

- ii. The patient must be released to the care of a responsible individual who will remain with the patient as an observer for a reasonable time
- iii. The patient should be given both verbal and written instructions for follow-up care prior to being released
- iv. If another episode occurs, request medical assistance immediately.
- v. If the patient wishes to refuse transportation to a hospital and you have administered any medications, you **MUST contact on-line MEDICAL CONTROL** prior to leaving the patient or completing the Against Medical Advice / Release At Scene form
- vi. Document in the PCR the physician that you spoke with and that the patient has decisional capacity with the ability to refuse additional medical care

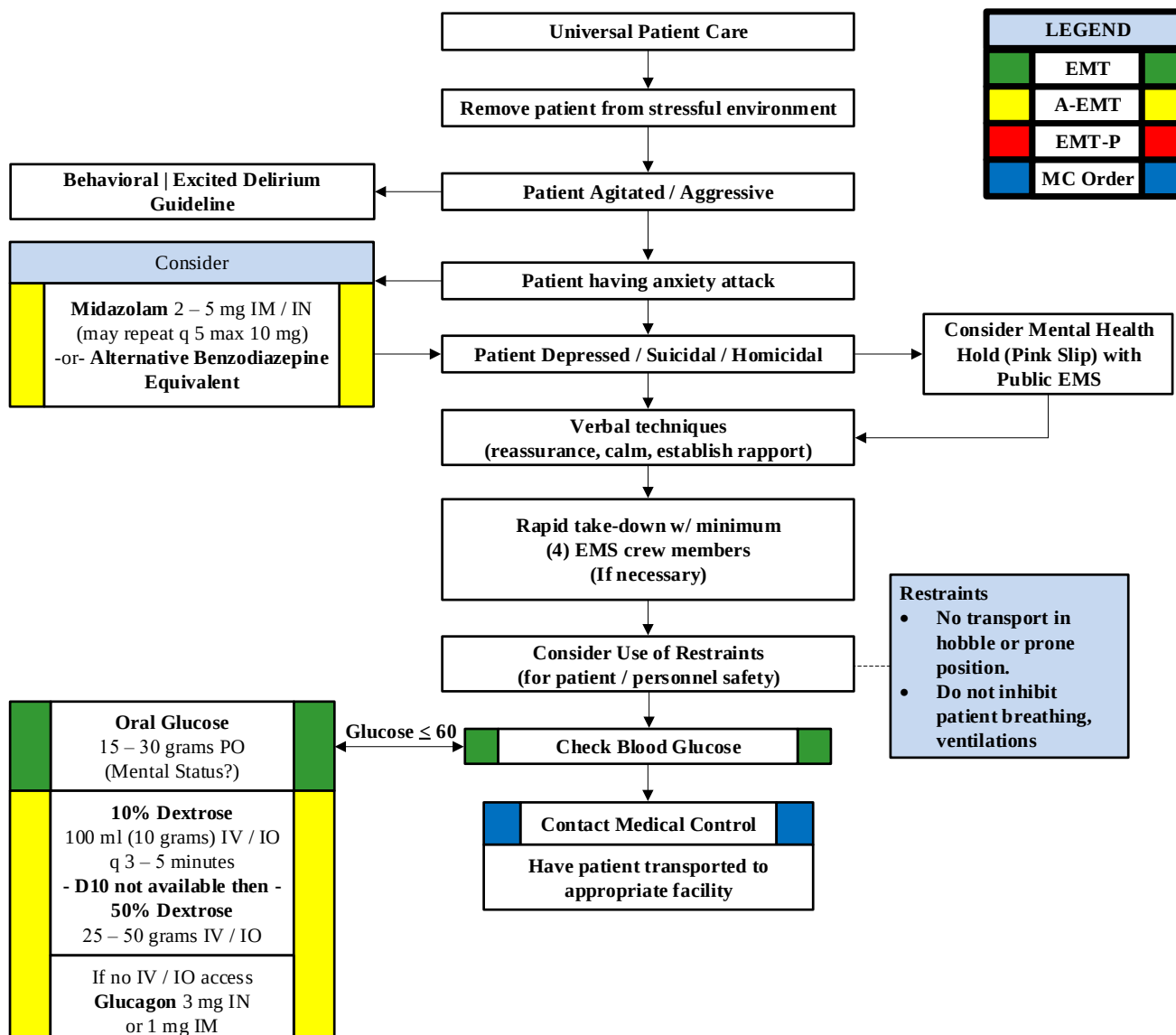
4. Vehicle and Equipment Decontamination

- a. Any concern for opiate contamination within the vehicle or on the equipment should be cleaned using N95 mask with non-porous type gloves (nitrile style, non-latex) and eye protection
- b. Spill Clean Up Instructions
 - i. Wear appropriate PPE
 - ii. Add one teaspoon full of powder OxiClean™ to 500 mL water
 - iii. Shake gently until all powder is in solution
 - iv. Completely cover spill with spray
 - v. Within 15 minutes, scrub with a paper towel until dry (solution evaporates over time and this decreases the effectiveness of decontamination)
 - vi. All PPE (except goggles) and paper towels must be disposed of in a biohazardous waste bin

TAB 3 GUIDELINE 18

PSYCHIATRIC PATIENT

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Situational crisis - Psychiatric illness / medications - Injury to self or threats to others - Medic alert tag - Substance abuse / overdose - Diabetes	- Anxiety, agitation, confusion - Affect change, hallucinations - Delusional thoughts, bizarre behavior - Expression of suicidal / homicidal thoughts - Poor concentration, easily distracted, psychosis - Combative, violent	- See Altered Mental Status differential - Hypoxia - Alcohol intoxication - Medication effect / overdose - Withdrawal syndromes - Depression - Bipolar (manic-depressive) - Schizophrenia, anxiety disorders, etc.



SPECIAL CONSIDERATIONS:

1. Richmond Agitation-Sedation Scale

- a. Validated agitation-sedation scale from age 2 months and older
- b. Goal is for RASS between (0) to (-1)

Score	Term	Description
+ 4	Combative	Overtly combative or violent; immediate danger to staff
+ 3	Very agitated	Pulls on or removes tube(s) or catheter(s) or has aggressive behavior toward staff
+ 2	Agitated	Frequent nonpurposeful movement or patient–ventilator dyssynchrony
+ 1	Restless	Anxious or apprehensive but movements not aggressive or vigorous
0	Alert and Calm	Spontaneously pays attention to caregiver
- 1	Drowsy	Not fully alert, but has sustained (more than 10 seconds) awakening, with eye contact, to voice
- 2	Light Sedation	Briefly (less than 10 seconds) awakens with eye contact to voice
- 3	Moderate Sedation	Any movement (but no eye contact) to voice
- 4	Deep Sedation	No response to voice, but any movement to physical stimulation
- 5	Unarousable	No response to voice or physical stimulation

2. Mental Health Holds (Pink Slip)

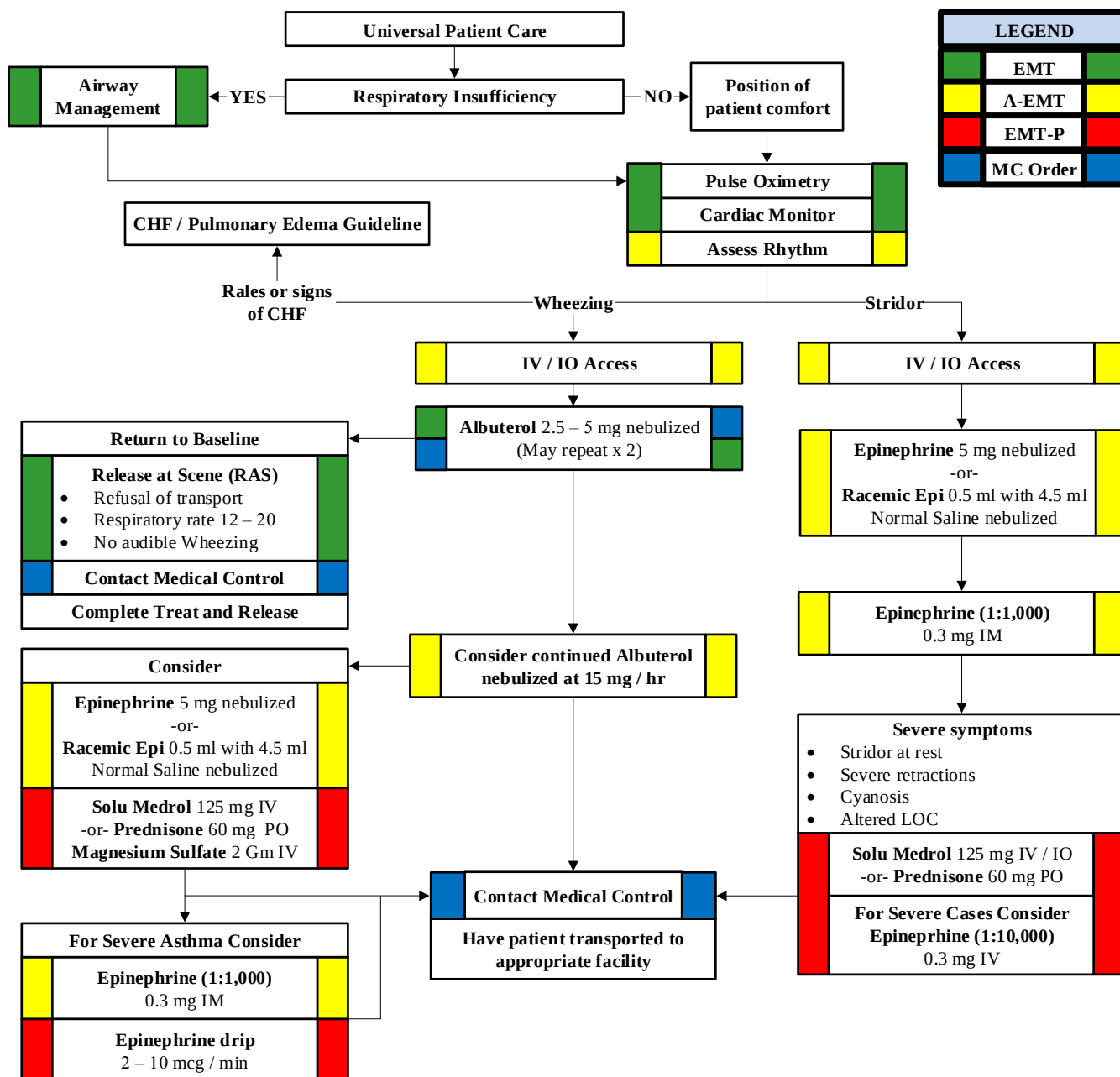
- a. If a patient has an isolated mental health complaint (e.g. suicidality) and does not have a medical complaint or need specific medical intervention, then that patient may be appropriately transported by law enforcement according to their guidelines.
- b. If a patient has a psychiatric complaint with associated illness or injury (e.g. overdose, altered mental status, chest pain, etc), then the patient should be transported by EMS
- c. If a patient with a psychiatric complaint is intoxicated or otherwise lacks decision making capacity for any other reason, than no Mental Health Hold is needed, and such a patient should be brought to an emergency department for evaluation and stabilization with implied consent.
- d. If EMS is called to evaluate a patient with an isolated psychiatric complaint who is not intoxicated, or otherwise lacking decision-making capacity, and who refuses treatment or transport, and law enforcement are not willing to transport patient, then EMS should contact **MEDICAL CONTROL**.

- i. If there is a reasonable concern for suicidal or homicidal ideation, or grave disability from another mental health condition, then **MEDICAL CONTROL** may give a verbal order placing the patient on a Mental Health Hold and direct EMS personnel to transport the patient against his or her will in accordance with State of Ohio statutes.
- ii. The physician's name, and time and date of the Mental Health Hold must be recorded on the PCR. Effort should be made to obtain consent for transport from the patient, and to preserve the patient's dignity throughout the process.
- e. A patient being transported on a Mental Health Hold may be transported to any appropriate receiving emergency department

TAB 3 GUIDELINE 19

RESPIRATORY DISTRESS

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Asthma - COPD - chronic bronchitis, emphysema, congestive heart failure - Home treatment (oxygen, nebulizer) - Medications (theophylline, steroids, inhalers) - Toxic exposure, smoke inhalation	- Shortness of breath - Pursed lip breathing - Decreased ability to speak - Increased respiratory rate / effort - Wheezing, rhonchi, rales, stridor - Use of accessory muscles - Fever, cough - Tachycardia	- Asthma / COPD (emphysema, bronchitis) - Anaphylaxis - Aspiration - Pneumonia / Pleural effusion - Pulmonary Embolus - Pneumothorax - Cardiac (MI or CHF) - Pericardial tamponade - Hyperventilation - Inhaled toxin (carbon monoxide, etc)



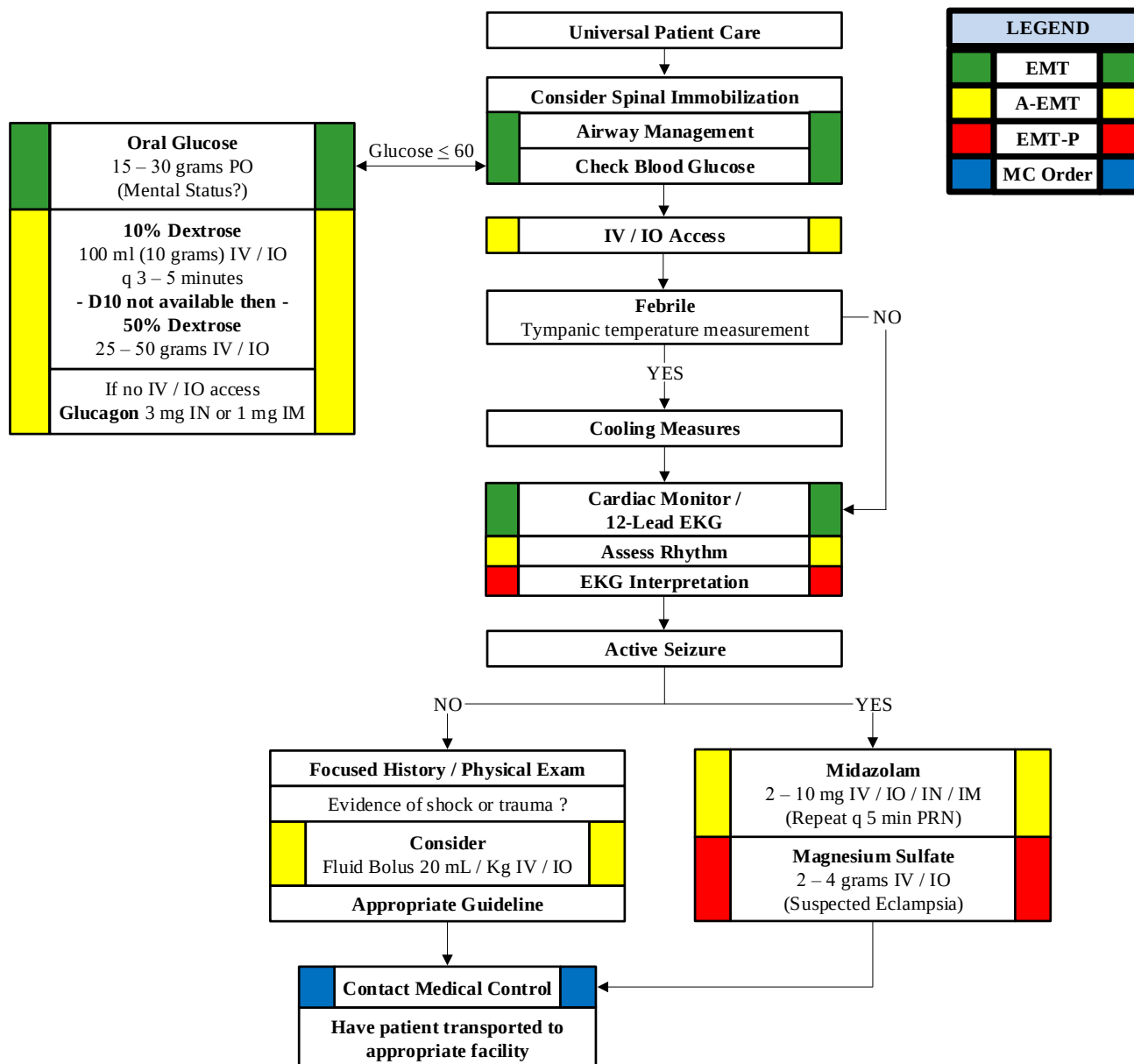
SPECIAL CONSIDERATIONS:

1. Epinephrine
 - a. Drip
 - i. Mix 1 mg of Epinephrine (1:10,000) in 250 mL of Normal Saline / D5W (gives a concentration of 4 mcg / ml); titrate from 2 - 10 mcg / min
 - b. Nebulized
 - i. 5 mg (1 mg / ml) of 1:1,000
 - c. Push Dose / Syringe Use
 - i. Mix 0.1 mg (1 ml) of Epinephrine (1:10,000) in 9 mL syringe of Normal Saline which gives a concentration of 10 mcg / ml
 - d. Use with caution in patients greater than 40 years or in patients with known cardiovascular disease
2. Patients with COPD, the goal for SpO₂ and use of oxygen should be 88 – 94%
3. Non-transport of asthmatic patient, Treat and Release guideline
 - a. **Criteria:**
 - i. Patient must be able to refuse transport as per patient exhibiting decisional capacity to make appropriate decisions
 - ii. Following treatment of an asthmatic exacerbation patient is conscious, alert to time, date and place, and requests that they not be transported to the hospital
 - iii. Patient lung sounds on auscultation are back to baseline
 - b. **Guideline for Treat and Release:**
 - i. If the criteria above are met, then the patient is a candidate for Treat and Release.
 - ii. The patient must be released to the care of a responsible individual who will remain with the patient as an observer for a reasonable time
 - iii. The patient should be given both verbal and written instructions for follow-up care prior to being released:
 1. Take action to prevent a recurrent episode such as remain in the care of a responsible individual
 2. Use medication as directed

TAB 3 GUIDELINE 20

SEIZURE

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Fever - Prior history of seizures - Seizure medications - Reported seizure activity - History of recent head trauma - Congenital abnormality	- Observed seizure activity - Altered mental status - Hot, dry skin or elevated body temperature	- Infection / Fever - Head trauma - Medication or toxin - Hypoxia or respiratory failure - Hypoglycemia - Metabolic abnormality / acidosis - Tumor



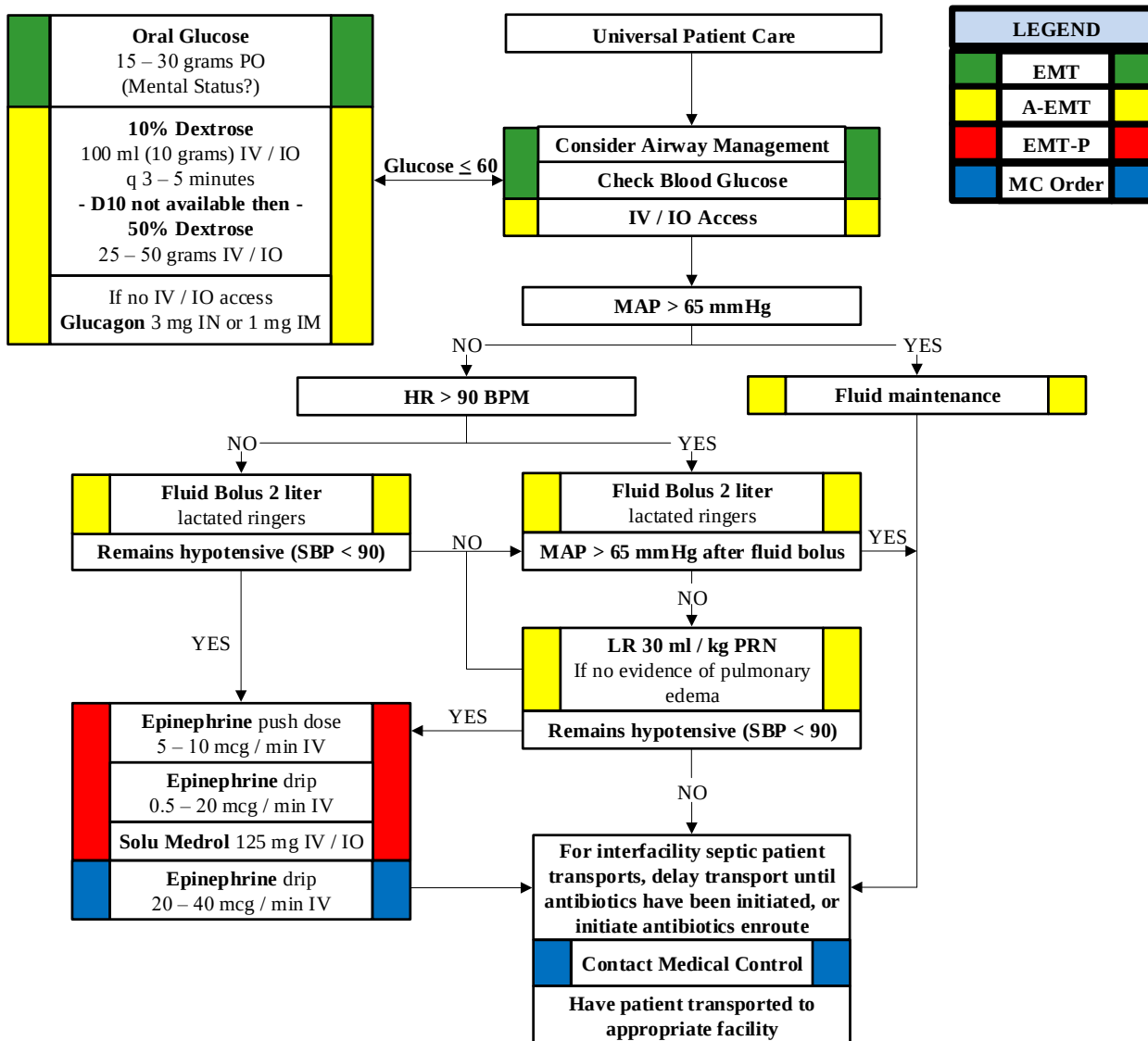
SPECIAL CONSIDERATIONS:

1. If an actively seizing patient is encountered, move hazardous materials away from the patient. Protect the patient's head from injury. Remember to always immediately check for pulses after seizure activity stops.
 - a. Trauma to the tongue during seizure activity is unlikely to cause serious problems. Attempts to force anything into the patient's airway may cause complete obstruction.
2. Seizure Types
 - a. **Status epilepticus** is defined as two or more successive seizures without a period of consciousness or recovery. This is a true emergency requiring rapid airway control, treatment, and transport.
 - b. **Grand Mal seizures (generalized)** are associated with loss of consciousness, incontinence, and tongue trauma.
 - c. **Focal seizures (petit mal)** effect only a part of the body and are not usually associated with a loss of consciousness.
 - d. **Jacksonian seizures** are seizures that start as a focal seizure and become generalized.
3. Assess possibility of occult trauma and substance abuse. If evidence or suspicion of trauma, full c-spine immobilization is required.
4. Be prepared for airway problems with continued seizures. The **Airway Guideline** should be considered for all patients unable to protect their own airway (i.e., semi-conscious, unconscious).
5. **The following guidelines must be followed for Versed administration for seizure control**
 - a. Frequent assessment of airway for compromise requiring assistance.
 - b. Continuous pulse oximetry monitoring.
 - c. If advanced airway placed, continuous end-tidal CO₂ monitoring (confirmed capnographic waveform).
 - d. Frequent assessment of blood pressure. Maintain SBP > 90 mmHg.

TAB 3 GUIDELINE 21

SEPSIS

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Fever - Infection - Medications - Pregnancy - Fluid loss - vomiting, diarrhea - History of poor oral intake	- Fever > 101.5 - Weak, rapid pulse > 90 - Tachypnea > 24 - Hypotension - SBP < 90 mmHg - MAP < 60 mmHg - Restlessness, confusion - Weakness, dizziness - Pale, cool, clammy skin - Delayed capillary refill	- Shock - Hypovolemia - Cardiogenic - Septic - Neurogenic - Anaphylactic - Bacterial, viral or fungal infection



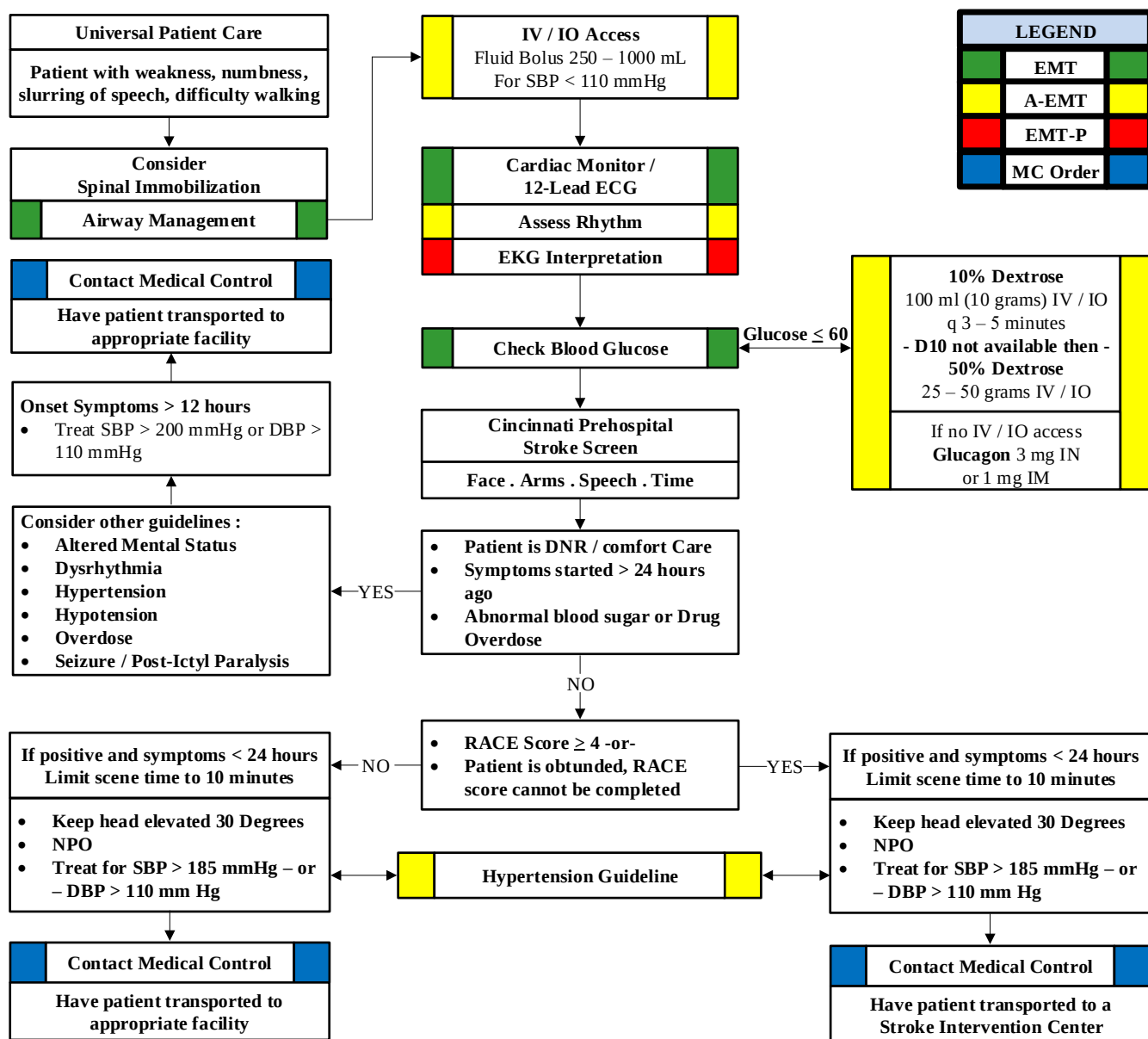
SPECIAL CONSIDERATIONS:

1. Sepsis is a vasodilatory shock. Patients have relative volume depletion. Aggressive fluid resuscitation is the mainstay of treatment.
2. Acute sepsis management should be initiated as soon as possible and completed within 6 hours. If patient is > 6 hours from presentation contact medical control for direction.
3. Patients with sepsis require aggressive therapy including IV fluids (lactated ringer is the fluid of choice), antibiotic administration and if necessary, vasopressors and airway management.
4. Patient should receive at minimum 2 liters fluid bolus before initiation of vasopressors.
5. **Maintenance fluid is calculated using the 4-2-1 rule**
 - a. 1st 10 kg of body weight x 4 ml
 - b. 2nd 10 kg of body weight x 2 ml
 - c. Remaining kg of body weight x 1 ml
 - d. Example for 80 kg person
 - i. 10 kg x 4 ml = 40 ml
 - ii. 10 kg x 2 ml = 20 ml
 - iii. 60 kg x 1 ml = 60 ml
 - iv. Total maintenance fluid = 120 ml
6. Epinephrine
 - e. Drip
 - i. Mix 1 mg epinephrine (1:10,000 or 1:1000 concentration) in 250 ml bag normal saline or D5W to give 4:1 concentration, mix in 500 ml bag normal saline or D5W to give 2:1 concentration. Titrate 2 – 10 mcg / min
 - f. Push dose
 - i. Mix 0.1 mg (1 ml) epinephrine (1: 10,000) in 9 ml NS to give 10:1 concentration. Give 0.5 – 1 ml dose pushes every 1 – 2 minutes for blood pressure control
7. Resources
 - a. <https://www.rcplondon.ac.uk/projects/outputs/national-early-warning-score-news>

TAB 3 GUIDELINE 22

STROKE – SCENE

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
• Previous CVA, TIA's • Previous cardiac / vascular surgery • Cardiac history, Atrial fibrillation, CAD, seizure, diabetes, HTN • Medications (blood thinners) • History of trauma • Occult blood loss (GI, ectopic) • Females: LMP, vaginal bleeding • Fluid loss: nausea, vomiting, diarrhea • Medications	• Altered mental status • Weakness / Paralysis • Blindness or other sensory loss • Aphasia / Dysarthria • Syncope / Loss of consciousness with recovery • Vertigo / Dizziness • Vomiting • Headache / Seizures • Respiratory pattern change • Hypertension / hypotension • Palpitations, slow or rapid pulse	• See Altered Mental Status • TIA (Transient Ischemic Attack) • Seizure • Hypoglycemia • Stroke • Thrombotic, Embolic (85%) • Hemorrhagic (15%) • Tumor • Trauma • Orthostatic hypotension • Cardiac syncope • Hypoglycemia



SPECIAL CONSIDERATIONS:

1. The most common causes of stroke are:
 - a. **Cerebral thrombosis** (a blood clot obstructing the artery).
 - b. **Cerebral embolus** (a mass or air bubble obstructing the artery).
 - c. **Cerebral hemorrhage** (ruptured artery / ruptured aneurysm).
2. To facilitate accuracy in diagnosing stroke and to expedite transport, an easy-to-use neurological examination tool is recommended. Utilize the **Cincinnati Prehospital Stroke Screen (CPSS)** for evaluation of acute, non-comatose, non-traumatic neurovascular complaints. The CPSS evaluates using **F.A.S.T.T.** criteria (**F**acial palsy, **A**rm weakness, **S**peech abnormalities, **T**ime of onset/**T**ransport). **If any one of the three components of the CPSS is abnormal, the probability of stroke is 72%.**
 - a. Onset of stroke symptoms is defined as the last witnessed time the patient was symptom-free (i.e., awakening with stroke symptoms would be defined as an onset time of the previous evening when the patient was symptom-free).
3. Not all neurologic deficits are caused by a stroke. Look for other treatable medical conditions such as:
 - Hypoglycemia
 - Hypothermia
 - Hypotension
 - Hypoxia
 - Hyperthermia
4. Potential concerns:
 - a. A patient with a stroke can present with aphasia and still is completely alert. Talk to the patient, explain everything that you are doing and avoid comments that you would not want to hear yourself. This patient needs a tremendous amount of reassurance.
 - b. Be alert for airway problems (difficulty swallowing, vomiting).
 - c. Spinal immobilization should be provided if the patient sustained a fall or other trauma.
 - d. Bradycardia may be present in a suspected stroke patient due to increased ICP.
5. Definitions
 - a. Aphasia – inability to speak
 - b. Agnosia – inability to process sensory information. Often loss of ability to recognize objects, persons, sounds, shapes or smells.
 - c. Asomatognosia – deficit in body awareness. Can take the form of forgetting, ignoring, denying, disowning or misperceiving their own body (entirely or partially).
 - d. Anosognosia – inability to gain feedback about one's own condition.

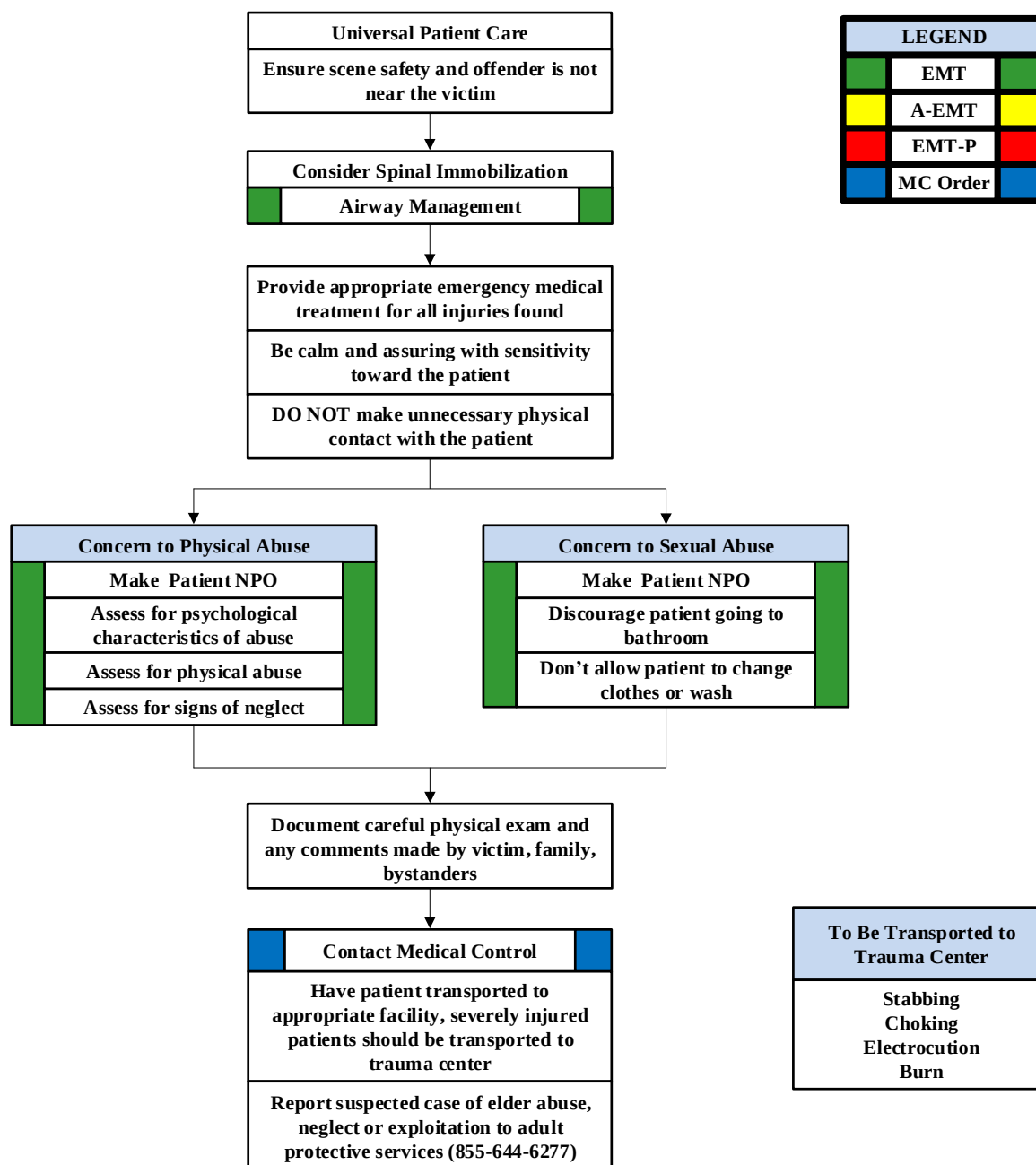
Cincinnati Prehospital Stroke Scale (CPSS)			
Sign/Symptom	How Tested	Normal	Abnormal
❖ Facial Droop	Have the patient show their teeth or smile	Both sides of the face move equally	One side of the face does not move as well as the other
❖ Arm Drift	The patient closes their eyes and extends both arms straight out for 10 seconds	Both arms move the same, or both do not move at all	One arm either does not move, or one arm drifts downward compared to the other
❖ Speech	The patient repeats “The sky is blue in Cincinnati”	The patient says correct words with no slurring of words	The patient slurs words, says the wrong words, or is unable to speak
❖ Time of onset	Observed by a valid historian (symptoms < 3 hours – Limit scene time to 15 minutes)		
❖ Transport	The patient is considered a possible CVA patient if any of the tested signs or symptoms is abnormal.		

Rapid Arterial Occlusion Evaluation Scale (RACE SCORE)				
Facial palsy	Ask the patient to show teeth	Absent	Symmetrical movement	0
		Mild	Slightly asymmetrical	1
		Moderate to severe	Completely asymmetrical	2
Arm motor function	Extending the arm of the patient 90 degrees (if sitting) or 45 degrees (if supine)	Normal to mild	Limb upheld more than 10 seconds	0
		Moderate	Limb upheld less than 10 seconds	1
		Severe	Patient do not raise the arm against gravity	2
Leg motor function	Extending the leg of the patient 30 degrees (in supine)	Normal to mild	Limb upheld more than 5 seconds	0
		Moderate	Limb upheld less than 5 seconds	1
		Severe	Patient do not raise the leg against gravity	2
Head and gaze deviation	Observe eyes and cephalic deviation to one side	Absent	Eye movements to both sides were possible and no cephalic deviation was observed	0
		Present	Eyes and cephalic deviation to one side was observed	1
If right hemiparesis (Aphasia)	Ask the patient two verbal orders - Close your eyes - Make a fist	Normal	Performs both tasks correctly	0
		Moderate	Performs one task correctly	1
		Severe	Performs neither task	2
If left hemiparesis (Agnosia)	Ask: Asomatognosia Whose arm is this? (while showing him/her the paretic arm) Anosognosia How well can you move this arm?	Normal	No asomatognosia or anosognosia	0
		Moderate	Asomatognosia or anosognosia	1
		Severe	Both of them present	2
Score Total (0 – 9)				

TAB 3 GUIDELINE 23

SUSPECTED ABUSE | NEGLECT

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Events leading up to call - Has individual gone to the bathroom, showered - History of trauma	- Bruising to extremities - Vaginal injury - Withdrawal from caregiver / EMS provider	- Sexual abuse - Neglect - Traumatic injuries



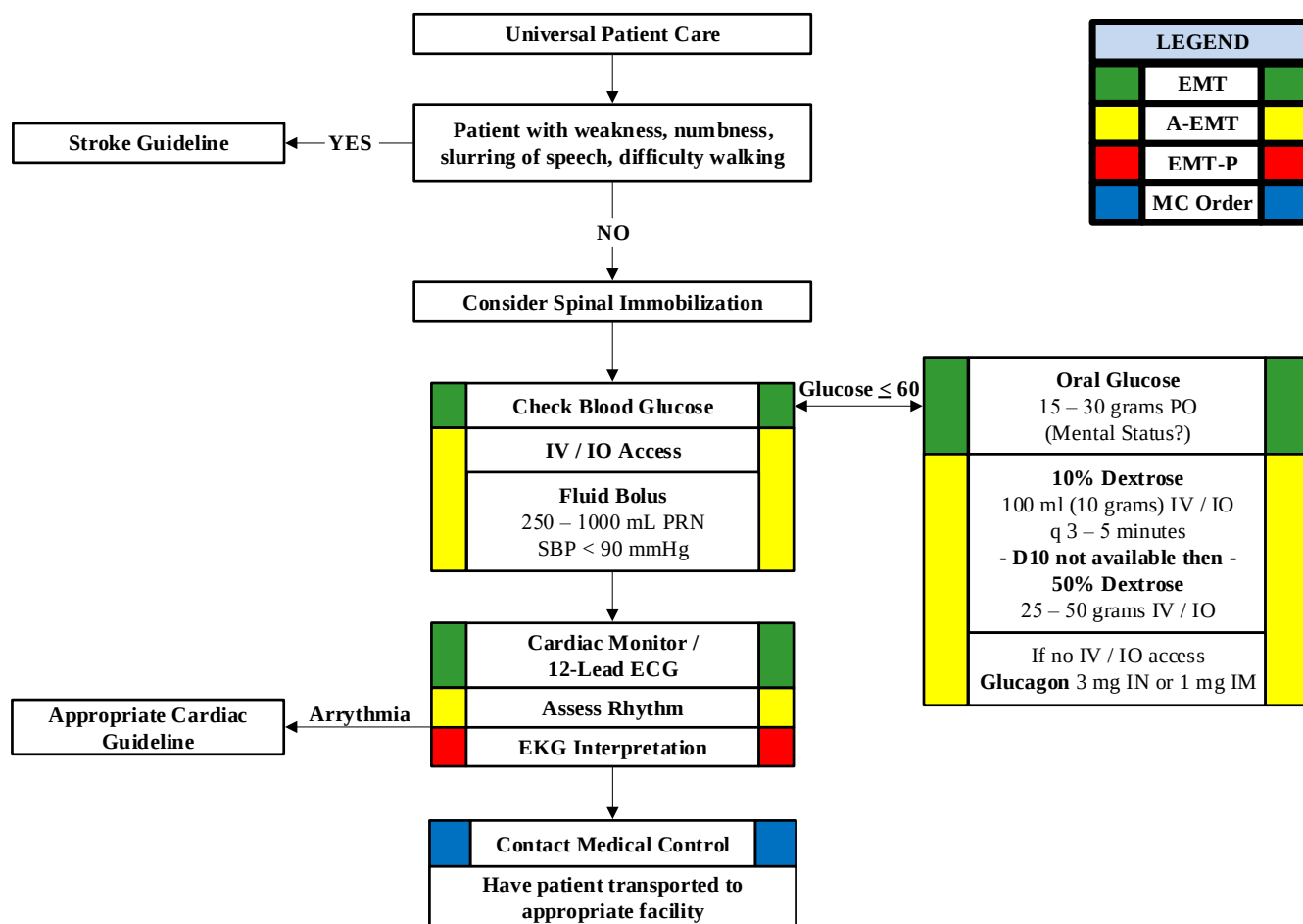
SPECIAL CONSIDERATIONS:

1. Reporting concern of abuse, neglect or exploitation
 - a. Per Ohio Revised Codes (ORC) 2151.421 and 5101.61 EMS and Fire personnel are **REQUIRED** to report abuse, neglect or exploitation of adult (elderly) or child (under the age of 18)
 - b. Report suspected child abuse, neglect or exploitation to Ohio's Public Children Service Agencies for your respective county or free hotline at 855-642-4453
 - c. Report suspected elderly abuse, neglect or exploitation to Ohio's Adult Protective Services for your respective county or free hotline at 855-644-6277
2. If possible, have a witness who is the same gender as the victim present at all times. Notify the General Manager / Medical Director of all suspected abuse.
3. Wrap a plastic sheet around the victim if possible
4. DO NOT inspect genitals unless evidence of uncontrolled hemorrhage, trauma, or severe pain is present
5. DO NOT allow patient to shower or douche
6. Collect patient's clothing when possible
 - a. Place clothing in plastic sheet or separate plastic/paper bags with ID labels and found location
 - b. Leave all sheets placed in plastic/paper bag with patient at facility
 - c. Notify all staff of clothing samples

TAB 3 GUIDELINE 24

SYNCOPE

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
• Previous CVA, TIA's • Previous cardiac / vascular surgery • Cardiac history, Atrial fibrillation, CAD, seizure, diabetes, HTN • Medications (blood thinners) • History of trauma • Occult blood loss (GI, ectopic) • Females: LMP, vaginal bleeding • Fluid loss: nausea, vomiting, diarrhea • Medications	• Altered mental status • Weakness / Paralysis • Blindness or other sensory loss • Aphasia / Dysarthria • Syncope / Loss of consciousness with recovery • Vertigo / Dizziness • Vomiting • Headache • Seizures • Respiratory pattern change • Hypertension / hypotension • Palpitations, slow or rapid pulse	• See Altered Mental Status • TIA (Transient Ischemic Attack) • Seizure • Hypoglycemia • Stroke • Thrombotic, Embolic (85%) • Hemorrhagic (15%) • Tumor • Trauma • Orthostatic hypotension • Cardiac syncope • Hypoglycemia



LEGEND		
	EMT	
	A-EMT	
	EMT-P	
	MC Order	

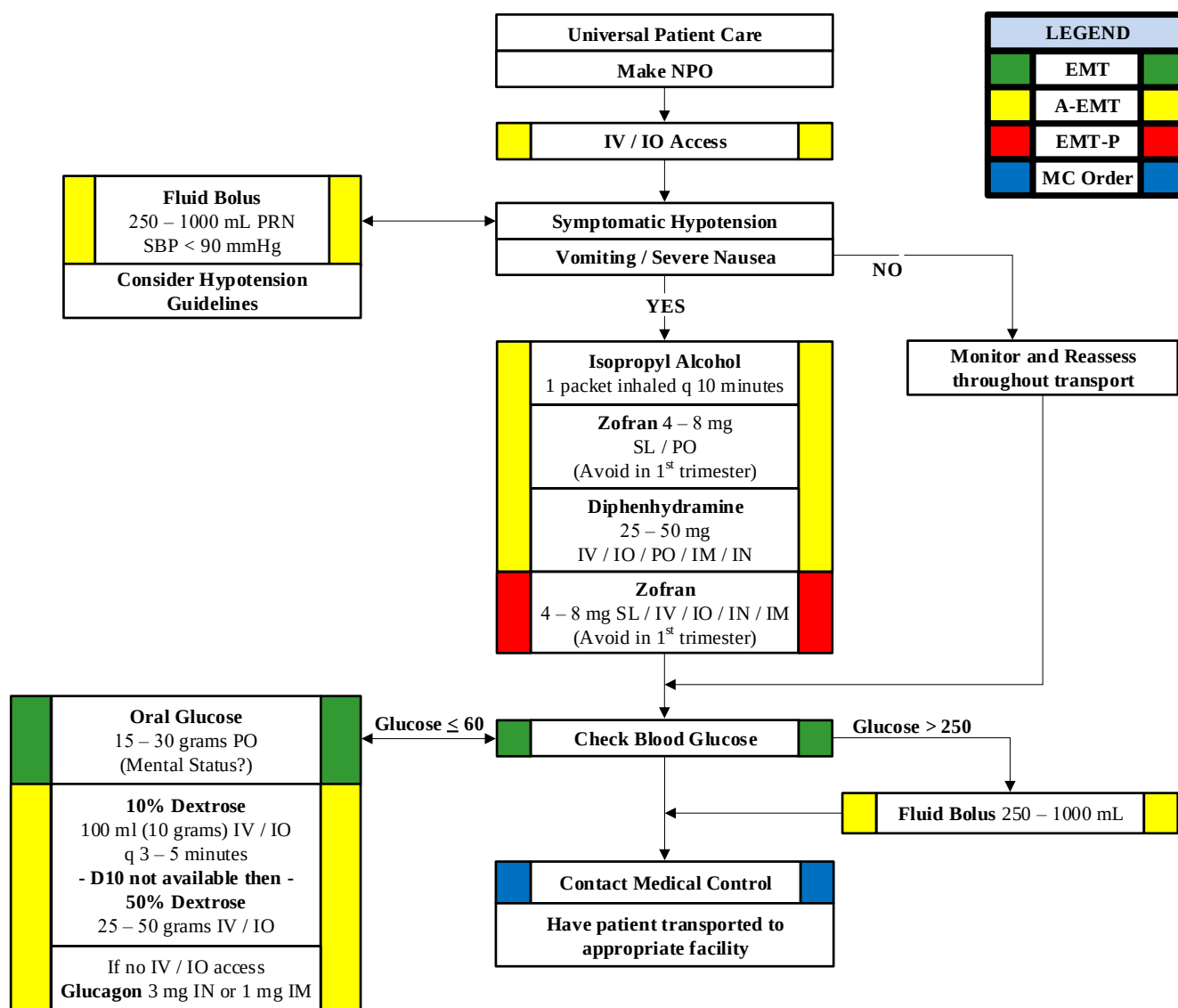
SPECIAL CONSIDERATIONS:

1. Syncope is defined as a transient state of unconsciousness from which the patient has recovered. If patients present with altered mentation, treat per the **Altered Mental Status Guideline**.
2. Most syncope is vasovagal in nature and characterized by dizziness progressing to fainting/unconsciousness which may last for several minutes. For many patients, recumbent positioning may be sufficient to restore vital signs and level of consciousness to within normal values. Syncope which occurs without warning is potentially serious and often caused by cardiac arrhythmia.
3. Assess for signs and symptoms of trauma if associated or questionable fall with syncope.
4. **Patients over the age of 40 with syncope even though apparently normal, should be transported.**
 - a. In middle aged or elderly patients, syncope can be due to a number of potentially serious conditions. The most important things to recognize are:
 - i. Arrhythmias.
 - ii. Occult GI bleeding.
 - iii. Seizures.
 - iv. Ruptured abdominal aortic aneurysm.
 - v. Cerebral hemorrhage.

TAB 3 GUIDELINE 25

VOMITING AND DIARRHEA

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Age - Time of last meal - Last bowel movement/emesis - Improvement or worsening with food or activity - Duration of problem - Other sick contacts - Past medical history - Medications - Menstrual history (pregnancy) - Travel history	- Pain - Character of pain - Distention - Diarrhea / Constipation - Anorexia - Radiation - Fever, headache, blurred vision, weakness, malaise, cough, headache, dysuria, mental status changes, rash	- GI or renal disorders - Diabetic ketoacidosis - Gynecologic disease - Infections (pneumonia, influenza) - Electrolyte abnormalities - Food or toxin induced - Medication or substance abuse - Pregnancy



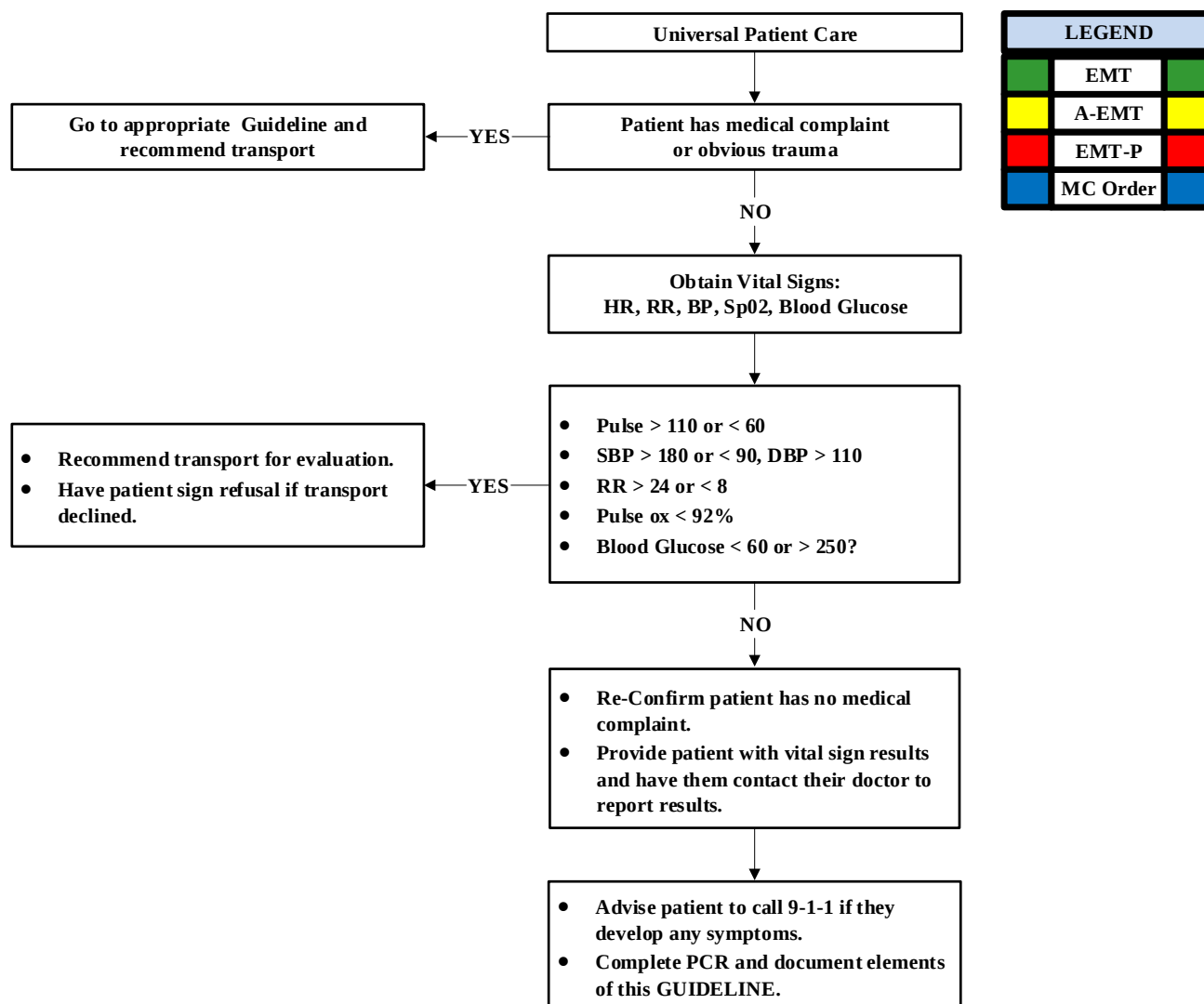
SPECIAL CONSIDERATIONS:

1. Vomiting and diarrhea may be symptoms of more serious problems, but all represent some degree of hypovolemia. The most serious causes are GI bleed or other intra-abdominal catastrophe. A rare cardiac patient may also present with vomiting or diarrhea as the predominate symptom so 12 Lead EKG should be done if cardiac risk factors are present.
2. Check at the house for evidence of overdose; patient who doesn't call the squad for medication ingestions may call later when GI symptoms become severe.
3. Blood in the GI tract is an irritant: it causes vomiting and diarrhea. Only if upper tract bleeding is extremely brisk will the blood reach the rectum undigested.
4. GI bleeders may be very sick and hypovolemic without showing an obvious source of their problem. A rapid transport guideline with IV fluid resuscitation is necessary for potential improved patient outcome.

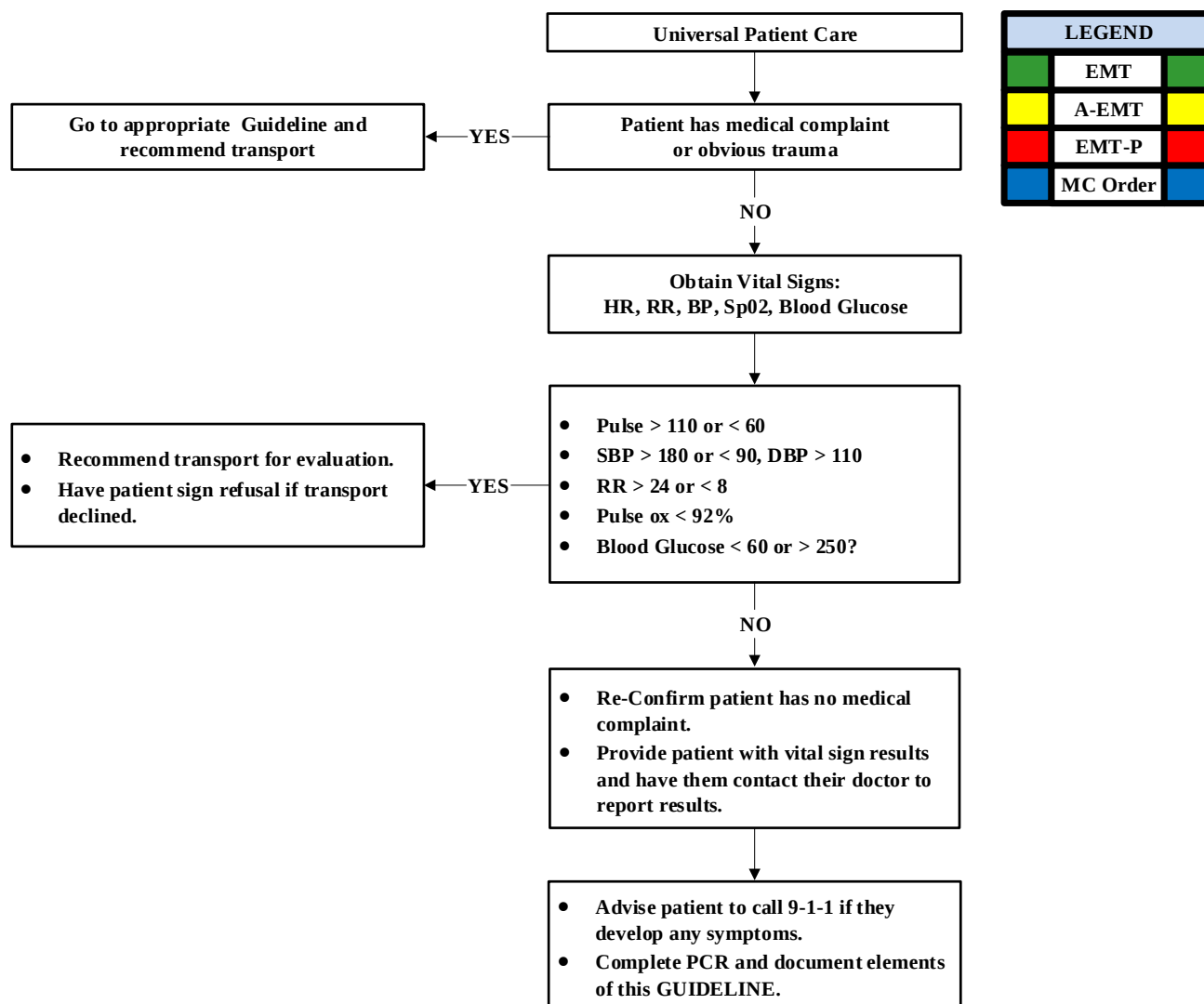
TAB 3 GUIDELINE 26

WELL PERSON CHECK

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
• Patient presents requesting “blood pressure check” • EMS responds to “assist invalid” • Someone else called 911; patient did not request • Other situation in which patient does not have a medical complaint or obvious injury	• Assess for medical complaint • For patients with hypertension, particularly check for chest pain, shortness of breath, and/or neurologic changes • For assist invalid calls, particularly check for syncope, trauma from fall, or inability to ambulate	• Hypertensive urgency • Hypertensive emergency • Syncope • Cardiac ischemia • Cardiac dysrhythmia • Fracture • Head trauma



HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
• Patient presents requesting “blood pressure check” • EMS responds to “assist invalid” • Someone else called 911; patient did not request • Other situation in which patient does not have a medical complaint or obvious injury	• Assess for medical complaint • For patients with hypertension, particularly check for chest pain, shortness of breath, and/or neurologic changes • For assist invalid calls, particularly check for syncope, trauma from fall, or inability to ambulate	• Hypertensive urgency • Hypertensive emergency • Syncope • Cardiac ischemia • Cardiac dysrhythmia • Fracture • Head trauma

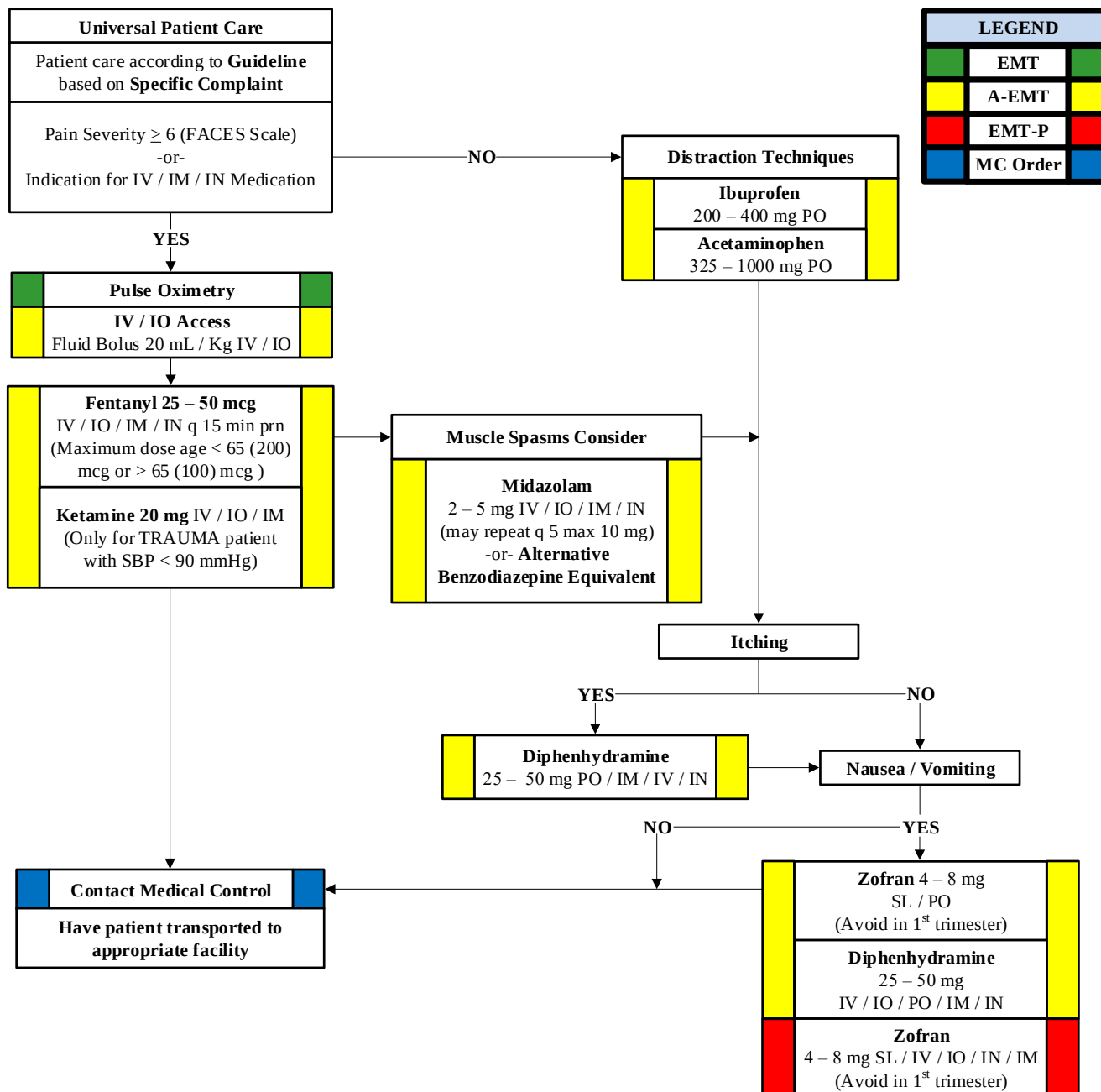


SPECIAL CONSIDERATIONS:

1. Patients who are denying more severe symptoms may initially present for a “routine check”. Please confirm with the patient at least twice that they have no medical complaints.
2. All persons who request service are considered patients and shall have a PCR completed.
3. For patient in this category, the PCR may be brief but must include vital signs and documentation of the lack of a medical complaint. Additionally, patients with a potential mechanism for trauma should have a trauma exam completed.
4. Should a patient refuse evaluation and/or decline further evaluation once have started, document as much as you can.
5. Even patients who refuse vital signs can be observed and respirations measured. The PCR narrative is IMPORTANT in these and all cases and must accurately and thoroughly describe the patient encounter.

TAB 3 GUIDELINE 27
ADULT PAIN CONTROL GUIDELINE

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Age - Location - Duration - Severity (1-10) - Past medical history - Medications - Drug allergies	- Severity (pain scale) - Quality (sharp, dull, etc) - Radiation - Relation to movement, respiration - Pain increased with palpation of area	- Per specific protocol - Musculoskeletal - Visceral (abdominal) - Cardiac - Pleural / Respiratory - Neurogenic - Renal (colic)



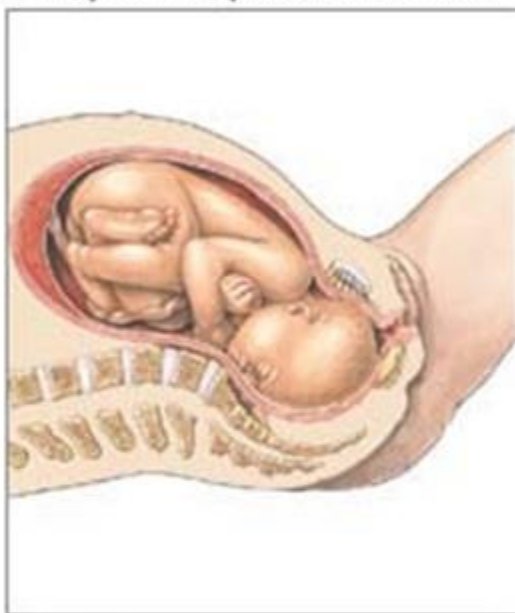
SPECIAL CONSIDERATIONS:

1. This guideline will be utilized without MEDICAL CONTROL orders for adult patients > 16 years of age for treatment of pain from isolated extremity fractures, dislocations, burns and treatment of cancer related pain. Appropriate documentation and signed releases are required for treat and release situations. PO medications with minimal oral fluids only if surgical / sedation procedures should be necessary for definitive care.
2. Guideline for safe use of analgesics:
 - a. Be aware of the effects of combining drugs: Adding one CNS depressant or hemodynamic depressant to another can create unpredictable changes.
 - b. Don't forget about medication allergies: Adding IV analgesics on top of recently taken oral sedatives, analgesics or muscle relaxants may cause unpredictable additive effects as well.
 - c. Know your pain management goal: Your goal may actually be different for different types of patients (Reduction of pain vs. removal of pain).
 - d. Give a complete report to ED staff: Drugs given, time, results, and adverse effects.
3. Oral ibuprofen should be avoided in any patient with an acute fracture.
4. Appropriate documentation and signed releases are required for treat and release situations. PO pain medication only. Patient unable to be released if given narcotic medication.

