Emergency Medical Services
Adult Protocol Index

MEDICAL PROTOCOLS

TRAUMA PROTOCOLS

Medical Assessment Protocol

Confirm Scene Safety

Appropriate Body Substance Isolation Precautions

Nature of Illness **Number of Patients**

Evaluate Need for Assistance

B.L.S. ABC's & LOC Focused History & Physical Exam	
RESPONSIVE	**UNRESPONSIVE**
S.A.M.P.L.E. History Focused Assessment Baseline Vital Signs Treatment Decision BLS/ALS Treat per Appropriate Protocol Transport	**A.L.S. PATIENT**

A.L.S. ABC's & LOC Focused History & Physical Exam	
RESPONSIVE	**UNRESPONSIVE**
S.A.M.P.L.E. History Focused Assessment Baseline Vital Signs Treatment Decision BLS/ALS Treat per Appropriate Protocol	Rapid Medical Assessment Baseline Vital Signs S.A.M.P.L.E. History Treatment Decision ALS Treat per Appropriate Protocol

GENERAL MEDICAL PROTOCOL PATIENT CRITERIA

Upon arrival, all equipment should be taken to the scene, with intent to treat :

- **Monitor**
- **ALS Bag (ALS)**
- **BLS bag**

Adult medical patients with any one of the following signs or symptoms should be transported ALS (if available)

Signs

Systolic Blood Pressure <100
Pulse Rate <60 or >120
Respiratory Rate <12 or >30
Clinical Signs of Shock
Pulse Oximeter reading<90
- On room air or prescribed O_2

Need for IV fluids or medications

Symptoms

Altered Mental Status
Respiratory Distress
Chest Discomfort
Pain requiring analgesics

These Protocols are guidelines to appropriate patient care.

- Medications and procedures requiring Medical Control are shaded in black boxes.
- In the event that Medical Control cannot be established, these protocols should be considered standing orders, as approved by Medical Director
- On-line Medical Control should be provided by the receiving facility

A saline lock may be placed if the medic:

- anticipates a need for later drug administration
- needs to draw blood or
- determines that IV fluids are not necessary or contraindicated as in CHF

Asystole

EMT | **Paramedic**

Confirm Pulselessness & Apnea,
Attempt to Determine Down Time, Prior CPR, History, & Code Status*
Begin CPR(Consider Mechanical Compression device if available.)
Do not delay CPR.
Establish & Maintain Airway & Ventilate 100% 0_2
Monitor Capnography, Apply Cardiac Monitor
Quick Combo Pads / Limb Leads

During CPR
Push hard and fast (At least 100/min)
Ensure full chest recoil

Minimize interruptions in chest compressions. Initially, do not delay CPR for intubation.

CPR Cycle= Compressions:Ventilation 30:2 unless a secured airway then continuous compressions and ventilate at 8- 10 breaths per minute

Avoid hyperventilation

Rotate compressors every 2 minutes with rhythm checks

Search for and treat possible causes

Confirm in 2 leads

Consider early transcutaneous pacing

IV NS or IO

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

2 minutes CPR
Check rhythm

Monitor Capnograph, $ETCO_2$ < 10 for 10 minutes has a very poor prognosis
If no response after 20 minutes,
CONTACT MEDICAL CONTROL
For possible termination of resuscitation**
Address decision to terminate with family and all personnel involved in resuscitative efforts

Consider **Sodium Bicarb 1mEq/kg** IV/IO
in Tricyclic OD
Or
Hyperkalemia
Be sure patient is being ventilated well.

Consider & correct treatable causes

Hypovolemia
Hypoxia
Hydrogen Ion (Acidosis)
Hypo / Hyperkalemia
Hypothermia
Tension Pneumothorax
Tamponade, cardiac
Toxins
Thrombosis, Pulmonary
Thrombosis, Coronary

Pulseless Electrical Activity

102

EMT | **Paramedic**

Confirm Pulselessness & Apnea,
Attempt to Determine Down Time, Prior CPR, History, & Code Status*
Begin CPR (Consider Mechanical Compression device if available)
Do not delay CPR
Establish & Maintain Airway & Ventilate 100% 0_2
Monitor Capnography, Apply Cardiac Monitor
Quick Combo Pads / Limb Leads

IV NS or IO

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

2 minutes CPR
Check rhythm

If no response after 20 minutes,
CONTACT MEDICAL CONTROL
for possible termination of resuscitation.
Address decision to terminate with family and all personnel involved in resuscitative efforts**

During CPR
Push hard and fast (At least100/min)
Ensure full chest recoil

Minimize interruptions in chest compressions. Initially, do not delay CPR for intubation.

CPR Cycle= Compressions:Ventilation 30:2 unless a secured airway then continuous compressions and ventilate at 8- 10 breaths per minute

Avoid hyperventilation

Rotate compressors every 2 minutes with rhythm checks

Consider & correct treatable causes

Hypovolemia
Hypoxia
Hydrogen Ion (Acidosis)
Hypo / Hyperkalemia
Hypothermia
Tension Pneumothorax
Tamponade, cardiac
Toxins
Thrombosis, Pulmonary
Thrombosis, Coronary

V-Fib / Pulseless V- Tach

EMT | **Paramedic**

Confirm Pulselessness & Apnea,
Attempt to Determine Down Time, Prior CPR, History, & Code Status*
Begin CPR (Consider Mechanical Compression device if available)
Do not delay CPR
Establish & Maintain Airway & Ventilate 100% 0_2
Monitor Capnography, Apply Cardiac Monitor
Quick Combo Pads / Limb Leads

EMT

Paramedic

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

Defibrillate once at **200J or higher**
Immediately do CPR for 2 minutes after shock, before rhythm or pulse checks.

Amiodarone, 300mg IV/IO x1
For Recurrent VF/Pulseless VT give additional **150mg IV/IO** x1
OR
Lidocaine, 1-1.5mg/kg IV/IO may repeat in 3-5 minutes at **0.5-1 mg/kg**. Total of 3 doses or **3mg/kg** max

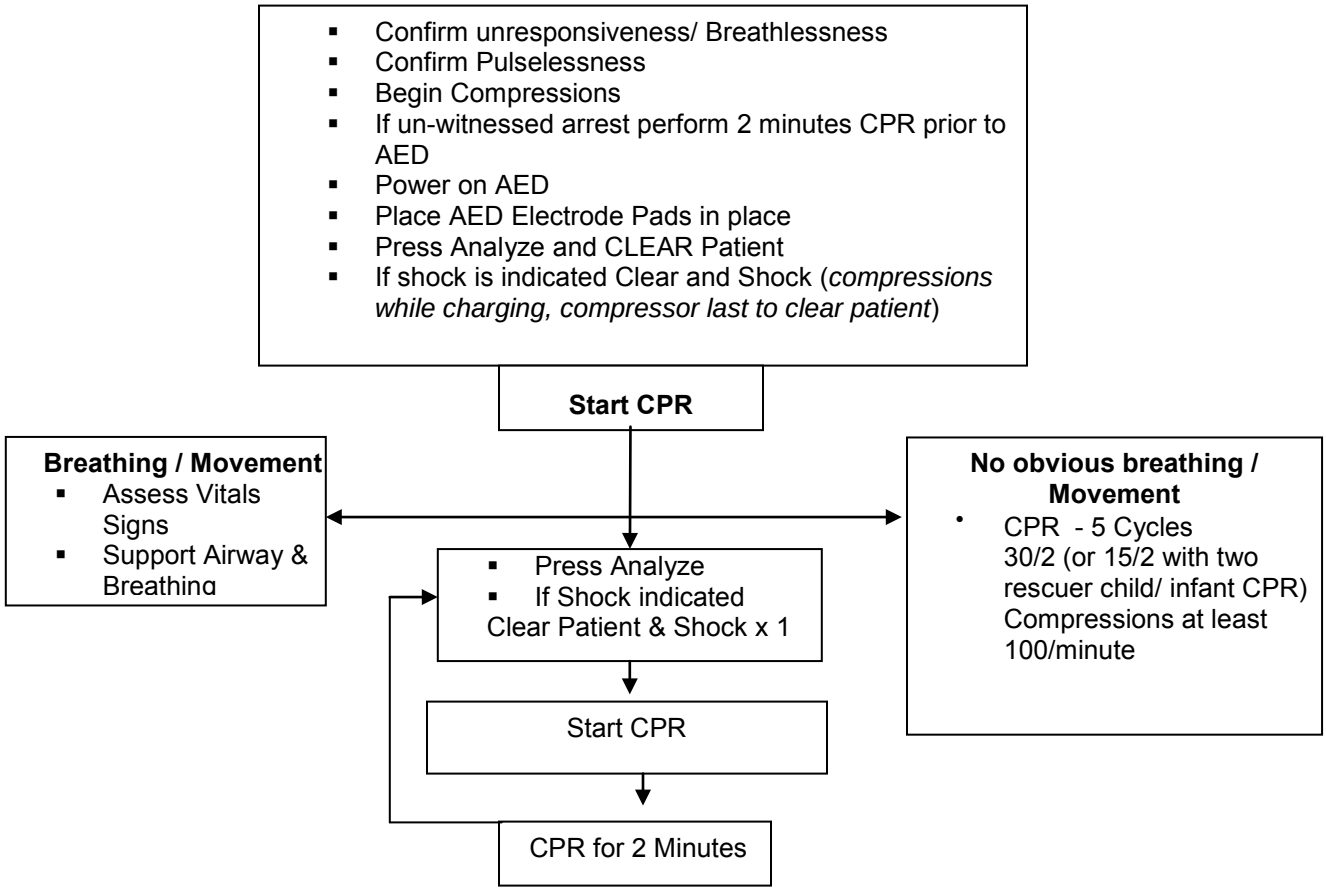
Consider **Mag-Sulfate 1-2 g IV/IO** for torsades de pointes

Consider & correct treatable causes

Hypovolemia
Hypoxia
Hydrogen Ion (Acidosis)
Hypo / Hyperkalemia
Hypothermia
Tension Pneumothorax
Tamponade, cardiac
Toxins
Thrombosis, Pulmonary
Thrombosis, Coronary

Automated External Defibrillation (AED)

NOTE:
Request Advanced Life Support, if not already enroute.



Post Resuscitative Care

138

EMT | **Paramedic**

Establish & Maintain Airway & Ventilate 100% 0_2
Apply Cardiac Monitor, Quick Combo Pads
Apply Capnography, O_2 sat
Obtain Vital Signs

139

Secure Airway if Necessary

Establish **IV of Normal Saline**
If not accomplished

Titrate FiO_2 to maintain oxyhemoglobin saturation greater than or equal to 94%; if possible wean FiO_2 if saturation is 100%

If Patient remains hypotensive, assess lung sounds for possible pulmonary edema.
If clear, administer fluid challenge of **250-500cc's of NS.**

2010 ACLS Guidelines:
There is no evidence to support continued prophylactic administration of antiarrhythmic medications once the patient achieves ROSC.

Chest Discomfort (Cardiac)

EMT | **Paramedic** | **106**

Calm and reassure the patient. **NO EXERTION**
O_2 via appropriate delivery device
Attach ECG monitor & pulse oximetry
Give **Aspirin 324 mg** (**4 baby Aspirin**-chewable)

* 15 lead EKG
Is indicated in all
- Normal EKGs
- Inferior MI's
- ST segment depression in V-leads.

Obtain 12 Lead ECG
Consider 15 lead ECG* → **IF STEMI,** **T**ime **C**ritial **D**iagnosis **(TCD)**

IV of **Normal Saline**
Treat unstable dysrhythmias per protocols.

Nitroglycerin 0.4mg SL
1 spray, or1 tablet q 5 minutes prn pain up to a total of 3 doses**.** (If BP is >100)

Consider **Zofran 4 mg** slow IV, IM, ODT for N/V may repeat one time → Consider **Benadryl 25 mg** slow IV for EPS

Consider the use of air ambulance to expedite transport.

Bradycardia

EMT | **Paramedic**

Calm and reassure the patient. NO EXERTION
O_2 via Appropriate Delivery Device
Attach ECG Monitor & Pulse Oximetry
Place Quick-Combo Pads Anterior/Posterior

Obtain 12 lead ECG

Consider application of pacer pads

IV/IO Normal Saline

HR <60, S/S of Shock, Chest Pain, SOB Altered LOC, Hypotension, CHF / Pulmonary Edema

No

2^0 AV Block Type II
Or
3^0 AV Block

NO

Request Transport

YES

Prepare for TCP

If serious signs and symptoms occur
Initiate **TCP**
Do not delay for IV attempts.

Yes

Initiate **TCP**
Do not delay for IV attempts.

Atropine 0.5mg rapid IV
May repeat **0.5mg** in 5 minutes, up to a total of **3mg.**

Tachycardia Narrow Complex

EMT | **Paramedic**

Calm and reassure the patient. NO EXERTION
O_2 via Appropriate Delivery Device
Attach ECG Monitor & Pulse Oximetry
Place Quick-Combo Pads Anterior/Posterior

Obtain 12 lead ECG

IV normal Saline

Stable
Ventricular Rate > 150
Hemodynamically stable
Conscious Alert
Oriented

Vagal Maneuvers
Contraindicated for CAD

Adenosine 6mg rapid IV, may repeat in 2 minutes at **12mg**

Pulmonary Edema

NO

Diltiazem 0.25mg/kg Max **20 mg** IVP over 2 min. May repeat after 15 minutes **0.35mg/kg** Max **25 mg** IVP over 2 minutes

YES

Amiodarone 150 mg over 10 min. May repeat **150 mg** over 10 minutes if rhythm returns

A-Fib / A-Flutter
Rate ≥ 130

Pulmonary Edema

NO

Diltiazem 0.25mg/kg Max **20 mg** IVP over 2 min. May repeat after 15 minutes **0.35mg/kg** Max **25 mg** IVP over 2 minutes

YES

Amiodarone 150 mg over 10 min. May repeat **150 mg** over 10 minutes if rhythm returns

Amiodarone 150 mg in 100cc of **D_5W** dripped in over 10 minutes may repeat as needed to a maximum of **2.2gm** over 24 hours

WPW

A brief trial of **medication** can be used if the patient can tolerate it. Do not delay cardioversion if needed.

Critically Unstable
Ventricular Rate > 150

TACHYCARDIA WIDE COMPLEX

110

EMT | **Paramedic**

Calm and reassure the patient. NO EXERTION
O_2 via appropriate delivery device
Attach ECG monitor & pulse oximetry
Place quick-combo pads anterior/posterior

Obtain 12-lead ECG
If supraventricular in origin use narrow complex tachycardia protocol

IV normal Saline

Stable
Ventricular Rate > 150

Amiodarone 150mg IV over 10 minutes (**150 mg i**n **100cc** of **D_5W** dripped in over 10 minutes) may repeat as needed to a maximum of **2.2gm** over 24 hours

Torsades de Pointes

Mag Sulfate 1-2 Grams over 5 minutes, mix **1-2 gm** in **100ml D_5W.**

Critically Unstable
Ventricular rate >150

Do not delay cardioversion
Perform synchronized cardioversion **100J** if unsuccessful increase to **200J.**
(If polymorphic, use unsynchronized defibrillation at **200 J)**

A brief trial of medication can be used if the patient can tolerate it. Do not delay cardioversion if needed.

Mag Sulfate is indicated for prolonged Baseline QTc
QT interval divided by the RR interval
Should be less than 0.40
QT/RR <0.40

VENTRICULAR ECTOPY

EMT | **Paramedic**

Calm and reassure the patient. NO EXERTION
O_2 via appropriate delivery device
Attach ECG monitor & pulse oximetry
Place quick-combo pads anterior/posterior

Obtain 12-lead ECG

IV Normal Saline

Treat the causes of the ectopy (hypoxia, infarction, ischemia)

IF NEEDED CONTACT MEDICAL CONTROL

Near Drowning/ Drowning

EMT | **Paramedic**

Remove from water
Open & maintain airway
Begin CPR if necessary
Dry and warm patient
O_2 via appropriate delivery device
Attach cardiac monitor, and pulse oximetry
Be prepared to suction the patient.

Near Drowning

Drowning

IV Normal Saline, Intubate if Necessary

Monitor for respiratory compromise
Treat per appropriate protocol

If patient is in V-fib,
Defibrillate one time at **200J**

Check body core temperature
Treat for hypothermia
DO NOT DELAY TRANSPORT

Treat cardiac dysrhythmias per specific protocol

Consider CPAP

Core temp $\geq$ 86ºF
Code per protocol
Core temp $\leq$ 85ºF CPR only
IV's may be attempted if warm IV fluids are available.

122
123

Cold Injury: Frostbite / Hypothermia

EMT | **Paramedic**

Attempt to determine time of exposure
Remove patient from exposure
Remove wet or constrictive clothing from the site
O_2 via appropriate delivery device (warmed if possible)
Obtain core temperature via rectum
Do not attempt to thaw frozen tissue if there is a chance of refreezing.
Cover the affected tissue with a loose, dry, sterile dressing.
Transport to the hospital. (Do not delay to thaw injured part.)
Pulse oximetry monitor, attach Cardiac Monitor

Frostbite

Hypothermia

Consider **Zofran 4mg** Slow IVP, IM, ODT
for N/V
May repeat one time

→ Consider **Benadryl 25 mg** slow IV for EPS

Hypothermic cardiac arrest

EMT | **Paramedic**

Attempt to determine time of exposure
Remove patient from exposure
Remove wet or constrictive clothing from the site
O_2 via appropriate delivery device (warmed if possible)
Obtain core temperature via rectum
Pulse oximetry monitor, attach cardiac monitor
Consider ambient temperature in the patient compartment

If patient is in V-fib, defibrillate one time at **200J**.

Core temp $\geq$ 86º F, work code per Protocol.

Core temp $\leq$ 85º F, continue CPR,

Rapid transport to the hospital
Do not attempt rewarming in the field.

Establish IV/IO bolus warm IV fluids if available.

Remember that a moderately hypothermic patient requires longer intervals between drugs due to slower absorption rate.

Heat Exhaustion/ Heat Stroke

EMT	Paramedic

Remove patient from hot environment
O_2 via appropriate delivery device
Attach cardiac monitor , pulse oximetry
Monitor core temperature via rectum

Heat Exhaustion	Heat Stroke
Body temp $\leq 105^0$ F	Body temp $\geq 105^0$ F
Treat specific complaints per protocol	Rapid cooling is indicated. Attempt to reduce temperature to 102º F

IV of **NS** or **LR** at **125 cc/hr.**
Bolus therapy as needed for hypotension.

