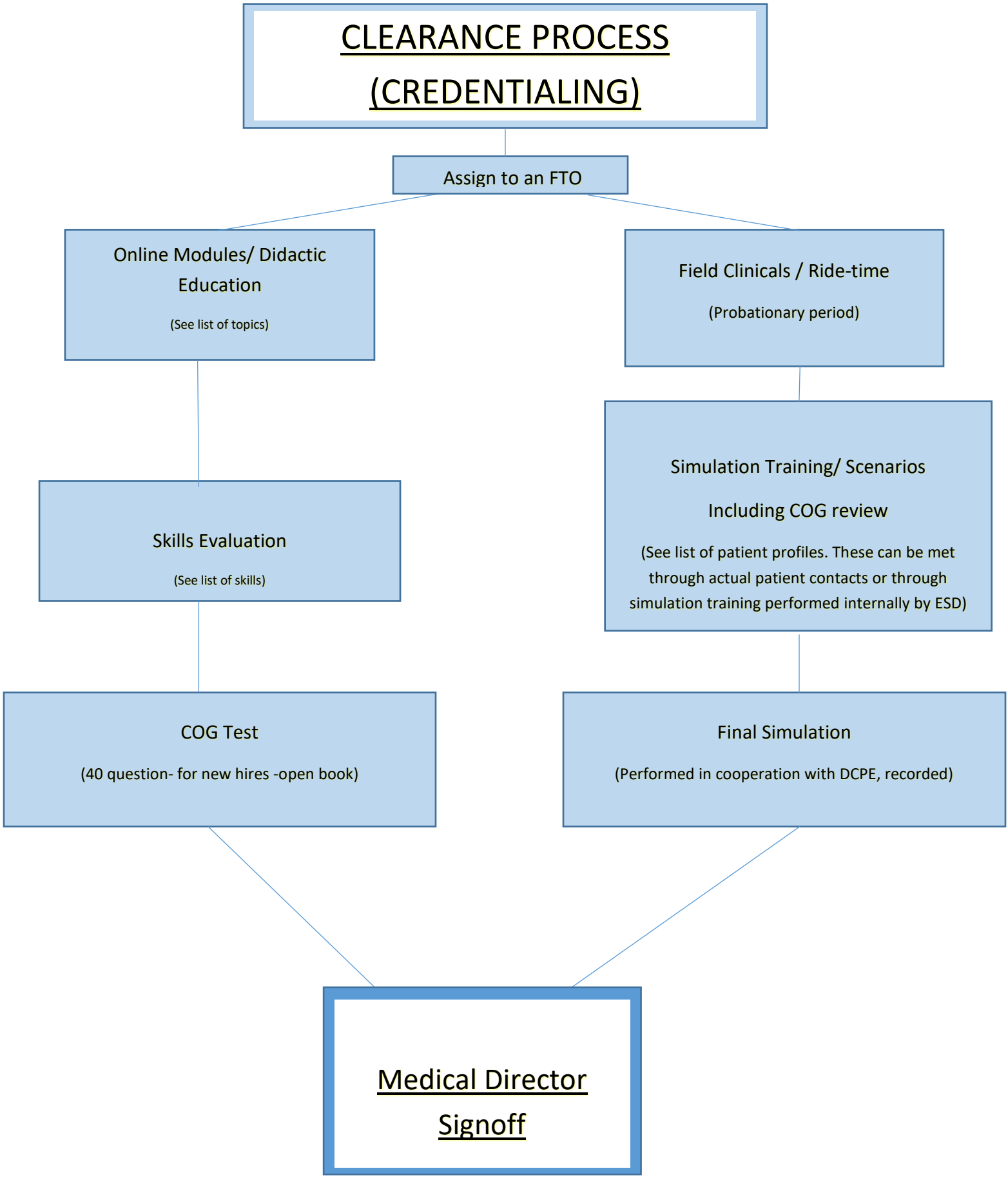
COG TABLE OF CONTENTS


CLEARANCE PROCESS
(CREDENTIALING)
Assign to an FTO
Online Modules/ Didactic Education
(See list of topics)
Field Clinicals / Ride-time
(Probationary period)
Skills Evaluation
(See list of skills)
Simulation Training/ Scenarios
Including COG review
(See list of patient profiles. These can be met through actual patient contacts or through simulation training performed internally by ESD)
COG Test
(40 question- for new hires -open book)
Final Simulation
(Performed in cooperation with DCPE, recorded)
Medical Director Signoff

ONLINE MODULES /

DIDACTIC EDUCATION

BLS MODULES	ILS MODULES
• Airway management w/PEEP	• Airway management w/PEEP
• Patient assessment	• Patient assessment
• Trauma	• Trauma
• CHF	• CHF
• Overdose Patients/ Use of Narcan	• Nausea / Vomiting (Incl. use of Zofran)
	• Capnography (ETCO2)

SKILLS EVALUATION

1. **CPAP**
2. **BVM w/PEEP**
3. **Smart Bag**
4. **BIAD/IGEL Airway**
5. **Suction**
6. **Epi Draw and Shoot**
7. **IM Injections**
8. **IV Access (AEMT only)**
9. **EZ IO / Use of lidocaine (AEMT only)**
10. **Infant Pit Crew CPR**
11. **Pit Crew CPR with an IGEL**
12. **IN Medication Administration**
13. **Splint Competency**
14. **Tourniquets & Wound Packing**
15. **12 Lead EKG**
16. **Pleural Decompression (AEMT only)**

SIMULATION TRAINING / PATIENT CONTACTS

The following patient care scenarios may be met through actual patient contacts or through simulation training. Documentation must be made of either. At least 5 of the 9 patient types listed below must be encountered during the probationary period.

- Pediatric Cardiac Arrest
- Adult Cardiac Arrest
- Adult Cardiac Chest Pain
- Hypotensive Patient
  Options for:
  >Allergic Reaction
  >Sepsis
- CVA
- Respiratory Emergencies
  Options for:
  >Asthma
  >CHF
- Head Trauma
- Overdose
- General Trauma

BLS CREDENTIALING CHECKLIST

Name:	**Department/ESD:**
Start date of clearance process:	
BLS ONLINE/DIDACTIC EDUCATION: *(Courses available on Careecert.com or Google. Internal modules may also be used; please submit outline of course content to DCPE)*	**Date of completion:**
Airway management w/ PEEP: https://forms.gle/GUxutviwGwSdGRiW8	
Patient Assessment	
Trauma: https://forms.gle/4MmfEWft5SLkLf3G8	
CHF: https://forms.gle/x17HjwM1ojyWq2Es9	
Overdose pt / use of Narcan: https://forms.gle/ANWtr6Sqhivkjz5c8	

SKILLS EVALUATION:	**FTO Name:**	**Date of completion:**
CPAP		
BVM w/PEEP		
12 Lead EKG		
BIAD/IGEL Airway		
Suction		
Tourniquets & Wound Packing		
Infant crew CPR		
Pit crew CPR w/ IGEL		
IN Medication Administration		
IM Injections		
Splint Competency		

Epi draw & shoot		
DATE COG EXAM PASSED: https://forms.gle/tvAd3z2swdaiZNdE9		
	FTO name:	**Date of completion:**
TRAINING SIM/PT CONTACT #1		
TRAINING SIM/PT CONTACT #2		
TRAINING SIM/PT CONTACT #3		
MEDICAL DIRECTION SIGNOFF		

ILS CREDENTIALING CHECKLIST

Name:	**Department/ESD:**
Start date of clearance process:	
ILS ONLINE/DIDACTIC EDUCATION: *(Courses available on Career-cert or Google. Internal modules may also be used; please submit outline of course content to DCPE)*	**Date of completion:**
Airway management w/PEEP: https://forms.gle/5zgAfUBV9a6zMha76	
Patient Assessment	
Trauma: https://forms.gle/4MmfEWft5SLkLf3G8	
CHF: https://forms.gle/4BWy3tP5ZpXCegp4A	
Nausea/Vomiting (w/ use of Zofran): https://forms.gle/dn1jSvgSbUHqfSaZA	
IV Fluids: https://forms.gle/suD1oV4kFZvh7SLw6	

SKILLS EVALUATION:	**FTO Name:**	**Date of completion:**
CPAP		
BVM w/PEEP		
12 Lead EKG		
BIAD/IGEL Airway		
Suction		
Tourniquets & Wound Packing		
EZ IO/ use of Lidocaine		
Infant crew CPR		
Pit crew CPR w/ IGEL		

IN Medication Administration		
IM Injections		
Splint Competency		
Epi draw & shoot		
IV Access		
Pleural Decompression		
DATE COG EXAM PASSED: https://forms.gle/oKj7SCcA5HKCn78V6		
	FTO name:	**Date of completion:**
TRAINING SIM/PT CONTACT #1		
TRAINING SIM/PT CONTACT #2		
TRAINING SIM/PT CONTACT #3		
TRAINING SIM/PT CONTACT #4		
TRAINING SIM/PT CONTACT #5		
****FINAL CREDENTIALING SIMULATION****		
*****MEDICAL DIRECTOR SIGNOFF*****		