TAB 4

OBSTETRICAL | GYNECOLOGICAL GUIDELINES

Cephalic presentation



Breech presentation



Delivery presentation is the position of the presenting part of the fetus (head, feet, etc.) as it comes down the birth canal

TAB 4 GUIDELINE 1
OBSTETRICAL PATIENT TRANSPORT

1. Transport of an obstetrical patient by air or ground should be considered when:

- a. The resources immediately available to the patient are not sufficient to deal with the patient's actual or predicted obstetrical, medical or surgical complications.
- b. There is the reasonable expectation of the birth of one or more infants who may require neonatal intensive care greater than that available at the referring hospital.
- c. The patient's obstetrical, medical or surgical circumstances require continuous attendance by trained personnel not available at the referring hospital.

2. The following conditions usually require transport to a high-risk perinatal center:

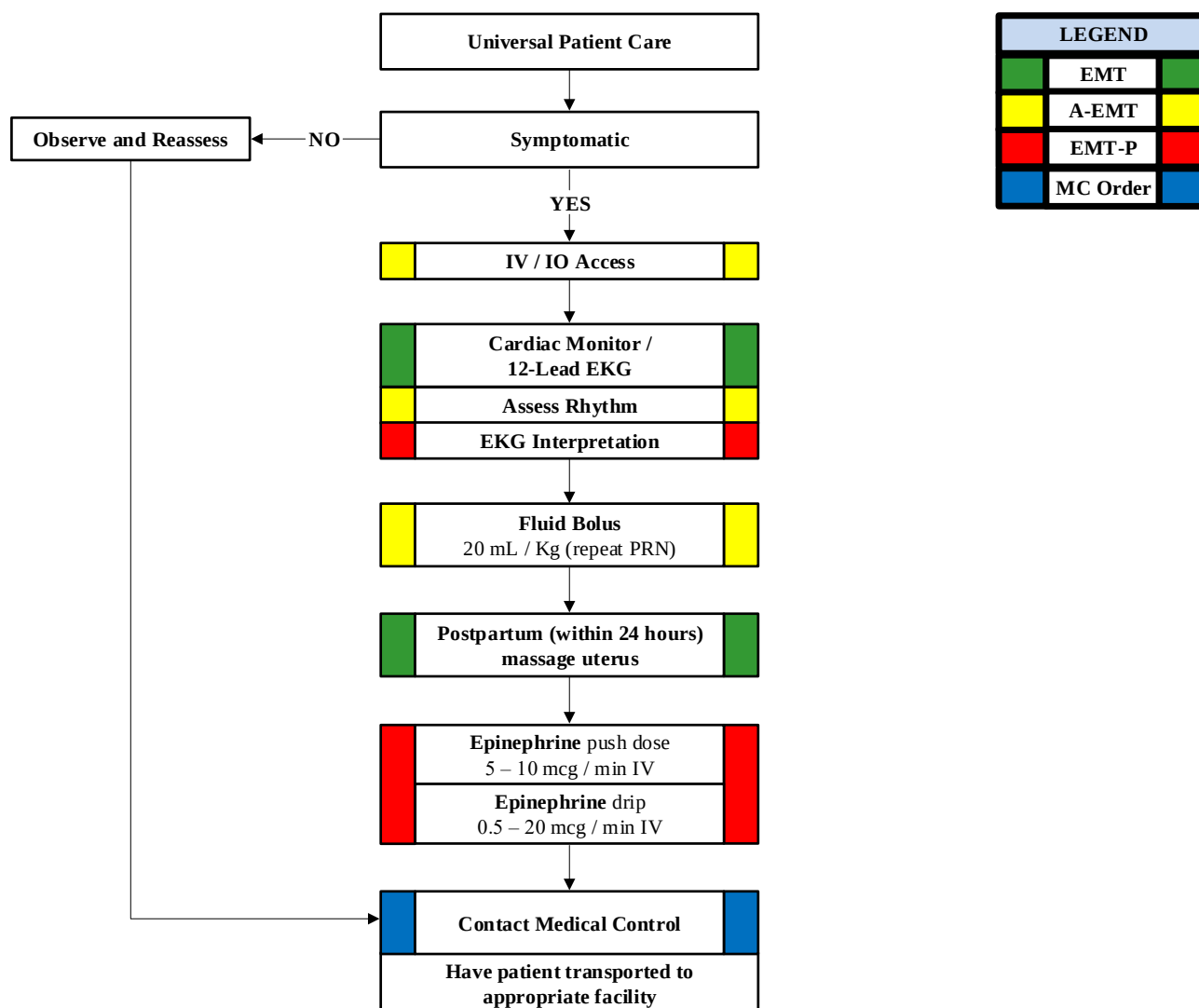
Obstetrical Complications	Medical Complications
• Preterm labor causing delivery of an infant of < 34 weeks gestation or less than 2000 grams • Severe pre-eclampsia / eclampsia • Multiple gestation • Poorly controlled maternal diabetes mellitus • Meconium stained amniotic fluid visualized • Third trimester bleeding • RH iso-immunization • Premature dilation of cervix greater than 2-3 cm with uterine activity	• Hepatitis • Pyelonephritis • Influenza / Pneumonia • Severe organic heart disease • Poorly controlled diabetes • Thyrotoxicosis • Renal disease with deteriorating function or increased hypertension • Drug overdose • HELLP (Hemolytic anemia, Elevated Liver enzymes, Low Platelet count) Syndrome

3. Transport:

- a. **OB transfers will be considered "LOAD AND GO" situations unless the patient is crowning.**
- b. Obtain fetal heart tones (if possible) and should be obtained before and after the transport and during transport when necessary
- c. Imminent delivery is defined as being likely to occur prior to completion of the transport
- d. In the case of a potential en route delivery, all-appropriate equipment will be readied and at the patient's side throughout the transport
- e. The patient should be transported lying on her left side in such a fashion as to prevent vena cava pressure from the gravid uterus

TAB 4 GUIDELINE 2
VAGINAL BLEEDING | POST PARTUM HEMORRHAGE

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Blood loss – vaginal, ectopic pregnancy - Fluid loss - vomiting, diarrhea, fever - Infection - Cardiac ischemia (MI, CHF) - Medications - Allergic reaction - Pregnancy – Last menstrual cycle - History of poor oral intake	- Cramping, passage of clots or tissue - Evidence of blood loss, clots or tissue fragments (bring tissue to ED) Restlessness, confusion - Lightheaded, weakness or thirst - Weak, rapid pulse - Pale, cool, clammy skin - Delayed capillary refill - Hypotension	- Shock - Hypovolemia - Cardiogenic - Septic - Neurogenic - Anaphylactic - Ectopic pregnancy - Dysrhythmias - Vasovagal - Physiologic (pregnancy)

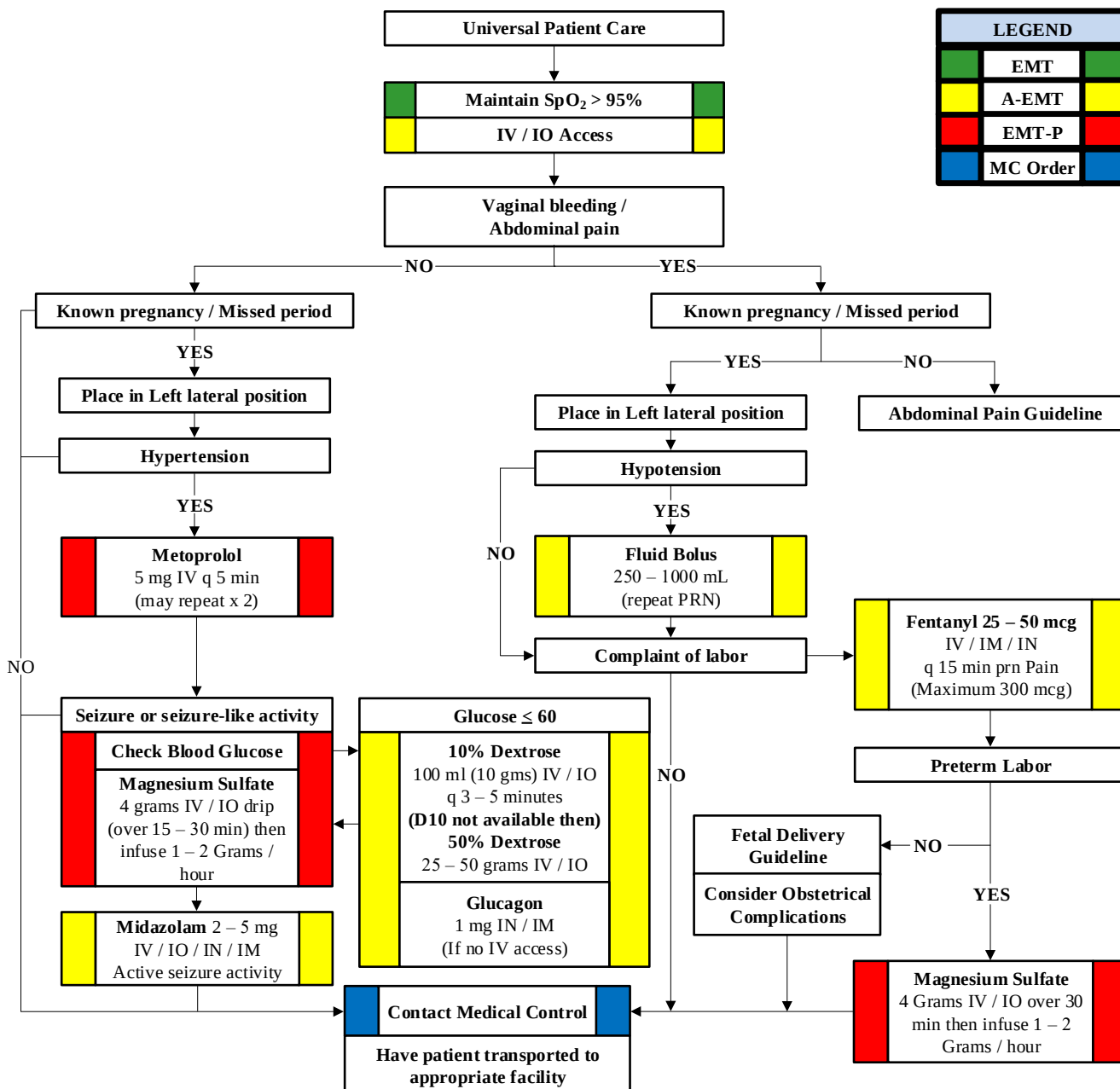


SPECIAL CONSIDERATIONS:

1. Always consider pregnancy (specifically ectopic) as a cause of vaginal bleeding
2. Try to get an estimate of number of saturated pads in previous 6 hours. Discreet inspect of the perineum may be useful to determine if clots or tissue are being passed.
3. **Internal or Bimanual VAGINAL EXAM IN THE FIELD IS NOT INDICATED**
4. If patient is pregnant, bring in any tissue that was passed. Laboratory analysis may be important in determining status of the pregnancy

TAB 4 GUIDELINE 3
OBSTETRICAL EMERGENCY

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Past medical history - Hypertension medications - Prenatal care - Prior pregnancies / births - Gravida / Para	- Vaginal bleeding - Abdominal pain - Seizures - Hypertension - Severe headache - Visual changes - Edema of hands and face	- Pregnancy Induced Hypertension - Pre-eclampsia / Eclampsia - Placenta previa - Placenta abruptio - Premature rupture of membrane - Spontaneous abortion



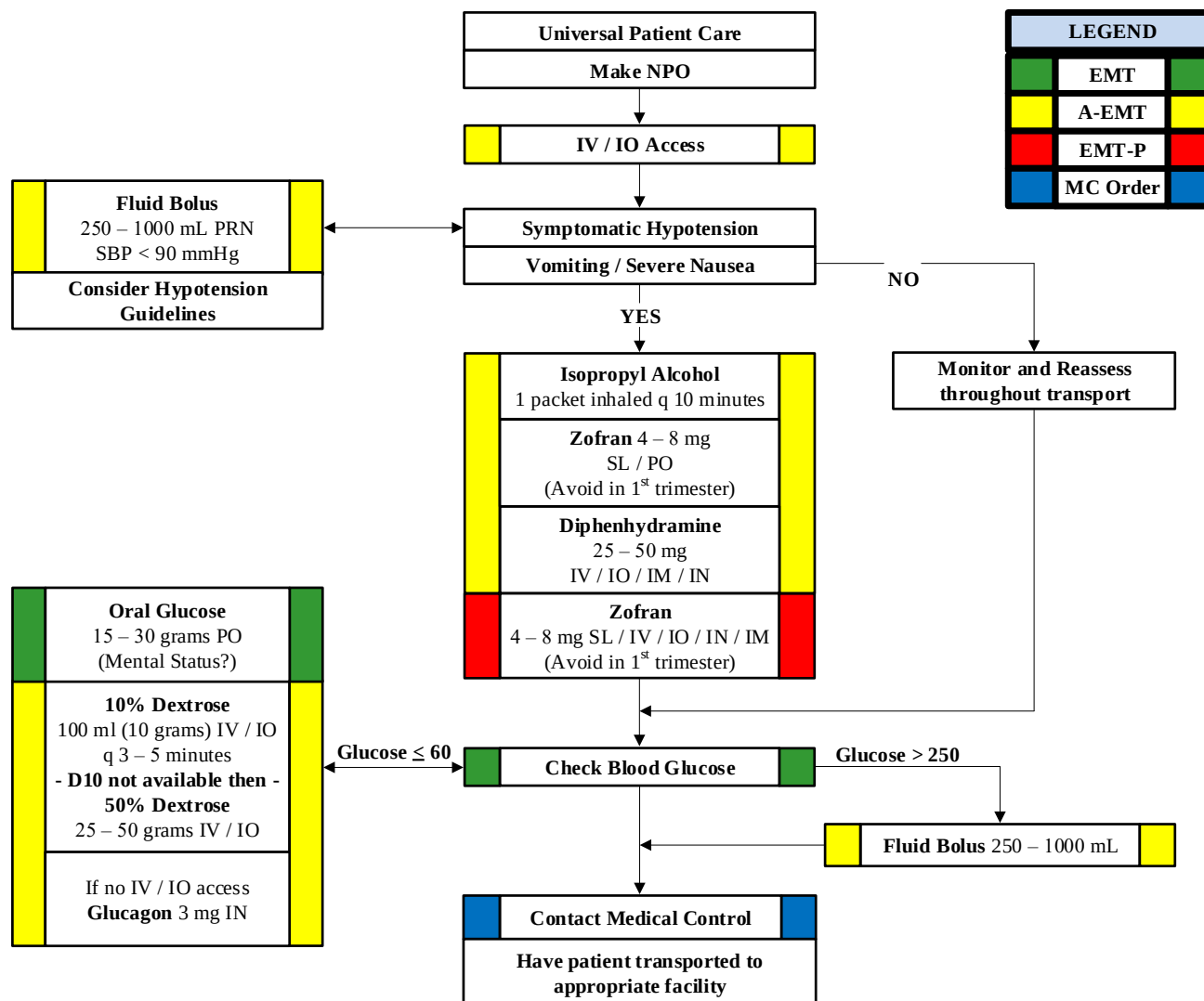
SPECIAL CONSIDERATIONS:

1. Tocolytics are generally contraindicated in uteroplacental hemorrhage because of the possibility of aggravating hypotension and increasing uteroplacental insufficiency
2. Placental Abruption
 - a. The major risks to mother and fetus during transport are hypotension and shock due to blood loss, coagulation defects, premature labor and delivery, and fetal asphyxia secondary to placental separation. The risk to mother and fetus is relatively low if there has been minimal blood loss (less than 100 ml), vital signs are stable, there are no uterine contractions, the uterus is non-tender and there are normal fetal heart tones.
 - b. Conversely, there is substantial risk to both mother and infant if there is active bleeding, contractions are occurring, there is maternal tachycardia, hypotension or hypertension, the uterus is tender or there are signs of fetal distress
 - c. Assessment
 - i. Associated with continuous painful contractions of the uterus with little or no vaginal bleeding
3. Pre-term labor
 - a. Pre-term labor is defined as labor between 24 – 34 weeks of pregnancy and there is a risk of preterm birth within 7 days. These babies have less of a chance for survival and a greater incidence of birth defects. Treatment is to prevent labor from progressing and rapid transport to an appropriate facility
 - b. Give Magnesium sulfate to stop pre-term labor
 - i. Mix 10 grams of Magnesium sulfate in 250 ml normal saline of D5W. Give 100 ml over 30 minutes (4 grams), followed by an infusion of 25 – 50 ml / hr (1 – 2 grams / hr).
 - ii. Check reflexes every 60 minutes, in the event of hypermagnesium (respiratory depression, depressed reflexes, hypotension) administer Calcium gluconate 1-gram IVP over 3 minutes
4. Premature rupture of membranes
 - a. Check for cord prolapse and if present, position patient (knee-chest or Trendelenburg) to prevent compression
5. Pregnancy induced hypertension

- a. The major risks to the mother and fetus being transported because of severe pre-eclampsia are development of seizures, CNS hemorrhage, premature labor and delivery, and fetal distress due to uteroplacental insufficiency
 - b. The patient is at significant risk of seizures or other serious complications if the blood pressure exceeds 150 / 110, there is significant proteinuria, and/or the patient manifests hyperreflexia, headaches, or epigastric pain
6. Seizures related to pregnancy (eclampsia)
- a. Give Magnesium sulfate to stop seizure activity
 - i. Mix 10 grams of Magnesium sulfate in 250 ml normal saline of D5W. Give 100 ml over 15 – 30 minutes (4 grams), followed by an infusion of 25 – 50 ml / hr (1 – 2 grams / hr).
 - ii. Check reflexes every 60 minutes, in the event of hypermagnesium (respiratory depression, depressed reflexes, hypotension) administer Calcium gluconate 1-gram IVP over 3 minutes

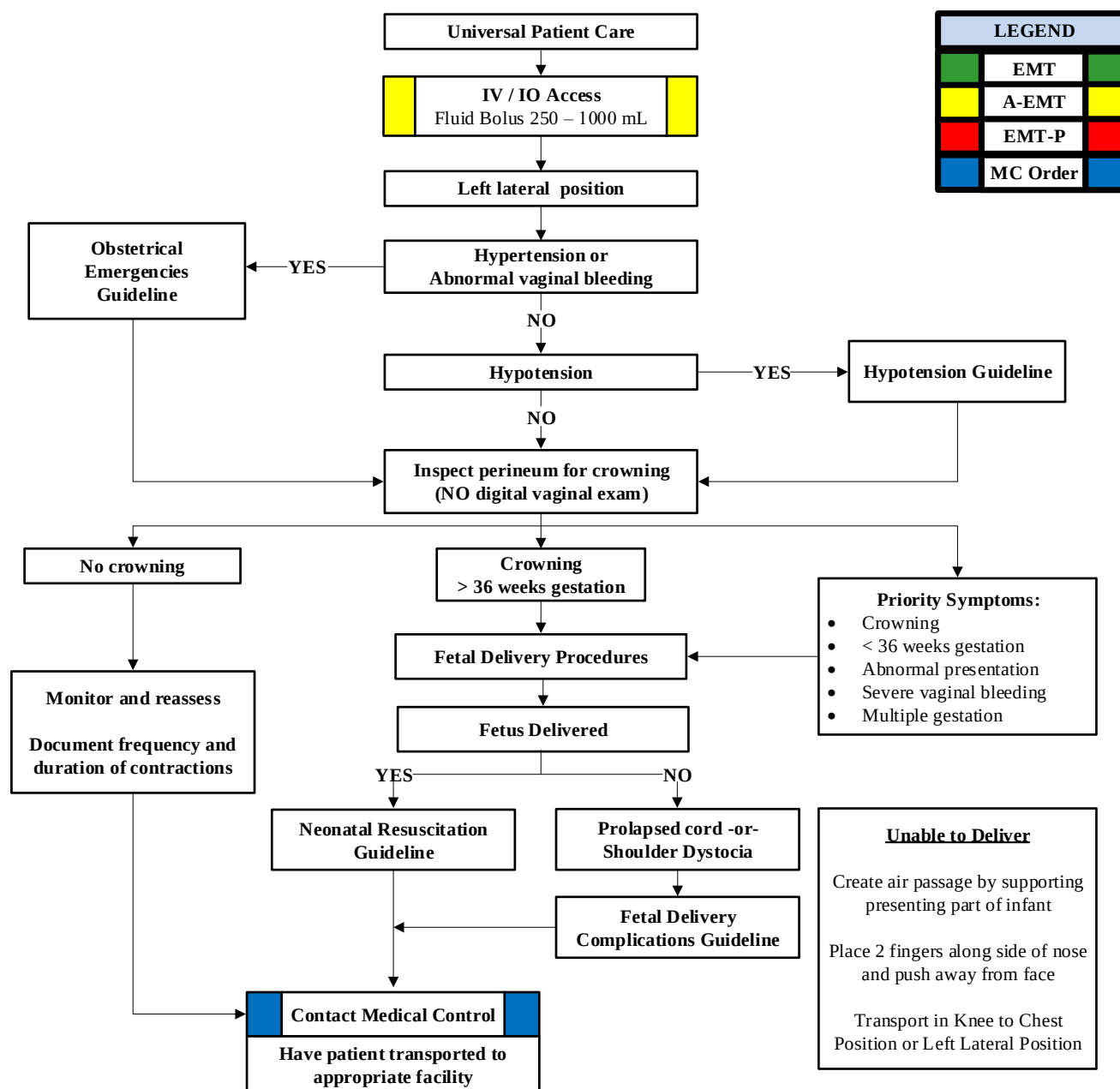
TAB 4 GUIDELINE 4
OBSTETRICAL – NAUSEA | VOMITING

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
• Age • Time of last meal • Last bowel movement/emesis • Improvement or worsening with food or activity • Duration of problem • Other sick contacts • Past medical history • Medications • Menstrual history (pregnancy) • Travel history	• Pain • Character of pain • Distention • Diarrhea / Constipation • Anorexia • Radiation • Fever, headache, blurred vision, weakness, malaise, cough, headache, dysuria, mental status changes, rash	• GI or renal disorders • Diabetic ketoacidosis • Gynecologic disease • Infections (pneumonia, influenza) • Electrolyte abnormalities • Food or toxin induced • Medication or substance abuse • Pregnancy



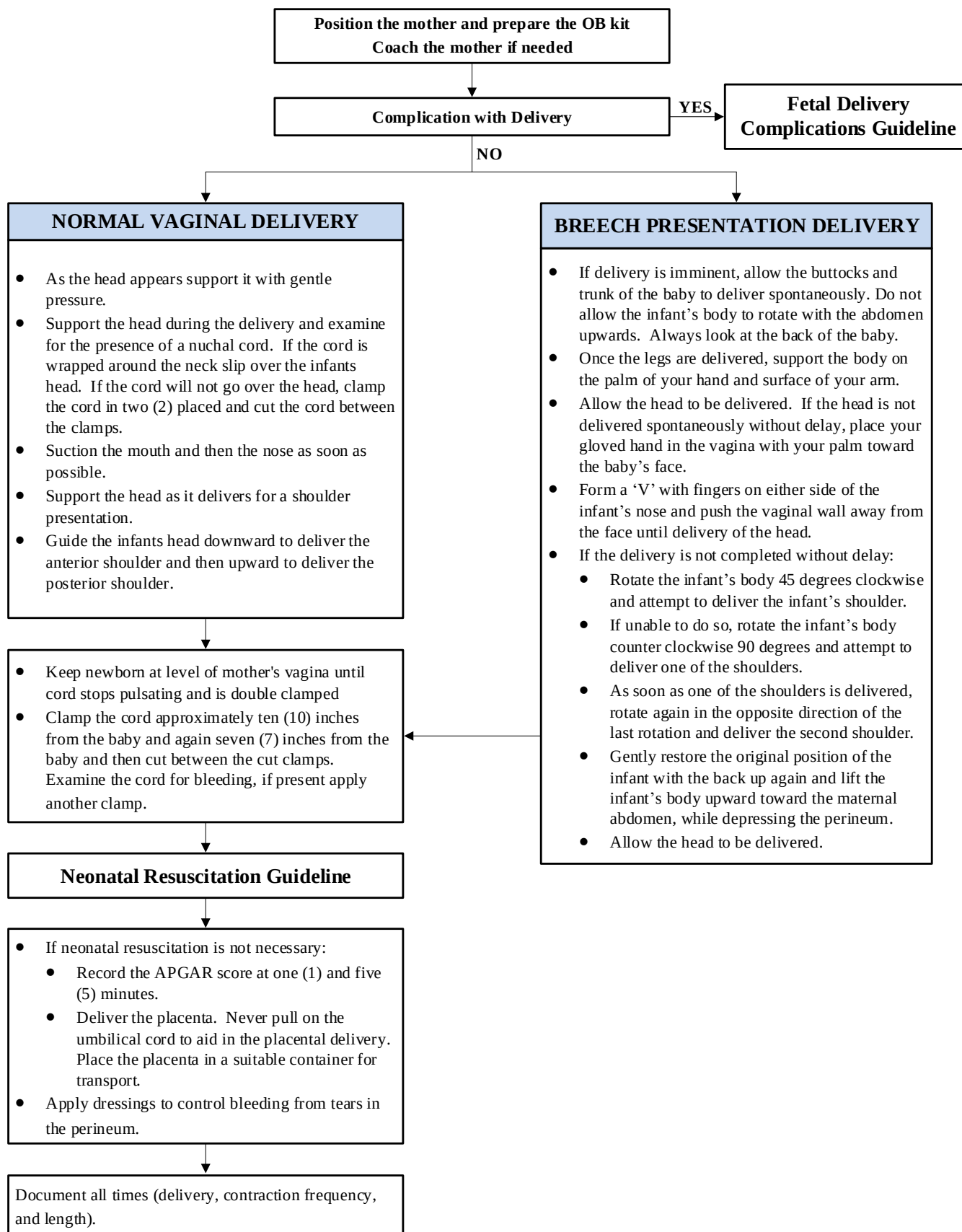
TAB 4 GUIDELINE 5
FETAL DELIVERY

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
• Due date • Time contractions started / how often • Rupture of membranes • Time / amount of any vaginal bleeding • Sensation of fetal activity • Past medical and delivery history • Medications / Drug use • Gravida / Para status • High risk pregnancy	• Spasmodic pain • Vaginal discharge or bleeding • Crowning or urge to push • Meconium	• Abnormal presentation - Buttock - Foot - Hand • Prolapsed cord • Placenta Previa • Abruptio Placenta



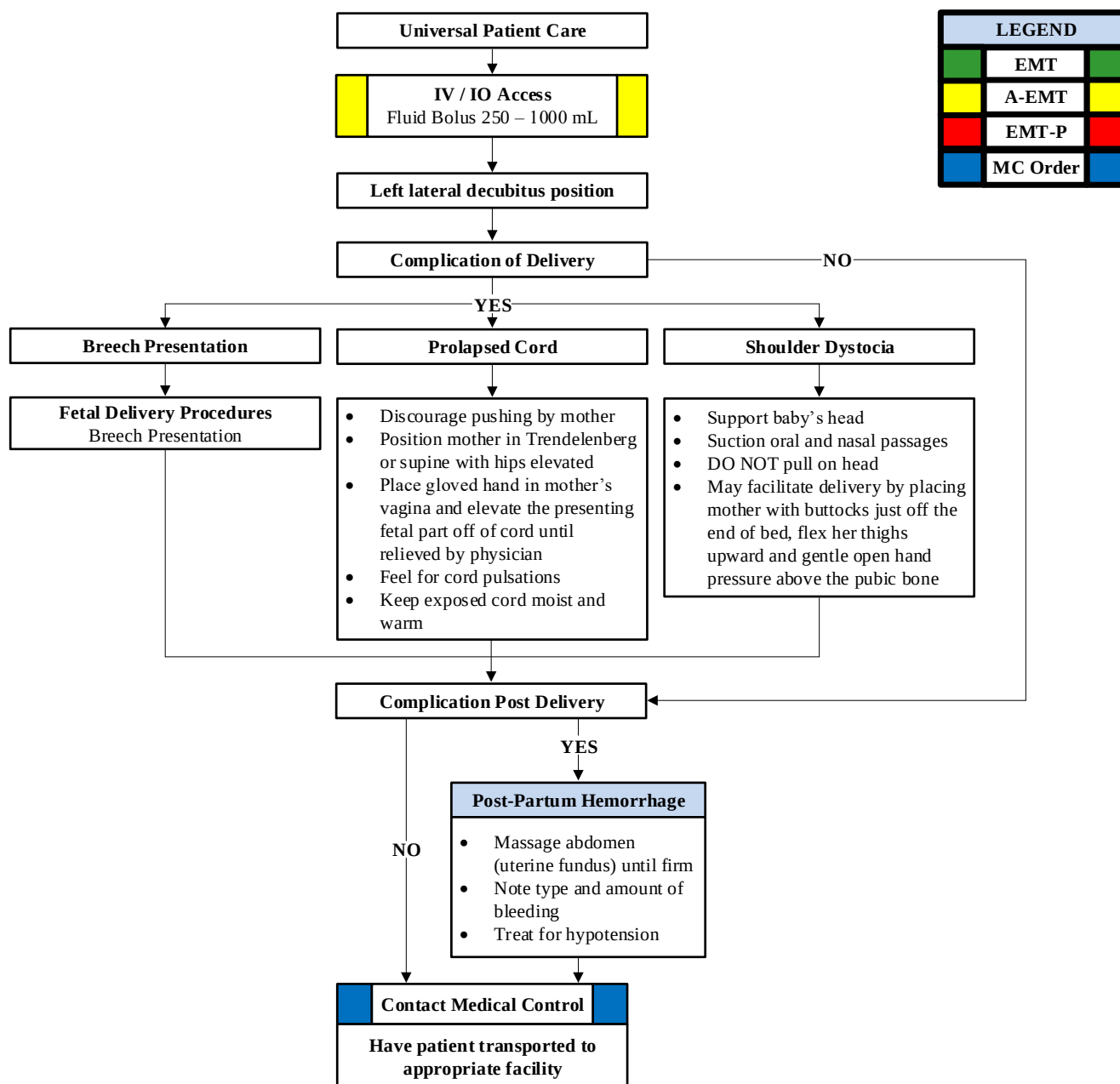
TAB 4 GUIDELINE 6

FETAL DELIVERY PROCEDURES



TAB 4 GUIDELINE 7
FETAL DELIVERY COMPLICATIONS

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
• Due date • Time contractions started / how often • Rupture of membranes • Time / amount of any vaginal bleeding • Sensation of fetal activity • Past medical and delivery history • Medications / Drug use • Gravida / Para status • High risk pregnancy	• Spasmodic pain • Vaginal discharge or bleeding • Crowning or urge to push • Meconium • Hypotension • Uterine contraction	• Abnormal presentation Buttock Foot Hand • Prolapsed cord • Placenta Previa • Abruptio Placenta • Shoulder dystocia • Post-partum hemorrhage

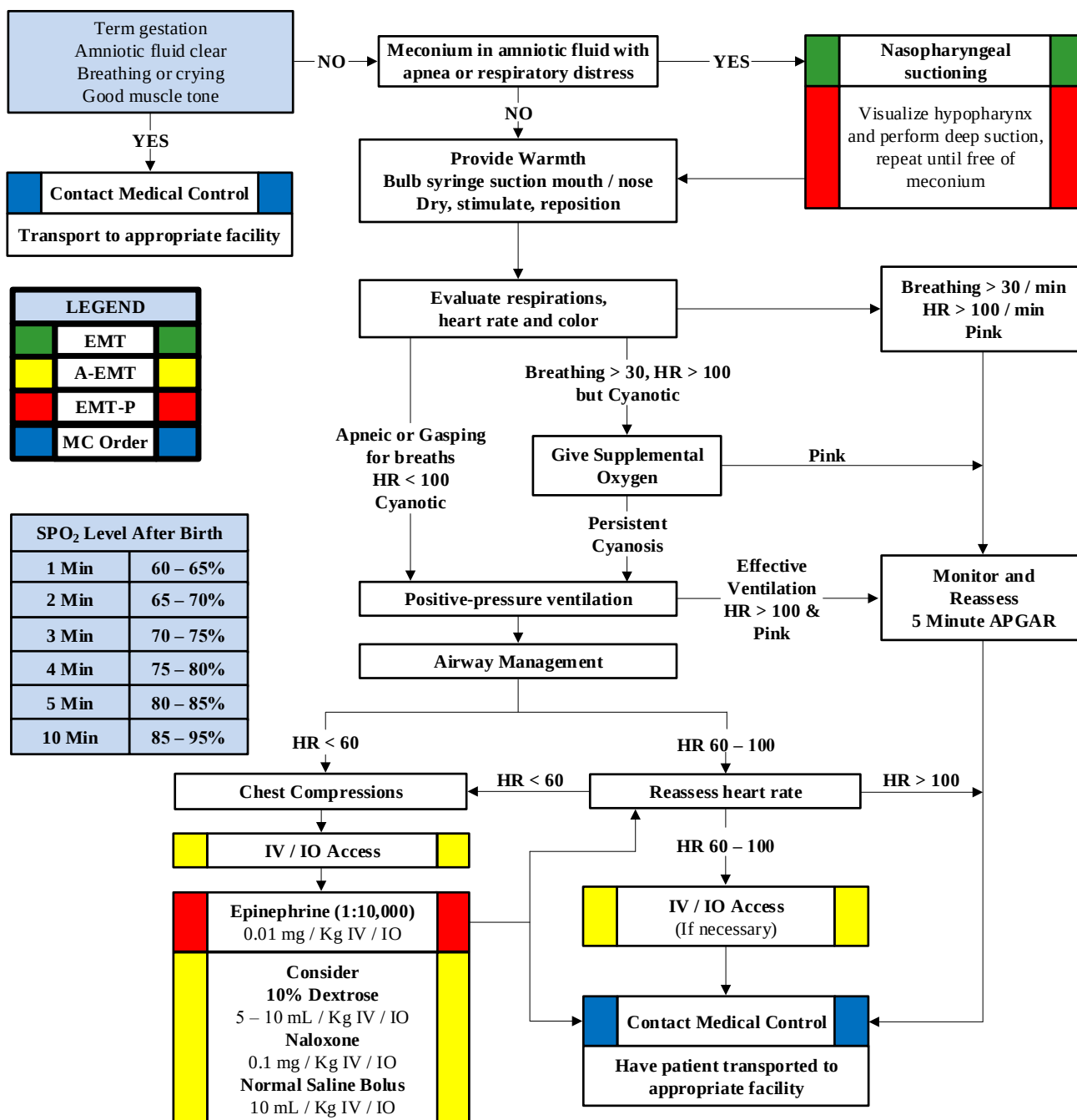


SPECIAL CONSIDERATIONS:

1. Prolapsed umbilical cord.
 - a. Clinical presentation includes:
 - i. Spontaneous Rupture of Membranes.
 - ii. Cord visible at vaginal opening.
 - iii. Fetal Heart Rate variable with rapid decline in heart rate.
 - b. Position the mother in Trendelenburg or knee chest position to relieve pressure on the umbilical cord.
 - c. Have the mother pant with each contraction to prevent her from bearing down.
 - d. Insert two gloved fingers into the vagina and gently elevate the presenting part to relieve pressure on the cord and to restore an umbilical pulse. DO NOT attempt to reposition the cord.
 - e. If possible place a moist dressing over the exposed cord.
2. Shoulder dystocia
 - a. McRoberts Maneuver
 - i. Involves hyperflexing the mother's legs tightly to her abdomen. It is effective due to the increased mobility at the sacroiliac joint during pregnancy, allowing rotation of the pelvis and facilitating the release of the fetal shoulder.
 - ii. If this maneuver does not succeed, an assistant applies pressure on the lower abdomen (suprapubic pressure), and the delivered head is also gently pulled.
 - b. Woods' Screw technique
 - i. In this maneuver, the anterior shoulder is pushed towards the baby's chest, and the posterior shoulder is pushed towards the baby's back, making the baby's head somewhat face the mother's rectum.
 - ii. This maneuver is tried only after the McRoberts maneuver
 - c. Gaskin maneuver
 - i. Involves rolling the patient to the "all fours" position

TAB 4 GUIDELINE 8
NEONATAL RESUSCITATION

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
• Due date and gestational age • Multiple gestation • Meconium • Delivery difficulties • Congenital disease • Medications (maternal) • Maternal risk factors - Substance Abuse - Smoking	• Respiratory distress • Peripheral cyanosis or mottling (normal) • Central cyanosis (abnormal) • Altered level of response • Bradycardia	• Airway failure - Secretions - Respiratory drive • Infection • Maternal medication effect • Hypovolemia • Hypoglycemia • Congenital heart disease • Hypothermia



SPECIAL CONSIDERATIONS:

1. Neonatal resuscitation priorities:

- a. Airway
 - b. Breathing
 - c. Circulation
 - d. Temperature
2. Avoid stimulation of the back of the pharynx during suctioning. This may cause bradycardia in the newborn. Suction the neonate's airway with a bulb syringe starting with the mouth and then the nares.
 3. Light meconium staining, if present, may only need standard oral/nasal suctioning maneuvers with a neonate that presents vigorous (strong respiratory efforts, good muscle tone, heart rate > 100) upon assessment. If thick meconium is present, or an open adequate airway cannot be obtained, use laryngoscope and suction to clear the airway under direct visualization to avoid contamination of the lungs with meconium. Hypoxia and vagal stimulation can result if prolonged suctioning occurs. Do not stimulate the neonate to cry until the airway is cleared.
 4. Supplementary oxygen is recommended whenever positive-pressure ventilation is indicated for resuscitation; free-flow oxygen should be administered to neonates who are breathing but have central cyanosis.
 5. Endotracheal intubation may be indicated if bag-mask ventilation is ineffective. The timing of endotracheal intubation (field vs. ED) may also depend on the skill and experience of the available providers.
 6. Establish intravascular access as necessary for volume and/or medication administration. **In a severely depressed neonate consider IO first for vascular access.**

APGAR Scoring Table			
Score	0	1	2
Appearance	Blue centrally	Blue extremities	Pink
Pulse	0	< 100	> 100
Grimace	None	Grimace	Pulls Away
Activity	Absent	Arm / Leg Flexed	Active Movement
Respirations	Absent	Slow	Crying, Good

TAB 5

PEDIATRIC MEDICAL EMERGENCY GUIDELINES



EMSC
Emergency Medical
Services for Children

TAB 5 GUIDELINE 1
PEDIATRIC TABLES

Age	Pulse (beats/min)	Respirations	Blood Pressure (SBP / DBP)
Newborn	120 – 160	30 – 60	74 – 100 / 50 – 68
Infant	100 – 140	30 – 60	84 – 106 / 56 – 70
Toddler	80 – 130	24 – 40	98 – 106 / 50 – 70
Preschool	80 – 120	22 – 34	98 – 112 / 64 – 70
School age	60 – 100	18 – 30	104 – 124 / 64 – 80
Adolescent	50 – 90	12 – 18	118 – 132 / 70 – 82
Age		Estimated Weight	
1		10 kg	
3		15 kg	
5		20 kg	
7		25 kg	
9		30 kg	
AGE	ORAL AIRWAY	ENDOTRACHEAL TUBE (uncuffed)	SUCTION CATHETER
Preemie	00	2.5 - 3.0	5 French
Newborn	0	3.0 - 3.5	6 French
6 Months	0-1	3.5	8 French
18 Months	1	4.0	8 French
3 Years	2	4.5	8 French
5 Years	2-3	5.0	10 French
8 Years	3	6.0 cuffed	10 French
Older	4	6.5 -7.0 cuffed	12 French

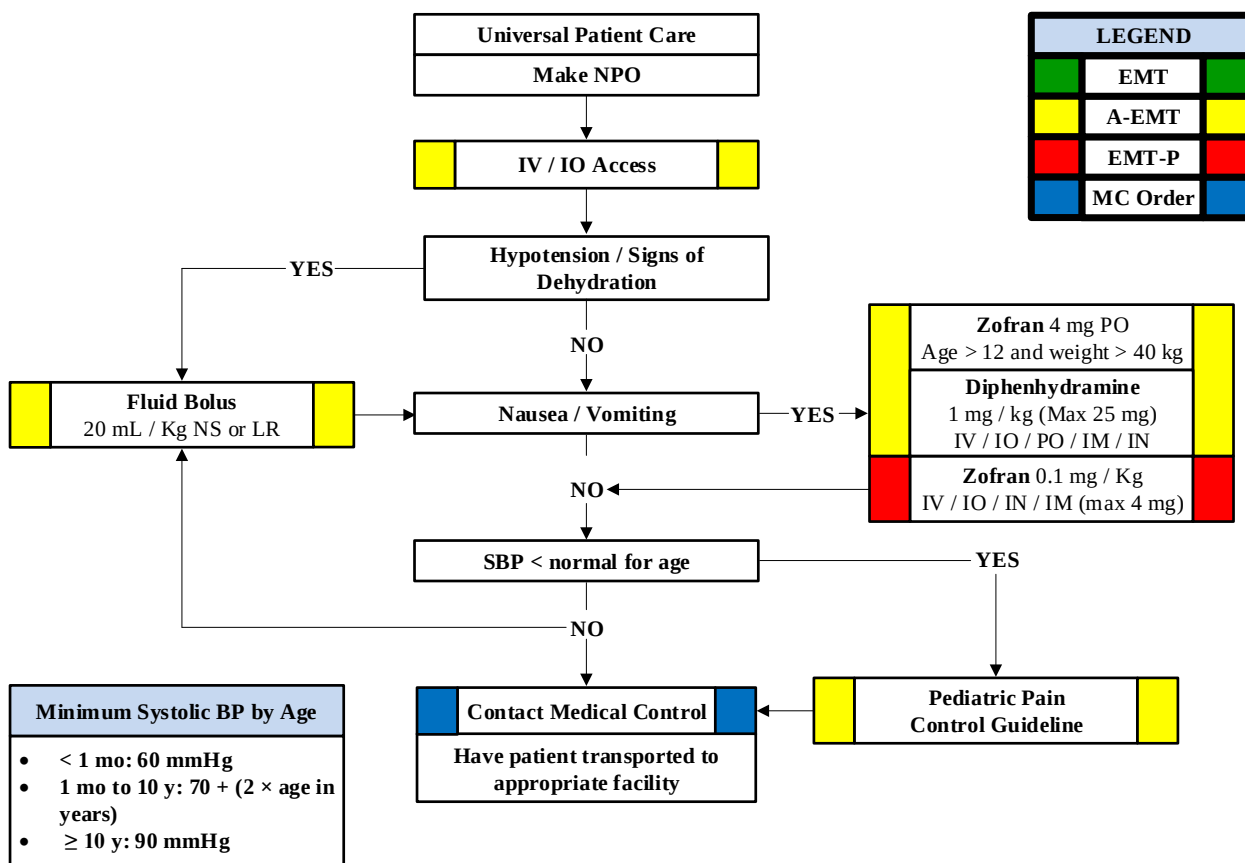
Weight 3 – 5 kg (Ave 4.0 kg)							
Length < 59.5 cm	Vital Signs		IV Catheter (ga) 22 – 24		Diphenhydramine 6.5 mg		Grey (0 – 3 months)
	Heart Rate	120-150	IO (ga) 18 / 15		Epinephrine 1:10,000 0.03 – 0.05 mg		
	Respirations	24-48	Normal Saline Bolus 60 – 100 mL		Epinephrine 1:1000 ETT 0.3 – 0.5 mg		
	BP Systolic	70 (+/-25)	Defibrillation		Epinephrine 1:000 IM 0.06 mg		
	Equipment		Defibrillation 8 joules		Etomidate 0.9 – 1.5 mg		
	Resuscitation Bag	Infant / Child	Cardioversion 4 joules		Fentanyl (Sedation) 9 – 15 mcg		
	Oxygen Mask (NRB)	Pediatric	Acetaminophen 1.8 mL		Glucagon 0.5 mg		
	Oral Airway	50 mm	Adenosine 1 st dose 0.3 – 0.5 mg		Ibuprofen 2 mL		
	Laryngoscope Blade Size	0 – 1 straight	2 nd dose 0.6 – 1 mg		Ipratropium 500 mcg		
	ET Tube Size	3.5 uncuffed	Albuterol 2.5 mg		Levalbuterol 0.31 mg		
ET Tube Insertion Depth	3.0 cuffed	Amiodarone HOLD		Lidocaine 3 – 5 mg			
3 Kg	9 – 9.5 cm	Atropine 0.10 mg		Magnesium Sulfate 150 – 250 mg			
4 Kg	9.5 – 10 cm	Calcium Chloride 60 – 100 mg		Midazolam (Induction) 0.9 – 1.5 mg			
5 Kg	10 – 10.5 cm	Dextrose 25% 1.5 – 2.5 gram		Morphine Sulfate 0.6 mg			
NG Tube	5 – 8 Fr	Diazepam IV 0.6 – 1 mg		Naloxone 0.3 – 0.5 mg			
Suction Catheter	8 Fr	Diazepam Rectal 1.5 – 2.5 mg		Sodium Bicarbonate 3 – 5 mEq			
Weight 6 – 7 kg (Ave 6.5 kg)							
Length 59.5 – 66.5 cm	Vital Signs		IV Catheter (ga) 22 – 24		Diphenhydramine 6.5 mg		Pink (3 – 6 Months)
	Heart Rate	120 – 125	IO (ga) 18 / 15		Epinephrine 1:10,000 0.065 mg		
	Respirations	24 – 48	Normal Saline Bolus 120 – 140 mL		Epinephrine 1:1000 ETT 0.6 mg		
	BP Systolic	85 (+/-25)	Defibrillation		Epinephrine 1:000 IM 0.06 mg		
	Equipment		Defibrillation 13 joules		Etomidate 1.8 – 2.1 mg		
	Resuscitation Bag	Infant / Child	Cardioversion 6 joules		Fentanyl (Sedation) 12 – 21 mcg		
	Oxygen Mask (NRB)	Pediatric	Acetaminophen 3 mL		Glucagon 0.5 mg		
	Oral Airway	50 mm	Adenosine 1 st dose 0.65 mg		Ibuprofen 3.25 mL		
	Laryngoscope Blade Size	1 straight	2 nd dose 1.3 mg		Ipratropium 500 mcg		
	ET Tube Size	3.5 uncuffed	Albuterol 2.5 mg		Levalbuterol 0.31mg		
ET Tube Insertion Depth	3.0 cuffed	Amiodarone HOLD		Lidocaine 6.5 mg			
10.5 – 11 cm	10.5 – 11 cm	Atropine 0.13 mg		Magnesium Sulfate 325 mg			
5 – 8 Fr	5 – 8 Fr	Calcium Chloride 130 mg		Midazolam (Induction) 2 mg			
Suction Catheter	8 Fr	Dextrose 25% 3.25 g		Morphine Sulfate 0.6 mg			
		Diazepam IV / Rectal 1.3 mg / 3.3 mg		Naloxone 0.65 mg			
				Sodium Bicarbonate 6.5 mEq			
				Succinylcholine 13 mg			
Weight 8 – 9 kg (Ave 8.5 kg)							
Length 66.5 – 74 cm	Vital Signs		IV Catheter (ga) 22 – 24		Diphenhydramine 7.5 mg		Red (7 – 10 Months)
	Heart Rate	120 – 150	IO (ga) 18 / 15		Epinephrine 1:10,000 0.085 mg		
	Respirations	24 – 32	Normal Saline Bolus 160 – 180 mL		Epinephrine 1:1000 ETT 0.8 mg		
	BP Systolic	92 (+/-30)	Defibrillation		Epinephrine 1:000 IM 0.08 mg		
	Equipment		Defibrillation 17 joules		Etomidate 2.4 – 2.7 mg		
	Resuscitation Bag	Infant / Child	Cardioversion 8 joules		Fentanyl (Sedation) 16 – 27 mcg		
	Oxygen Mask (NRB)	Pediatric	Acetaminophen 4 mL		Glucagon 0.5 mg		
	Oral Airway	50 mm	Adenosine 1 st dose 0.85 mg		Ibuprofen 4.25 mL		
	Laryngoscope Blade Size	1 straight	2 nd dose 1.7 mg		Ipratropium 500 mcg		
	ET Tube Size	3.5 uncuffed	Albuterol 2.5 mg		Levalbuterol 0.31mg		
ET Tube Insertion Depth	3.0 cuffed	Amiodarone 42 mg		Lidocaine 6.5 mg			
10.5 – 11 cm	10.5 – 11 cm	Atropine 0.17 mg		Magnesium Sulfate 325 mg			
5 – 8 Fr	5 – 8 Fr	Calcium Chloride 170 mg		Midazolam (Induction) 2.5 mg			
Suction Catheter	8 Fr	Dextrose 25% 4.25 g		Morphine Sulfate 0.85 mg			
		Diazepam IV / Rectal 1.7 mg / 4.2 mg		Naloxone 0.85 mg			
				Sodium Bicarbonate 8.5 mEq			
				Succinylcholine 17 mg			

Weight 10 – 11 kg (Ave 10.5 kg)					
Length 74 – 84.5 cm	Vital Signs		IV Catheter (ga)	20 – 24	Diphenhydramine 10 mg
	Heart Rate	115 – 120	IO (ga)	15	Epinephrine 1:10,000 0.1 mg
	Respirations	22 – 30	Normal Saline Bolus	200 – 220 mL	Epinephrine 1:000 ETT 1 mg
	BP Systolic	96 (+/-30)			Epinephrine 1:000 IM 0.1 mg
	Equipment		Defibrillation		Etomidate 3.2 mg
	Resuscitation Bag	Child	Defibrillation	20 joules	Fentanyl (Sedation) 32 mcg
	Oxygen Mask (NRB)	Pediatric	Cardioversion	10 joules	Glucagon 0.3 – 1 mg
	Oral Airway	60 mm			Ibuprofen 5 mL
	Laryngoscope Blade Size	1 straight	Acetaminophen	5 mL	Ipratropium 500 mcg
	ET Tube Size	4 uncuffed	Adenosine	1 st dose 1 mg	Lidocaine 10 mg
		3.5 cuffed		2 nd dose 2 mg	Magnesium Sulfate 525 mg
	ET Tube Insertion Depth	11 – 12 cm	Albuterol	2.5 mg	Midazolam 3.2 mg
	NG Tube	8 – 10 Fr	Amiodarone	50 mg	Morphine Sulfate 1 mg
	Suction Catheter	10 Fr	Atropine	0.21 mg	Naloxone 1 mg
			Calcium Chloride	210 mg	Ondansetron 1 mg
			Dextrose 25%	5.25 grams	Sodium Bicarbonate 10 mEq
			Diazepam IV / Rectal	2 mg / 5 mg	Succinylcholine 20 mg
Weight 12 – 14 Kg (Ave 13 Kg)					
Length 84.5 – 97.5 cm	Vital Signs		IV Catheter (ga)	18 – 24	Diphenhydramine 12.5 mg
	Heart Rate	110 – 115	IO (ga)	15	Epinephrine 1:10,000 0.13 mg
	Respirations	20 – 28	Normal Saline Bolus	240 – 280 mL	Epinephrine 1:000 ETT 1.3 mg
	BP Systolic	100 (+/-30)			Epinephrine 1:000 IM 0.13 mg
	Equipment		Defibrillation		Etomidate 4 mg
	Resuscitation Bag	Child	Defibrillation	26 joules	Fentanyl (Sedation) 40 mcg
	Oxygen Mask (NRB)	Pediatric	Cardioversion	13 joules	Glucagon 0.5 mg
	Oral Airway	60 mm			Ibuprofen 6.5 mL
	Laryngoscope Blade Size	2 straight	Acetaminophen	6 mL	Ipratropium 500 mcg
	ET Tube Size	4.5 uncuffed	Adenosine	1 st dose 1.3 mg	Lidocaine 13 mg
		4.0 cuffed		2 nd dose 2.6 mg	Magnesium Sulfate 600 mg
	ET Tube Insertion Depth	13.5 cm	Albuterol	2.5 mg	Midazolam 4 mg
	King LT Airway	Size 2	Amiodarone	65 mg	Morphine Sulfate 1.3 mg
	NG Tube	10 Fr	Atropine	0.26 mg	Naloxone 1.3 mg
	Suction Catheter	10 Fr	Calcium Chloride	260 mg	Ondansetron 1.3 mg
			Dextrose 25%	6.5 grams	Sodium Bicarbonate 13 mEq
			Diazepam IV / Rectal	2.6 mg / 6.5 mg	Succinylcholine 26 mg
Weight 15 – 18 kg (Ave 16.5 kg)					
Length 97.5 – 110 cm	Vital Signs		IV Catheter (ga)	22 – 24	Diphenhydramine 15 mg
	Heart Rate	100-115	IO (ga)	18 / 15	Epinephrine 1:10,000 0.17 mg
	Respirations	22-26	Normal Saline Bolus	300 – 360 mL	Epinephrine 1:000 ETT 1.7 mg
	BP Systolic	100 (+/-20)			Epinephrine 1:000 IM 0.17 mg
	Equipment		Defibrillation		Etomidate 5 mg
	Resuscitation Bag	Child	Defibrillation	35 joules	Fentanyl (Sedation) 50 mcg
	Oxygen Mask (NRB)	Pediatric	Cardioversion	16 joules	Glucagon 0.5 mg
	Oral Airway	60 mm			Ibuprofen 8.25 mL
	Laryngoscope Blade Size	2 straight	Acetaminophen	7.5 mL	Ipratropium 500 mcg
	ET Tube Size	5.0 uncuffed	Adenosine	1 st dose 1.7 mg	Lidocaine 17 mg
		4.5 cuffed		2 nd dose 3.3 mg	Magnesium Sulfate 820 mg
	ET Tube Insertion Depth	14 – 15 cm	Albuterol	2.5 mg	Midazolam (Induction) 5 mg
	King LT Airway	Size 2 – 2.5	Amiodarone	80 mg	Morphine Sulfate 1.5 mg
	NG Tube	10 Fr	Atropine	0.33 mg	Naloxone 1.5 mg
	Suction Catheter	10 Fr	Calcium Chloride	330 mg	Ondansetron 1.5 mg
			Dextrose 25%	8.25 grams	Sodium Bicarbonate 16.5 mEq
			Diazepam IV / Rectal	3.3 mg / 8 mg	Succinylcholine 30 mg

Weight 19 – 22 kg (Ave 20.75 kg)					
Length 110 – 122 cm	Vital Signs		IV Catheter (ga)	20 – 24	Diphenhydramine 20 mg
	Heart Rate	100	IO (ga)	15	Epinephrine 1:10,000 0.2 mg
	Respirations	22-24	Normal Saline Bolus		Epinephrine 1:000 ETT 2 mg
	BP Systolic	100 (+/-15)	Defibrillation		Epinephrine 1:000 IM 0.2 mg
	Equipment		Defibrillation	40 joules	Etomidate 3.2 mg
	Resuscitation Bag	Child	Cardioversion	20 joules	Fentanyl (Sedation) 63 mcg
	Oxygen Mask (NRB)	Pediatric	Acetaminophen		Glucagon 1 mg
	Oral Airway	70 mm	Adenosine	2 mg	Ibuprofen 10 mL
	Laryngoscope Blade Size	2 straight or curved	1 st dose	2.1 mg	Ipratropium 500 mcg
	ET Tube Size	5.5 uncuffed	2 nd dose	2 mg	Lidocaine 32 mg
		5.0 cuffed	Albuterol	2.5 mg	Magnesium Sulfate 1050 mg
		16.5 cm	Amiodarone	105 mg	Midazolam 6.3 mg
		Size 2.5	Atropine	0.4 mg	Morphine Sulfate 2 mg
		12 – 14 Fr	Calcium Chloride	420 mg	Naloxone 2 mg
		10 Fr	Dextrose 25%	10.5 grams	Ondansetron 2 mg
			Diazepam IV / Rectal	4.2 mg / 10 mg	Sodium Bicarbonate 21 mEq
					Succinylcholine 40 mg
Weight 24 – 30 Kg (Ave 27 Kg)					
Length 122 – 137 cm	Vital Signs		IV Catheter (ga)	18 – 20	Diphenhydramine 25 mg
	Heart Rate	90	IO (ga)	15	Epinephrine 1:10,000 0.27 mg
	Respirations	18-22	Normal Saline Bolus		Epinephrine 1:000 ETT 2.7 mg
	BP Systolic	10 (+/-15)	Defibrillation		Epinephrine 1:000 IM 0.27 mg
	Equipment		Defibrillation	54 joules	Etomidate 8 mg
	Resuscitation Bag	Child	Cardioversion	27 joules	Fentanyl (Sedation) 80 mcg
	Oxygen Mask (NRB)	Pediatric	Acetaminophen		Glucagon 1 mg
	Oral Airway	80 mm	Adenosine	2.7 mg	Ibuprofen 13.5 mL
	Laryngoscope Blade Size	2 straight or curved	1 st dose	5.4 mg	Ipratropium 500 mcg
	ET Tube Size	6 cuffed	2 nd dose	2.5 mg	Lidocaine 40 mg
		17 – 18 cm	Albuterol	2.5 mg	Magnesium Sulfate 1325 mg
		Size 3	Amiodarone	130 mg	Midazolam 8 mg
		14 – 16 Fr	Atropine	0.5 mg	Morphine Sulfate 2 mg
		10 Fr	Calcium Chloride	530 mg	Naloxone 2.7 mg
			Dextrose 25%	13.3 grams	Ondansetron 2.7 mg
			Diazepam IV / Rectal	5.3 mg / 8 mg	Sodium Bicarbonate 27 mEq
					Succinylcholine 53 mg
Weight 32 – 40 kg (Ave 36 kg)					
Length 137 – 150 cm	Vital Signs		IV Catheter (ga)	16 – 20	Diphenhydramine 25 mg
	Heart Rate	85-90	IO (ga)	15	Epinephrine 1:10,000 0.33 mg
	Respirations	16-22	Normal Saline Bolus		Epinephrine 1:000 ETT 3.3 mg
	BP Systolic	115 (+/-20)	Defibrillation		Epinephrine 1:000 IM 0.3 mg
	Equipment		Defibrillation	70 joules	Etomidate 10 mg
	Resuscitation Bag	Child	Cardioversion	40 joules	Fentanyl (Sedation) 100 mcg
	Oxygen Mask (NRB)	Pediatric / Adult	Acetaminophen		Glucagon 1 mg
	Oral Airway	80 mm	Adenosine	3.3 mg	Ibuprofen 18 mL
	Laryngoscope Blade Size	3 straight or curved	1 st dose	36.6 mg	Ipratropium 500 mcg
	ET Tube Size	6.5 cuffed	2 nd dose	2.5 mg	Lidocaine 50 mg
		18.5 – 19.5 cm	Albuterol	165 mg	Magnesium Sulfate 1650 mg
		Size 3	Amiodarone	0.5 mg	Midazolam (Induction) 10 mg
		16 – 18 Fr	Atropine	660 mg	Morphine Sulfate 2 mg
		10 – 12 Fr	Calcium Chloride	16.5 grams	Naloxone 2 mg
			Dextrose 25%	6.6 mg / 10 mg	Ondansetron 3.5 mg
			Diazepam IV / Rectal		Sodium Bicarbonate 33 mEq
					Succinylcholine 66 mg

TAB 5 GUIDELINE 2
ABDOMINAL PAIN

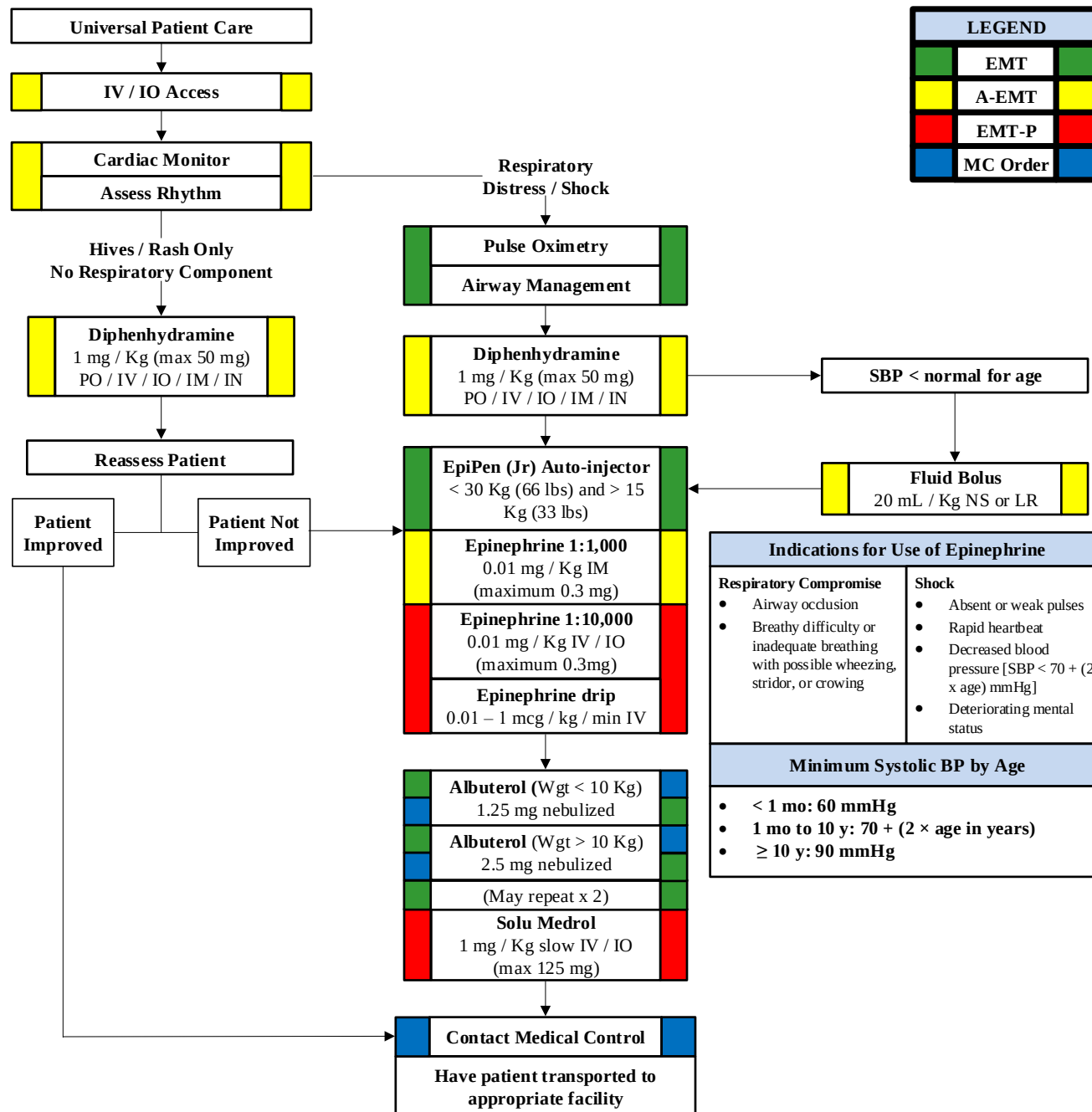
HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Age - Past medical / surgical history - Medications - Onset - Palliation / Provocation - Quality (crampy, constant, sharp, dull, etc) - Region / Radiation / Referred - Severity (1-10) - Time (duration / repetition) - Fever - Last meal eaten - Last bowel movement - Menstrual history (pregnancy)	- Pain (location / migration) - Tenderness - Nausea - Vomiting - Diarrhea - Dysuria - Constipation - Vaginal bleeding / discharge - Pregnancy ASSOCIATED SYMPTOMS: - Fever, headache, weakness, malaise, myalgias, cough, headache, mental status changes, rash	- Pneumonia or Pulmonary embolus - Liver (hepatitis, CHF) - Peptic ulcer disease / Gastritis - Gallbladder / Pancreatitis - Kidney stone - Appendicitis / Diverticulitis - Bladder / Prostate disorder - Pelvic (PID, Ectopic pregnancy, Ovarian cyst) - Spleen enlargement - Bowel obstruction - Gastroenteritis (infectious)



TAB 5 GUIDELINE 3

ALLERGIC REACTION | ANAPHYLAXIS

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Onset and location - Insect sting or bite - Food allergy / exposure - Medication history / allergy / exposure - New clothing, soap, detergent - Past history of reactions - Past medical history	- Itching or hives - Coughing / wheezing or respiratory distress - Chest or throat constriction - Difficulty swallowing - Hypotension or shock - Hypotension or shock / Edema - Abdominal cramps	- Urticaria (rash only) - Anaphylaxis (systemic effect) - Shock (vascular effect) - Angioedema (drug induced) - Aspiration / Airway obstruction - Vasovagal event - Asthma - CHF



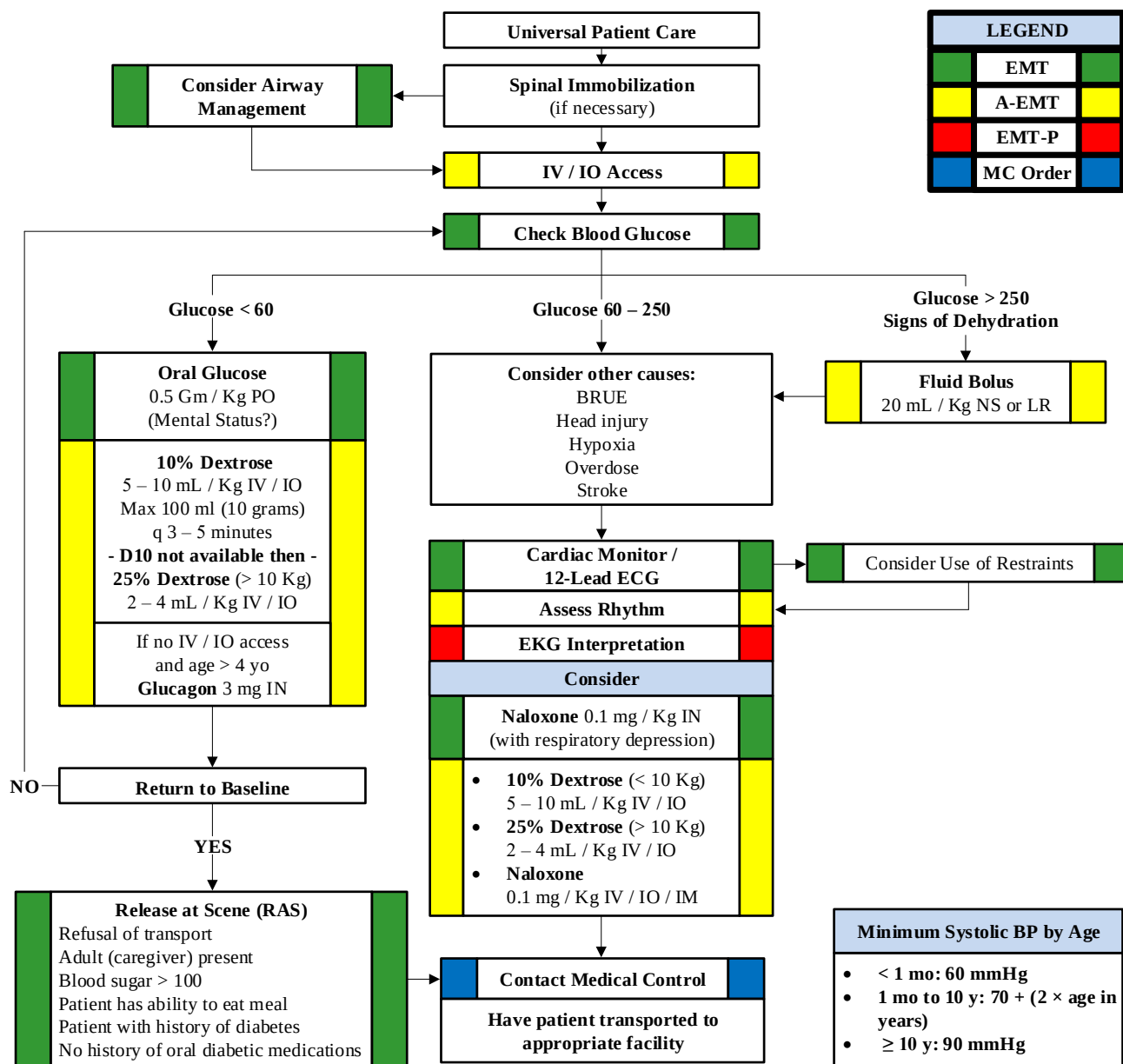
SPECIAL CONSIDERATIONS:

1. Patients with allergic reactions can deteriorate quickly. Airway is a prime concern.
2. Epinephrine (via Auto-Injector) should be administered for:
 - a. **Respiratory Compromise**
 - i. Airway occlusion
 - ii. Breathy difficulty or inadequate breathing with possible wheezing, stridor, or crowing
 - b. **GI Complaint**
 - i. Abdominal cramping, nausea, vomiting
 - c. **Shock**
 - i. Absent or weak pulses
 - ii. Rapid heartbeat
 - iii. Decreased blood pressure
 - iv. Deteriorating mental status
3. Lethal edema may be localized to the tongue, uvula or other upper airway structures. Examine closely and be prepared to intubate early before swelling occurs. Nasal tracheal intubation may be preferred.
4. Any patient with respiratory symptoms or extensive reaction should receive IV or IM diphenhydramine (Benadryl).
 - a. Pediatric Generalized Dosing Guidelines – diphenhydramine (Benadryl)

i. 2 – 5 years	6.25 mg
ii. 6 – 11 years	12.5 – 25 mg
iii. > 12 years	25 – 50 mg
5. If severe reaction with signs | symptoms of shock and / or airway involvement and ALS not available, then administer Epipen Auto-injector for **weight > 30 Kg (66 lbs)**, otherwise use Epipen, Jr for weight **< 30 Kg (66 lbs) and > 15 Kg (33 lbs)**.