Monitor ECG closely for arrhythmias,
Treat per protocol.

131

Abdominal Pain / Nausea

EMT	Paramedic

Identify possible causes
O_2 via appropriate delivery device
Attach cardiac monitor and pulse oximetry

IV **Normal Saline**

Consider **Zofran 4mg** slow IVP, IM, ODT for N/V. May repeat once

Altered Mental Status

EMT

Paramed

Identify possible causes
O_2 via appropriate delivery device
Attach cardiac monitor, pulse oximetry, glucometry

$D_{50}W$, 25gm IV (50 ml)
Or
If $D_{50}W$ is unavailable
$D_{10}W$, 25gm IV (250 ml)
Or
Oral Glucose
~~Dependant on LOC~~

Hypoglycemia

If IV Glucose is unavailable, or IV access failed, and Glucagon is ~~contraindicated oral glucose, should be~~ given via NG/OG tube

Thiamine, 100mg IV

Narcotic Overdose

Narcan 2 mg IV titrated @ **0.4mg** increments to maintain airway and $ETCO_2$

Complete Cincinnati Stroke Scale
facial droop, arm drift, speech
Time **C**ritical **D**iagnosis **(TCD)**

IV Normal Saline
Draw blood samples and perform glucose check

Anaphylaxis/Allergic Reaction

EMT

Paramedic

Obtain a 12 lead ECG

Identify possible causes
Remove allergen
O_2 via appropriate delivery device
Attach cardiac monitor, pulse oximetry
Apply capnography

Consider rapid transport, advise hospital early of possible stroke.

EMT
If anaphylaxis

Use the Auto-Injector with epinephrine.
Remove the cap on the back of the pen hold the pen firmly, and push the auto-injector against the patient's thigh anteriorlateraly.
Hold the pen against the patient's thigh for 10 seconds to allow the medication to inject.

If unable to obtain venous access
Glucagon 1 mg IM
Patient must be transported after administration
Patient should eat after administration if not contraindicated

If the Auto-Injector is used, an ALS unit MUST be in route.
Although in the emergency setting there is no absolute contraindication for the use of the Auto-Injector, precaution should be used in patients over 55 years old or with patients who have coronary artery disease.

As needed consider

If patient is on oral hypoglycemic or long acting

IV **Normal Saline** Titrated to B/P

If I/O was inserted, patient should be transported.

No shock or compensated shock

Uncompensat shock

Epinephrine 1:10,000, 0.3mg slow IV
(Caution in Pt's >55, w/CAD, Cardiac History)

Benadryl 25-50mg IM/IV

Albuterol 2.5 **mg**
Via nebulizer for wheezing/ obstructed capnography waveform, repeat as needed.
May repeat as tolerated

Duoneb 3 ml nebulized **(0.5 mg Ipratropium 2.5mg Albuterol)**
Given 1 x only

Solu-Medrol 125mg IV

Behavioral Health Disorders

Verbal de-escalation
Scene safety - law enforcement for physical restraint, if necessary
If etiology of altered LOC determined, follow appropriate protocol
Obtain history of current event, crisis, toxic exposure, drugs, ETOH, suicidal or homicidal ideations
Obtain history of past medical/psychiatric illnesses
Patient should be transported with cot manufacturer safety restraint system in full view above sheets and or blankets.
If a 96 hour hold is in effect, law enforcement escort should be requested.

In the event a patient's intent to elope is expressed or observed, the crew should take every effort to stop the ambulance in a safe location, notify local law enforcement via dispatch, and maintain visual contact with the patient where possible until law enforcement arrives.

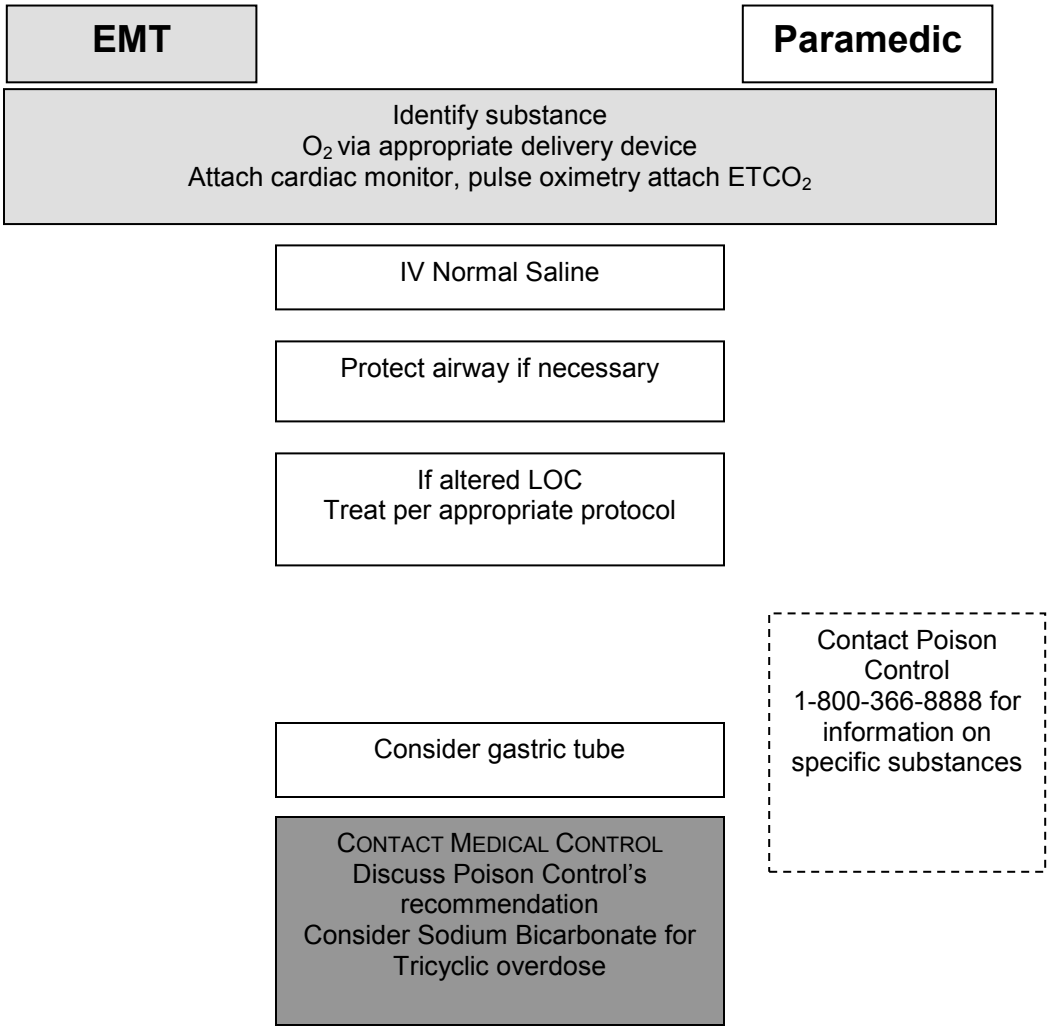
Mild
Responds to verbal de-escalation, police standby, and/or family
Mild agitation/anxiety
Oppositional
Confused

Moderate to Severe
Requires restraint for crew/patient safety, adequate evaluation, treatment, and/or transport
Agitation/anxiety with potential for violence, agitated delirium

Contact Medical Control consider
Haldol 2.5-5mg IV/IM for agitation

Haldol 5 mg IM/IV
for agitation

Poisoning / Overdose



Hypertensive Emergencies

EMT	Paramedic

Identify possible causes
O_2 via appropriate delivery device
Attach cardiac monitor, pulse oximetry

IV Normal Saline

<u>Diastolic B/P of over 115 - 130mm/hg</u>
Accompanied by nausea/vomiting, confusion, or blurred vision. More severe symptoms include severe headache, chest pain, visual disturbances, paralysis, stupor, and coma.

Treat other complaints per protocol or medical control orders

Respiratory Emergencies

EMT | **Paramedic**

O_2 via appropriate delivery device
Attach cardiac monitor, pulse oximetry $ETCO_2$

Assess the need to intubate

Paramedic	**Congestive Heart Failure**	**C.O.P.D.**
Intubate as Necessary	Obtain and transmit 12-lead ECG Consider Saline Lock	Consider IV of normal saline
Albuterol, 2.5 mg in **3cc Normal Saline** via nebulizer Repeat continuously as needed.	**Nitroglycerin 0.4mg** SL. q 5 minutes if B/P is >100 until patient improvment.	Consider 12-Lead ECG with Tachycardia
Duoneb 3 ml Nebulized **(0.5 mg Ipratropium 2.5mg Albuterol)** Given 1 x only	**Captopril 25 mg** SL if SBP> 110 or **12.5 mg** SL if SBP 90-110	**Albuterol 2.5 mg in 3cc saline** via nebulizer. Repeat continuously as needed.
Epinephrine 1:1000, **0.3-0.5** mg SC. Caution in Pt's >55, w/CAD, Cardiac history	Consider CPAP	**Duoneb 3 ml** Nebulized **(0.5 mg Ipratropium 2.5mg Albuterol)** Given 1 x only
Consider **Solu-Medrol 125 mg** slow IV		Consider **Solu-Medrol 125 mg** slow IV
Consider **Magnesium Sulfate 1-2 gm IV/Nebulization**	**Furosemide (Lasix) 40 mg** IV or **80mg** IV for patients currently on Diuretics	

OB/GYN Emergencies

EMT | **Paramedic**

O_2 via appropriate delivery device
Inspect for active bleeding / crowning determine amount of blood loss
Attach cardiac monitor as needed pulse oximetry
Orthostatic Vital Signs
Consider transport in left lateral recumbent position to reduce risk of Vena Cava compression

Vaginal Bleeding

IV Normal Saline

Titrated to B/P

Hypertension

B/P over 140/90, abnormal weight gain, edema in face, hands and ankles, headache.

Calm and reassure the patient.

If pregnant patient is actively seizing, give **Magnesium Sulfate 4 grams** IM or Slow IV (Over 5 minutes) and manage seizure per seizure protocol

If patient is not seizing
Contact Medical Control Consider
Magnesium Sulfate
Dosage per medical control

Dim the lights, avoid loud noises.

OB / GYN Emergencies

EMT	Paramedic

O_2 via appropriate delivery device
Inspect for active bleeding / crowning, determine amount of blood loss
Attach cardiac monitor as needed pulse oximetry
Orthostatic vital signs
Consider transport in left lateral recumbent position to reduce risk of vena cava compression

Preterm	Postpartum Hemorrhage	Emergency
IV Normal Saline		
500 –1000 ml Fluid Bolus	Rapidly infuse IV fluids, treat for shock Titrate IV's to B/P	If crowning deliver infant
		IV Normal Saline Titrated to B/P
	Massage the fundus	
	Put the baby to nurse	Deliver infant suction airway and assess APGAR scores 1 & 5 minutes Ensure infant warmth
		Reevaluate mother and infant Treat any problems per appropriate protocol

Status Seizures

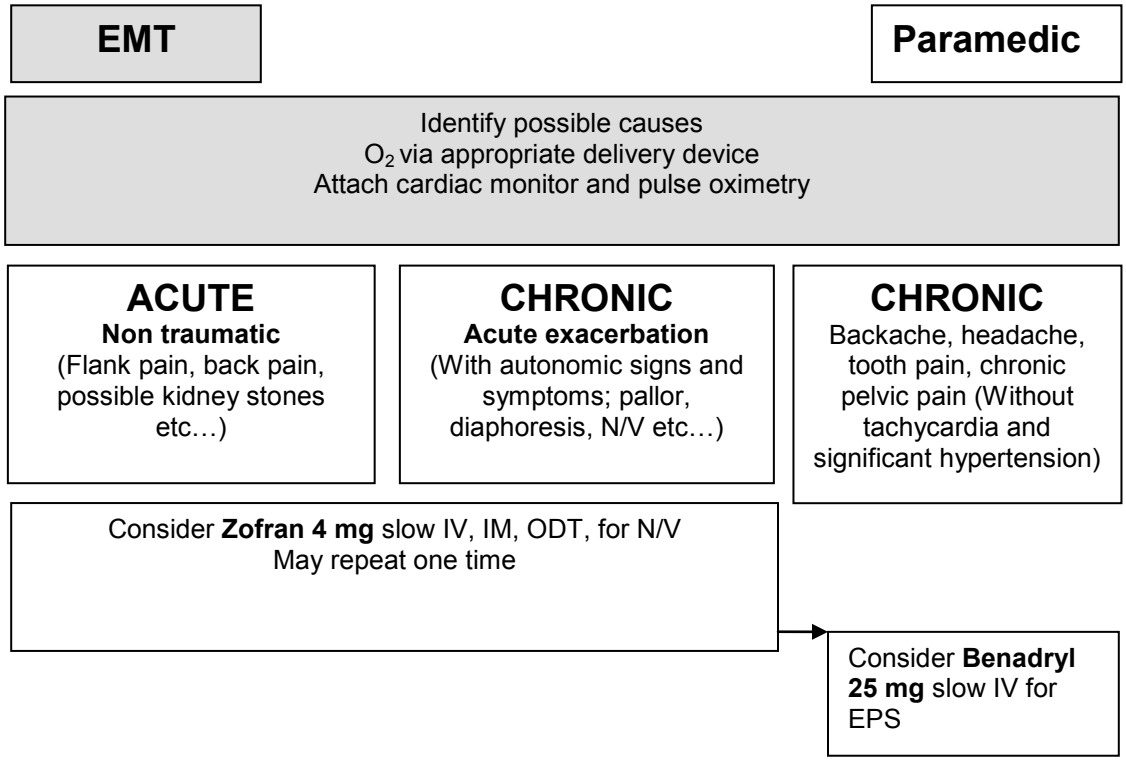
EMT

Paramedic

Clear area to decrease chance of injury
O_2 via appropriate delivery device
Attach cardiac monitor as needed pulse oximetry, capnography

IV Normal Saline
Perform a glucose test
If Glucose <70mg/dl Treat Per Hypoglycemia

General Pain Protocol



TRAUMA ASSESSMENT PROTOCOL

Confirm scene safety and use of appropriate Body Substance Isolation procedures.

Mechanism of Injury Number of Patients Evaluate need for assistance

B.L.S.		**A.L.S.**	
ABC's & LOC Focused History and Exam		ABC's & LOC Focused History & Physical Exam	
No Significant M.O.I. Focused Trauma Assessment Baseline Vital Signs S.A.M.P.L.E. History Transport Decision Detailed Assessment Treat per Appropriate Protocol	**Significant M.O.I.** **A.L.S. PATIENT**	**No Significant M.O.I.** Focused Trauma Assessment Baseline Vital Signs S.A.M.P.L.E. History Transport Decision Detailed Assessment Treat per Appropriate Protocol	**Significant M.O.I.** Rapid Trauma Assessment Baseline Vital Signs S.A.M.P.L.E. History Transport Decision Detailed Assessment Treat per Appropriate Protocol

Upon arrival, all equipment should be taken to the scene, with intent to transport.
:

- Monitor
- ALS bag (ALS)
- BLS Bag

When called to the scene of a trauma patient, consider your proximity to the nearest trauma facility. When 10 minutes or less from a trauma facility consider rapid transport rather than time consuming interventions at the scene. If transport to the nearest facility is in the patient's best interest, then consider loading the patient and treating in transit.

TRAUMA TRIAGE PROTOCOL

1

Measure vital signs and level of consciousness
GCS <14 or
Systolic BP <90 mmHg or
Respiratory rate <10 or > 29 BPM (<20 in infant)

YES → **Take to trauma center with the highest level of care in the system.**

NO

2

Assess anatomy of injury

- All Penetrating Injuries to Head neck torso and extremities proximal to the elbow and knee.

As recommended by:

TRAUMA

180
181
182
183

EMT

Control bleeding / bandage / splint as required
O_2 via appropriate delivery device
Assist ventilations as needed
Apply cardiac monitor, pulse oximetry
SMR as required
Stabilize any impaled objects

	Chest Trauma	Extremity Trauma
Cover eviscerations with moist sterile dressings	Stabilize flail segments On open wounds apply occlusive dressing	If pelvic or bilateral lower extremity fractures are suspected, consider PASG

IV LR
Titrated to B/P 90 systolic or radial pulses

Consider **Zofran 4 mg** Slow IV, IM, ODT, for N/V
May repeat one time

→ Consider **Benadryl 25 mg** slow IV for EPS

SPECIFIC TRAUMA

184
185
186

EMT	Paramedic

Control bleeding / bandage / splint as required
O_2 via appropriate delivery device
Assist ventilations as needed
Apply cardiac monitor, pulse oximetry
SMR as required
Stabilize any impaled objects

IV LR
Titrated to B/P 90 systolic or radial pulses

Intubate as necessary
Consider RSI

Head Trauma

Lidocaine 1.5 mg/kg
IVP prior to intubation

If patient shows signs of herniation (GCS< 9 and unequal pupils or a drop of two in the GCS) maintain $ETCO_2$ 30- 35 mmHg

Spinal Trauma

Burns

BE ALERT FOR AIRWAY BURNS

Major Burn
Fluid replacement as follows
0 – 10% BSA
2ml/kg x BSA/ 2 = 8hr
11 – 20% BSA
3ml/kg x BSA/2= 8hr
21–100% BSA
4ml/kg x BSA /2= **8hr**
Water Gel Pads on Minor burns 1^0 or 2^0 of <3% BSA **only (No openings through the Skin)**

Consider **Zofran 4 mg** Slow IV, IM,ODT for N/V
May repeat one time

→ Consider **Benadryl 25 mg** slow IV for EPS

SPECIFIC TRAUMA

187

EMT

Paramedic

Control bleeding / bandage / splint as required
O_2 via appropriate delivery device
Assist ventilations as needed
Apply cardiac monitor, pulse oximetry
SMR as required
Stabilize any impaled objects

IV Lactated Ringers
Titrated to B/P 90 Systolic or Radial Pulses

Intubate as Necessary

EYE INJURY

Trauma	Foreign Substance
Cover open wounds with protective cover. Do not apply ANY pressure to eye. If impaled object, leave it in and secure the object from unnecessary movement. Cover both eyes to limit sympathetic movement of the un-affected eye.	Flush eye with at least 1 liter of Normal Saline. Consider Morgan lens If unknown substance or alkali flush at least for 20 minutes.