ALS CREDENTIALING CHECKLIST

NAME:	**DEPARTMENT:**	
START DATE OF CLEARANCE PROCESS:		
BLS and ILS ONLINE MODULES/DIDATIC EDUCATION: (Must be completed by an ALS candidate. If completed previously, provide past dates)		*Date of completion:*
PEEP: https://forms.gle/5zgAfUBV9a6zMha76		
Trauma: https://forms.gle/4MmfEWft5SLkLf3G8		
CHF: https://forms.gle/4BWy3tP5ZpXCegp4A		
Overdose pt/use of Narcan: https://forms.gle/WHdMyJk6ecTTuVDy6		
Nausea/Vomiting (w/ use of Zofran): https://forms.gle/dn1jSvgSbUHqfSaZA		
IV Fluids: https://forms.gle/suD1oV4kFZvh7SLw6		
ALS ONLINE MODULES/DIDATIC EDUCATION: (Outlines for modules are in the ALS Clearance Program document for each ESD)		
Module:	*FTO/Preceptor name:*	*Date of completion:*
Patient Assessment		
Shock		
Cardiology (incl. 12 Lead EKG interpretation)		
Respiratory		
Airway decision making		
Altered Mental Status		
Trauma		

Medical emergencies		
Pediatric emergencies		
Cardiac arrest		
SKILLS EVALUATION:	*FTO/Preceptor name*	*Date of completion*
BVM w/PEEP		
CPAP		
BIAD/IGEL Airway		
Suction		
Epinephrine: IM		
Epinephrine: push dose		
IM Injections		
IV Access		
EZ IO/ use of Lidocaine		
Adult Pit Crew CPR		
Infant Pit Crew CPR		
IN Medication Administration		
Pleural Decompression		
Tourniquets & Wound Packing		
12 Lead EKG acquisition		
Transcutaneous Cardiac Pacing		
Cardioversion		
Orotracheal Intubation		
Surgical Cricothyrotomy		
Needle Cricothyrotomy		

	FTO/Preceptor name	*Date of completion*
COG EXAM (PASSED): https://forms.gle/rdrSyk4z3WMrtkM1A		
PATIENT CONTACTS / SIMULATIONS: NOTE: Actual patient contacts preferred, however quality simulation may be substituted for actual pt contacts. Please note type below.	Two of the candidate's patient contacts - or simulations - must be done with a DCPE training captain or medical director.	
PT CONTACT/ TRAINING SIM #1: PT Type: example: *Adult cardiac arrest– live pt.*		
PT CONTACT/ TRAINING SIM #2: PT Type:		
PT CONTACT/ TRAINING SIM #3: PT Type:		
PT CONTACT/ TRAINING SIM #4: PT Type:		
PT CONTACT/ TRAINING SIM #5: PT Type:		
PT CONTACT/ TRAINING SIM #6: PT Type:		
PT CONTACT/ TRAINING SIM #7: PT Type:		
PT CONTACT/ TRAINING SIM #8: PT Type:		
PT CONTACT/ TRAINING SIM #9: PT Type:		
PT CONTACT/ TRAINING SIM #10: PT Type:		
****FINAL SIMULATION ****		
*****MEDICAL DIRECTION SIGNOFF*****		

Clinical Performance Review Process

Malicious	Reckless	Risky	Unintentional
Falsification of a patient care document	Clinician has made a conscious choice that disregards PT/community/coworkers safety.	Choice where the clinician has failed to recognize risk or justifying an unsafe choice.	Not a choice, but rather an unconcious error.
Intentionally withholding care from a patient Intentionally harming a patient Providing care while impaired by alcohol or drugs Failure to remediate and/or participate in required education and/or review	How severe was the action? Did it result in harm? Could it result in harm if repeated?		Training Issue? Process Issue (COG/Policy/Procedure)?
Immediate suspension of credentials pending the outcome of an investigation **OR i**mmediate revocation	Immediate suspension of credentials pending the outcome of an investigation. Results range from written discipline, a PIP, re-training and up to revocation of the credentials.	Evaluate severity; Determine level of accountability; Develop PIP (and probation/discipline if applicable); re-train to correct behavior.	Committee review to evaluate any failures in process or training. Learn from our mistakes and share for education purposes. Develop and implement a PIP for the failed process.
The credential status of all providers practicing under the license of the DCPE Medical Director is at the discretion of the Medical Director.		Reality Question - would other clinicians with similar skills and knowledge do the same thing under similar circumstances? If Yes, then committee review of process and apply process improvement.	
		Does the clinician have a history of repeatedly making mistakes? Evaluation, coaching w/correct actions applied or suspension/revocation of credentials should be considered if warranted. Modify the above corrective actions accordingly.	

TCP_01 ACKNOWLEDGEMENTS AND DISCLAIMER

These guidelines are adapted from and influenced by pre-hospital treatment guidelines from many leading EMS agencies across the United States. Many thanks to our Nation's collaborative medical directors who have made public and shared information used in the production of this document. These guidelines are intended to reflect what is considered the standard of pre-hospital care in the State of Texas and are intended to take into account current national guidelines such as the American Heart Association's BLS and ACLS guidelines. They are not intended to substitute, override or take the place of professional and sound medical judgment on the part of online medical control Physician.

To the best of our knowledge, drug dosages and indications are consistent with national emergency healthcare standards. The Division Clinical Performance and Education is not responsible for deviations or misinterpretations of these guidelines.

Any unauthorized change or use of these guidelines by the end user is strictly prohibited. Use and adaptation of these guidelines by other Physician Medical Directors is permitted with removal of service specific information.

End user variances, changes or substitutions may be permitted only with the written authorization of the Medical Director (or his designated agent).

These Clinical Operating Guidelines have been reviewed, updated, and are **effective October 1st 2024 until revised.** Updates will be implemented with change notices delivered prior to.

As the author of these Clinical Operating Guidelines, I verify that, to the best of my knowledge, it meets all state and federal requirements.

Please use these guidelines to care for our patients in a manner that we would want care for ourselves, our families and loved ones. Put the patient first!

Taylor Ratcliff, MD

Medical Director

Travis County Emergency Services

Division of Clinical Performance and Education

700 Lavaca St, Austin, TX, 78701

TCP_02 LEGAL AND MEDICAL OVERSIGHT POLICIES

The following pages set the standard operating policies that will guide the clinical decision making of the agencies that operate under these guidelines within the boundaries of Travis County. There may be exceptions that apply to operations outside of those boundaries stated above.

When it is necessary to deviate from any policy, guideline or standard, consultation with the Travis County Emergency Services Medical Director (or their designated agents) or OLMC should be made. If the situation is time sensitive and does not permit this, complete and concise documentation must made in the patient chart that supports the decision making. Likewise, notification to the medical director and the Division of Clinical Performance & Education (herein referred to as **DCPE**) must be completed as set forth in the policies that follow.

These events are rare, and the previous paragraph should not create opportunities of rogue behavior. All events will be reviewed with the respective agencies involved to determine if any process improvements can be implemented. Identification of any illegal/inappropriate actions or behaviors will be dealt with as required by law.

02.01 The Intent of Patient Care Guidelines

These policies, guidelines and procedures are written to direct and assist the FRO/EMS provider in providing the highest standard of pre-hospital emergency medical care. Clinical Operating Guidelines (herein referred to as **COGs**) are meant to direct patient care prior to reporting and consulting with an on-line Medical Control (OLMC) physician. Patient care shall be carried out within a respective guideline unless a contraindication to the listed action(s) exists. All providers may consult with an OLMC physician prior to the completion of standing orders if doubt exists as to which guideline to follow or as patient condition may otherwise dictate. Furthermore, providers may consult with an OLMC physician at any time during patient treatment if in the best interest of the patient. In some locations within these guidelines, providers are specifically directed to consult with an OLMC physician before certain medications and/or interventions may be administered. These directives are to be uniformly followed. As with any guideline or policy, not all conditions or situations are anticipated or addressed. Remember that each patient care guideline represents a best practice. The FRO/EMS provider should continue to consider other interventions that may be beneficial to the patient but should contact OLMC for orders if such an intervention is not contained within the written guidelines.

02.02 Delegated Medical Practice in Texas

It is important for the FRO/EMS provider to understand how our relationship works in Texas. Texas' EMS system is based on what is called a "delegated practice" statute. That means unlike other states where there is an overarching State EMS medical director, each individual physician who works with EMS providers in the State of Texas delegates individually what the EMS provider can do.

The FRO/Providers covered must maintain current DSHS licensure/certification as well as demonstrate competency by way of routine review, evaluation, and validation through methodology that satisfies the Medical Director.

The Medical Director, or his appointed designees under the DCPE, has the explicit capability and responsibility to authorize, limit, amend, revoke, suspend, or terminate a provider's authority to practice under these standing guidelines.

These Clinical Operating Guidelines apply only to system credentialed providers. Authorization to practice applies to those who are credentialed, on duty, and operating in the State of Texas.

These Clinical Operating Guidelines have been reviewed, updated, and are **effective October 1st, 2024** until revised. Updates will be implemented with change notices delivered prior to.

As the author of these Clinical Operating Guidelines, I verify that, to the best of my knowledge, it meets all state and federal requirements.

Taylor Ratcliff

700 Lavaca St.

Ste 1020 B

Austin, Tx.

78701

02.03 APPROVED PROVIDER PARTICIPATION AND COVERAGE

Only Texas State certified or licensed EMS personnel who are employees or approved members of participating agencies may utilize these guidelines. Please see the **"List of Approved Providers" (this includes FRO's for the entirety of these policies)** section to ensure participation and coverage. Each participating member must be appropriately credentialed prior to functioning under these guidelines. See section **"Provider Credentialing"**.

These guidelines will be followed while the FRO/provider is in his or her area of jurisdiction. Under these standing guidelines, providers may not operate beyond their authorized credentialing level, regardless of DSHS or NREMT certification level. When a provider credentialed under these guidelines happens upon an emergency outside of their defined jurisdictional area, they may stop and provide necessary care, within the State of Texas, as outlined in these guidelines to address immediate emergency patient care needs. They may render additional aid to their certification/licensure level if requested to do so by the on-scene ALS provider. The provider is to transfer care to the appropriate authority having jurisdiction as soon as reasonably possible. This may include a transfer to a lower level of care as the provider in this situation has no duty to respond but due regard should be practiced.