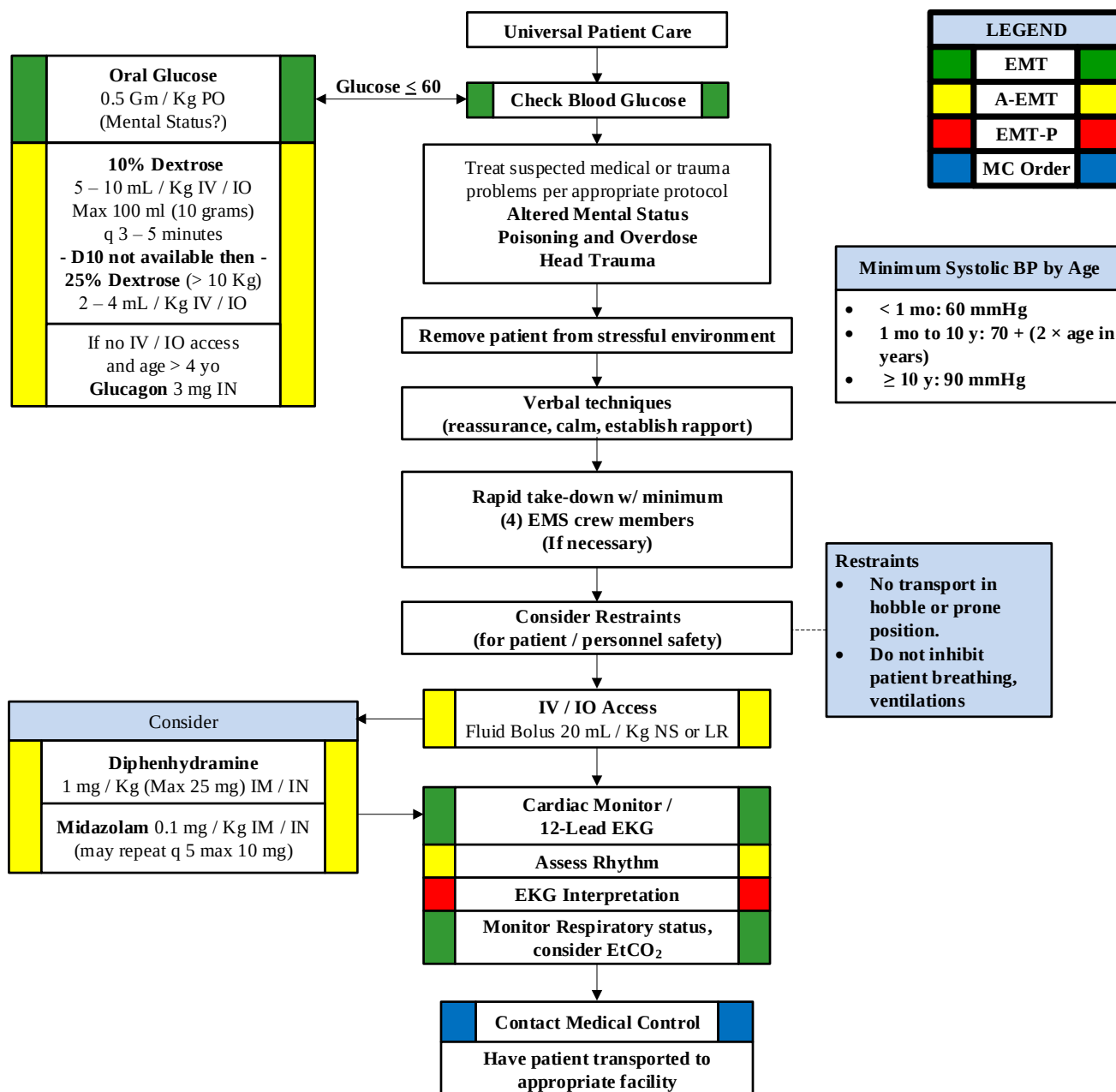
TAB 5 GUIDELINE 4
ALTERED MENTAL STATUS

HISTORY	SIGNS / SYMPTOMS:	DIFFERENTIAL
< 16 years of age - Known diabetic, medic alert tag - Drugs, drug paraphernalia - Report of illicit drug use or toxic ingestion - Past medical history - Medications - History of trauma	- Decreased mental status - Change in baseline mental status - Bizarre behavior - Hypoglycemia - Cool, diaphoretic skin - Hyperglycemia - Warm, dry skin - Fruity breath - Kussmaul respirations - Signs of dehydration	- Head trauma - CNS (stroke, tumor, seizure, infection) - Cardiac (MI, CHF) - Pulmonary (hypoxia) - Infection - Thyroid (hyper / hypo) - Shock (septic, metabolic, traumatic) - Diabetes (hyper / hypoglycemia) - Toxicologic / Electrolyte abnormality - Acidosis / Alkalosis - Environmental exposure - Psychiatric disorder



TAB 5 GUIDELINE 5
BEHAVIORAL | EXCITED DELIRIUM

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
< 16 years of age or > 5 years of age - Situational crisis - Psychiatric illness / medications - Injury to self or threats to others - Medic alert tag - Substance abuse / overdose - Diabetes	- Anxiety, agitation, confusion - Affect change, hallucinations - Delusional thoughts, bizarre behavior - Expression of suicidal / homicidal thoughts - Poor concentration, easily distracted, psychosis - Combative, violent - Large pupils / light sensitivity - Tachycardic / Hypertension	- See Altered Mental Status differential - Hypoxia - Alcohol intoxication - Medication effect / overdose - Withdrawal syndromes - Depression - Bipolar (manic-depressive) - Schizophrenia, anxiety disorders, etc.



SPECIAL CONSIDERATIONS:

1. Excited delirium is an extreme disturbance of consciousness and mental status that occurs in individuals especially when under the influence of stimulants or anti-psychotic medications and it represents an acute **LIFE-THREATENING MEDICAL EMERGENCY**
 - a. Combination of delirium, psychomotor agitation, anxiety, hallucinations, speech disturbances, disorientation, violent / bizarre behavior, insensitivity to pain, hyperthermia and increased strength. Potentially life-threatening and associated with use of physical control measures, including physical restraints and Tasers
 - i. Need rapid take down, sedation, cooling measures and IV fluid replacement. These patients often suffer respiratory or cardiac arrest once subdued and should be closely monitored and transported by an ALS Unit to closest appropriate facility
 - b. Most commonly seen in male subjects with a history of serious mental illness and/or acute or chronic drug abuse, particularly stimulant drugs such as cocaine, crack cocaine, methamphetamine, amphetamines or similar agents
 - c. Alcohol withdrawal or head trauma may also contribute to the condition
2. Maintain objectivity during evaluation and treatment. Verbal aggression exhibited by patients can quickly escalate to physical violence. Always proceed with calm, reassuring directions for the patient. If a situation appears threatening, sufficient law enforcement presence may be necessary before patient restraint is attempted
 - a. If needing to take the patient down, at minimum, utilize (4) ems crew members / police officers to secure each limb
 - b. **If a patient suspected of excited delirium suffers cardiac arrest, consider a fluid bolus and sodium bicarbonate early**
3. Patients requiring physical restraint should be placed in the lateral recumbent position when possible. Consider your own safety and limitations when physical restraint is required.
 - a. Restrained patients should never be left unattended. Continue to evaluate effectiveness of restraints and any compromise that may be caused by the restraint process (i.e., airway, breathing, circulation)
 - b. Positional asphyxia – very large ventilation volumes are needed to oxygenate and blow off carbon dioxide overload. They should never be left prone or face down in handcuffs and should never be “hog-tied”
4. Do not overlook the possibility of associated domestic violence or abuse
5. Richmond Agitation-Sedation Scale

- a. Validated agitation-sedation scale from age 2 months and older
- b. Goal is for RASS between (0) to (-1)

Score	Term	Description
+ 4	Combative	Overtly combative or violent; immediate danger to staff
+ 3	Very agitated	Pulls on or removes tube(s) or catheter(s) or has aggressive behavior toward staff
+ 2	Agitated	Frequent nonpurposeful movement or patient–ventilator dyssynchrony
+ 1	Restless	Anxious or apprehensive but movements not aggressive or vigorous
0	Alert and Calm	Spontaneously pays attention to caregiver
- 1	Drowsy	Not fully alert, but has sustained (more than 10 seconds) awakening, with eye contact, to voice
- 2	Light Sedation	Briefly (less than 10 seconds) awakens with eye contact to voice
- 3	Moderate Sedation	Any movement (but no eye contact) to voice
- 4	Deep Sedation	No response to voice, but any movement to physical stimulation
- 5	Unarousable	No response to voice or physical stimulation

TAB 5 GUIDELINE 6
BRIEF RESOLVED UNEXPLAINED EVENT (BRUE)

1. Specific information needed
 - a. An episode in an infant or child less than (2) two years old which is frightening to the observer and is characterized by one or more of the following:
 - i. Apnea (central or obstructive)
 - ii. Skin color change: cyanosis, erythema (redness), pallor, plethora (fluid overload)
 - iii. Marked change in muscle tone
 - iv. Choking or gagging not associated with feeding or a witnessed foreign body aspiration
 - v. Seizure-like activity
2. Guideline
 - a. Safe scene, universal precautions
 - b. ABC (airway, breathing, circulation)
 - c. Establish responsiveness (A.V.P.U)
 - d. Check Vitals, Pulse Oximeter, Reassure patient
 - e. Check Blood Glucose Level
 - f. Oxygen by cannula or NRB Mask to keep pulse ox greater than 92% (may have to assist ventilation)
 - g. Attach cardiac monitor (monitor lead II); Identify rhythm and treat per guideline; Documentation of rhythm should be attached to run sheet
 - h. Consider establishing IV / IO with fluid. Administer 20 ml / kg fluid bolus if necessary.
 - i. Contact on-line MEDICAL CONTROL and transport accordingly

SPECIAL CONSIDERATIONS:

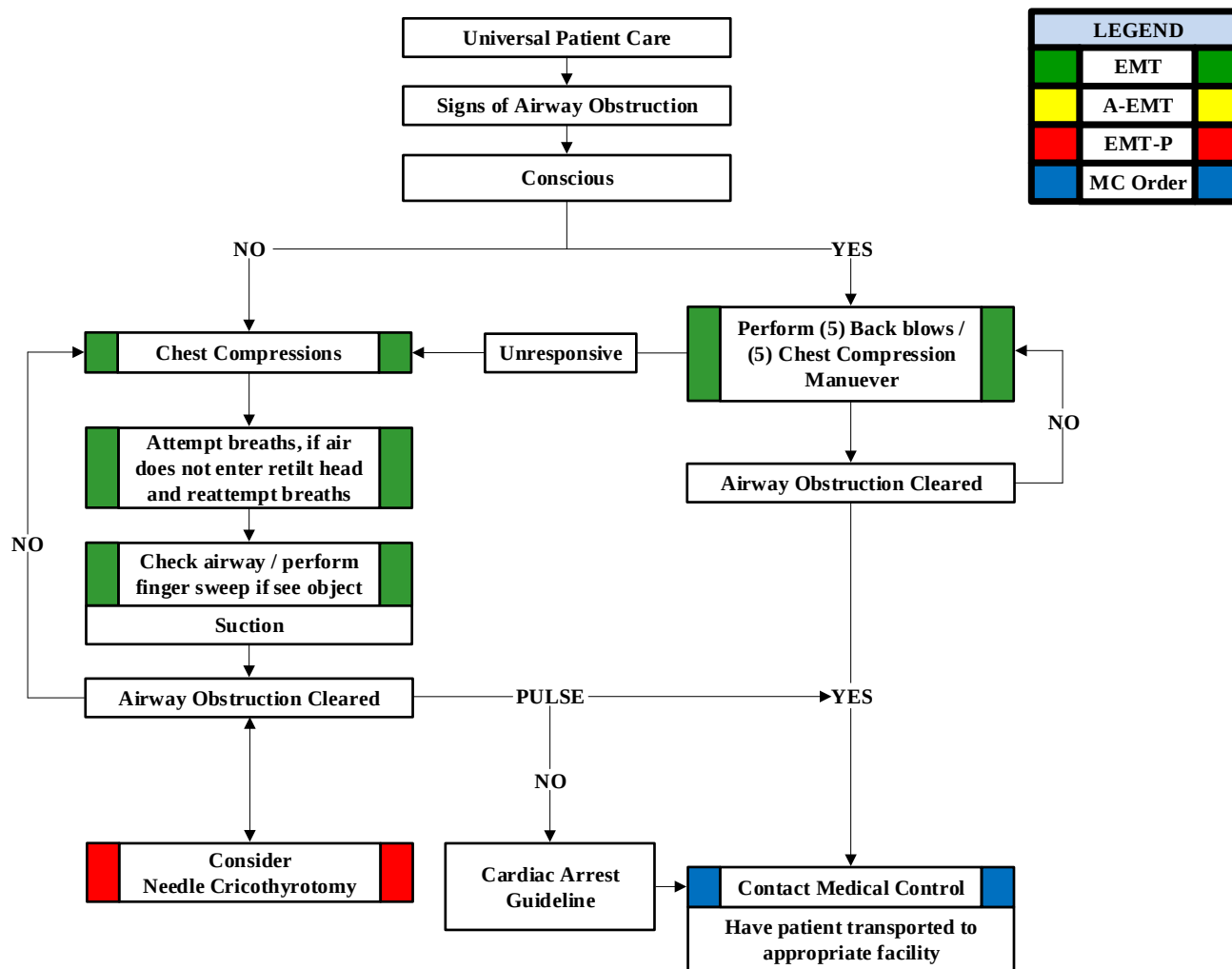
1. Most patients will appear stable and exhibit a normal physical examination. This episode may be a sign of an underlying serious illness or injury and further evaluation by medical staff is strongly recommended.
2. Provider must explain the potential risks of refusal to the caretaker on scene.
3. In the event that the legal guardian is not with the patient and transport is being refused, it is recommended that the legal guardian should be contacted
4. Always consider the possibility of abuse in these children

SPECIAL CONSIDERATIONS:

1. Use abdominal thrusts (the Heimlich maneuver) to relieve choking in children > 1 year of age. Give each individual thrust with the intent of relieving the obstruction. It may be necessary to repeat the thrust several times to clear the airway.
2. Choking victims initially may be responsive and then may become unresponsive. With a child choking victim who becomes unresponsive, open the airway, remove an object if you see it and begin CPR.
3. For a child victim, every time you open the airway to give breaths, open the victim's mouth wide and look for the object. If you see an object, remove it with your fingers. If you do not see an object, keep doing CPR.
4. You can tell you have successfully removed an airway obstruction in the unresponsive victim if you:
 - a. Feel air movement and see the chest rise when you give breaths
 - b. See and remove a foreign body from the victim's pharynx

TAB 5 GUIDELINE 8
FOREIGN BODY AIRWAY OBSTRUCTION – INFANT

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Events leading up to incident - Trauma - Aspiration - Medication - Allergic reaction	- Anxiety - No air movement - Unresponsive - Fever, “Hot potato” voice, drooling	- Foreign Body - Infection - Trauma - Laryngeal or tracheal fracture - Oropharyngeal laceration



LEGEND	
	EMT
	A-EMT
	EMT-P
	MC Order

Mild Airway Obstruction Signs	Severe Airway Obstruction Signs
- Good air exchange - Responsive and can cough forcefully - May wheeze between coughs	- Poor or no air exchange - Weak, ineffective cough or no cough at all - High-pitched noise while inhaling or no noise at all - Increased respiratory difficulty - Possible cyanosis (turning blue) - Unable to speak or move air - Clutching the neck with the thumb and fingers - Unresponsive

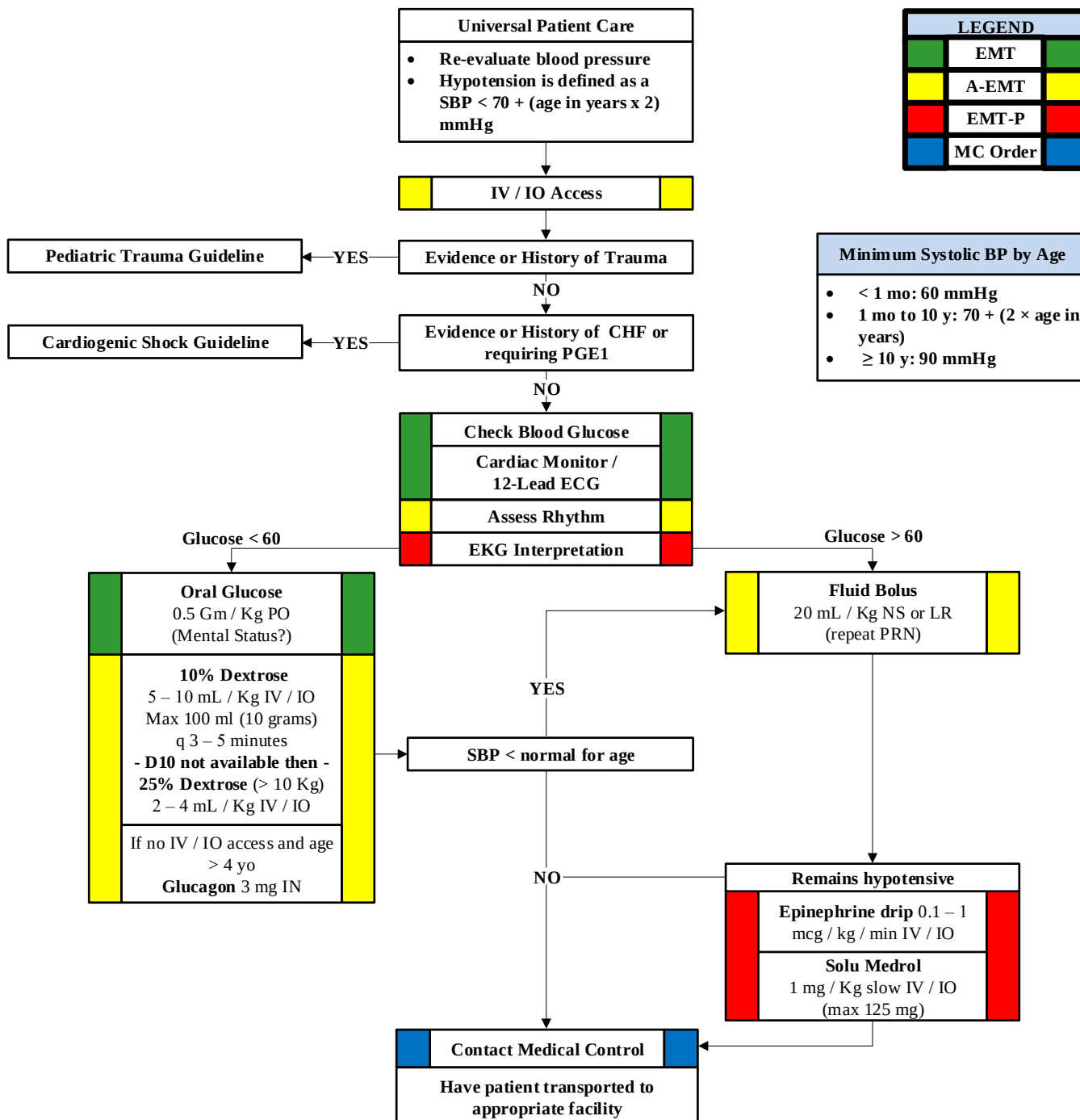
SPECIAL CONSIDERATIONS:

Clearing an object from an infant's airway requires a combination of back slaps and chest thrusts.

1. Do not perform blind finger sweeps in infants and children because the foreign body may be pushed back into the airway, causing further obstruction or injury.
2. If the victim becomes unresponsive, you will stop giving back slaps and will begin CPR. Chest compressions give effective pressure in the chest and may be able to relieve the obstruction.

TAB 5 GUIDELINE 9
HYPOTENSION (SHOCK)

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
< 16 years of age - Blood loss - Fluid loss - Vomiting - Diarrhea - Infection	- Restlessness, confusion, weakness - Dizziness - Increased HR, rapid pulse - Decreased BP - Pale, cool, clammy skin - Delayed capillary refill	- Trauma - Infection - Dehydration - Vomiting - Diarrhea - Fever - Congenital heart disease - Medication or Toxin



SPECIAL CONSIDERATIONS:

1. Dehydration Scale

Score	0	1	2
General	Normal	Thirsty, restless, sleepy, irritable	Drowsy, limp, cold, may comatose
Eye	Normal	Slightly sunken	Deeply sunken
Tongue	Moist	Sticky	Dry
Tears	Present	Decreased	Absent Tears

Score	
0	No Dehydration
1 – 4	Mild to Moderate Dehydration
5 – 8	Severe Dehydration

2. Maintenance fluid is calculated using the 4-2-1 rule

- a. 1st 10 kg of body weight x 4 ml
- b. 2nd 10 kg of body weight x 2 ml
- c. Remaining kg of body weight x 1 ml
- d. Example for 40 kg person
 - i. 10 kg x 4 ml = 40 ml
 - ii. 10 kg x 2 ml = 20 ml
 - iii. 20 kg x 1 ml = 20 ml
 - iv. Total maintenance fluid = 80 ml

SPECIAL CONSIDERATIONS:

1. General:

- a. Improve the care of patients with poisonings, and environmental/biochemical terrorism exposures in the pre-hospital setting. Provide for the most timely and appropriate level of care to the patient, including the decision to transport or treat on the scene
- b. If no immediate life threat or need for transport is identified, EMS personnel may conference the patient/caller with the Poison Center Specialist at the **Poison Control Center at 800-222-1222**.
 - i. The Poison Center Specialist at the State Poison Center will evaluate the exposure and make recommendations regarding the need for on-site treatment and/or hospital transport in a timely manner
 - ii. If the patient is determined to need EMS transport, the poison control center Specialist will contact the receiving hospital and provide information regarding the poisoning, including treatment recommendations. EMS may contact medical control for further instructions or to discuss transport options.
 - iii. If the patient is determined not to require EMS transport, personnel will give the phone number of the patient/caller to the Poison Control Center Specialist. The Specialist will initiate a minimum of one follow-up call to the patient/caller to determine the status of patient.
 - iv. Minimal information that should be obtained from the patient for the state poison center includes:

Name and age of patient	Substance(s) involved
Time of exposure	Any treatment given
Signs and symptoms	
 - v. Minimal information which should be provided to the State Poison Center for mass poisonings, including biochemical terrorism and HazMat, includes:

Substance(s) involved	Time exposure
Signs and symptoms	Any treatment given
- c. Do not induce vomiting for

• Hydrocarbons	• Strong Acids	• Strong Base Iodides
• Silver Nitrate	• Strychnine	• Who are not alert
- d. Do not neutralize acids with alkali or Do not neutralize alkali with acids
- e. Product labels and home kits may be misleading and dangerous

- f. All empty containers of ingested material should accompany patient to the hospital
- g. Do not rely on patient history of ingestion, especially in suicide attempts
- h. For blood glucose values < 60mg/dl, administer Dextrose (1-2mL/kg IV).
 - i. The following Dextrose concentrations and dosing are recommended:
 - 1. Pediatrics < 10 kg – Dextrose 10 % give 5 – 10 mL / Kg.
 - 2. Pediatrics > 10 kg – Dextrose 25 % give 2 – 4 mL / Kg.

2. Maximum drug dosages:

- a. Atropine = 2 mg / dose (minimum 0.1mg)
- b. Calcium Chloride = 1 Gram
- c. Glucagon = 1 mg
- d. Narcan = 2 mg
- e. Sodium Bicarbonate = 50 mEq

3. Overdose / Ingestion concerns:

- a. **Acetaminophen:** Initial presentation normal or nausea/vomiting. If not detected and treated, will cause irreversible liver failure
- b. **Anticholinergic:** Increased HR, increased temperature, dilated pupils, mental status changes
- c. **Aspirin:** Early signs consist of abdominal pain, vomiting ringing in the ears. Tachypnea and altered mental status may occur later. Renal dysfunction, liver failure, and or cerebral edema among other things can take place later
- d. **Cardiac Medications:** Dysrhythmias and mental status changes
- e. **Depressants:** Decreased HR, decreased BP, decreased temperature, decreased respirations, non-specific pupils
- f. **Insecticides:** Increased or decreased HR, increased secretions, nausea, vomiting, diarrhea, pinpoint pupils
- g. **Solvents:** Nausea, vomiting, and mental status changes
- h. **Stimulants:** Increased HR increased BP, increased temperature, dilated pupils, and seizures
- i. **Tricyclics:** 4 major areas of toxicity: seizures; dysrhythmias; hypotension; decreased mental status or coma; rapid progression from alert mental status to death

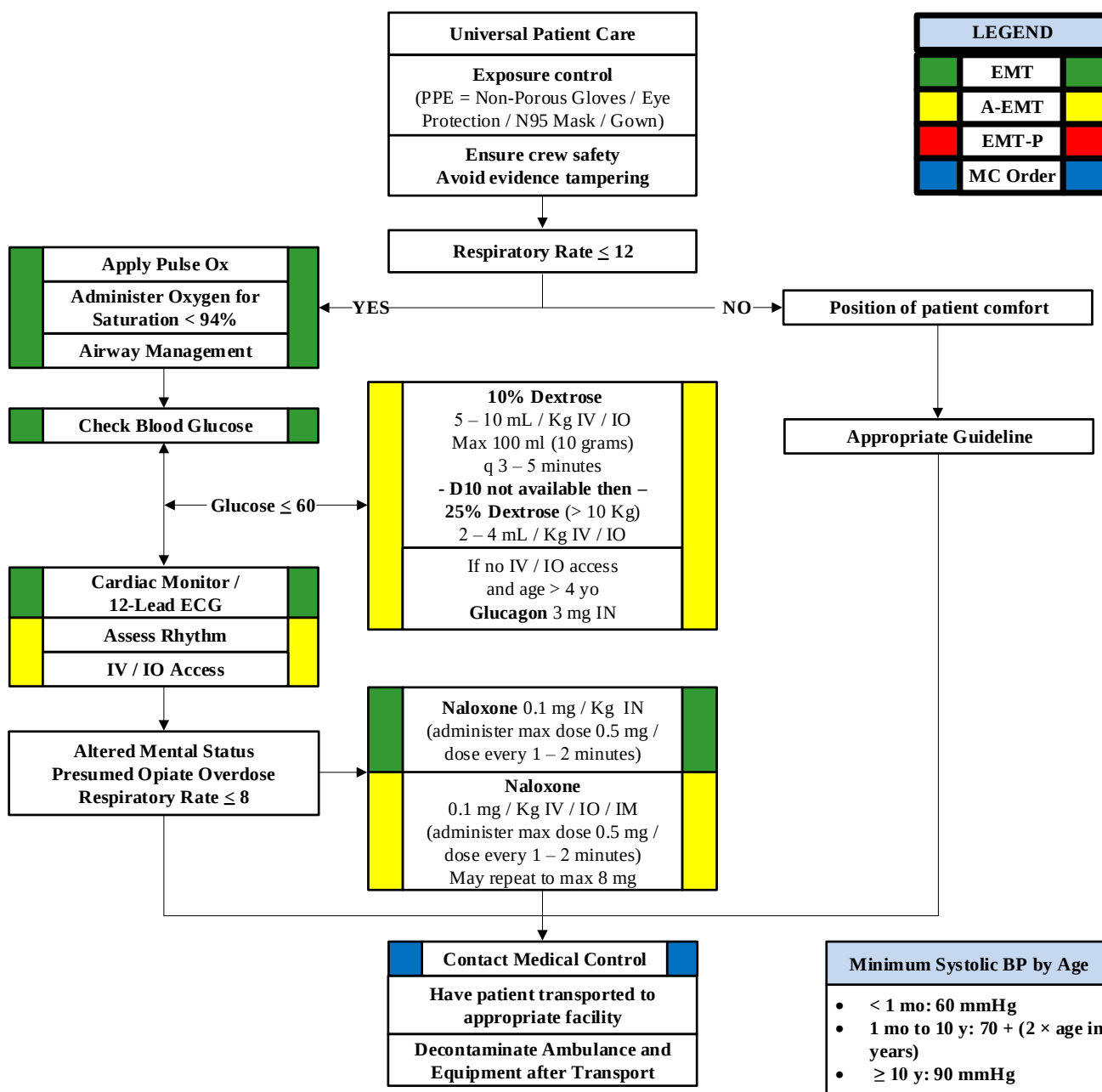
Condition	Treatment
Carbon Monoxide	- Carbon monoxide is produced from a variety of sources such as vehicles, gasoline engines, camp stoves, lanterns, burning charcoal and wood, gas ranges, heating systems and poorly vented chimneys. Structural fires are another common source of CO exposure. - Normal Carbon Monoxide Levels 1 – 2 % - Factors which may reduce the reliability of carbon monoxide readings: - Poor peripheral circulation (hypovolemia, hypotension, hypothermia). - Excessive sensor motion. - Fingernail polish (may be removed with fingernail polish remover). - Irregular heart rhythms (atrial fibrillation, SVT, etc.). - Jaundice. Consider transport to hospital with hyperbaric chamber for potential hyper oxygen therapy. Consult with On-Line Medical Control for diversion approval.
Cyanide	- Any smoke inhalation victim with mental status changes should also be treated for Cyanide Poisoning if medication is available, or if known exposure to Cyanide. Any patient or firefighter that goes into cardiac arrest after exposure to smoke from a fire. - Present history: when last well, progression of present state, prior symptoms such as increase in respirations, convulsions, coma. - Check for bottles and read ingredient label. If patient is in an industrial setting, ask if they use Cyanide. - Principal manifestations of poisoning with these compounds are rapid respirations, blood pressure fall, convulsions and coma; may also cause lightheadedness, vomiting, flushing, headache, drowsiness, hypotension, rapid pulse and unconsciousness. - Check for odor of “BITTER ALMONDS”. Alternative therapy includes Hydroxocobalamin (70 mg / kg not to exceed a single dose of 5 grams in 200 ml NS / D5W). Administered over 5 minutes.

Hydrofluoric Acid	• Skin exposure - 2.5% Calcium Gluconate gel applied to affected area, may be reapplied every 10-15 minutes. • Inhalation exposure - 2.5% Calcium Gluconate may be administered by aerosol. • Eye exposure - 1% Calcium Gluconate continuous irrigation. • EMT or Advanced EMT should continue the therapy initiated by previous EMS providers in regards to dermal or inhalation therapy of Calcium Gluconate.
Nerve Agent Exposure / Organophosphate Poisoning	• Symptoms • S.L.U.D.G.E: Salivation, Lacrimation, Urination, Defecation, GI distress, Emesis • D.U.M.B.B.E.L.S: Diarrhea, Urination, Miosis, Bradycardia, Bronchorrhea, Emesis, Lacrimation, Salivation • Mild symptoms: • 1 Duodote • Atropine 1mg IVP every 15 min until heart rate reaches 180 • Moderate: Unable to ambulate but still conscious • 1 Duodote • Atropine 2mg IVP every 15min until heart rate reaches 180 • Severe: Unconscious / seizures • 3 Duodote • Atropine 5mg IVP every 15min until heart rate reaches 180 Do not administer more than three (3) DuoDote Auto-Injectors or three (3) Mark 1 Kits unless definitive medical care is available. The limit of 3 doses is specific to the pralidoxime component of the DuoDote and Mark 1 Kit. If necessary, additional doses of atropine can be administered if the 3 doses of DuoDote or Mark 1 Kit injections do not produce an adequate response.

TAB 5 GUIDELINE 11

POISONING | OVERDOSE | OPIATE

HISTORY	SIGNS / SYMPTOMS	ENVIRONMENT
- What type of ingestion - When did ingestion occur - How Much - Reason for ingestion - Actions of bystanders - Previous psychiatric disorders - Diseases / Medications: ie depressants - Medical alert tags	- Increased salivation - Soot or burns in mouth - Irritation of the eyes - Sweating and skin burns - Decreased respiratory rate - Lung findings (ie edema) - Delayed capillary refill - Tachycardia / Arrhythmias - Seizures	- Acetaminophen - Anticholinergic - Aspirin - Cardiac medications - Insecticides (organophosphates) - Solvents, alcohols, cleaning agents - Stimulants



LEGEND		
	EMT	
	A-EMT	
	EMT-P	
	MC Order	

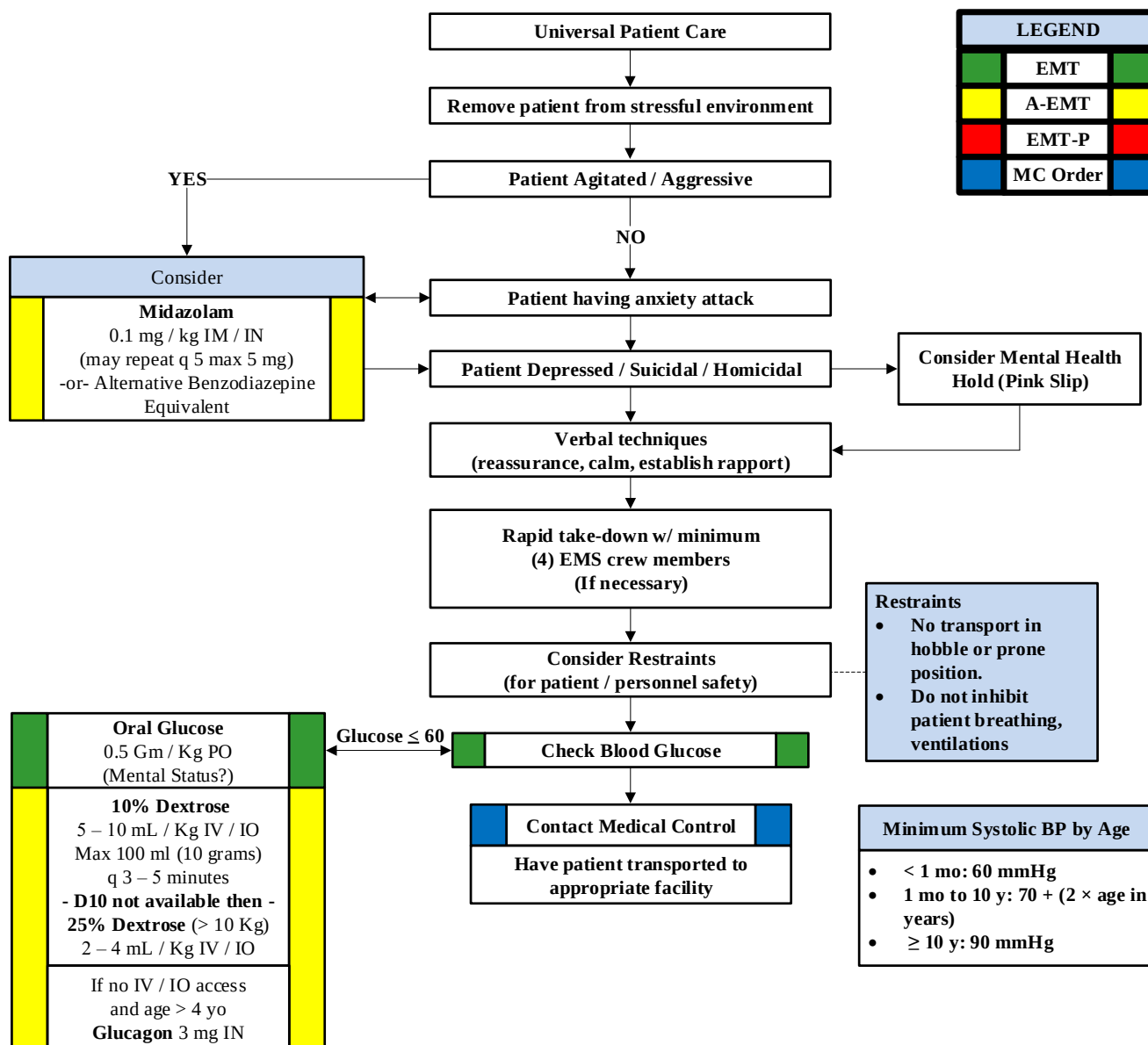
SPECIAL CONSIDERATIONS:

1. The main focus for treatment is to ensure proper respiratory and oxygen saturation status. The goal is “**NOT TO WAKE**” the patient up, but to ensure adequate oxygenation and ventilation. Naloxone administration should be at no more than 0.5 mg aliquots every 1 – 2 minutes. While naloxone is being administered ensure that proper ventilation is being performed with bag-valve mask and oxygen
2. All suspected patients with opiate overdose should be handled using non-porous type gloves (nitrile style, non-latex) and eye protection. Consider wearing N-95 mask and gowns for any patient that has visible powder on body, or if there is visible powder in patient care area
3. All pediatric patients with suspected opiate overdose **MUST BE** transported for continued monitoring and medical
4. Vehicle and Equipment Decontamination
 - a. Any concern for opiate contamination within the vehicle or on the equipment should be cleaned using N95 mask with non-porous type gloves (nitrile style, non-latex) and eye protection
 - b. Spill Clean Up Instructions
 - i. Wear appropriate PPE
 - ii. Add one teaspoon full of powder OxiClean™ to 500 mL water
 - iii. Shake gently until all powder is in solution
 - iv. Completely cover spill with spray
 - v. Within 15 minutes, scrub with a paper towel until dry (solution evaporates over time and this decreases the effectiveness of decontamination)
 - vi. All PPE (except goggles) and paper towels must be disposed of in a biohazardous waste bin

TAB 5 GUIDELINE 12

PSYCHIATRIC PATIENT

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Situational crisis - Psychiatric illness / medications - Injury to self or threats to others - Medic alert tag - Substance abuse / overdose - Diabetes	- Anxiety, agitation, confusion - Affect change, hallucinations - Delusional thoughts, bizarre behavior - Expression of suicidal / homicidal thoughts - Poor concentration, easily distracted, psychosis - Combative, violent	- See Altered Mental Status differential - Hypoxia - Alcohol intoxication - Medication effect / overdose - Withdrawal syndromes - Depression - Bipolar (manic-depressive) - Schizophrenia, anxiety disorders, etc.



SPECIAL CONSIDERATIONS:

1. Richmond Agitation-Sedation Scale

- a. Validated agitation-sedation scale from age 2 months and older
- b. Goal is for RASS between (0) to (-1)

Score	Term	Description
+ 4	Combative	Overtly combative or violent; immediate danger to staff
+ 3	Very agitated	Pulls on or removes tube(s) or catheter(s) or has aggressive behavior toward staff
+ 2	Agitated	Frequent nonpurposeful movement or patient–ventilator dyssynchrony
+ 1	Restless	Anxious or apprehensive but movements not aggressive or vigorous
0	Alert and Calm	Spontaneously pays attention to caregiver
- 1	Drowsy	Not fully alert, but has sustained (more than 10 seconds) awakening, with eye contact, to voice
- 2	Light Sedation	Briefly (less than 10 seconds) awakens with eye contact to voice
- 3	Moderate Sedation	Any movement (but no eye contact) to voice
- 4	Deep Sedation	No response to voice, but any movement to physical stimulation
- 5	Unarousable	No response to voice or physical stimulation

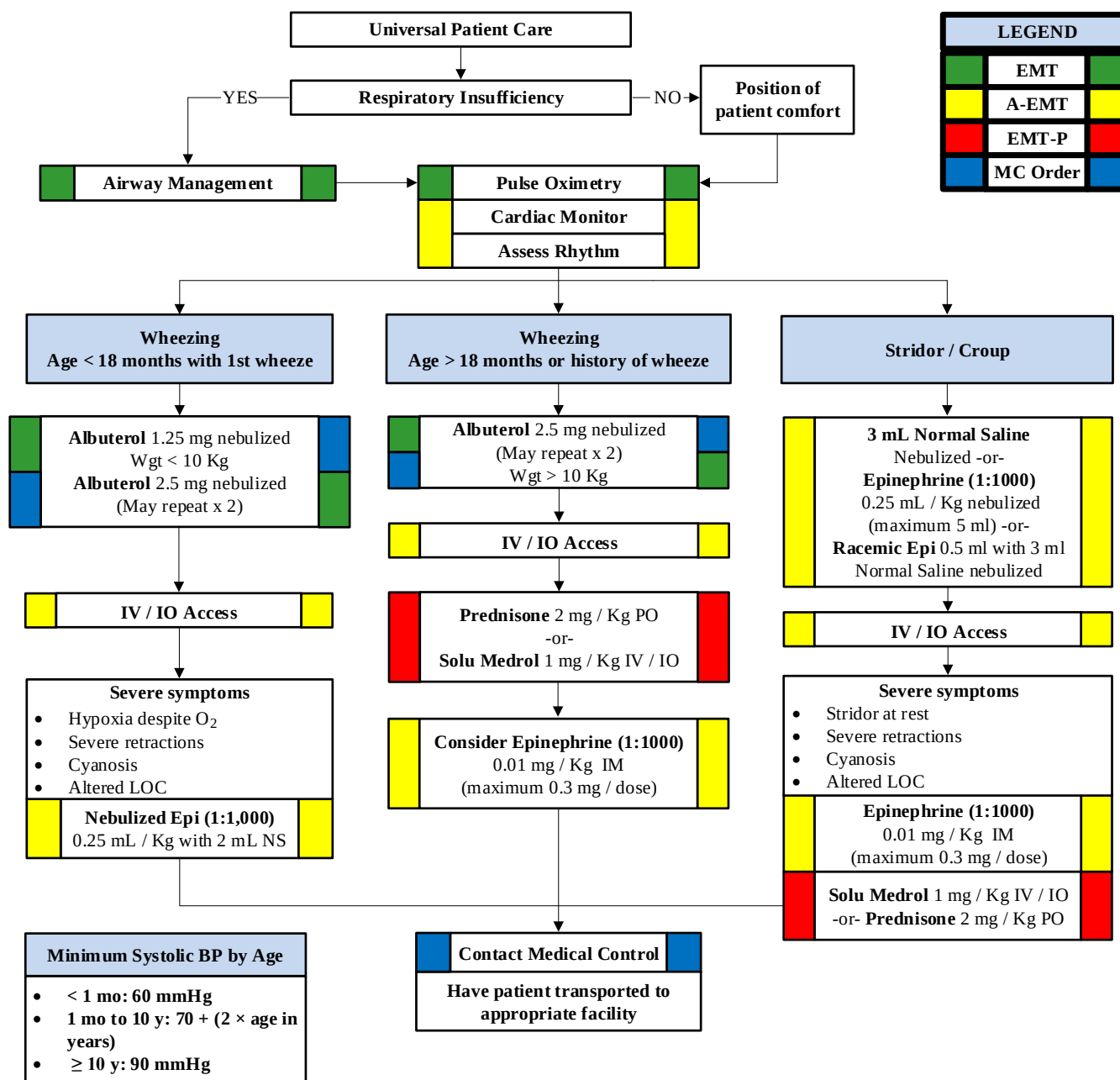
2. Mental Health Holds (Pink Slip)

- a. If a patient has an isolated mental health complaint (e.g. suicidality) and does not have a medical complaint or need specific medical intervention, then that patient may be appropriately transported by law enforcement according to their guidelines.
- b. If a patient has a psychiatric complaint with associated illness or injury (e.g. overdose, altered mental status, chest pain, etc), then the patient should be transported by EMS
- c. If a patient with a psychiatric complaint is intoxicated or otherwise lacks decision making capacity for any other reason, than no Mental Health Hold is needed, and such a patient should be brought to an emergency department for evaluation and stabilization with implied consent.
- d. If EMS is called to evaluate a patient with an isolated psychiatric complaint who is not intoxicated, or otherwise lacking decision-making capacity, and who refuses treatment or transport, and law enforcement are not willing to transport patient, then EMS should contact **MEDICAL CONTROL**.

- i. If there is a reasonable concern for suicidal or homicidal ideation, or grave disability from another mental health condition, then **MEDICAL CONTROL** may give a verbal order placing the patient on a Mental Health Hold and direct EMS personnel to transport the patient against his or her will in accordance with State of Ohio statutes.
 - ii. The physician's name, and time and date of the Mental Health Hold must be recorded on the PCR. Effort should be made to obtain consent for transport from the patient, and to preserve the patient's dignity throughout the process.
- e. A patient being transported on a Mental Health Hold may be transported to any appropriate receiving emergency department

TAB 5 GUIDELINE 13
RESPIRATORY DISTRESS

HISTORY	SIGNS/ SYMPTOMS	DIFFERENTIAL
< 16 years of age - Time of onset - Possibility of foreign body - Medical history - Medications - Fever or respiratory infection - Other sick siblings - History of trauma	- Wheezing or stridor - Respiratory retractions - Increased heart rate - Altered level of consciousness - Anxious appearance	- Asthma - Aspiration - Foreign body - Infection - Pneumonia - Croup - Epiglottitis - Congenital heart disease - Medication or toxin - Trauma



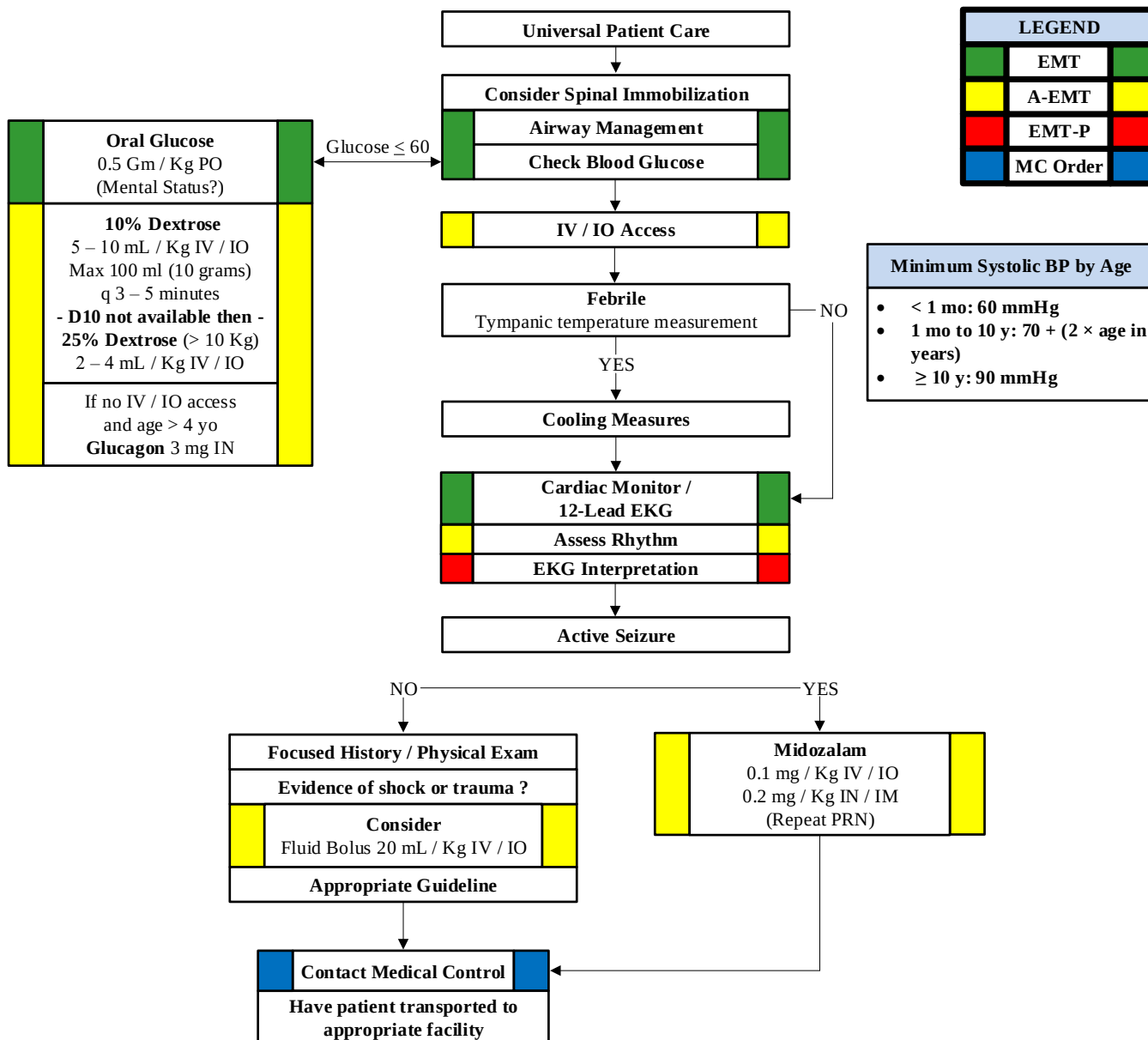
SPECIAL CONSIDERATIONS:

1. Do not force a child into a position. They will protect their airway by their body position
2. Upper airway obstruction and stridor are usually due to croup, viral disease with inflammation, edema, or narrowing of the larynx, trachea or bronchioles. Croup usually affects infants and toddlers (< 2 years of age). Most children with croup present with a history of cold-type symptoms followed by the development of a barking or “seal” cough, stridor and various levels of respiratory distress
3. Wheezing is the hallmark of lower airway obstruction. Decreased unequal or absent breath sounds also can occur. The respiratory rate is generally rapid (although when expiration becomes prolonged, the rate may fall). Bronchiolitis, asthma, and foreign body obstruction should be strongly considered. Bronchiolitis is a lower airway obstruction from viral illness with wheezing in the toddler or infant under the age of 2 years
4. With respiratory distress of sudden onset, think of foreign body airway aspiration. The mouth is a major sensory organ for children. The paramedic must anticipate infants and children placing a multitude of obstructive hazards in their airway
5. Total airway obstructions that cannot be cleared by conventional methods may require surgical needle cricothyrotomy in emergency situations
6. Epiglottitis typically affects children > 2 years of age. It is bacterial, with fever, rapid onset, possible stridor, patient wants to sit up to keep airway open, and drooling is common. Airway manipulation and patient agitation may lead to total airway obstruction and worsening of the patient’s condition. IV attempts, which may increase patient agitation, are strongly discouraged.
7. If children with croup, Epiglottitis or laryngeal edema present in respiratory arrest, it is usually due to exhaustion or airway obstruction. Ventilation by bag-valve mask may be difficult due to airway edema. Epiglottitis and croup can become total airway obstructions very quickly

TAB 5 GUIDELINE 14

SEIZURE

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Fever - Prior history of seizures - Seizure medications - Reported seizure activity - History of recent head trauma - Congenital abnormality	- Observed seizure activity - Altered mental status - Hot, dry skin or elevated body temperature	- Infection / Fever - Head trauma - Medication or toxin - Hypoxia or respiratory failure - Hypoglycemia - Metabolic abnormality / acidosis - Tumor



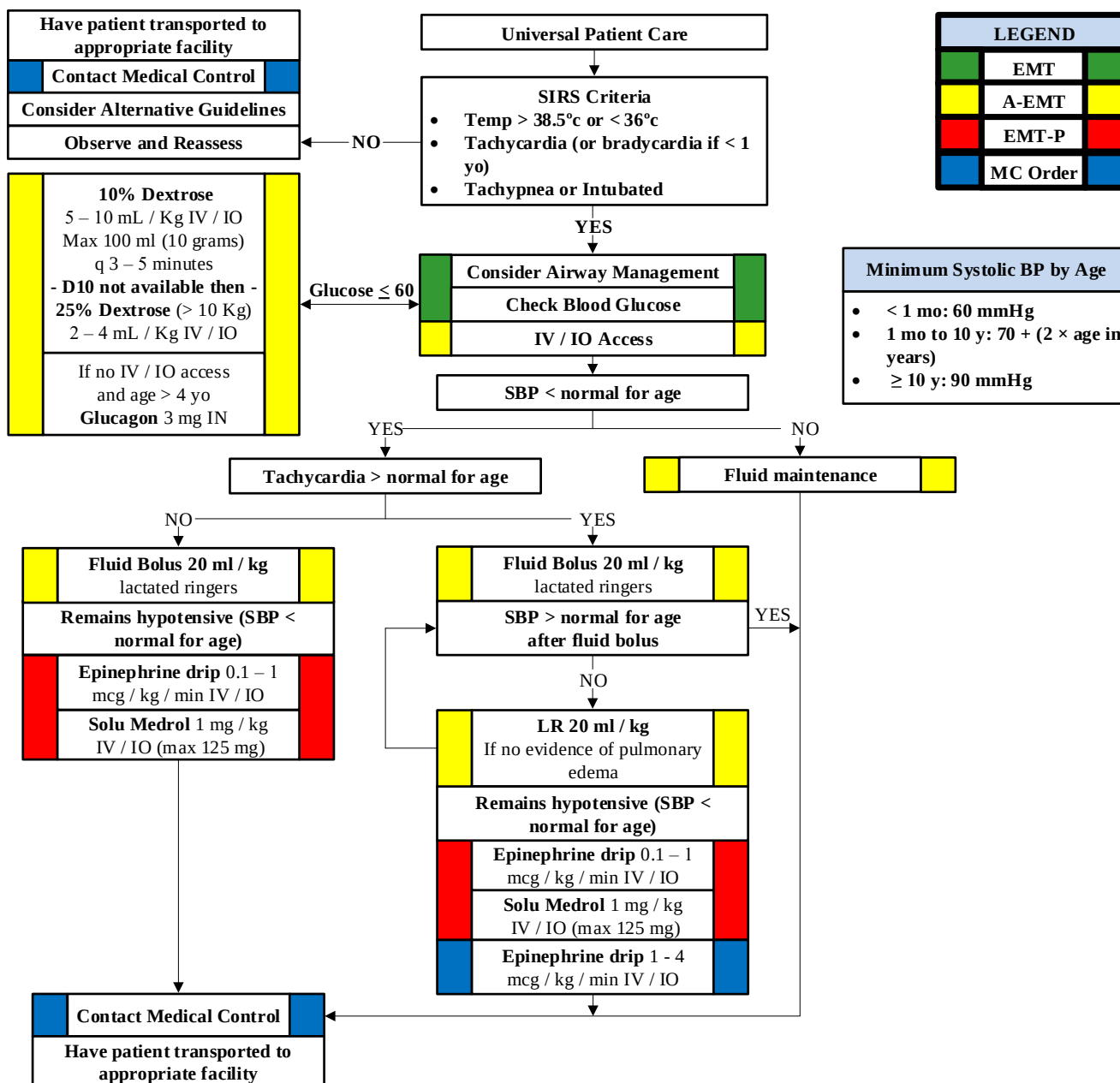
SPECIAL CONSIDERATIONS:

1. If actively seizing patient is encountered, move hazardous material away from the patient. Protect the patient's head from injury. Remember to always immediately check for pulses after seizure activity stops.
2. Trauma to the tongue during seizure activity is unlikely to cause serious problems. Attempt to force anything into the patient's airway may cause complete obstruction.
3. If febrile, remove clothing and sponge with room temperature water. Do not delay transport for cooling measures. Removal of clothing may be all that is necessary.
4. Unlike the adult with a diagnosis of Epilepsy, a child who has had a seizure usually requires transport. Do not be falsely reassured by a child who appears to return to normal status quickly.
5. Seizures in children may not always present tonic-clonic (generalized) in nature. Unusual gaze/eye movement, unresponsiveness, or localized twitching may be the only clue. Parents or caregivers are usually very sensitive to the abnormality and potential seriousness of the child's presentation.
6. The diagnosis of "febrile seizures" can be difficult to make in the field. Other causes must be excluded. Temperature measurements (tympanic thermometer) should be acquired with suspicion of fever.
7. **Status epilepticus** is defined as two or more successive seizures without a period of consciousness or recovery. This is a true emergency requiring rapid airway control, treatment, and transport. **Grand Mal seizures (generalized)** are associated with loss of consciousness, incontinence, and tongue trauma. **Focal seizures (petit mal)** effect only a part of the body and are not usually associated with a loss of consciousness. **Jacksonian seizures** are seizures that start as a focal seizure and become generalized.
8. If evidence or suspicion of trauma, full c-spine immobilization is required.
9. The following Dextrose concentrations and dosing are recommended:
 - a. Pediatrics < 10 kg – Dextrose 10 % give 5 – 10 mL / Kg
 - b. Pediatrics > 10 kg – Dextrose 25 % give 2 – 4 mL / Kg

TAB 5 GUIDELINE 15

SEPSIS

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Fever - Infection - Medications - Pregnancy - Fluid loss - vomiting, diarrhea - History of poor oral intake	- Fever - Restlessness, confusion - Weakness, dizziness - Weak, rapid pulse - Pale, cool, clammy skin - Delayed capillary refill - Hypotension	- Shock - Hypovolemia - Cardiogenic - Septic - Neurogenic - Anaphylactic - Bacterial, viral or fungal infection



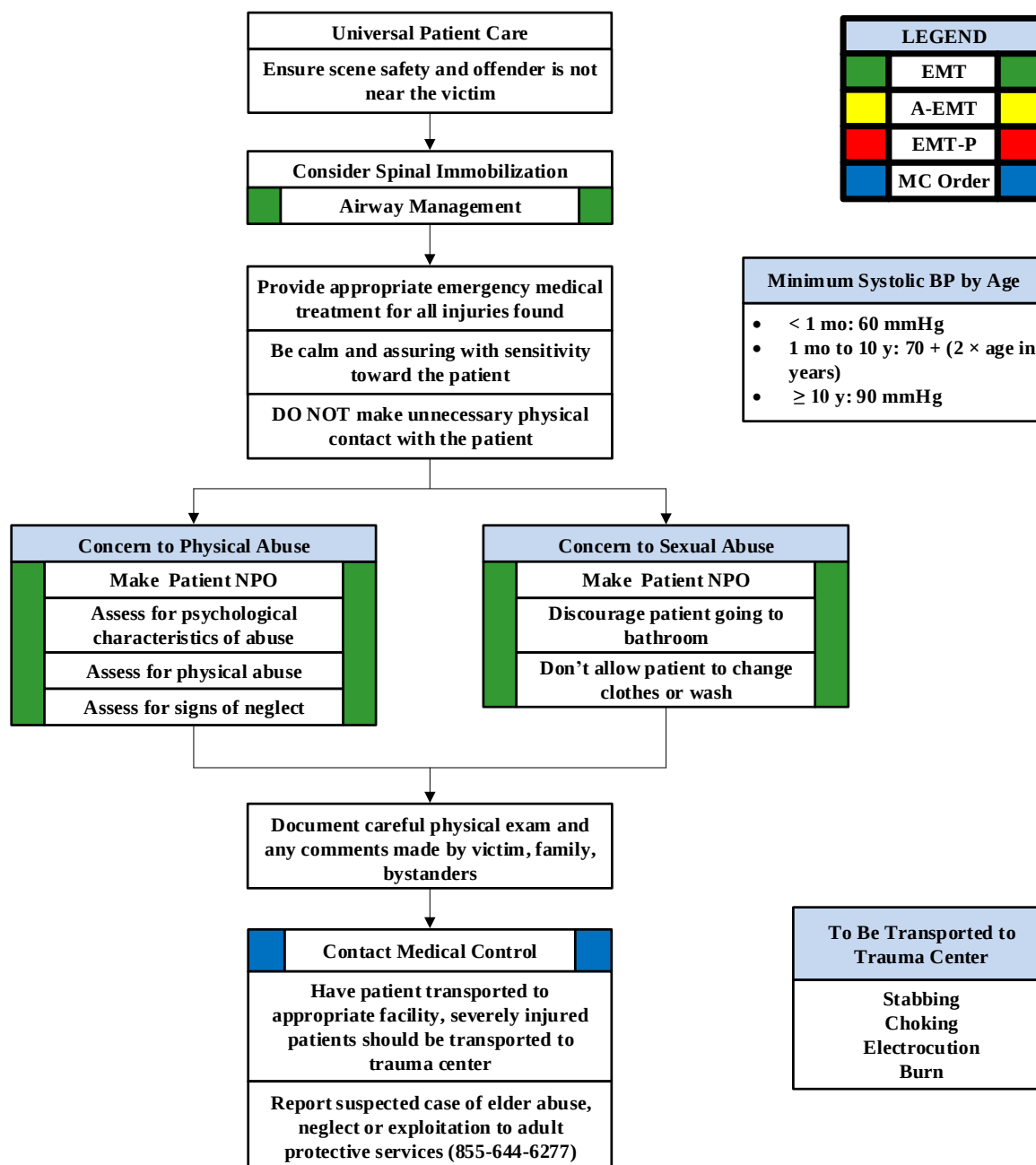
SPECIAL CONSIDERATIONS:

1. Sepsis is a vasodilatory shock. Patients have relative volume depletion. Aggressive fluid resuscitation is the mainstay of treatment.
2. Acute sepsis management should be initiated as soon as possible and completed within 6 hours. If patient is > 6 hours from presentation contact medical control for direction.
3. Patients with sepsis require aggressive therapy including IV fluids (lactated ringer is the fluid of choice), antibiotic administration and if necessary, vasopressors and airway management.
4. Patient should receive at minimum 20 ml / kg fluid bolus before initiation of vasopressors.
5. **Maintenance fluid is calculated using the 4-2-1 rule**
 - a. 1st 10 kg of body weight x 4 ml
 - b. 2nd 10 kg of body weight x 2 ml
 - c. Remaining kg of body weight x 1 ml
 - d. Example for 80 kg person
 - i. 10 kg x 4 ml = 40 ml
 - ii. 10 kg x 2 ml = 20 ml
 - iii. 60 kg x 1 ml = 60 ml
 - iv. Total maintenance fluid = 120 ml
6. Epinephrine
 - a. Drip
 - i. Mix 1 mg epinephrine (1:10,000 or 1:1000 concentration) in 250 ml bag normal saline or D5W to give 4:1 concentration, mix in 500 ml bag normal saline or D5W to give 2:1 concentration. Titrate 0.01 – 1 mcg /kg / min.