Consider **Zofran 4 mg** Slow IV, IM, ODT, for N/V
May repeat one time

→ Consider **Benadryl 25 mg** slow IV for EPS

SPECIFIC TRAUMA

EMT	Paramedic
CPR Control bleeding / bandage / splint as required O_2 via appropriate delivery device Assist ventilations as needed Apply cardiac monitor, pulse oximetry SMR as required	

TRAUMA ARREST

IV's Lactated Ringers
Wide Open x 2 Large Bore

Inline intubation

Treat rhythm per protocol

Bilateral chest decompression if
chest trauma etiology

CONTACT MEDICAL CONTROL AS
NEEDED

Transport immediately
Consider air transport

See Protocol Policy
"Termination of resuscitation in the field"

Crush Injury/Crush Syndrome

EMT | **Paramedic**

Control bleeding / bandage / splint as required
O_2 via appropriate delivery device
Assist ventilations as needed
Apply cardiac monitor, pulse oximetry, and capnography
SMR as required
Stabilize any impaled objects
Serial 12 leads may be warranted
Consider early activation of Air Transport if applicable

IV LR X 2 if possible
Titrated to B/P 90 systolic or radial pulses

Intubate as necessary

Constant crush injuries greater than 30 minutes duration:
(Including limbs and/or chest and abdomen)

If signs of hyperkalemia are present (peaked t-waves, no p waves, QRS widening, arrhythmias)

administer:
Sodium Bicarbonate 1 mEq/kg IV, IO.

AND
Immediately prior to release of pressure administer

Lactated Ringers W/O
And
Sodium Bicarbonate 1 mEq/kg IV, IO

If extremities are involved, do NOT elevate. Keep at or below the level of the heart

Emergency Medical Services
Pediatric Protocol Index

MEDICAL PROTOCOLS

PEDIATRIC TRAUMA PROTOCOLS

Pediatric Trauma Assessment Protocol

Pediatric Trauma Patient Protocol Criteria

Pediatric medical assessment protocol

Confirm scene safety

Appropriate Body Substance Isolation procedures.

Nature of Illness **Number of Patients**

Evaluate need for assistance

B.L.S.	
ABC's & LOC Focused History & Physical Exam	
RESPONSIVE	**UNRESPONSIVE**
S.A.M.P.L.E. History Focused Assessment Baseline Vital Signs Treatment Decision BLS/ALS Treat per Appropriate Protocol	**A.L.S. PATIENT**

A.L.S.	
ABC's & LOC Focused History & Physical Exam	
RESPONSIVE	**UNRESPONSIVE**
S.A.M.P.L.E. History Focused Assessment Baseline Vital Signs Treatment Decision BLS/ALS Treat per Appropriate Protocol	Rapid Medical Assessment Baseline Vital Signs S.A.M.P.L.E. History Treatment Decision ALS Treat per Appropriate Protocol

Pediatric treatment protocol criteria

For the PEDIATRIC medical patient with any one of the following criteria

Systolic Blood Pressure	< 70 + 2 x age in years if over 1 year old < 70 for one month to one year < 60 for under one month of age
Pulse Rate	> 200 at any age
Newborn to 3 months	< 85 or > 200
3 months to 2 years	< 100 or > 190
2 to 10 years	< 60 or > 140
Respiratory Rate	> 60 at any age
Infants to 1 y.o.	> 40
Toddler (1 to 4)	> 30
School Age	> 25
Adolescent	> 20
Glasgow Coma Score	<13

Any of these symptoms

Altered Mental Status
Respiratory Distress
Clinical Signs of Shock
Chest Discomfort

Any C/C or S/S that may indicate the need for IV Fluids or Medications.

Paramedics will institute the following care **PRIOR** to contact with medical control in accordance with the appropriate patient care protocol.

1. Establish an airway with the appropriate maneuvers or adjuncts.
2. Administer Oxygen
3. Establish IV / IO therapy. Initiate fluid resuscitation if indicated.
4. Apply cardiac monitor, pulse oximetry, and capnography if indicated.
5. Administer Medications as indicated.
6. Obtain temperature as indicated.
7. Contact **Medical Control** for report, consult, or orders

In the event communications with the Medical Control **cannot** be established, Fire Personnel will treat patients under these protocols until communications can be established.

Pediatric Resuscitation Chart

AGE	MEAN WEIGHT IN KG	MIN. SYS. BP	NORMAL HR	NORMAL RR	ET TUBE SIZE	AVERAGE INSERTION DEPTH (CM AT LIP)	NG	FLUID BOLUS
Prem.	<2.5	40	120-170	40-60	2.5-3.0	9.5-10	10	25
Term	3.5	60	100-170	40-60	3.0-3.5	10-10.5	10	35
3 Mo	6	60	100-170	30-50	3.5	10.5-11	10	120
6 Mo	8	60	100-170	30-50	4.0	11-12	10	160
1 Yr	10	72	100-170	30-40	4.0	12-12.5	10	200
2 Yr	13	74	100-160	20-30	4.5	12.5-13.5	12	260
4 Yr	15	78	80-130	20	5.0	14-15	12	300
6 Yr	20	82	70-115	16	5.5	15.5-16.5	14	400
8 Yr	25	86	70-110	16	6.0	17-18	14	500
10 Yr	30	90	60-105	16	6.5	18-18.5	16	600
12 Yr	40	94	60-100	16	7.0	18.5-19.5	16	800

Asystole

EMT

Paramedic

Confirm pulselessness & apnea,
Attempt to determine down time, prior CPR, history, & code status
Establish & maintain airway & ventilate 100% 0_2
Begin CPR
Apply cardiac monitor / pulse oximeter / $ETCO_2$
Quick combo pads /limb leads
Utilize Broselow tape for equipment and drug dosage guidelines

Confirm in 2 Leads
Consider Intubation
IV/IO **Normal Saline**

Epinephrine
0.01mg/kg (1:10,000)
IV/IO
Or
0.1mg/kg (1:1,000)
ETT
Repeat every 3-5 minutes

CONTACT MEDICAL CONTROL AS NEEDED

Immediate Transport

Consider & correct treatable causes

Hypovolemia
Hypoxia
Hydrogen Ion (Acidosis)
Hypo / Hyperkalemia
Hypothermia
Tension Pneumothorax
Tamponade, cardiac
Toxins
Thrombosis, Pulmonary
Thrombosis, Coronary

Epinephrine 1:10,000 standard concentration; 0.01 mg/kg = 0.1 ml/kg

Pulseless electrical activity

202

EMT

Paramedic

Confirm pulselessness & apnea,
Attempt to determine down time, prior CPR, history, & code status
Establish & maintain airway & ventilate 100% 0_2
Begin CPR
Apply cardiac monitor / pulse oximeter / $ETCO_2$
Quick combo pads /limb leads
Utilize Broselow tape for equipment and drug dosage guidelines

Consider Intubation
IV/IO **Normal Saline**

Epinephrine 1:10,000 standard concentration; 0.01 mg/kg = 0.1 ml/kg

Epinephrine
0.01mg/kg (1:10,000)
IV/IO
0.1mg/kg (1:1,000)
ETT
Repeat every 3-5 minutes

CONTACT MEDICAL CONTROL AS NEEDED

Consider & correct treatable causes

Hypovolemia
Hypoxia
Hydrogen Ion (Acidosis)
Hypo / Hyperkalemia
Hypothermia
Tension Pneumothorax
Tamponade, cardiac
Toxins
Thrombosis, Pulmonary
Thrombosis, Coronary

V-fib / Pulseless V-tach

EMT | **Paramedic** | **203**

Confirm pulselessness & apnea,
Attempt to determine down time, prior CPR, history, & code status
Establish & maintain airway & ventilate 100% 0_2
Begin CPR
Apply cardiac monitor / pulse oximeter / $ETCO_2$
Quick combo pads /limb leads
Utilize Broselow tape for equipment and drug dosage guidelines

Shock at **2J/kg**
Resume CPR immediately
(5 cycles)

Consider Intubation
IV/IO **Normal Saline**

Shock at **4J/kg**
Resume CPR immediately
(5 cycles or 2 minutes)

Epinephrine 1:10,000 standard concentration; 0.01 mg/kg = 0.1 ml/kg

Epinephrine
0.01mg/kg (1:10,000) IV/IO
0.1mg/kg (1:1,000) ETT
Repeat every 3-5 minutes

Shock at **6J/kg**
Resume CPR immediately
(5 Cycles or 2 minutes)

Escalate energy to a maximum of **10 J/kg**

Amiodarone 5 mg/kg bolus IV/IO
May repeat up to two times
Or
Lidocaine, 1mg/kg IV/IO may repeat in 3-5 minutes at **0.5-1 mg/kg**. Total of 3 doses or **3mg/kg** max

Torsades
Mag Sulfate 25-50 mg/kg IV/IO
for Max **2g**

CONTACT MEDICAL CONTROL AS NEEDED

Post resuscitative care

EMT | **Paramedic**

204

Confirm pulselessness & apnea,
Attempt to determine down time, prior CPR, history, & code status
Establish & maintain airway
Begin CPR
Apply cardiac monitor / pulse oximeter / $ETCO_2$
Quick combo pads /limb leads
Utilize Broselow tape for equipment and drug dosage guidelines

Treat rate & rhythm problems per protocol

Consider **20ml/kg of NS**
If hypotensive

Titrate FiO_2 to maintain oxyhemoglobin saturation greater than or equal to 94%; if possible wean FiO_2 if saturation is 100%

Bradycardia (unstable)

EMT | **Paramedic**

Confirm ABC's
Establish & maintain airway & ventilate 100% 0_2
Apply cardiac monitor
Quick combo pads / limb leads
Utilize Broselow tape for equipment and drug dosage guidelines
Pulse oximeter / $ETCO_2$

With S/S of hypoperfusion
Initiate chest compressions if HR does not rise above 60/min
with oxygenation & ventilation

Epinephrine 0.01 mg/kg (1:10, 000) IV/IO
Repeat every 3 to 5 minutes

Epinephrine 1:10,000 standard concentration 0.01 mg/kg = 0.1 ml/kg

Atropine 0.02 mg/kg
(Minimum **0.1 mg**) if increased vagal tone expected or primary AV block.
(Maximum single dose **0.5mg)**
May be repeated once

Search for and treat contributing factors

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen Ion (Acidosis)
- **H**ypo/hyperkalemia
- **H**ypoglycemia
- **H**ypothermia
- **T**oxins
- **T**amponade, cardiac
- **T**ension pneumothorax
- **T**hrombosis, coronary
- **T**hrombosis, pulmonary

Tachycardia (unstable) narrow complex (≤0.09)

206

EMT | **Paramedic**

Confirm pulse ABC's
Establish & maintain airway & ventilate 100% 0_2
Apply cardiac monitor
Quick combo pads / limb leads
Utilize Broselow tape for equipment and drug dosage guidelines
Pulse oximeter / $ETCO_2$

Heart rate>220 for infants, > 180 for children
With S/S of hypoperfusion

Consider vagal maneuvers

Adenosine 0.1 mg/kg max **6mg** IV/IO
May repeat **0.2 mg/kg** max **12 mg** IV/IO

Synchronized cardioversion **0.5 to 1.0 J/kg**

Be prepared to suction and/or intubate the patient.

Search for and treat contributing factors

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen Ion (Acidosis)
- **H**ypo/hyperkalemia
- **H**ypoglycemia
- **H**ypothermia
- **T**oxins
- **T**amponade, cardiac
- **T**ension pneumothorax
- **T**hrombosis, coronary
- **T**hrombosis, pulmonary

Tachycardia (unstable) wide complex (>0.09)

EMT | **Paramedic**

Confirm pulse ABC's
Establish & maintain airway & ventilate 100% 0_2
Apply cardiac monitor
Quick combo pads / limb leads
Utilize Broselow tape for equipment and drug dosage guidelines
Pulse oximeter / $ETCO_2$

Heart rate>220 for infants, > 180 for children
With S/S of hypoperfusion

Synchronized Cardioversion **0.5 to 1.0 J/kg**

Be prepared to suction and/or intubate the patient.

CONTACT MEDICAL CONTROL
Amiodarone 5mg/kg IV over 20-60 minutes

Search for and treat contributing factors

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen Ion (Acidosis)
- **H**ypo/hyperkalemia
- **H**ypoglycemia
- **H**ypothermia
- **T**oxins
- **T**amponade, cardiac
- **T**ension pneumothorax
- **T**hrombosis, coronary
- **T**hrombosis, pulmonary

Tachycardia (stable)

208

(wide or narrow complex)

EMT	Paramedic

Confirm ABC's
Establish & maintain airway & ventilate 100% 0_2
Apply cardiac monitor
Quick combo pads / limb leads
Utilize Broselow tape for equipment and drug dosage guidelines
Pulse oximeter / $ETCO_2$

Ventricular rate 160 – 220
Hemodynamically stable
(Tachycardia appropriate for clinical condition)

Identify origin & cause of tachycardia
Treat underlying cause

SVT / A-FIB / A-FLUTTER	WIDE
CONTACT MEDICAL CONTROL BEFORE TREATING STABLE TACHYCARDIA Consider **Adenosine 0.1 mg/kg** IV/IO May repeat at double the dose	CONTACT MEDICAL CONTROL BEFORE TREATING STABLE TACHYCARDIA Consider **Amiodarone 5mg/kg** IV/IO over 20-60 minutes

Cold Injuries: Frostbite\ Hypothermia

221
222

EMT	Paramedic

Confirm ABC's
Establish & maintain airway
0_2 via appropriate device
Apply cardiac monitor / pulse oximeter / $ETCO_2$ as indicated
Handle patient gently to avoid arrhythmia
Remove patient from cold. Remove any wet clothing.
Insulate patient from the cold.
Obtain core temperature
Utilize Broselow tape for equipment and drug dosage guidelines

Frostbite	Hypothermia

IV / IO as indicated use warmed fluids if possible

Obtain Core Temperature

Cover the affected tissue with a loose, dry, sterile dressing.
NEVER rub or massage the damaged area.

Do not attempt to thaw frozen tissue if there is a chance of refreezing.

Rewarming:
Blankets/warm blankets
Increase ambient temperature in patient compartment.

Hypothermia: Cardiac arrest

EMT | **Paramedic**

Confirm ABC's
Establish & maintain airway
0_2 via appropriate device
Apply cardiac monitor / pulse oximeter / $ETCO_2$ as indicated
Handle patient gently to avoid arrhythmia
Remove patient from cold. Remove any wet clothing.
Insulate patient from the cold.
Obtain core temperature
Utilize Broselow Tape for Equipment and Drug Dosage Guidelines

IV / IO as indicated use warm fluids if possible

If patient is in V-fib, defibrillate one time at **2J/kg**.

Core temp $\geq$ 86º F, work code per protocol.

Core temp $\leq$ 85º F, continue CPR,

Rewarming:
Blankets/warm blankets
Increase ambient temperature in patient compartment.

Rapid transport to the hospital

Remember that a moderately hypothermic patient requires longer intervals between drugs due to slower absorption rate.

Heat Injury: Exhaustion/ Stroke

224
225

EMT	Paramedic

Confirm ABC's
Establish & maintain airway
0_2 via appropriate device
Apply cardiac monitor / pulse oximeter / $ETCO_2$ as indicated
Remove patient from heat.
Obtain core temperature
Utilize Broselow tape for equipment and drug dosage guidelines

Heat exhaustion	Heat stroke
IV / IO as indicated	
Core temperature	
$\leq 105^{o}$	$\geq 105^{o}$
Supportive therapy	Rapid cooling to < 102 ° Cool ambient temperature Remove clothing Cover with moist sheet Avoid shivering
NS fluid bolus of **20 ml/kg** as indicated Repeat if necessary	

Altered Mental Status

231

EMT | **Paramedic**

Confirm ABC's
Establish & maintain airway
0_2 via appropriate device
Apply cardiac monitor / pulse oximeter / $ETCO_2$ as indicated
12 lead as indicated
Utilize Broselow tape for equipment and drug dosage guidelines

IV / IO as indicated
perform a glucose test
Recheck 5 – 10 min after glucose administration

Glucose < 40 mg/dl

If pt is able to swallow and is alert enough to follow commands give oral **Glucose 15gm** or other form of glucose.

If patient is unable to follow commands or protect their airway,
D-25W,
0.5 to 1.0gm/kg IVP
(Draw dose out of **D50W** vial then dilute with the same amount of Normal Saline)
May Repeat **D-25** PRN

Use **D-10** for Neonates
Dispose of all but **10 ml of D-50** and replace with **40 ml NS.** Then give the desired Dose

Glucose > 40 mg/dl

Narcan 0.1mg/kg IV
For total reversal of narcotics
Can repeat every two minutes

MAKING DEXTROSE SOLUTIONS FROM EXISTING STOCK

D50 = 0.5GM per cc or 500GM per liter
D25 = 0.25GM per cc or 250GM per liter
D10 = 0.10GM per cc or 100GM per liter

If the physician orders one form of dextrose when you have another, you may mix the dextrose solution as follows:

YOU HAVE	YOU WANT	MIX
D50	D10	2cc D50 + 8cc Sterile water 10cc D10 (equals 1 gram dextrose/10ml)
D50	D25	5ccD50 +5cc Sterile water 10cc D25 (equals 2.5 grams dextrose/10ml)
D25	D10	4cc D25 + 6cc Sterile water 10cc D10 (equals 1 gram dextrose/10ml)

Anaphylaxis (allergic reactions)

232

EMT | **Paramedic**

Confirm ABC's
Establish & maintain airway
0_2 via appropriate device
Apply cardiac monitor / pulse oximeter / $ETCO_2$ as indicated
12 Lead as indicated
Utilize Broselow tape for equipment and drug dosage guidelines

IV / IO as indicated
NS: Titrate to blood pressure

Epinephrine
0.01mg/kg IM, 1:1,000
(Maximum 0.3mg)
Repeat every 15 minutes as needed. *May be administered prior to IV if pt. distress is severe.

Consider **Benadryl 1-2mg/kg IVP**

Consider **Albuterol 2.5 mg**
via nebulizer for wheezing, repeat as necessary.