These guidelines will be upheld in the event of mutual aid agreements or disaster response without Medical Director oversight. Additionally, providers will follow these guidelines while performing any inter-facility transport within the State of Texas.

These guidelines may be extended to approved EMS students who are on an active/official clinical rotation and who are functioning under the direct supervision of the agency's preceptor. The authorized FRO/EMS provider is responsible for any actions and skills performed by the EMS student. EMS students will perform skills and assessments only to their level of current certification or training and/or competency. The EMS Medical Director shall be a signor in all agreements with any school's EMS student training agreement.

02.04 APPROVED PROVIDER LIST

As of the authorization date listed below, the following FRO/EMS agencies have authorization to use these guidelines issued by Dr. Taylor Ratcliff, MD, through the Division of Clinical Performance and Education.

Texas DSHS Service Name	Approved provider level	Agreement start
Travis County Parks	BLS FRO	10/01/2018
Bastrop / Travis Counties ESD #1	BLS FRO	7/01/2022
Travis County Constable's Office Precinct #2	BLS FRO	04/28/2023
Travis County ESD #3 (Oakhill Fire Dept)	ALS FRO	10/01/2018
Travis County ESD #5 (Manchaca Fire Rescue)	BLS FRO	04/11/2024
Travis County ESD #6 (Lake Travis Fire and Rescue)	ALS FRO	10/01/2018
Travis County ESD #8 (Pedernales Fire Dept)	ALS FRO	10/01/2018
Travis County ESD #9 (Westlake Fire Dept)	ALS FRO	10/01/2018
Travis County ESD #10 (CE-Bar Fire Dept)	ALS FRO	10/01/2018
Travis County ESD #11/15 (Travis County Fire Dept)	ALS Provider	10/01/2018
Travis County ESD #12 (Manor Fire Dept)	ALS FRO	09/01/2022
Travis County ESD #14 (Volente Fire Dept)	ALS FRO	10/01/2018

02.05 PROVIDER CREDENTIALING AND AUTHORIZATION

Within these EMS guidelines, providers are credentialed (allowed to practice) not based on their Texas DSHS level of certification, but of that authorized through the Medical Director. For example, a Texas EMT-Paramedic level may only be authorized to practice within these guidelines at the EMT-Basic level.

All system responders, when on requests for service, shall display department ID indicating their legal name, agency/service affiliation and certification level to help avoid confusion during patient care and in accordance with Texas DSHS requirements.

There shall never be delegations made to a responder that would require them to act outside of their authorization to practice set forth by the Division of Clinical Performance and Education (DCPE). In addition, providers do not have the authority to "delegate practice" to other EMS providers.

Credentialing process / Clearance to practice:

Only DSHS certified providers may apply for credentialing, at a level not to exceed their level state certification.

BLS candidates - the entire credentialing process is managed and overseen by the designated clinical training personnel for the ESD at which the candidate is applying to practice, following the Clearance Process Checklist. DCPE will be informed when this process is complete.

ILS / AEMT and **Paramedic** candidates - the credentialing process is managed and overseen by the designated clinical training personnel for the ESD at which the candidate is applying to practice, following the Clearance Process Checklist, up to the final credentialing check which will be conducted by DCPE personnel. This final credentialing check may be done as a simulation, or as a question-and-answer session, and may be done in person or virtually.

Paramedic candidates - ESDs with Paramedic level personnel will also have an internal education process specific to the Paramedic level of care which has been reviewed and authorized by the DCPE medical director.

For all candidates, a completed Clearance Process Checklist appropriate to the individual's level of care will be returned to the DCPE office once the candidate has successfully completed the process.

The Clearance Process Checklists for all levels – as well as the Clearance Process Flowchart - can be found in the COGs in: Travis County Policies; TCP Appendix.

Credentialing Maintenance:

All providers must meet the following requirements to maintain credentialing:

1. Maintain certification with Texas DSHS at the level of care they are credentialed to practice.
2. Remain an active member of their ESD and comply with the clinical training requirements of their ESD.

Periods of absence from work at their ESD are outlined in the Recredentialing section, below.
In addition:

EMT / AEMT providers must also demonstrate competency in the following skills annually (minimum), or other time frame as noted:

- CPR/AED.
- Airway management (biannually) utilizing all airway tools available at their level of care.
- CPAP and CPAP with nebulized medications.
- Medication administration for all medications authorized at their level of care.
- IV / IO access and IVF administration (AEMT Only).
- Pleural Decompression (AEMT Only).

Paramedic providers must also demonstrate competency in the following skills annually (minimum), or other time frame as noted:

- Airway management (biannually) utilizing all airway tools available at their level of care.
- Pleural decompression
- CPAP and CPAP with nebulized medications.
- Medication administration for any medications authorized at their level of care.
- IV / IO access and IVF administration.
- Electrical therapies (defibrillation, cardioversion, pacing).
- 12 lead EKG interpretation

Demonstration of competency in the above skills may be accomplished by demonstration with an FTO, a department approved EMS instructor, or department clinical coordinator or through successful performance on an actual patient call, pending review by their department clinical coordinator or field preceptor.

Paramedic providers must also meet requirements as outlined below, in addition to the above requirements:

- Complete two (2), twelve (12) hour ALS ride outs with Travis County ***STAR*** *Flight*. These ride outs are specific to medical missions and do not include public safety mission response.
    - ALS credentialed providers may function at their credentialed level during ride outs.
    - Scheduling will be conducted via the ESD Clinical Educator and the DCPE assigned EMS Training Captain.
    - Two (2) twelve (12) hour ALS transport unit or DCPE EMS Training Captain ride outs may substitute in the event helicopter ride outs are unavailable or undesirable.

Recredentialing:

If a provider has their credentialing revoked for any reason, they will need to go through the entire process as outlined above, or a modified process as determined by DCPE EMS Training Captain.

If a provider has been absent from clinical care for more than **90 days**, DCPE will be notified of the provider's absence. Before the individual returns to clinical care, he/she must:

- Complete provider level Online Modules / Didactic Education as outlined in the Clearance Process (Credentialing) section of the COGs.
- Complete provider level Skills Evaluation as outlined in the Clearance Process (Credentialing) section of the COGs with a designated FTO/FTMO.
- Complete any additional training outlined by the designated clinical training personnel for the ESD at which the candidate is employed.

The individual will not be allowed to function as a credentialed provider until the DCPE office has been notified that he/she has completed the process as outlined above.

If a provider has been absent from clinical care for more than **180 days**, DCPE will be notified of the provider's absence before the individual returns to clinical care. The provider must complete the entire credentialing process as outlined in the Clearance Process Checklist for the level which they are seeking to practice (BLS / ILS-AEMT / Paramedic).

The individual will not be allowed to function as a credentialed provider until the DCPE office has been notified that he/she has completed the process as outlined above.

For Paramedic candidates, completing the Clearance Process Checklist does not require them to complete all the elements outlined in the internal education process authorized by the DCPE for Paramedic candidates.

02.06 INDIVIDUAL PROVIDER CHANGES TO LEVEL OF PRACTICE

At the Medical Director's discretion, the approved level of practice of the EMS provider may be altered as needed to ensure the safety and appropriateness of patient care. In the Travis County program, a provider's ability to practice medicine is based on the

Medical Director's authorization. Individuals credentialed under the DCPE Medical Director must always focus on providing appropriate clinical care. Accountability for actions taken lies with individual providers. The Department strives to be an error-friendly system that will focus on a non-disciplinary approach to support and re-educate members of the organization. However, circumstances may arise that require a change in Credential status, such as suspension or revocation.

1. Under the DCPE, a provider's credential to practice may be temporarily suspended, if in the opinion of the Medical Director, or his designated agent(s), the provider's actions *pose a threat to the safety of current or future patients*. The DCPE will involve, whenever possible, the provider agency's administration to evaluate any clinical issues utilizing the Clinical Performance Review Process (found below), which is centered on a just culture theory. The provider's credential may be permanently revoked, if substantiated through a process of appropriate investigation and review, for any of the following actions:

- Falsification of a patient care document
- Intentionally withholding care from a patient
- Intentionally harming a patient
- Providing care while impaired by alcohol or drugs
- Failure to remediate and/or participate in required education and/or review

2. Additionally, there may be other circumstances that result in suspension or revocation of Credentials. These may include *lapse, loss, or suspension of TDSHS Certification or Licensure*. If a Provider's TDSHS Certification/Licensure is allowed to lapse, the Provider's Credentials to Practice will be suspended until confirmation of renewal, extension or upgrade can be verified and documented on the TDSHS/BON website.

3. Activity That May Pose a Threat to Public Health

- Criminal or Regulatory activity that may pose a threat to public health, or other circumstances as deemed appropriate, will be reviewed by that providers agency's administration, the DCPE Program Director and the DCPE Medical Director.
- Individual providers and their supervisory personnel are responsible to report any arrests of the provider involving alcohol, drugs, or a felony directly to the DCPE and Medical Director on or before the 1st business day after the arrest is made. Failure to do so may result in immediate suspension. Reporting the event to the TDSHS is the responsibility of the individual provider and must occur in accordance to specified rules, and within the prescribed timelines.
- Except for those situations and processes specifically addressed, the process for suspending or revocation of Credentials will be determined by the DCPE Clinical Performance Review Process.

- Suspended and de-credentialed Providers may still be considered “trained citizens” and can perform CPR, use an AED and/or render First Aid as appropriate.
- **Action Taken By TDSHS.** Any action taken (administrative review, suspension, revocation, etc.) by the TDSHS must be reported and documentation forwarded to the DCPE and the Medical Director. Failure to do so may result in suspension/revocation of Credentials.
- In all events concerning these issues, the DCPE and the Medical Director will be advised. If deemed appropriate, the leadership of other organizations within the Austin-Travis County EMS System and/or TDSHS may be notified.