TAB 5 GUIDELINE 16

SUSPECTED ABUSE | NEGLECT

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Events leading up to call - Has individual gone to the bathroom, showered - History of trauma	- Bruising to extremities - Vaginal injury - Withdrawal from caregiver / EMS provider	- Sexual abuse - Neglect - Traumatic injuries



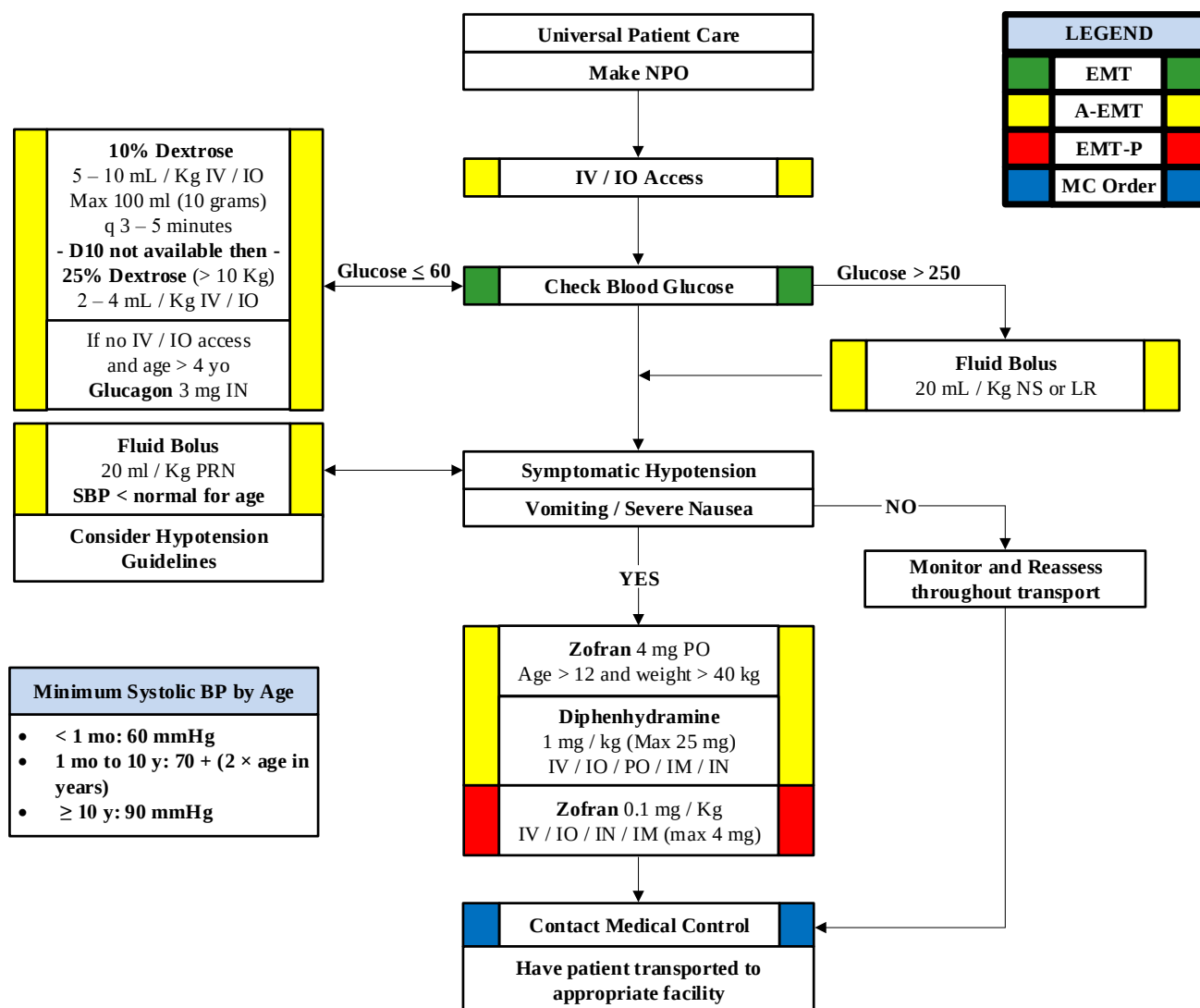
SPECIAL CONSIDERATIONS:

1. Reporting concern of abuse, neglect or exploitation
 - a. Per Ohio Revised Codes (ORC) 2151.421 and 5101.61 EMS and Fire personnel are **REQUIRED** to report abuse, neglect or exploitation of adult (elderly) or child (under the age of 18)
 - b. Report suspected child abuse, neglect or exploitation to Ohio's Public Children Service Agencies for your respective county or free hotline at 855-642-4453
 - c. Report suspected elderly abuse, neglect or exploitation to Ohio's Adult Protective Services for your respective county or free hotline at 855-644-6277
2. If possible, have a witness the same gender as the victim present at all times
3. Wrap a plastic sheet around the victim if possible
4. DO NOT inspect genitals unless evidence of uncontrolled hemorrhage, trauma, or severe pain is present
5. DO NOT allow patient to shower or douche
6. Collect patient's clothing when possible
 - a. Place clothing in plastic sheet or separate plastic/paper bags with ID labels and found location
 - b. Leave all sheets placed in plastic/paper bag with patient at facility
 - c. Notify all staff of clothing samples

TAB 5 GUIDELINE 17

VOMITING AND DIARRHEA

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Age < 16 - Time of last meal - Last bowel movement/emesis - Improvement or worsening with food or activity - Duration of problem - Other sick contacts - Past medical history - Medications - Menstrual history (pregnancy) - Travel history - Bloody emesis / diarrhea	- Pain - Character of pain - Distention - Constipation - Diarrhea - Anorexia - Radiation Associated symptoms: (Helpful to localize source) Fever, headache, blurred vision, weakness, malaise, cough, headache, dysuria, mental status changes, rash	- CNS - Myocardial infarction - Drugs (NSAID's, antibiotics, narcotics, chemotherapy) - GI or renal disorders - Diabetic ketoacidosis - Gynecologic disease - Infections (pneumonia, influenza) - Electrolyte abnormalities - food or toxin induced - Medication or substance abuse - Pregnancy - Psychological



SPECIAL CONSIDERATIONS:

1. Complete assessment and physical exam including evaluation of mental status, skin, HEENT, neck, heart, lungs, abdomen, back, extremities and neuro.
2. Frequent re-assessments are needed to monitor vascular status.
3. For severe nausea and/or vomiting administer Zofran 0.1mg / Kg not to exceed 4 mg.
4. The following Dextrose concentrations and dosing are recommended:
 - a. Pediatrics < 10 kg – Dextrose 10 % give 5 – 10 mL / Kg
 - b. Pediatrics > 10 kg – Dextrose 25 % give 2 – 4 mL / Kg

TAB 5 GUIDELINE 18

CHILDREN WITH SPECIAL HEALTHCARE NEEDS

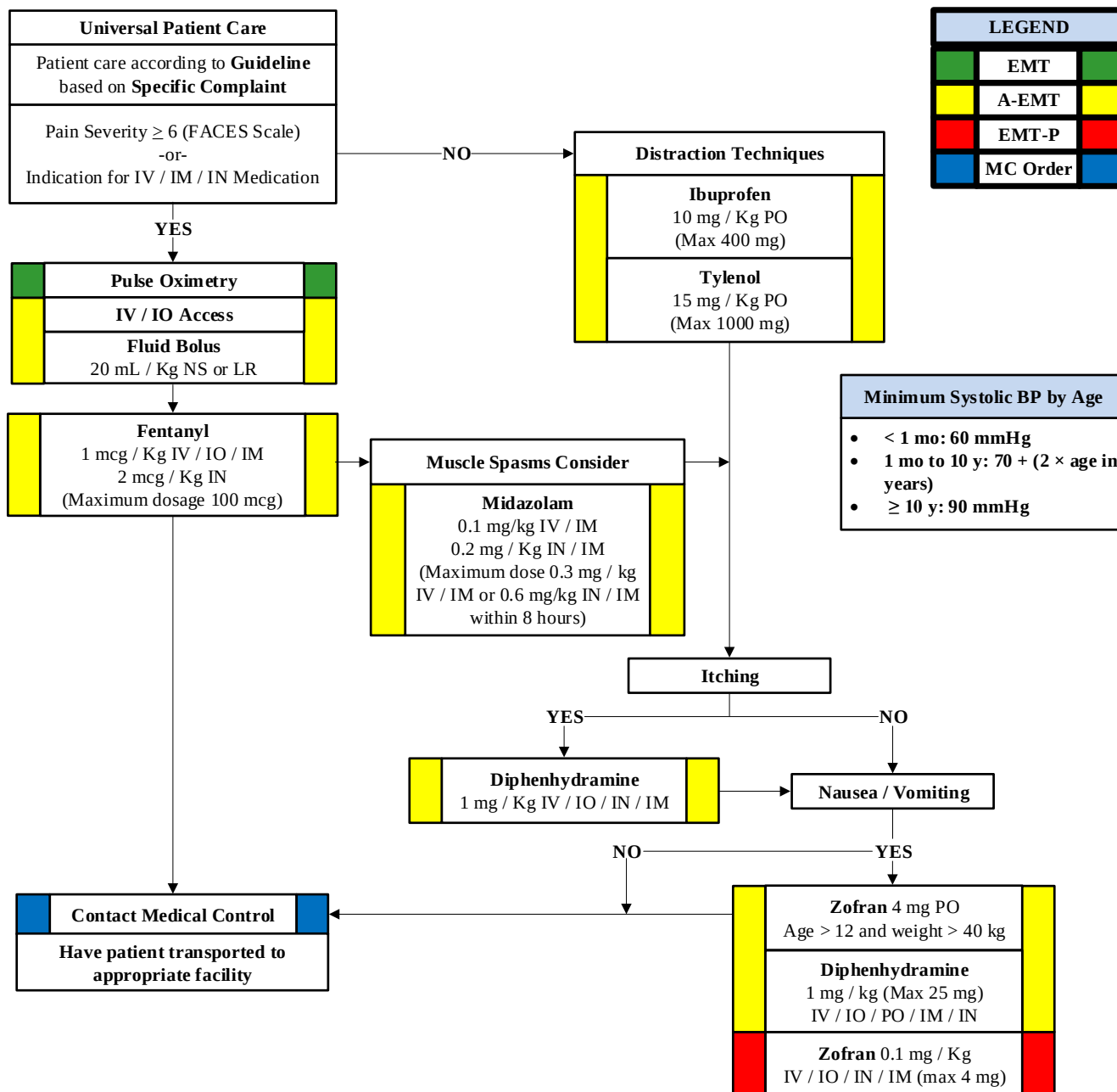
1. EMS providers are encouraged to know which children in a given area have special needs and to keep a logbook for potential problems related to these children.
 - This will allow for easier reference and treatment for the patient.
2. Parents and caretakers are usually trained in emergency management and can be of assistance to EMS personnel. Listen carefully to the caregiver and follow his / her guidance regarding the child's treatment.
3. Treat the ABC's first. Treat the child, not the equipment. If the emergency is due to an equipment malfunction, manage the child appropriately using your own equipment.
4. Children formerly cared for in hospitals or chronic care facilities are often cared for in homes by parents or other caretakers. These children may have self-limiting or chronic diseases.
 - There are multitudes of underlying medical conditions that may categorize children as having special needs.
 - Many are often unstable and may frequently involve the EMS system for evaluation, stabilization, and transport.
 - Special needs children include technology-assisted children such as those with tracheostomy tubes with or without assisted ventilation, children with gastrostomy tubes, and children with indwelling central lines. The most serious complications are related to tracheostomy problems.
5. Children with Special Healthcare Needs (CSHCN) have many allergies.
 - Children with spina bifida are often allergic to latex. Before treating a patient, ask the caregivers if the children are allergic to latex or have any other allergies. Stock latex-free equipment. (Some regularly used equipment that contains latex includes gloves, oxygen masks, IV tubing BVM, blood pressure cuff, IV catheters, etc.)
6. Children with chronic illnesses often have different physical development from well children.
 - Their baseline vital signs may differ from normal standards. Ask the caregiver if the child normally has abnormal vital signs. (i.e. a fast heart rate or a low pulse oximeter reading)
 - The size and developmental level may be different from age-based norms and length-based tapes used to calculate drug dosages.
7. Some CSHCN may have sensory deficits (i.e. they may be hearing impaired or blind) yet may have age-appropriate cognitive abilities. Follow the caregivers' lead in talking to and comforting a child during treatment and transport. Do not assume that a CSHCN is developmentally delayed.

8. When moving a special needs child, a slow careful transfer with two or more people is preferable. Do not try to straighten or unnecessarily manipulate contracted extremities as it may cause injury or pain to the child. Certain medical conditions will require special care. Again, consult the child's caregiver.
9. Caregivers of CSHCN often carry "go bags" or diaper bags that contain supplies to use with the child's medical technologies and additional equipment such as extra tracheostomy tubes, adapters for feeding tubes, suction catheters, etc. Before leaving the scene, ask the caregivers if they have a "go bag" and carry it with you.
10. Caregivers may also carry a brief medical information form or card. The child may be enrolled in a medical alert program whereby emergency personnel can get quick access to the child's medical history. Ask the caregivers if they have an emergency information form or some other form of medical information for their child.
11. Caregivers of CSHCN often prefer that their child be transported to the hospital where the child is regularly followed or the "home" hospital. When making the decision as to where to transport a CSHCN, take into account: local protocols, the child's condition, capabilities of the local hospital, caregivers' request, ability to transport to certain locations.

TAB 5 GUIDELINE 19

PEDIATRIC PAIN CONTROL GUIDELINE

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
< 16 years of age - Location - Duration - Severity (1-10) - Past medical history - Medications - Drug allergies	- Severity (pain scale) - Quality (sharp, dull, etc) - Radiation - Relation to movement, respiration - Increased with palpation of area	- Per specific protocol - Musculoskeletal - Visceral (abdominal) - cardiac - Pleural / Respiratory - Neurogenic - Renal (colic)



SPECIAL CONSIDERATIONS:

1. This guideline will be utilized without MEDICAL CONTROL orders for pediatric patients under the age of 16 years for treatment of pain from isolated extremity fractures, dislocations, burns and treatment of cancer related pain. Appropriate documentation and signed releases are required for treat and release situations. PO medications with minimal oral fluids only if surgical / sedation procedures should be necessary for definitive care.
2. Guideline for safe use of analgesics:
 - a. Be aware of the effects of combining drugs: Adding one CNS depressant or hemodynamic depressant to another can create unpredictable changes.
 - b. Don't forget about medication allergies: Adding IV analgesics on top of recently taken oral sedatives, analgesics or muscle relaxants may cause unpredictable additive effects as well.
 - c. Know your pain management goal: Your goal may actually be different for different types of patients (Reduction of pain vs. removal of pain).
 - d. Give a complete report to ED staff: Drugs given, time, results, and adverse effects.
3. Pain medications:
 - a. Fentanyl 1 mcg / kg IV / IM (Max 50 mcg on first dose), may repeat 0.5 mcg / kg IV times one (1) additional dose after ten (10) minutes.
 - b. Fentanyl 2 mcg / kg (Max 50 mcg on first dose) split between each nostril via Nasal-Mucosal Atomizer Device. May repeat in ten (10) minutes. If vitals are stable
 - c. If fentanyl is not available:
 - i. Morphine 0.1 mg / kg IV q 15 minutes prn pain. (Maximum 10 mg)
4. Pain scores can be quantified with the
 - a. Wong-Baker Faces Pain Scale
 - i. Designed for children aged 3 years and older)



b. FLACC Scale

- i. Designed for children mild to severe cognitive impairment and in pre-verbal children including infants
- ii. Gives a 0 – 10 based score

CATEGORIES	SCORING		
	0	1	2
FACE	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested	Frequent to constant quivering chin, clenched jaw
LEGS	Normal position or relaxed	Uneasy, restless, tense	Kicking, or legs drawn up
ACTIVITY	Lying quietly, normal position, moves easily	Squirming, shifting back and forth, tense	Arched, rigid or jerking
CRY	No cry (awake or asleep)	Moans or whimpers, occasional complaint	Crying steadily, screams or sobs, frequent complaints
CONSOLABILITY	Content, relaxed	Reassured by occasional touching, hugging or being talked to, distractible	Difficulty to console or comfort

TAB 6

ENVIRONMENTAL |

EXPOSURE

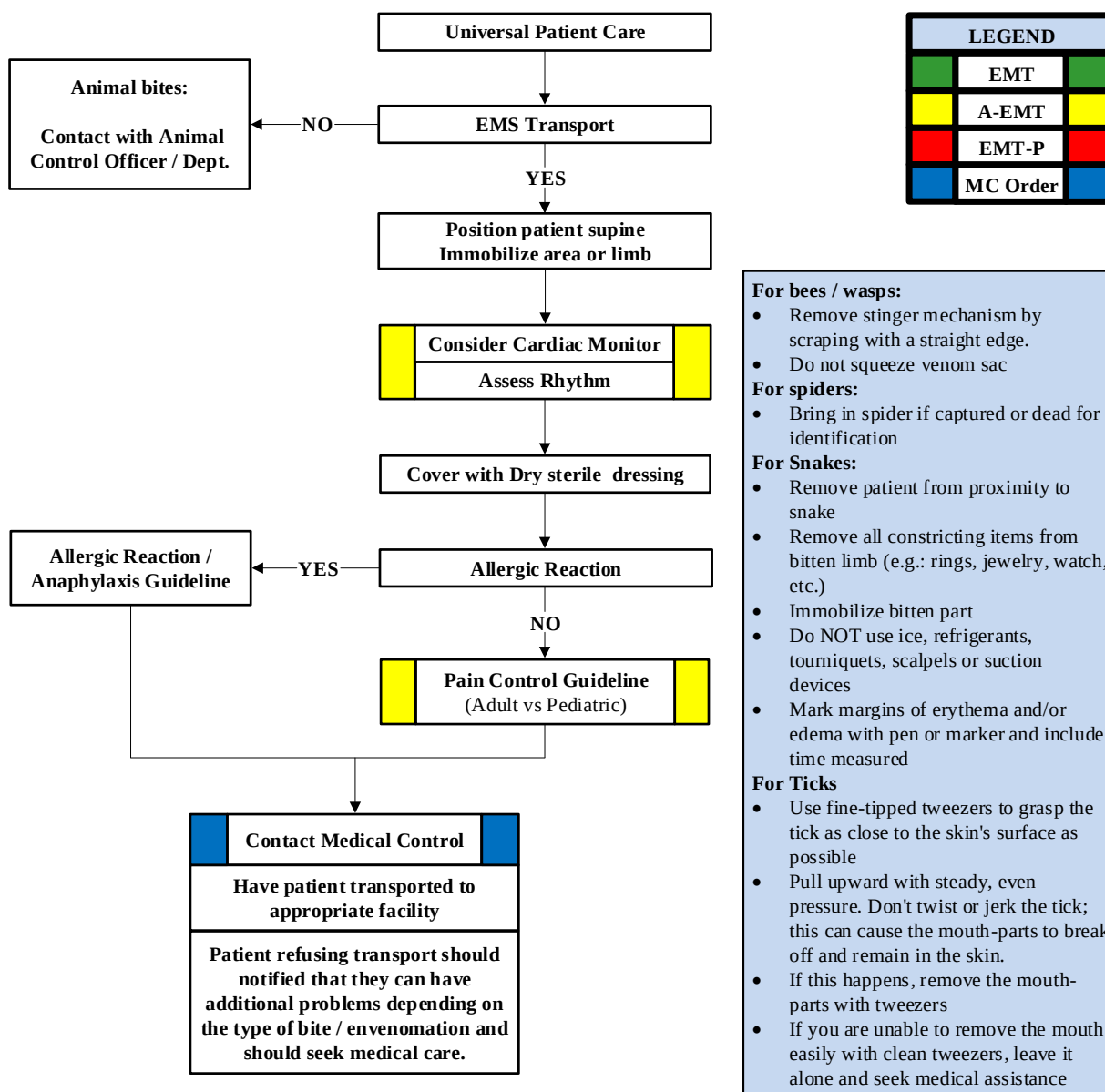
GUIDELINES



TAB 6 GUIDELINE 1

BITE AND ENVENOMATION

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Type of bite / sting - Description / photo with patient identification of animal involved - Time, location, size of bite / sting - Previous reaction to bite / sting - Domestic vs. Wild - Tetanus and Rabies risk - Immunocompromised patient	- Rash, skin break, wound - Pain, soft tissue swelling, redness - Blood oozing from the bite wound - Evidence of infection - Shortness of breath, wheezing - Allergic reaction, hives, itching - Hypotension or shock	- Animal bite - Human bite - Snake bite (poisonous) - Spider bite (poisonous) - Insect sting / bite (bee, wasp, ant, tick) - Infection risk - Rabies risk - Tetanus risk

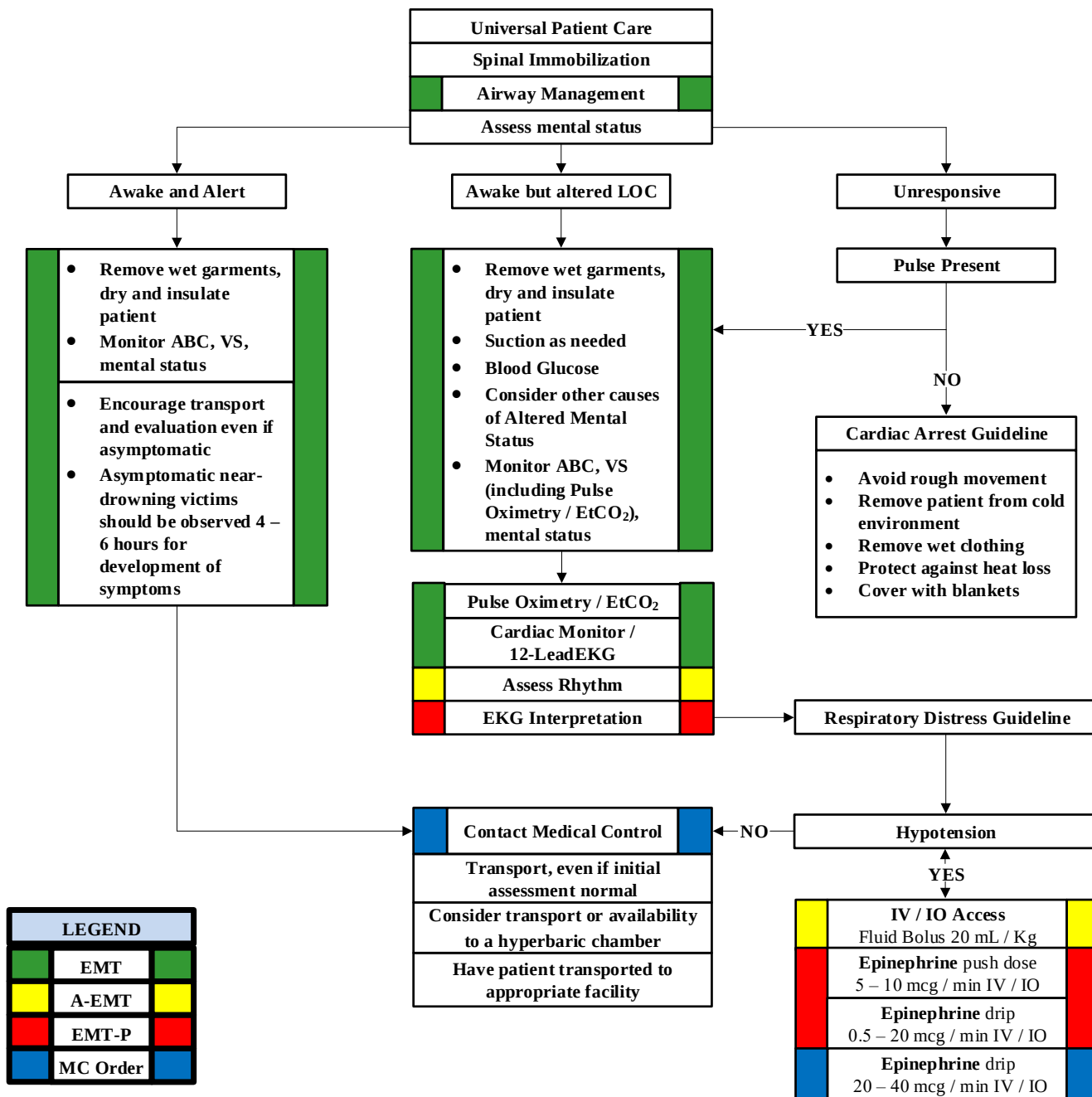


SPECIAL CONSIDERATIONS:

1. Bees / wasps
 - a. Remove stinger mechanism by scraping with a straight edge
 - b. Do not squeeze venom sac
2. Spiders
 - a. Only indigenous poisonous spider in Northwest Ohio is the black widow
 - b. Bring in spider if captured or dead for identification
3. Snakes
 - a. No indigenous poisonous snakes in Northwest Ohio
 - b. Treatment
 - i. Remove patient from proximity to snake
 - ii. Remove all constricting items from bitten limb (e.g.: rings, jewelry, watch, etc.)
 - iii. Immobilize bitten part
 - iv. Do NOT use ice, refrigerants, tourniquets, scalpels or suction devices
 - v. Mark margins of erythema and/or edema with pen or marker and include time measured
4. Ticks
 - a. Tick-borne diseases
 - i. Lyme Disease
 - ii. Rocky Mountain Spotted Fever
 - iii. Southern Tick Associated Rash Illness (STARI)
 - b. Removal
 - i. Use fine-tipped tweezers to grasp the tick as close to the skin's surface as possible
 - ii. Pull upward with steady, even pressure. Don't twist or jerk the tick; this can cause the mouth-parts to break off and remain in the skin.
 1. If this happens, remove the mouth-parts with tweezers. If you are unable to remove the mouth easily with clean tweezers, leave it alone and seek medical assistance
 - iii. After removing the tick, thoroughly clean the bite area and your hands with rubbing alcohol, an iodine scrub, or soap and water
 - iv. Dispose of a live tick by submersing it in alcohol, placing it in a sealed bag/container, wrapping it tightly in tape, or flushing it down the toilet. Never crush a tick with your finger

TAB 6 GUIDELINE 2
DROWNING AND NEAR DROWNING

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Submersion in water regardless of depth - Possible history of trauma (i.e., diving board) - Duration of immersion - Temperature of water - Fresh / Salt water - Degree of Contamination of water	- Unresponsive - Mental status changes - Decreased or absent vital signs - Vomiting - Coughing	- Trauma - Pre-existing medical problem - Pressure injury (diving) - Barotrauma - Decompression sickness

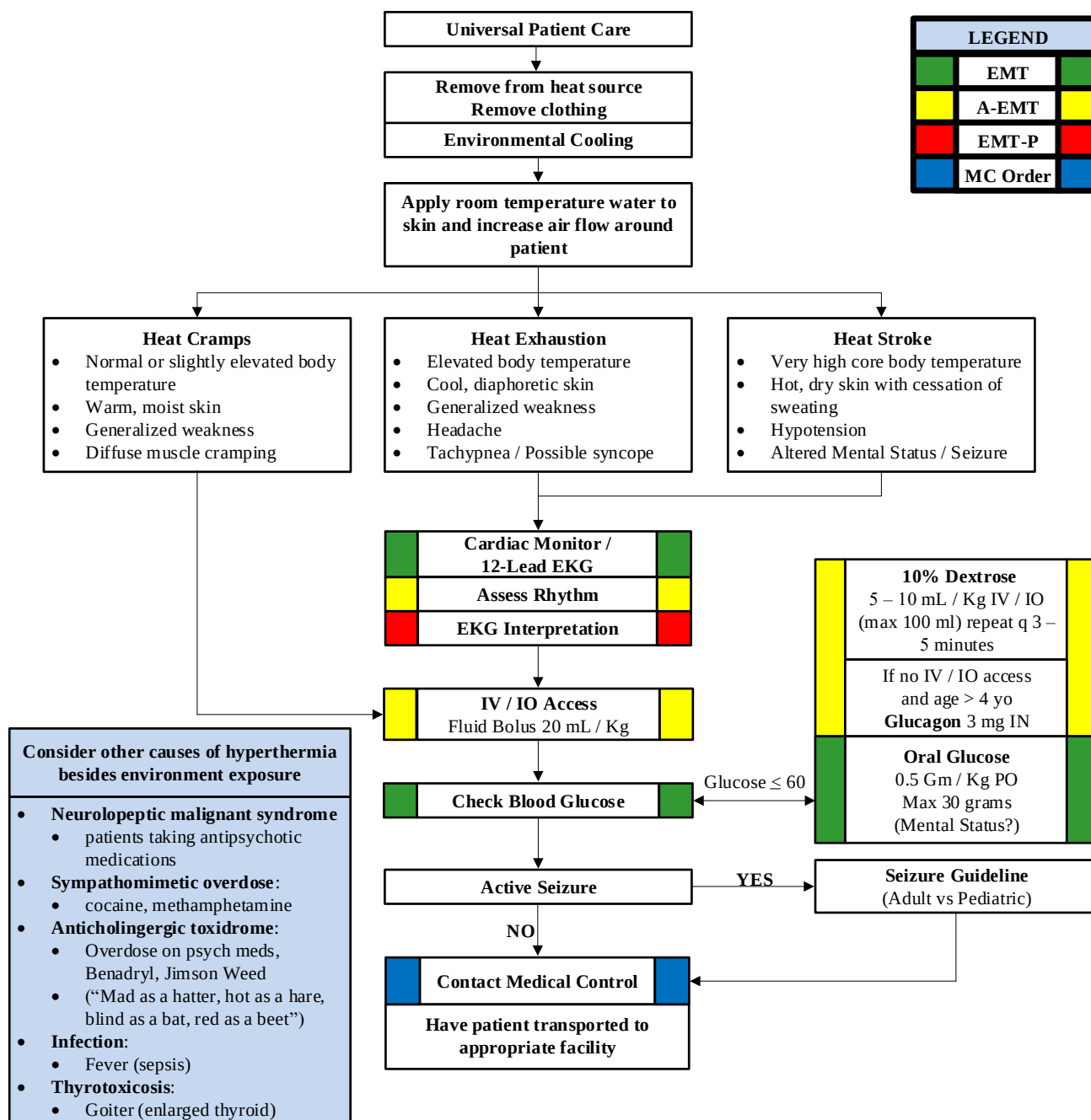


SPECIAL CONSIDERATIONS:

1. Pulse and respirations may be very slow and difficult to detect if patient is severely hypothermic.
 - a. If no definite pulse, and no signs of life, begin CPR.
 - b. If not breathing, start rescue breathing.
2. Drowning / submersion commonly associated with hypothermia.
 - a. Patients should not be pronounced dead until rewarmed in hospital.
3. Profound bradycardias may be evident in setting of severe hypothermia and decreased O₂.
4. Patients with drowning or near-drowning should be encouraged to go to the hospital for continued monitoring and evaluation for 4 – 6 hours after event.

TAB 6 GUIDELINE 3
HYPERTHERMIA

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Age - Exposure to increased temperatures and / or humidity - Past medical history - Extreme exertion - Time and length of exposure - Poor PO intake - Fatigue and / or muscle cramping	- Altered mental status or unconsciousness - Hot, dry or sweaty skin - Hypotension or shock - Seizures - Nausea	- Fever (Infection) - Dehydration - Medications - Hyperthyroidism (Storm) - Delirium tremens (DT's) - Heat cramps - Heat exhaustion - Heat stroke - CNS lesions or tumors

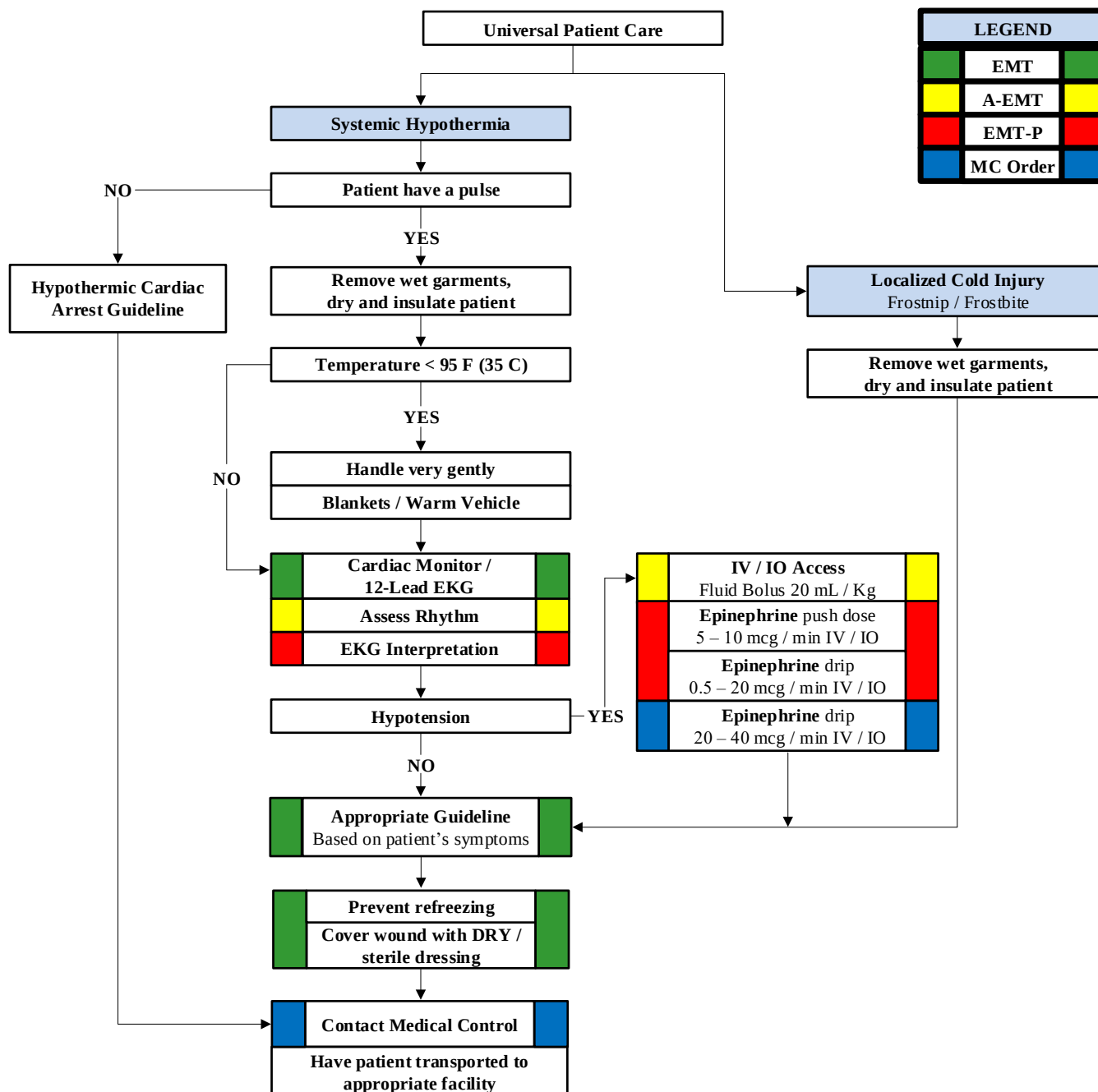


SPECIAL CONSIDERATIONS:

1. Heat stroke is a medical emergency. It is distinguished by altered level of consciousness. Sweating may still be present, especially in exercise-induced heat stroke. The other persons at risk for heat stroke are the elderly and person on medications, which impair the body's ability to regulate heat.
 - a. The bodies "sweating" mechanism generally disappears as body temperature rises above 104°F (40°C). Intense shivering may occur as the patient is cooled.
2. Extremes of age are more prone to heat emergencies (i.e., young and old). Predisposed by use of Tricyclic Antidepressants, Phenothiazines, Anticholinergic medications, and alcohol. Cocaine, Amphetamines, and Salicylates may elevate body temperature.
3. Initial cooling measures for heat exhaustion / stroke can be accomplished by applying cold packs (palms of hands, soles of feet, neck, axilla, and groin) or water-soaked sheets. Ensure adequate airflow over patient for evaporative loss. Definitive cooling requires ice water baths and careful monitoring. **DO NOT LET COOLING IN THE FIELD DELAY YOUR TRANSPORT.** Cool patient as much as possible while transporting to the hospital. Care should be taken not to make the patient become hypothermic.
4. Hyperthermia differential:
 - a. **Heat Cramps** – consists of benign muscle cramping secondary to dehydration and is not associated with an elevated temperature.
 - b. **Heat Exhaustion** – consists of dehydration, salt depletion, dizziness, fever, weakness, mental status changes, headache, cramping, nausea and vomiting. Vital signs usually consist of tachycardia, hypotension, and an elevated temperature.
 - c. **Heat Stroke** – consists of dehydration, tachycardia, hypotension, temperature > 104°F (40°C), and an altered mental status.

TAB 6 GUIDELINE 4
HYPOTHERMIA | FROSTBITE

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Past medical history / Medications - Exposure to environment even in normal temperatures - Exposure to extreme cold - Extremes of age - Drug use: Alcohol, barbiturates - Infections / Sepsis - Length of exposure / wetness	- Cold, clammy - Shivering - Mental status changes - Extremity pain or sensory abnormality - Bradycardia - Hypotension or shock	- Sepsis - Environmental exposure - Hypoglycemia - CNS dysfunction - Stroke - Head injury - Spinal cord injury



SPECIAL CONSIDERATIONS:

1. Hypothermia

- a. Core body temperature < 35°C (95°F).
- b. Shivering does not occur below 90 °F (patient temperature). Below this the patient may not even feel cold.
- c. The heart is most likely to fibrillate below 85 – 88 °F (30 °C). Defibrillation should be attempted, but prolonged CPR may be necessary until the temperature is above this level.
 - i. Any handling and airway manipulation may induce ventricular fibrillation in the hypothermic patient. Delay intubation if airway can be managed by less invasive means.
- d. ALS drugs should be used sparingly since peripheral vasoconstriction may prevent entry into central circulation until temperature is resorted; at that time a large bolus of unwanted drugs may be infused into the heart. BRADYCARDIA is normal and should not be treated.
- e. If not shivering don't ambulate patient and / or avoid unnecessary external stimuli (jarring of stretcher, loud noise). This activity can cause fibrillation.
- f. If patient has even a faint pulse, organized monitor rhythm and occasional respirations, CPR is currently felt to be unnecessary. In general, even very slow rates are probably sufficient for metabolic demands. CPR is **indicated** for Asystole and Ventricular fibrillation, though the compression rate can be slower than usual (40 bpm).
- g. Patients who appear dead after prolonged exposure to cold air or water should not be pronounced "dead" until they have been rewarmed.

2. Frostbite

- a. Thawing is extremely painful and should be done under controlled conditions, preferably in the hospital. Careful monitoring, pain medication, prolonged rewarming and sterile handling are required.
- b. It is clear that partial rewarming, or rewarming followed by refreezing, is far more injurious to tissues than delay in rewarming or walking on a frozen extremity to reach help. Do not rewarm prematurely. Indications for field rewarming are almost nonexistent.
- c. Do not allow patient to smoke or have caffeine.

TAB 6 GUIDELINE 5

HAZARDOUS MATERIAL (HAZMAT) | DECONTAMINATION

1. This guideline and our current training, resources and equipment are directed toward the chemical HAZMAT incident. Biological and nuclear / radiation events require an entirely different level of training, resources and equipment. A great difficulty with such events is simply the identification / recognition of such an event. Unfortunately, these patients may have already passed through the pre-hospital care services and into the hospital before recognition of an event has occurred. Subsequently, large amounts of resources, personnel and equipment may already be contaminated.
2. **Should refer to MSDS and SDS document for specific decontamination process**
3. Priorities at Hazmat incident
 - a. Recognition – Recognizing the incident, dangers of the substance and need for isolation
 - b. Scene safe – Back up to 1000 ft upwind from incident
 - c. Identification – Begin identifying substances involved
 - d. Communication – Initiation of ICS and / or coordinated Hazmat response (per local FD guideline)
 - e. Isolation of area / event – Initiate / assist with isolation of area. This is to prevent further contamination of personnel and equipment, communicate with safety officers
 - f. Medical treatment – Knowledge and ability to reference treatment modalities for identified agent
4. Zones
 - a. HAZMAT incidents should have zones established by the HAZMAT teams. Listed below are these zones and their restrictions
 - i. Hot Zone (restricted area): This zone is only for personnel with appropriate protective clothing and appropriate training, typically EMS personnel do not enter this zone.
 - ii. Warm Zone: This zone is where decontamination occurs and also is a limited access area. This may be a large zone dependent on what material is involved.
 - iii. Cold Zone: This zone is also known as the clean zone. Transport lines would form in this zone. Incident command personnel and the rescue vehicles will be in this location
 - b. EMS units / personnel are **NOT** to enter incident beyond the cold zone.
5. Roles of the EMS provider

- a. These roles may vary from department to department as training levels may vary (ie a paramedic who is a hazmat technician)
- b. To transport grossly decontaminated patients from the cold zone to an appropriate emergency facility
- c. To provide medical care to patients / safety personnel in the cold zone including but not limited to triage
- d. To monitor members of the HAZMAT team (rehab)

6. Equipment protection

- a. Whenever possible a front-line vehicle **should not** transport patients to a medical facility due to the risk of contamination of the vehicle, its equipment and the medical facility receiving the patient
- b. The EMS provider should use their portable supplies on the patient and not supplies from the front-line vehicle. Do not use the equipment (i.e. BP cuff) from the vehicle on a patient and then return it to the front-line vehicle, as potential for cross contamination exists.
 - i. Portable equipment should remain in the zone it is used in until properly decontaminated.
 - ii. Patients transported should be wrapped in cotton sheets, to further reduce the risk of cross contamination to the vehicle and EMS providers

7. Decontamination

a. **Clinical Indications:**

- i. Any patient who may have been exposed to significant hazardous materials, including chemical, biological, or radiological weapons

b. **Procedure:**

- i. In coordination with HazMAT and other Emergency Management personnel, establish hot, warm and cold zones of operation and ensure that personnel assigned to operate within each zone have proper personal protective equipment
- ii. In coordination with other public safety personnel, assure each patient from the hot zone undergoes appropriate initial decontamination. This is specific to each incident; such decontamination may include:
 - 1. Removal of patients from Hot Zone
 - 2. Simple removal of clothing
 - 3. Irrigation of eyes

4. Passage through high-volume water bath (e.g., between two fire apparatus) for patients contaminated with liquids or certain solids.
 - a. Patients exposed to gases, vapors, and powders often will not require this step as it may unnecessarily delay treatment and/or increase dermal absorption of the agent(s)
- iii. Initial triage of patients should occur after step #3. Immediate life threats should be addressed prior to technical decontamination
- iv. Assist patients with technical decontamination (unless contraindicated based on #3 above).
 1. This may include removal of all clothing and gentle cleansing with soap and water
 2. All body areas should be thoroughly cleansed, although overly harsh scrubbing which could break the skin should be avoided
 3. Flush the area as soon as possible with the cleanest readily available water or saline solution using copious amounts of fluids
- v. Place triage identification on each patient. Match triage information with each patient's personal belongings which were removed during technical decontamination. Preserve these personnel affects for law enforcement.
- vi. Monitor all patients for environmental illness
- vii. Transport patients per local guideline

8. Hospitals

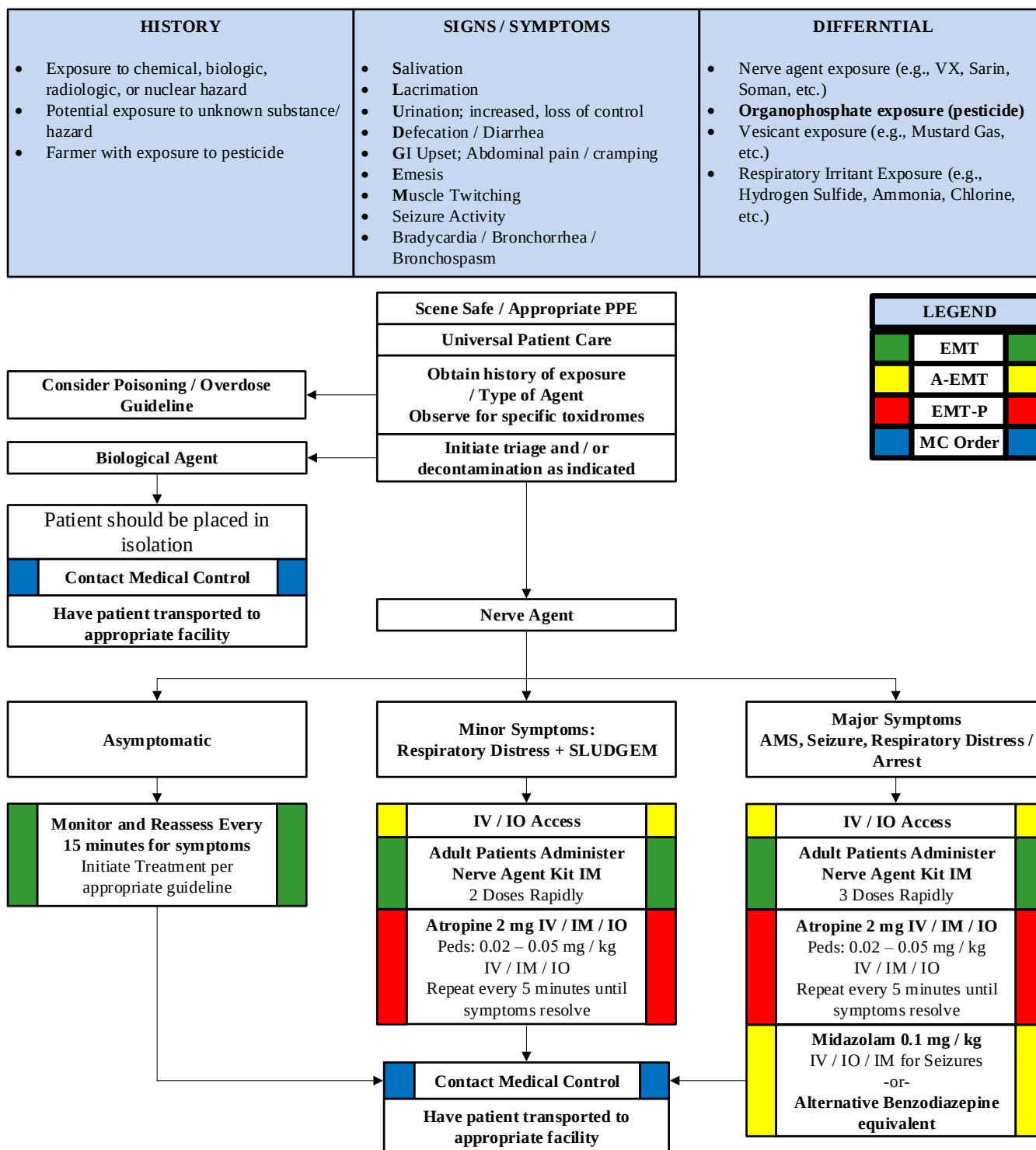
- a. Medical facilities should expect that the patients transported to their facility will have had gross decontamination performed by the on-scene Hazardous Materials Team. Gross decontamination means an attempt has been made to remove the majority of the agent the patient was exposed to by washing with soap and water. No assumption should be made that the **entire** agent has been removed

9. Agents

- a. If a scene is a suspected Weapons of Mass Destruction chemical event, the rescue vehicle paramedics will not approach patients until they are decontaminated
- b. Treatment shall be based on history and physical exam and does not require confirmation of the agent. Treat the patient's symptoms

10. **Patients contaminated with chemical / biological agent should not be placed into the EMS vehicle until proper gross and fine decontamination has occurred**

TAB 6 GUIDELINE 6
NERVE | BIOLOGIC INCIDENT



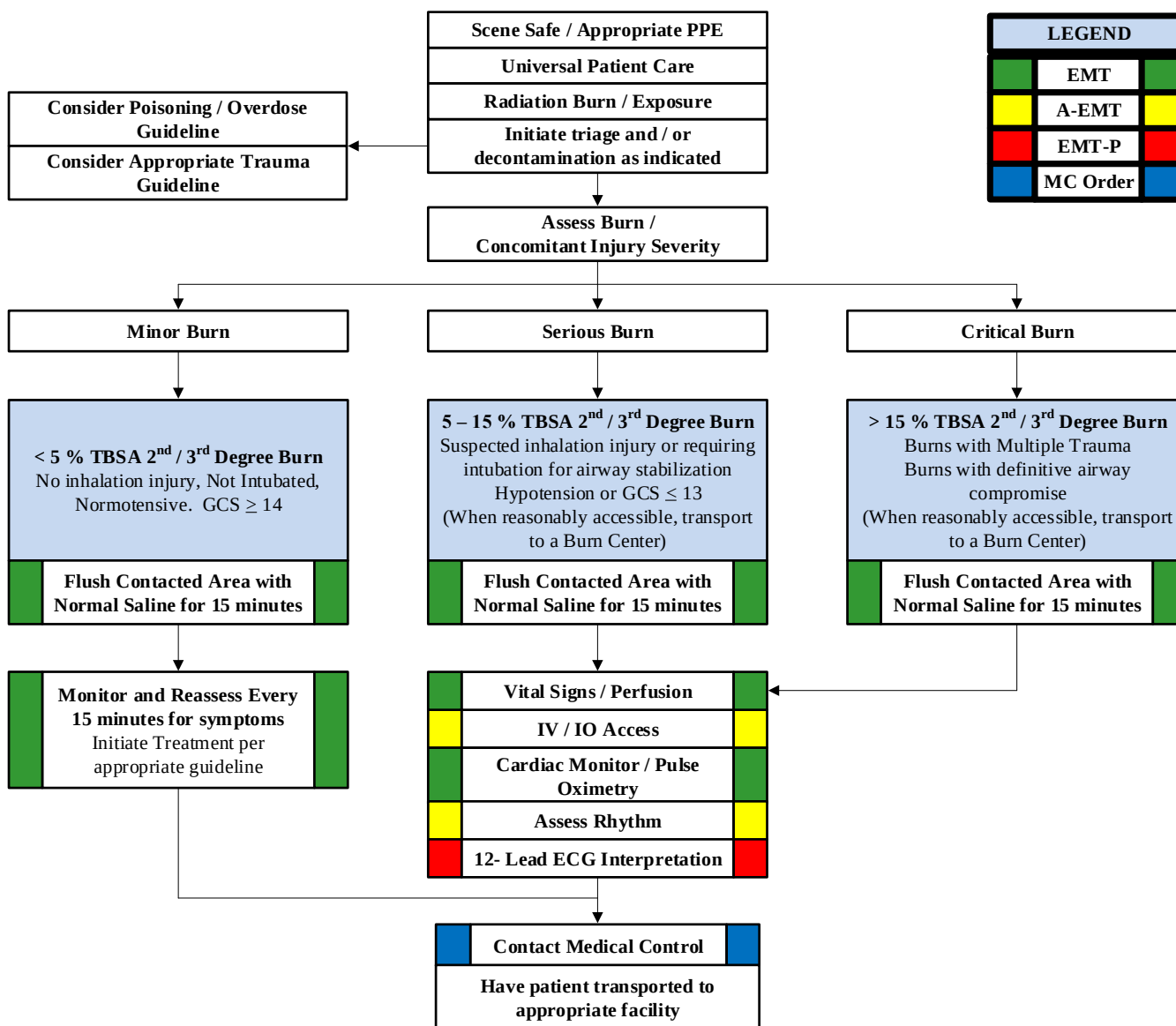
SPECIAL CONSIDERATIONS:

1. Biological agents
 - a. Patient should be placed in isolation
 - b. Respiratory issues treat per airway guideline
2. Nerve agents
 - a. **A first responder, EMT, advanced EMT, or Paramedic, may administer drugs or dangerous drugs contained within a nerve agent antidote auto-injector kit, including a Duodote or MARK I kit, in response to suspected or known exposure to a nerve or organophosphate agent provided the first responder or EMT is under physician medical direction and has received appropriate training**
 - b. If cyanide suspected, follow Poisoning | Overdose | Toxic Ingestion Guideline
 - c. There are no specific antidotes for blister agents

TAB 6 GUIDELINE 7

RADIATION INCIDENT

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Type of exposure (heat, gas, chemical) - Inhalation injury - Time of Injury - Past medical history / Medications - Other trauma - Loss of Consciousness - Tetanus / Immunization status	- Burns, pain, swelling - Dizziness - Loss of consciousness - Hypotension / shock - Airway compromise / distress could be indicated by hoarseness / wheezing / Hypotension	- Superficial (1st Degree) red - painful (Don't include in TBSA) - Partial Thickness (2nd Degree) blistering - Full Thickness (3rd Degree) painless/ charred or leathery skin - Thermal injury - Chemical – Electrical injury - Radiation injury - Blast injury



SPECIAL CONSIDERATIONS:

- **Three methods of exposure:**
 - External irradiation
 - External contamination
 - Internal contamination
- **Two classes of radiation:**
 - Ionizing radiation (greater energy) is the most dangerous and is generally in one of three states: Alpha Particles, Beta Particles and Gamma Rays
 - Non-ionizing (lower energy) examples include microwaves, radios, lasers and visible light.
- Radiation burns with early presentation are unlikely, it is more likely this is a combination event with either thermal or chemical burn being presented as well as a radiation exposure. Where the burn is from a radiation source, it indicates the patient has been exposed to a significant source, (> 250 rem)
- Patients experiencing radiation poisoning are not contagious. Cross contamination is only a threat with external and internal contamination
- **The three primary methods of protection from radiation sources:**
 - Limiting time of exposure
 - Distance from
 - Shielding from the source
- **Decontamination of patient with external radiation contamination is best with baby wipes and use of Geiger counter. Ensure that proper radiation protection for those decontaminating**
- If there is a time lag between the time of exposure and the encounter with EMS, key clinical symptom evaluation includes Nausea / Vomiting, hypothermia/hyperthermia, diarrhea, neurological / cognitive deficits, headache and hypotension
- References:
 - <https://www.remm.nlm.gov/burns.htm>
 - <https://www.remm.nlm.gov/cutaneoussyndrome.htm>

TAB 7

TRAUMA

GUIDELINES

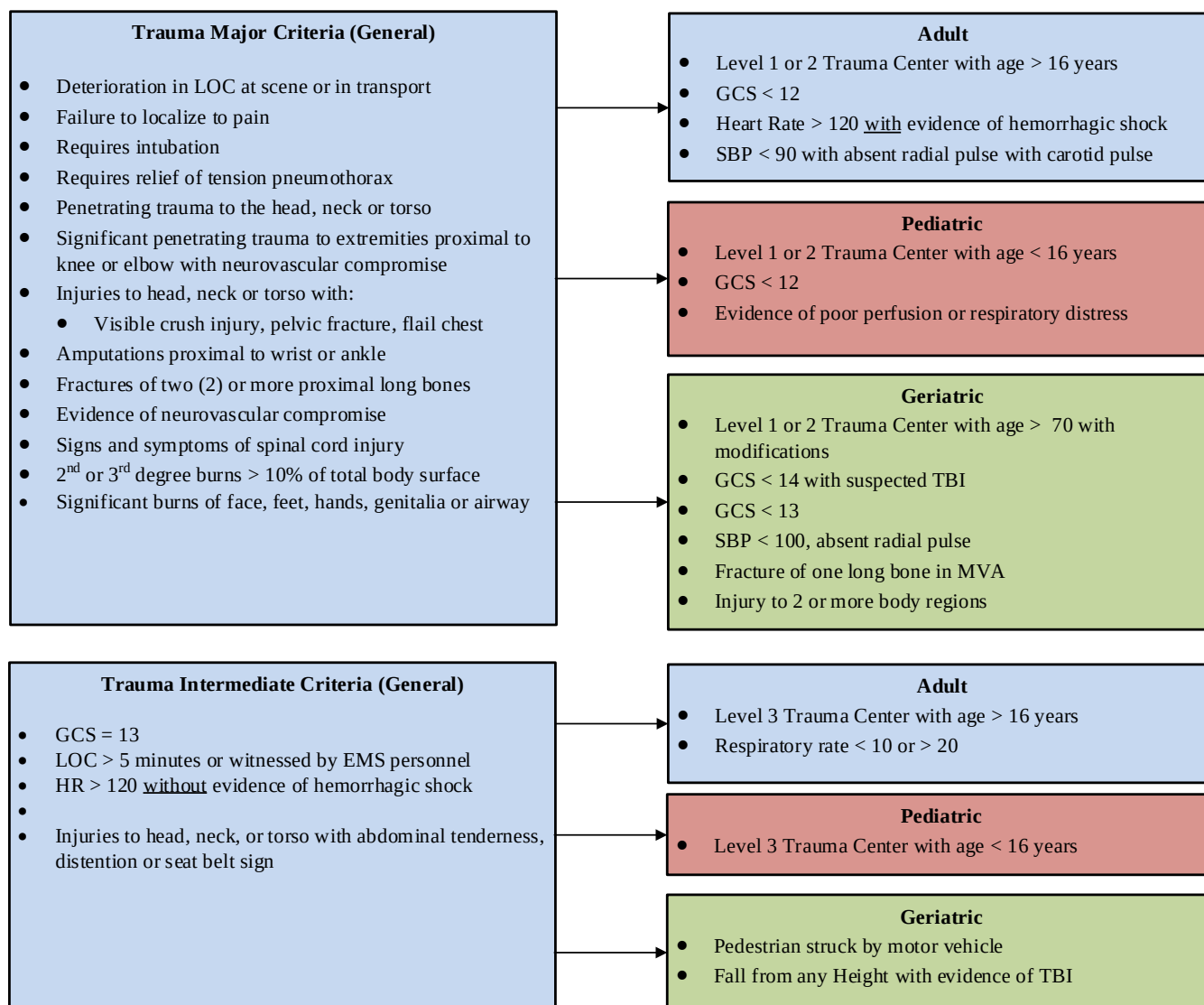


TAB 7 GUIDELINE 1

GENERAL TRAUMA CRITERIA

DEFINITION OF “TRAUMA GUIDELINE” PATIENT

1. An injured patient who you think is at significant risk for loss of life or limb, or significant, permanent disfigurement or disability; and the injury is caused by blunt or penetrating injury, exposure to electromagnetic, chemic or radioactive energy, drowning, suffocation, or strangulation, or a deficit or excess of heat.
2. **Patients identified below shall be taken to the closest appropriate Level 1 or 2 Trauma Center Hospital or if appropriate Level 3 Trauma Center Hospital for intermediate trauma patient classifications. “Serious Burns” as defined shall be transported to closest burn center.**
3. This criterion does not constitute activation of a “trauma” at the receiving facility.



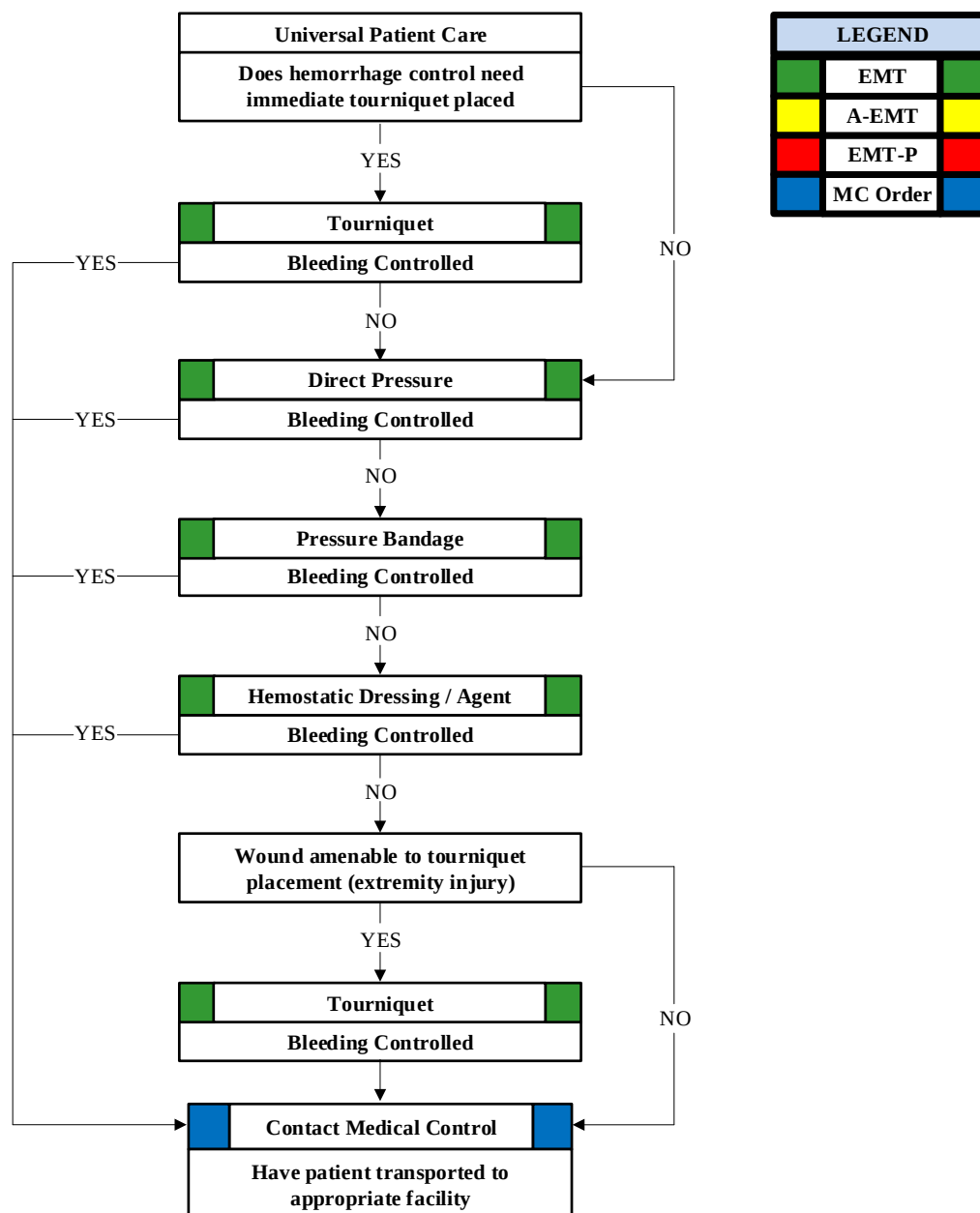
SPECIAL CONSIDERATIONS:

1. **Interventions that delay transport should be minimized except for controlling the airway.**
2. Pediatric trauma patients
 - a. Pediatric trauma patient is defined by age < 16 years of age
 - b. Any pediatric trauma patient in a cardiac arrest is to be taken to the closest hospital, including UTM.
3. Pregnant trauma patients
 - a. Trauma in the 1st trimester will be considered a Trauma Guideline patient.
 - b. 2nd / 3rd trimester trauma patients in a cardiac arrest are to be taken to the closest hospital, including UTM.
 - c. All pregnant patient trauma patients in the 2nd or 3rd trimester that do not meet Adult Trauma Guideline criteria, but have suspected abdominal injuries, pain, vaginal bleeding or discharge, should be taken to the closest acute care facility which provides fetal monitoring.