Duoneb 3 ml nebulized **(0.5 mg Ipratropium 2.5mg Albuterol)**
Given 1 x only

Consider **Solu-Medrol**, **1-2mg/kg IVP**

Control of pain &/or nausea

EMT	Paramedic

Confirm ABC's
Establish & maintain airway
0_2 via appropriate device
Apply cardiac monitor / pulse oximeter / $ETCO_2$ as indicated
12 Lead as indicated
Utilize Broselow tape for equipment and drug dosage guidelines

Monitor respiratory status closely and be prepared to assist ventilations and / or secure airway

Consider **Zofran 0.15mg/kg** IV/IO for patients over 2 years of age and less than 27 kg. If pt weight is 27 kg or higher use adult dose of **4mg**

Respiratory emergencies

235
236
237

EMT | **Paramedic**

Confirm ABC's
Establish & maintain airway
High concentration humidified 0_2 via appropriate device
Apply cardiac monitor / pulse oximeter / $ETCO_2$ as indicated
12 lead as indicated
Utilize Broselow tape for equipment and drug dosage guidelines

Asthma

Albuterol
2.5 mg
in 3ml saline via nebulizer, repeat as needed

Duo-neb
via nebulizer once

Epinephrine 1:1000, **0.01 mg/kg** SC may repeat as needed.
Max single dose **0.3 mg**
Caution with cardiac history

Consider
Magnesium Sulfate
1-2 gm
IV/Nebulization

Consider
Solu-Medrol, 2mg/kg
IVP

Croup

Mix **0.5 ml of**
Racemic Epinephrine
With **3 ml Saline**
Administer via Nebulizer

Acute Pulmonary Edema (CHF)

Furosemide (Lasix*)* 1-2 mg/kg IVP

Albuterol 2.5mg via Nebulizer

Fever / Seizures

238
239

EMT | **Paramedic**

Confirm ABC's
Establish & maintain airway
0_2 via appropriate device
Apply cardiac monitor / pulse oximeter / $ETCO_2$ as indicated
12 lead as indicated
Utilize Broselow tape for equipment and drug dosage guidelines

Fever

Fever $\geq 102^0$

Remove excess clothing / blankets
Begin cooling

Acetaminophen elixir 15 mg/kg PO
If **Acetaminophen** has not been given in the last four hours

Ibuprofen elixir 10mg/kg PO if **Ibuprofen** has not been given within the last 6 hours

Seizures

IV / IO as indicated

If dextrose test is < 40 mg/dl, administer D25/D-10 per protocol

Poisoning / Overdose

EMT | **Paramedic**

240

Confirm ABC's
Establish & maintain airway
0_2 via appropriate device
Apply cardiac monitor / pulse oximeter / $ETCO_2$ as indicated
12 lead as indicated
Utilize Broselow tape for equipment and drug dosage guidelines

Specific overdose or poison management depends upon the substance involved. Contact Poison Control for treatment recommendations

Consider gastric tube for evacuation of stomach contents.

CONTACT MEDICAL CONTROL
Discuss Treatment Recommendations

Neonatal resuscitation

EMT | **Paramedic**

Confirm ABC's
Establish & maintain airway / suction thoroughly
0_2 via appropriate device
Apply cardiac monitor / pulse oximeter / $ETCO_2$ as indicated
Warm, dry, stimulate,
Maintain warmth of infant
Utilize Broselow tape for equipment and drug dosage guidelines

Meconium present and non vigorous
Before stimulation:
Laryngoscopy, and suction trachea with ET tube and aspirator device.

No meconium present and/ or vigorous
Suction mouth first, and then nose with a bulb syringe. Continue to suction nasal and oral airway with bulb syringe.

Position
On back in slight trendelenberg - Open the airway
Stimulate
Dry the infant with a clean towel
If infant does not vigorously respond
Intubate the infant
If there is thick meconium BVM has not been effective prolonged positive pressure ventilation is needed
Oxygen
Ventilate at 40 to 60 breaths / minute with 100% O_2

Displaced
Obstructed
Pneumothorax
Equipment

Chest compressions
HR < 60 or between 60 and 80 and not improving
Stop compressions when HR is above 80.
Rate is 120/min interposed with ventilations
Ratio is 3:1 (3 compressions to one ventilation)

Post resuscitation
Check glucose.
Treat if needed
Maintain Infant's Warmth

Medications
Indicated HR < 80 despite BVM and chest compressions
Epinephrine 1:10,000 0.01 to 0.03 mg/kg IV / IO or ET
If no response, **Epinephrine 1:1000 0.1 mg/kg** ET
Narcan 0.1 **mg/kg** IV, IO, ET, or SQ
may be indicated in respiratory depression or a maternal narcotic use within 4 hours of delivery.

PEDIATRIC TRAUMA ASSESSMENT PROTOCOL

Confirm scene safety and use of appropriate Body Substance Isolation procedures.

Mechanism of Injury Number of Patients Evaluate need for assistance

B.L.S. ABC's & LOC Focused History and Exam	
No Significant M.O.I. Focused Trauma Assessment Baseline Vital Signs S.A.M.P.L.E. History Transport Decision Detailed Assessment Treat per Appropriate Protocol	**Significant M.O.I.** **A.L.S. PATIENT**

A.L.S. ABC's & LOC Focused History & Physical Exam	
No Significant M.O.I. Focused Trauma Assessment Baseline Vital Signs S.A.M.P.L.E. History Transport Decision Detailed Assessment Treat per Appropriate Protocol	**Significant M.O.I.** Rapid Trauma Assessment **Baseline Vital Signs** S.A.M.P.L.E. History Transport Decision Detailed Assessment Treat per Appropriate Protocol

Head / Abdominal / Chest trauma

281
282
283

EMT	Paramedic

Confirm ABC's
Establish & maintain airway / 0_2 via appropriate device
SMR and splint fractures as necessary
Apply monitor / pulse oximeter / $ETCO_2$ as necessary
Bandage & dress wounds appropriately
Maintain body temperature
Utilize Broselow tape for equipment and drug dosage Guidelines

LR IV / IO as indicated

Head Trauma	Abdominal	Chest
Intubate if necessary moderate hyperventilation of the patient to a ($ETCO_2$ of 30-35) **Lidocaine 1mg/kg IVP** prior to intubation to prevent increase in ICP. **Atropine 0.02 mg/kg IVP** (Minimum of **0.1 mg**) prior to intubation to prevent bradycardia. If normotensive or hypertensive, keep fluids at KVO rate.	Cover any open wounds with sterile occlusive dressing. Eviscerations should be covered with a moist sterile dressing.	If tension pneumothorax is suspected, Needle decompression

CONTACT MEDICAL CONTROL

Extremity / Spinal trauma

EMT | **Paramedic**

Confirm ABC's
Establish & maintain airway / 0_2 via appropriate device
SMR and splint fractures as necessary
Apply monitor / pulse oximeter / $ETCO_2$ as necessary
Bandage & dress wounds appropriately
Maintain body temperature
Utilize Broselow tape for equipment and drug dosage guidelines

284
285

LR IV/IO as indicated

Extremity

Spinal

Spinal shock should be considered
in hypotensive patients without tachycardia
or other signs of shock.

CONTACT MEDICAL CONTROL

Traumatic Cardiac Arrest

286

EMT	Paramedic

Confirm ABC's
Establish & maintain airway / 0_2 via appropriate device
SMR and splint fractures as necessary
Apply monitor / pulse oximeter / $ETCO_2$ as necessary
Bandage & dress wounds appropriately
Maintain body temperature
Utilize Broselow tape for equipment and drug dosage guidelines

LR IV / IO as indicated

In the event of suspected chest pathology, consider bilateral needle decompression, 2nd intercostal space, mid-clavicular line.

Load and Go.

CONTACT MEDICAL CONTROL
Initiate all other treatment per trauma protocol enroute.

BURNS

EMT	Paramedic

Confirm ABC's
Establish & maintain airway / 0^2 via appropriate device
SMR and splint fractures as necessary
Apply monitor / pulse oximeter / $ETCO_2$ as necessary
Bandage & dress wounds appropriately
Stop the burning
Maintain body temperature
Utilize Broselow tape for equipment and drug dosage guidelines

IV / IO as indicated

Minor burns 0 – 10% BSA burn	Moderate burns 11 – 20% BSA burn	Major burns 21–100% BSA burn
$\frac{2ml/kg \times BSA}{2}$ = 8hr dose	$\frac{3ml/kg \times BSA}{2}$ = 8hr dose	$\frac{4ml/kg \times BSA}{2}$ = 8hr dose

Nixa Fire Protection District
Emergency Medical Services
Approved Medication List

ADENOSINE (ADENOCARD™)

Class:	Antiarrhythmic
Action:	Slows AV conduction
Indications:	Symptomatic PSVT
Contraindications:	Second or third degree heart block Sick-sinus syndrome Known hypersensitivity to the drug
Precautions:	Arrhythmias, including blocks, are common at the time of Cardioversion Use with caution in patients with asthma
Side Effects:	Facial flushing, headache, shortness of breath, dizziness, and nausea
Dosage:	**6 mg** given as a rapid IV bolus over a 1-2 second period; if, after 1-2 minutes, if Cardioversion does not occur, administer a **12-mg** dose over 1-2 seconds.
Pediatric Dosage:	**0.1 mg/ kg** max **6 mg** followed by **0.2 mg/kg** max **12 mg**
Route:	IV; should be administered into the medication administration port closest to the patient and followed by flushing of the line with IV fluid.

ALBUTEROL (PROVENTIL™)(VENTOLIN™)

Class:	Sympathomimetic (B_2 selective)
Action:	Bronchodilation
Indications:	Asthma Reversible bronchospasm associated with COPD
Contraindications:	Known hypersensitivity to the drug
Precautions:	Blood pressure, pulse, and EKG should be monitored Use caution in patients with known heart disease
Side Effects:	Palpitations, anxiety, headache, dizziness, and sweating
Dosage:	Small-Volume Nebulizer 2.5 mg in 2.5 ml normal saline over 5-15 minutes
Route:	Inhalation
Pediatric Dosage:	2.5 mg in 2.5 ml normal saline

AMIODARONE (CORDARONE)

Class:	Class III anti arrhythmic, but possesses Characteristics of all four Vaughan Williams Classes
Actions:	Sodium, Calcium, Potassium channel blocker. Prolongs intranodal conduction. Prolongs refractoriness of the AV node.
Indications:	VF/Pulseless VT,VT,Narrow complex tachycardia
Contraindications:	Known hypersensitivity, cardiogenic shock, sinus bradycardia, and third degree AV block.
Precautions:	Proarrhythmic with concurrent Antiarrhythmic meds. Consider slower administration on Patients with hepatic or renal dysfunction. May prolong QT interval
Side Effects:	Hypotension, Bradycardia (slow down the rate of infusion)
Dosages:	**300 mg** IVP Initial VF/Pulseless VT, **150 mg** IVP for recurrent VF/Pulseless VT. **150 mg** in **100 ml D5W** dripped in over 10 minutes for wide and narrow complex tachycardias
Route:	IV
Pediatric Dosage:	**5mg/kg IVP**

ASPIRIN

Class:	Platelet inhibitor / anti-inflammatory / analgesic
Actions:	Blocks platelet aggregation
Indications:	New chest pain suggestive of AMI. If a 12 lead is done give Aspirin unless you document a reason for not giving Aspirin
Contraindications:	Patients with hypersensitivity to the drug, Patients with Asthma
Relative Contraindications:	GI bleeding and upset stomach, trauma, decreased LOC of unknown origin
Side Effects:	Heartburn Nausea and vomiting Wheezing
Dosage:	324 mg chewable
Route:	PO must be chewed
Pediatric Dosage:	Not indicated

ATROPINE

Class:	Parasympatholytic (anticholinergic)
Actions:	Blocks acetylcholine receptors Increases heart rate Decreases gastrointestinal secretions
Indications:	Bradycardia Hypotension secondary to Bradycardia Organophosphate poisoning RSI of Pediatrics under 10 or any bradycardic patients
Contraindications:	None when used in emergency situations
Precautions:	Tachycardia Hypertension
Side Effects:	Palpitations and tachycardia Headache, dizziness, and anxiety Dry mouth, pupillary dilation, and blurred vision Urinary retention (especially older males)
Dosages:	Bradycardia 0.5 mg every 5 minutes to maximum of 3mg Organophosphate Poisoning 2-5 mg
Route:	IV, Endotracheal
Pediatric Dosage:	Bradycardia (min dose 0.1 mg max dose 0.5 mg) 0.02 mg/kg Organophosphate Poisoning 0.05 mg/kg

CALCIUM CHLORIDE

Class:	Electrolyte
Action:	Increases cardiac contractility
Indications:	hyperkalemia, hypocalcemia Calcium channel blocker overdose (Verapamil, Nifedipine) Abdominal muscle cramping associated with spider bite Antidote for magnesium sulfate
Contraindications:	Patients on digitalis
Precautions:	IV line should be flushed between calcium chloride and sodium bicarbonate administration
Side Effects:	Arrhythmia's (Bradycardia and Asystole) hypotension
Dosage:	Contact Medical Control
Route:	IV over 2 minutes
Pediatric Dosage:	Contact Medical Control

CAPTOPRIL

Class:	Ace Inhibitor
Action:	Competitive inhibitor of angiotension converting enzyme (ACE)
Indications:	Heart failure, Left Ventricular Dysfunction after MI
Contraindications:	Hypersensitivity to any Ace inhibitor
Precautions:	May cause Hyperkalemia, especially in patients with renal deficiency
Side Effects:	Hypotension, Angioedema
Dosage:	**25 mg** SL if SBP is >110 **12.5 mg** if SBP is 90-110
Route:	SL
Pediatric Dosage:	Not indicated

50% DEXTROSE

Class:	Carbohydrate
Actions:	Elevates blood glucose level rapidly
Indications:	Hypoglycemia as indicated by Glucometry
Contraindications:	None in the emergency setting
Precautions:	A blood sample should be drawn before administering 50% dextrose
Side Effects:	Local venous irritation
Dosage:	**12.5-25 grams** (25-50 ml)
Route:	IV/IO
Pediatric Dosage:	0.5-1 g/kg slow IV; should be diluted 1:1 with sterile water to form a 25% solution. Mix 10ml of D-50 to 40ml of NS to form 10% solution

DILTIAZEM (CARDIZEM™)

Class:	Calcium Channel Blocker
Action:	Slows conduction through the AV node
Indications:	PSVT Atrial Fibrillation with Rapid Ventricular Response Atrial Flutter with rapid response
Contraindications:	Heart Blocks Conduction disturbances WPW Congestive Heart Failure (Pulmonary edema)
Precautions:	Hypotension Should not be used in patients receiving IV B-blockers
Side Effects:	Nausea, vomiting, hypotension, dizziness, bradycardia
Dosage:	0.25mg/kg (Max 20 mg) IV over 2 minutes may repeat at 0.35mg/kg (Max 25 mg) after 15 minutes
Route:	Slow IV over 2 minutes

DIPHENHYDRAMINE (BENADRYL™)

Class: Antihistamine

Actions: Blocks histamine receptors H_1
Has some sedative effects

Indications: Anaphylaxis
Allergic reactions
Dystonic reactions due to phenothiazines

Contraindications: Asthma
Nursing mothers

Precautions: Hypotension

Side Effects: Sedation
Dries bronchial secretions
Blurred vision
Headache
Palpitations

Dosage: 25-50 mg

Routes: Slow IV push
Deep Intramuscular

Pediatric Dosage: 1.25 mg/kg

DUO-NEB

Class: Beta Adrenergic/Anticholinergic

Action: Bronchodilator

Indications: Broncho-constriction refractory to Albuterol

Contraindications: Pt's with hypersensitivity to Any components or hypersensitivity t atropine

Precautions: Blood pressure, pulse, and ECG should be monitored. Use caution in patients with known heart disease

Side Effects: Palpitations, anxiety, headache, dizziness, and sweating, tachycardia

Dosage: **3ml =**

- **0.5 mg Ipratropium**
- **3.0 mg Albuterol**

Route: Inhalation

EPINEPHRINE 1:1000

Class:	Sympathomimetic
Action:	Bronchodilation
Indications:	Bronchial asthma Exacerbation of COPD Allergic reactions
Contraindications:	Patients with underlying cardiovascular disease Hypertension Pregnancy Patients with tachyarrhythmias
Precautions:	Should be protected from light Blood pressure, pulse, and ECG must be constantly monitored
Side Effects:	Palpitations and tachycardia Anxiousness Headache Tremor Myocardial ischemia in older patients
Dosage:	**0.3-0.5 mg**
Route:	Subcutaneous, IM
Pediatric Dosage:	**0.1 mg/kg** ETT **0.01 mg/kg** sq (max .3-.5 mg)

EPINEPHRINE 1:10,000

Class: Sympathomimetic

Actions:
Increases heart rate
Increases cardiac contractility
Causes Bronchodilation

Indications:
Cardiac arrest
Anaphylactic shock

Contraindications: None when used in the situation listed above

Precautions:
Should be protected form light
Can be deactivated by alkaline solutions

Side Effects:
Tachyarrhythmias
Palpitations

Dosage:
Cardiac Arrest
1.0mg repeated every 3-5 minutes
Severe Anaphylaxis
0.3-0.5 mg (3-5 ml) may need to repeat in 3-5 minutes

Routes:
IV
Endotracheal

Pediatric Dosage: 0.01 mg/kg repeated every 5 minutes

FUROSEMIDE (LASIX™)

Class:	Potent diuretic
Actions:	Inhibits reabsorption of sodium chloride Promotes prompt diuresis Vasodilation
Indications:	Congestive heart failure Pulmonary edema
Contraindications:	Pregnancy Dehydration
Precautions:	Should be protected from light Dehydration
Side Effects:	Hypotension
Dosage:	40mg (80 mg for patients on oral diuretics) Contact Medical control for higher dosages
Route:	IV
Pediatric Dosage:	1 mg/kg

GLUCAGON

Class: Other Endocrine / Metabolism

Actions: Converts hepatic Glycogen to Glucose

Indications: Severe Hypoglycemia when unable to establish vascular access
Beta blocker overdose

Contraindications: Hypersensitivity to drug or class

Side Effects: Hyperglycemia (can be severe)
Hypotension
Nausea / Vomiting
Urticaria
Respiratory Distress

Adult Dosage: 1 mg
May repeat one time in 20 minutes

Route: IM

Pediatric Dosage: 0.025 to 0.1 mg/kg *(Max Dose of 1 mg)*
May repeat one time in 20 minutes

GLUCOSE (INSTANT, ORAL)

Class: Carbohydrate

Actions: Elevates blood sugar levels

Indications: Hypoglycemia as indicated by glucometry

Contraindications: Patients with altered level of consciousness that cannot protect airway

Precautions: If alcohol abuse is suspected then glucose should be given after 100mg of Thiamine is administered

Side Effects: None

Dosage: One tube (prepackaged 15g)

Routes: PO (oral)

Pediatric Dosage: same

HALDOL

Class:	Antipsychotic
Action:	Competitive dopamine receptor blocker
Indications:	Agitation, aggressive behavior
Contraindications:	Hypersensitivity, patients with Parkinson's disease, severe CNS depression, or comatose states
Precautions:	Patients with severe cardiovascular disorders due to possible hypotension. (If vasopressor is needed use nor-epinephrine)
Side Effects:	EPS syndrome Prolongation of QT interval
Dosage:	**2.5-5 mg**
Route:	IV, IM

LIDOCAINE (XYLOCAINE™)

Class: Antiarrhythmic

Actions:
Suppresses ventricular ectopic activity
Increases ventricular fibrillation threshold
Reduces velocity of electrical impulse through conductive system

Indications:
Premedication for intubation to help prevent increased ICP
Laryngotracheal Anesthesia (4% topical solution)
RSI of patient with suspected Increased ICP

Contraindications:
High-degree heart blocks (2^{nd} degree type 2, 3^{rd} degree, bifascicular block)
PVC's in conjunction with Bradycardia

Precautions:
Maximum dosage is 3mg/kg
Dosage should not exceed 300 mg/hr
Monitor for central nervous system toxicity
Dosage should be reduced by 50% in-patients
older than 70 years of age or who have liver disease

Side Effects:
Anxiety, drowsiness, dizziness, and confusion
Nausea and vomiting
Convulsions
Widening of QRS

Dosage:

Bolus
Intubation Prophylaxis - 1 mg/kg 2-3 minutes prior to attempt
Laryngotracheal Anesthesia Spray amount as needed in the larynx.