4. The credential status of all providers practicing under the license of the DCPE Medical Director is at the discretion of the Medical Director.

(Clinical Performance Review Process is below; also found in Appendix C)

Clinical Performance Review Process

Malicious	Reckless	Risky	Unintentional
Falsification of a patient care document	Clinician has made a conscious choice that disregards PT/community/coworkers safety.	Choice where the clinician has failed to recognize risk or justifying an unsafe choice.	Not a choice, but rather an unconcious error.
Intentionally withholding care from a patient	How severe was the action?		Training Issue?
Intentionally harming a patient	Did it result in harm?		Process Issue (COG/Policy/Procedure)?
Providing care while impaired by alcohol or drugs	Could it result in harm if repeated?		
Failure to remediate and/or participate in required education and/or review			
Immediate suspension of credentials pending the outcome of an investigation **OR** Immediate revocation	Immediate suspension of credentials pending the outcome of an investigation. Results range from written discipline, a PIP, re-training and up to revocation of the credentials.	Evaluate severity; Determine level of accountability; Develop PIP (and probation/discipline if applicable); re-train to correct behavior.	Committee review to evaluate any failures in process or training. Learn from our mistakes and share for education purposes. Develop and implement a PIP for the failed process.
The credential status of all providers practicing under the license of the DCPE Medical Director is at the discretion of the Medical Director.		Reality Question - would other clinicians with similar skills and knowledge do the same thing under similar circumstances? If Yes, then committee review of process and apply process improvement.	
		Does the clinician have a history of repeatedly making mistakes? Evaluation, coaching w/correct actions applied or suspension/revocation of credentials should be considered if warranted. Modify the above corrective actions accordingly.	

02.07 GENERAL SCOPE OF PRACTICE

While the clinical guidelines list appropriate treatments based on credentialing level, it is not assumed that every organization will carry every single treatment. Some of these treatments are considered optional and will be marked 'if available' or (IA) in the guideline.

Non-medical First Responder:

A non-medical person is any department sponsored / authorized first responder without certification by the Texas Department of State Health Services (DSHS). Non-medical first responders do not have a scope of practice and their practice is not defined by medical direction or guideline. The DCPE is not responsible for any care or actions provided by a non-medical first responder. It is suggested that if non-medical first responders are answering medical calls for help, they should at minimum be able to:

- Operate an approved emergency vehicles in response modes
- Communicate via radio with dispatch, other EMS units, and assisting agencies
- Perform CPR and AED functions with a current BLS CPR/AED certification
- Provide first aid in accordance with national standard first aid classes such as that offered by the American Red Cross.
- Assist with traffic control and scene safety management
- Assist with lifting and moving of a patient under the direction of the EMS provider in-charge
- The authority having jurisdiction assumes all liability of non-medical first responders attending scenes and providing any care.

Certified or Licensed Providers:

Providers may practice at the certification level set forth by the State of Texas DSHS **AND** Medical Director authorized levels of practice. These are listed below, and the scope specified is based upon the Medical Directors authorization to practice. This applies only to the level of care that the Medical Director authorizes the provider to practice at. This applies to all entities utilizing these guidelines.

Emergency Medical Technician – Basic (EMT-B) providers can perform the following:

Scene survey and requesting additional resources
Triage
Patient assessment
Administration of oxygen via multiple supply devices
Basic airway management including suctioning, OPA/NPA placement, bag-valve mask assisted breathing w/PEEP device.
Blind Insertion Airway Device (BIAD) for cardiac/respiratory arrest (or persons with a GCS < 4)
CPAP application
Small volume Nebulizer
Assess vital signs
Basic intervention in bleeding control/burn management

- Bandaging/Splinting
- Wound Packing (Junctional/Extremity)

- Tourniquet
- Pelvic Binder (Sam Sling)
- Splinting/Spinal motion restriction
- Kendrick Traction Device/Sager Traction Device
- Other splinting/immobilization techniques
- Kendrick Extrication Device
- C-Collar/X-Collar

Other SMR techniques
Clinical c-spine clearance
Documentation of patient care
Verbal patient care reports to receiving provider
Apply 12-lead
Capnography
Impedance Threshold Device (if available)
Automated External Defibrillator (AED)
Automated CPR devices (LUCAS, Auto-pulse)
Determination of obvious death
Assisting the ALS provider as needed with medication administration and other equipment set-up and application
Administration of medications as indicated in the patient care guidelines to include:

- Aspirin PO
- Acetaminophen PO
- Benadryl PO
- Oral glucose
- Epinephrine Auto-injector/Epinephrine IM
- Oxygen
- Albuterol SVN
- Atrovent SVN
- Assist Patient w/Nitroglycerin SL
- Narcan IN

Emergency Medical Technician – Intermediate (EMT-I/AEMT) providers can perform the following, in addition to skills listed above:

Intravenous/ IO cannulation and fluid administration (crystalloids to include NS & LR)
Intranasal Medication Route (IN)
Intramuscular Injection Medication Route (IM)
Tracheal suctioning
FBAO with direct laryngoscopy
Gastric tube insertion
End-tidal CO2 assessment
Dextrose IV
Diphenhydramine IV/IM

Narcan IV/IN
Lidocaine (for Eye Injury Guideline and IV Access Guideline)
Needle Pleural Decompression for Trauma Arrest
Zofran IV/IM/PO

Emergency Medical Technician – Paramedic (EMT-P/LP) providers can perform the following, in addition to skills listed above:

Apply and interpret electrocardiographic assessment (including 12-lead)
Apply manual cardioversion, defibrillation and pacing
Access alternate vascular access
Endotracheal intubations using all available adjuncts
Administer appropriate pharmacologic therapy for multiple medical conditions
Pain management
Perform rapid sequence/pharmacologically assisted intubation (RSI/PAI)
Needle Pleural Decompression
Surgical cricothyrotomy
Perform conscious sedation/chemical restraint as indicated
Field termination of resuscitation
Administer IV medication drips through portable IV pumps

02.08 Care rendered by NON-EMS medical professionals:

Other (licensed/certified) non-EMS providers such as the Neonatal Intensive Care Team and other advanced transport teams may provide patient care as authorized by that person/team's medical director, while being transported on system provider ambulances. They may request care from the EMS provider, and this should be provided to the extent authorized in the provider's scope of practice. If a physician, licensed in the State of Texas, wishes to provide patient care the crew will refer to the Physician on Scene guideline.

TCP_03 DUTY TO ACT

Paid EMS providers covered under these guidelines have a duty to respond to all calls for medical aid within the geographical boundaries of their defined service area and when resources are available, to provide mutual-aid for listed agencies. The responsibility of the individual provider to respond shall be during all contracted or paid hours or, for volunteers, any time they have indicated they will respond during a defined period (i.e. checked en route). Covered providers have the duty to render treatment that meets or exceeds the professional standard of care established for EMS. Once treatment is rendered, providers have a duty to care for that patient until there is a transfer of care to someone of appropriate medical training according to patient condition. Medical providers whether paid or volunteer are not covered under the good Samaritan act once they agree to be paid on duty or answer up for a request for emergency service as a volunteer.

TCP_04 Medical Direction

04.01 TRAVIS COUNTY EMERGENCY SERVICES MEDICAL DIRECTION

FRO's/Providers cleared to use these guidelines shall recognize and be in communication with the Travis County Emergency Services Medical Director(s) and the Division of Clinical Performance and Education (DCPE).

All communications and reporting to the DCPE shall be through the following routes listed below. Complaints or concerns, provider and/or provision of care issues may be similarly communicated. The DCPE includes all MDs overseeing prehospital emergency care at the Travis County Emergency Services, Division of Clinical Performance and Education.

Taylor Ratcliff, MD

Medical Director, Division of Clinical Performance and Education

Travis County Emergency Services

Medicaldirector@traviscountytx.gov

700 Lavaca St.Suite 1020B

Austin, TX, 78701

512.854.7961 (office)

512.854.2362 (medical direction number)

While providing EMS care in the Travis County area, providers may encounter other Emergency Services physicians. Their presence on scene should be equated to my presence and the following physicians may provide direct on-scene supervision and medical control direction in my absence:

Austin Travis County Emergency Medical Directors (Identified by credentials).

04.02 ON-LINE MEDICAL CONTROL PHYSICIAN (OLMC)

At all times, providers covered under these guidelines have On-line Medical Control Physicians (OLMC) available. The intent is for any patient whom does not fit under, or is unresponsive to, the guidelines found within this document. In the event that the DCPE Medical Director is not available, defer to the transporting agencies OLMC via radio.

Contact with the DCPE Medical Control Physician can be made by:

- Pulsara (preferred) or phone call (512) 854-2362 to the Medical Director on-call.

The Medical Control Physician should be contacted at any time the EMS provider needs assistance or consultation or where indicated in the guidelines. The OLMC physician is an advocate of the EMS provider and should be happy to help with any care issues ranging from consent, refusal, unusual circumstances or abnormal patient presentations. They will also be able to assist you with medication information and other treatment guideline interpretation.