TAB 7 GUIDELINE 3
HEMORRHAGE CONTROL

INDICATIONS	CONTRAINDICATIONS	DIFFERENTIAL
- Life threatening extremity hemorrhage that can not be controlled by other means - Life threatening torso hemorrhage that cannot be controlled by other means - Serious or life threatening extremity hemorrhage and tactical considerations that prevent the use of standard hemorrhage control techniques	- Hemostatic Dressing - Wounds involving open thoracic or abdominal cavities. - Tourniquet - Non-extremity hemorrhage - Proximal extremity location where tourniquet application is not practical	- Multi system trauma - Abrasion - Contusion - Laceration - Sprain - Dislocation - Fracture - Amputation

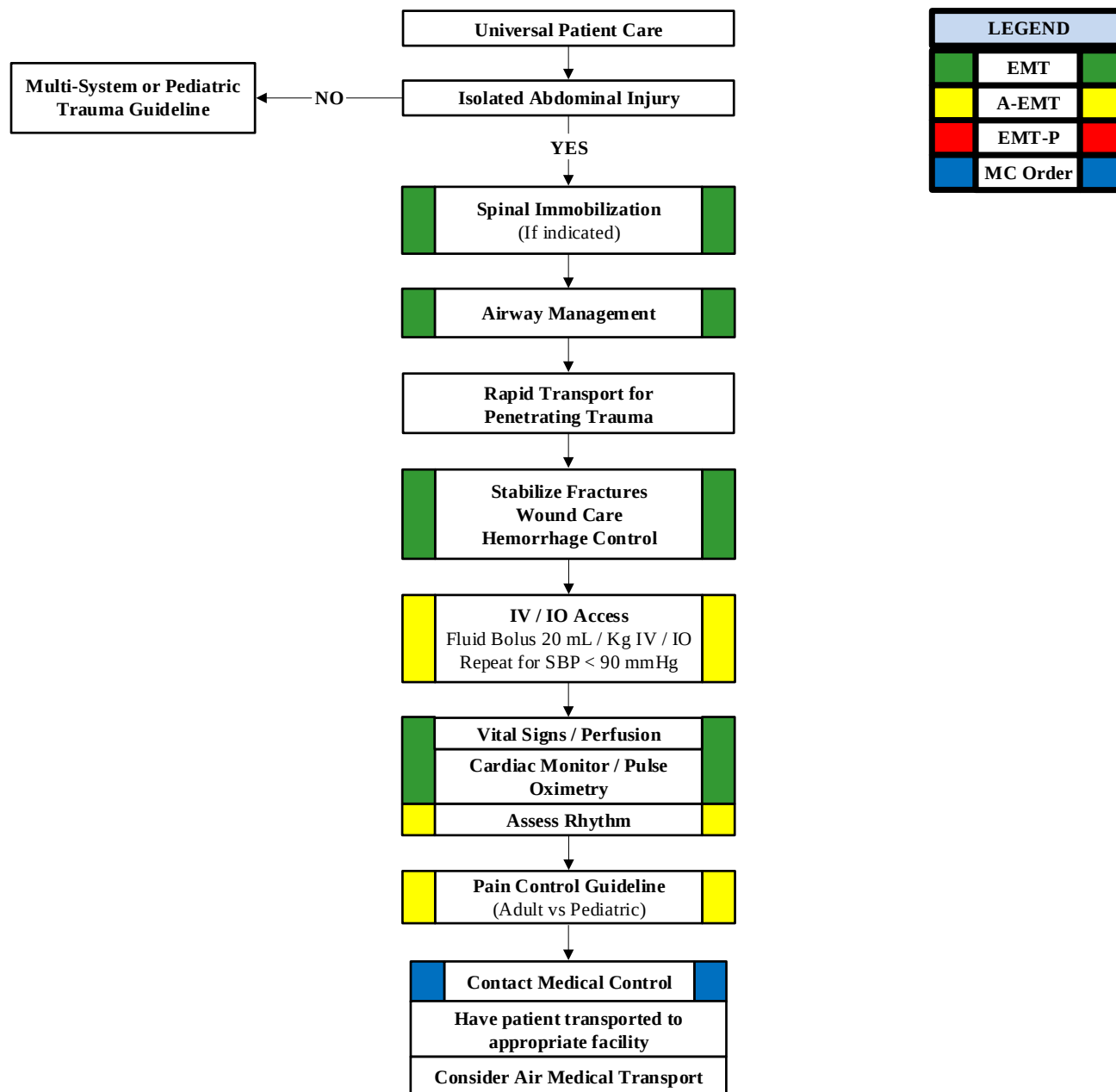


SPECIAL CONSIDERATIONS:

1. Hemostatic dressing or agents can be utilized in conjunction with pressure bandages and direct pressure. When utilizing any of these agents be careful about exothermic reaction and potential burn.

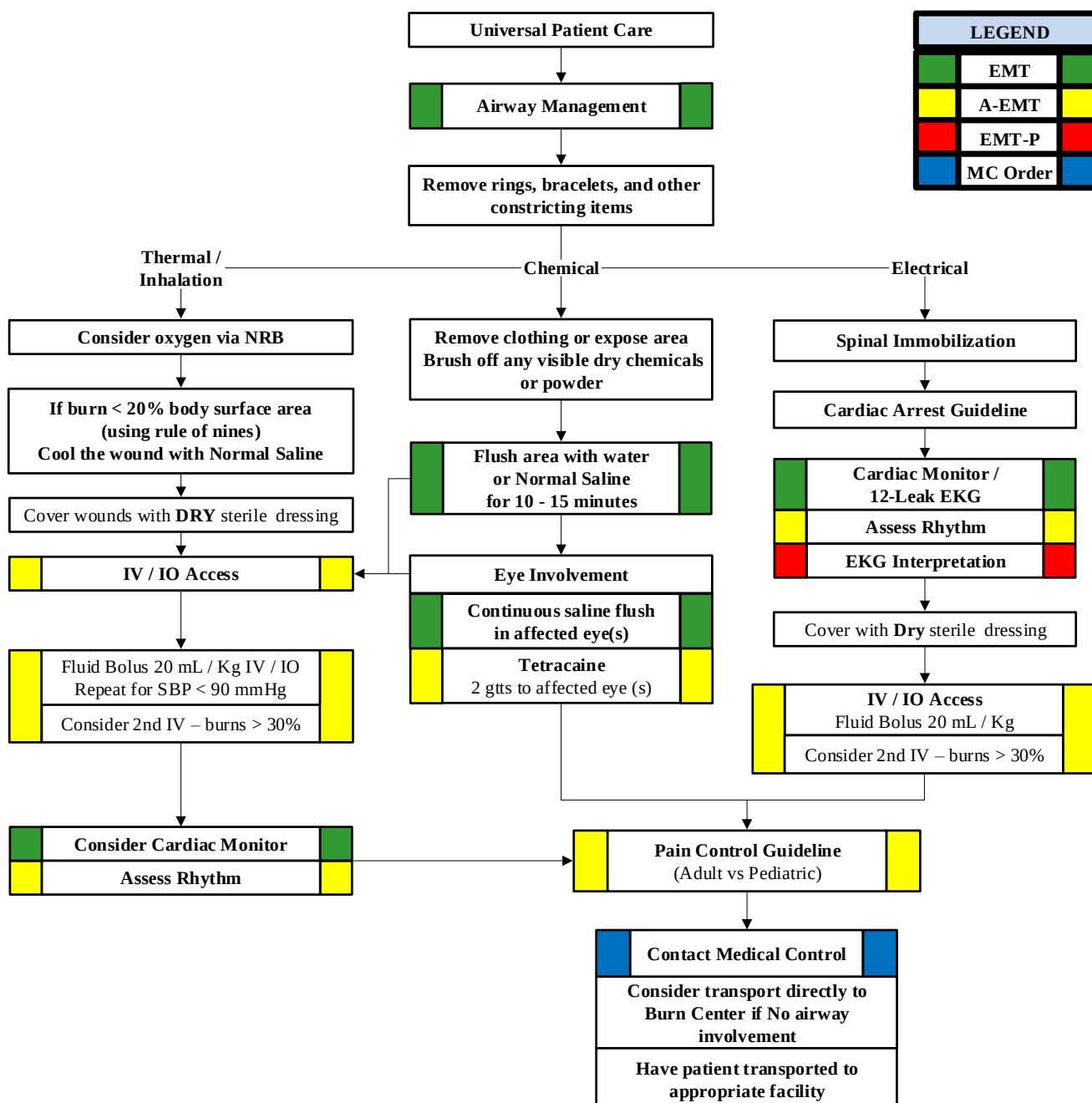
TAB 7 GUIDELINE 4
ABDOMINAL TRAUMA

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Type of Injury - Mechanism: crush / penetrating - Time of injury - Open vs. closed wound - Wound contamination - Medical History - Medications	- Abdominal shape / bowel sounds - Wounds / Contusions / Eviscerations - Palpate for: Rigidity Tenderness (Pain)	- Intra-abdominal bleeding - Pelvis / Femur fracture



TAB 7 GUIDELINE 5
BURN TRAUMA

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Type of exposure (heat, gas, chemical) - Inhalation injury - Time of injury - Past medical history - Medications - Other trauma - Loss of consciousness - Tetanus/Immunization status	- Burns, pain, swelling - Dizziness - Loss of consciousness - Hypotension / shock - Airway compromise / distress - Singed facial or nasal hair - Hoarseness / wheezing	Superficial (1st degree) Partial thickness (2nd degree) Full thickness (3rd degree) Chemical Thermal Electrical Radiation



SPECIAL CONSIDERATIONS:

1. Critical Burns

a. Transfer to recognized Burn Center

• > 20% body surface area (BSA) with age > 10. • > 10% BSA with age < 10. • 3rd degree burns > 5% BSA • 2nd and 3rd degree burns to face, eyes, hands or feet.	• Electrical / Inhalation / Deep chemical burns • Burns with extremes of age or chronic disease • Burns associated with major traumatic injury.

2. Thermal burns

- Leave blisters intact when possible.
- Suspect airway burns in any facial burns or burns received in closed / confined spaces. Edema may become severe, but not usually in the first hour. Avoid unnecessary trauma to the airway.
- Circumferential burns to extremities are dangerous due to potential vascular compromise secondary to soft tissue swelling.
- Assume carbon monoxide poisoning in all closed space burns.

3. Common chemicals that cause burns

- Phenol** is a gelatinous caustic used as an industrial cleaner. It is difficult to remove because it is insoluble in water. Use alcohol, which may be found in areas where Phenol is regularly used, to dissolve the product. Follow removal with irrigation using large volumes of cool water
- Dry Lime** is a strong corrosive that reacts with water. It produces heat and subsequent chemical and thermal injuries. Brush dry lime off the patient gently, but as completely as possible. Then rinse the contaminated area with large volumes of cool to cold water
- Sodium** is an unstable metal that reacts destructively with many substances, including human tissue and water. Decontaminate the patient quickly with gentle brushing. Then, cover the wound with oil used to store the substance
- Riot Control Agents** (Mace, Pepper Spray, etc.) cause intense irritation of the eyes, mucous membranes, and respiratory tract. Treatment is supportive and most patients recover in 10 – 20 minutes of exposure to fresh air. If necessary, irrigate the patient's eyes with Normal Saline if you suspect the agent remains in the eyes. (Additional treatment under Tab 7 Police Custody Guideline)

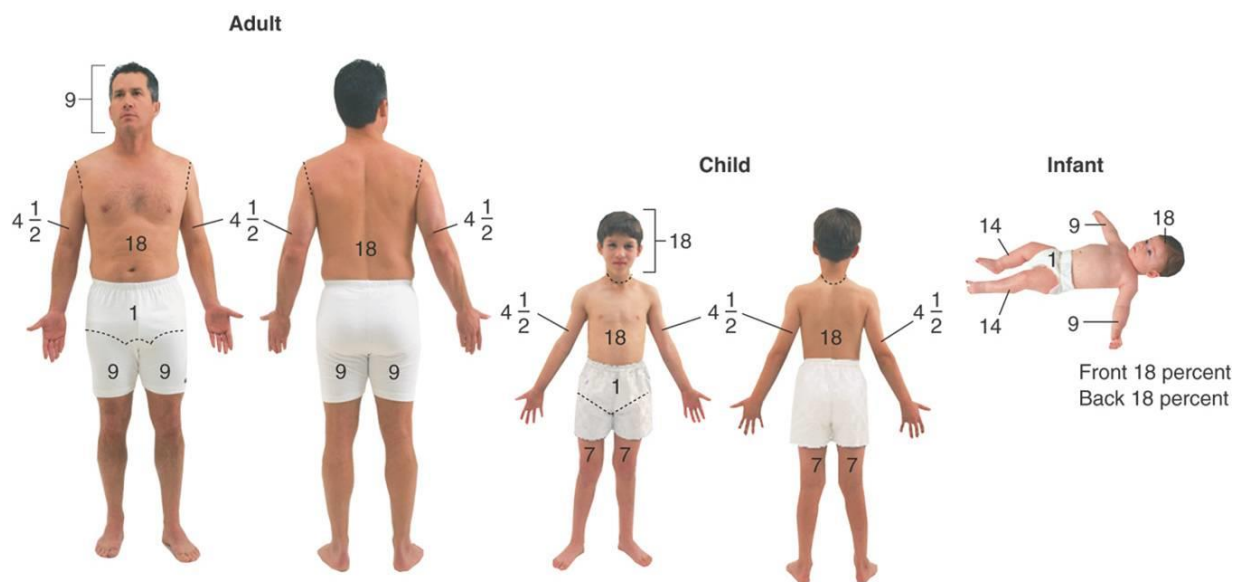
- e. **Hydrofluoric Acid** is a common corrosive that reacts with water. It produces heat and subsequent chemical and thermal injuries resulting in extreme pain to the affected areas. Cover the wound and avoid contact with water

4. Estimation of Total Body Surface Burns

a. Palmer Surface Method

- i. Using size of patient's palm will estimate approximately 1%

b. RULE OF NINES

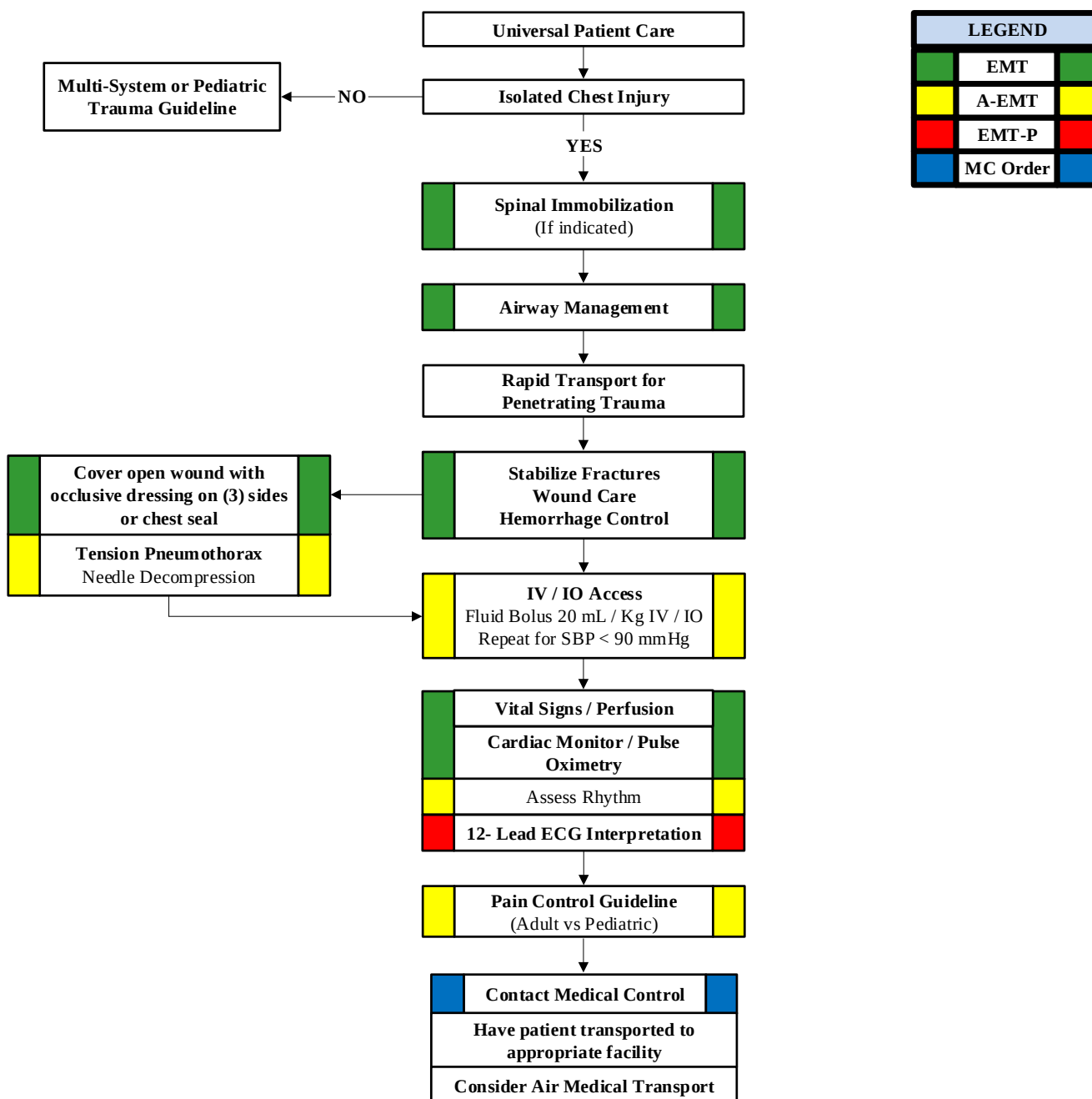


Note: Each arm totals 9 percent (front of arm 4 1/2 percent, back of arm 4 1/2 percent)

TAB 7 GUIDELINE 6

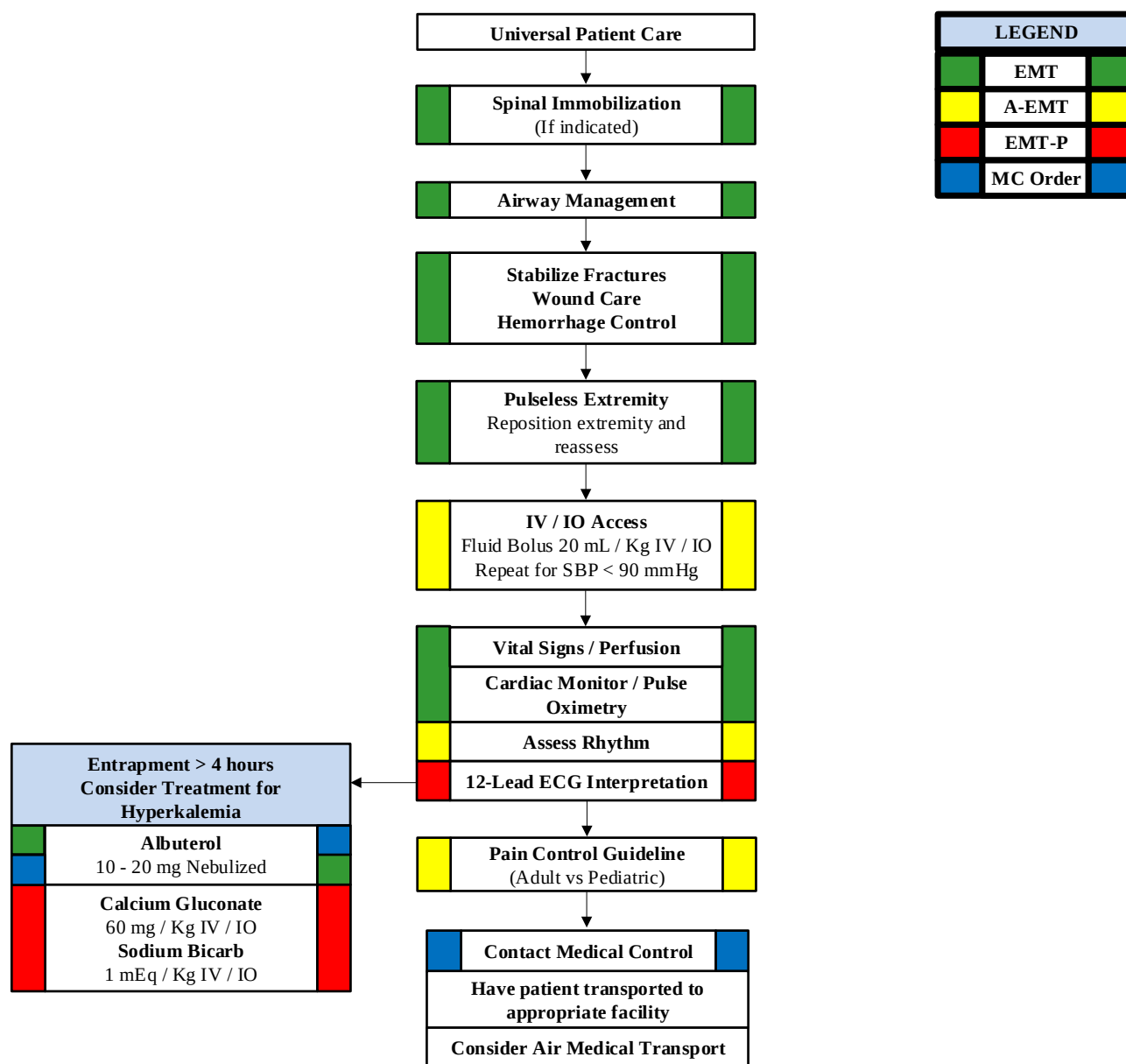
CHEST TRAUMA

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Type of Injury - Mechanism: crush / penetrating - Time of injury - Open vs. closed wound - Wound contamination - Medical History - Medications	- Inspect for wounds, ecchymosis, - Flail segments, - Tracheal deviation, JVD and symmetry - Auscultate for - Breath sounds - Heart tones - Palpate for - Crepitus - Deformity	- Chest Injury - Tension pneumothorax - Flail Chest - Pericardial Tamponade - Open chest wound - Hemothorax



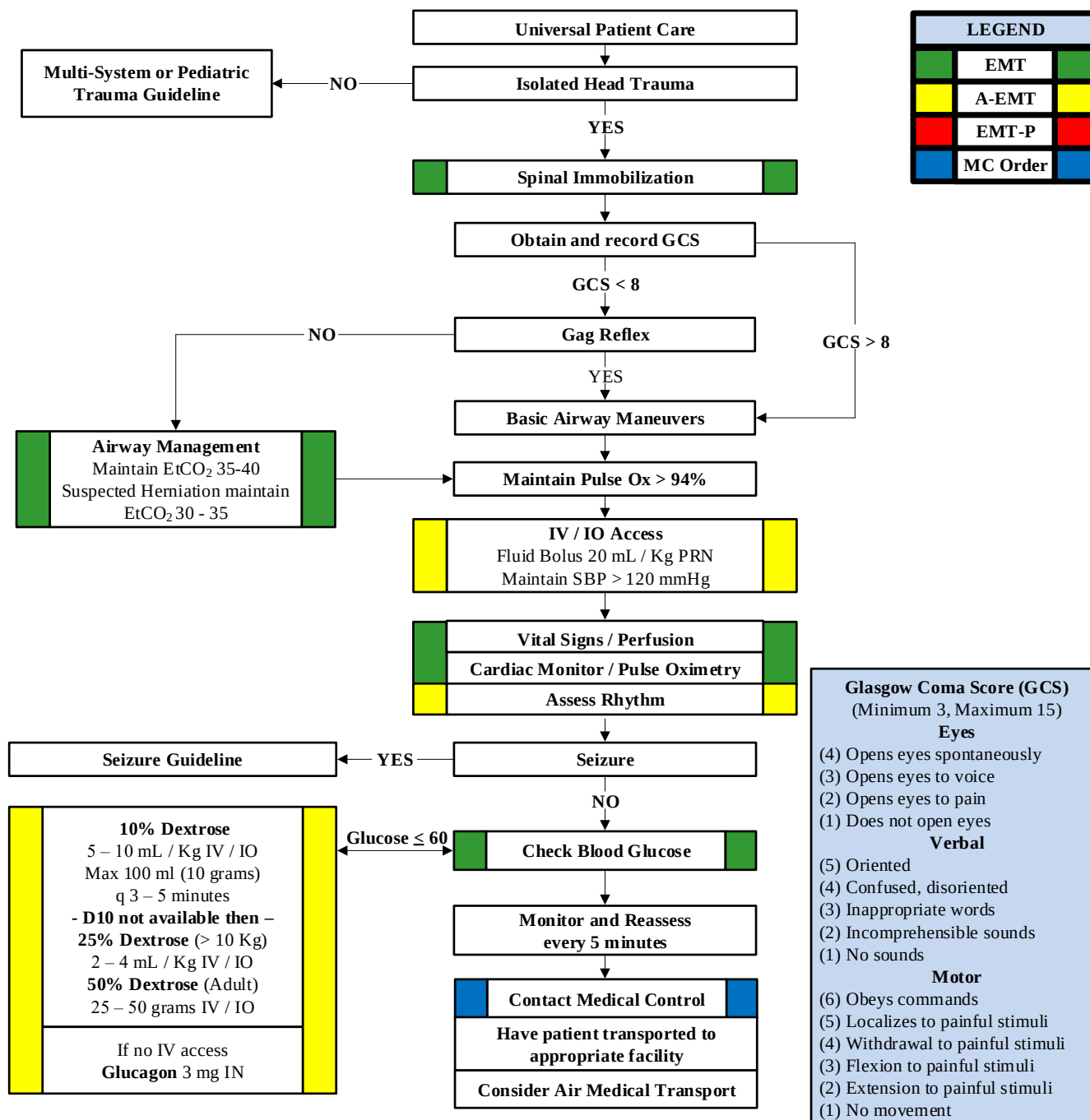
TAB 7 GUIDELINE 7
CRUSH INJURY | COMPARTMENT SYNDROME MANAGEMENT

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Type of Injury - Mechanism: crush / penetrating / amputation - Time of injury - Open vs. closed wound / fracture - Wound contamination - Medical History - Medications	- Pain, swelling - Deformity - Altered sensation / motor function - Diminished pulse / capillary refill - Decreased extremity temperature	- Abrasion - Contusion - Laceration - Sprain - Dislocation - Fracture - Amputation



TAB 7 GUIDELINE 8
HEAD TRAUMA

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Time of injury - Mechanism (blunt vs. penetrating) - Loss of consciousness - Bleeding - Past medical history - Medications - Evidence of multi-trauma	- Pain, swelling, bleeding - Altered mental status - Unconscious - Respiratory distress / failure - Vomiting - Major traumatic mechanism of injury - Seizure	- Skull fracture - Brain injury (concussion, contusion, hemorrhage or laceration) - Epidural hematoma - Subdural hematoma - Subarachnoid hemorrhage - Spinal injury - Abuse

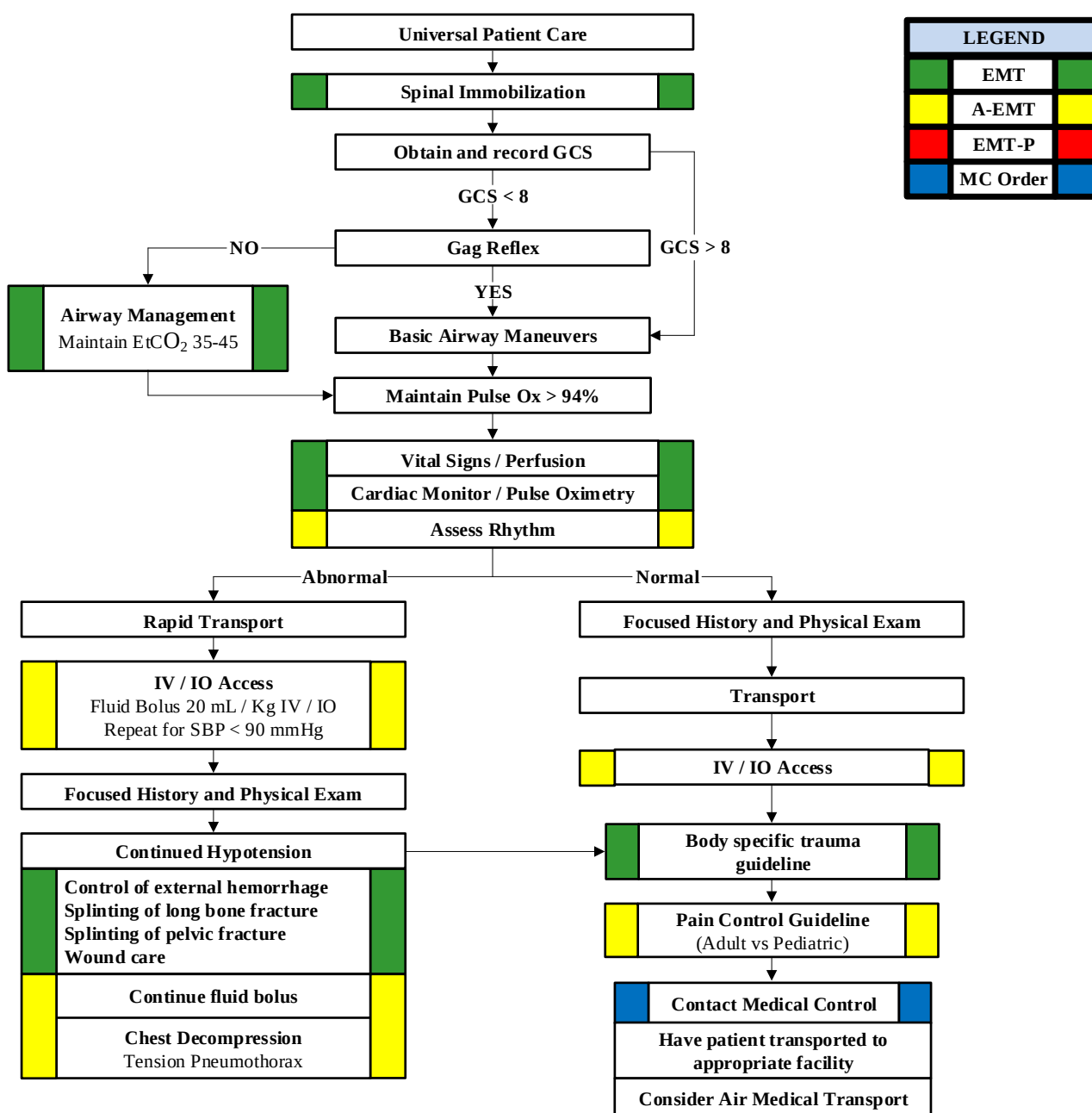


SPECIAL CONSIDERATIONS:

1. EMS providers must prevent hypotension and hypoxia in patients with traumatic brain injuries. Single bout of hypotension or hypoxia will double the mortality of these patients
2. Consider medication assisted intubation with paralytic agent (if available) for all patients that are to be intubated
3. Administer IV fluid bolus (give over 10 – 15 minutes) prior to intubation (if able) or consider push dose vasopressors (epinephrine) if the blood pressure is low prior to intubation
4. During intubation use apneic oxygenation with nasal cannula set at max oxygen flow amount to prevent / diminish hypoxic episode

TAB 7 GUIDELINE 9
MULTI-SYSTEM TRAUMA

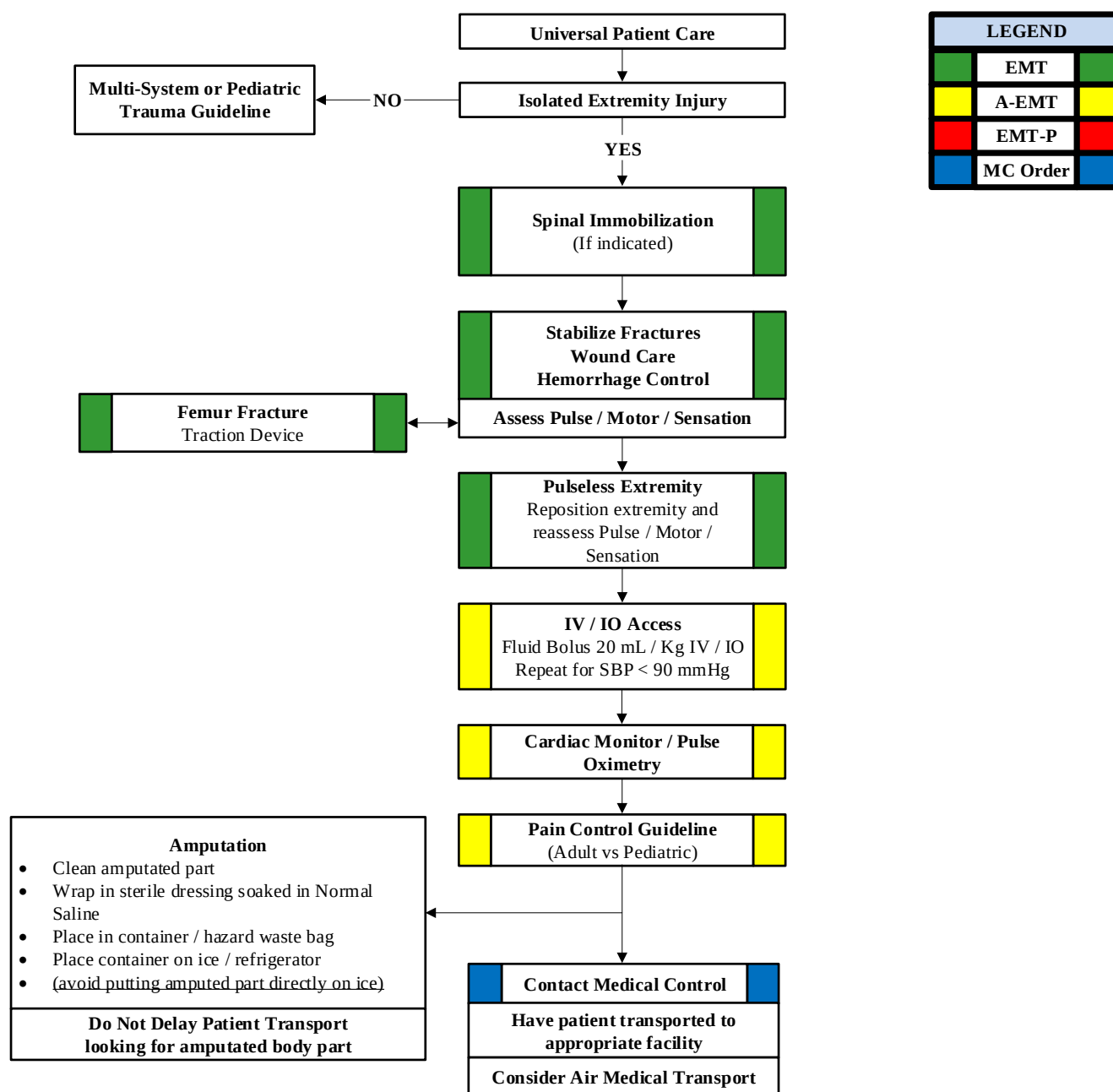
HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Time and mechanism of injury - Damage to structure or vehicle - Other injured or dead - Speed and details of MVC - Restraints / Protective equipment - Ejection - Loss of consciousness - Past medical history - Medications	- Pain, swelling - Deformity, lesions, bleeding - Altered mental status - Respiratory status - Hypotension or shock - Arrest - Pulse rate / rhythm / quality - Systolic blood pressure - External hemorrhage - Skin color - Unconscious	- Chest Injury - Tension pneumothorax - Flail Chest / Open chest wound - Pericardial Tamponade - Hemothorax - Intra-abdominal bleeding - Pelvis / Femur fracture - Spine fracture / Cord injury - Head injury (see Head Trauma) - Extremity fracture / dislocation - HEENT (Airway obstruction) - Hypothermia



TAB 7 GUIDELINE 10

MUSCULOSKELETAL TRAUMA | AMPUTATED BODY PART

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Type of Injury - Mechanism: crush / penetrating / amputation - Time of injury - Open vs. closed wound / fracture - Wound contamination - Medical History - Medications	- Pain, swelling - Deformity - Altered sensation / motor function - Diminished pulse / capillary refill - Decreased extremity temperature	- Abrasion - Contusion - Laceration - Sprain - Dislocation - Fracture - Amputation



LEGEND		
	EMT	
	A-EMT	
	EMT-P	
	MC Order	

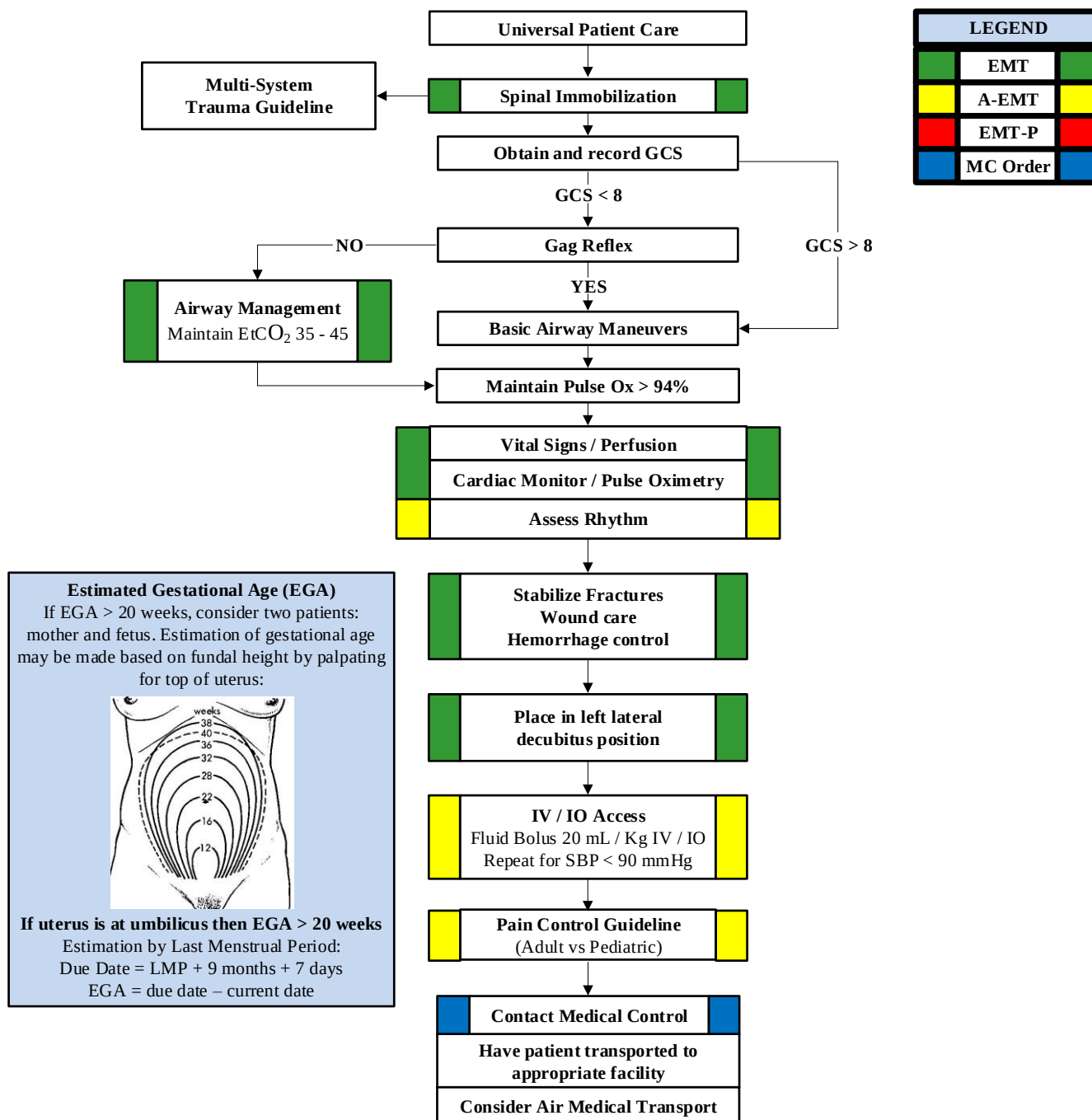
SPECIAL CONSIDERATIONS:

1. This guideline is for an isolated fracture of the extremity. In providing pain management for extremity fractures care should be taken to ensure that the patient has no other injuries. If pain medication is given to a patient with other type injuries such as head, chest or abdominal injuries it could exacerbate those injuries.
2. Urgently transport any injury with vascular compromise.
3. Severe bleeding from an extremity not rapidly controlled may necessitate the application of a tourniquet.
4. Hip dislocations and knee and elbow fracture / dislocations have a high incidence of vascular compromise.
5. Interventions
 - a. Wounds
 - i. Apply dry sterile dressing
 - ii. Secure extremity to backboard (OR)
 - iii. Buddy splint to other lower extremity (OR)
 - iv. Apply traction splint device when applicable (do not delay transport to apply device)
 - b. Pulseless extremity
 - i. Evaluate patient for hypotension
 - ii. Reposition extremity and reassess for pulse

TAB 7 GUIDELINE 11

OBSTETRICAL TRAUMA

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Type of Injury - Mechanism: crush / penetrating / amputation - Time of injury - Open vs. closed wound / fracture - Wound contamination - Medical History - Medications	- Pain, swelling - Deformity - Altered sensation / motor function - Diminished pulse / capillary refill - Decreased extremity temperature	- Acute blood loss - Placenta abruptio - Uterine rupture - Intra-abdominal injury - Diaphragmatic rupture

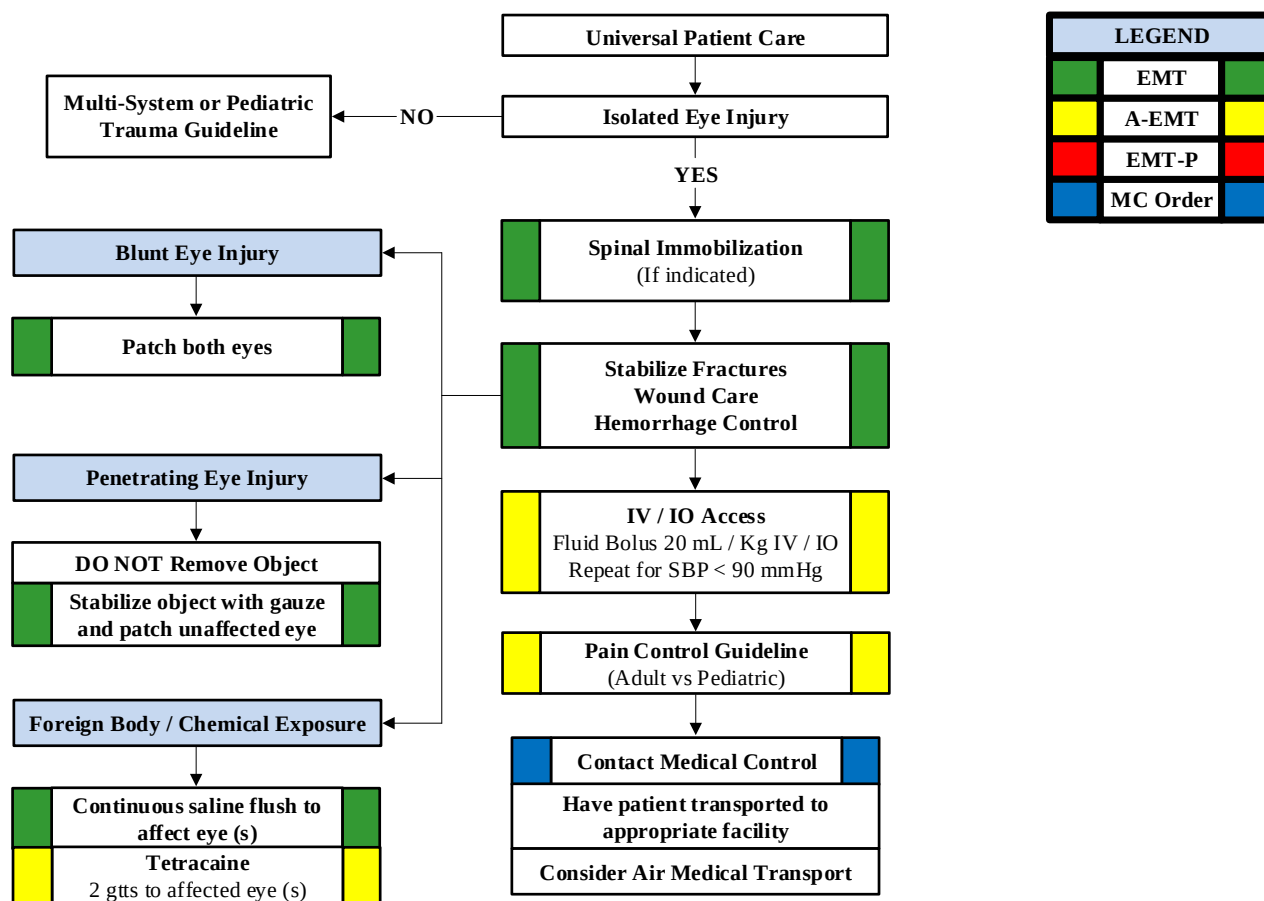


SPECIAL CONSIDERATIONS:

1. **RESUSCITATION OF THE MOTHER IS THE NUMBER 1 PRIORITY**
2. Manage shock and hypotension
 - a. **Placement of lateral decubitus position**
 - i. For the patient that is 6 months pregnant or more, tilt the backboard to the left side by placing towel roll underneath
 - b. CAUTION: Shock is not always obvious in the pregnant patient. Because of an increase in circulating blood volume during pregnancy, the pregnant female will show signs of hypovolemia later in their course

TAB 7 GUIDELINE 12
OCULAR TRAUMA

HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Type of Injury - Mechanism: blunt / chemical / foreign object / penetrating - Time of injury - Open vs. closed wound / fracture - Wound contamination - Medical History - Medications	- Pain, swelling - Deformity - Pupil Dilation - Extra Ocular Eye Movement - Visual disturbance - Facial Swelling	- Corneal abrasion - Globe rupture - Periorbital Ecchymosis - Subconjunctival Hemorrhage - Facial Fractures

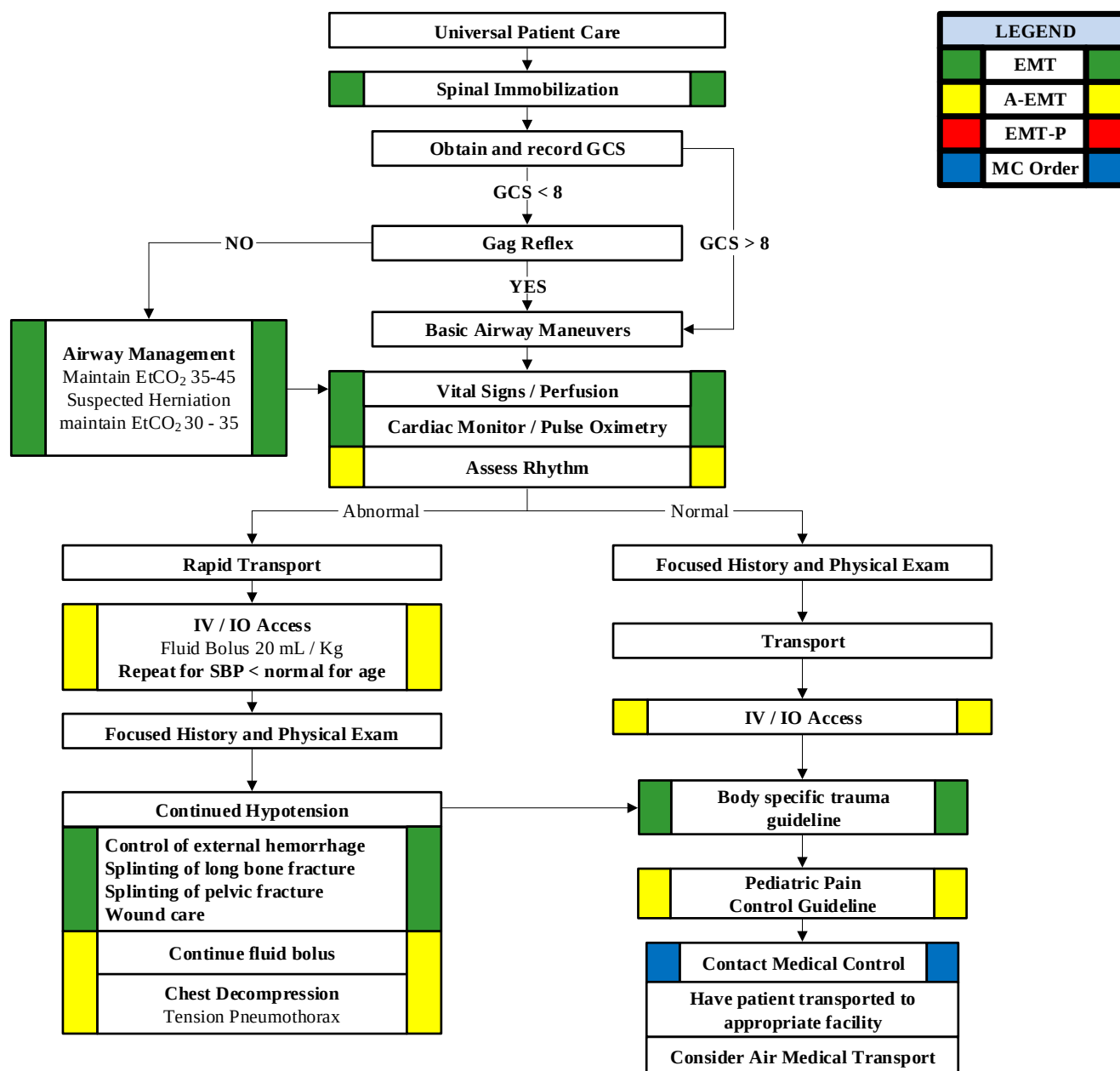


SPECIAL CONSIDERATIONS:

1. Irrigation of the eye, when appropriate, should be initiated immediately, even if transport is delayed. Irrigation may continue during transport to the hospital. **All alkali chemical burns** to the eye should have immediate irrigation started prior to transporting.
2. Avoid touching the eye
3. Patients with glaucoma should receive prompt transport, as their condition may be an acute emergency
4. Patient with contacts should have contact lenses removed immediately

TAB 7 GUIDELINE 13
PEDIATRIC TRAUMA

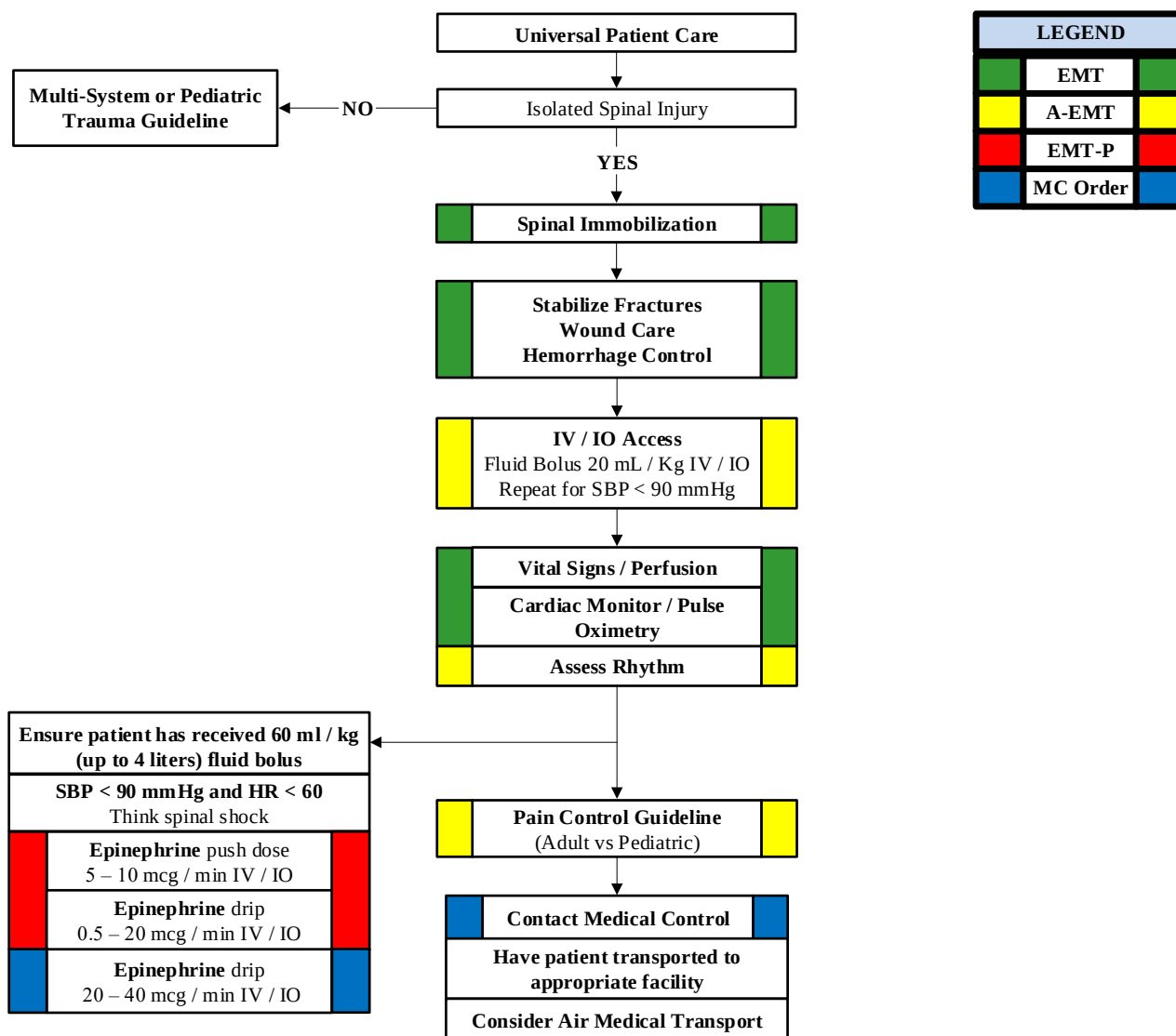
HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
• < 16 years of age • Time and mechanism of injury • Damage to structure or vehicle • Other injured or dead • Speed and details of MVC • Restraints / Protective equipment • Ejection • Loss of consciousness • Past medical history • Medications	• Pain, swelling • Deformity, lesions, bleeding • Altered mental status • Respiratory status • Hypotension or shock • Arrest • Pulse rate / rhythm / quality • Systolic blood pressure • External hemorrhage • Skin color • Unconscious	• Chest Injury • Tension pneumothorax • Flail Chest • Pericardial Tamponade • Open chest wound • Hemothorax • Intra-abdominal bleeding • Pelvis / Femur fracture • Spine fracture / Cord injury • Head injury (see Head Trauma) • Extremity fracture / dislocation • HEENT (Airway obstruction) • Hypothermia



TAB 7 GUIDELINE 14

SPINAL TRAUMA

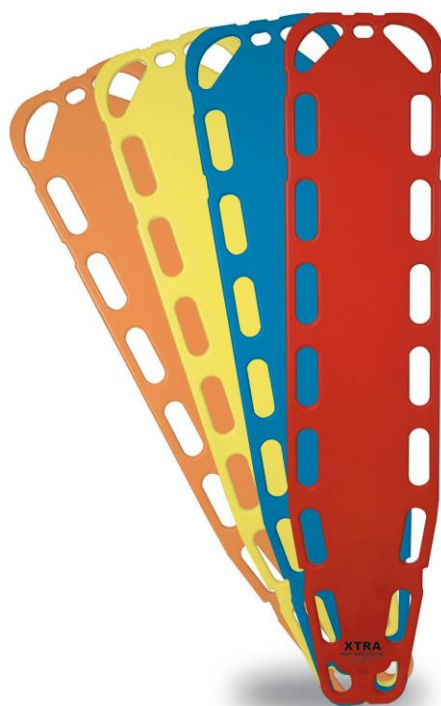
HISTORY	SIGNS / SYMPTOMS	DIFFERENTIAL
- Type of Injury - Mechanism: crush / penetrating / amputation - Time of injury - Open vs. closed wound / fracture - Wound contamination - Medical History - Medications	- Pain, swelling - Deformity - Altered sensation / motor function - Diminished pulse / capillary refill - Decreased extremity temperature	- Dislocation - Fracture - Spinal shock - Spinal cord injury



LEGEND		
	EMT	
	A-EMT	
	EMT-P	
	MC Order	

TAB 8

MEDICAL PROCEDURES, GUIDELINES AND EQUIPMENT



TAB 8 GUIDELINE 1

NOTIFICATION TO MEDICAL DIRECTOR

1. **Anytime there is deviation from the EMS Guidelines that is not within the guidelines or not within the standard of care for prehospital EMS providers, or any one of the following procedures is performed**, then the details of the incident should be forwarded to the Medical Director or his designee IMMEDIATELY.
 - a. The EMS officer should be notified of the procedure and then notification to the Medical Director should occur as soon as the unit is put back in service (Medical Director or designee are available 24 hours a day 7 day a week). Notification can be made via email is appropriate but ensure that you utilize at the top of the email **“Confidential Peer Review Information Protected by Ohio Revised Code §4765.12”** on all emails pertaining to patient information for quality assurance.
2. Complete the QA / QI Form and submit to the safety officer for review. Information on that form should be sent to the Medical Director or one of his designee.
3. **Procedures requiring Medical Director Notification include:**
 - a. Any attempted or successful LMA, King Airway or Endotracheal Intubation
 - b. Needle Decompression
 - c. Needle or Surgical Cricothyrotomy
 - d. Intraosseous or Alternative IV use
 - e. Esophageal intubation that was not discovered in the field and corrected
 - f. Any CPR or use of automated CPR Chest Compression Device
 - g. Medication Assisted Intubation or Rapid Sequence Induction for intubation
 - h. Fetal delivery
 - i. Perform laceration repair using 2-Octyl-cyanoacrylate (Dermabond)
 - j. Any guideline deviation or concern
 - k. Anytime another Health Care provider has a concern about the healthcare provided. This should be a phone call to the Medical Director or his designee



WIND FOR INDUSTRY®

QUALITY IMPROVEMENT NOTIFICATION FORM

Confidential for Quality Improvement Only – (not part of medical record)

EMS Agency _____ Date _____

Incident Run Number _____

Against Medical Advice

Patient History and Vital Signs _____

Was Patient Alert and had decisional capacity to make decisions YES / NO

Medical Control Notified YES / NO

Cardiac Arrest

Initial Rhythm _____

Procedures performed (Defibrillation, Intubation, Medication Administration) _____

Automated CPR Device Utilized YES / NO

Return of Spontaneous Circulation YES / NO

Intubation or Advanced Airway Placement

Patient History and Vital Signs _____

Number of Intubation attempts _____ Successful YES / NO

Alternative Airway considered and type (King LT / LMA / Needle or Surgical Cric)

Medication Assisted Intubation / Rapid Sequence Induction YES / NO

Patient able to be ventilated YES / NO

IO Insertion

Patient History and Vital Signs _____

IV attempted first and how many times YES _____ / NO

IO Insertion Successful YES / NO

Needle Decompression

Patient History / Vital Signs / Physical Examination _____

Unusual Incident

AIRWAY | BREATHING

TAB 8 GUIDELINE 2

PULSE OXIMETER

- The pulse oximeter is an instrument used to ascertain a patient's arterial oxyhemoglobin saturation (%SpO₂). Measuring the absorption of infrared light passing through the tissue does this.
- Advantages:
 - Early warning system (may alert the paramedic before cardiac monitors).
 - The pulse oximeter will enhance the paramedic's ability to identify, assess and treat hypoxia for any reason (ie drug overdose).
 - The pulse oximeter will assist in monitoring the effectiveness of other treatments (ie bronchodilators).
 - The pulse oximeter will assist in monitoring O₂ saturation during suctioning and intubation.
 - The pulse oximeter will assist in the assessment of perfusion in patients with orthopedic injuries.
- Ranges:

• 94% – 100%	Ideal Range
• 90% - 94%	Mild to moderate hypoxemia
• 85% - 90%	Severe hypoxemia
• Below 85%	If patient is symptomatic, intubate and ventilate.
- Factors affecting reading:
 - Excessive ambient light, especially sunlight
 - Excessive motion
 - Nail polish – green, black or red
 - Moisture in sensor
 - Improper sensor attachment
 - Poor patient perfusion
 - Venous pulsation
 - Anemia or low hemoglobin
 - Sensor not at heart level
 - Pierced ears (when using ear lobe sensor)
 - Temperature
 - Low battery

TAB 8 GUIDELINE 3

NEBULIZED AEROSOL TREATMENT

INDICATIONS	CONTRAINDICATIONS	MANDATORY
Acute respiratory distress with • History of COPD Asthma • Shortness of breath • Wheezing • Retractions or accessory muscle use • Tachypnea (respiratory rate > 25 / min) • Unable to complete full sentences • Fatigue • Pulse oximetry reading < 90% • Stridor • Croup	• Chest pain • Allergy to medications • Arrhythmias	• EMT may administer patients own albuterol, or can obtain online medical control to administer albuterol from EMS supply

• Gather the necessary equipment • Assemble the nebulizer kit • Instill the premixed medication into the reservoir well of the nebulizer • Connect the nebulizer device to oxygen at 6 – 8 liters per minute or adequate flow to produce a steady, visible mist • Instruct the patient to inhale normally through the mouthpiece of the nebulizer. The patient needs to be a good lip seal around the mouthpiece if not using a mask • Use mouthpiece if patient is able to hold nebulizer effectively • Use nebulizer mask if patient is unable to hold nebulizer effectively • The procedure should last approximately ten (10) minutes. Upon nearing the end of the treatment, the condensation will need to be moved down to the bottom of the bowl so it can be drawn up the siphon tube. To do this, shake the chamber or strike the chamber with your fingertip • Monitor the patient for medication effects. This should include the patient's assessment of his / her response to the treatment and reassessment of vital signs, ECG and breath sounds • Document the treatment, dose and route on the patient care report • Monitor the patient's pulse rate, oximeter, color and respiratory effort for improvement or deterioration • Dosing of an aerosol treatment is a single unit dose, reassess treatment response after completion of aerosol and administer a second unit dose if indicated

TAB 8 GUIDELINE 4

CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

INDICATIONS	CONTRAINDICATIONS	POSSIBLE COMPLICATIONS
• Asthmatic / COPD / CHF / pulmonary edema / Pneumonia / Submersion / Near-drowning / CO poisoning • Awake and able to follow commands • Is over 12 years old and > 40 kg and is able to fit the CPAP mask • Has the ability to maintain an open airway • Demonstrates two or more of the following • Retractions or accessory muscle use • Tachypnea (respiratory rate > 24 / min) • Pulse oximetry reading < 92% • Inability to speak in full sentences due to dyspnea • Bibasilar or diffuse rales or medical history and presenting complaints consistent with cardiogenic pulmonary edema	• Severely depressed level of consciousness or unconsciousness • Patient is in respiratory arrest / apneic • Inability to maintain airway patency • Suspected pneumothorax or has suffered trauma to the chest • Tracheostomy • Actively vomiting or has upper GI bleeding • Facial anomalies / facial trauma / recent surgery to the face	• Gastric distention • Aspiration • Reduced cardiac output / hypotension secondary to reduction in preload / afterload of the heart during CPAP therapy • Hypoventilation • Pulmonary barotrauma • Severe anxiety / combativeness due to mask intolerance

• Place the patient in a seated position with legs dependent. • While one member of the team is setting up the CPAP equipment, the second team member should treat the patient according to established Asthma / COPD / CHF treatment protocols. • Setting up the system • Ensure all necessary equipment is available and assembled. • Assemble the patient mask, securing device, tubing and PEEP valve. • Connect directly to a 50 psi oxygen source using the quick connect / disconnect valve, listen for leaks. • Check device to ensure free of obstruction and verify proper valve setting for intended use. Verify proper valve function. • Apply O₂ / CO₂ nasal filter line to patient (for end-tidal CO₂ monitoring), attach that to the monitor. Monitor for obstructive capnogram waveform. • Place delivery mask over the mouth and nose. Have patient hold the mask and instruct them to breathe slowly and deeply. • Secure the mask with provided straps and tighten to desired fit minimizing any air leakage. • Evaluate the response in the patient. Reassess breath sounds, oxygen saturation, and general appearance of the patient. • Adjust the CPAP pressure valve based on the recommended level and response by the patient.