Routes: IV bolus, IV drip, Laryngotracheal Anesthesia (4%)

MAGNESIUM SULFATE

Class:	Anticonvulsant, smooth muscle relaxer.
Actions:	Central nervous system depressant Anticonvulsant
Indications:	Eclampsia (toxemia of pregnancy) Refractory Ventricular Fibrillation Refractory Pulseless Ventricular Tachycardia Patients who my be hypomagnesemic Chronic Alcoholism Torsades de Pointes Asthma refractory to Albuterol
Contraindications:	Any patient with heart block or recent myocardial infarction Renal Insufficiency and renal failure
Precautions:	Caution should be used in patients receiving digitalis Hypotension Calcium chloride should be readily available as an antidote if respiratory depression ensues
Side Effects:	Respiratory depression Drowsiness
Dosage:	1-4 g
Routes:	IV Intramuscular

METHYLPREDNISOLONE (SOLU-MEDROL™)

Class: Corticosteroid

Actions: Anti-inflammatory
Suppresses immune response (especially in allergic reactions)

Indications: Severe anaphylaxis, Asthma, COPD

Contraindications: None in the emergency setting.

Precautions: Must be reconstituted and used promptly
Onset of action may be 2-6 hours and thus should not be expected to be of use in the critical first hour following an anaphylactic reaction

Side Effects: GI bleeding
Prolonged wound healing
Suppression of natural steroids

Dosage: 125-250 mg

Routes: IV
Intramuscular

Pediatric Dose: 1-2 mg/kg

NALOXONE (NARCAN™)

Class: Narcotic antagonist

Action: Reverses effects of narcotics

Indications: Narcotic overdoses including the following:

Morphine	Methadone
Dilaudid	Heroin
Fentanyl	Percodan
Demerol	Tylox
Paregoric	Tylenol #3

Synthetic analgesic overdoses including the following:

Nubain	Talwin
Stadol	Darvon

Alcoholic coma
To rule out narcotics in coma of unknown origin

Contraindications: Patients with a history of hypersensitivity to the drug

Precautions: Should be administered with caution to patients dependent on narcotics as it may cause withdrawal effects.
Short-acting, should be augmented every 5 minutes (Narcotics may have longer half life than Naloxone. Monitor patient's airway and ventilatory status.

Side Effects: None

Dosage: 2 mg in 0.4mg titrated dosages to respirations

Routes: IV
Intramuscular
Endotracheal

Pediatric Dosage: 0.01-0.1 mg/kg

NITROGLYCERIN (NITROSTAT™)(NITROLINGUAL™)

Class: Antianginal Nitrate Vasodialator

Actions:
Smooth-muscle relaxant
Reduces cardiac work
Dilates coronary arteries
Dilates systemic arteries

Indications:
Angina pectoris
Chest pain associated with myocardial infarction

Contraindications:
Children younger than 12 years of age
Hypotension

Precautions:
Must have IV established prior to administration
Constantly monitor blood pressure
Syncope
Drug must be protected from light
Expires quickly once bottle is opened

Side Effects:
Headache
Dizziness
Hypotension

Dosage: 1 tablet (.4mg)or 1 spray repeated every 5 minutes up to 3 times

Route: Sublingual tablet or spray

Pediatric Dosage: Not indicated

OXYGEN

Class: Gas

Action: Necessary for aerobic cellular metabolism

Indications: Hypoxia

Contraindications: None

Precautions: Use cautiously in patients with COPD
Humidify when providing high-flow rates

Side Effects: Drying of mucous membranes

Dosage: Cardiac Arrest, Trauma or Medical Protocols
24-100% as required

Route: Inhalation

Pediatric Dosage: 24-100% as required

Oxygen Consumption Rate

D Tank life in Minutes =
(Tank Pressure in psi X 0.16) / LPM

E Tank life in Minutes =
(Tank Pressure in psi X 0.28) / LPM

M Tank life in Minutes =
(Tank Pressure in psi X 1.56) / LPM

Pediaprofen (Ibuprofen)

Class:	NSAIDs
Actions:	Inhibits cyclooxygenase and lipoxygenase and reduces prostaglandin synthesis
Indications:	Fever > 102^0 F (Oral or Rectal) Tylenol has been ineffective and / or administered within last 4 hours
Contraindications:	Hypersensitivity to drug or class ASA / NSAID induced Asthma History GI Bleed
Precautions:	Caution in Hypertension Caution in CHF
Side Effects:	Anaphylaxis Abdominal Pain Nausea Headache Dizziness Rash
Dosage:	N/A
Routes:	PO
Pediatric Dosage:	10mg/kg Orally If not administered within last 6 hours

PHENYLEPHRINE (NEO-SYNEPHRINE™)

Class:	Vasoconstrictor (Alpha agent)
Action:	Topical vasoconstriction
Indications:	Premedication for nasal intubation to prevent epistaxis
Contraindications:	Hypertension Thyroid Disease Hypersensitivity to the drug
Precautions:	Enlarged Prostate with Dysuria
Side Effects:	Nasal burning, stinging, sneezing or increase in nasal discharge
Dosage:	Two (2) sprays in each nares 1-2 minutes prior to intubation attempt

RACEMIC EPINEPHRINE (microNEFRIN) (Vaponefrin)

Class: α & β Agonist

Actions: Nonselective □ & □Agonist
Arteriole Constriction
Positive Inotropic Effects
Positive Chronotropic
Bronchial Smooth Muscle Relaxant
Blocks Histamine Release
Inhibits Insulin Secretion
Relaxes GI Smooth Muscle

Indications: Croup with moderate to severe respiratory distress.

Contraindications: Hypersensitivity

Precautions: Observe 2-4 hours after administration

Side Effects: Palpitations
Anxiety
Headache
Hypertension
Nausea / Vomiting
Arrhythmias
Rebound Edema

Dosage: 0.5 mg mixed with 3.0 ml of saline

Route: Inhalation via Nebulizer

SODIUM BICARBONATE

Class:	Alkalinizing agent
Actions:	Combines with excessive acids to form a weak volatile acid Increases pH
Indications:	Late in the management of cardiac arrest, if at all Tricyclic antidepressant overdose Severe acidosis refractory to hyperventilation
Contraindication:	Alkalotic states
Precautions:	Correct dosage is essential to avoid overcompensations of pH Can deactivate catecholamines Can precipitate with calcium Delivers large sodium load Can worsen acidosis in the patient who is not intubated and Adequately ventilated
Side Effect:	Alkalosis
Dosage:	1 mEq/kg initially followed by 0.5 mEq/kg every 10 minutes as indicated by blood gas studies
Route:	IV
Pediatric Dosage:	1 mEq/kg initially followed by 0.5 mEq/kg every 10 minutes

THIAMINE (VITAMIN B1)

Class:	Vitamin
Action:	Allows normal breakdown of glucose
Indications:	Coma of unknown origin Alcoholism Delirium tremens Precedes D50W administration in the patient with suspected alcohol abuse or malnutrition
Contraindications:	None in the emergency setting
Precautions:	Rare anaphylactic reactions have been reported
Side Effects:	Rare, if any
Dosage:	100 mg
Route:	IV, IM

TYLENOL (ACETAMINOPHEN)

Class: Other / Analgesics

Action: Analgesic mechanism is unknown
Antipyretic is through direct action on hypothalmus

Indications: Fever > 102^0 F (Oral or Rectal)
Pediprofen has been ineffective or administered within last 6 hours

Contraindications: Hypersensitivity to drug

Precautions: Impaired liver function
Chronic alcohol use
Impaired renal function
PKU

Side Effects: Rash
Uticara
Nausea

Dosage: N/A

Route: Oral

Pediatric Dosage: 15mg/kg if not administered with last 4 hours

ZOFRAN

Class:	Anti-emetic
Action:	Selective 5-HT receptor antagonist
Indications:	Prevention of nausea and vomiting
Contraindications:	Hypersensitivity
Precautions:	None
Side Effects:	None
Dosage:	**4-8 mg**
Route:	IV, IM, ODT
Pediatric Dosage:	**0.15 mg/kg**

Emergency Medical Services Procedures

Automatic External Defibrillation (AED)

INDICATIONS

Patient in Cardiopulmonary Arrest

PRECAUTIONS

Do Not apply to a patient with spontaneous pulses.
Do Not apply to patients in water or wet environment.
Do not apply directly over an internal Pacemaker
Remove transdermal medication patch

PROCEDURE

1) Confirm Unresponsiveness
2) Confirm breathlessness and give 2 breaths
3) Confirm Pulselessness
4) CPR for 2 Minutes
5) Power on AED
6) Place AED Pads and connect to AED
7) Press Analyze ("Clear Patient")
8) While charging CPR should continue, Compressor is last to clear before SHOCK
9) If shock is indicated ("Clear Patient")
10) Deliver Shock if indicated
11) CPR begins immediately following shock, perform CPR for 2 minutes, and then reanalyze.

*If "no shock indicated"

Check for return of Pulse and Breathing

If pulses return; supportive care

If no pulses return; secure airway and continue

Repeat steps #6 thru #11 as necessary until return of pulses or care relinquished.

BLS Procedure

Pediatric Consideration

For Infants and children les than 8 years of age a manual defibrillator is preferred to an AED for defibrillation.

If a manual defibrillator is not available, an AED equipped with a pediatric dose attenuator is preferred.

If neither is available, you may use an AED without a pediatric dose attenuator.

Esophageal Tracheal Airway (Combi-Tube)

BLS Procedure

Indications:

Respiratory Arrest,
Cardiac Arrest,
Unresponsive patients without Gag Reflex

Contraindications:

Under age 16,
Under 5' tall, (4'for SA)
Known esophageal disease,
Caustic substance ingestion,
Gag reflex

Procedure:

1. Universal precautions
2. Assure patient is being ventilated with BVM and OPA
3. Assemble and Check equipment
4. Hyper-oxygenate the patient prior to insertion
5. Place the head in a neutral position; maintain C-Spine control on all trauma patients.
6. Grasp the tongue and jaw and lift up.
7. Insert the tube into hypo-pharynx until the teeth are between the black lines.
8. Inflate the #1 hypo-pharynx cuff with 100cc of air using the blue port
9. Inflate the #2 esophageal cuff with 15cc of air using the white port
10. Attach BVM at the #1 esophageal (blue) tube and ventilate the patient, looking for chest rise.
11. Auscultate for lung sounds and epigastric sounds
12. If no lung sounds are heard, but epigastric sounds are present ventilate through the #2 (clear) tracheal tube.
13. Reassess lung sounds and epigastric sounds. Confirm with capnography
14. Continue BVD ventilation, head tilt, chin lift should be maintained unless contraindicated. (C-spine).

Removal Process:

15. Have suction ready with a large bore catheter
16. Deflate the hypo-pharynx cuff, move tube to left side of oral pharynx
17. Intubate patient and confirm placement per intubation procedure with appropriate devices and capnography.
18. Deflate Esophageal cuff, be prepared to suction immediately.
19. Remove Combi-Tube
20. Continue ventilation's via ETT and reconfirm placement.

Continuous Positive Airway Pressure (CPAP)

ALS Procedure

Indications

Short-term management of acute respiratory failure in an awake cooperative patient.
Near drowning patient. (Awake and cooperative)
CPAP is not indicated when the patient is unable to protect their airway.

Contraindications

Need for immediate Intubation.
Unstable respiratory drive (inability to maintain their own airway)
Ventilatory failure
Gastric distention
Claustrophobia

Precautions

1. Requires patient cooperation (The major complication is the inability to tolerate the mask; in which case the mask should be removed and an alternate airway should be instituted.)
2. If patient complains of nausea remove mask. The mask may be held in place manually. (Vomiting with the mask in place virtually guarantees aspiration.)
3. Adequate supply of oxygen is required

Procedure

1. Inform patient of procedure.
2. Prepare the equipment.
3. Hold the mask firmly against the patient.. Do not attach the straps yet.
4. Turn on the oxygen and instruct the patient to take slow deep breaths, relaxing and allowing the machine to help.
5. After the patient has tolerated the mask the straps may be attached.
6. Monitor the patient for comfort, anxiety, and nausea.
7. **THE MASK MUST BE UNSTRAPPED IF ANY NAUSEA DEVELOPES. MAY BE HELD IN PLACE.**

Laryngeal Mask Airway*

BLS Procedure

The LMA is a backup airway. An ET tube is still the preferred method of maintaining airway control.

Indications:
The LMA is indicated as a method of establishing a clear airway during resuscitation in a patient absent glossopharyngeal and laryngeal reflexes,

Contraindications:
Do not use the LMA as a substitute for an endotracheal tube.
Do not use the LMA in patients whose peak inspiratory pressures are anticipated to exceed 20 cm H2O.
When used in the profoundly unresponsive patient in need of resuscitation or a difficult airway patient on an emergency pathway, the risk of regurgitation and aspiration must be weighed against the potential benefit of establishing an airway.
The LMA should never be attempted in patients who might resist the airway insertion.
* The LMA is not allowed for use in Arkansas

Testing the LMA prior to insertion:
Do not use the LMA if the tube kinks when flexed through 180º, as such an airway may become obstructed during use.
Do not use the LMA if the mask connector does not fit tightly into the outer end of the airway tube.
Examine the surface of the cuff for damage including cuts, tears, and scratches.
Examine the interior of the mask bowl to ensure it is free from blockages, or loose particles. Any particles should be removed.
Examine the aperture. Gently probe the two flexible bars traversing the mask aperture to ensure they are not broken or otherwise damaged. If the aperture bars are not intact, the epiglottis may obstruct the airway.
Do not use the LMA if the aperture bar is broken or otherwise damaged.
Carefully insert a syringe into the valve port and fully deflate the device so the cuff walls are tightly flattened against each other. Remove the syringe from the valve port. Examine the cuff walls to determine whether they remain tightly flattened against each other.
Do not use the LMA if the cuff walls reinflate immediately and spontaneously, even if only slight.
Inflate the cuff with 50% more air than the recommended cuff inflation volume. Any tendency to deflate indicates leakage and should be apparent within two minutes.
Do not use the LMA airway if cuff leakage is present or if there is any uneven bulging of the cuff.
While the cuff is 50% over inflated check the inflation balloon. The balloon shape should be a thin, slightly flattened elliptical shape, not spherical.
Do not use the LMA if the inflation balloon is spherical or irregularly shaped as it may be difficult to gauge the cuff pressure.

Laryngeal Mask Airway Cont.

BLS Procedure

Preparation:
Fully inflate the cuff with 50% more air than what is listed on the tube
Then fully deflate the LMA by using your thumb and two fingers on the tip of the cuff while slowly pulling all of the air out through the inflation port. The cuff should form a smooth wedge shape without wrinkles. Lubricate the posterior surface of the deflated cuff. It is not necessary to spread the lubrication and it should only be on the posterior surface.

Insertion
1. Hold the LMA with the index finger at the Cuff/Tube Junction
2. Press the mask against the hard palate
3. Slide the mask inward extending the index finger
4. Advance the LMA into the hypo pharynx until resistance is felt
5. Hold the outer end of the LMA while removing index finger
6. Inflate the cuff. (Volumes printed on the tube are Maximum volumes smaller volumes usually are enough) Verify by watching for slight outward movement of the tube during inflation, Lack of cuff visible in the oropharynx. Slight swelling to the Thyroid/Cricoid area.

Securing
For the Pediatric LMA, Secure by pulling the LMA up against the Hard palate using tape wrapping around the LMA and securing on either side of the cheek. Then Bend the LMA 90° caudally and applying one strip of tape from one side of the jaw over the LMA distally and securing to the other side of the jaw.
For the LMA Supreme One piece of tape stretched from one side cheek over the upper lip “Tab” and secured to the other cheek.
A “Proper Fit” is one that leaves Approximately 2-3 cm space above the upper lip and below the “tab.”

Laryngeal Mask Airway Supreme*

BLS
Procedure

The LMA Supreme is a backup airway. An ET tube is still the preferred method of maintaining airway control.

Indications:
The LMA Supreme is indicated as a method of establishing a clear airway during resuscitation in a patient absent glossopharyngeal and laryngeal reflexes, who may need artificial ventilations.

Contraindications:
Do not use the LMA Supreme in patients whose peak inspiratory pressures are anticipated to exceed 39 cm H2O.
When used in the profoundly unresponsive patient in need of resuscitation or a difficult airway patient on an emergency pathway, the risk of regurgitation and aspiration must be weighed against the potential benefit of establishing an airway.
The LMA Supreme should never be attempted in patients who might resist the airway insertion.
* The LMA Supreme is not allowed for use in Arkansas

Securing
Secure with appropriate commercial device or with tape stretched over “Tab” and secured on both sides to the patient’s cheeks.

Testing the LMA prior to insertion:
Examine the surface of the cuff for damage including cuts, tears, and scratches.
Examine the interior of the mask bowl to ensure it is free from blockages, or loose particles. Any particles should be removed.
Inflate the cuff. Any tendency to deflate indicates leakage and should be apparent within two minutes.
Do not use the LMA airway if cuff leakage is present or if there is any uneven bulging of the cuff.