When you contact OLMC, please identify the following:

- Your EMS unit and your name
- Your certification level and capabilities of your unit (i.e. EMT Johnson on a BLS unit)
- Your transport status and ETA
- A brief description of your situation and your ongoing treatments
- Clearly state your need or question if you have one or identify this as a required contact call

The Medical Control Physician **SHALL** be contacted for any of the following reasons:

- Termination of Resuscitation
- Questionable death in field consultation
- Administration of any medication or performance of any procedure that these guidelines require the provider to contact Medical Control
- Patient refusals in which there is any doubt as to the patients competency to refuse treatment/transport
- Physician on scene who desires to assume care of the patient and directs actions outside normal patient care guidelines
- When transporting any patient that the EMS provider feels is critical and needs immediate physician intervention upon arrival at the Emergency Department

This document does not supersede or negate the need to contact the receiving facility for a medical report. Unless extreme condition warrants, providers should call a radio or phone report to all facilities prior to delivering a patient to that location.

TCP_05 CONFIDENTIALITY & HIPAA

All information obtained during an emergency response as it relates to patient care is protected under the health information portability and accountability act (HIPAA). These laws prohibit the EMS provider from sharing or disclosing any protected health information to anyone without a medical need to know. Providers may share information with crew members, nurses, physicians and other healthcare personnel as minimally needed to provide patient care. Protected health information (PHI) must be protected from accidental discovery or exposure and may not be shared with anyone outside the need to know umbrella. This includes administrators, media, law enforcement, etc. The exception to this is in the event that a criminal act has been committed, or is confessed to the crew. In this case, law enforcement officials will be notified. PHI may be shared on a need to know basis within the organization for the purposes of billing and quality assurance / improvement processes such as run review, etc. All agencies will provide HIPAA training to responders on a regular basis to ensure understanding of the current rules and information. If PCR/PHI is available on ePCR's/tablets, they must be pass code protected.

The penalties for noncompliance are based on the level of negligence and can range from $100 to $50,000 per violation (or per record). Violations can also carry criminal charges that can result in jail time.

05.01 Release of Patient Information and Documentation

DO NOT release a patient report to ANYONE (including law enforcement) without making proper requests for information. Each EMS provider or FRO should have an agency policy in place on how to request copies of records. To be admissible in court, law enforcement should request needed information through appropriate subpoena or other legal process to ensure legal access to the information. Patient information may not be shared without an appropriate order or release of information (ROI) signed by the patient or legal representative. Each agency should have a policy on release of information to news media. This is governed by strict rules on what information may be disclosed. Each agency is strongly encouraged to have a trained PIO or relationship with one to provide media information.

All requests for information should be directed to the DCPE and notification should be made to the Medical Director (or his designated agent(s)).

TCP_06 Patient Safety

Patient Safety should prevail in the decision making process when rendering care under these guidelines. Your preparation for your shift (Including being well rested and completing daily checks of equipment), your knowledge of the policies, guidelines, procedures and excellent closed loop communications with your team on scene will establish a platform that assists in mitigating errors.

- At the beginning of each shift document the presence of all equipment, medications, PPE and supplies. Ensure credentials are visible on your person.
- If supplies fall below required levels, restock at the nearest appropriate location. If dispatched to a call that may require depleted supplies, contact communications or your Command Staff.
- Any patient care equipment (including single patient use disposables) that fails to function as it was intended while managing a patient (equipment that fails while on a call, either preventing its use on the patient or fails while attached to the patient) will be safely secured, removed from service, and reported to the DCPE. This does not include medications or equipment failures due to operator error.
- For all weight-based drug administration refer to Medication Dose Charts
- Do Medication Administration Cross Check for all medications
- If medication error, clinical misadventure, or other adverse patient outcome, notify the Medical Director (or his designees) and the DCPE immediately as outlined in the **Required Reporting to Medical Director and DCPE** policy.
- If an error was made, but did not cause an adverse patient outcome, please follow the aforementioned policy and notify the Medical Director and the DCPE as soon as is possible.
    - Document the event as soon as possible via the medical directors line at 512.854.2362

TCP_07 Patient Type Definitions

FRO's/Providers may have questions and agency discussions about what constitutes a patient, a refusal, a false call or what is termed a "no-patient". The definitions will be used and provider policies will be designed around these definitions. Providers and FROs are at liberty to institute agency specific procedures, but the following will be adhered to.

07.01 Who is a "Patient" – The definition of a patient is any human being that:

- Has a complaint suggestive of potential illness or injury
- Who is not of mental capacity to identify that they have a medical need.
- Requests evaluation for potential illness or injury
- Has obvious evidence of illness or injury
- Has experienced an acute event that could reasonably lead to illness or injury
- Is in a circumstance or situation that could reasonably lead to illness or injury. This includes:
    - DUI crash victims or driver
    - Domestic violence victims
    - Any major crime victim with potential injuries (e.g., sexual assault, attempted murder, etc.)

Individuals meeting any of the above criteria are considered "patients". These criteria are intended to be considered in the broadest sense. The determination of an individual's status as a patient requires the input of both the individual and the provider as well as an assessment of the circumstances that led to the 9-1-1 call. The patient's potential unwillingness to speak to medical providers does not negate them from being a patient or needing a PCR. If there are any questions or doubts, the individual should be considered a patient.

Process

1. Anyone that fits the definition of a patient must be properly evaluated, appropriately treated, and transportation (ground or air) offered. If a patient wishes to refuse offered treatment and/or transport (ground or air) against medical advice (AMA), refer to **Patient Refusal** and **Documentation of Patient Refusals** (see below).
2. Anyone that does not fit the definition of a patient as defined above does not require an evaluation or completion of a Patient Care Record (PCR). If there is any doubt, an individual should be deemed a patient and appropriate evaluation should be provided and documented in the PCR.
3. If an individual meets the definition of a patient the following apply:
    - The definition of an **adult** is a person who is 18 years of age or older
    - Adults have the right to consent to or refuse medical treatment
    - The definition of a **minor** is:
        - A person under the age of 18 who is not and has not been married or who has not had the disabilities of minority (emancipation) removed for general purposes by a court.
        - *Generally, minors can neither consent to, nor refuse, medical treatment. Some minors however, are considered to be emancipated and have the rights of consent/refusal afforded an adult*
4. An individual with legal standing may give consent for a patient when the patient does not have the ability to do so because they are a minor, incarcerated or have been determined by courts to be legally incompetent. Parents or guardians are entitled to provide permission because they have the legal responsibility, and in the absence of abuse or neglect, are assumed to act in the best interests of the child.
    - The following person(s) may provide consent for or refuse the evaluation, treatment and/or transport of minors:
        - Parent or Grandparent
        - Legal guardian appointed by a court
        - Adult (18 or older) sibling
        - Adult (18 or older) aunt or uncle
        - Member of an educational institution where the minor is enrolled who has obtained written authorization to provide consent or to refuse from the minor's parent or legal guardian
        - Member of an non-educational institution (camp, youth group, sports coach, etc) where the minor is enrolled who has obtained written authorization to provide consent or to refuse from the minor's parent or legal guardian
        - Adult or court having jurisdiction over the minor
        - Law enforcement officer who has taken legal custody of the minor

07.02 Exception to the minor definition:

A minor is considered emancipated if he or she has obtained a court order of emancipation from a Texas court. Minors may petition the court for emancipation if he is:

- *A resident of Texas;*
- *17 years of age or at least 16 years of age and living separate from his parents, managing conservator or guardian;*
- *Is self-supporting and managing his own financial affairs*

07.03 Exceptions to the minor consent rule:

- In certain situations, a minor may consent to medical treatment without involvement of a parent or legal guardian. A minor may consent to treatment if the minor:
- Is on active duty with the US armed services;
- Is 16 years or older residing separately from his parents or guardian and is managing his own financial affairs (regardless of the source of income);
- Consents to diagnosis and treatment of any infectious/communicable disease with a reporting requirement
- Is unmarried and pregnant and consents to care related to the pregnancy other than abortion;

- Consents to examination and treatment relating to drug of alcohol dependency;
- Is unmarried and has custody of their biological child, they may consent to treatment for the child.

07.04 Definition of a Pediatric Patient for Clinical Guideline application

For the purpose of selecting appropriate treatment guidelines, any patient <37kg or who can be measured using a PEDIA/Broselow (or other FDA approved commercially available) sizing tape.

For the purpose of Trauma Transport Guidelines, a pediatric patient is <15 years of age as adopted by Trauma Service Area –O (CATRAC), and subject to change.

07.05 Patient Refusal – A patient refusal is any "patient" defined as above who refuses to go to the hospital against the medical advice of the EMS provider. Patient refusal cases are very high liability and should be documented and addressed in compliance with the Refusal of Treatment document.

Patients who are of legal status to consent and of appropriate mental capacity may refuse EMS treatment. The reasons that patients refuse medical treatment are complex ranging from concerns about cost of EMS transportation to concerns about previous negative medical encounters, etc. In almost all cases, the default position of EMS should be that the patient "needs" to go to the hospital and you "want" to take them.

When the patient refuses treatment it is important to try and understand the reasons why and attempt to make accommodations to encourage the patient. Frequently our patients are worried about pets, bills or other things that can be discussed and addressed. Other times the patient fails to understand the gravity of the medical situation. Consultation with Medical Control allowst them speak with a physician sometimes reinforces this. Similarly, if the patient's primary care physician (PCP) can be reached, this may help. When all else fails, consider summoning law enforcement to see if they will medically detain and authorize transport of the patient. Document these cases very carefully and involve family and supervisors when appropriate. Remember to always specifically say that the patients "needs" to go to the hospital.

Refusal of Care/Treatment – The patient must be able to meet the following criteria to refuse care:

- Pt is ≥ 18 or emancipated minor
- Pt is not suicidal/homicidal
- Pt demonstrates capacity (see determination of capacity below)
- Pt understands evaluation is incomplete
- Solutions to obstacles have been sought
- Pt instructed to seek medical attention
- Pt instructed to call back at any time
- Above documented fully in PCR
- When in doubt, consider contact Medical Control for what is deemed high risk injury/illness.