- Recommended CPAP Pressure Valve Settings**

Patient Condition	Initial Valve Setting	No Improvement / Patient tolerating mask
CHF / Pulmonary Edema	10 cm H ₂ O	10.0 cm H ₂ O
COPD / Asthma / Pneumonia	5 cm H ₂ O	7.5 cm H ₂ O
Submersion / Near Drowning	5 cm H ₂ O	7.5 cm H ₂ O
CO Poisoning	5 cm H ₂ O	7.5 cm H ₂ O

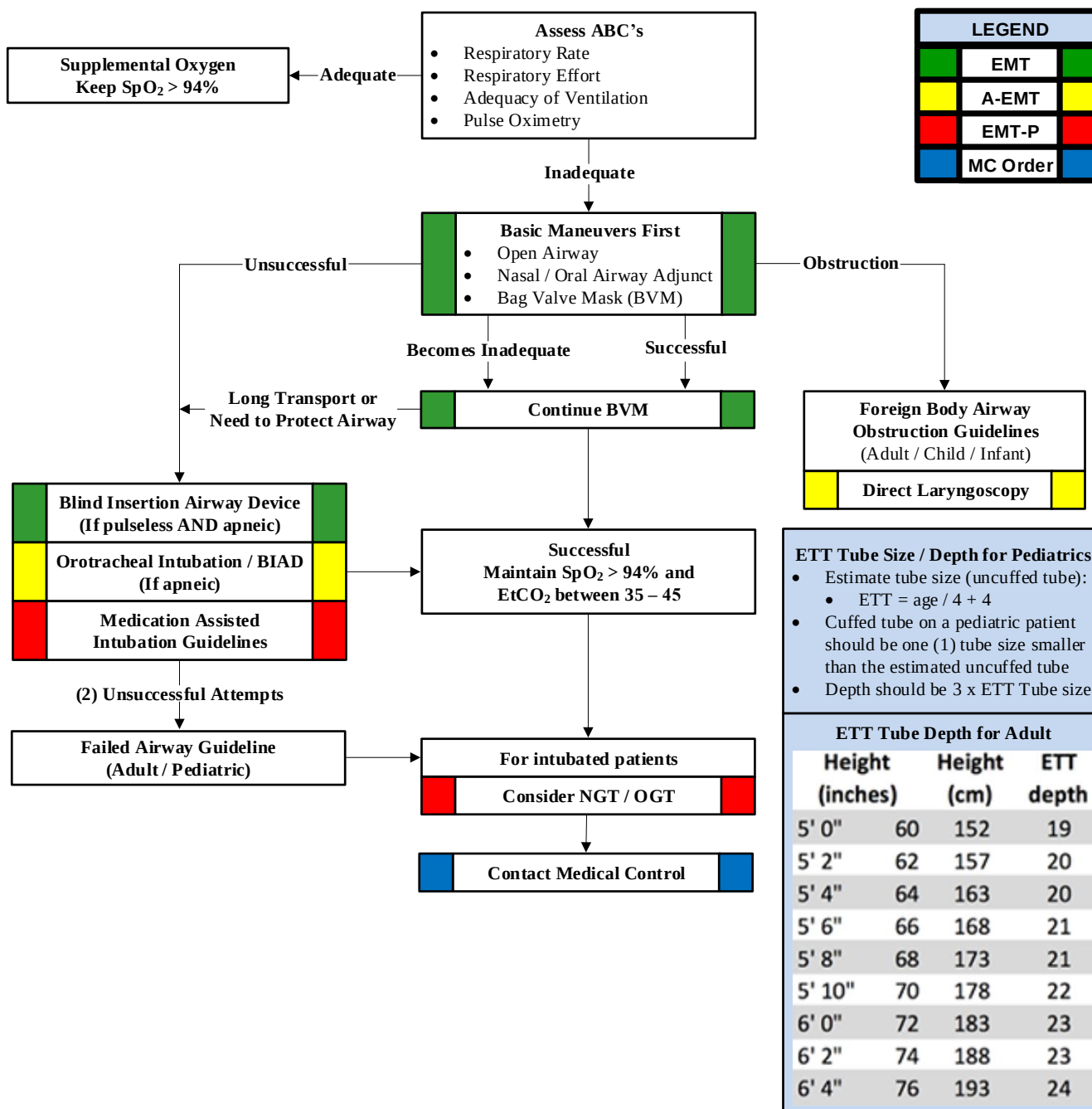
- Flow Safe II CPAP System**

Flow (LPM)	CPAP / PEEP (approx. cm H ₂ O)
8 – 9	5.0 cm H ₂ O
10 – 12	7.5 cm H ₂ O
13 – 14	10 cm H ₂ O
Flush	13 cm H ₂ O

TAB 8 GUIDELINE 5

AIRWAY MANAGEMENT

INDICATIONS	CONTRAINDICATIONS	MANDATORY
- Patients in deep coma - Respiratory arrest or cardiopulmonary arrest - Patients where complete obstruction of the airway appears imminent	- Patients with an intact gag reflex - Patients where irritation of the pharynx might cause laryngeal spasm - Croup or epiglottitis	- Take no longer than 30 seconds per attempt (adult) or 15 seconds (pediatric) - Other techniques of airway management maybe indicated if there is a suspected injury to the c-spine - Verify successful endotracheal intubation by auscultation of the chest and end-tidal CO₂ detector



SPECIAL CONSIDERATIONS:

1. Always weigh the risks and benefits of endotracheal intubation in the field against transport. All prehospital endotracheal intubations are considered high risk. If ventilation / oxygenation is adequate, transport may be the best option. The most important airway device and the most difficult to use correctly and effectively is the Bag Valve Mask (not the laryngoscope). Few prehospital airway emergencies cannot be temporized or managed with proper BVM techniques
2. Blind Insertion Airway Device (BIAD):
 - a. King LTS-D Airway Device
 - b. Laryngeal Mask Airway (LMA)
 - c. I-gel Supraglottic Airway
3. **Capnography or a CO₂ detector device MUST be used and checked with each patient movement and documented on the run sheet.**
4. Ventilate the adult patient 8 – 10 breaths / minute (pediatric per pediatric tables) with 100% oxygen, and document correct tube placement and depth using numbers on the ET Tube at the lip.
5. Difficult Airway Assessment
 - a. **Difficult BVM Ventilation (MOANS):**
 - i. Difficult Mask seal due to facial hair, anatomy, blood or secretions / trauma
 - ii. Obese or late pregnancy
 - iii. Age > 55
 - iv. No teeth (roll gauze and place between gums and cheeks to improve seal)
 - v. Stiff or increased airway pressures (Asthma, COPD, Obese, Pregnant).
 - b. **Difficult BIAD (RODS):**
 - i. Restricted mouth opening
 - ii. Obstruction / Obese or late pregnancy
 - iii. Distorted or disrupted airway
 - iv. Stiff or increased airway pressures (Asthma, COPD, Obese, Pregnant);
 - c. **Difficult Laryngoscopy (LEMON):**
 - i. Look externally for anatomical distortions (small mandible, short neck, large tongue);
 - ii. Evaluate 3-3-2 Rule (Mouth open should accommodate 3 patient fingers, mandible to neck junction should accommodate 3 patient fingers, chin-neck junction to thyroid prominence should accommodate 2 patient fingers)
 - iii. Mallampati (difficult to assess in the field)

- iv. **Obstruction / Obese or late pregnancy**
 - v. **Neck mobility**
- d. **Difficult Cricothyrotomy / Surgical Airway (SHORT):**
 - i. **Surgery or distortion of airway**
 - ii. **Hematoma over lying neck**
 - iii. **Obese or late pregnant**
 - iv. **Radiation treatment skin changes**
 - v. **Tumor overlying neck.**
- 6. **Trauma**
 - a. **Utilize in-line cervical stabilization during intubation, BIAD or BVM use**
 - b. **During intubation or insertion of BIAD the cervical collar front should be open or removed to facilitate translation of the mandible / mouth opening**
- 7. **Complications**
 - a. **Accidental intubation of the esophagus**
 - b. **Insertion of the endotracheal tube too deep into the trachea or right main stem bronchus**
 - c. **Oropharyngeal trauma**
 - d. **Fractured teeth or dentures, damaged gums**
 - e. **Spasm of the vocal cords**
- 8. **Tube check procedure**
 - a. **Use this tube check procedure for anyone over age > 5 years**
- 9. **May decompress the stomach by insertion of lubricated appropriate sized Nasogastric or Orogastric Tube and attached to suction.**

TAB 8 GUIDELINE 6

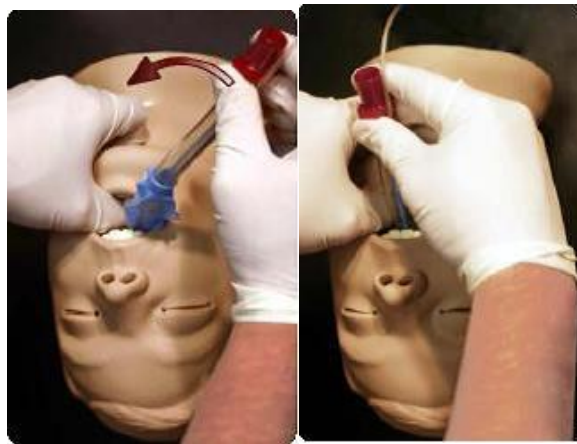
AIRWAY MANAGEMENT – BIAD – KING LTS-D AIRWAY

1. The King LTS-D is a “dual lumen” airway designed for use as a primary or back up airway in the event intubation is not authorized or not successful. **The King LTS-D is the preferred advanced airway for the EMT** and approved for all scopes of practices
2. Indications
 - a. EMT’s may utilize the King LTS-D for the unconscious, apneic or near apneic patient or in cases when CPR is initiated.
 - b. The King LTS-D may be used initially or after beginning CPR with Bag Valve Mask ventilations.
3. Contraindications
 - a. Responsive patients with an intact gag reflex
 - b. Patients with known esophageal injury / disease
 - c. Patients who have ingested caustic substances

Size	2	2.5	3	4	5
Patient Criteria	35 – 45 inches (90 – 115 cm) Or 12 – 25 Kg	41 – 51 inches (105 – 130 cm) Or 25 – 35 Kg	4 – 5 feet (122 – 155 cm)	5 – 6 feet (155 – 180 cm)	> 6 feet (> 180 cm)
Connector Color	Green	Orange	Yellow	Red	Purple
Cuff Pressure	60 cm H ₂ O	60 cm H ₂ O	60 cm H ₂ O	60 cm H ₂ O	60 cm H ₂ O
KLTD Cuff Volume	25 – 35 mL	30 – 40 mL	45 – 60 mL	60 – 80 mL	70 – 90 mL

4. Procedure
 - a. Assess for absence of gag reflex, hypoventilation or apnea and visible foreign body in the airway
 - b. Size of device is based on height of the patient with a size four being the most widely used size for patients 5 – 6 feet in height.
 - c. Lubricate only the posterior surface of the King LTS-D to avoid blockage of the aperture or aspiration of the lubricant.
 - d. Place King LTS-D per next page flow sheet.

- **STEP 1** - Position the patient in sniffing position (if c-spine injury not suspected). Hold the King LTS-D at the connector with dominant hand. With non-dominant hand, hold mouth open and apply chin lift after grasping the lower jaw
- **STEP 2** - Introduce the King LTS-D airway rotated laterally 45 – 90 degrees such that the blue orientation line is touching the corner of the mouth. Introduce the tip into the mouth and under the base of the tongue rotating tube to the midline



- **STEP 3** - Advance tube until base of connector is aligned with the teeth or gums. Never force the tube into position
- **STEP 4** - Attach BVM while gently ventilating, slowly withdraw tube until ventilation is easy and free flowing with visual chest rise and fall



- **STEP 5** - Inflate cuff according to size
 - Size 2 25 – 35 ml
 - Size 2.5 30 – 40 ml
 - Size 3 45 – 60 ml
 - Size 4 60 – 80 ml
 - Size 5 70 – 90 ml
- **STEP 6** - Ventilate the patient every 6 seconds with 100% oxygen, and document correct tube placement and depth of insertion
- **STEP 7** - Capnography device **MUST** be used and checked with each patient movement and documented on the run sheet.
- **STEP 8** - Secure the King LTS-D to the patient using tape / Thomas Tube Holder or any other acceptable means.

STEP 9 - May decompress the stomach by insertion of lubricated appropriately sized Nasogastric or Orogastric Tube and attached to suction.

5. SPECIAL CONSIDERATIONS:

- a. Does not protect the airway from the effects of regurgitation and aspiration
- b. High airway pressures may divert gas either to the stomach or to the atmosphere
- c. Intubation of the trachea cannot be ruled out as a potential complication of the insertion of the KING LTS-D
- d. It can and should be used with capnography and up to an 18 F nasogastric tube can be placed through the Gastric Access Lumen to decompress the stomach.

TAB 8 GUIDELINE 7

AIRWAY MANAGEMENT – BIAD – IGEL AIRWAY

1. Indications

- a. EMT's may utilize the I-Gel for the unconscious, apneic or near apneic patient or in cases when CPR is initiated.
- b. The I-Gel may be used initially or after beginning CPR with Bag Valve Mask ventilations.
- c. Inability to adequately ventilate a patient with a bag valve mask require a more advanced airway.
- d. Appropriate intubation is impossible due to patient access or difficult airway anatomy.
- e. Inability to secure an endotracheal tube in a patient who does not have a gag reflex where at least one failed
- f. Intubation attempt has occurred.
- g. **WARNING: This airway may not prevent aspiration of stomach contents**

2. Contraindications

- a. Responsive patients with an intact gag reflex
- b. Patients with known esophageal injury / disease
- c. Patients who have ingested caustic substances

3. Guideline

- a. Assess for absence of gag reflex, hypoventilation or apnea and visible foreign body in the airway
- b. Select correct size of airway
- c. Pre-oxygenate and hyperventilate the patient
- d. Select the appropriate tube size for the patient
- e. Lubricate the tube
- f. Place patient in sniffing position and gently press down on chin
- g. Insert the leading soft tip into the mouth of the patient in a direction towards the hard palate. Guide the device downwards and backwards along the hard palate with a continuous but gentle push until a definitive resistance is felt
 - i. Incisors should be resting on the integral bite-block.
- h. Ventilate the patient
- i. Auscultate for breath sounds over the lungs and epigastrium and look for the chest to rise and fall.
- j. Secure the tube to the patient's face.

- k. **Confirm tube placement using end-tidal CO 2 detector**
- l. It is required the airway be monitored continuously through waveform capnography and pulse oximetry

TAB 8 GUIDELINE 8

AIRWAY MANAGEMENT – PRE-INTUBATION CHECKLIST

Does patient need to be intubated?

- ☐ Consider **need** for airway protection, assisted ventilation, improving oxygenation, altering physiological conditions, decreasing work of breathing
- ☐ Consider **risks** of intubation – prolonged scene time, risk of failed airway, associated hypotension, positive-pressure ventilation induced decrease in venous return

Prepare Patient

- ☐ Optimize patient position
- ☐ Confirm / obtain vascular access
- ☐ Patient placed on monitor
- ☐ Assess the patient for difficult ventilation with BVM, difficult intubation with BIAD / ET Tube, and difficult surgical airway
- ☐ Pre-oxygenation with non-rebreather, CPAP or BVM
- ☐ Nasal cannula applied for continued apneic oxygenation

Prepare Equipment

- ☐ BVM with PEEP Valve
- ☐ OPA to assist BVM ventilation
- ☐ Appropriate size ETT with stylet (rigid for VL), 10 ml syringe for ETT cuff
- ☐ Suction
- ☐ Endotracheal tube introducer (Gum Bougie)
- ☐ EtCO₂
- ☐ Back up equipment readily available – direct laryngoscope, King LT, OPA / BVM, and surgical airway kit

Prepare Drugs

- ☐ Pre-medication: consider atropine for pediatric patient
- ☐ Induction: Ketamine and / or Etomidate and / or Fentanyl / Versed
- ☐ Paralysis: Succinylcholine or Rocuronium

- ☐ Hypotension: Epinephrine push dose
- ☐ Maintenance: Fentanyl, Midazolam, Rocuronium or Vecuronium

Planning

- ☐ Plan for failed airway
- ☐ Plan for post-intubation hypotension
- ☐ Plan for post-intubation sedation

TAB 8 GUIDELINE 9
AIRWAY MANAGEMENT – POST-INTUBATION CHECKLIST

Post-intubation Checklist

☐ EtCO ₂	Document _____ mmhg
☐ Secure ETT	Document _____ ETT depth in cm
☐ Secure C-collar if indication	
☐ Blood pressure	Document _____ mmhg
☐ O ₂ saturation	Document _____ %
☐ Disconnect nasal canula	
☐ Administer analgesia (fentanyl)	
☐ Administer sedation (versed, ketamine) prn	
☐ Administer vasopressor (epinephrine) for post-intubation hypotension	
☐ Administer paralytic (rocuronium) if indicated	
☐ Assess chest for equal breath sounds and rise / fall; consider mainstem intubation or pneumothorax	
☐ Apply soft restraints	

TAB 8 GUIDELINE 10

AIRWAY MANAGEMENT – ENDOTRACHEAL (ADULT / PEDIATRIC) INTUBATION

INDICATIONS	CONTRAINDICATIONS	COMPLICATIONS
• Patients in deep coma • Respiratory arrest or cardiopulmonary arrest • Patients where complete obstruction of the airway appears imminent	• Patients with an intact gag reflex • Patients where irritation of the pharynx might cause laryngeal spasm • Croup or epiglottitis	• Accidental intubation of the esophagus • Insertion of the endotracheal tube too deep into the trachea or right mainstem bronchus. • Oropharyngeal trauma. • Fractured teeth or dentures. • Spasm of the vocal cords.

• Prepare, position, and oxygenate the patient with 100% oxygen. • Select proper ET tube (stylet, if used). • Have suction unit available for airway suctioning. • Limit each intubation attempt to 30 seconds (for adult) and 15 seconds (for pediatrics) with BVM between attempts. • Visualize ET tube pass through vocal cords. • Check ET tube placement with colorimetry EtCO₂ Detector. • Inflate the cuff with 3 – 10 ml of air (may not apply to pediatric non-cuffed tubes); secure ET tube with Thomas Tube holder or other device. • Auscultate for bilaterally equal breath sounds and absence of sounds over the epigastrium. If unsure of tube placement, remove tube and ventilate patient with BVM. • Consider using Flex guide (adult patients) or KING airway if ET intubation efforts are unsuccessful. • Note: KING sizes 3 / 4 / 5 may prohibit use in pediatric patients. • Attach End tidal CO₂ filter-line to monitor and confirm capnographic waveform and capnometric value. Continue monitoring throughout patient treatment and transport. • Document ETT size, time, result (success) and placement location (centimeter marks at the patient's teeth or lips) on the patient care report (PCR). Document all devices used to confirm initial tube placement. Document positive/negative breath sounds before and after each movement of the patient.

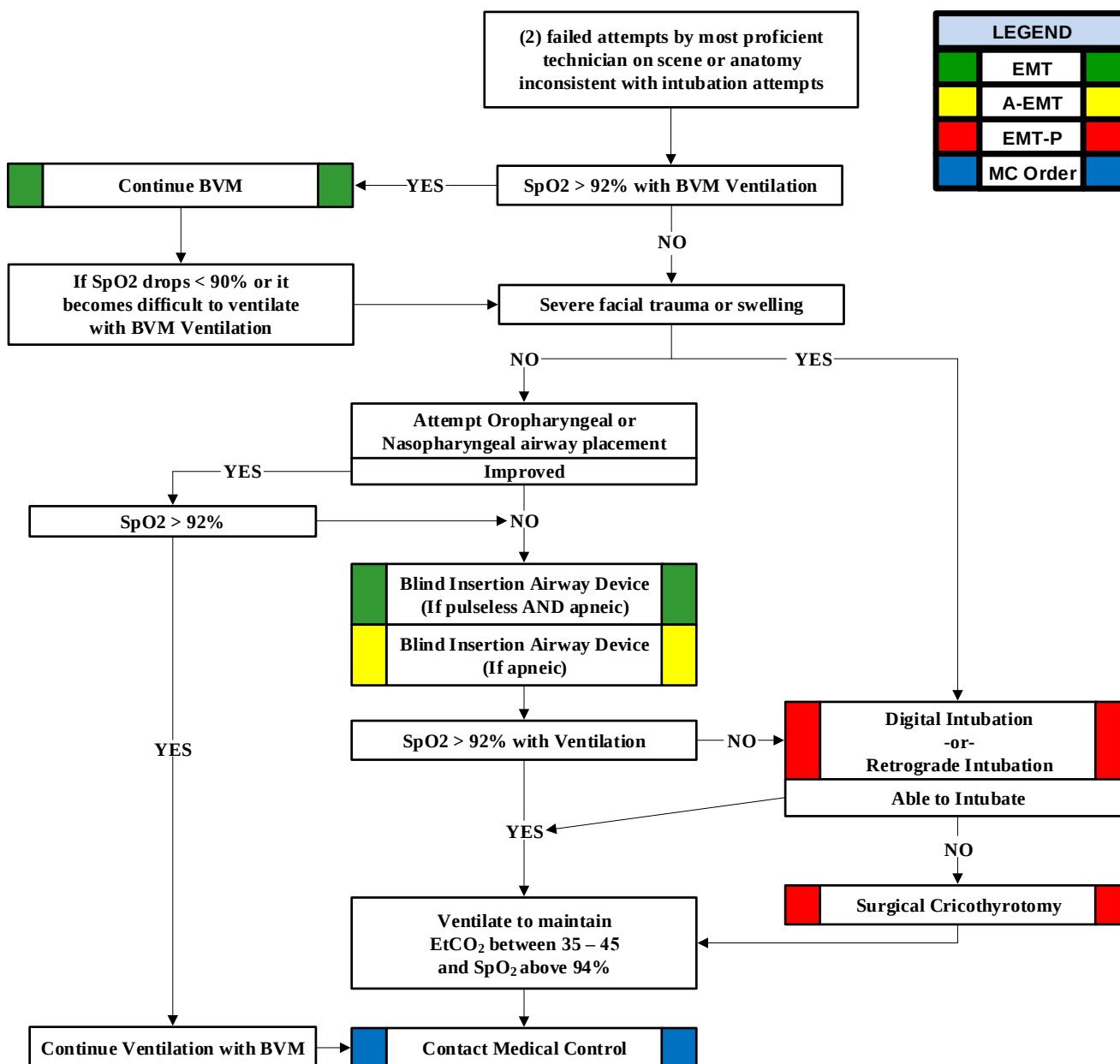
Trauma Patient Intubation (Orotracheal Intubation with C-Spine Control)

• After basic manual and adjunctive airway maneuvers, have your partner maintain in-line stabilization while kneeling at the patient's side, facing his head. This is done by placing both hands over the patient's ears with the little, ring, and middle fingers under the occiput, the index fingers anterior to the ears, and the thumbs on the face over the maxillary sinuses. • Apply slight pressure in the caudal direction (toward the feet) to support and immobilize the head. • Proceed gently with oro-tracheal intubation, remembering the need to minimize movement of the cervical spine.

TAB 8 GUIDELINE 11

AIRWAY MANAGEMENT – FAILED AIRWAY (ADULT)

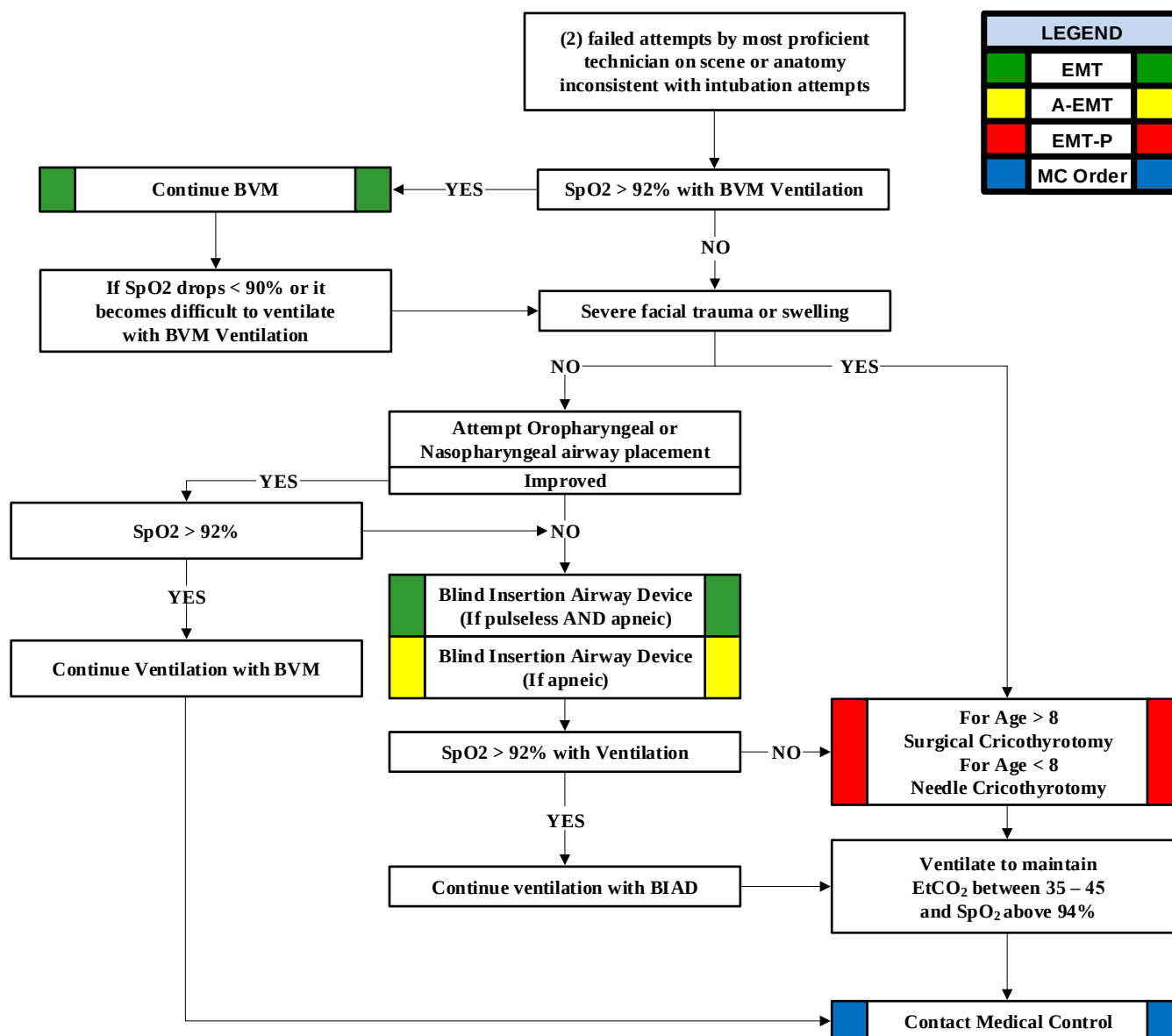
INDICATIONS	CONTRAINDICATIONS	MANDATORY
- Adult patient age > 16 - Patients in deep coma - Respiratory arrest or cardiopulmonary arrest with failed conventional airway management - Patients where complete obstruction of the airway appears imminent	- Patients with an intact gag reflex - Patients where irritation of the pharynx might cause laryngeal spasm	- Use Gum Elastic Bougie, BURP (trachea back, up and to the patient's right) maneuver on 2nd attempt - Consider changing head position - Verify successful endotracheal intubation by auscultation of the chest and end-tidal CO₂ detector



TAB 8 GUIDELINE 12

AIRWAY MANAGEMENT – FAILED AIRWAY (PEDIATRIC)

INDICATIONS	CONTRAINDICATIONS	MANDATORY
- Pediatric patient age < 16 - Patients in deep coma - Respiratory arrest or cardiopulmonary arrest with failed conventional airway management - Patients where complete obstruction of the airway appears imminent	- Patients with an intact gag reflex - Patients where irritation of the pharynx might cause laryngeal spasm	- Use Gum Elastic Bougie, BURP (trachea back, up and to the patient's right) maneuver on 2nd attempt - Consider changing head position - Verify successful endotracheal intubation by auscultation of the chest and end-tidal CO₂ detector



TAB 8 GUIDELINE 13

AIRWAY MANAGEMENT – DIGITAL INTUBATION

INDICATIONS	CONTRAINDICATIONS	COMPLICATIONS
• Patients in deep coma • Respiratory arrest or cardiopulmonary arrest • Patients where complete obstruction of the airway appears imminent	• Patients with an intact gag reflex • Patients where irritation of the pharynx might cause laryngeal spasm • Croup or epiglottitis	• Inability to locate airway structures • Accidental intubation of the esophagus. • Insertion of the endotracheal tube too deep into the trachea or right mainstem bronchus. • Oropharyngeal trauma. • Spasm of the vocal cords.

• Prepare, position and oxygenate the patient with 100% oxygen. • Select proper ET tube. Insert stylet and bend tube into a “J” shape. • Have team member stabilize the patient’s head and neck in an in-line (neutral) position. Place a bite block or oral airway between the patient’s molars to help protect your fingers. • Limit each intubation attempt to 30 seconds (for adult) and 15 seconds (for pediatrics) with BVM between attempts. • Insert your left middle and index fingers into the patient’s mouth. By alternating fingers, “walk” your hand down the midline while simultaneously tugging gently forward on the tongue. This lifts the epiglottis up and away from the glottic opening, within reach of your probing fingers. • Palpate the arytenoid cartilage posterior to the glottis and the epiglottis anteriorly with your middle finger. Press the epiglottis forward, and insert the endotracheal tube into the mouth, anterior to your fingers. • Advance the tube, pushing it gently with your right hand. Use your left index finger to keep the tip of the ETT against your middle finger. This will direct the tip to the epiglottis. • Use your middle and index fingers to direct the tip of the ETT between the epiglottis (in front) and your fingers (behind). Then with your right hand advance the ETT through the cords while simultaneously maneuvering it forward with your left index and middle fingers. This will prevent it from slipping posteriorly into the esophagus. • Hold the tube in place with your hand to prevent its displacement. Check ET tube placement with colorimetry EtCO₂ Detector. • Inflate the cuff with 3 – 10 ml of air. • Auscultate for bilaterally equal breath sounds and absence of sounds over the epigastrium. If unsure of tube placement, remove tube and ventilate patient with BVM. • Attach End tidal CO₂ filter-line to monitor and confirm capnographic waveform and capnometric value. Continue monitoring throughout patient treatment and transport. • Document ETT size, time, result (success) and placement location (centimeter marks at the patient’s teeth or lips) on the patient care report (PCR). Document all devices used to confirm initial tube placement. Document positive / negative breath sounds before and after each movement of the patient.

TAB 8 GUIDELINE 14

AIRWAY MANAGEMENT – NASOTRACHEAL INTUBATION

INDICATIONS	CONTRAINDICATIONS	COMPLICATIONS
- Imminent respiratory arrest where oral intubation cannot be accomplished. - Rigidity or hypoxia from seizures (e.g. “clenched teeth”). - Trauma to the oral cavity prohibiting oral intubation. - Patients with severe respiratory distress and depressed gag reflex.	- Non-breathing or near apneic patient. - Known or likely fracture/instability of mid-face secondary to trauma. - Patients with basilar skull fracture. - Relative contraindications: - Blood clotting abnormalities - Nasal polyps	- Accidental intubation of esophagus - Insertion of endotracheal tube too deep into the trachea or right mainstem bronchus. - Oropharyngeal trauma; laryngopharyngeal trauma. - Fractured teeth or dentures. - Spasm of the vocal cords.

- Prepare, position and oxygenate the patient with 100% oxygen. - Select proper ET tube (~ 1mm less than for oral intubation). - Lubricate ET tube generously with water-soluble lubricant (Lidocaine Jelly). - Pass the ET tube through the largest nostril with the beveled edge against the nasal septum and perpendicular to the facial plate. - Use forward and lateral back and forth motion to advance the tube into the oropharynx. <u>Never force the tube.</u> - Listen form air movement through the tube. Apply firm, gentle cricoid pressure and advance the tube quickly past the vocal cords during inspiration. Look/feel for bulging and anterior displacement of the laryngeal prominence. - Listen over the opening of the ET tube to detect air flow with ventilatory effort. - Check ET tube placement with colorimetry EtCO₂ Detector. - Inflate the cuff with 3 – 10 ml of air; secure ET tube. - Auscultate for bilaterally equal breath sounds and absence of sounds over the epigastrium. If unsure of tube placement, remove tube and ventilate patient with BVM. - Attach End tidal CO₂ filter-line to monitor and confirm capnographic waveform and capnometric value. Continue monitoring throughout patient treatment and transport. - Document ETT size, time, result (success) and placement location on the patient care report (PCR). Document all device used to confirm initial tube placement. Document positive/negative breath sounds before and after each movement of the patient.

SPECIAL CONSIDERATIONS:

- Orotracheal intubation is the preferred choice
- Procedure requires patient have spontaneous breathing
- Contraindicated in anatomically disrupted or distorted airways, increased intracranial pressure, severe facial trauma, basal skull fracture, head injury
- Not a rapid procedure and exposes patient to risk of desaturation

TAB 8 GUIDELINE 15
ENDOTRACHEAL TUBE INTRODUCER
(GUM ELASTIC BOUGIE)

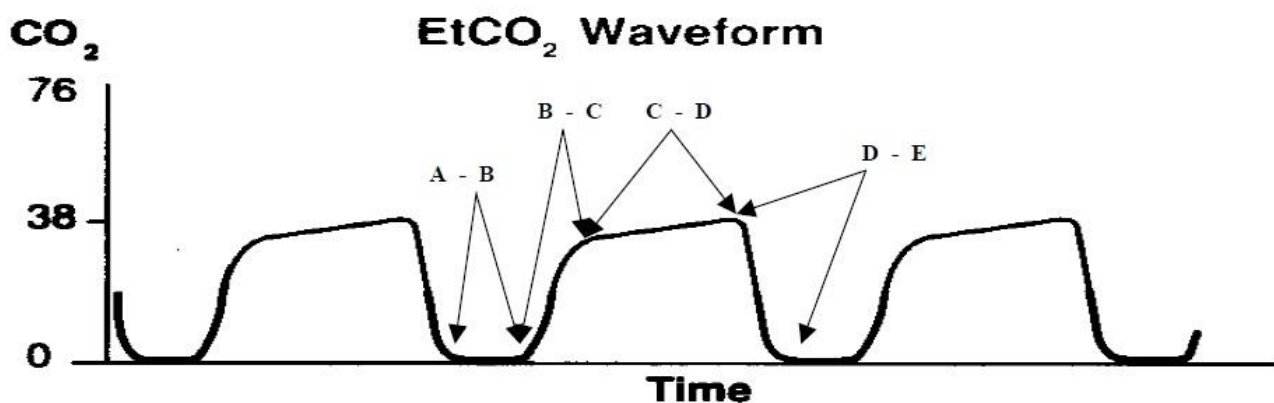
INDICATIONS	CONTRAINDICATIONS	COMPLICATIONS
- Difficult intubation with a restricted view of the glottic opening (vocal cords). - Short, thick neck - Pregnancy - Laryngeal edema - Anatomical variation - C-spine immobilization - Tumors above the glottis opening	- Pediatric patient less than age 14 - Use of ET tube < 6.0 mm	- Soft tissue damage or bronchial rupture may occur: - During blind intubation - Positioning past the carina - If undue pressure is applied - If ET tube is passed over introducer without the use of a laryngoscope - Single-use device. Do not attempt to clean or sterilize

- Perform laryngoscopy, obtaining the best possible view; should always be able to view the tip of the epiglottis and ideally the arytenoids cartilages - Advance the bougie, continually observing the distal tip, with the concavity (J tip) facing anterior. - Visualize the tip of the bougie passing posterior to the epiglottis. - Once the tip of the bougie has passed into the epiglottis, continue to advance midline so it passes behind the epiglottis in an anterior direction. - As the tip enters the glottic opening (passes through the vocal cords) you will feel a “click” as it passes over the tracheal rings, or the tip may experience a “hold up” if it is against the wall of the airway. If you feel a “hold up”, gently withdraw the bougie about 5 cm. - Hold the bougie firmly in place and MAINTAIN LARYNGOSCOPY. Instruct your colleague to pass the ET tube over the proximal end of the bougie. As the proximal tip is re-exposed the colleague should carefully grasp it, assuming control of the bougie and passing control of the ET tube to the intubator. - Once the ET tube is fully in place, hold it securely as your colleague carefully withdraws the bougie.

TAB 8 GUIDELINE 16

CAPNOGRAPHY

1. End tidal carbon dioxide is the measurement of the % carbon dioxide in the airway. Capnography provides a numeric reading (% CO₂ present) as well as graphic display (waveform). ET_{CO}₂ is very useful in the patient with an advanced airway in place in helping to determine the adequacy of ventilation and perfusion. In order for there to be a measurable carbon dioxide level there must be cardiac output as well as lungs that are being ventilated and perfused
2. Indications
 - a. Confirmation of proper placement for endotracheal tube, King LT, iGel airway, surgical cricothyrotomy
 - b. Acute dyspnea
 - c. Assisted ventilations
3. Interpreting Capnography
 - a. Normal range for EtCO₂ is **35 – 45 mmHg**
 - b. There are 4 phases of the waveform that require analysis.
 - i. The flat **A – B** baseline segment (Respiratory Baseline) represents the beginning of exhalation of CO₂ – free gas that is contained in dead space from the conduction airways (trachea, bronchi). This value normally is zero.
 - ii. The **B – C** segment (Expiratory Upstroke), a sharp rise, represents exhalation of a mixture of dead space gases and alveolar gases.
 - iii. The **C – D** segment represents the alveolar plateau, characterized by exhalation of mostly alveolar gas. Point **D** is the end-tidal (EtCO₂) value that is recorded and displayed by the monitor, (peak concentration of CO₂ occurring at the end of expiration).
 - iv. The **D – E** segment (Inspiratory Down stroke), a sharp fall, reflects the inhalation of gases that are CO₂ – free (room air or supplemental oxygen). Alterations of the normal capnograph or EtCO₂ values are the result of changes in metabolism, circulation, ventilation, or equipment function.



4. When no CO₂ is detected, 3 factors must be quickly evaluated for cause:
 - a. Loss of airway – improper tube placement, improper ventilation
 - b. Circulatory collapse – Massive PE, cardiac arrest, low cardiac output
 - c. Equipment malfunction – disconnected or malfunctioning bag-valve or ventilator
5. Procedure:
 - a. Open tubing connector door and connect ETCO₂ filter line tubing by turning clockwise
 - i. Tubing should be connected to monitor before being connected to the patient's airway.
 - b. Verify ETCO₂ display is on.
 - c. Connect filter line to patient airway.
6. **SPECIAL CONSIDERATIONS:**
 - a. CO₂ monitoring initiates as soon as the filter line is connected. Display will auto scale to appropriate value parameters.
 - b. CO₂ alarms are preset:
 - i. High alarm – 70 mm Hg.
 - ii. Low alarm – 5 mm Hg.
 - c. The apnea alarm will sound and "Alarm Apnea" will be displayed on the screen when no valid breath has been detected for 30 seconds. The ETCO₂ monitor is intended only as an adjunct in patient assessment and is not to be used as a diagnostic apnea monitor. An apnea message and alarm will display only if a valid breath has not been detected for 30 seconds. Monitoring should be used with clinical signs and symptoms.
 - d. Carefully route the patient tubing (filter line) to reduce the possibility of entanglement or strangulation.

End-tidal CO₂ monitoring is appropriate for adult and pediatric patients.

TAB 8 GUIDELINE 17

NEEDLE CRICOTHYROTOMY

INDICATIONS	CONTRAINDICATIONS	COMPLICATIONS
• Management of an obstructed airway when standard airway procedures cannot be accomplished or have failed • May be performed on patients of any age • Unable to intubate by another route • Cervical spine injuries • Maxilla facial trauma • Laryngeal trauma / edema	• Patient able to maintain own airway • Able to perform alternative airway management including endotracheal intubation / BVM / B IAD / Digital Intubation / Retrograde Intubation	• Post procedure bleeding • Cellulitis of neck • Subcutaneous emphysema • Voice change • Feeling of lump in throat • Persistent stoma • Obstructive problems • Misplacement of the airway

This procedure will be performed by paramedics only

- Place in supine position with neck in a neutral position, c-spine control if indicated
- Use aspect technique, as time and conditions will allow
- Have suction supplies available and ready
- Palpate the thyroid notch, cricothyroid interval and sterna notch for orientation
- Secure larynx laterally between thumb and forefinger
- Relocate the cricothyroid membrane
- Using the syringe attached to a short 10 – 14 gauge catheter-over-needle device if needed, insert the needle through the cricothyroid membrane at a 45 – 60 degree angle towards feet
- Confirm entry of needle in trachea by aspirating air through the syringe
- If air is present, change the angle of insertion to 60 degrees
- Advance the catheter to the level of the hub
- Carefully remove the needle and syringe
- Secure the cannula to the patient
- Attach the cannula to a 15 mm adapter (2.5 – 3.0 pediatric ET tube adapter)
- Attach a BVM to the airway adapter and begin oxygenation
- Make certain ample time is used not only for inspiration but expiration
- If unable to obtain an adequate airway, resume basic airway management and transport the patient as soon as possible

SPECIAL CONSIDERATIONS:

1. This procedure buys TIME only. It is not a definitive airway. It will provide OXYGENATION only, not appropriate VENTILATION. The paramedic considering a cricothyrotomy must make a careful airway assessment focused on:
 - a. Determining the patient's ability to maintain his / her own airway without further interventions
 - b. Need for non-surgical intubation, such as obstructed airway procedures, manual airway maneuvers, oral or nasal airways with positive pressure ventilation or medication administration
 - c. This decision will be affected by:
 - i. Extrication time, transport time, distance to transport hospital, paramedic's personal airway skills and on-line MEDICAL CONTROL.
2. Key points
 - a. Use needle cricothyrotomy as a bridge to more invasive surgical airways
 - b. If placement is required due to foreign body obstruction, removal attempts should continue after performing needle cric procedure
 - c. Use procedure early to prevent ongoing hypoxia if foreign body is not easily removed

TAB 8 GUIDELINE 18

SURGICAL CRICOTHYROTOMY

INDICATIONS	CONTRAINDICATIONS	COMPLICATIONS
• Management of an obstructed airway when standard airway procedures cannot be accomplished or have failed • Unable to intubate by another route • Cervical spine injuries • Maxilla facial trauma • Laryngeal trauma / edema	• Patient able to maintain own airway • Able to perform alternative airway management including endotracheal intubation / BVM / B IAD / Digital Intubation / Retrograde Intubation • Pediatric patient less than age 8	• Post procedure bleeding • Asphyxia • Aspiration • Creation of a false passage into tissue • Subglottic stenosis / edema • Laryngeal stenosis • Hemorrhage • Laceration of the esophagus or trachea • Mediastinal emphysema • Vocal cord paralysis

This procedure will be performed by paramedics only

- Place in supine position with neck in a neutral position, c-spine control if indicated
- Use aspect technique, as time and conditions will allow.
- Have suction supplies available and ready.
- Palpate the thyroid notch, cricothyroid interval and sterna notch for orientation.
- Stabilize the thyroid cartilage with the non-dominant hand.
- Using a #11 blade scalpel, make a vertical incision through the skin over the lower half of the cricothyroid membrane, approximately 1 – 1 ½ inches in length. This should expose the cricothyroid membrane.
- Carefully incise through the membrane, up to 1 cm in length.
- Using the handle of a second capped scalpel, insert it into the incision and rotate it 90 degrees to open the incision into the airway, or hemostats may be used to widen the opening. Can then place a gum elastic bougie into the hole to ensure patency.
- Insert a cuffed 6.0 endotracheal tube (or smaller for pediatrics) through the cricothyroid membrane incision. Direct the tube distally into the trachea until the cuff just passes the tracheal incision.
- Inflate the cuff approximately 8 – 10 ml and ventilate the patient, auscultating the chest.
- Secure the ET Tube to prevent dislodging with rolled gauze tie.
- Attach to 100% oxygen by BVM and confirm with capnography.
- Ventilate the patient every 6 seconds with 100% oxygen, and document correct tube placement and depth of insertion

TAB 8 GUIDELINE 19

TRACHEOSTOMY TUBE CARE

INDICATIONS	CONTRAINDICATIONS	COMPLICATIONS
• Management of an obstructed tracheostomy airway • Secretions in tracheostomy tube	• Patient able to maintain airway via tracheostomy tube	• Post procedure bleeding • Asphyxia • Aspiration • Creation of a false passage into tissue • Hemorrhage • Laceration of the esophagus or trachea • Mediastinal emphysema

• Clearing an Obstructed Tracheostomy Tube • Position patient. Ensure that the outer opening of the tube is clear. • Check that the tube is in the proper location. The wings or flange should be against the neck, and the obturator should not be in place. • If a fenestrated tube (holes for upward flow of air to the upper airway) is in place, remove the decannulation plug. • If a double lumen tube is in place, remove the inner cannula to clear secretions. • If none of the above maneuvers work, suction the tube with a suction catheter. • Suctioning a Tracheostomy Tube (may be performed by EMT / Advanced EMT / Paramedic / Nurses) • Choose a suction catheter small enough to pass through the tube. • Prepare suction unit for use and attach suction catheter. • Give oxygen (over tracheostomy tube) with a mask, and then loosen secretions by placing 1 – 2 mL of normal saline into the tube with a syringe. • Insert the suction catheter approximately 2 inches (5 cm) into the tube. If the patient begins to cough, the catheter is through the tube and into the trachea, and the depth of insertion is too deep. Do not use suction while inserting the catheter, and never force the catheter. • Cover the suction port (hole) and suction for 3-5 seconds, while slowly removing the catheter. Never suction for longer than 10 seconds. Always monitor heart rate and coloring during this procedure. Stop suctioning immediately if the heart rate drops significantly or the patient's coloring worsens. • If the obstruction is removed, and the patient can breathe on his/her own, do not suction further. If additional suctioning is needed, apply oxygen (by blow-by or direct ventilation) and repeat steps as necessary. • Always provide supplemental oxygen after suctioning by using the blow-by method or with manual ventilations.

- Replacing a Tracheostomy Tube (may be performed by Advanced EMT / Paramedic / Nurses)
 - Insert a tracheostomy tube of the same size and model whenever possible. If this is not available, use a smaller tube or an endotracheal tube of the same outer diameter as the tracheostomy tube.
 - If the tube uses an insertion obturator, place this in the tube. If the tube has an inner and outer cannula, use the outer cannula and obturator for insertion.
 - Moisten or lubricate the tip of the tube (and obturator) with water, sterile saline, or a water-soluble lubricant.
 - Gently insert the tube with an arching motion (follow the curvature of the tube) posteriorly and then downward. Slight traction on the skin above or below the stoma may help.
 - Once the tube is in place, remove the obturator, attach the bag-mask device, and attempt to ventilate. If the tube uses an inner cannula, insert to allow mechanical ventilation with a bag-valve device.
 - Check for proper placement by watching for bilateral chest rise, listening for equal breath sounds, and observing the patient. Signs of improper placement include lack of chest rise, unusual resistance to assisted ventilation, air in the surrounding tissues, and lack of patient improvement.
 - If the tube cannot be inserted, withdraw the tube, administer oxygen, and ventilate as needed.
 - Use a smaller-size tracheostomy tube for the second attempt. If still unsuccessful with a smaller tracheostomy tube, insert an endotracheal tube through the stoma. Check the length of the original tracheostomy tube, note the markings on the endotracheal tube, and advance it to the same depth as the original tube. Do not advance the tube too far, or it may go into the right main stem bronchus.
 - If still unsuccessful, use a suction catheter as a guide. Insert a small sterile suction catheter through the tracheostomy tube. Without applying suction, insert the suction catheter into the stoma. Slide the tracheostomy tube along the suction catheter and into the stoma, until it is in the proper position. Remove the suction catheter. Assess ventilation through the tracheostomy tube.
 - If still unsuccessful, consider orotracheal intubation or transport the patient with ventilation through the stoma using a pediatric mask, or through a bag-mask device over the nose and mouth while covering the stoma with a sterile gauze.
 - After proper placement, cut the ends of the tracheostomy ties or tape diagonally (allows for easy insertion), pass through eyelets (openings) on the flanges, and tie around the patient's neck, so that only a little finger can pass between the ties and the neck.

SPECIAL CONSIDERATIONS:

1. There are several types of tracheostomy tubes, and they come in many sizes and lengths, cuffed and uncuffed versions. The size is written on the wings or flanges of the tube. The inner and outer diameters are often on the wings as well. All tracheostomy tubes have a standard outer opening or hub outside the neck so a bag-mask device can be attached. For some tubes, an adapter may be needed to make this connection.

TAB 8 GUIDELINE 20

SEDATION GUIDELINE

1. Indications

- a. Intubated patient showing signs of agitation or pain during transport
- b. All patients that received or are on a paralytic agent

2. Contraindications

- a. Airway compromise
- b. Hypotension

3. Guideline

- a. Ensure that the patient is properly intubated, and that oxygen is attached
 - i. All patients “MUST” be on capnography or CO₂ detector and SPO₂ if intubated
 - ii. Agitation is one of the first signs for hypoxia
- b. Richmond Agitation-Sedation Scale
 - i. Validated agitation-sedation scale from age 2 months and older
 - ii. Goal is for RASS between (0) to (-2)

Score	Term	Description
+ 4	Combative	Overtly combative or violent; immediate danger to staff
+ 3	Very agitated	Pulls on or removes tube(s) or catheter(s) or has aggressive behavior toward staff
+ 2	Agitated	Frequent nonpurposeful movement or patient–ventilator dyssynchrony
+ 1	Restless	Anxious or apprehensive but movements not aggressive or vigorous
0	Alert and Calm	Spontaneously pays attention to caregiver
- 1	Drowsy	Not fully alert, but has sustained (more than 10 seconds) awakening, with eye contact, to voice
- 2	Light Sedation	Briefly (less than 10 seconds) awakens with eye contact to voice
- 3	Moderate Sedation	Any movement (but no eye contact) to voice
- 4	Deep Sedation	No response to voice, but any movement to physical stimulation
- 5	Unarousable	No response to voice or physical stimulation

4. Considerations

- a. Administration of sedation and pain control for intubated patients with initial RASS of (-2) to (-5) will at the discretion of the medical crew members

5. Medication

b. Adult

i. Sedation

1. Ketamine 1 – 4 mg / Kg slow IV or 6 – 12 mg / Kg IM every 5 minutes as needed
2. Midazolam 1 – 5 mg IV / IM / IO / IN every 5 – 15 minutes as needed

ii. Pain Control

1. Fentanyl 1 mcg / kg every 15 – 30 minutes as needed
2. Ketamine 1 – 4 mg / Kg slow IV or 6 – 12 mg / Kg IM every 5 minutes as needed

c. Pediatric

i. Sedation

1. Ketamine 1 mg / Kg slow IV or 4 – 5 mg / Kg IM every 5 minutes as needed
2. Midazolam 0.1 mg / kg (max 5 mg) IV / IM / IO / IN every 5 – 15 minutes as needed

ii. Pain Control

1. Fentanyl 1 mcg / kg every 15 – 30 minutes as needed
2. Ketamine 1 mg / Kg slow IV or 4 – 5 mg / Kg IM every 5 minutes as needed

TAB 8 GUIDELINE 21

NEEDLE (PLEURAL) DECOMPRESSION

INDICATIONS	COMPLICATIONS
• Signs and symptoms of tension pneumothorax • Acute dyspnea (severe) • Unilaterally absent or severely diminished breath sounds on affected side • Subcutaneous emphysema • Signs and symptoms of shock without other apparent causes • Hypotension (SBP < 90 mmHg) • Tachycardia • Mediastinal shift with tracheal deviation (late sign) • Jugular vein distention (JVD)	• Puncture of the lung • Hemorrhage from puncture of the blood vessels • Severe pain if the patient is conscious PRECAUTIONS • When making the puncture, DO NOT PENETRATE any further than the pleura. Too deep of an insertion may result in penetration of the lung • The puncture must be made close to the top of the rib so to avoid major nerves and vessels in that area

This procedure will be performed by credentialed Advanced EMT / paramedics.

- PPE (gloves, eye protection, etc.)
- Assess the patient for signs and symptoms of a tension pneumothorax:
 - Acute dyspnea (severe).
 - Unilaterally absent or severely diminished breath sounds on affected side.
 - Subcutaneous emphysema.
 - Signs and symptoms of shock without other apparent causes.
 - Hypotension (and usually Tachycardia) is required for “Tension Pneumothorax”.
 - Mediastinal shift with tracheal deviation (late sign).
 - Jugular vein distention (JVD).
- Auscultate breath sounds.
- Administer oxygen at 15 LPM by non-rebreather mask or by BVM.
- Identify the 4th or 5th intercostal space anterior-axillary line on the affected side.
 - Alternative site includes the second intercostal space on the anterior chest at the midclavicular line on the same side as the injury.
- Cleanse site with alcohol / betadine or chlorhexadine prep.
- Place patient in position of comfort, usually upright (only if no c-spine injury).
- Insert needle (**preferable 14 ga x 5.25 in for adult and 18 ga x 2 in for pediatric**) into the skin between:
 - Lateral approach (preferred) - 4th and 5th rib (going above the rib).
 - Anterior approach – 2nd and 3rd rib (going above the rib).
- Puncture the parietal pleura.
 - If using a syringe, have it attached to the needle and gentle aspirate as you are advancing the needle through the skin. A “gush” of air or blood into the syringe indicates placement.
- Advance the IV catheter and remove the needle.
- Secure the catheter in place.
- Reassess the patient’s vital signs, lung sounds and respiratory efforts.

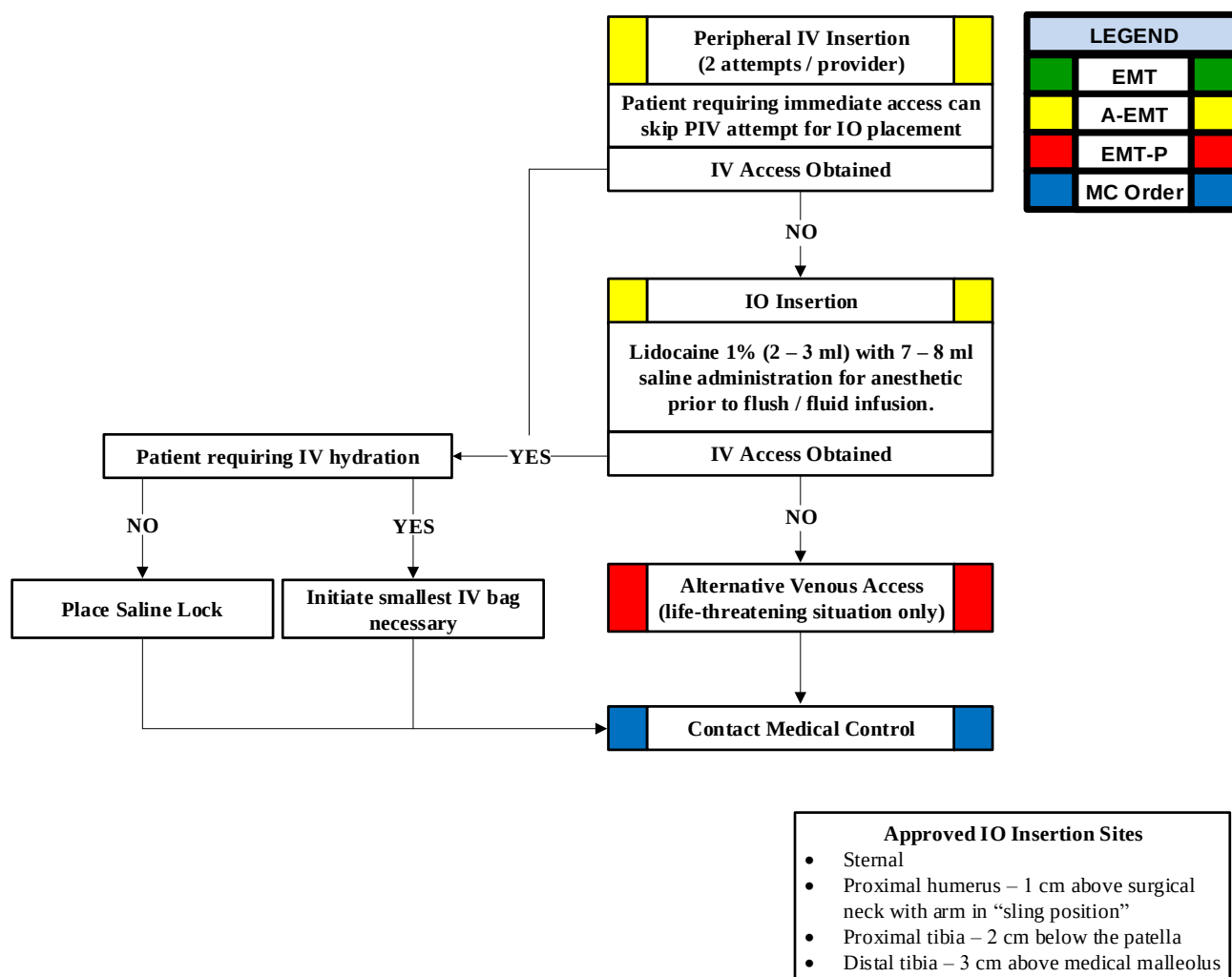
CIRCULATION | SHOCK

TAB 8 GUIDELINE 22

INTRAVASCULAR (IV) | INTRAOSSEOUS (IO) ACCESS |

ALTERNATIVE VENOUS ACCESS

INDICATIONS	CONTRAINDICATIONS	MANDATORY
• Patient requiring acute IV hydration / medication • Significant trauma or mechanism, emergency or potentially emergent medical condition • Alternative venous access should only be used in life-threatening situations and unable to obtain traditional venous access	• Fracture of the bone selected for IO infusion • Excessive tissue at insertion site with the absence of anatomical landmarks • Previous significant orthopedic procedures (IO within 24 hours, prosthesis) • Infection at the site selected for insertion	• All “alternative venous access” must have IV fluid running to maintain patency. • EZ-IO Needle Types • Blue – EZ-IO (40 kg and over) • Pink - EZ-IO PD (3 – 39 kg) • Yellow EZ-IO LD (excessive tissue)



SPECIAL CONSIDERATIONS:

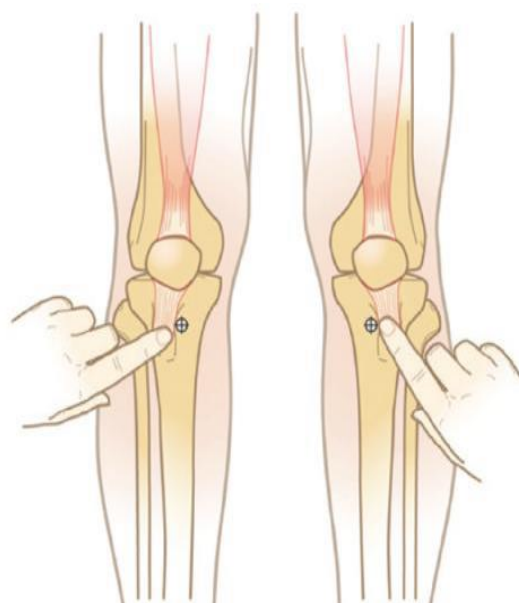
1. Always clamp lines when open to environment
2. Maintain aseptic technique during procedure at all times
3. **Proper sites for intraosseous insertion:**

a. **Adult Humeral head insertion:** Expose the shoulder and adduct the humerus (place the patient's arm against the patient's body) resting the elbow on the stretcher or ground and the forearm resting on the abdomen. With the patient in this position you may immediately note the humeral head on the anterior-superior aspect of the upper arm or anterior-lateral aspect of the shoulder. Palpate and identify the mid-shaft humerus and continue palpating toward the humeral head. As you near the shoulder you will note a small protrusion. This is the base of the greater tubercle insertion site.



b. **Adult Distal Tibial insertion:** The insertion site is approximately two finger widths proximal to the medial malleolus and midline along the tibia.

c. **Adult Proximal Tibial insertion:** There are 3 anatomical landmarks that must be identified. The first landmark is the patella or kneecap. To locate it, feel the front surface of the leg just below the femur. The second landmark is approximately 2 finger widths below the patella, this is the tibial tuberosity, a round oval elevation or bump on the front surface of the tibia. The third and final landmark is 1 finger width medial of the tibial tuberosity. Insertion should take place on the flat broad portion of the tibia.



- d. **Pediatric Distal Femur insertion:** The insertion site is two fingers above the superior pole of the patella in an extended leg. The position should be slightly lateral of midline so that the vascular bundle is missed.
- e. **Pediatric Proximal Tibial insertion:** If the tibial tuberosity cannot be palpated, the insertion site is two finger widths below the patella and then medial along the flat aspect of the tibia. If the tibial tuberosity can be palpated, the insertion site is one finger width below the tuberosity and then medial along the flat aspect of the tibia.
- f. **Pediatric Distal Tibial insertion:** The insertion site is approximately one finger width (patients < 12 kg) and one to two finger widths (patients between 12 and 39 kg) proximal to the medial malleolus and midline along the tibia.

4. EZ-IO Product System

a. Clinical Indications:

- i. EZ-IO is indicated for “acute patients” in whom 1 – 2 peripheral (or external jugular) IV attempts have been unsuccessful **OR** in whom no potential IV sites are obvious on initial examination. **“Acute patients” who:**

- 1. Have limited or no vascular access;
- 2. Previously required central venous access for infusion due to difficult vascular access;
- 3. Have an immediate need for drugs or fluids;
- 4. Require multiple IV sticks to obtain vascular access for medication or fluid administration;
- 5. Require intubation or sedation;
- 6. Need access in emergencies including cardiac or respiratory arrest

b. Contraindications:

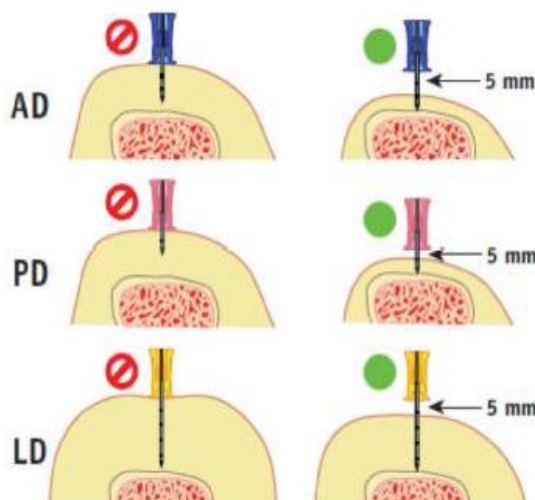
- i. Not intended for conscious, non-life-threatening patients.
- ii. Select alternate insertion site if:
 - 1. Infection at the area of insertion
 - 2. Known or suspected fracture of bone selected for IO insertion
 - 3. Excessive tissue and/or absence of adequate anatomical landmarks
 - 4. Previous significant orthopedic procedures (IO within 24 hours in the same extremity, prosthetic limb or joint)

c. Considerations:

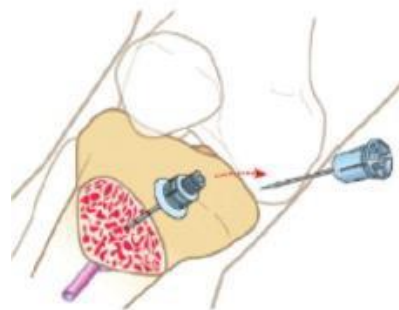
- i. Due to the anatomy of the IO space you will note flow rates to be slower than those achieved with IV catheters
 - 1. Ensure the administration of a 10mL rapid bolus (flush) with a syringe.
 - 2. Use a pressure infusion bag for continuous infusions.
- d. Precautions:
 - i. The EZ-IO AD, LD and PD are not intended for prophylactic use.
 - ii. If the bony cortex has been penetrated during a failed insertion attempt, further attempts should not be made on the same extremity.
- e. Potential Complications:
 - i. Localized bleeding and infiltration of fluid and drugs into surrounding tissues, including possible compartment syndrome.
 - ii. Bone fracture in small newborns or patients with osteoporosis or congenital bone disease.
 - iii. Fat embolus.

5. Procedure for EZ-IO placement

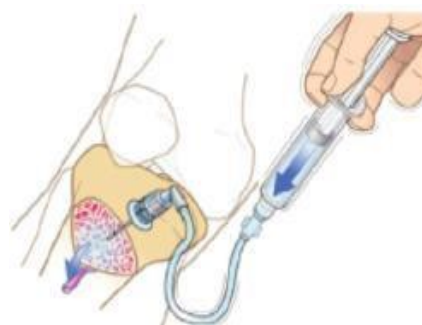
- a. Cleanse the site with alcohol or betadine
- b. While holding the EZ-IO driver in one hand, stabilize the bone and skin around the insertion site with the opposite hand and position the driver at the insertion site with the needle set perpendicular to the bone surface.
- c. Select the appropriate needle set and securely seat on the driver
 - i. PD (3-39Kg) – 15mm
 - ii. AD (40Kg and greater) – 25mm
 - iii. LD (Excessive Tissue) – 45mm
- d. Power the needle set through the skin at the insertion site until you feel resistance. Check to ensure that at least 5 mm of the catheter is visible as indicated by the proximal depth indicator. (If < 5 mm of the catheter is visible, the patient has excessive soft tissue over the insertion site and the needle will not reach the bone's cortex and other options for vascular access should be considered).



- e. Penetrate the bone cortex by squeezing the driver trigger and applying firm, steady pressure then release the driver trigger when the needle flange touches the skin or when a sudden “give” is felt upon entry into the marrow.
- f. Stabilize the catheter hub and remove the driver from the needle set by gently pulling straight up on the driver and lifting away.
- g. Remove the stylet from the catheter, while grasping the hub firmly with one hand, rotate the stylet counterclockwise (unscrew the stylet from the catheter). Pull the stylet out of the catheter and consider placing it into the empty cartridge for disposal. Do not attempt to recap the stylet.