Insertion

1. Lubricate the posterior surface of the mask and airway tube prior to insertion.
2. Insert from behind or beside patients head.
3. Place the head in neutral or slight sniffing position.
4. Press the distal tip against the inner aspect of the upper teeth or gums.
5. Slide inwards using a slightly diagonal approach.
6. Continue to slide inwards rotating the hand in a circular motion so that the device follows the curvature behind the tongue.
7. Resistance should be felt when the distal end of the device meets the upper esophageal sphincter. The device is now fully inserted.
8. Inflate the cuff with air as recommended per the package or on the LMA Supreme itself.
9. The recommended intra-cuff pressure should never exceed 60cm H20..
10. Inflate with just enough air to achieve a seal sufficient to permit ventilation without leaks.

ALS

The gastric access lumen allows the insertion of up to an 18 Fr diameter gastric tube into the esophagus and stomach. Lubricate gastric tube prior to insertion. This should be accomplished as soon as possible.

Laryngo-tracheal Anesthesia (LTA)

ALS Procedure

Indications:

To facilitate intubations in the patient with laryngospasm.
To reduce the risks of larygospasm in the breathing patient

Precautions:

Should be done under direct visualization.
Cricoid pressure should be applied until the endotracheal tube is secured in place.
Dosage of lidocaine used not to exceed 3mg/kg.

Contraindications:

Known allergy to lidocaine.
Heart blocks.

Procedure:

Universal precautions
Have an assistant standing by to help.
Hyperventilate the patient for 2 minutes.
Assemble the LTA catheter to the bristoject.
Under direct visualization, advance the LTA catheter through the vocal cords until the black line on the catheter is at the glottis opening.
Administer the **Lidocaine 4% topical solution** through the catheter to spray the entire glottis and subglottic area.
Have an assistant apply cricoid pressure while the patient is hyperventilated for 2 minutes.
Perform the intubation procedure.
Assess tube placement and secure tube.
Release cricoid pressure and continue ventilation.
Complete Intubation Procedure Report.

Oropharyngeal Airway

Indications:
Unconscious, unresponsive patients

BLS Procedure

Contraindications:
Gag reflex present

Procedure:
Universal precautions
Pre-oxygenate patient if possible
Measure airway from corner of mouth to earlobe
Grasp the tongue and jaw, lifting anterior
Insert airway inverted and rotate 180 into place
A tongue depressor may also be used
Ventilate patient and listen for lungs sounds

Nasopharyngeal Airway

Indications:
Conscious or semiconscious patients unable to control their airway.
Clinched jaws.
Altered LOC with a gag reflex.

BLS Procedure

Contraindications:
Fluid or blood from the ears or nose, basilar skull fx.

1. Procedure:
2. Universal precautions
3. Pre-oxygenate the patient if possible
4. Measure the tube from the tip of the nose to the earlobe
5. Lube the airway with water soluble jelly (KY, surgilube, or lidocaine.)
6. Insert tube (right nare first) with bevel of tube towards the septum, angling towards the base floor of the nasopharynx, reassess the airway
7. If patient needs ventilatory support, a 7.5 mm ET adapter can be inserted into the airway and used with a BVM.

Nasotracheal Intubation

ALS Procedure

Indications:

Need for definitive airway.
Awake patients or those not tolerating oral attempts.
Need to assist ventilations.
Nasal intubation is performed on breathing patients.

Contraindications:

Basal skull fracture,
Bleeding or fluids from the nose or ears.

Precautions:

High risk of nosebleeds could cause aspiration.
Risk of sinus infection with diabetic patients.

Procedure:

1. Take universal precautions. Have suction unit ready.
2. Hyper-oxygenate patient with BVM for 2 minutes.
3. Assemble, check and prepare all equipment
4. Pre-medicate nares with 1 -2 sprays of **neo-synephrine (.5%)** in each nare. wait 1 to 2 minutes for effect. (time permitting)
5. Remove the NPA and insert lubed ET tube with the bevel towards the nasal septum.
6. Advance tube aiming the tip down along the nasal floor.
7. Stand to the patient's side with one hand on the tube while the thumb and the index fingers of the other hand palpate the larynx.
8. Gently advance the tube along the airway while rotating it medially slightly until the best airflow is heard through the tube. Use of the BAAM device or other method to aid hearing airflow is recommended.
9. Gently and swiftly advance the tube during early inspiration. Patient will cough as tube passes through the cords.
10. Inflate the cuff with 5 - 10 ml of air. Ventilate the patient.
11. Observe for chest rise; auscultate lung sounds and epigastric sounds. If available, utilize ETCO2 monitors. Secure the tube.
12. Complete Intubation Procedure Report.

Orotracheal Intubation

ALS
Procedure

Indications:

Cardiopulmonary Arrest,
Need for definitive airway,
Possible positive pressure ventilation,
Aid for assisting ventilations.

Precautions:

Can induce hypertension and increase ICP in head injured patients.
Can induce vagal response and bradycardia.
Can also induce hypoxia related arrhythmias.

Procedure:

1. Take universal precautions
2. Hyperventilate the patient with a BVM and basic adjunct
3. Assemble, check, and prepare all equipment
4. Place head in sniffing position (elevate head 2 - 4"). Maintain C-Spine stabilization on Trauma Patients.
5. Hyperextend the neck slightly.
6. Insert laryngoscope blade, avoid pinching the bottom lip
7. Sweep tongue to the left. place blade in proper position
8. Lift the laryngoscope forward to displace the jaw
9. Advance tube past the vocal cords until the cuff disappears
10. Inflate the cuff with 7-10cc of air
11. Ventilate patient. Observe for chest rise, auscultate lung sounds and over the epigastrium.
12. Confirm ET placement with ETCO2 and record reading.
13. Secure the tube, noting the marking on the tube.
14. Insert an OPA as a bite block.
15. Continue ventilation with 100% O2.
16. Reassess tube placement often.
17. Complete Intubation Procedure Report

Percutaneous Transtracheal Jet Insufflation

ALS Procedure

Indications:

Patients needing emergency airway access that are unable to be ventilated adequately or intubated due to trauma or airway edema.
This is a temporary last resort measure to oxygenate the patient.
This procedure may also be performed quickly prior to a surgical cricothyrotomy to assure landmarks and pre-oxygenate prior to attempts.

Precautions:

Risk of false passage, esophageal perforation, bleeding.
Patients with total airway obstructions may have difficulty in exhalation that could cause a pneumothorax.

Procedure:

Universal precautions.
Goggles and mask.
Have suction equipment ready
Place patient supine.
Maintain spinal motion restriction if indicated.
Clean the anterior neck with an antiseptic solution
Stabilizes the larynx using the thumb and middle finger of one hand.
Palpate the cricothyroid membrane
Insert a 14g 1-1/4" angiocath attached to a syringe down through the midline of the membrane at a 45 - 60 degree angle inferiorly.
Apply negative pressure to the syringe during insertion until air is aspirated.
Advance the catheter over the needle towards the carina.
Remove the needle and the syringe. Hold catheter still.
Connect the Jet device (Y adapter and O2 tubing) to the catheter hub. Turn Oxygen flow to flush or 15 lpm.
Occlude the open end of "Y" and ventilates for 1 to 1.5 seconds, observing for evidence of lung expansion.
Release the open end of the Y allowing for exhalation time of at least 4 seconds. It may be necessary to insert another 14 g catheter to facilitate better exhalation.
Secure the IV catheter with airtight occlusive dressing.

Surgical Cricothyrotomy

ALS Procedure

Indications:

Patients needing emergency airway access and control when they are unable to be adequately ventilated or intubated due to trauma or other causes.

This procedure is a last resort airway technique when all attempts at ventilating the patient have failed.

Precautions:

Complications include hemorrhage from great vessel lacerations, damage to surrounding structures.

Procedure:

Take Universal Precautions (gloves, goggles, mask)
Have suction equipment ready
Place patient supine.
Maintain SMR if indicated.
Clean the neck with an antiseptic solution
Stabilize the larynx with the thumb and index finger of one hand.
Palpate the cricothyroid membrane.
Pull the skin taut.
Make a **2cm** horizontal incision at the cricothyroid membrane.

1. Insert Bouge` to maintain the access.
   Place an endotracheal tube over the bouge` into the trachea nflate the cuff and secure the tube.
2. Insert Nasal Speculum into incision and open the speculum enough to allow the ET Tube to pass caudally. nflate the cuff and secure the tube.

Ventilate the patient with a BVM and 100% O2. Observe lung expansion.
Auscultate lung sounds.
Cover the incision site with an occlusive dressing.

Surgical Bougie aided Cricothyrotomy

ALS Procedure

Indications:

Patients needing emergency airway access and control when they are unable to be adequately ventilated or intubated due to trauma or other causes.

This procedure is a last resort airway technique when all attempts at ventilating the patient have failed.

Precautions:

Complications include hemorrhage from great vessel lacerations, damage to surrounding structures.

Procedure:

Take Universal Precautions (gloves, goggles, mask)
Have suction equipment ready
Place patient supine.
Maintain SMR if indicated.
Clean the neck with an antiseptic solution
Stabilize the larynx with the thumb and index finger of one hand.
Palpate the cricothyroid membrane.
Pull the skin taut.
Make a **2cm** vertical incision at the cricothyroid membrane.
Puncture through the cricothyroid membrane horizontally.
Place bougie with coude tip into trachea with a back and forth motion to feel tracheal clicking or carina hold up
Place an endotracheal tube or Shiley over the bougie just enough for the cuff to be inside trachea
Inflate the cuff and secure the tube.
Ventilate the patient with a BVM and 100% O2.
Observe lung expansion.
Place capnography
Auscultate lung sounds.
Cover the incision site with an occlusive dressing.
Complete Intubation Procedure Report

Emergency Childbirth

Indications:

Crowning Patient in Labor (Imminent Delivery)

Procedure: (preparation)

PPE including gloves, gown, mask and goggles
Pull the ambulance over or prepare on scene.
General Medical Protocol, Apply oxygen
General Assessment per Antepartum Emergency Protocols.
Place mother supine; drape if time allows
Prepare OB and Neonate equipment.
Don Sterile gloves just prior to delivery

Delivery Procedure:
As the head crowns, control it with gentle pressure.
If amniotic sac is intact, carefully puncture it before head delivers.
Slip umbilical cord from around baby's neck if necessary. If cord is too tight, clamp twice and cut between the clamps.
After baby's head delivers, suction mouth and nose with bulb syringe.
With the next contraction, guide the baby's head downward to allow the top shoulder to deliver.
Guide the head upward to deliver the lower shoulder.
Keep the baby level with the vagina to prevent over or under transfusion.
Place an umbilical clamp about 6" from the baby and another about 2" towards the mother. Cut between the cords with the sterile scalpel provided in the OB kit.
Dry, warm, suction, and stimulate the infant to breathe.
In the event of neonatal problems, refer to pediatric protocol on neonatal resuscitation.
Wrap the baby in a blanket making sure to cover the head. Allow the mother to hold the infant. This will facilitate warming.
Note Time of Delivery.
1 and 5 minute APGAR scores.
If placenta delivers before arrival, save it in the bag provided.

APGAR

Appearance
- Body and extremities blue = 0
- Body pink extremities blue = 1
- Completely pink = 2

Pulse Rate
- Absent = 0
- <100 = 1
- >100 = 2

Grimace
- No Response = 0
- Grimace = 1
- Cough Sneeze Cry = 2

Activity
- Limp = 0
- Some flexion of extremities = 1
- Active motion = 2

Respiratory effort
- Absent = 0

Emergency Childbirth

Postpartum Hemorrhage
Greater than 500cc
Massage the fundus
Put the baby to breast
Rapidly infuse IV fluids, treat for shock

Breech Presentation
Rapid transport is indicated
If baby's body delivers, place two fingers into the vagina in a "V" shape on each side of the baby's nose to create an airway
Continue throughout transport
Notify Medical control and advise

Prolapsed Cord
Rapid transport is indicated
If cord presents first in vagina, insert two fingers in the vagina to raise the presenting part off of the umbilical cord.
Check for pulsations in the cord.
Place mother in trendelenberg position with knees drawn to the chest
Do not attempt to push the cord back into the vagina
Contact Medical Control and advise.

BLS Procedure

Venous Blood Draw

ALS Procedure

Indications:
Cardiac patients, suspected stroke patients, ALS Trauma patients

Precautions:
Avoid venipuncture in arms with dialysis shunts, or injuries proximal to the insertion site.

Site Selection:
Paramedics should choose a site that is appropriate to the therapy needed.

Equipment:
Paramedics should choose the appropriate sized catheter (at least 20g in adults; 18g or larger recommended) equipment for the situation.

Complications:
Hematoma, arterial puncture, infection

Procedure:
Inform the patient of the procedure
Universal precautions
Apply tourniquet
Select and cleans site with hospital approved antiseptic (Chloraprep) or 70% isopropyl alcohol.
Stabilize the vein and skin with distal traction.

IV Catheter method

Pass the needle into the vein with bevel up, noting blood return.
Advance the needle 2mm more into vein.
Slide catheter over the needle and into the vein.
Remove needle and attach vacutainer hub with luer adapter.
Insert vacutainer into the hub, puncturing the top
Vacutainer will draw blood until it is full
If vacutainer fails to draw, check positioning of catheter or arm for obstruction due to bending. Pulling back slightly on catheter or needle may allow blood flow.
If vacutainer fails even after positioning, discard and try another tube.

Venous Blood Draw (continued)

Procedure: (continued)

Remove full blood tube and repeat with another color tube if needed
Draw the following tubes in order

Blue Top (Coagulation studies) (must fill)
Green Top (Chemistry)
Yellow Top (Clot Tube with serum separator)
Lavender Top (CBC)

A syringe may be used to draw blood from the IV catheter. If syringe is used, draw blood slowly and smoothly to prevent hemolysis. Blood must be transferred from the syringe to the vacutainer tube.

Direct Venipuncture method
Assemble vacutainer device (attach needle to hub)
Pass the needle into the vein, bevel up.
Insert vacutainer into hub, puncturing top
Vacutainer will draw blood until it is full
Remove blood tube and draw another color of tube if needed

Fill out Blood Draw Label. Apply numbered “Slave” stickers to blood tubes.
(Place sticker over the pre-applied stickers already on the tube.)
Put “Master” sticker in the bag with all labeled tubes. Place the final numbered “Slave” Sticker” on PCR under “Treatment” Area just below “Blood specimen drawn” treatment option.

Completed labeled and properly marked, filled tubes should be handed to the nurse receiving report.

ALS Procedure

Capnography (ETCO2)

INDICATIONS

All intubated patients
Patients with respiratory problems or complaints
Sedated patients

BLS
Procedure

Procedure:

2. Turn on the LP12
3. On the intubated patient, disconnect the BVM or HARV from the ET tube.
4. Place the ET tube sensor on the top of the ET tube and reconnect BVM or HARV to the top of the adapter.
5. Resume ventilation and record Capnography reading
6. Normal ETCO2 range is 35 - 45 mm/hg
7. In cases of cardiac arrest or other poor perfusion states, the ETCO2 reading could be very low. In these cases, the presence of ETCO2 changing with each ventilation confirms ETCO2.
8. For non-Intubated patients utilize Nasal Cannula Device or place the ET Tube sensor between BVD and Mask

Cardiac Monitoring

ALS Procedure

Indications:
Activation of any ALS protocol
Respiratory Distress
Chest Pathology of any type

Contraindications:
None

Procedure
Connect electrodes to the patient as follows
RA (white electrode) attach to right arm
LA (black electrode) attach to left arm
LL (red electrode) attach to left leg
RL (green electrode) attach to right leg
Have patient remain still and record baseline rhythm strips.
If desired, precordial leads can be placed and the patient monitored in Lead $V_{1.}$
After the call, mount the acquired rhythm strips on an ECG mounting sheet.

Multi-Lead (12 Lead, 15 lead) ECG Acquisition

ALS Procedure

Indications:

Patients with suspected myocardial infarction
Patients with unexplained dyspnea
Elderly or diabetic patients with non-specific complaints
Syncope in all patients > 40 years old
Serial 12-leads are indicated in patients with continuing chest discomfort or a change in discomfort (better or worse), a change in heart rhythm.
Patient's refusing transport*:* Contact Medical Control before performing a 12-lead.

Procedure:

Limb leads are placed on the limbs (RA - Right Arm, LA - Left Arm, LL - Left Leg, RL - Right Leg)
Precordial lead placement should be as indicated on page 2.
After 12 -ead has been acquired; leave electrode pads attached to the patient in case serial ECG's are needed.
Mount-12 leads on approved sheet and complete interpretation.
15-lead ECG's should be performed on a patient with:
A non-diagnostic 12-lead
Evidence of acute inferior wall injury.

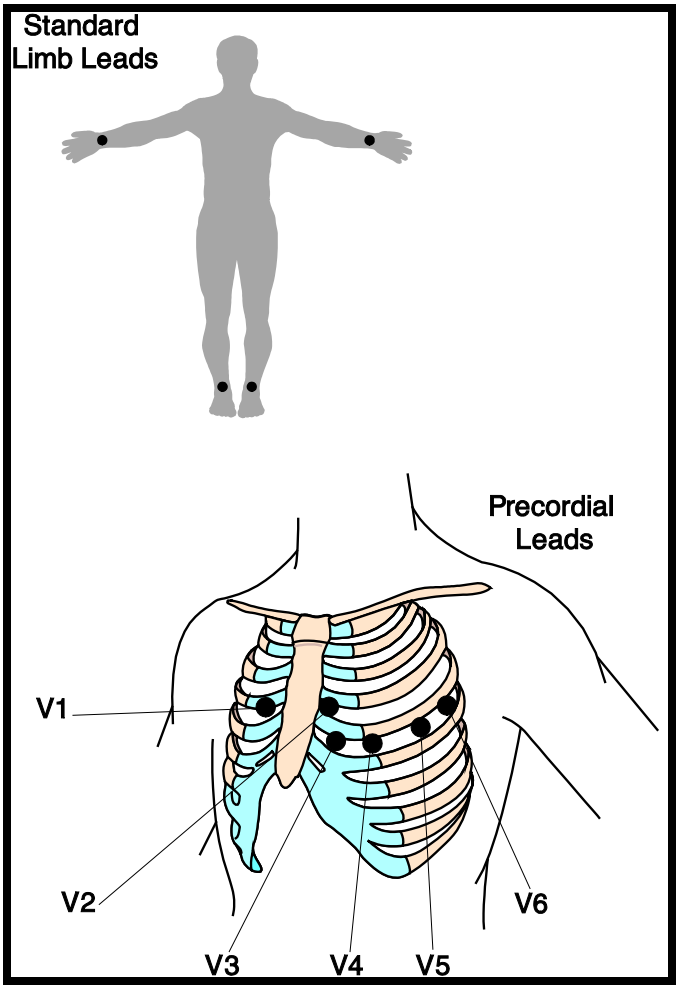
Transmission:

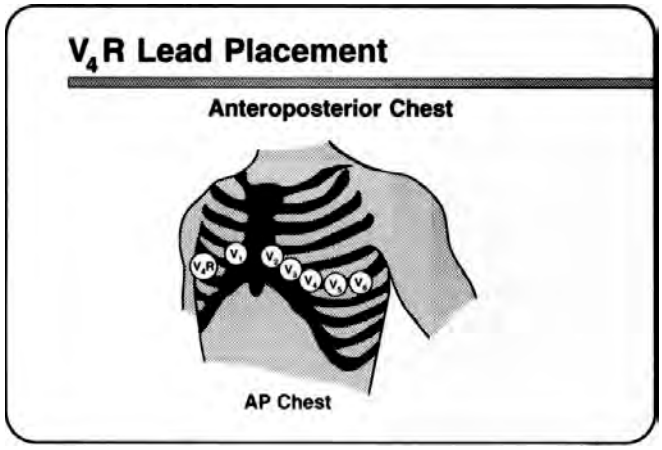
Whenever a 12-lead ECG is preformed the 12-lead needs to be transmitted asap to the receiving hospital.