07.06 Determination of Capacity:

- Patient is able to express in their own words:
    - An understanding of the nature of their illness
    - An understanding of the risks of refusal including death
    - An understanding of alternatives to EMS treatment/transport
    - Pt can provide rationale for refusal and debate this rationale
- A patient with any of the following may lack decision making capacity and should be carefully assessed for their ability to perform the above.
    - Orientation to person, place or time that differs from baseline
    - History of drug/alcohol ingestion with appreciable impairment such as slurred speech or unsteady gait
    - Head injury with LOC, amnesia, repetitive questioning
    - Medical condition such as hypovolemia, hypoxia, metabolic emergencies (e.g., diabetic issues); hypothermia, hyperthermia, etc.
- If any question exists about their capacity contact Medical Control

07.07 Intoxicated Patients – EMS encounters numerous patients who are under the influence of drugs and or alcohol. The presence of drugs and or alcohol does not automatically mean that the patient is unable to give consent. For them to make an informed consent decision, as above, they must have decision making capacity. If they are able to fulfill the above requirements, they likely have capacity to make a care decision. If the EMS provider feels they are too impaired to make an informed consent decision, the patient may not refuse. Involve law enforcement as needed for assistance with patient disposition.

07.08 Suicidal patients (SI) - Any patient that is or was suicidal relating to the current incident, will have TCSO's CIT unit contacted by medical providers/ LE. This is still true if the patient is now denying suicidal ideations. In any case with SI, LE should sign as a witness on the PCR and actively participate in the decision-making process for on-scene management of the patient. This is because the LE has the legal authority to detain the patient and order transport against the patient's will. Additionally, LE is instrumental in determining if the patient is a better candidate for MCOT rather than the ER. In most cases, if the patient is not a candidate for MCOT, they are not a candidate for refusal. If a patient meets one or more of the following criteria, they should be transported to an ER for evaluation:

- Having a clear plan of action for physical self-harm (e.g., running into traffic, overdosing, etc.)
- Having any signs of intoxication affecting current mental status
- Having a wound or injury associated with their current mental state (no matter how minor or superficial wounds or injuries appear to be)
- Concerns for medication overdose or inappropriate use of medications

- LE/ CIT believes they need to be transported

07.09 Law Enforcement and Medical Decision Making – In Texas, only law enforcement providers have the legal authority to medically detain patients and authorize transport to the hospital against a patient's will, this includes a notification of emergency detention (NED), formerly called OED, a magistrate or judicial order, etc. EMS providers who encounter a patient who is refusing care and either is in serious need of medical care (expected critical outcome without intervention) or who lacks capacity to give or refuse consent should try multiple ways of obtaining consent to transport. This includes attempting to identify the patient's reason not to be transported, having someone else explain the risks involved, contacting medical control to allow them to speak with a physician and involving family or friends to help the patient in their decision making. All of these actions should be documented in the PCR.

07.10 False Calls and "No-Patients"

Especially in the era of cell phones and with the simplicity of calling 911, many bystanders and passing citizens will summon EMS for non-emergency issues. Frequently vehicle accident victims have no injuries or complaints, EMS is called for the sleeping homeless, etc. If the person for whom EMS was requested has normal mental capacity and has no visible, stated or expected medical or trauma related problem, they are a "no-patient". The required documentation is a PCR detailing such, a short "no-patient" form documenting the patient's name and an identifiers and a patient signature confirming they have no medical need for EMS and are declining evaluation and treatment. The provider, however, should use good judgment in determining if the patient may have an expected medical problem. For example, if a patient is ejected through the windshield of a motor vehicle, they likely will have some type of injury. A more detailed exam and refusal form is more appropriate.

07.11 Documentation of Patient Refusals/No-Patients:

Each agency will have at minimum, a form for patient refusals and the ability to document "no-patients". The refusal form will at minimum document:

- Patient identifiers along with time, date, location
- Chief complaint, field diagnosis if known
- A checklist or attestation that the patient has mental capacity to refuse that includes: orientation to person, place, time and situation; a lack of clinical intoxication; the gross ability to understand.
- The problem(s) that the provider believes the patient has and if that problem follows an expected course, what complications and risks the patient faces without obtaining medical care

A signature box and attestation that the patient understands the risks that have been explained, has repeated and understands possible complications and understands they may seek medical care on their own or change their mind and re-summon EMS at any time. Patient refusals should be 'witnessed', preferably by an independent third party.

Prior to releasing a minor or other patient unable to give consent, the field provider shall consider several factors to properly advocate for the patient and ensure their safety. The relationship between the patient and the party they are being released to. The provider must also be reasonably assured that the person the patient is being released to does not put the patient in danger.

07.12 Treat and Release Guidelines

It is understood that in some circumstances, EMS providers may be called upon to treat patients that do not require or desire transportation to an Emergency Department or other medical facility. This should certainly be the exception, not the rule. In general, any patient who receives invasive medical treatment (medications, IV fluids, oxygen, etc.) should be transported to an appropriate medical facility. There may be some extenuating circumstances where the EMS provider is requested to treat and release the patient.

Any patient not meeting the definitions and requirements above should be transported to the hospital.

In the event that a patient refuses further treatment and transport after either has been initiated (either on-scene or en route), the EMS provider should ensure the following:

- As stated above, the patient has adequate decision making capacity.
- The EMS crew should make attempts to provide or consider safe and appropriate modifications to current treatment or transport.
- Medical Control should be contacted and the on-line physician given any available opportunity to advocate for continued transport and ED treatment.
- The patient should sign the EMS agency's refusal form after risks of refusal are clearly explained per the refusal guidelines above.
- The EMS crew should ensure safe disposition to a responsible adult and close follow-up with a suitable healthcare professional encouraged. Medical control may be able to assist with this.

If a patient refuses transport once en route to the hospital, this complicates the normal refusal process. First and foremost, the patient must have adequate capacity and the above measures undertaken. Discussion and compromise should be the rule and even if all medical care has to cease, the patient should be asked to allow completion of transport. For patients that demand immediate cessation of transport (i.e. "stop the ambulance, I'm getting out), the priority is a safe disposition.

- Do not stop the EMS vehicle in any location that would pose a life safety risk to the patient or crew. For example, do not stop on busy streets, highways, etc.
- Move as soon as possible to a safe parking area, preferably an area with access to resources such as gas station, grocery store, etc.
- Offer to call someone to pick up the patient and/or make other transport arrangements.
- Promptly contact law enforcement if the patient poses an immediate risk to themselves or others for advice and consultation.
- Document, document, document!!

07.13 Combative Patient

A. **Restraint Guidelines**

1. Physical Restraints should be safe and humane and composed of materials designed to reduce the potential for patient injury.
2. At ***NO TIME*** is a patient to be managed or placed in such a way that would impose or inflict pain or bodily injury.
3. Restrain the patient in a position of comfort and safety using a four-point system in conjunction with the seat belt system of the patient stretcher.
4. The use of hard restraints such as handcuffs, thumb cuffs or flexi-cuffs is prohibited.
5. Chemical Restraint if deemed necessary should follow guidelines as established under the Behavioral Clinical Operating Guidelines.
6. Crews should consider the use of soft restraints on all unconscious patients prior to transport.

TCP_08 DNR and Advanced Directives

In the event the provider is presented with a completed Out of Hospital Do Not Resuscitate (OOH-DNR) form and/or OOH-DNR ID device, the provider shall withhold CPR and the listed therapies in the event of cardiac arrest. The form and device may be from any (US) State.

To honor the terminal wishes of the patient and to prevent the initiation of unwanted resuscitation

1. When confronted with a cardiac arrest patient, the following conditions must be present in order to honor the DNR request and withhold CPR and ALS therapy:
    - Valid Texas Out-of-Hospital Do Not Resuscitate (OOH-DNR) original or copy – or – Texas OOH-DNR ID device (necklace or bracelet). *Digital copies are not valid.*
    - Valid Out-Of-Hospital Do Not Resuscitate Written Order (Original or Copy) or Device from any (US) State. *Digital copies are not valid.*
    - A licensed physician on scene or in contact by telephone orders that no resuscitation efforts are to take place.
2. A valid OOH-DNR requires:
    - Patient's full name and birthday
    - Signatures and dates from person(s) completing the form
    - Signatures and dates from witnesses
    - Signature from physician
3. A DNR request may be overridden by:
    - In Texas, OOH-DNR forms are immediately revoked if the patient is pregnant.
    - The patient or person who executed the order destroying or directing someone in their presence to destroy the form and/or remove the identification device.
        - Authorized person to make health care decision for the declarant (legal guardian, medical power of attorney), can do the same.
    - The patient or person who executed the order telling the EMS Providers or attending physician that it is his/her intent to revoke the order.
        - Authorized person to make health care decision for the declarant (legal guardian, medical power of attorney), can do the same.
    - The attending physician or physician's designee, if present at the time of revocation, recording in the patient's medical record the time, date and place of the revocation and enters "VOID" on each page of the OOH-DNR.
4. In the event there is a question regarding whether to honor or not honor an OOH-DNR or Advanced Directive, contact OLMC as needed.
5. An advanced directive does not imply that a patient refused supportive or palliative care.
6. Family members not authorized to make health care decision on behalf of the declarant cannot revoke a valid OOH-DNR. In the event of a family disagreement regarding a valid OOH-DNR, provide comfort care to the patient and contact OLMC.
7. In the event a provider is presented a valid OOH-DNR after resuscitation/care has been started, verify validity of the form and honor any valid OOH-DNR.