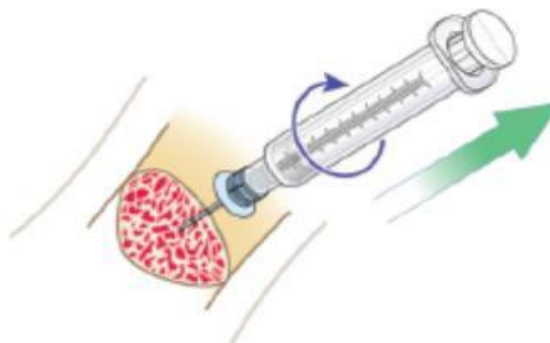


- h. Confirm proper IO positioning, the catheter should be standing straight up at a 90-degree angle and is firmly seated in the bone.
- i. Attach the EZ connect tubing to the IO and aspirate to assure you are in the marrow, then flush the IO with 2 – 3 ml (maximum of 1 mg / kg) Lidocaine with 7 - 8 ml of normal saline to ease the somatic pain associated with the infusion and allow for acceptable flow rates, watch for signs of infiltration.
- j. Initiate the infusion, a pressure infuser may be necessary to maintain acceptable flow rates.
- k. Apply EZ-Stabilizer (if available) or secure with Secure in position with tape and a bulky dressing. Maintain surveillance of the site for signs of infiltration. Avoid taping completely around the limb.
- l. Monitor extremity distal to site for changes in circulation (pulse, capillary refill).



6. EZ-IO Removal (Procedure)

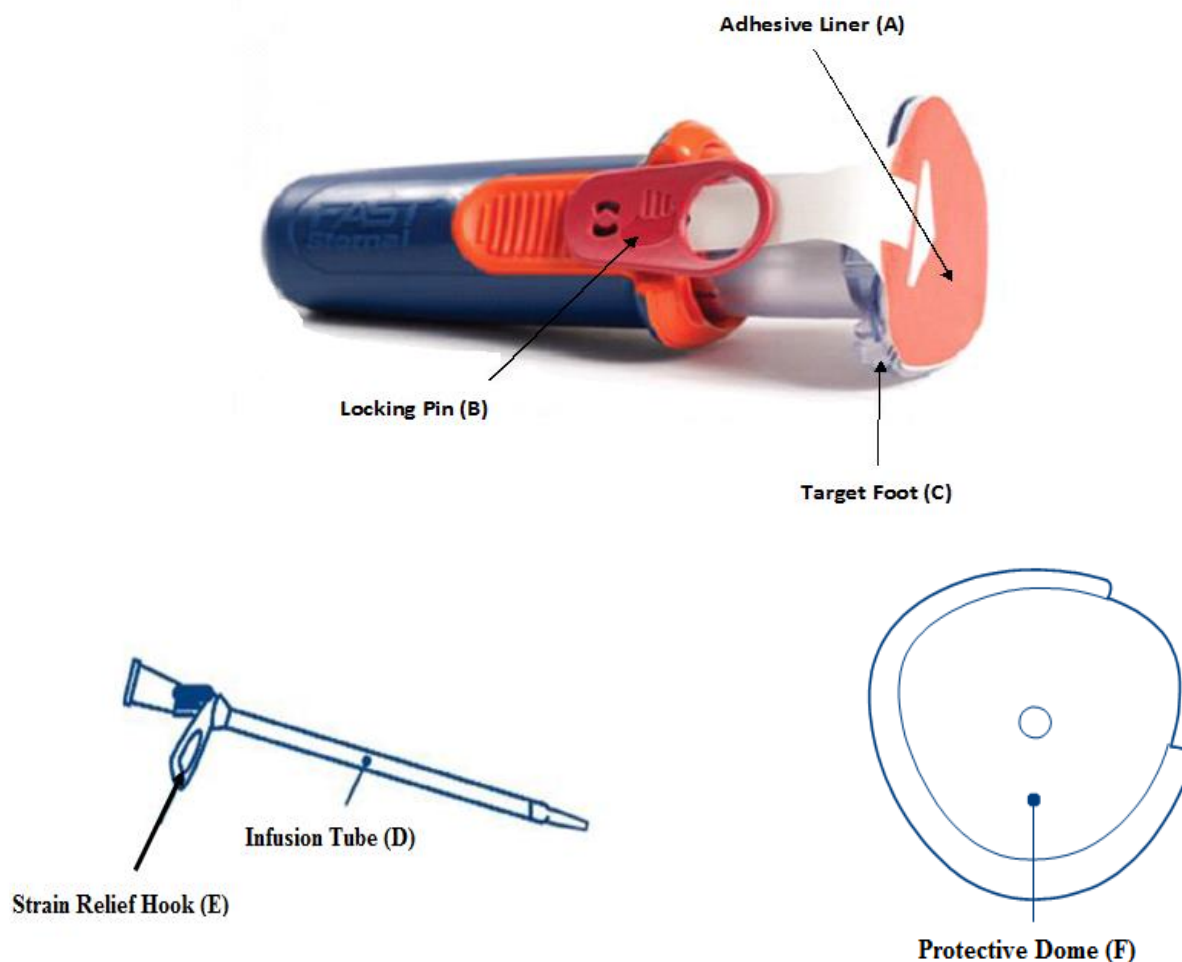
- a. Stabilize the extremity.
- b. Attach luer-lock syringe.
- c. Continuously rotate clockwise while slowly and gently applying traction to catheter. **Do not rock or bend the catheter during removal.**
- d. Once removed immediately place catheter in appropriate sharps container.
- e. Dress site as appropriate.



7. FASTResponder Sternal Intraosseous Device

- a. The FASTResponder Sternal Intraosseous Device is intended for intraosseous infusion as an alternative to intravenous access to facilitate emergency resuscitation through the use of drugs and fluid.
- b. Indications for Use:
 - i. Device is indicated for use in establishing a sternal intraosseous access route in adult and adolescent patients (12 years of age and older), requiring vascular administration of drugs or fluids to facilitate emergency resuscitation.
 - ii. Not intended to be left in site for more than 24 hours.
- c. Designated Insertion Site
 - i. Manubrium.
- d. Contraindications
 - i. None
- e. Precautions
 - i. Designed to penetrate 6 mm into the manubrium. Qualified professionals should determine any appropriate or necessary exceptions, either inclusions or exclusions to the criterion “for patients 12 years and older.
 - ii. Proximal tip of Infusion Tube contains metal.
 - iii. The function of the device may be affected by:
 - 1. Compromised skin over the insertion site such as trauma, infection or burns.
 - 2. Fracture of the sternum or vascular injury which may compromise the integrity of the manubrium or its vascularization.
 - 3. Midline sternotomy scars
 - iv. Warnings
 - 1. Safety in patients with very severe osteoporosis has not been proven.
 - 2. Reuse of FASTResponder™ is not recommended due to the potential for cross contamination, which may lead to serious injury or death.
 - 3. Do not insert finger(s) in the open end of the device due to the potential of needle stick.

f. Device



g. Insertion Procedure

- i. Expose the sternum and clean infusion site. NOTE: Maintain aseptic technique throughout the procedure.
- ii. Remove the **Adhesive Liner (A)** with the **Locking Pin (B)**.
- iii. Align the **Target Foot (C)** notch with the patient's sternal / manubrial notch, over the midline, and perpendicular to the manubrium.
- iv. Push the FASTResponder down completely to deploy the **Infusion Tube (D)**
- v. Withdraw the FASTResponder™ straight back while holding down the **Target Foot (C)**. Support comes out with the **Infusion Tube (D)**. Discard the FASTResponder™ following contaminated sharps protocols.





- vi. Connect the IV line directly to the luer, and clip the **Strain Relief Hook (E)** to the **Target Foot (C)**. Confirm placement by aspiration, flush with 5mL saline bolus to clear.
- vii. Remove the liner from the **Protective Dome (F)** and apply the **Dome (F)** over the **Target Foot (C)** infusion site.

h. Removal Procedure

- i. Remove **Protective Dome (F)**.
- ii. Turn off the source of fluid and disconnect.
- iii. Pull on Infusion Tube (D) to remove from the patient. (NOTE: Pull using one continuous motion (do not start/stop) until removed. Use the tube to pull- on, not the luer connection. It is normal for the tubing to stretch).
- iv. Peel off the **Target Foot (C)** and dress the site per standard protocol.
- v. Discard **Infusion Tube (D)** and **Target Foot (C)** following contaminated sharps protocol.

i. NOTES

- i. If fluid does not flow, even after flushing, or if extravasation occurs, infusion should be discontinued and an alternate method of vascular access should be used (i.e., humeral or tibial IO access with EZ-IO).
- ii. Fluids or drugs may be administered as boluses from a syringe, or from fluid sources using gravity drip, pressure cuffs or syringe / stopcock pumping method. Fluids have been infused into sternums at 30 ml / min by gravity drip and 120 ml / min by pressurized source.
- iii. CPR should be paused for the brief time required for FASTResponder insertion. This brief pause will not impact patient outcome

8. Manual Access – Intraosseous (Jamshidi Needle)

9. Alternative Venous Access

- a. **This procedure will be performed by paramedics / nurses only**

b. **Alternative venous access should only be used in life-threatening situations**

c. **Peripherally Inserted IV Access Devices (PICC line)**

- i. Located in patient's antecubital area
- ii. May have 1-2 pigtails (if two pigtails are noted – access blue port)
- iii. Procedure
 1. Infection control / Remove blue cap – if permanent / nonremovable cap exists – just clean with alcohol swab.
 2. Attach 10 ml syringe with saline to Leur lock device or nonremovable cap and Flush line with 10 ml saline – if resistance is met, reposition patient's arm and try again – if continued resistance is met, abort attempts to access device.
 3. Attach IV solution with tubing to Leur lock device or nonremovable cap and regulate desired IV rate.
 4. Tape tubing down to avoid disconnection with patient movement.
 5. Stop procedure at any time redness, swelling, extravasation of fluid, or resistance of using device is met.

d. **Implanted port (Port-a-Cath)**

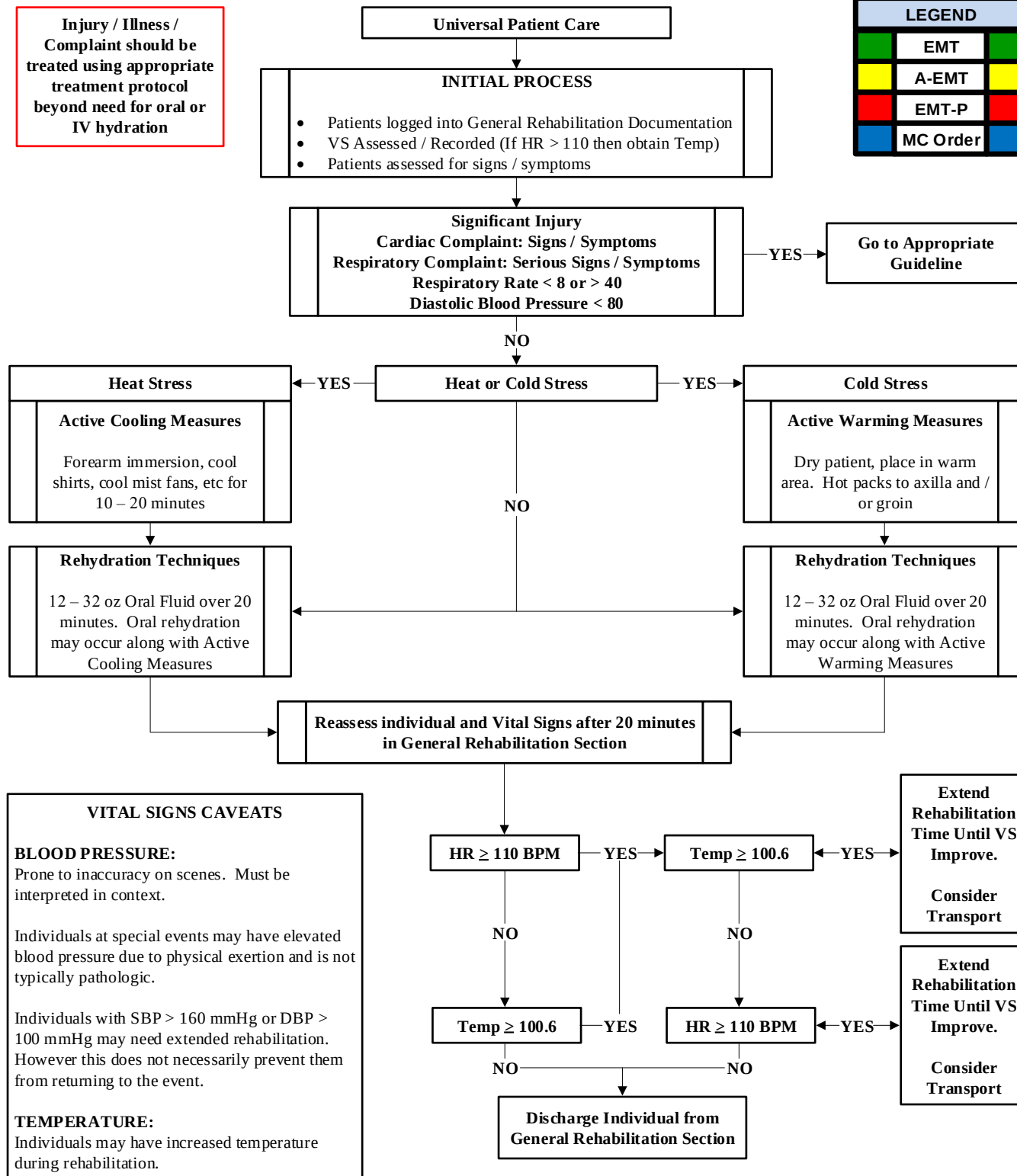
- i. Located on patient's anterior chest between clavicle and breast
- ii. Metal round device may be palpated for location
- iii. Procedure
 1. Locate device via palpation.
 2. Infection control / Cleanse site with Betadine.
 3. Attach 10 ml with saline to Huber needle.
 4. Secure device with one hand, with second hand, access device using Huber needle – needle should be perpendicular to patient's skin – slight resistance may be felt when accessing device, apply pressure, slight “pop” will be achieved, insert needle until resistance is met (hits posterior surface of device).
 5. Flush device with 10 ml Normal Saline.
 6. Attach IV tubing to device and regulate desired IV flow rate.
 7. Support Huber needle with 2 x 2's or 4 x 4's and apply dressing to site
 8. Stop procedure at any time redness, swelling, extravasation of fluid, or resistance of using device is met.

- e. Tunneled catheters (Broviac or Hickman)
 - i. Located in patient's anterior chest
 - ii. Single pigtail device hanging from patient's chest
 - iii. Cap usually nonremovable
 - iv. Procedure
 - 1. Infection control / Cleanse cap with alcohol.
 - 2. Flush device with 10 ml Normal Saline.
 - 3. Attach IV tubing and solution to port and adjust to desired IV flow rate.
 - 4. Secure tubing using tape.
 - 5. Stop procedure at any time redness, swelling, extravasation of fluid, or resistance of using device is met.
- f. Hemodialysis A-V catheters (Quinton catheter)
 - i. Double pig-tailed device (blue and brown/red ports)
 - ii. Normally located in patient's neck or groin
 - iii. Access blue port only
 - iv. Procedure
 - 1. Infection control / Remove blue port cap / Cleanse cap with alcohol
 - 2. Flush device with 10 ml Normal Saline.
 - 3. Attach IV solution and tubing to port and adjust to desired flow rate
 - 4. Secure IV tubing using tape.
 - 5. Stop procedure at any time redness, swelling, extravasation of fluid, or resistance of using device is met.
- g. Non-tunneled catheters (Central line)
 - i. Normally located on anterior chest between clavicle and patient's breast
 - ii. Normally contains 3 pig tails
 - iii. Blue port is the recommended port to access
 - iv. Procedure
 - 1. Infection control / Remove blue port cap / Cleanse cap with alcohol.
 - 2. Flush device with 10 ml Normal Saline.
 - 3. Attach IV tubing with solution to port and adjust to desired flow rate.
 - 4. Secure tubing with tape.
 - 5. May try other port if resistance is encountered with blue port

6. Stop procedure at any time redness, swelling, extravasation of fluid, or resistance of using device is met.
7. Secure tubing with tape.

TAB 8 GUIDELINE 23

SCENE REHABILITATION: GENERAL



SPECIAL CONSIDERATIONS:

1. This guideline should be utilized for evaluating patrons of certain special events that may or may not otherwise meet the definition of a patient.
2. Paramedic on-scene has full authority in deciding when individuals meet the definition of a patient and / or require further treatment or transport.
3. Regarding documentation under this guideline, individuals who are evaluated only at the rehabilitation center require a narrative-based patient log entry under one PCR for all of these individuals. However, if a patient receives ALS care more than over-the-counter medications and/or is transported to an emergency department, the patient requires a separate run number and full PCR like any other patient.
4. People taking antihistamines, blood pressure medication, diuretics or stimulants are at increased risk for cold and heat stress.
5. Establish rehab location such that it provides shelter, privacy and freedom from smoke or other

TAB 8 GUIDELINE 24

SCENE REHABILITATION: RESPONDER

Injury / Illness / Complaint should be treated using appropriate treatment protocol beyond need for oral or IV hydration

REMOVE:

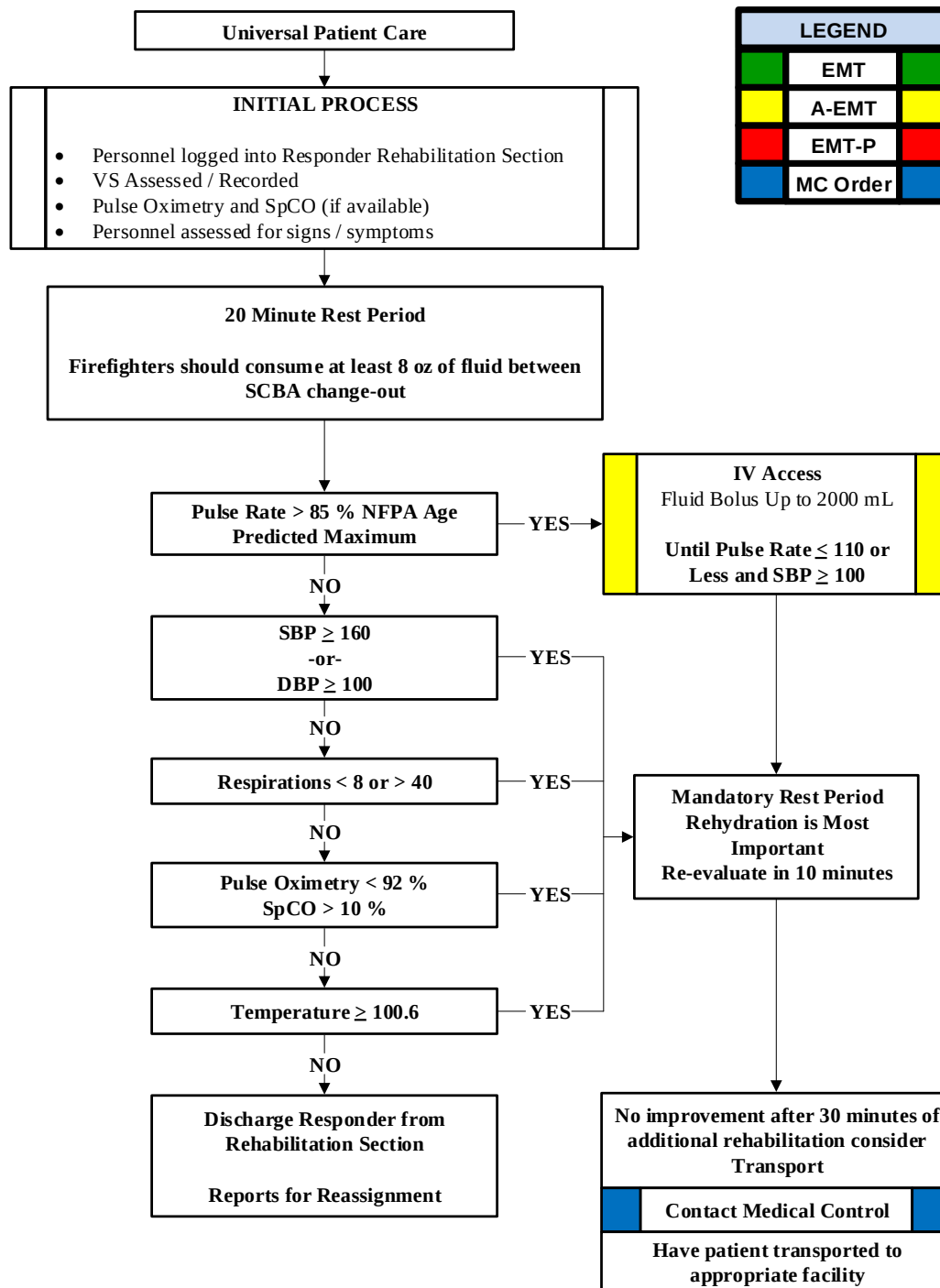
- PPE
- Body Armor
- Chemical Suits
- SCBA
- Turnout Gear
- Other equipment as indicated

CONTINUE:

Heat and Cold Stress treatment Techniques from General Rehab Protocol

NFPA Age Predicted 85% Maximum Heart Rate

20 - 25	170
26 - 30	165
31 - 35	160
36 - 40	155
41 - 45	152
46 - 50	148
51 - 55	140
55 - 60	136
61 - 65	132



LEGEND		
	EMT	
	A-EMT	
	EMT-P	
	MC Order	

SPECIAL CONSIDERATIONS:

1. This guideline is to be utilized for public safety responders, usually firefighters, on the scene of an incident.
2. Rehabilitation officer has full authority in deciding when responders may return to duty.
3. Utilize this guideline in conjunction with the rehab steps and guidance in the General Rehabilitation Guideline.
4. May be utilized with adult responders on fire, law enforcement, rescue, EMS and training scenes.
5. Responders taking anti-histamines, blood pressure medication, diuretics or stimulants are at increased risk for cold and heat stress.
6. Rehabilitation Section is an integral function within the Incident Management System.
7. Establish section such that it provides shelter, privacy and freedom from smoke or other hazards.

CARDIAC | ACLS
TAB 8 GUIDELINE 25
CARDIAC MONITORING

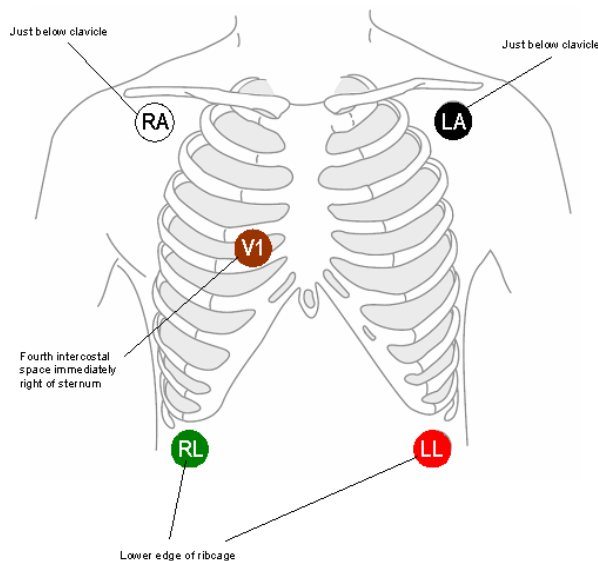
Rapid diagnosis of cardiac arrhythmias is essential for treatment and improving patient outcomes. Pre-hospital cardiac monitoring may facilitate early activation of STEMI centers as well as treatment of other life-threatening illnesses through appropriate primary triage and referral.

This procedure can be performed by an EMT in the presence of an Advanced EMT or Paramedic. EMTs are not allowed to interpret any cardiac monitor or EKG.

INDICATIONS	EXCLUSION CRITERIA
• Adults with complaints of non-traumatic, heart-related symptoms. • Person who accesses the emergency medical system with suspected acute coronary syndrome. • Person who accesses the emergency medical system that is requested by a physician to acquire a cardiac monitoring. • Patient with previous cardiac history and all medical patients over the age of 40 with the following risk factors: ○ Smoker ○ Hypertension ○ Obesity / Sedentary ○ Diabetes ○ Family history ○ Elevated cholesterol	• Patient for whom the acquisition of the pre-hospital cardiac monitoring will cause significant time delay or other circumstance that is not in the best interest of patient care at that time. • Patient who refuses to allow cardiac monitoring to be obtained. • Any other circumstance that is not in the best interest of the patient.

- Cardiac monitor interpretive findings should be reported to on-line MEDICAL CONTROL during the patient assessment and sent via cell phone (transmission) if possible
- Towels should be used as needed to protect the modesty of your patient.
- Cardiac Monitoring Procedure
 - Prep skin as time and patient condition allows
 - Attach Limb Leads as described below
 - Primary leads will be limb leads I, II, & III (white / black / red). If there is a (4 or 5) lead cardiac monitor, then attach those leads accordingly
 - Application & Recording should be done liberally during patient care
 - Record before and after any medication administration

- Use the strip for notes as needed
- Include a reasonable sample of the available cardiac monitor strips with the EMS report
- Limb leads (4)
 - Left anterior axillary line
 - left anterior shoulder
 - Right anterior axillary line
 - right anterior shoulder
 - Left anterior superior iliac crest
 - Left hip / lower abdomen
 - Right anterior superior iliac crest
 - right hip / lower abdomen



TAB 8 GUIDELINE 26

12 LEAD EKG PROCEDURE

Rapid diagnosis of an acute myocardial infarction is essential for treatment and improving patient outcomes. Pre-hospital EKG's may facilitate early activation of STEMI centers through appropriate primary triage and referral.

This procedure can be performed by an EMT in the presence of an Advanced EMT or Paramedic, or if the EMT will be transmitting the EKG to online medical control and as long as it does not delay patient transport. EMTs are not allowed to interpret any cardiac monitor or EKG

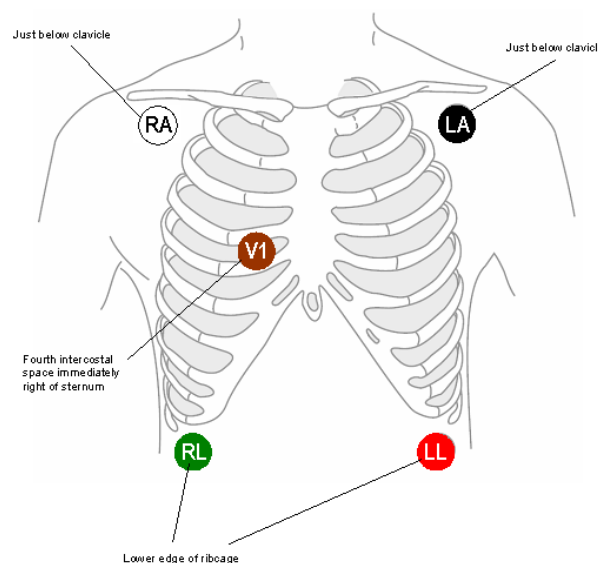
INDICATIONS	EXCLUSION CRITERIA
• Adults with complaints of non-traumatic, heart-related symptoms. • Person who accesses the emergency medical system with suspected acute coronary syndrome. • Person who accesses the emergency medical system that is requested by a physician to acquire a 12 Lead EKG. • Patient with previous cardiac history and all medical patients over the age of 40 with the following risk factors: ○ Smoker ○ Hypertension ○ Obesity / Sedentary ○ Diabetes ○ Family history ○ Elevated cholesterol	• Patient for whom the acquisition of the pre-hospital EKG will cause significant time delay or other circumstance that is not in the best interest of patient care at that time. • Patient who refuses to allow an EKG to be obtained. • Any other circumstance that is not in the best interest of the patient. A copy of the 12 lead EKG will be hand delivered to the receiving hospital and should have the patient's name appearing on the 12 lead EKG. A second copy of the 12 lead EKG shall be attached to the run report for appropriate documentation.

1. 12 lead interpretive findings should be reported to on-line MEDICAL CONTROL during the patient assessment and sent via cell phone (transmission) if possible
2. Towels should be used as needed to protect the modesty of your patient. In the female patient, the chest leads must be positioned under the breasts
3. When time allows, acquire a 2nd 12 lead EKG during transport AFTER the administration of Nitroglycerin, Lidocaine, Fentanyl or any other medication (if the patient is having an ACS event)
4. 12 Lead EKG Procedure
 - a. If feasible, the 12 Lead EKG should be acquired in supine position, if unable to do so then obtain in a sitting or semi-sitting position. Many of your cardiac patients will be orthopneic and unable to tolerate the supine position

- b. Prep skin as time and patient condition allows
 - c. Attach Limb and precordial leads accordingly to standard ECG placements as described:
5. If defibrillation, synchronized cardioversion or pacing is necessary, quickly remove the necessary precordial leads to allow for quick combo patch placement and proceed with the appropriate guideline or place leads below such pads

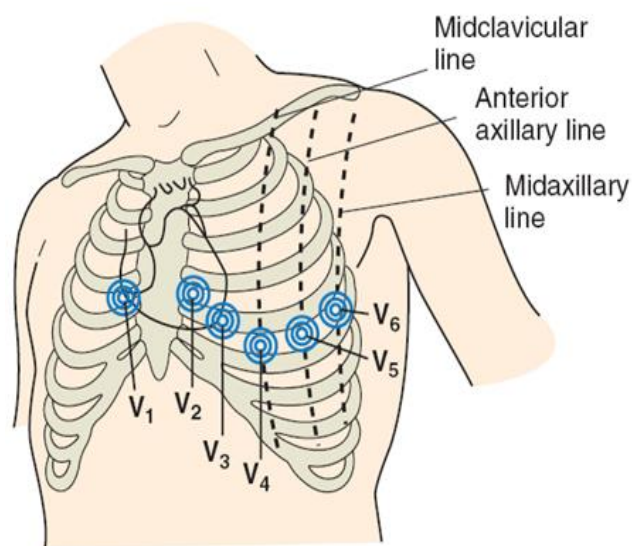
- Limb leads (4)

- Left anterior axillary line
 - left anterior shoulder
- Right anterior axillary line
 - right anterior shoulder
- Left anterior superior iliac crest
 - Left hip / lower abdomen
- Right anterior superior iliac crest
 - right hip / lower abdomen



- Precordial leads (6)

- V1 fourth intercostal space just to the right of the sternum
- V2 fourth intercostal space just to the left of the sternum
- V3 in between V2 and V4
- V4 fifth intercostal space mid-clavicular line
- V5 anterior axillary line level with V4
- V6 mid axillary line level with V4 and V5
- V4R fifth intercostals space in right mid-clavicular line



- a. Instruct the patient to remain still during the 12 Lead acquisition for 10 seconds

a. EKG Lead Interpretation

I (Lateral)	aVR	V1 (Septal)	V4 (Anterior)
II (Inferior)	aVL (Lateral)	V2 (Septal)	V5 (Lateral)
III (Inferior)	aVF (Inferior)	V3 (Anterior)	V6 (Lateral)

- b. Document 12 lead intervention, time and results in the patient care report
- c. Serial 12 Lead EKG should be acquired every 5 – 10 minutes or with a change in the patient's condition
- d. Write on the 12 lead what position it was acquired in and attach a copy of the 12 Lead EKG to the run sheet

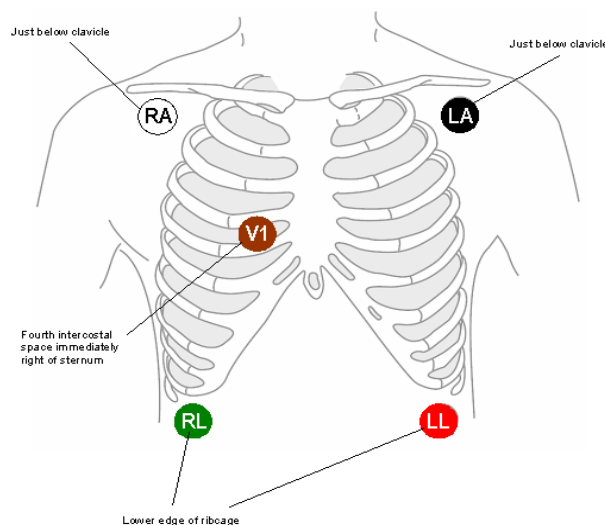
2. Right Sided EKG Procedure

a. Indications of a RV wall infarction may include:

- i. ST elevation in the inferior leads, II, III, and aVF
- ii. ST elevation that is greatest in lead III is especially significant
- iii. ST elevation in V1 (considered to be the only precordial lead that faces the RV on the standard 12-lead ECG)
- iv. Other findings may include: right bundle branch block, second- and third- degree atrioventricular blocks, ST segment elevation in lead V2 50% greater than the magnitude of ST segment depression in lead aVF
- v. Hypotension and clear lung fields

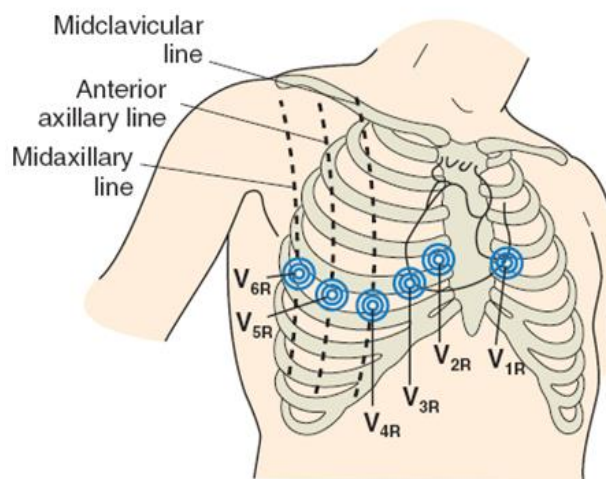
• Limb leads (4)

- Left anterior axillary line
 - left anterior shoulder
- Right anterior axillary line
 - right anterior shoulder
- Left anterior superior iliac crest
 - left hip
- Right anterior superior iliac crest
 - right hip



- Precordial leads (6)

- V1R fourth intercostal space just to the **left** of the sternum
- V2R fourth intercostal space just to the **right** of the sternum
- V3R in between V2R and V4R
- V4R fifth intercostals space in right mid-clavicular line
- V5R anterior axillary line level with V4R
- V6R right mid axillary line level with V4R and V5R



3. Posterior EKG Procedure

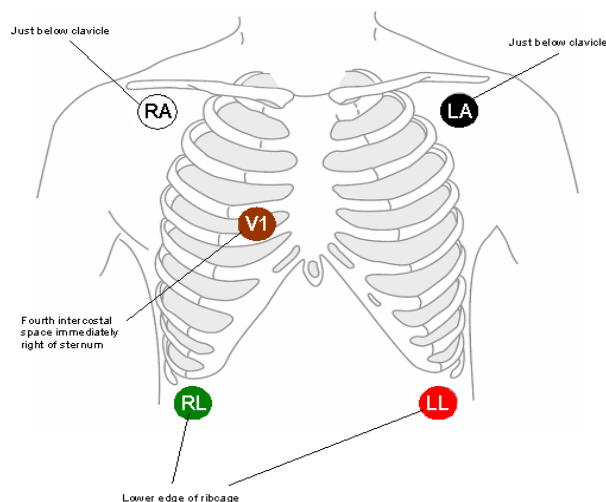
a. Indications of a posterior wall infarction may include:

- Changes in V1 – V3 on the standard 12-lead ECG predominantly, which include:
 1. Horizontal ST depression
 2. A tall, upright T wave
 3. A tall, wide R wave
 4. R/S wave ratio greater than 1
 5. Inferior or lateral wall MI (especially if accompanied by ST depression or prominent R waves in leads V1-V3)

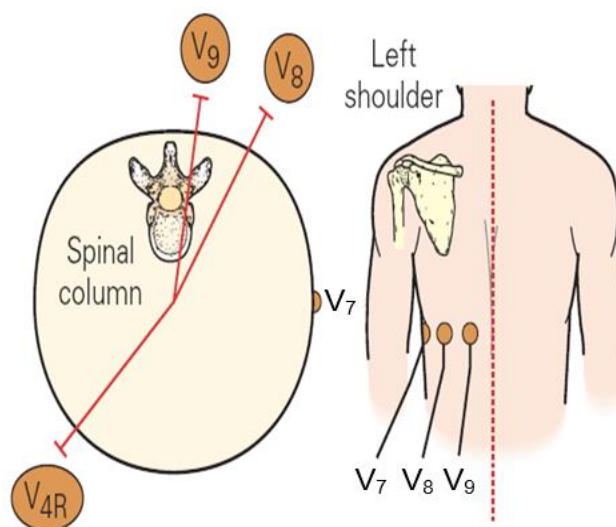
b. Label the Posterior EKG

- Note “Posterior EKG” in the machine, if able
- Handwrite “Posterior EKG” on the 12 Lead EKG printout if not already part of the electronic printout
- Re-label V4 – V6 on the printout to V7 – V9

- Limb leads (4)
 - Left anterior axillary line
 - left anterior shoulder
 - Right anterior axillary line
 - right anterior shoulder
 - Left anterior superior iliac crest
 - left hip
 - Right anterior superior iliac crest
 - right hip



- Place three additional EKG electrodes as follow:
 - TIP: start at V9 (the last electrode) and work forward
 - V9 – left spinal border, same horizontal line as V4 – 5
 - V8 – midscapular line, same horizontal line as V7 and V9
 - V7 – posterior axillary line, same horizontal line as V6



- Place ECG lead cables as follows (using a standard 12-lead machine):
 - Locate lead cables V1 – V6. Connect lead cables to electrodes as follow:
 - Lead cable V6 connects to electrode V9
 - Lead cable V5 connects to electrode V8
 - Lead cable V4 connects to electrode V7
 - Lead cables V1 – V3 are connected the same way as when obtaining a standard EKG

TAB 8 GUIDELINE 27

AUTOMATED EXTERNAL DEFIBRILATOR

INDICATIONS	CONTRAINDICATIONS	IMMEDIATELY AFTER THE A.E.D. BECOMES AVAILABLE (for any patient meeting the above "Indications"), it shall be attached to the patient and if appropriate defibrillation delivered as outlined below. This must happen within the first 2 minutes of the A.E.D.'s arrival.
- Pulseless and apneic patient not meeting D.O.A. or D.N.R. criteria. - Consider the use of child pads or attenuator for victims < 8 years of age or < 55 pounds.	- If patient is found in water, remove from water and dry patient thoroughly. - Do not use an AED in an explosive atmosphere or extremely wet atmosphere. - If a medication patch is found, remove patch and wipe clean before applying defibrillation pads. - Do not place defibrillation pads directly over patient's implanted defibrillator or pacemaker.	AED Maintenance - Defibrillation cables should be inspected for damage and / or wear. - Defibrillation pads should be routinely inspected to assure that they are within their expiration and are not open. - Assure that batteries are charged and spares are available.

- Turn A.E.D. power on. - Expose patient's chest and apply defibrillator pads to ensure good contact either anterior-posterior or anterior-lateral position. - Anterior-lateral position: - White cable - Angle between the sternum and right clavicle. - Red cable - Over the lower left ribcage (axillary area). - Plug cables into AED. - Stop CPR and clear the patient. - Press the analyze button. - If advised by the defibrillator, charge defibrillator, assure patient is clear and push button to deliver shock. - If a "No Shock" message is received at any time during analysis, assess for a pulse. - No pulse - perform C.P.R. for two minutes before analyzing rhythm again. - Pulse present - check breathing. - Immediately resume CPR and then assess pulse. - No pulse - continue C.P.R. for two minutes using supplemental oxygen and airway adjunct. - If pulse present and patient is not breathing, secure airway and ventilate with B.V.M. & supplemental oxygen. - If pulse & adequate spontaneous respirations are present, place patient in recovery position & place on oxygen 15 LPM via complex mask. - After two (2) minutes of C.P.R., push analyze button. - If advised by AED, charge AED, assure patient is clear and push button to deliver shock. - Do not deliver more than six (6) attempts at defibrillation unless directed to by medical control. - Remember to continue B.L.S. treatment if rhythm is not converted. - An AED is okay to utilize on a metal roof as long as the provider is not in direct contact with the patient.

TAB 8 GUIDELINE 28

CARDIAC DEFIBRILLATION

INDICATIONS	CONTRAINDICATIONS	Maintenance of cardiac defibrillator
- Pulseless and apneic patient not meeting D.O.A. or D.N.R. criteria. - Consider the use of child pads or attenuator for victims < 8 years of age or < 55 pounds.	- If patient is found in water, remove from water and dry patient thoroughly. - Do not use a cardiac defibrillator in an area explosive atmosphere or extremely wet atmosphere. - If a medication patch is found, remove patch and wipe clean before applying defibrillation pads. - Do not place defibrillation pads directly over patient's implanted defibrillator or pacemaker.	- Defibrillation cables should be inspected for damage and / or wear. - Defibrillation pads should be routinely inspected to assure that they are within their expiration and are not open. - Assure that batteries are charged and spares are available.

- Plug cables into EKG Monitor, expose patient's chest and apply defibrillator pads to ensure good contact either anterior-posterior or anterior-lateral position. - Anterior-lateral position. - White cable - Angle between the sternum and right clavicle. - Red cable - Over the lower left ribcage (axillary area). - Stop CPR and clear the patient. - Recognize EKG findings as ventricular fibrillation or pulseless ventricular tachycardia. - Charge the device to Manufacturer's Specifications or as follows: - Phillips Biphasic – defibrillate at set energy of 150 J for each subsequent shock. - Monophasic units – defibrillate at 360 J for each shock. - Physio-control Biphasic – defibrillate at a sequence of 200 J, then 300 J, then 360 J. - Zoll Biphasic – defibrillate at a sequence of 120 J, then 150 J, then 200 J. - Visually check that no one is in contact with the patient and announce CLEAR. - Press the SHOCK button and deliver the shock. - Immediately resume CPR and then assess pulse. - No pulse - continue C.P.R. for two minutes using supplemental oxygen and airway adjunct. - If pulse present and patient is not breathing, secure airway and ventilate with B.V.M. & supplemental oxygen. - If pulse & adequate spontaneous respirations are present, place patient in recovery position & place on oxygen 15 LPM via complex mask. - Remember to continue B.L.S. treatment if rhythm is not converted.

TAB 8 GUIDELINE 29

SYNCHRONIZED CARDIOVERSION

INDICATIONS	CONTRAINDICATIONS	Maintenance of cardiac defibrillator
- Unstable patient with a tachydysrhythmia that have a pulse. - Consider the use of pediatric pads or attenuator for victims < 8 years of age or < 55 pounds.	- Pulseless patient. - If patient is found in water, remove from water and dry patient thoroughly. - Do not use a cardiac defibrillator in an explosive atmosphere or extremely wet atmosphere. - If a medication patch is found, remove patch and wipe clean before applying defibrillation pads. - Do not place defibrillation pads directly over patient's implanted defibrillator or pacemaker.	- Defibrillation cables should be inspected for damage and / or wear. - Defibrillation pads should be routinely inspected to assure that they are within their expiration and are not open. - Assure that batteries are charged and spares are available.

- Plug cables into EKG Monitor, expose patient's chest and apply defibrillator pads to ensure good contact either anterior-posterior or anterior-lateral position. - Anterior-lateral position: - White cable - Angle between the sternum and right Clavicle. - Red cable - Over the lower left ribcage (axillary area). - Ensure that appropriate sedation and analgesics have been given to the patient. - Push the SYNC button, observe the EKG rhythm and confirm that the triangle sense marker appears near the middle of each QRS complex. - If the sense markers do not appear or they are displayed in the wrong location adjust the EKG size or select another lead. - The location of the sense marker may vary slightly with each QRS complex. - Energy delivered for synchronized cardioversion should occur per current AHA guidelines or at 100 joules. - Make sure that everyone is clear of the patient and then Push the CHARGE button. - After confirming that the monitor is still in SYNC mode, ensure that everyone is clear from the patient by saying CLEAR, push and hold the SHOCK button until it discharges. - Reassess the patient and the cardiac rhythm, repeat steps as necessary.

TAB 8 GUIDELINE 30

TRANSCUTANEOUS PACING

INDICATIONS	CONTRAINDICATIONS	Maintenance of cardiac pacer
• Patients with symptomatic bradycardia after no response to atropine. • Patients in 2nd or 3rd degree heart block and are symptomatic or primary treatment if unable to start an IV.	• Pulseless patient. • Hypothermic patient • Pediatric bradycardia	• Defibrillation cables should be inspected for damage and / or wear. • Defibrillation pads should be routinely inspected to assure that they are within their expiration and are not open. • Assure that batteries are charged and spares are available.

• Plug cables into EKG Monitor, expose patient's chest and apply defibrillator pads to ensure good contact either anterior-posterior or anterior-lateral position. • Anterior-lateral position: • White cable - Angle between the sternum and right Clavicle. • Red cable - Over the lower left ribcage (axillary area). • Ensure that appropriate sedation and analgesics have been given to the patient. • Push the PACER button • Push the RATE Button • Set the rate at 80 beats per minute, or higher if the patient's intrinsic rate is above 80. • Push the CURRENT button • Increase the milliamps until you reach electrical and mechanical capture and then increase by an additional 5 – 10 milliamps (assess the carotid and femoral pulses to confirm mechanical capture). • This procedure can also be performed by going to maximum joules and slowly decreasing the joules until you no longer capture and then increasing until capture is obtained.

MEDICAL
TAB 8 GUIDELINE 31
BLOOD GLUCOSE MONITORING

1. Indications

- a. The blood glucose meter is the device used for determining the patient's blood glucose level and giving a plasma value in milligrams per deciliter. Blood for testing may be either capillary or venous.
- b. It should be noted, venous and capillary values may differ by 10%.
- c. If the blood glucose meter malfunctions for any reason, this should not hinder patient care.

2. Procedure

- a. Explain procedure to the patient.
- b. Prep area with alcohol wipes and let dry.
 - i. This should be performed on the edges of the fingertips (not directly on the pad of the finger).
- c. Turn on the blood glucose meter and follow directions for placing test strip in the meter.
- d. Obtain either capillary or venous sample preferably a capillary and put on test strip.
- e. Glucose reading will take approximately 10 – 30 seconds.
- f. Document reading on run form.

TAB 8 GUIDELINE 32
MEDICATION ADMINISTRATION –
INHALATION MUCOSAL ATOMIZATION DEVICE (MAD)

1. Indications

- a. Used for atomizing topical solutions across the nasopharyngeal and oropharyngeal mucous membranes.
- b. For use when administering the following medications.
 - i. Fentanyl for pain.
 - ii. Midazolam (Versed) for seizures or sedation.
 - iii. Naloxone (Narcan) for opiate overdoses.
 - iv. Glucagon for hypoglycemia.

2. Procedure

- a. Aspirate the proper volume of highly concentrated medication required to treat the patient (an extra 0.1 ml of medication should be drawn up to account for the dead space within the atomizer at the end of the procedure).
- b. Twist off / remove the syringe from the needle / needleless device.
- c. Attach the atomizer tip via Luer locking mechanism - it twists into place. Slip Luer is also effective as long as the tip is firmly seated on the syringe tip.
- d. Using your free hand to hold the crown of the head stable, place the tip of the atomizer snugly against the nostril aiming slightly up and inward (towards the top of the opposite ear).



- e. Briskly compress the syringe plunger to deliver half of the medication into the nostril.
- f. Move the device over to the opposite nostril and administer the remaining medication into that nostril.

Re-use the MAD on the same patient as needed, and then discard.

TAB 8 GUIDELINE 33
MEDICATION ADMINISTRATION –
INTRAMUSCULAR (IM)

Intramuscular (IM) injections in the prehospital setting are relatively uncommon. IM injections are administered into the muscle tissue and require adequate perfusion for absorption. This method has a predictable rate of absorption, but its onset of action is considerably slower than IV.

INDICATIONS	CONTRAINDICATIONS
• When the rate of absorption needs to be slower and/or prolonged in action. • When other administration routes are unsuccessful or unavailable.	• Severe bleeding disorders (i.e., hemophilia) or recent thrombolytic therapy. • States of severe hypoperfusion or shock. When rapid absorption and action of a medication is required (i.e., when IV is preferred).

• Prepare equipment. • Check label, date, and appearance of medication. • Locate appropriate injection site: • Posterior Deltoid • Identify the bony portion of the shoulder where the clavicle and scapula meet [the acromioclavicular joint (AC)]. • Measure 3 to 4 fingers-width down the arm from AC joint. • Slide 1 to 2 fingers-width posteriorly on the arm. • Anterior Thigh • Using a circular motion from selected site outward, cleanse the site with alcohol wipe. • With one hand, stretch or flatten the skin overlying the selected site. This will allow for smoother entry of the needle. • In the other hand, hold syringe like a dart and quickly thrust the needle into the tissue and muscle at a 90-degree angle. • Aspirate syringe to ensure that inadvertent venous administration is avoided. • If blood is aspirated into the syringe, withdraw the syringe and needle and dispose of properly. • Do not administer any medication mixed with blood. • Begin again at a different site. • If no blood is aspirated, slowly inject medication. • After all medication is injected, quickly withdraw syringe and dispose of in an approved container. • Gently massage over the injection site to increase absorption and medication distribution. • Apply firm pressure and place band-aid over site.

SPECIAL CONSIDERATIONS:

1. Approved injection sites: Posterior Deltoid or Anterior Thigh
2. Appropriate equipment (needle size and length).
3. 5/8 to 1” needle length for deltoid administration.
4. 22 – 25-gauge needle for aqueous medications.
5. 3 ml syringe
6. Deltoid injections: 2 mL or less (for medication amounts greater than 2 mL, split between both deltoids).

TAB 8 GUIDELINE 33
MEDICATION ADMINISTRATION –
NERVE AGENT | ORGANOPHOSPHATE

1. **A first responder, EMT, Advanced EMT, or Paramedic**, may administer drugs or dangerous drugs contained within a nerve agent antidote auto-injector kit, including a MARK I kit, in response to suspected or known exposure to a nerve or organophosphate agent provided the first responder or EMT is under physician medical direction and has received appropriate training regarding the administration of such drugs within the nerve agent antidote auto-injector kit, per EMS Scope of Practice, State of Ohio.
2. **DuoDote is indicated for the treatment of poisoning by organophosphorous nerve agents as well as organophosphorous insecticides.** DuoDote should only be administered to patients experiencing symptoms of organophosphate poisoning in a situation where exposure is known or suspected. DuoDote should be administered as soon as symptoms of organophosphate poisoning appears:

Mild Symptoms	Severe symptoms
• Blurred vision • Excessive, unexplained teary eyes • Excessive, unexplained runny nose • Increased salivation such as sudden drooling • Chest tightness or difficulty breathing • Tremors throughout the body or muscular twitching • Nausea and/or vomiting • Unexplained wheezing, coughing or increased airway secretions • Acute onset of stomach cramps • Tachycardia or bradycardia	• Strange or confused behavior • Severe difficulty breathing or copious secretions from lungs / airway • Severe muscular twitching and general weakness • Involuntary urination and defecation • Convulsions • Unconsciousness

3. Procedure - DuoDote application
 - a. Tear open plastic pouch at any of the notches

- b. Place the DuoDote Auto-Injector in your dominant hand, firmly grasp the center of the DuoDote Auto Injector with the Green Tip pointing down
- c. With your other hand, pull off the gray safety release. The DuoDote Auto-Injector is now ready to be administered
- d. The injection site is the mid-outer thigh area. The DuoDote Auto-Injector can inject through clothing, however, make sure pockets at the injection site are empty
- e. Swing and firmly push the Green Tip straight down (90-degree angle) against the mid-outer thigh. Continue to firmly push until you feel the DuoDote Auto-Injector trigger
 - i. After the auto-injector triggers, hold the DuoDote Auto-Injector firmly in place against the injection site for approximately 10 seconds**
- f. Remove the DuoDote Auto-Injector from the thigh and look at the Green Tip. If the needle is visible, the drug has been administered. If the needle is not visible, check to be sure the Gray safety release has been removed, and then repeat the above steps beginning with step D, but push harder in Step E
- g. After the drug has been administered, push the needle against a hard surface to bend the needle back against the DuoDote Auto-Injector
 - i. Put the used DuoDote back into the plastic pouch, if available. Leave used DuoDote with the patient to allow other medical personnel to see the number of DuoDote Auto-Injector (s) administered
- h. Immediately move yourself and the patient away from the contaminated areas and seek definitive medical care for the patient

TAB 8 GUIDELINE 34

NARCOTIC MEDICATION DOSE EQUIVALENT

1. The purpose of this guideline is to give alternative medication for whenever a time arises, and appropriate pain medication is not available and the paramedic has to rely on back-up pain medications in treating the acute pain of prehospital patients.
2. Preparation for acute pain IV narcotics include:
 - a. Fentanyl Citrate
 - b. Morphine Sulfate
 - c. Hydromorphone Hydrochloride
3. Fentanyl Citrate is the mainstay of pain medication for the PPS | Mercy EMS Guideline. If this medication is not available, the 2nd option will be morphine sulfate followed by hydromorphone hydrochloride as the last choice.
4. Dose equivalent chart

Fentanyl	Morphine	Hydromorphone
• Dose 1 mcg / kg • 100 mcg	• Dose 0.1 mg / kg • 10 mg	• Dose 0.015 mg / kg • 1 mg

TAB 8 GUIDELINE 35

RESTRAINT GUIDELINE

At times it is necessary to physically restrain individuals who are incompetent to refuse treatment or transport. The intent of physical restraint is to protect the patient, emergency responders and the public from dangerous actions of individuals.

Soft restraints • Kling or cravats • Commercial soft restraints • Nylon wrist restraints • Cloth (i.e. sheets or bath blankets)	Chemical restraint • Haldol 5 mg IM, may repeat once in 5 – 10 minutes • Benadryl 25 – 50 mg IV / IM if dystonic (stiff neck or jaw) or dyskinesia (apprehension or skin sensation) develops. • May consider 2 mg Versed slow IVP every 2 – 3 minutes until patient becomes sedated (maximum dosage of Versed is 10 mg) • Versed 5 mg each nostril can be given via Nasal-Mucosal Atomizer Device if an IV access is not available.
Hand restraints • Leather restraints • Handcuffs or wrist chains • Cable ties • Leg shackles • Hobble restraints	
Spitting masks • Non-rebreather mask • Spit Net • Surgical Mask	

1. Patients restrained by law enforcement devices must be transported accompanied by a law enforcement officer in the patient compartment who is capable of removing the devices. However, when rescuers have utilized restraints in accordance with Restraint Guideline, the law enforcement agent may follow behind the ambulance during transport, if there are no safety concerns and the arrangement is agreeable to both EMS and Law Enforcement personnel on scene.
2. Procedure
 - a. Offer the patient a final chance to cooperate.
 - b. Approach the patient swiftly from all sides at once.
 - c. The EMTs should maintain communication with the patient.
 - d. Place the patient in a supine position on a backboard and secure all extremities to the backboard.

- i. One arm up and one arm down will reduce the patient's ability to struggle.
- ii. Secure the legs to the corners of the board, or crisscross their legs.
- iii. Continue to monitor the patient for signs and symptoms of hypoxia. Be prepared to release the restraints as necessary. Document your findings on the EMS run sheet.
- iv. Begin appropriate medical treatment.
- v. Monitor and document the neurovascular status of restrained extremities every 15 minutes. Adjust the device as necessary.
- vi. For patients that are spitting
 1. Ensure that the patient is not hypoxic, if so then place on Non-rebreather mask at 15 L O₂.
 2. Patients that are competent, but are continuously spitting on EMS personnel, Surgical mask or spitting net can be used.
 3. DO NOT place rolled up towel / gauze into a patient's mouth.
- vii. Notify on-line MEDICAL CONTROL of the patient's status and the possible need for security.

SPECIAL CONSIDERATIONS:

1. If a restraint is applied by law enforcement, the officer should accompany the patient to the hospital in the squad.
2. **Personnel should not use the following restraint techniques**
 - a. Choke holds
 - b. Hog ties
 - c. Restraints used in the prone position
 - d. Restraint by sitting on the patient's torso
 - e. Restraint by sandwiching between the backboard
 - f. Any restraint by any method that would interfere with breathing

TAB 8 GUIDELINE 36

CHEST SEAL

There are multiple commercial grade chest seal occlusive dressings designed to treat open chest wounds, a life-threatening situation that could lead to tension pneumothorax and cardiac arrest. The majority of these devices have an adhesive dressing that allows for the ability to reseal, making for an ideal venting. These devices include a large coverage area and usually have an absorbent pad to help keep the wound clean.

1. Indications

- a. Open pneumothorax

2. Procedure

- a. Open package and remove the chest seal.
 - b. Clean and dry the area around the chest wound.
 - c. Grip tabs and remove the clear liner.
 - d. Place dressing, adhesive side down, centered around the wound.
 - e. Press dressing firmly to ensure adhesion.
 - f. One or both tabs can be used to facilitate placement or lifting / removal of dressing.
 - g. Remove dressing using standard dressing removal techniques.

TAB 8 GUIDELINE 37

HELMET REMOVAL

Removal of helmet	Leave helmet in place
• Inability to access, assess and maintain airway and breathing • Improperly fitted helmet allowing for excessive head movement within helmet • Proper c-spine alignment and immobilization cannot be achieved • Cardiac arrest • EMTs are trained in technique	• Helmet fits well with little or no movement of head in helmet • No impending airway or breathing problems • Removal may cause further injury or harm • Proper c-spine alignment and immobilization can be achieved with helmet in place • There is no interference with the ability to assess and reassess airway and breathing

1. Sport (football, ice hockey, field hockey, fencing, baseball)

a. Key points

- i. Typically, open anteriorly
- ii. Easier to access airway
- iii. If shoulder pads are used in conjunction with helmet and helmet is removed, then shoulder pads need to be removed simultaneously for proper c-spine alignment

b. All are equipped to have facemask removed separate from helmet. In most cases, removal of facemask is all that is needed, as the alignment of c-spine can be obtained with the shoulder pads and helmet in place

- i. Remove facemask by cutting snubber straps that hold it in place to access airway

c. Helmet Removal

- i. If helmet must be removed due to unusual circumstances, at least 4 people are needed
- ii. Shoulder pads need to be removed simultaneously. When shoulder pads are involved, use forearms to stabilize helmet and place hands at base of neck grasping the shoulder area
- iii. While maintaining manual c-spine, Helmet's inside face pads may be loosened by using a tongue blade to unsnap them with a twisting motion. Then cut the shoulder pads laces and straps and all shirts / jerseys from end of sleeve to center to allow for quick removal
- iv. Lift patient flat up for removal of equipment. Helmet should be grasped and tilted slightly to remove - DO NOT SPREAD SIDES OF BACK EDGE OF HELMET, WILL IMPINGE UPON NECK

- v. At same lift, pull of shoulder pads and clothing
- vi. Lower patient down and apply c-collar

2. Motorcycle / Bike / Skateboard

a. **Key points**

- i. When full-faced, airway is harder to access and maintain
- ii. Face shield may be removed for airway access

b. **Helmet Removal**

- i. Take eyeglasses off before attempting removal of helmet
- ii. One EMT stabilizes the helmet by placing hands on each side of the helmet with fingers on mandible to prevent movement
- iii. Second EMT removes any straps by cutting them, then places one hand on the mandible at the angle of the jaw and the other hand posteriorly at the occipital region
- iv. The EMT holding the helmet pulls the sides of the helmet outwards away from the head and gently slips the helmet halfway off and stops
- v. The EMT maintaining stabilization of the neck repositions hold by sliding the posterior hand superiorly to secure the head from falling back after complete helmet removal
- vi. Helmet is then completely removed
- vii. Place c-collar accordingly

TAB 8 GUIDELINE 38

LACERATION REPAIR

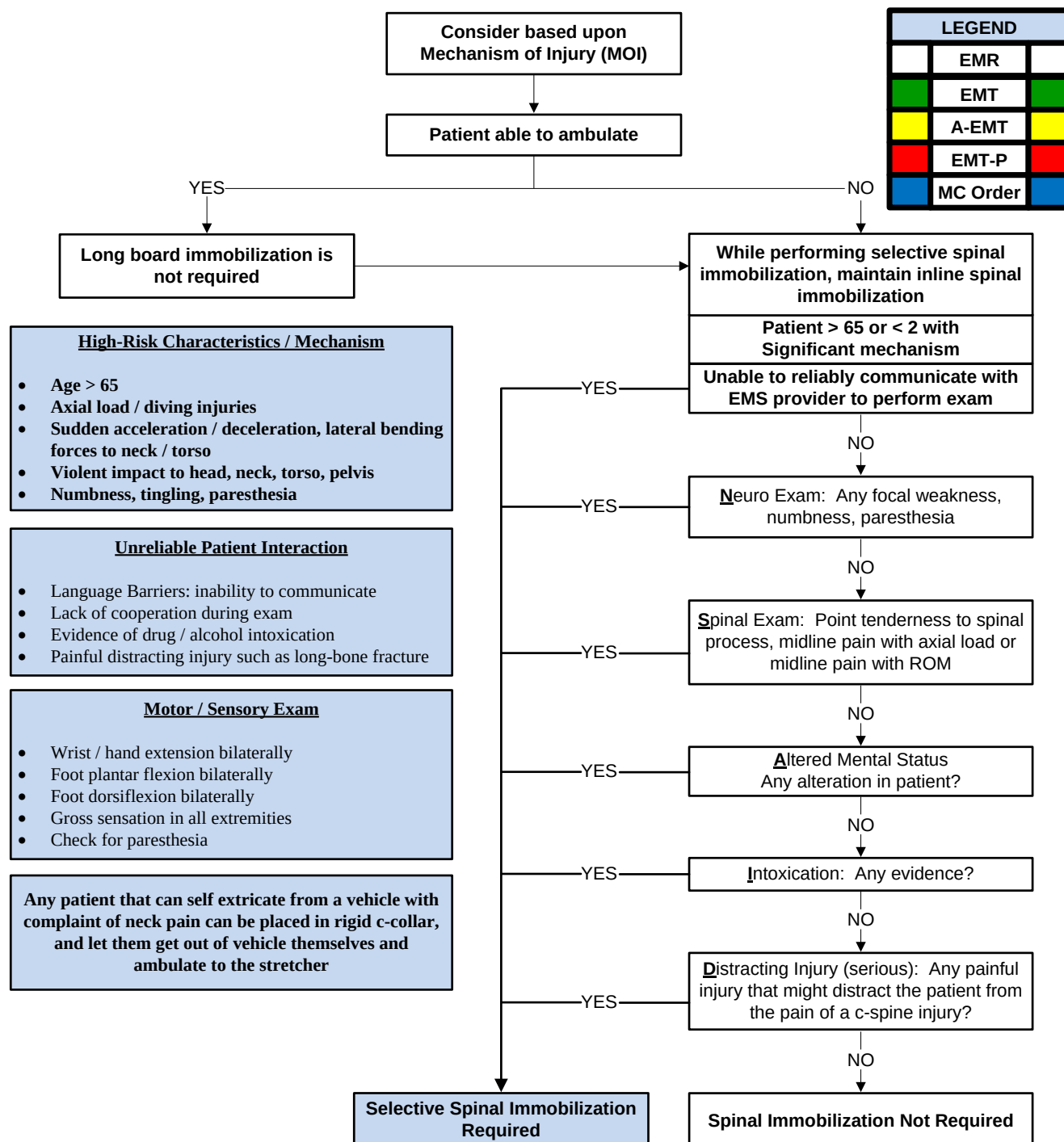
INDICATIONS	CONTRAINDICATIONS	COMPLICATIONS
Laceration to face, arms, legs < 2.5 cm (1 inch) in length	- Jagged or stellate lacerations - Bites, punctures or crush wounds - Contaminated wounds - Mucosal surfaces - Axillae and perineum (high-moisture areas) - Hands, feet and joints - Allergies to Dermabond	- Post procedure bleeding - Allergic reaction

- Irrigate wound area with minimum of 500 ml normal saline - Dry with sterile gauze - Apply benzoin tincture to skin surrounding the wound, do not get into the wound - Using steri strips appose wound edges by applying steri strip on (1) side of wound and gentle pulling the wound together and attaching other end of steri strip to opposite side of wound, apply additional steri strips leaving a 1/8 in space between each steri strip - Apply 2-Octyl-cyanoacrylate (Dermabond) - Crush 2-Octyl-cyanoacrylate (Dermabond) vial and invert - Gently brush adhesive over laceration - Avoid pushing adhesive into wound - Hold wound edges together for about 60 seconds - Apply three layers of adhesive

TAB 8 GUIDELINE 39

SELECTIVE SPINAL IMMOBILIZATION

INDICATIONS	CONTRAINDICATIONS	MANDATORY
- Suspicion of spinal / neurological injury - Provider decision to utilize the Spinal Immobilization Clearance protocol	- Neurologic problems - Spinal tenderness - Altered mental status - Intoxication - Distracting injuries	- Must be able to communicate with patient (NO LANGUAGE BARRIER) - Patient must have mental capacity and decision making capacity to be able to use guideline



LEGEND		
	EMR	
	EMT	
	A-EMT	
	EMT-P	
	MC Order	

SELECTIVE SPINAL IMMOBILIZATION:

1. **Patients with mechanism of injury with the potential for causing spine injury shall have a spine injury clinical assessment performed.** The purpose of spinal immobilization (spinal motion restriction) should reduce patient discomfort and protect patients from additional harm. Spinal immobilization that increases pain should be avoided.
2. **Selective spinal immobilization can include either cervical immobilization, or thoracic / lumbar / sacral (TLS) immobilization or cervical and TLS immobilization depending on complaint of pain, degree of injury.**
 - a. **All altered patients should have full spinal immobilization.**
 - b. **When in doubt always place a cervical collar on patient and at minimum maintain inline stabilization with patient on stretcher.**
3. **High risk injuries / Significant Mechanism of Injury (MOI)**
 - a. Always consider in all patients the use of c-collar and if necessary, backboard
 - b. Significant mechanism (consider immobilization)
 - i. Fall from elevation ≥ 3 feet / 5 stairs
 - ii. Axial load to head, e.g. diving
 - iii. MVC high speed [> 45 mph (100km/hr)], rollover, ejection
 - iv. Motorized recreational vehicles (motorcycle / 4-wheelers)
 - v. Bicycle struck or collision
 - vi. Pedestrian hit by high speed vehicle
 - vii. Assault with significant head, neck or back trauma
4. **Low risk characteristics / mechanisms**
 - a. These low-risk factors allow for safe omission of spinal immobilization in patients with GCS = 15
 - b. Characteristics
 - i. Simple rear-end collision
 - ii. Ambulatory on scene at any time
 - iii. No neck pain on scene
 - iv. No midline cervical tenderness
5. Patients may remain on the extrication device if the crew deems it safer for the patient considering stability, time and patient comfort. This decision will be at the discretion of the crew.