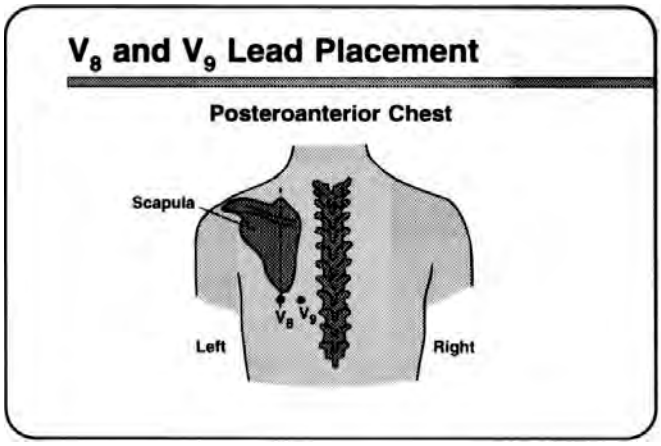
If a 12-lead is acquired; **ASA 324 mg** should be given unless contraindicated.

Multi-Lead (12 Lead, 15 lead) ECG Acquisition

Lead Placement Diagrams:







Cardioversion/Defibrillation

ALS Procedure

Indications:
Ventricular Fibrillation, Ventricular Tachycardia
Unstable tachydysrhythmias

Contraindications:
None in cardiac arrest

Precautions:
Exercise safety precautions at all times
Cardiovert with extreme caution in patient's on digitalis preparations, beta-blockers and calcium channel blockers.

Procedure: Defibrillation
Verify patient is in cardio-pulmonary arrest.
Identify and record pre-shock rhythm by leads or with quick look paddles or multifunction electrodes.
Apply Defib pads on patient.
Quick Combo™ electrodes are placed in the anterior posterior position.
Clear the patient and charge defibrillator to desired energy setting.
200J in adults
2J / Kg in children (2nd charge **4J/Kg**)
Call CLEAR and look up and down the patient to assure the patient is clear.
Simultaneously press both discharge buttons until discharge is observed.

Procedure: Synchronized Cardioversion
If conscious, explain procedure to the patient.
If time permits, contact medical control for orders to sedate.
Attach ECG electrodes and record baseline rhythm strip(s)
Select lead that displays the tallest R wave.
Apply conductive gel or attach multi-function pads.
Select appropriate energy setting. **120J** for adults
0.5-1J/Kg for Pediatric
Activate synchronized mode. Observe synchronize markers on screen.
Charge defibrillator and clear the patient.
Call CLEAR and look up and down the patient to assure patient is clear.
Simultaneously press discharge buttons and hold until discharge is observed.
Reassess the patient and rhythm and repeat procedure if indicated.

Glucometry (Sure Step Glucose Monitoring System)

Indications:
Any patient that presents with an altered level of consciousness
Any Diabetic Patient with signs and symptoms of hypoglycemia.

Contraindications:
None

Precautions:
As our glucometers are maintained and tested daily, and since a pt. glucose check is performed for definitive care, we must use our own glucometer reading and not rely on the readings of other entities, or the patients own reading.

Procedure:
Universal Precautions
Turn on the Meter
Make sure the code numbers match on the bottle and the meter. If the code numbers do not match, press the “C” button until the code numbers match.
Obtain drop of blood
Finger stick with lancet (wipe site with alcohol and allow to dry), or
From IV needle, or
From IV site by drawing with syringe
Place drop of blood on the pink test square on the front of the strip.
Check the confirmation dot on the back of the strip. If it is completely blue, you have applied an adequate amount of blood.
Insert the test strip within 2 minutes after applying blood.
Firmly push the strip until it stops.
The result appears in approximately 30 seconds.
Remove the test strip and discard in sharps container.
If finger stick was used, cover the puncture site with a dry sterile adhesive strip.
Record the reading. Glucose readings are expressed in mg/dL.
Normal ranges for glucose are from 70 to 110 mg/dL.

BLS Procedure

In order for an EMT-B to do a glucose check.

1. Pt. must have a history of Diabetes.
2. Pt. must have a decreased LOC
3. Pt. must be able to swallow.
4. ALS must be en route. (unless ER is closer then the patient must be transported.)

Another situation for glucometry to be performed by an EMT-B is when an EMT-P asks for a glucose check: In which case the patient MUST be attended by the EMT-P.

Intraosseous Infusion

Indications:

All Patients Who:

1. **Need** IV fluids or Medications, and a peripheral IV cannot be established in 2 attempts, *AND* exhibits 1 or more of the following:
    a. An altered mental status (GCS of 8 or less)
    b. Hemodynamic instability.
    c. Extreme Respiratory compromise.
    d. Full arrest

ALS Procedure

Contraindications:

Fracture above the Tibia.
Previous Orthopedic procedure (IO within 24 hours, knee replacement)
Infection at insertion site
Pre-existing medical condition (Tumor near site, peripheral vascular disease)
Inability to locate landmark
Significant edema
Obesity

Procedure:

Universal precautions
Prepare equipment
Identify the landmark:
Antero-medial aspect of the proximal tibia, about 2 cm medial to the tibial tuberosity.
(Humeral head into the greater Tubrical)
Cleanse the puncture site.
Stabilize the leg and skin over the insertion site
Position Driver at the insertion site with the needle set perpendicular (90 degrees) to the bone surface.
Insert needle set through the skin until resistance is met.
Check to see that there is at least 5 mm of catheter still visible by the gauge on the needle set. (If there is not at least 5 mm there is too much tissue and the IO is contraindicated)

Penetrate the bone cortex by powering the drill while applying firm, steady pressure.
Release the trigger when the needle flange is resting on the skin surface or when a sudden "Give" is felt while inserting the needle.
Conscious patients should receive; **20-50mg 2% Lidocaine IO**
Flush or bolus the IO with **5-10ml Normal Saline**
Confirm placement. (Look for Infiltration)
Connect tubing and apply a pressure bag to infusing solution, if needed.
Apply dressing.

Make sure you can control the patient's leg prior to insertion attempt. (Seizure pt., Uncooperative pt., Combative pt. Etc...)

During insertion, make sure to apply firm, steady pressure, (Pediatrics, use only light pressure. Let the drill do the work.) do not force the driver. Allow the driver to provide the power to penetrate the bone.

If needle set insertion cannot be properly completed, remove the needle-set and use the opposite leg.

The Driver should never be used to withdraw the needle set.

Intraosseous Infusion: Infant/Pediatric (Jamsheidi)

Indications:

All Patients Who:

2. **Need** IV fluids or Medications, and a peripheral IV cannot be established in 2 attempts, *AND* exhibits 1 or more of the following:
    a. An altered mental status (GCS of 8 or less)
    b. Hemodynamic instability.
    c. Extreme Respiratory compromise.
    d. Full arrest

ALS Procedure

Contraindications:

Fracture of targeted bone
Previous Orthopedic procedure (IO within 24 hours, knee replacement)
Infection at insertion site
Pre-existing medical condition (Tumor near site, peripheral vascular disease)
Inability to locate landmark
Significant edema
Obesity

Procedure:

- Universal precautions
- Prepare equipment (10cc syringe prefilled with 3-5cc NS, 3 way stopcock, extension tubing)
- Identify the landmark:
    -Antero-medial aspect of the proximal tibia, about 2 cm medial to the tibial tuberosity.
    OR
    -Distal femur, 2-3 cm above patella, **anterior** approach
- Cleanse the puncture site.
- Stabilize the leg and skin over the insertion site
- Position Jamsheidi at the insertion site with the needle set perpendicular (90 degrees) to the bone surface.
- Anterior approach
- Insert needle set through the skin until resistance is met.
- Penetrate the bone cortex by rotating back and forth while applying firm, steady pressure.
- Stop procedure when the needle flange is resting on the skin surface or when a sudden “Give” is felt while inserting the needle.
- Aspirate with syringe (filled with 3-5 ml) to check for placement or marrow aspirate
- Flush or bolus the IO with 3-5 **ml Normal Saline**
- Confirm placement. (Look for Infiltration)
- Connect tubing and apply a pressure bag to infusing solution, if needed.
- Apply dressing.

Make sure you can control the patient’s leg prior to insertion attempt. (Seizure pt., Uncooperative pt., Combative pt. Etc...)

.

If needle set insertion cannot be properly completed, remove the needle-set and use the opposite leg.

IV Catheter Insertion/Saline Lock

ALS Procedure

Indications:
Per protocol criteria

Precautions:
Avoid venipuncture in arms with dialysis shunts, or injuries proximal to the insertion site.

Site Selection:
Paramedics should choose a site that is appropriate to the therapy needed.
IV's near joints should be avoided if possible. Site selection is limited to peripheral veins. Recommended sites:

- Dorsum of the hand
- Forearm
- Antecubital fossa
- External Jugular

Equipment:
Paramedics should choose the appropriate sized catheter and equipment for the situation.

Complications:
Infiltration, hematoma, arterial puncture, infection

Procedure:
Inform the patient of the procedure.
Universal precautions.
Apply tourniquet.
Select and clean site with hospital approved antiseptic (Chlorhexadine prep or equivalent)
Stabilize the vein with distal traction the vein and skin.
Pass the needle into the vein with bevel up, noting blood return.
Advance the needle 2mm more into vein.
Slide catheter over the needle and into the vein.
Remove needle and draw blood if needed with luer adapter or syringe.
Attach tubing to catheter and release tourniquet. →
Infuse about 10-20cc to assure patency. Watch for signs of infiltration.
Secure IV with appropriate device per hospital policy.
Begin infusion at prescribed rate.

For Saline Lock
Attach lock device (Clave connector etc…) Flush with **5-10 ml Normal Saline.** Watch for signs of infiltrate. Secure with appropriate device.

Kendrick extrication device (KED)

BLS Procedure

Indications:

Patients that do not meet criteria for Rapid Extrication,
Seated patients meeting Spinal Motion Restriction criteria.
May also be useful in long extrications with critical patients

Contraindications:

Patients with easy access requiring rapid extrication

Procedure:

Maintain in-line stabilization of C-spine
Assess distal pulses, sensation, and motor function
Apply appropriately sized C-collar
Position device behind the seated patient
Pull the device up until it fits snugly in the armpits
Apply chest straps and tighten. Avoid over tightening that restricts breathing efforts.
Apply leg straps and tighten snugly. Avoid catching the male genitals in the straps
Apply proper amount of padding between the head and back of the KED to keep head in a neutral position. (Note: the long green pad is usually too much, a couple of washcloths, a folded towel, or multi trauma dressing work best)
Fold the sides of the headpiece of the KED around so that they cradle the head. For most patients, properly fitted, a KED will reach or cover the patient's ears. If the sides do not reach the ears, it is possible there is too much padding.
(Note: before applying head padding, be sure to place the patient upright, inline, and with the plane of the KED)
Secure the head to the device with Kerlex, tape, or coban. (the foam straps don't work very well)
Turn the patient and device as a unit, and then lower onto a LSB. Release the leg straps so that the patient's legs can be easily extended. Secure the device and the patient to the LSB.
Note: After the patient is secured to the LSB, The chest straps may be loosened for patient comfort or for reassessment of the chest.
Reassess distal pulses, motor function, and sensation.

Medication Administration

ALS Procedure

Indications:
Per appropriate protocol

Special Notation:
All medication administration must be carefullydocumented including times, route, dosage, site, and effects

Any Patient recieving narcotics / sedation must be monitored by capnography.

Contraindications:
Drug specific (see drug index)

Procedure A: IV Push

IV push means a rapid bolus is indicated
Slow IV push means titrated to effects or over a 2 minute time period as indicated by the specific drug.

Select correct medication.
Confirm orders, check dosage and expiration date, check drug for cloudiness or particulates.
Check patient allergies.
Clean the injection port closest to the injection site
Puncture the injection port with needle.
Pinch off tubing above injection port
Inject drug at appropriate rate
Flush medication with IV fluid, resume IV flow rate
Evaluate patient's response to medication
Document the time, dose, route, site, and response to drug, on the e-PCR

Procedure B: IV Drip (Piggyback)

Select correct medication.
Confirm orders, check dosage, concentration, and expiration date, check solution for cloudiness or particulates.
Check patient allergies. Calculate appropriate flow rate.
Use microdrip tubing. Spike the bag with the tubing; flush the tubing with the drug solution.
Attach straight needle (18-20g) on the end of the tubing and insert into a site proximal to the IV site. secure and label with tape.
Lower the primary infusion bag below the secondary line of the medication being infused.
Open piggyback line and set rate. Stop flow from primary line.
Observe patient for effects.

Medication Administration

ALS Procedure

Procedure C: Intramuscular Injection (IM)

Select correct medication.
Confirm orders, check dosage and expiration date, check drug for cloudiness or particulates. Check patient allergies
Assemble appropriate sized equipment
Syringe of sufficient size to hold medication (3-5cc)
Needle: 21-25g, 3/4" to 1" in length
Select appropriate site
Maximum 1ml into deltoid
Maximum 10ml into gluteus
Cleanse site with alcohol wipe.
Stretch skin taut and press down to facilitate entry into muscle
Enter skin at a 90-degree angle.
Aspirate the syringe to assure you are not in a vein. If blood return is seen, withdraw and try at another site.
Inject medication slowly. Remove syringe and dispose in sharps.
Cover injection site with an adhesive strip
Observe patient for effects.

Contraindications:
Shock or cases of decreased perfusion
Severe burns
Patients with cardiac complaints

Procedure D: Subcutaneous Injection (SC)

Select correct medication.
Confirm orders, check dosage and expiration date, check drug for cloudiness or particulates.
Check patient allergies
Assemble appropriate size equipment.
1cc tuberculin syringe
25g 5/8" needle
Choose appropriate site fold of skin at the back of upper arm anywhere a fold of skin can be drawn
Cleanse site with alcohol wipe
Pinch a fold of skin and pull up or down
Insert needle at a 45 degree angle into the fold of skin
Aspirate syringe to insure you are not in a blood vessel.
If blood is drawn, withdraw needle and try again at a different site.
Inject the medication slowly.
Withdraw needle and place in sharps
Cover injection site with an adhesive strip.
Observe effects.

Medication Administration

ALS Procedure

Procedure E: Endotracheal Administration

Indications:

Cardiac arrest or times where IV access cannot be achieved

Applicable Drugs:

Epinephrine, Atropine, Narcan, and Lidocaine

Special Notation:

Dose should be 2 to 2.5 times the IV dose. However, counts as a single dose in terms of maximum dose calculation.

Select correct medication.
Confirm orders, check dosage and expiration date, check drug for cloudiness or particulates.
Check patient allergies.
Hyperventilate patient before administering drug.
Remove bag valve device and administer drug.
If CPR is in progress, stop compressions during drug administration.
Spray medication directly into endotracheal tube.
Insert a suction catheter down the ET tube and administer to drug via the suction catheter.
Reattach bag valve mask device and hyperventilate the patient
Document effects

Procedure F: Inhalation: Small Volume Nebulizer

Indication:

Bronchodilator therapy as indicated by protocol.

Applicable Drugs:

Albuterol, Duo-Neb, Magnesium Sulfate, Decadron

Select correct medication.
Confirm orders, check dosage and expiration date, check drug for cloudiness or particulates.
Check patient allergies.
Add medication to reservoir of nebulizer. Add saline solution if necessary to equal 3cc total volume.
Connect oxygen tubing to nebulizer and set O2 flow rate at 6-8 lpm.
Have patient take deep breaths, holding for a second, and then exhale through the tube.
If patient is unable to hold the nebulizer, attach the nebulizer to the non-rebreather.
Medication is delivered in 5 to 10 minutes
Observe patient for effects.
For inline treatments attach the nebulizer to the ET tube with the appropriate fixtures. (This should be checked prior to the start of your shift.)

Medication Administration

ALS Procedure

Procedure G: Intranasal (IN)

Indication: Narcotic administration without IV
Benzodiazepine administration without IV (seizures)

Applicable Drugs:

Midazolam, Fentanyl

Select correct medication.
Confirm orders, check dosage and expiration date, check drug for cloudiness or particulates.
Check patient allergies.
Draw up correct dosage of medication in syringe
Place MAD device on syringe
Place in clearest nostril firmly
Quickly depress plunger to desired amount
May repeat per protocol
Observe patient for effects.

Note: presence of large amounts of blood or mucous will affect absorption of medication.

If awake, warn pt. that Fentanyl will burn for 30-45 seconds

INTRANASAL MEDICATION DELIVERY PROCEDURE

using the MAD® Nasal (Mucosal Atomization Device)

Intranasal Medication Delivery

MATERIALS

1. MAD® Nasal device with vial adapter and 3ml syringe (Cat. # MAD140)
2. Medication of appropriate concentration for intranasal medication delivery
   - » High concentration – Low volume

PROCEDURE

1. Remove and discard the green vial adapter cap.
2. Pierce the medication vial with the syringe vial adapter.
3. Aspirate the proper volume of medication required to treat the patient (an extra 0.1ml of medication should be drawn up to account for the dead space in the device).
4. Remove (twist off) the syringe from the vial adapter.
5. Attach the MAD® device to the syringe via the luer-lock connector.
6. Using the free hand to hold the crown of the head stable, place the tip of the MAD® snugly against the nostril aiming slightly up and outward (toward the top of the ear).
7. Briskly compress the syringe plunger to deliver half of the medication into the nostril.
8. Move the device over to the opposite nostril and administer the remaining medication into that nostril.