SEE copy of Texas OOH-DNR next page:

Figure: 25 TAC §157.25 (h)(2)

STOP DO NOT RESUSCITATE

OUT-OF-HOSPITAL DO-NOT-RESUSCITATE (OOH-DNR) ORDER

TEXAS DEPARTMENT OF STATE HEALTH SERVICES

Print Form

This document becomes effective immediately on the date of execution for health care professionals acting in out-of-hospital settings. It remains in effect until the person is pronounced dead by authorized medical or legal authority or the document is revoked. Comfort care will be given as needed.

Person's full legal name _____ Date of birth _____ ☐ Male ☐ Female

A. Declaration of the adult person: I am competent and at least 18 years of age. **I direct that none of the following resuscitation measures be initiated or continued for me: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.**

Person's signature _____ Date _____ Printed name _____

B. Declaration by legal guardian, agent or proxy on behalf of the adult person who is incompetent or otherwise incapable of communication:

I am the: ☐ legal guardian; ☐ agent in a Medical Power of Attorney; OR ☐ proxy in a directive to physicians of the above-noted person who is incompetent or otherwise mentally or physically incapable of communication.

Based upon the known desires of the person, or a determination of the best interest of the person, **I direct that none of the following resuscitation measures be initiated or continued for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.**

Signature _____ Date _____ Printed name _____

C. Declaration by a qualified relative of the adult person who is incompetent or otherwise incapable of communication: I am the above-noted person's:

☐ spouse, ☐ adult child, ☐ parent, OR ☐ nearest living relative, and I am qualified to make this treatment decision under Health and Safety Code §166.088.

To my knowledge the adult person is incompetent or otherwise mentally or physically incapable of communication and is without a legal guardian, agent or proxy. Based upon the known desires of the person or a determination of the best interests of the person, **I direct that none of the following resuscitation measures be initiated or continued for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.**

Signature _____ Date _____ Printed name _____

D. Declaration by physician based on directive to physicians by a person now incompetent or nonwritten communication to the physician by a competent person: I am the above-noted person's attending physician and have:

☐ seen evidence of his/her previously issued directive to physicians by the adult, now incompetent; OR ☐ observed his/her issuance before two witnesses of an OOH-DNR in a nonwritten manner.

I direct that none of the following resuscitation measures be initiated or continued for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.

Attending physician's signature _____ Date _____ Printed name _____ Lic # _____

E. Declaration on behalf of the minor person: I am the minor's: ☐ parent; ☐ legal guardian; OR ☐ managing conservator.

A physician has diagnosed the minor as suffering from a terminal or irreversible condition. **I direct that none of the following resuscitation measures be initiated or continued for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.**

Signature _____ Date _____

Printed name _____

TWO WITNESSES: (See qualifications on backside.) We have witnessed the above-noted competent adult person or authorized declarant making his/her signature above and, if applicable, the above-noted adult person making an OOH-DNR by nonwritten communication to the attending physician.

Witness 1 signature _____ Date _____ Printed name _____

Witness 2 signature _____ Date _____ Printed name _____

Notary in the State of Texas and County of _____. The above noted person personally appeared before me and signed the above noted declaration on this date _____.

Signature & seal: _____ Notary's printed name _____ *Notary Seal*

[Note: Notary cannot acknowledge the witnessing of the person making an OOH-DNR order in a nonwritten manner]

PHYSICIAN'S STATEMENT: I am the attending physician of the above-noted person and have noted the existence of this order in the person's medical records. **I direct health care professionals acting in out-of-hospital settings, including a hospital emergency department, not to initiate or continue for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.**

Physician's signature _____ Date _____

Printed name _____ License # _____

F. Directive by two physicians on behalf of the adult, who is incompetent or unable to communicate and without guardian, agent, proxy or relative: The person's specific wishes are unknown, but resuscitation measures are, in reasonable medical judgment, considered ineffective or are otherwise not in the best interests of the person. **I direct health care professionals acting in out-of-hospital settings, including a hospital emergency department, not to initiate or continue for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.**

Attending physician's signature _____ Date _____ Printed name _____ Lic# _____

Signature of second physician _____ Date _____ Printed name _____ Lic# _____

Physician's electronic or digital signature must meet criteria listed in Health and Safety Code §166.082(c).

All persons who have signed above must sign below, acknowledging that this document has been properly completed.

Person's signature _____ Guardian/Agent/Proxy/Relative signature _____

Attending physician's signature _____ Second physician's signature _____

Witness 1 signature _____ Witness 2 signature _____ Notary's signature _____

This document or a copy thereof must accompany the person during his/her medical transport.

TCP_09 Criteria for Death and Withholding Resuscitation

CPR and ALS treatment are to be withheld in the pulseless and apneic patient only if the patient is obviously dead per criteria below or a valid **Out-of-Hospital Do Not Resuscitate Form** (OOH-DNR) and/or **OOH-DNR ID device**. The form and device may be from any (US) state. (see DNR policy)

1. Resuscitation efforts should not be initiated or continued by a provider if one or more of the following is present:
    - Rigor mortis and/or dependent lividity;
    - Decomposition;
    - Decapitation;
    - Incineration;
    - Obviously mortal wounds (severe trauma with obvious signs of organ destruction)
    - Patient submersion greater than 20 minutes from arrival of first Public Safety entity until the patient is in a position for effective resuscitative efforts to begin
    - Fetal death with a fetus < 20 weeks by best age determination available at scene (Is considered products of conception and does not require time of death).

Note: If you are unsure whether the patient meets the above criteria, *initiate resuscitation* and **contact medical control.**

In the case of any of the above criteria being met, TOD (time of death) should be obtained through EMS communications (does not require online medical direction). Provide the following information via assigned radio frequency or secure land line:

- Age of patient.
- Which of the above "obviously dead" criterion are applied to this patient.
- ID of provider: Either Last name, badge #, *or* Engine # *and* position (e.g., "Engine ---, Driver").
- State "Per standing order, Dr. Kempema"

2. If resuscitation efforts have been initiated or continued by a system provider discontinuation is at the discretion of a provider credentialed at the paramedic level.

Providers remain with victim's body until law enforcement personnel have assumed custody and have dismissed providers.

- **Document in the PCR the specific indications for withholding or terminating resuscitation. Fetal death < 20 weeks may be documented on mothers PCR (if ≥ 20 weeks create separate PCR).**
- **Include an ECG strip if resuscitation was initiated or continued prior to obtaining a TOD.**

TCP_10 Cancellation or Alteration of Response

This document gives providers direction for cancelling or altering an initial response to a request for service in the Travis County System. There are multiple scenarios that FRO/providers may find it necessary to alter or cancel responses based on the patient or scene presentation. The potential scenarios are many and varied, thus alteration of response is left to the discretion of the providers.

- Resources will be initially dispatched to a 911 request for service based on the currently approved Medical Priority Dispatch (MPD) standards.
- After assessing the patient(s) and making a determination of needed resources any on-scene provider may modify or cancel the response mode of any other system provider not already on-scene.
- If cancelled, responders may, at their discretion, reduce their response to a Code 1 response (no lights/sirens) and continue to the scene in order to provide other assistance deemed appropriate by their organization. This does not apply to responses for responsibilities outside of patient care (other hazards, etc).
- FRO's will ensure proper documentation of cancellation/modification of response is documented in their reporting system with supporting information.

TCP_11 On-scene Authority & Patient Care

Responding agencies shall assume their scenes and provide incident management based on their respective departmental policies and the NIMS frame work as adopted by the Texas Division of Emergency Management. Providers within the Travis County EMS System are responsible for providing patient care in accordance with the prescribed protocols, standards and procedures. However there may be times when providers disagree about the care being delivered. Patient safety is the responsibility of every provider and any concerns should be immediately brought to the attention of other caregivers at the scene. In ANY disagreement regarding circumstances relating to patient care, a professional demeanor and focus on the best interest of the patient is paramount. In order to maintain an orderly scene and allow rapid resolution of conflict a hierarchy of clinical responsibility must be established.

1. In the event of conflicting approaches to providing patient care, extraction, or transport, it is the responsibility of the on-scene Providers to reach consensus as to the most appropriate care for the patient(s). In the event of unresolved conflict, the Senior Provider on-scene has final authority and responsibility for decisions regarding patient care. If there is a conflict involving a supervised provider (Cadet/Student/Candidate) the assigned training officer has authority (at their level of Credential) and should be consulted.
2. Seniority of Credentials (in descending order) is:
    - Medical Director or designee
    - On-Line Medical Consultation Physician
    - On-scene Physician (see Physician on Scene Policy)
    - Shift commander/area commander, etc.
    - Highest credentialed provider

If conflict arises between equally credentialed providers, On-Line Medical Consultation should be obtained.

In almost every instance, care should be turned over to the transporting provider as soon as is practicable, unless the FRO has a higher level of care available. The FRO providers should continue to assist the EMS provider, if necessary, or return to your scene command for any additional assignments.

3. All significant or unresolved conflicts regarding on-scene management of patients should be reported via the appropriate chain of command and will be retrospectively reviewed in accordance to each organization's review process and the DCPE (see Required Reporting Policy).
4. If any provider, regardless of certification, feels the conflict negatively impacted patient care the incident should be reported to their organizations review process and the DCPE (see Required Reporting Policy) as soon as practical without causing an additional impediment to care.