6. **Penetrating trauma patients to the head, chest, abdomen or extremities do not require spinal immobilization. Consider for patients with cervical penetration with concern of neurologic findings.**
7. Patient with only cervical immobilization without TLS spine injury, elevate the head of the stretcher to 30 degrees while maintaining cervical spinal motion restriction.

SPECIAL CONSIDERATIONS:

1. The elderly may have altered perception of pain and therefore may not report the same intensity of symptoms as younger patients. Therefore, extra caution is in order when assessing elderly patients.
2. Keep in mind that patients who are immobilized properly on a long immobilization device with cervical immobilization will not be able to reliably protect their airways in the event they vomit. Therefore, it is imperative that a working suction device be handy to clear vomit from the patient's upper airway.
3. The mere smell of alcohol does not mean that the patient is intoxicated. However, if there is any question about whether or not the patient is intoxicated, then the patient should be treated as if he has a spine injury, at least until he is "calm, cooperative, sober, and alert enough to give a reliable exam."
4. **Exercise caution when applying spinal immobilization to patients with difficulty breathing and position appropriately.**
 - a. Patients with acute or chronic difficulty breathing spinal immobilization is known to reduce respiratory function as much as 20%.
 - b. Respiratory compromise is experienced most by geriatric and pediatric patients secured to a long backboard.
5. **Combative patients: avoid methods or interactions that provoke increased spinal motion or agitation.**

SPECIFIC TECHNIQUES

1. Vacuum mattress is preferred over backboard if available
2. Cervical spinal immobilization
 - a. **Following procedure is to be used to properly immobilize the patient when injury to the cervical spine is considered**
 - b. Cervical collars should be placed on patient prior to patient movement, if possible
 - c. The cervical spine must be maintained in a neutral position at all times by direct manual and/or mechanical means. **DO NOT APPLY TRACTION AT ANY TIME.**

- d. The following devices are approved mechanical adjuncts for cervical spine immobilization:
 - i. Kendrick Extrication Device (KED), XP1, or equivalent
 - ii. Cervical Immobilization Device (CID)
 - iii. Rigid cervical collar properly fitted
 - iv. If no collar can be made to fit patient, towel, blanket rolls, head block or similar device may be used to support neutral head alignment
 - e. If back board is used, straps must also be placed across the patient's chest, pelvis, and legs to secure their body to the long immobilizer. CAUTION: It is DANGEROUS to secure the head if the BODY is allowed to move on the long board. This will subject the neck to unacceptable torque and bending.
 - f. Lateral neck supports such as towel rolls, Head bed, or equivalent must be applied and the patient's head and taped across the forehead and collar.
 - g. The cervical collar may be removed if interfering with airway management or airway placement, or if causing extreme patient distress.
3. Emergency patient removal
- a. Indicated when scene poses an imminent or potential life-threatening danger to patient and / or rescuers
 - b. Remove the patient from danger while best attempt is made to maintain spinal precautions
 - c. Rapid extrication is indicated when patient condition is unstable (ie airway or breathing compromise, shock, unconsciousness, no pulse, or need for immediate intervention)
4. Self-Extrication procedure
- a. Patients, who are stable, alert and without neurological deficits may be allowed to self-extricate to the ambulance cot after placement of a cervical collar
 - b. Limit movement of the spine during the process
5. Thoracic and lumbar spinal immobilization
- a. **Following procedure is to be used to properly immobilize the patient when injury to the thoracic and lumbar spine is considered and the patient condition prevents self-extrication**
 - b. The spine must be maintained in a neutral position at all times by direct manual and/or mechanical means.
 - i. Rescuers should place the patient in a stable, neutral position where space is created to place backboard or other long extrication device in position near the patient
 - ii. Move the patient to supine position on the long extrication device

- c. As soon as practical, the patient will be carefully placed on a long immobilizer. The following such devices are approved:
 - i. Scoop stretcher
 - ii. Long spine board (wood or equivalent radiolucent material)
 - iii. Stokes litter (high angle rescue only)
 - iv. Full body vacuum splint
- d. The patient must be securely fastened to the long immobilizer with straps across the chest, pelvis, and legs to prevent any torque or twisting of any part of the spine. Airway secretions and vomitus are to be cleared using suction devices. If necessary, the patient to be log rolled together with the immobilization equipment for the purpose of airway maintenance.
- e. The extrication device is used to move the patient to the ambulance / air medical stretcher

TAB 8 GUIDELINE 40

SPLINTING

1. Indications:

- a. Immobilization of an extremity for transport, either due to suspected fracture, sprain, or injury.
- b. Immobilization of an extremity for transport to secure medically necessary devices (i.e., intravenous catheters).

2. General Splinting Procedure:

- a. 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.
- b. Remove all clothing from the extremity.
- c. 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.
- d. Do not secure the splint directly over the injury or device.
- e. Place the splint and secure with Velcro, straps, tape, or bandage material depending on the splint manufacturer and design.
- f. Document pulses, sensation, and motor function after placement of the splint. If there has been deterioration in any of these 3 parameters, remove the splint and reassess.
- g. Document the time, type of splint, and the pre and post assessment of pulse, sensation, and motor function in the patient care report (PCR).

3. Types of splints

a. Traction Splinting

- i. Traction splints are used to immobilize suspected femur fractures.
- ii. Guidelines set forth by the equipment manufacturer should be followed when applying the device.

b. Hare Traction Splint (Application Procedure):

- i. Assess neurovascular function.
- ii. Place the ankle device over the ankle.
- iii. Place the proximal end of the traction splint on the posterior side of the affected extremity, being careful to avoid placing too much pressure on genitalia or open wounds. Make certain the splint extends proximal to the suspected fracture. If the

splint will not extend in such a manner, reassess possible involvement of the pelvis.

- iv. Extend the distal end of the splint at least 6 inches beyond the foot.
- v. Attach the ankle device to the traction crank.
- vi. Twist until moderate resistance is met.
- vii. Reassess alignment, pulses, sensation, and motor function. If there has been deterioration in any of these 3 parameters, release traction and reassess.
- viii. Document the time, type of splint, and the pre and post assessment of pulse, sensation, and motor function in the patient care report (PCR).

c. Sager Traction Splint (Application Procedure)

- i. Assess neurovascular function.
- ii. Position the splint – Place the splint between the patient's legs and apply the thigh strap snugly against the injured limb, seating the cushion against the patient's perineum. Extend the inner shaft of the splint to place the pulley wheel just beyond the patient's heel. When positioning the splint, the pulley wheel should be facing the injured limb.
- iii. Set the splint – Apply the ankle harness firmly around the ankle above the medial and lateral malleolus. Pull the control tabs on the ankle harness to shorten the ankle sling, pulling it up against the sole of the foot. You are now ready to administer dynamic traction. Extend the splint shaft to achieve the amount of desired traction, while observing the amount registered on the traction scale. Check the thigh strap, re-tighten to retain snug fit.
- iv. Secure the splint – Slip the largest leg cravat under the hollow behind the knee and see-saw it up to the upper thigh. Follow with the shortest cravat under the knee and see-saw down under the lower leg. Place the remaining cravat under the knee and then secure all three cravats binding the leg and splint together. Wrap the figure-8 strap snugly around the ankles and over the feet.
- v. Reassess alignment, pulses, sensation, and motor function. If there has been deterioration in any of these 3 parameters, release traction and reassess.
- vi. Document the time, type of splint, and the pre and post assessment of pulse, sensation, and motor function in the patient care report (PCR).

d. Vacuum splint

- i. Assess neurovascular function.

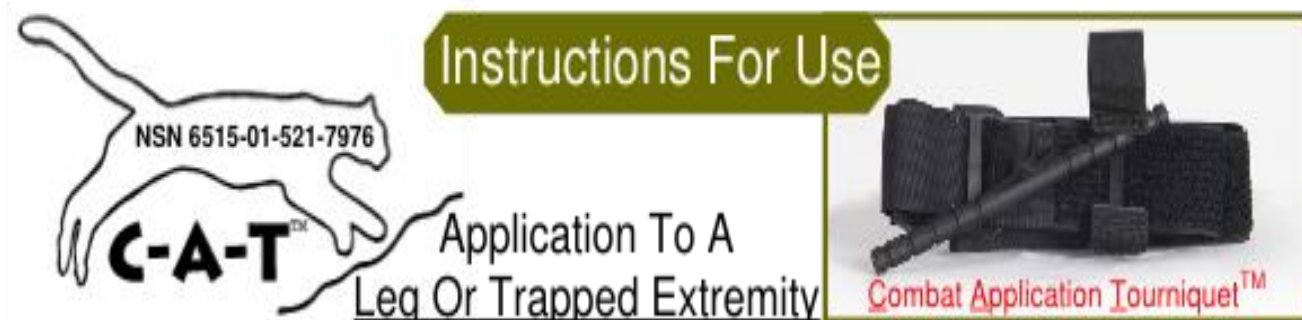
- ii. Partner assists in maintaining immobilization of injured extremity
- iii. Place splint on extremity
- iv. Remove air from the splint until the splint is rigid
- v. Reassess alignment, pulses, sensation, and motor function. If there has been deterioration in any of these 3 parameters, release traction and reassess.
- vi. Document the time, type of splint, and the pre and post assessment of pulse, sensation, and motor function in the patient care report (PCR).

TAB 8 GUIDELINE 41

TOURNIQUET APPLICATION

1. Indications

- a. Uncontrolled extremity bleeding not responsive to direct pressure
- b. Extremity bleeding in Tactical or Unsafe environment



Utilization of the Friction Adaptor Buckle

When using two hands to apply the C-A-T or if the Self-Adhering Band becomes exceptionally dirty, use the Friction Adaptor Buckle to lock the band in place



APPENDIX
TAB 8 GUIDELINE 42
WEIGHT CHART: POUNDS TO KILOGRAMS

(1 - 250) Pounds to Kilograms (0.5 - 113)

Pound	Kg	Pound	Kg	Pound	Kg	Pound	Kg	Pound	Kg	Pound	Kg	Pound	Kg	Pound	Kg	Pound	Kg	Pound	Kg
1	0.5	26	11.8	51	23.1	76	34.5	101	45.8	126	57.2	151	68.5	176	79.8	201	91.2	226	102.5
2	0.9	27	12.2	52	23.6	77	34.9	102	46.3	127	57.6	152	68.9	177	80.3	202	91.6	227	103.0
3	1.4	28	12.7	53	24.0	78	35.4	103	46.7	128	58.1	153	69.4	178	80.7	203	92.1	228	103.4
4	1.8	29	13.2	54	24.5	79	35.8	104	47.2	129	58.5	154	69.9	179	81.2	204	92.5	229	103.9
5	2.3	30	13.6	55	24.9	80	36.3	105	47.6	130	59.0	155	70.3	180	81.6	205	93.0	230	104.3
6	2.7	31	14.1	56	25.4	81	36.7	106	48.1	131	59.4	156	70.8	181	82.1	206	93.4	231	104.8
7	3.2	32	14.5	57	25.9	82	37.2	107	48.5	132	59.9	157	71.2	182	82.6	207	93.9	232	105.2
8	3.6	33	15.0	58	26.3	83	37.6	108	49.0	133	60.3	158	71.7	183	83.0	208	94.3	233	105.7
9	4.1	34	15.4	59	26.8	84	38.1	109	49.4	134	60.8	159	72.1	184	83.5	209	94.8	234	106.1
10	4.5	35	15.9	60	27.2	85	38.6	110	49.9	135	61.2	160	72.6	185	83.9	210	95.3	235	106.6
11	5.0	36	16.3	61	27.7	86	39.0	111	50.3	136	61.7	161	73.0	186	84.4	211	95.7	236	107.0
12	5.4	37	16.8	62	28.1	87	39.5	112	50.8	137	62.1	162	73.5	187	84.8	212	96.2	237	107.5
13	5.9	38	17.2	63	28.6	88	39.9	113	51.3	138	62.6	163	73.9	188	85.3	213	96.6	238	108.0
14	6.4	39	17.7	64	29.0	89	40.4	114	51.7	139	63.1	164	74.4	189	85.7	214	97.1	239	108.4
15	6.8	40	18.1	65	29.5	90	40.8	115	52.2	140	63.5	165	74.8	190	86.2	215	97.5	240	108.9
16	7.3	41	18.6	66	29.9	91	41.3	116	52.6	141	64.0	166	75.3	191	86.6	216	98.0	241	109.3
17	7.7	42	19.1	67	30.4	92	41.7	117	53.1	142	64.4	167	75.8	192	87.1	217	98.4	242	109.8
18	8.2	43	19.5	68	30.8	93	42.2	118	53.5	143	64.9	168	76.2	193	87.5	218	98.9	243	110.2
19	8.6	44	20.0	69	31.3	94	42.6	119	54.0	144	65.3	169	76.7	194	88.0	219	99.3	244	110.7
20	9.1	45	20.4	70	31.8	95	43.1	120	54.4	145	65.8	170	77.1	195	88.5	220	99.8	245	111.1
21	9.5	46	20.9	71	32.2	96	43.5	121	54.9	146	66.2	171	77.6	196	88.9	221	100.2	246	111.6
22	10.0	47	21.3	72	32.7	97	44.0	122	55.3	147	66.7	172	78.0	197	89.4	222	100.7	247	112.0
23	10.4	48	21.8	73	33.1	98	44.5	123	55.8	148	67.1	173	78.5	198	89.8	223	101.2	248	112.5
24	10.9	49	22.2	74	33.6	99	44.9	124	56.2	149	67.6	174	78.9	199	90.3	224	101.6	249	112.9
25	11.3	50	22.7	75	34.0	100	45.4	125	56.7	150	68.0	175	79.4	200	90.7	225	102.1	250	113.4

(251 - 375) Pounds to Kilograms (114 - 170)

Pound	Kg	Pound	Kg	Pound	Kg	Pound	Kg	Pound	Kg	Pound	Kg	Pound	Kg	Pound	Kg	Pound	Kg	Pound	Kg
251	113.9	264	119.8	276	125.2	289	131.1	301	136.5	314	142.4	326	147.9	339	153.8	351	159.2	364	165.1
252	114.3	265	120.2	277	125.6	290	131.5	302	137.0	315	142.9	327	148.3	340	154.2	352	159.7	365	165.6
253	114.8	266	120.7	278	126.1	291	132.0	303	137.4	316	143.3	328	148.8	341	154.7	353	160.1	366	166.0
254	115.2	267	121.1	279	126.6	292	132.5	304	137.9	317	143.8	329	149.2	342	155.1	354	160.6	367	166.5
255	115.7	268	121.6	280	127.0	293	132.9	305	138.3	318	144.2	330	149.7	343	155.6	355	161.0	368	166.9
256	116.1	269	122.0	281	127.5	294	133.4	306	138.8	319	144.7	331	150.1	344	156.0	356	161.5	369	167.4
257	116.6	270	122.5	282	127.9	295	133.8	307	139.3	320	145.2	332	150.6	345	156.5	357	161.9	370	167.8
258	117.0	271	122.9	283	128.4	296	134.3	308	139.7	321	145.6	333	151.0	346	156.9	358	162.4	371	168.3
259	117.5	272	123.4	284	128.8	297	134.7	309	140.2	322	146.1	334	151.5	347	157.4	359	162.8	372	168.7
260	117.9	273	123.8	285	129.3	298	135.2	310	140.6	323	146.5	335	152.0	348	157.9	360	163.3	373	169.2
261	118.4	274	124.3	286	129.7	299	135.6	311	141.1	324	147.0	336	152.4	349	158.3	361	163.7	374	169.6
262	118.8	275	124.7	287	130.2	300	136.1	312	141.5	325	147.4	337	152.9	350	158.8	362	164.2	375	170.1
263	119.3			288	130.6			313	142.0			338	153.3			363	164.7		

TAB 9

MEDICATION GUIDE



SPECIAL CONSIDERATIONS:

1. **ALL PEDIATRIC MEDICATION DOSAGES ARE MAXED AT THE ADULT MAXIMUM DOSE**
2. Any medication initiated by the sending facility can be continued while in route to the receiving facility. When necessary contact medical control at the receiving facility for any additional clarification of medication orders.
3. Drug Calculations:
 - a. Milligrams / hour

$$\frac{\text{Dose (mg / h)} \times \text{volume (ml)}}{\text{Concentration drug (mg)}}$$
 - b. Micrograms / minute

$$\frac{\text{Dose (mcg / min)} \times 60 (\text{min}) \times \text{volume (ml)}}{\text{Concentration drug (mcg)}}$$

ACETAMINOPHEN (TYLENOL)

INDICATION:

- Pain control

ACTION:

- Acts on hypothalamus to produce antipyretic
- COX-2 inhibitor
- Onset: 10 – 60 minutes
- Duration: 3 – 6 hours

PRECAUTIONS:

- Pregnancy Category B
- Alcoholism, chronic malnutrition

CONTRAINDICATIONS:

- Hypersensitivity
- Severe hepatic impairment or severe active liver disease

SIDE EFFECTS:

- Hepatotoxicity
- Urticaria / maculopapular rash
- Laryngeal edema / angioedema

SPECIAL CONSIDERATIONS:

- Potential toxic dose > 150 mg / kg
- Includes tablets or liquid suspension forms

Adult			
Indication	Dose	Route (s)	Special
Fever Reduction	325 – 1000 mg	PO	For temperature > 38.6 °C
Pain Control	325 – 1000 mg	PO	
Pediatric			
Indication	Dose	Route (s)	Special
Fever Reduction	15 mg / kg	PO	For temperature > 38.6 °C
Pain Control	15 mg / kg	PO	

ADENOSINE (ADENOCARD)

INDICATION:

- Paroxysmal supraventricular tachycardia
- Wide complex tachycardia with a pulse

ACTION:

- Slows atrioventricular conduction
- Onset: Immediate
- Duration: Half-life of less than 10 seconds

PRECAUTIONS:

- Pregnancy Category C
- Arrhythmias are common at the time of conversion

CONTRAINDICATIONS:

- Second or Third degree AV Block
- Sick Sinus Syndrome
- Hypersensitivity to the Medication

SIDE EFFECTS:

- Shortness of Breath
- Nausea
- Dizziness
- Headache
- Facial Flushing
- Palpitations
- Chest Pain

SPECIAL CONSIDERATIONS:

- Administration should be less than 5 seconds via rapid IV / IO bolus
- Each dose should be followed immediately by rapid administration of flush of 10 ml
- All doses of adenosine should be reduced by 50% with the following conditions:
 - History of cardiac transplantation
 - Patients who are on carbamazepine (Tegretol) or dipyridamole (Persantine)
 - Administration through any type of central line (Porta cath, Broviac, Hickman, etc)

Adult			
Indication	Dose	Route (s)	Special
PSVT	6mg 12 mg x 2	IV / IO	Large proximal IV line with fluid bolus flush
Pediatric			
Indication	Dose	Route (s)	Special
PSVT	0.1 mg / kg 0.2 mg / kg x 2	IV / IO	Large proximal IV line with fluid bolus flush

ALBUTEROL SULFATE

INDICATION:

- Respiratory distress

ACTION:

- Sympathomimetic (Beta 2 selective)
- Onset: within 15 minutes
- Duration: up to 6 hours

PRECAUTIONS:

- Pregnancy Category C (given all the time though)
- Monitor BP, pulse, and ECG
- Use with caution in heart patients

CONTRAINDICATIONS:

- Symptomatic Tachycardia
- Hypersensitivity to the Medication

SIDE EFFECTS:

- Palpitations / Anxiety
- Headache
- Dizziness
- Diaphoresis

Adult			
Indication	Dose	Route (s)	Special
Anaphylaxis	5 mg	Nebulized	
Bronchial asthma COPD	2.5 – 5 mg	Nebulized	Add Atrovent with repeat dose
Hyperkalemia	10 mg	Nebulized	
Pediatric			
Indication	Dose	Route (s)	Special
Anaphylaxis	< 10 kg give 1.25 mg > 10 kg give 2.5 mg	Nebulized	
Bronchial asthma	< 10 kg give 1.25 mg > 10 kg give 2.5 mg	Nebulized	Add Atrovent with repeat dose

AMIODARONE (CORDARONE)

INDICATION:

- Ventricular fibrillation / Ventricular Tachycardia (with or without pulse)
- Atrial fibrillation / flutter

ACTION:

- Prolongs action potential and refractory period, slows the sinus rate
- Increases PR and QT intervals
- Decreases peripheral vascular resistance
- Onset: 1 – 4 minutes
- Duration: > 24 hours

PRECAUTIONS:

- Pregnancy Category D
- Heart Failure

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- Severe sinus node dysfunction
- Sinus bradycardia, Second or Third degree AV block

SIDE EFFECTS:

- Hypotension
- Nausea
- Tremors

Adult			
Indication	Dose	Route (s)	Special
V-fib	300 mg	IV / IO bolus	Repeat once @ 150 mg
Pulseless V-tach	150 mg		
Atrial Fibrillation	150 mg	IV / IO infusion	Mix with 100 ml NS and administer over 10 minutes
PSVT			
V-tach with pulse			
Pediatric			
Indication	Dose	Route (s)	Special
V-fib	5 mg / kg (max 300 mg)	IV / IO bolus	Repeat once @ max 150 mg
Pulseless V-tach			
V-tach with pulse	5 mg / kg (max 150 mg)	IV / IO infusion	Mix with 2 ml / kg of NS and infuse over 20 minutes

ANTIDOTE TREATMENT NERVE AGENT AUTO-INJECTOR (DUODOTE)

ACTION:

- Refer to Atropine and Pralidoxime

PRECAUTIONS:

- Pregnancy Category

CONTRAINDICATIONS:

- Refer to Atropine and Pralidoxime

SIDE EFFECTS:

- Refer to Atropine and Pralidoxime

SPECIAL CONSIDERATIONS:

- DuoDote Injector = 2.1 mg atropine/0.7 mL + 600 mg pralidoxime / 2 mL
- Refer to Medication administration – Nerve agent / Organophosphate for other dosing

Adult			
Indication	Dose	Route (s)	Special
Organophosphate or Nerve Gas Exposure	Mild Sxs – 1 Duodote Severe Sxs – 3 Duodote	IM	
Pediatric – not indicated for pediatric patient			

Mild Symptoms	Severe symptoms
• Blurred vision • Excessive, unexplained teary eyes • Excessive, unexplained runny nose • Increased salivation such as sudden drooling • Chest tightness or difficulty breathing • Tremors throughout the body or muscular twitching • Nausea and/or vomiting • Unexplained wheezing, coughing or increased airway secretions • Acute onset of stomach cramps • Tachycardia or bradycardia	• Strange or confused behavior • Severe difficulty breathing or copious secretions from lungs / airway • Severe muscular twitching and general weakness • Involuntary urination and defecation • Convulsions • Unconsciousness

ASPIRIN

INDICATION:

- Acute coronary syndrome / Chest pain

ACTION:

- Blocks platelet aggregation
- Onset: Variable
- Duration: Variable

PRECAUTIONS:

- Pregnancy Category C; D if used for prolonged periods or near term
- GI Bleeding
- Pregnancy
- Bleeding problems

CONTRAINDICATIONS:

- Hypersensitivity to the Medication

SIDE EFFECTS:

- Nausea/Vomiting
- Wheezing

Adult			
Indication	Dose	Route (s)	Special
Acute Coronary Syndrome (ACS)	324 mg (4 x 81 mg tablets)	PO	Can be given even if the patient has taken ASA that day
Pediatric – not indicated			

ATROPINE SULFATE

INDICATION:

- Bradycardia
- Organophosphate poisoning / Nerve Agent Exposure
- Premedication during Medication Assisted Intubation

ACTION:

- Blocks acetylcholine receptors
- Increases heart rate
- Decreases gastrointestinal secretions
- Onset: Rapid
- Duration: 2 – 6 hours

PRECAUTIONS:

- Pregnancy Category C
- Tachycardia
- Hypertension

CONTRAINDICATIONS:

- Hypersensitivity to the Medication

SIDE EFFECTS:

- Palpitations, Tachycardia
- Paroxysmal bradycardia when pushed slowly or when given in doses less than 0.5mg
- Headache, Dizziness, Dry Mouth, Nausea/Vomiting, Dysrhythmia

Adult			
Indication	Dose	Route (s)	Special
Bradycardia	0.5 – 1 mg (Max 3 mg)	IV / IO	Endotracheal Tube 2 to 2.5 times the IV dose
Organophosphate or Nerve Agent Exposure	2 mg	IV / IO	q 5 – 15 min
MAI	0.5 – 1 mg	IV / IO	Give with repeated doses of succinylcholine to prevent bradycardia
Pediatric			
Indication	Dose	Route (s)	Special
Bradycardia	0.02 mg / kg (minimal dose of 0.1 mg)	IV / IO	Minimum 0.1 mg Child Max 0.5 mg Adolescent Max 1 mg
Organophosphate or Nerve Agent Exposure	0.015 – 0.05 mg / kg	IV / IO	Give q 15 minutes until HR > 180
MAI	0.02 mg / kg (minimal dose of 0.1 mg)	IV / IO	Required for age < 2, ideally any pediatric patient to prevent bradycardia

CALCIUM CHLORIDE | GLUCONATE

INDICATION:

- Calcium channel blocker Overdose (Calcium Chloride or Calcium Gluconate)
- Hyperkalemia (Calcium Chloride or Calcium Gluconate)
- Hydrofluoric Acid (Calcium Gluconate only)

ACTION:

- Increases Cardiac Contractility
- Onset: 1 – 5 minutes
- Duration: Dose dependent, may persist for 4 hours after IV administration

PRECAUTIONS:

- Pregnancy Category B
- Flush IV line between the administration of Calcium and Sodium Bicarbonate
- Extravasation may cause necrosis of the tissues

CONTRAINDICATIONS:

- Patients receiving Digitalis

SIDE EFFECTS:

- Arrhythmias – bradycardia, ventricular irritability
- Hypotension
- Acute MI/Stroke

SPECIAL CONSIDERATION:

- Calcium gluconate 2.5 % solution – mix 1 Gram / 10 ml (10 %) with 30 ml NS
- Calcium gluconate 1% solution – mix 1 Gram / 10 ml (10 %) with 90 ml NS

Adult			
Indication	Dose	Route (s)	Special
Hypocalcemia	100 – 1000 mg	IV / IO	Infuse over 10 minutes
Hyperkalemia with wide complex QRS	1000 mg	IV / IO	DO NOT mix with sodium bicarbonate
Calcium Channel Blocker OD	1000 mg	IV / IO	Infuse over 10 minutes May follow with IV infusion of 1 g/hr
Magnesium Sulfate OD	1000 mg	IV / IO	10% solution
Hydrofluoric Acid Dermal Exposure	Application	Topical	Calcium Gluconate 2.5 % Gel
Hydrofluoric Acid Inhalation Exposure	Application	Inhalation	Calcium Gluconate 2.5 % Nebulized
Hydrofluoric Acid Eye Exposure	Application	Topical	Calcium Gluconate 1 % Irrigation
Pediatric			
Indication	Dose	Route (s)	Special
Hyperkalemia with wide complex QRS	20 mg / kg (Max 1 gram)	IV / IO	DO NOT mix with sodium bicarbonate
Calcium Channel Blocker OD	8 – 16 mg / kg (Max 1 gram)	IV / IO	Infuse over 10 minutes

DEXTROSE

INDICATION:

- Hypoglycemia

ACTION:

- Elevates Blood Glucose Levels
- Onset: Less than 1 minute
- Duration: Variable

PRECAUTIONS:

- Pregnancy Class Unknown
- Make certain that your IV line is patent

CONTRAINDICATIONS:

- None

SIDE EFFECTS:

- Thrombophlebitis

Adult			
Indication	Dose	Route (s)	Special
Hypoglycemia (Altered Mental Status)	15 – 30 Grams	PO	
	10 Grams (100 ml) of D10%	IV / IO	
	25 Grams (50 ml) of D50%	IV / IO	
Pediatric			
Indication	Dose	Route (s)	Special
Hypoglycemia (Altered Mental Status)	0.5 Gram / Kg	PO	
	5 - 10 ml / kg of D10%	IV / IO	

DILITIAZEM (CARDIZEM)

INDICATION:

- Atrial fibrillation / flutter with rapid ventricular response

ACTION:

- Slows AV conduction
- Decreases rate of ventricular response
- Onset: 2 – 5 minutes
- Duration: 3 – 4 hours

PRECAUTIONS:

- Pregnancy Category C
- Watch for hypotension

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- Sick Sinus Syndrome
- 2nd or 3rd degree AV Block, except with a functioning pacemaker
- Severe hypotension
- Cardiogenic Shock
- A-Fib or A-Flutter associated with accessory bypass tract (WPW or short PR syndrome)
- Ventricular Tachycardia

SIDE EFFECTS:

- Nausea/Vomiting
- Hypotension
- Dizziness

Adult			
Indication	Dose	Route (s)	Special
Atrial fibrillation or Flutter w/ RVR or PSVT	0.25 mg / kg Repeat 0.35 mg / kg	IV / IO	Give over 2 minutes
Pediatric – not indicated			

IV Bolus		
LBS / Kg	INITIAL BOLUS Bolus Dose at 0.25 mg/kg	AFTER 15 MINUTES Bolus Dose at 0.35 mg/kg
90 / 41	10	14.5
100 / 45	11	16
110 / 50	12.5	17.5
120 / 55	13.5	19
130 / 59	14.5	20.5
140 / 64	16	22
150 / 68	17	24
160 / 73	18	25.5
170 / 77	19	27
180 / 82	20.5	28.5
190 / 86	21.5	30
200 / 91	22.5	31.5
210 / 95.5	24	33.5
220 / 100	25	35
230 / 104.5	26	36.5
240 / 109	27	38

Diluent Volume	Quantity of diltiazem injection to add	Final Concentration	Administration	
			Dose (mg / hr)	Infusion Rate
100	100 mg (powder)	1 mg / ml	5	5 ml / hr
			10	10 ml / hr
			15	15 ml / hr
100	125 mg (25 ml)	1 mg / ml	5	5 ml / hr
			10	10 ml / hr
			15	15 ml / hr
250	250 mg (50 ml)	0.83 mg / ml	5	6 ml / hr
			10	12 ml / hr
			15	18 ml / hr
500	250 mg (50 ml)	0.45 mg / ml	5	11 ml / hr
			10	22 ml / hr
			15	33 ml / hr

DIPHENHYDRAMINE (BENADRYL)

INDICATION:

- Anaphylaxis
- Nausea / Vomiting

ACTION:

- Blocks histamine receptors
- Onset: 1 – 3 hours
- Duration: 6 – 12 hours

PRECAUTIONS:

- Pregnancy Category B
- Hypotension

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- Asthma
- Nursing Mothers
- Narrow angle glaucoma

SIDE EFFECTS:

- Sedation
- Headache
- Palpitations
- Hypotension
- Dry Mouth

SPECIAL CONSIDERATIONS:

- Includes IV, tablets or liquid suspension forms
- Pediatric Generalized Dosing Guidelines (PO) – May give more for increased body size
 - 2 – 5 years 6.25 mg
 - 6 – 11 years 12.5 – 25 mg
 - > 12 years 25 – 50 mg

Adult			
Indication	Dose	Route (s)	Special
Anaphylaxis	25 – 50 mg (Max 50 mg)	IV / IO / IM / IN / PO	
Dystonic reaction	25 – 50 mg (Max 50 mg)	IV / IO / IM / IN / PO	
Nausea and Vomiting	25 – 50 mg (Max 50 mg)	IV / IO / IM / IN	
Pediatric			
Indication	Dose	Route (s)	Special
Anaphylaxis	1 mg / kg (Max 50 mg)	IV / IO / IM / IN / PO	
Dystonic reaction	1 mg / kg (Max 50 mg)	IV / IO / IM / IN / PO	

EPINEPHRINE (ADRENALIN)

INDICATION:

- Anaphylaxis
- Cardiac arrest
- Respiratory distress
- Hypotension

ACTION:

- Increases heart rate and automaticity, systemic vascular resistance
- Increases cardiac contractility and electrical activity
- Onset: Sub-Q: 5 – 10 minutes; IV: 1 – 2 minutes
- Duration: 5 – 10 minutes

TREATMENT

- Epinephrine drip is a weight based drug for pediatrics. Crew members must verify an accurate patient weight before treatment
- Patient must be on a cardiac monitor. Vital signs must be obtained every 10 minutes for stable patients and every 5 minutes for unstable patients
- Interfacility transport, drips should be on an IV pump throughout transport and rates should be established before transport
- Typical dosing
 - Adult – 0.5 – 10 mcg / min and can be increased by 1 mcg / min until desired effect is reached. Do not exceed maximum dose of 40 mcg / min.
 - Pediatric – 0.01 – 1 mcg / kg / min and can be increased by 0.1 mcg / kg / min until desired effect is reached. Do not exceed maximum dose of 4 mcg / min.
 - When titrating, wait 3 – 5 minutes before changing dose and check blood pressure every 2 – 3 minutes

PRECAUTIONS:

- Pregnancy Category C
- Can be deactivated by alkaline solutions

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- Hypovolemic shock
- Coronary Insufficiency, and Hypertension

SIDE EFFECTS:

- Nausea / Headache / Anxiety
- Hypertension, Tachycardia, Palpitations and dysrhythmias
- Precipitation of angina

Adult			
Indication	Dose	Route (s)	Special
Asthma Anaphylaxis	0.3 mg (1:1000)	IM	
	1 – 20 mcg / min (1:10,000)	IV / IO	Max 40 mcg / min
Asystole / PEA V-Fib / V-Tach	1 mg	IV / IO	Repeat q 3 – 5 min
	1 – 20 mcg / min	IV / IO	Max 40 mcg / min
Hypotension	1 – 20 mcg / min	IV / IO	Max 40 mcg / min
Respiratory Distress	0.5 mg	Nebulizer	May repeat after 30 min
	0.5 ml of 2.5% racemic epinephrine	Nebulizer	Mix with 3 ml of NS May repeat after 30 min
Sepsis	1 – 20 mcg / min	IV / IO	Max 40 mcg / min
Pediatric			
Indication	Dose	Route (s)	Special
Asthma Anaphylaxis	0.01 mg / kg (1:1000)	IM	Max single dose 0.3 mg May repeat q 3 – 5 min
	0.01 mg / kg (1:10,000)	IV / IO	Max single dose 0.3 mg May repeat q 3 – 5 min
	0.1 – 1 mcg / kg / min	IV / IO	Drip
Asystole / PEA V-Fib / V-Tach	0.01 mg / kg (1:10,000)	IV / IO	Repeat q 3- 5 min
	0.1 – 1 mcg / kg / min (1:10,000)	IV / IO	Drip
Hypotension	0.1 – 1 mcg / kg / min	IV	Drip
Respiratory Distress	0.25 ml / KG (1:1000)	Nebulizer	Max 5 ml May repeat after 30 min
	0.5 ml of 2.5% racemic epinephrine	Nebulizer	Mix with 3 ml of NS May repeat after 30 min
Sepsis	0.1 – 1 mcg / kg / min	IV	Drip

Dose in Micrograms / Minute		1 mg / 250 ml (4 mcg / ml)	4 mg / 250 ml (16 mcg / ml)
	0.5	7.5	1.875
	1	15	3.75
	2	30	7.5
	3	45	11.25
	4	60	15
	5	75	18.75
	6	90	22.5
	7	105	26.25
	8	120	30
	9	135	33.75
	10	150	37.5
	12	180	45
	14	210	52.5
	16	240	60
	18	270	67.5
	20	300	75
	22	330	82.5
	24	360	90
	26	390	97.5
	28	420	105
	30	450	112.5
	32	480	120
	34	510	127.5
	36	540	135
	38	570	142.5
	40	600	150
	Milliliters / Hour		

ETOMIDATE (AMIDATE)

INDICATION:

- Medication Assisted Intubation

ACTION:

- Induction and maintenance of general anesthesia
- Onset: 10 seconds
- Duration: 3 – 8 minutes

PRECAUTIONS:

- Pregnancy Category C
- Always evaluate how difficult it is going to be to obtain an airway. If the patient would be a difficult airway even under the best of circumstances, perhaps another approach would be more appropriate.
- Notify admitting service if used in the septic patient due to adrenal suppression

CONTRAINDICATIONS:

- Hypersensitivity to the Medication

SIDE EFFECTS:

- Transient myoclonic movements
- Bruxism – clenching of teeth
- Injection site pain
- Nausea and vomiting
- Shock

Adult			
Indication	Dose	Route (s)	Special
Sedation for MAI	0.3 mg / kg	IV / IO	
Pediatric			
Indication	Dose	Route (s)	Special
Sedation for MAI	0.3 mg / kg	IV / IO	

FENTANYL CITRATE (SUBLIMAZE)

INDICATION:

- Pain control
- Medication Assisted Intubation

ACTION:

- Decreases sensitivity to pain
- Central nervous system depressant
- Onset: Minutes
- Duration: 30 – 60 minutes

PRECAUTIONS:

- Pregnancy Category B
- Watch for respiratory depression

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- Shock
- Undiagnosed abdominal pain

SIDE EFFECTS:

- Respiratory depression
- CNS depression
- Dizziness
- Chest wall rigidity (occurs with rapid administration)

Adult			
Indication	Dose	Route (s)	Special
Pain Control	25 – 100 mcg	IV / IO / IM / IN	Max Dose 200 mcg for age < 65, 100 mcg for age > 65
Sedation for MAI	3 mcg / kg	IV / IO	
Pediatric			
Indication	Dose	Route (s)	Special
Pain Control	1 mcg / kg	IV / IO / IM / IN	Max Dose 100 mcg
Sedation for MAI	3 mcg / kg	IV / IO	

GLUCAGON

INDICATION:

- Beta Blocker Overdose
- Hypoglycemia

ACTION:

- Elevates Blood Glucose
- Increases the heart rate and cardiac contractility
- Onset: less than 1 minute
- Duration: 9 – 15 minutes

PRECAUTIONS:

- Pregnancy Category B
- Only effective if the patient has available glycogen stores
- Airway management with emesis

CONTRAINDICATIONS:

- Hypersensitivity to the Medication

SIDE EFFECTS:

- Tachycardia
- Hypertension
- Nausea and vomiting

SPECIAL CONSIDERATIONS:

- People with no liver glycogen stores (malnutrition / alcoholism) may not be able to mobilize any glucose in response to glucagon

Adult			
Indication	Dose	Route (s)	Special
Hypoglycemia	3 mg	IN	Without IV access
Beta Blocker OD	3 mg	IN	Can be given for individuals on beta blocker
Calcium Channel OD			
Pediatric			
Indication	Dose	Route (s)	Special
Hypoglycemia	3 mg	IN	Administer only to ages 4 and older

GLUCOSE – ORAL (GLUTOSE)

INDICATION:

- Hypoglycemia

ACTION:

- Elevates Blood Glucose
- Onset: less than 1 minute
- Duration: 9 – 15 minutes

PRECAUTIONS:

- Pregnancy Category B
- Airway management with emesis

CONTRAINDICATIONS:

- Hypersensitivity to the Medication

SIDE EFFECTS:

- None

Adult			
Indication	Dose	Route (s)	Special
Hypoglycemia	30 grams	PO	Recheck blood sugar 5 – 10 minutes after administration
Pediatric			
Indication	Dose	Route (s)	Special
Hypoglycemia	0.5 gram / kg (Max 30 grams)	PO	Recheck blood sugar 5 – 10 minutes after administration

IBUPROFEN (ADVIL / MOTRIN)

INDICATION:

- Pain control

ACTION:

- Inhibits synthesis of prostaglandins in body tissues by inhibiting cyclooxygenase
- Onset: 30 minutes
- Duration: 4 – 6 hours

PRECAUTIONS:

- Pregnancy Category B; D if used for prolonged periods or near term
- Asthma

CONTRAINDICATIONS:

- Aspirin allergy
- Bleeding disorder
- Duodenal / gastric / peptic ulcer
- Late pregnancy (may cause premature closure of ductus arteriosus)
- Acute bone fracture

SIDE EFFECTS:

- Hepatotoxicity
- Urticaria / maculopapular rash
- Laryngeal edema / angioedema

SPECIAL CONSIDERATIONS:

- Includes tablets or liquid suspension forms

Adult			
Indication	Dose	Route (s)	Special
Fever Reduction	200 - 800 mg	PO	For temperature > 38.6 °C
Pain Control	200 - 800 mg	PO	
Pediatric			
Indication	Dose	Route (s)	Special
Fever Reduction	10 mg / kg	PO	For temperature > 38.6 °C
Pain Control	10 mg / kg	PO	

KETAMINE HYDROCHLORIDE

INDICATION:

- Behavioral Control
- Pain control
- Medication Assisted Intubation

ACTION:

- Blocks NMDA receptors producing a dissociative anesthesia
- Onset: IV – 30 seconds
- Duration: 5 – 10 minutes, Dissociative state may last > 20 minutes

PRECAUTIONS:

- Pregnancy Category C
- Congestive Heart Failure
- Emergent reaction

CONTRAINDICATIONS:

- Hypertension
- Hypersensitivity

SIDE EFFECTS:

- Hypersalivation (concern with pediatric patients < 1 year of age)
- Hypertension / Tachycardia
- Tonic-clonic movements

Adult			
Indication	Dose	Route (s)	Special
Behavioral Control / Excited Delirium	4 mg / kg	IM	Max 400 mg
	2 mg / kg	IV / IO	Max 200 mg
Pain Control	0.1 – 0.3 mg / kg	IV / IO	
Sedation for MAI	3 mg / kg	IV / IO	Max 400 mg
Pediatric			
Indication	Dose	Route (s)	Special
Behavioral Control / Excited Delirium	4 mg / kg	IM	Max 400 mg
	2 mg / kg	IV / IO	Max 200 mg
Sedation for MAI	3 mg / kg	IV / IO	Max 400 mg

LACTATED RINGER'S (LR)

INDICATION:

- Hypovolemia when Normal Saline is not available

INDICATIONS:

- Non-oxygen carrying solutions delivered intravenously to increase the volume of fluid in circulating blood

ACTION:

- Each liter contains 130 mEq of sodium, 109 mEq / L of chloride, 28 mEq of lactate, 4 mEq of Potassium, 3 mEq of Calcium

PRECAUTIONS:

- Pregnancy Category C
- Hypersensitivity to sodium lactate
- Concomitant use with ceftriaxone in newborns

CONTRAINDICATIONS:

- None

SIDE EFFECTS:

- Immune system: anaphylactic, angioedema
- Respiratory: bronchospasm, cough, dyspnea
- Cardiovascular: chest discomfort, chest pain
- Dermatologic: erythema, paresthesias, pruritus, rash, urticaria

Adult			
Indication	Dose	Route (s)	Special
Hypotension	20 ml / kg	IV / IO	
Pediatric			
Indication	Dose	Route (s)	Special
Hypotension	20 ml / kg	IV / IO	

LIDOCAINE (XYLOCAINE)

INDICATION:

- Cardiac arrest - Ventricular fibrillation / Tachycardia / PVC / Wide Complex Tachycardia
- Pain control with IO placement

ACTION:

- Prevents patient from going into Ventricular Fibrillation or Ventricular Tachycardia by raising the Ventricular Fibrillation threshold, suppressing ventricular irritability and decreasing excitability in ischemic disease by blocking the sodium channel
- Onset: 30 – 90 seconds
- Duration: 2 – 4 hours

TREATMENT

- Patient must be on a cardiac monitor. Vital signs must be obtained every 10 minutes for stable patients and every 5 minutes for unstable patients
- Interfacility transport, drips should be on an IV pump throughout transport and rates should be established before transport
- Lidocaine may be titrated to effect. When titrating, wait 3 – 5 minutes before changing dose and check blood pressure every 2 – 3 minutes
- Typical dosing is between 1 – 3 mg / min and can be increased by 1 mg / min until desired effect is reached. Do not exceed maximum dose of 5 mg / min

PRECAUTIONS:

- Pregnancy Category B
- Watch for CNS toxicity

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- Stokes-Adams Syndrome
- Second or Third degree heart block

SIDE EFFECTS:

• Apprehension	• Slurred speech	• Hypotension
• Blurred vision	• Bradycardia	• Respiratory depression
• Confusion / drowsiness	• Cardiac arrest	• Euphoria
• Dizziness	• Methemoglobinemia	

Adult			
Indication	Dose	Route (s)	Special
Pain Control with IO Placement	2 – 3 ml	IO	Awake Patient
Ventricular Dysrhythmias	Bolus: 1 – 1.5 mg / kg (Max 3 mg / kg)	IV / IO	
	Maintenance: 0.75 mg / kg q 10 min (No Max)	IV / IO	
Pediatric			
Indication	Dose	Route (s)	Special
Pain Control with IO Placement	2 – 3 ml	IO	Awake Patient
Ventricular Dysrhythmias	Bolus: 1 – 1.5 mg / kg (Max 3 mg / kg)	IV / IO	

LIDOCAINE JELLY (XYLOCAINE)

INDICATION:

- Pain control

ACTION:

- Blocks sodium channel; stabilizes the neuronal membrane thus inhibiting the ionic fluxes
- Onset: 3 – 5 minutes
- Duration: 1.5 – 2 hours

PRECAUTIONS:

- Pregnancy Category B
- Do not use if they are allergic to any of the “caine” family of drugs (i.e. Lidocaine)
- Risk of causing methemoglobinemia

CONTRAINDICATIONS:

- Hypersensitivity to the Medication

SIDE EFFECTS:

- Excessive dosage or short intervals between doses can result in high plasma levels and have serious side effects

Adult			
Indication	Dose	Route (s)	Special
Local Anesthesia	1 application to mucous membranes	Topical	
Pediatric			
Indication	Dose	Route (s)	Special
Local Anesthesia	1 application to mucous membranes	Topical	

MAGNESIUM SULFATE

INDICATION:

- Polymorphic Ventricular Tachycardia (Torsades de Pointes) / Pulseless V-Tach / Ventricular Fibrillation
- Preeclampsia / Eclampsia
- Preterm Labor
- Respiratory distress

ACTION:

- CNS depressant, smooth muscle relaxant, anticonvulsant and antiarrhythmic. Reduces striated muscle contractions and blocks peripheral neuromuscular transmission by reducing acetylcholine release at the myoneural junction
- Onset: Immediate
- Duration: 3 – 4 hours

TREATMENT

- Magnesium Sulfate is a weight based drug for pediatric patients. Crew members must verify an accurate patient weight before treatment
- Patient must be on a cardiac monitor. Vital signs must be obtained every 10 minutes for stable patients, and every 5 minutes for unstable patient. Goal of SBP > 90 mmHg
- Interfacility drips should be on an IV pump throughout transport and rates should be established before transport

PRECAUTIONS:

- Pregnancy Category B
- Calcium Chloride should be available to counteract if respiratory depression ensues

CONTRAINDICATIONS:

• Heart Block	• Respiratory Depression
• Renal Insufficiency/Failure	• Hypotension

SIDE EFFECTS:

• Respiratory Depression	• Facial flushing	Reduced Heart Rate
• Diaphoresis	• Hypotension	

Adult			
Indication	Dose	Route (s)	Special
Preeclampsia / Eclampsia	Bolus: 4 grams over 15 – 30 min	IV / IO	Diluted in 250 mL NS / D5W
	Maintenance: 1 – 2 grams / hour infusion		6 grams Magnesium diluted in 250 mL NS / D5W
Preterm Labor	Bolus: 4 grams over 30 min	IV / IO	Diluted in 250 mL NS / D5W
	Maintenance: 1 – 2 grams / hour infusion		6 grams Magnesium diluted in 250 mL NS / D5W
Polymorphic Ventricular Tachycardia / Pulseless Ventricular Tachycardia / Ventricular Fibrillation	2 grams over 1 – 2 min	IV / IO	
Respiratory Distress	2 grams over 15 min	IV / IO	
Pediatric			
Indication	Dose	Route (s)	Special
Polymorphic Ventricular Tachycardia / Pulseless Ventricular Tachycardia / Ventricular Fibrillation	25 mg / kg over 1 – 2 min (Max 2 grams)	IV / IO	
Respiratory Distress	25 mg / kg over 15 min (Max 2 grams)	IV / IO	

METOPROLOL (LOPRESSOR)

INDICATION:

- Hypertension
- Atrial fibrillation / flutter with rapid ventricular response

ACTION:

- Selectively blocks beta-2 adrenergic receptors
- Onset: 20 minutes
- Duration: 3 – 7 hours

PRECAUTIONS:

- Pregnancy Category C
- Monitor BP, pulse and ECG closely
- Atropine and TCP should be available

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- Heart rate less than 60 BPM
- Blood pressure less than 90 mmHg
- Second or Third degree AV block
- Evidence of acute heart failure (pulmonary edema / pitting edema)

SIDE EFFECTS:

- Bradycardia
- Heart block
- Congestive heart failure
- Bronchospasm

Adult			
Indication	Dose	Route (s)	Special
Hypertension	5 mg	IV /IO	May give q 5 min x 3
Atrial Fibrillation with RVR	5 mg	IV / IO	May give q 5 min x 3
Pediatric – not indicated			

MIDAZOLAM (VERSED)

INDICATION:

- Anxiety
- Medication Assisted Intubation / Sedation
- Muscle Spasm
- Nerve agent exposure causing seizures
- Seizures

ACTION:

- Short acting benzodiazepine central nervous system depressant
- Sedative and hypnotic properties
- Onset: 3 – 5 minutes
- Duration: 1 – 8 hours

PRECAUTIONS:

- Pregnancy Category D
- Respiratory depression
- Pregnancy (only indicated in life threatening emergencies)
- Ensure venous delivery (contraindicated for arterial injection)

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- Acute narrow angle glaucoma

SIDE EFFECTS:

- Hypotension
- Respiratory depression
- Amnesia

Adult			
Indication	Dose	Route (s)	Special
Anxiety	2 – 5 mg	IV / IM / IN	
Behavioral Control	2 – 5 mg	IV / IO / IM / IN	
Muscle Spasm	2 – 5 mg	IV / IM / IN	
Nerve Agent Exposure	0.1 mg / kg (max 10 mg)	IV / IO / IM	
Sedation	2 – 5 mg	IV / IO / IM / IN	Repeat q 5 minutes PRN
Sedation for MAI	0.3 mg / kg	IV / IO	
Seizures	2 – 10 mg	IV / IO / IM / IN	
Pediatric			
Indication	Dose	Route (s)	Special
Anxiety	0.1 mg / kg	IV / IM / IN	
Behavioral Control	0.1 mg / kg	IV / IO / IM / IN	
Nerve Agent Exposure	0.1 mg / kg	IV / IO / IM	
Sedation	0.1 mg / kg (max 5 mg)	IV / IO	Repeat q 5 minutes PRN
	0.2 mg / kg (max 5 mg)	IM / IN	Repeat q 5 minutes PRN
Sedation for MAI	0.3 mg / kg	IV / IO	
Seizures	0.1 mg / kg	IV / IO / IM / IN	

METHYLPREDNISOLONE (SOLUMEDROL)

INDICATION:

- Anaphylaxis
- Respiratory distress

ACTION:

- Anti-inflammatory
- Onset: 2 – 6 hours
- Duration: Half-life 3 – 4 hours

PRECAUTIONS:

- Pregnancy Category C
- Diabetes
- Congestive Heart Failure
- Herpes Simplex / TB Infection
- Hypertension

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- Patients receiving live or attenuated live vaccine
- Untreated serious infections

SIDE EFFECTS:

- Long term use only

Adult			
Indication	Dose	Route (s)	Special
Asthma COPD	125 mg	IV / IO / IM	
Allergic Reaction	125 mg	IV / IO / IM	
Adrenocortical insufficiency	125 mg	IV / IO / IM	
Pediatric			
Indication	Dose	Route (s)	Special
Asthma	1 mg / kg	IV / IO	
Allergic Reaction	1 mg / kg	IV / IO	

MORPHINE SULFATE

INDICATION:

- Pain control

ACTION:

- Vasodilation
- Decreases sensitivity to pain
- CNS depressant
- Onset: Immediate
- Duration: 2 – 7 hours

PRECAUTIONS:

- Pregnancy Category
- Watch for respiratory depression
- Allergic reaction – caused by release of histamine

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- Head Injury
- Hypovolemia
- Pulmonary Edema / Congestive Heart Failure
- Organophosphate poisoning

SIDE EFFECTS:

- Hypotension
- Respiratory Depression

Adult			
Indication	Dose	Route (s)	Special
Chest Pain Pain Control	2 – 4 mg	IV / IO / IM	Max Dose 10 mg
Pediatric			
Indication	Dose	Route (s)	Special
Pain Control	0.1 – 0.2 mg / kg	IV / IO	Max Dose 10 mg

NALOXONE (NARCAN)

INDICATION:

- Opiate overdose

INDICATION:

- **Respiratory depression (RR < 8)** with pinpoint pupils, mental status change, GCS < 14 and / or narcotic overdose suspected

ACTION:

- Reverses the effects of narcotics
- Onset: Less than 2 minutes
- Duration: 30 – 60 minutes

PRECAUTIONS:

- Pregnancy Category C
- May cause a rapid withdrawal
- The medication is short acting
- Induces vomiting / agitation in the rapid withdrawal state
- Can cause acute flash pulmonary edema

CONTRAINDICATIONS:

- Hypersensitivity to the Medication

SIDE EFFECTS:

- Rare

Adult			
Indication	Dose	Route (s)	Special
Narcotic OD with respiratory compromise	0.5 – 4 mg	IV / IO / IM / IN	Give 0.5 – 2 mg doses
Pediatric			
Indication	Dose	Route (s)	Special
Narcotic OD with respiratory compromise	0.1 mg / kg (Max 2 mg / dose)	IV / IO / IM / IN	< 20 kg or 5 years
	2 mg	IV / IO / IM / IN	> 5 years

NITROGLYCERIN (TRIDIL | NITROSTAT)

INDICATION:

- Acute coronary syndrome / Chest pain
- Hypertension
- Congestive Heart Failure

ACTION:

- Vasodilator
- Onset: 1 – 3 minutes
- Duration: 20 – 30 minutes

TREATMENT:

- Nitro drips will be in a glass bottle. Care must be taken during transport to avoid breakage. Secure to IV pole with tape or Velcro strap
- If a transfer, check with the transferring institution to see if the drip is maintenance or to be titrated
- For patients with orders for titration
 - BP to be taken and documented every 5 minutes with heart rate and patient response during titration
 - SBP should be maintained at no less than 120 mmHg or as ordered
 - May be increased 10 mcg (3 ml) every 5 minutes provided BP is within normal limits for parameters
 - If BP drops below 100, decreased by half or stop the drip. If BP does not increase to above 90 mmHg within 1 – 2 minutes, bolus patient with 250 ml normal saline if lungs are clear throughout
- For patients without orders for titration
 - On all Nitro drips that are not to be titrated, BP, heart rate, and patient's response must be documented no less than every 15 minutes. Decrease or D/C if BP fails below 100 mmHg

PRECAUTIONS:

- Pregnancy Category C
- Hypotension

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- Hypotension
- Medications:

- Viagra (sildenafil citrate), Levitra (vardenafil HCL) or Cialis (tadalafil) within 48 hours
- Staxyn, Flolan, Revatio or Adcirca

SIDE EFFECTS:

- Headache
- Tachycardia
- Palpitations and dysrhythmias
- Anxiety
- Hypotension
- Nausea
- Headache

SPECIAL CONSIDERATIONS:

- Do not give in patients with posterior wall MI / use cautiously in patients with inferior wall MI

Adult			
Indication	Dose	Route (s)	Special
Chest Pain	0.4 mg q 5 min for SBP > 90	SL	
Pulmonary Edema	0.4 mg q 5 min for SBP > 90	SL	
	10 mcg / min (Max 200 mcg / min)	IV / IO	Target minimal goal is 40 mcg / min
Pediatric			
Pulmonary Edema	0.25 to 0.5 mcg / Kg / min (Max 200 mcg / min)	IV / IO	Increase 0.5 to 1 mcg / kg / min every 3 to 5 minutes as needed up to 5 mcg / kg / min

CONCENTRATION:

		Concentrations (micrograms / minute)		
		100 mcg / ml	200 mcg / ml	400 mcg / ml
		25 mg / 250 ml	50 mg / 250 ml	100 mg / 250 ml
		50 mg / 500 ml	100 mg / 500 ml	200 mg / 500 ml
Dose in micrograms / minute	5	3	X	1
	10	6	3	2
	20	12	6	3
	30	18	9	5
	40	24	12	6
	50	30	15	8
	60	36	18	9
	70	42	21	11
	80	48	24	12
	90	54	27	14
	100	60	30	15
	110	66	33	17
	120	72	36	18
	130	78	39	20
	140	84	42	21
	150	90	45	23
	160	96	48	24
	170	102	51	26
	180	108	54	27
	190	114	57	29
	200	120	60	30
Milliliters / Hour				

ONDANSETRON (ZOFTRAN)

INDICATION:

- Nausea / Vomiting

ACTION:

- Serotonin Antagonist with antiemetic properties
- Onset: Immediately
- Duration: 4 – 8 hours

PRECAUTIONS:

- Pregnancy Category B (contraindicated in 1st trimester)
- Zofran is not a medication that stimulates gastric peristalsis, for active vomiting not relieved with anti-emetics consider Nasogastric suctioning
- May cause QT prolongation

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- 1st Trimester of Pregnancy

SIDE EFFECTS:

- Drowsiness
- Headache
- Anxiety

Adult			
Indication	Dose	Route (s)	Special
Nausea / Vomiting	4 – 8 mg	IV / IO / IM / PO / SL	Advanced EMT only to Give PO / SL forms
Pediatric			
Indication	Dose	Route (s)	Special
Nausea / Vomiting	0.1 mg / kg	IV / IO / IM / SL / PO	Max 4 mg
Nausea / Vomiting	4 mg	SL / PO	Age > 12 and > 40 Kg to be given by Advanced EMT

2-OCTYL-CYANOACRYLATE (DERMABOND)

INDICATION:

- Laceration amenable to liquid adhesive (face, arm, chest, back, abdomen, legs)

ACTION:

- Liquid polymerizes to form adhesive
- Apply in multiple thin layers to approximated wound edges, with wound in horizontal position

PRECAUTIONS:

- Pregnancy Category A
- Use only on wounds that have been cleaned & debrided; do not use on moist wounds
- OVERDOSE MANAGEMENT
 - If 2-Octyl-cyanoacrylate (Dermabond) gets on unwanted area of skin, loosen with petroleum jelly or acetone
 - If contact with eye occurs, flush with water or saline; if not effective, try ophthalmic ointment to help loosen bond

CONTRAINDICATIONS:

- Use on eye or lacerations near the eye, mucosal surfaces, skin exposed to body fluids, high-tension areas (hands, feet, elbows, knees, etc), or skin with dense hair
- Wounds with active infection, gangrene, or of decubitus etiology
- Hypersensitivity to cyanoacrylate or formaldehyde

SIDE EFFECTS:

- Erythema
- Edema
- Exothermic reaction with application

OXYGEN

INDICATION:

- Hypoxia

ACTION:

- Essential for cell metabolism and normal physiological functions

PRECAUTIONS:

- Pregnancy Category A
- Pulse oximetry may be inaccurate if:
 - Low cardiac output
 - Vasoconstriction
 - CO exposure
- High blood and tissue levels can be damaging

CONTRAINDICATIONS:

- Patients with hypoxemic respiratory drive
 - Very rare
 - Observe closely

Oxygen Amounts

• Nasal Cannula	1 – 6 L / min	= 21 – 44% inspired O ₂
• Venturi Mask	4 – 12 L / min	= 24 – 50% inspired O ₂
• Partial Rebreather Mask	6 – 10 L / min	= 35 – 60% inspired O ₂
• Non-rebreather Mask	6 – 15 L / min	= 60 – 100% inspired O ₂
• Bag-valve mask	15 L / min	= 95 – 100% inspired O ₂

SIDE EFFECTS:

- Vasoconstrictive effects

Size	Type	Tank Constant	2000 psi	1800 psi	1500 psi	1000 psi	800 psi	500 psi
“H”	Some ground ambulances	3.14	6280 L	5650 L	4710 L	3140 L	2510 L	1570 L
“M”	Helicopter; some ground ambulances	1.56	3120 L	2800 L	2340 L	1560 L	1240 L	780 L
“E”	Large portable	0.28	560 L	500 L	420 L	280 L	220 L	140 L
“D”	Small portable	0.16	320 L	280 L	240 L	160 L	120 L	80 L

Adult			
Indication	Dose	Route (s)	Special
Acute Coronary Syndrome (ACS)	1 – 6 L / min	Inhaled	Titrate for Sat > 94 % Give to all patients for first 6 hours, continue beyond 6 hours if: Pulmonary congestion Ongoing ischemia O2 saturation < 90%
COPD	1 – 6 L / min	Inhaled	Titrate for Sat > 90 %
Respiratory Distress	1 – 15 L / min	Inhaled	Titrate for Sat > 94 %
Pediatric			
Indication	Dose	Route (s)	Special
Respiratory Distress	1 – 15 L / min	Inhaled	Titrate for Sat > 94 %

PREDNISONE

INDICATION:

- Anaphylaxis
- Respiratory Distress

ACTION:

- Anti-inflammatory
- Onset: 2 – 6 hours
- Duration: 8 - 36 hours

PRECAUTIONS:

- Pregnancy Category C
- Diabetes
- Congestive Heart Failure
- Herpes Simplex / TB Infection
- Hypertension

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- Patients receiving live or attenuated live vaccine
- Untreated serious infections

SIDE EFFECTS:

- Long term use only

Adult			
Indication	Dose	Route (s)	Special
Asthma COPD Allergic Reaction	60 mg	PO	
Pediatric			
Indication	Dose	Route (s)	Special
Asthma Allergic Reaction	0.5 – 2 mg / kg	PO	

SODIUM BICARBONATE

INDICATION:

- Acidosis
- Hyperkalemia
- Overdose causing QRS widening

ACTION:

- Elevates the pH
- Onset: 2 – 10 minutes
- Duration: 30 – 60 minutes

PRECAUTIONS:

- Pregnancy Category C
- Can deactivate catecholamine activity
- Can precipitate with calcium
- Extravasation may cause necrosis of the tissues
- Renal Impairment
- Congestive Heart Failure

CONTRAINDICATIONS:

- Alkalosis
- Hypocalcemia
- Hypokalemia

SIDE EFFECTS:

- Alkalosis
- Tissue necrosis at the injection site

SPECIAL CONSIDERATIONS:

- Each amp of sodium bicarbonate contains 50 mEq of Na. This may increase intravascular volume and hyperosmolarity conditions which result in cerebral impairment

Adult			
Indication	Dose	Route (s)	Special
Acidosis (PEA arrest)	50 mEq	IV / IO	
Hyperkalemia	50 mEq	IV / IO	
V-Fib / Pulseless VT / Asystole	1 mEq / kg	IV / IO	
ASA / Tricyclic Antidepressant OD	1 mEq / kg	IV / IO	
Pediatric			
Indication	Dose	Route (s)	Special
ASA / Tricyclic Antidepressant OD	1 mEq / kg	IV / IO	

SODIUM CHLORIDE (NORMAL SALINE)

INDICATION:

- Hypovolemia

ACTION:

- Non-oxygen carrying solutions delivered intravenously to increase the volume of fluid in circulating blood

ACTION:

- Contains 154 mEq / L of sodium and chloride

PRECAUTIONS:

- Pregnancy Category C
- May lead to a hyperchloremic metabolic acidosis if given in large quantities

CONTRAINDICATIONS:

- None

SIDE EFFECTS:

- None

Adult			
Indication	Dose	Route (s)	Special
Hypotension	20 ml / kg	IV / IO	
Pediatric			
Indication	Dose	Route (s)	Special
Hypotension	20 ml / kg	IV / IO	

TETRACAINE

INDICATION:

- Eye pain

ACTION:

- Rapid acting local anesthetic
- Onset: 30 seconds
- Duration: 15 minutes

PRECAUTIONS:

- Pregnancy Category C
- Do not use if the patient is allergic to any of the “caine” family of drugs (i.e. Lidocaine)
- Infection

CONTRAINDICATIONS:

- Hypersensitivity to the Medication
- Penetrating eye injuries

SIDE EFFECTS:

- Delays Healing
- Ocular Irritation

Adult			
Indication	Dose	Route (s)	Special
Topical anesthesia for the eye	2 drops	Topical	Place inside the lower eye lid
Pediatric			
Indication	Dose	Route (s)	Special
Topical anesthesia for the eye	1 drop	Topical	Place inside the lower eye lid