KEY CONCEPTS

To improve Intranasal Medication Delivery success:

1. Minimize volume, maximize concentration
   - » 1/3 ml per nostril is ideal, 1 ml is maximum
   - » Use the appropriately concentrated drug
2. Maximize total mucosal absorptive surface area
   - » Atomize the drug (rather than drip it in) to cover broad surface area
   - » Use BOTH nostrils to double the absorptive surface area
   - » Aim slightly up and outwards to cover the turbinates and olfactory mucosa
3. Beware of abnormal mucosal characteristics
   - » Mucous, blood and vasoconstrictors reduce absorption
   - » Suction nostrils or consider alternate drug delivery method in these situations

WT
WOLFE TORY MEDICAL, INC.

Wolfe Tory Medical, Inc.
www.wolfetory.com
Toll Free: 888-380-9808

Gastric Tube Insertion

ALS Procedure

Indications:

Evacuation of air or fluids in the stomach.
Dilution of ingested poisons.
Intubated patients.
Administration of glucose solution/gel when IV failed or not possible or Glucagon contraindicated.
If administering glucose solution, irrigate with 20-30 N.S. to flush Salem tube

Contraindications NG:

Facial trauma
Basilar skull fracture
Epiglottitis or croup

Contraindications OG:

Epiglottitis or croup

Procedure:

Universal precautions
Assemble equipment
Explain the procedure to the patient
If possible, have the patient sitting up.
Use a pad or towel to protect the patient's clothing.
Measure the tube from the nose, around the ear and down to the Xiphoid process.
Mark the point at the Xiphoid process with a piece of adhesive tape.
Lubricate the distal end of the tube 6 to 8 inches with water-soluble lubricant.
Insert the tube in the nostril and gently advance it towards the posterior nasopharynx along the nasal floor.
When you feel the tube at the nasopharyngeal junction, rotate it inward towards the other nostril.
As the tube enters the oropharynx, instruct the patient to swallow.
Pass the tube to the pre-measured point. (If resistance is met back the tube up, and try again. Do not force it.)
Check placement of the tube by aspirating gastric contents, or by auscultating air over the epigastric region while injecting 20-30 ml of air.
Tape the tube in place and connect to low suction if ordered.
Document procedure on the MARF including the time placed, size of tube used, and contents if any, aspirated.

Oxygen Administration

BLS Procedure

INDICATIONS

Any patient with Respiratory Distress
Any Patient with Chest pain
All ALS Patients
All Patients with Smoke exposure/inhalation
All other patient that may benefit from O2.

PRECAUTIONS

COPD patients should generally receive lower (FiO2) concentrations unless they have serious S&S of decompensation

PROCEDURE

Inform Patient of Procedure
Connect Tubing to O2 Port and Flush
Administer O^2

Nasal Cannula	2-6 lpm
NonRebreather Mask	10-15 lpm
BVM	15 lpm –Flush

Monitor Patient for Effects

Pulse Oximetry SPO2

BLS Procedure

INDICATIONS

All ALS Patients
Extremity Fractures
Any Patient with Respiratory Distress
Any Patient with Chest Pain

PRECAUTIONS

Accuracy is dependant upon adequate perfusion at probe site.
Can be affected by bright light, Carbon Monoxide Poisoning, Cyanide Poisoning, Nail Polish & Polycythemia.

Procedure

Find Suitable Location for Probe (Finger, Earlobe, Pediatric probe, Bridge of nose etc…)
Attach and record readings
May be used to monitor circulation distal to injuries.
If erratic reading , move probe to different site

Rapid Extrication Technique

Indications:

Unstable patients with Immediate Life Threats
Compromised airway
Apnea or severe respiratory distress requiring assisted ventilations
Shock (no radial pulses) or uncontrollable bleeding
Altered level of consciousness
Dangerous, uncontrollable environments
Fire or immediate danger of fire
Danger of explosion
Rapidly rising water
Increasing toxic exposure

Contraindications:

Stable patients not meeting any of the above criteria.

Procedure:

One rescuer must stabilize the C-spine in neutral position
Do a rapid primary survey
Apply the correctly sized C-Collar
Slide long backboard onto seat and if possible, under the patient's buttocks
Rescuer standing outside of the open door takes control of C-spine stabilization
A rescuer positions themselves on the opposite side of the front seat ready to rotate the legs around
Another rescuer, positioned by the open door beside the patient. By holding the upper torso, works together with the rescuer holding the legs to carefully turn the patient as a unit.
The patient is turned so that their back is towards the backboard. The legs are lifted and the back is lowered to the backboard. The neck and back are not allowed to bend during this procedure.
Carefully slide the patient to the full length of the backboard and straighten legs.
Move patient away from the hazard and secure as soon as possible to the backboard

BLS Procedure

Spinal Motion Restriction (immobilization) **Page 1 of 2**

BLS Procedure

Indications:

External trauma above the clavicles
Mechanism of rapid deceleration.
Penetrating trauma to head, neck, chest, abd, or pelvis
Unconscious with unknown history of event
Patient presents with or has CNS complaints

Precautions:

Properly sized C-Collar must be used.
Appropriate amount of padding is needed under the occipital region to provide in-line stabilization.

Procedure A: C-Collar Sizing

Bring patients head to eyes forward inline position
Maintain in line stabilization
Measure the "key dimension" (from trapezius muscle at the base of the neck to the bottom of the chin) using your fingers as a measurement guide. (one, two, three, or four fingers)
On an assembled *Stifneck™*, Extrication Collar the distance between the black sizing post on the side of the collar and the bottom of collar (hard plastic) is used for comparison with the "key dimension" measured by your fingers.
The size that matches is the correct size C-collar

Procedure B: C-Collar Application

Pre-form the collar to the estimated shape.
On a supine patient, slide the loop fastener end under the neck just far enough that it can be reached.
On a seated patient, this step is not necessary.
Place both of your hands on the front side of the collar on either side of the tracheal opening
Slide the collar up the chest wall and under the chin, making sure the chin is flush with the end of the chin piece.
With the chin piece properly positioned, grasp the collar by the tracheal opening and the loop fastener end to tighten.
Tighten by pulling the loop fastener end parallel with the ground, then up to meet the hook fastener on the collar.
The hand at the tracheal opening will prevent any counter rotational forces and allow proper tightening.
Inspect the chin piece to ensure that the chin is properly positioned.
Adjust the collar if necessary.

Spinal Motion Restriction **(immobilization)** **(Page 2 of 2)**

Procedure C: Securing to Long Spine Board

Maintain In-line C-spine stabilization
Assess and record distal pulses, motor function and sensation.
Apply appropriate C-collar (Procedures A, B)
Place extra rescuers to control the thorax, pelvis and legs
Place backboard beside the patient
Leave patient's arms by their side. Try to avoid rolling on injured arm.
The person holding the head makes the count, carefully roll the patient as one unit to their side.
Do a quick check of the back for injuries or deformities
Roll the patient onto the backboard.
Secure with spider straps or other straps making sure the straps are in the following locations: Lower legs, Legs (above knees), Pelvis, Thorax (over the shoulders with spider straps) (under the arms on regular straps).
Secure straps tight enough to hold but not restrict breathing.
Sequence for strapping should be from the legs up with head being secured last.
Extra padding may be needed to fill the gaps between the straps and the patient to ensure maximum spinal motion restriction.
Apply ***Cervical Immobilization Device*** with appropriate amount of occipital padding to insure in-line position.
Secure the head with 2" tape from one side of the LSB across the forehead and across the eyebrows to the opposite side of the LSB. (Note: it is important to allow the tape to stick to all areas of the forehead and eyebrows to insure restriction of movement)
Reassess distal pulses, sensation, and motor function.

BLS Procedure

Splinting

Indications:
Isolated suspected extremity fractures
Sprains and strains, snakebite, or bleeding control

BLS Procedure

Contraindications:
Extremity splinting can be time consuming and should not take priority over life threatening conditions.
In cases of multi system trauma, the LSB can act as a full body splint.
In general, splinting a long bone fractures should immobilize the joint above and below the fracture site.
Joint injuries should immobilize the long bones above and below the fracture site.
Traction splints should NOT be applied if there is a proximal femur fracture, pelvic fracture, or a tib fib fracture.

Procedure A: Long Bone (Femur)
Universal Precautions
Stabilize the injured limb manually
Consider sedation or analgesia prior to moving extremity.
Assess distal pulses, sensation, and motor function.
If pulses are absent distal to the injury, then apply in line traction to the leg to the return of pulses
Apply traction splint to patient comfort.
In unconscious patients, apply traction to the return of distal pulses. A pulse oximetry can help with the pulse monitoring in these circumstances.
Reassess distal PMS after splinting and q 5 minutes thereafter.
In the event of bilateral femur fractures with shock, MAST pants can be used as a splint for both legs.
It may be necessary to splint some femur fractures in the position found if angulated.
In general, if pulses and sensation are present distal to the injury, field reduction should not be attempted. Unless it is a midshatft femur fracture.
In the event that this occurs, consult with medical control to discuss options.

Procedure B: Other Splinting Techniques
The following splints are recommended for the following situations. As every situation is different, splints may have to be improvised to achieve the desired effect of immobilization.

Clavicle:	Sling and Swath
Radius /ulna:	Ladder, board, or Sam splint
Tib / Fib:	Ladder, board, or Sam splint
Ankle	Pillow splint
Joints	In position found
Pelvis	MAST
Hand	In position of function
Hip	Scoop / pillow, Inverted KED, LSB

Assess distal PMS before and after splinting, then periodically during transport.

Thoracentesis

ALS Procedure

Indications:

Increased ventilatory pressure resulting in difficulty ventilating the patient (with an open airway)
Absent lung sounds on affected side JVD (may not be present with massive blood loss)
Hypotension (no radial pulses)
Increasing respiratory distress
Decreased SPO2.
Traumatic cardiac arrest with chest pathology

Contraindications:

None in the presence of a Tension Pneumothorax

Complications:

Laceration of intercostal vessels
Creation of a pneumothorax
Laceration of lung tissue
Risk of infection

Procedure:

Universal precautions
Identify the second or third intercostal space, midclavicular line on affected side
Quickly prep the area with antiseptic

Procedure: 14ga Jelco (Needle Decompression)

Insert Jelco into the skin over the 3rd rib just over superior border.
An alternative site is the 5th intercostal space, mid axillary line if other sites are unavailable.
Insert the catheter through the parietal pleura until air escapes.
Air should exit under pressure.
Remove the needle and leave the plastic catheter in place.
Reassess frequently for redevelopment of condition
If tension pneumothorax returns, repeat procedure.

Procedure: Argyle Turkle Safety Thoracentesis Needle

Insert into the skin over the 3rd rib just over the superior border.
An alternative site is the 5th intercostal space, mid axillary line if other sites are unavailable.
Insert the catheter through the parietal pleura until air escapes.
During insertion the color band will show RED until through the parietal pleura then it goes to GREEN advance Catheter off device.
Air should exit under pressure.
Reassess frequently for redevelopment of condition
If tension pneumothorax returns, repeat procedure.

C.A.T. Tourniquet application
(Combat Application Tourniquet)

Indications:
As a **LAST RESORT** for bleeding control and should only be employed when bleeding cannot be stopped and the situation is life threatening.

BLS Procedure

Procedure:
For the C.A.T. tourniquet (Combat application tourniquet)

- Insert the wounded extremity through the loop of the self-adhering band.
- Pull the self-adhering band tight and securely fasten the band back upon itself.
- Adhere the band around the arm. Do not adhere the band past the windlass clip.
- Twist the windlass rod until BRIGHT RED BLEEDING has stopped.
- Lock the rod with the windlass clip.
- Adhere the self-adhering band over the windlass rod. (If there is enough band)
- Secure the rod and band with the windlass clip band.

Contraindications:
None in the emergency setting

Transcutaneous Pacing (TCP)

Indications:
Symptomatic Bradydysrhythmias
Symptomatic Heart blocks

ALS Procedure

Precautions:
Do not place the pacer electrodes directly over an implanted pacemaker generator or AICD device.

Procedure:
Explain procedure to the patient.
Connect 3 basic leads in proper position. Record a rhythm strip prior to pacing.
Adjust ECG size if necessary or select the lead with the tallest R wave.
Apply pacing pads or ***Quick Combo™*** electrodes in the anterior/posterior position as directed by the manufacturer.
Turn pacer unit on.* Do not activate pacer until pacer pads have been applied.
Set rate at 80 bpm.
*In Bradycardia, gradually increase energy (milliamps) until electrical capture is observed. (generally a wide bizarre QRS complex)
Check the pulse on the right arm for mechanical capture. If pulse is present, assess blood pressure. Record rhythm strip.
If mechanical capture is not achieved, continue to increase energy (milliamps) to maximum in an effort to achieve capture.
Continue to pace while CPR (if necessary) is in progress, even if capture is not obtained.

Vital Signs

Definition:

Pulse rate and quality
Auscultated Blood Pressure
Respiratory rate and depth
Skin color, temperature, and moisture

Indications:

Any patient contact
Before and after medication administration
Every 5-10 minutes in critical patients or patients receiving vasoactive drugs.
As needed on long transports of stable patients.
Minimum of 2 sets required on all transported patients

Contraindications:

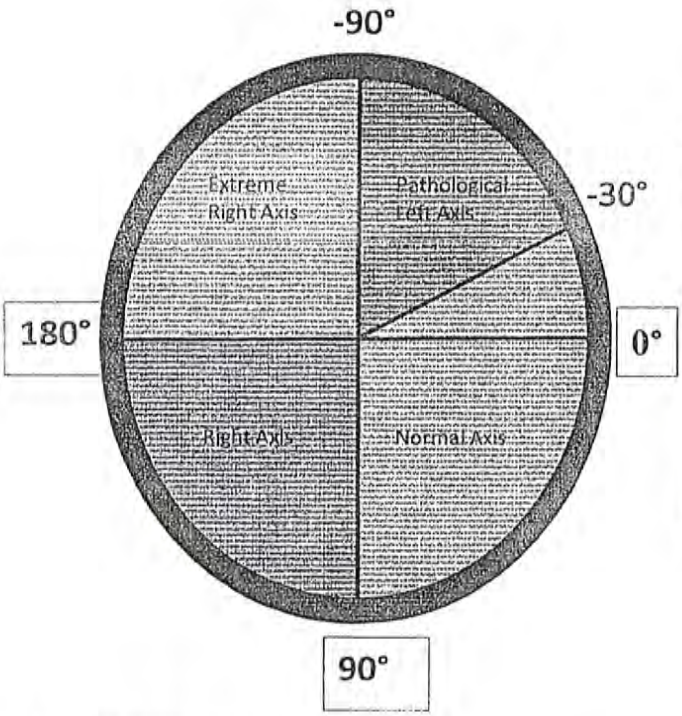
Do not attempt blood pressure on Injured extremities
Arms on the side of previous mastectomies
Arms with dialysis shunts

Procedure:

Universal precautions
Choose appropriate sized cuff for the patient
Auscultated blood pressure is required as a baseline and before and after medication administration.
Record vital signs and the times taken on the MARF.

BLS Procedure

Quick Axis Determination



ANT. POST

Lead	Normal			
I	Δ	Δ	▽	▽
II	Δ	▽	Δ	▽
III	Δ	▽	Δ	▽

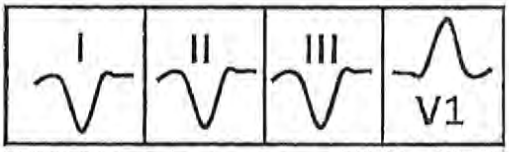
Locating Leads

Location	Facing Lead	Reciprocal
Inferior	II, III, aVF	I, aVL
Septum	V1, V2	NONE
Anterior	V3, V4	V8, V9
Lateral	V5, V6, I, aVL	II, III, aVF
Posterior	V8, V9	V1,V2

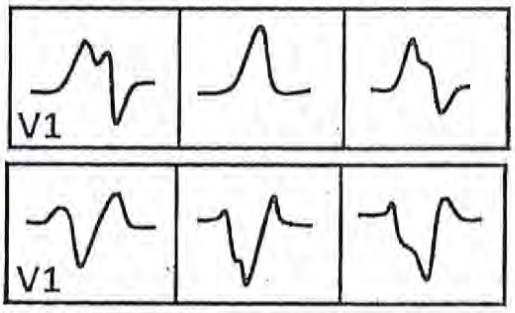
Heart Rate	QTC Range
40	410-510
50	380-460
60	350-430
70	330-410
80	320-390
90	300-360
100	280-340
150	230-280
180	210-250
200	200-240

V TACH CRITERIA

1: Extreme Right Axis and Upright V1

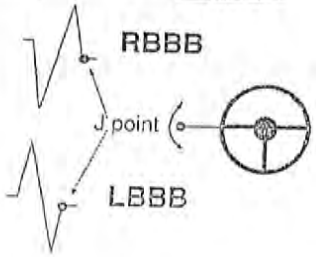


2: Morphology in V1



3: Negative Complex in QRS in V6

BBB V, QRS > .12 ms



	Look For AV dissociation	Fusion Beats?	
1	Extreme R. Axis	Upright V1	
2	Morphology in V1	Upright V1	Negative V1
		Big Mountain Little Mountain	Fat "R" Wave
		Steeple Sign	Notch in down stroke
		Firemans Cap	Slurr in Downstroke
3	Negative V6		

Selective Spinal Stabilization
Utilization of Backboard and C-collar

Suspected Spinal Injury

Mechanism of injury
Complaint of neck or back pain
Complaint of numbness or weakness (focal neurological)

- Altered Mental status, GCS≤ 14
- Intoxication or uncooperative
- Language barrier
- Extremes of age <5yo, or >65 yo
- Known bone disease

YES →

NO ↓

Significant Injury causing distraction

- Long bone fracture
- Laceration/ burn
- Other

YES →

NO ↓

Physical Assessment

- Midline spine tenderness or deformity
- UE/LE focal weakness
- New paresthesia

YES →

NO ↓

Active Range Of Motion?

- Chin to chest
- Chin 45 ° R&L anteroflexion
- Ear to shoulder R&L

YES ↓

Transport in position of comfort without spine stabilization

Spine Stabilization

- c-collar**
- backboard**
- head block
- spider straps

**Clinical indications for Cervical Collar without backboard:

- Severe Kyphosis or spine deformity
- Epstaxis and extensive facial bleeding
- Respiratory distress when supine
- Airway obstruction when supine