TCP_12 PHYSICIAN ON SCENE / PATIENT'S PERSONAL PHYSICIAN

Occasionally a physician (other than the medical director or associate medical directors) will attempt to provide assistance at a pre-hospital scene. When this occurs, the first action is to confirm that the individual is an actively licensed Texas Physician. The physician should at minimum provide a wallet card from the State Medical Board identifying them as a physician with an in-date expiration. For additional information, see the Texas Medical Board website. The following provides guidelines for a physician at the prehospital emergency scene:

The Good Samaritan Physician: This physician has no previous connection or relationship with the patient. The doctor should be courteously informed that you are functioning under the delegated practice of a licensed physician medical director. To take control of the scene, the physician must:

- Submit verification of physician status by providing proof of medical licensure or verifiable personal identification by personnel on scene. If this status cannot be verified, assistance should be **courteously** declined.
- The doctor must be willing to assume responsibility for the patient at the scene and be willing to accompany the crew and patient to the hospital if so requested. This provider must also be willing to sign on the medical record and provide a supplement report as to any care performed.
- EMS personnel will not perform any treatments or procedures that are not within their scope of practice and should contact medical control with any questions or concerns.

A Physician and Patient in the Provider's Office or Other Medical Facility: Here the physician has a relationship with the patient and is already providing care. The EMS responder should respectfully listen to all information from the healthcare team and integrate into the care situation.

- The physician should be allowed to assist and participate in the patient's care while in the medical facility and may make recommendations to the EMS crew for care during transport, so long as that care is within the scope of practice for that provider.
- Otherwise, once the transport phase is initiated, the physician must be willing to comply with Good Samaritan physician rules as above and accompany the patient to the hospital.

Patient's Personal Physician: Patients with certain specialized conditions may have written orders from their personal physician on how to treat them. Examples may include – but are not limited to - Adrenal insufficiency (Addison's disease), seizure disorders, hemophilia, etc. The field provider should follow the orders of the patient's personal physician, while remaining within their scope of practice.

- Medications prescribed to the patient may be administered – according to the patient's prescription, written by the patient's physician – by field providers, so

long as the administration route is within the scope of practice, and within credentialed level, of the provider.

- Follow the direction / guidelines as written by the patient's personal physician, which should be in possession of the patient or guardian / care giver.
- If in doubt contact medical control.

TCP_13 Destination, Bypass and Diversion

13.01 Decision Making and Patient Preference

The medical and/or surgical needs of the critically ill or injured patient are always the **primary** consideration in determining transport destination. However, for the alert patient with medical decision making capacity, the patient may determine the final destination. If a patient requests a destination that is not medically appropriate, the EMS provider should make every effort to inform, educate and recommend to the patient the most appropriate destination. This process should mirror a patient refusal process and explain that the patient may suffer death, permanent disability or a poor outcome as a result. However, the patient always has the right to make an informed consent decision, good or bad. This should be clearly documented in the PCR.

In general, critically ill medical patients should be transported to the closest appropriate facility that can stabilize their immediate medical needs. The exception to this rule can be made if it is felt that it is in the patient's best interest to be transported to a specialty care hospital, rather than the closest facility. This may apply in trauma, STEMI and stroke, amongst other conditions.

Critically injured patients require rapid transport to the closest hospital capable of handling trauma patients. Determination of appropriate transport destination should be based upon the patient's immediate condition, location of the call, possible traffic delays, and the needs of the patient in the critical first hour of trauma. When in doubt, refer to TSA-O guidelines below.

Otherwise, transport of most patients shall be to the hospital of the patient's choice with regard to current system status, unless specified by legal order. EMS providers may indicate a maximum transport boundary approved by policy and inter-local agreement. Patients requesting transport to facilities outside the transport boundary should be informed of the policy and offered transport to any other acceptable facility inside the boundary. If the patient refuses and needs medical care, the EMS provider should make reasonable attempts to summon other providers that can transport to the desired destination.

Providers should remain on scene and provide care until arrival of that provider unless released by Medical Control order.

First responder organizations will NOT transport patients in non-ambulance vehicles to the hospital except during declared disaster or very select MCI operations. Approval must be given from the transport provider having jurisdictional authority and the Medical Director.

13.02 Trauma Service Area- O Guidelines

It is recognized that the Central Texas Regional Advisory Council (CATRAC) and TSA-O have set guidelines for all members within their coverage area. Providers covered under these guidelines are members of the organization and will adhere to those best practices set forth by the TSA-O / CATRAC unless another policy, procedure or guideline supersedes that practice. It is required that EMS agencies remain up to date and advise personnel on current best practices contained within the TSA-O / CATRAC guidelines. The website and up to date information can be found at www.catrac.org.

Best practice guidelines references include but are not limited to:

- Regional Medical Control and Oversight
- Pre-Hospital triage Criteria
- Pre-Hospital Patient Care Guidelines
- Traumatic Brain Injury Guidelines
- Air Medical Transport Guidelines
- Facility Diversion Criteria
- Facility Bypass Criteria
- Inter-facility Transfers

13.03 Diversion

TSA-O facilities, both designated an undesignated, should request diversion activation only when the resources or capabilities of that facility have been exhausted to the point that further EMS traffic would jeopardize the care and treatment of patients at that facility as well as any subsequent patient transported to that facility by EMS. It is recognized in advance that no diversion strategy can guarantee total compliance with these guidelines and it is likely that EMS will deliver patients to hospitals that have requested diversion activation. It is further understood that a request for diversion activation is honored as a courtesy by EMS. Patient's informed wishes will be honored. Each facility is responsible for defining facility-specific policies and procedures for implementation of these guidelines.

Communication of diversion status – A hospital shall communicate "facility diversion" status promptly and clearly to regional EMS and trauma facilities through EMResource and the regional communications center.

Time period for diversion status – Diversion status will be in allotments of up to four (4) hours. A hospital may deactivate a diversion status at any time. Failure of a hospital to update EMResource at the end of the requested four (4) hour allotment will result in automatic deactivation of that hospital's diversion status.

Authorization to over-ride diversion status – Diversion is considered a "request". EMS may over-ride a diversion status after consideration of the following:

- The patient's clinical presentation
- Distance and estimated time to an alternate appropriate facility
- Inclement weather conditions
- Resource availability and capability of the transporting pre-hospital provider
- An informed patient preference

13.04 Facility Bypass

Trauma Goal – Patients who have been assessed and determined to be medically unstable, unconscious, or at high risk of multiple and/or severe injuries will be safely and rapidly transported to the TSA-O Level I or II Trauma Centers. All other trauma patients will be safely and rapidly transported to the nearest appropriate trauma facility or nearest appropriate acute care facility within TSA-O.

Trauma Decision Criteria – Regional transport guidelines ensure that patients who meet the triage criteria for activation of the TSA-O Regional Emergency Healthcare System Plan will be transported directly to the nearest appropriate trauma facility rather than to the nearest hospital except under the following circumstances:

- If unable to establish and/or maintain an adequate airway, or in the case of traumatic cardiac arrest, the patient should be taken to the nearest acute care facility for stabilization.
- A Level III or Level IV trauma facility may be appropriate if the expected scene to Level I/II Trauma Center transport time is excessive (> 30 minutes) and there is a qualified physician available at the facility's Emergency Department capable of delivering stabilizing care.
- Medical Control may wish to order bypass in any of the above situations as appropriate, such as when a facility is unable to meet hospital resource criteria or when there are patients in need of specialty care (burns).
- Consider air medical resources if any of the follow apply:
    - expected ground transport time to the nearest appropriate Trauma Center is excessive (> 30 minutes)
    - or if a lengthy extrication time (> 20 minutes) is expected
    - if transport has a > than 20 minute ETA to the scene
    - provider discretion
    - capabilities outside the local transport service

Note: Should there be any question regarding whether or not to bypass a facility, on-line medical control should be consulted for the final decision from the receiving facility.

13.05 STEMI and Stroke Criteria – EMS providers covered under these guidelines have the authority to construct local STEMI and Stroke transport policies with the input of the Medical Director. Providers will use locally obtained data and statistics when considering rankings for local / regional facility transport criteria. For a facility to be considered as a potential transport destination center, they must have the following capabilities:

- STEMI – 24 hour primary PCI with an approved activation process and door to balloon times in accordance with current AHA/American Chest Pain Society guidelines.
- Stroke – Primary or Comprehensive stroke center designation unless not immediately available in that County. Otherwise, 24-hour access to providers trained in emergency stroke assessment (Emergency Medicine Physician, Neurologist, and Telemedicine Neurologist), stat CT access and tPA administration capability.
    - Providers should consider transport to a comprehensive center over primary when transport to the comprehensive center adds no more than 20-30 minutes to the transport time.
    - Consider immediate diversion to local tPA capable center if patients are very close to the end of the "three-hour treatment window". Consider consulting medical control for advice.

13.06 ROSC and Post-Resuscitation – Based on current research and literature, it is clear that for adult and possibly adolescent sudden cardiac arrest without neurologic improvement, therapeutic hypothermia is the standard of care. Additionally, not only ROSC but disposition at hospital discharge is very dependent on excellent continued post-cardiac arrest care including hypothermia, excellent ICU care, access to STEMI care and therapy services.

Thus, all post-cardiac arrest patients should be taken to resuscitation centers of excellence who offer therapeutic hypothermia, STEMI care services, ICU care and rehabilitation/PT services for these patients. EMS providers covered under these guidelines have the authority to construct local STEMI and Stroke transport policies with the input of the Medical Director. Providers will use locally obtained data and statistics when considering rankings for local / regional facility transport criteria. For a facility to be considered as a potential transport destination center, they must have the aforementioned capabilities. For providers covered under these patient treatment guidelines, a list of Hospitals and their capabilities is found below.

TCP_14 Crime Scene Operations

EMS personnel are sometimes required to operate at scenes where a crime has been committed. This may include the care of victims of crime (assault and battery, sexual assault), suspects and even injured police officers. Many situations can develop into a crime scene including motor vehicle accidents, fires, rescue calls, etc. When responding within a crime scene, it is important to protect yourself, preserve important evidence, and still carry out the function of providing emergency care. When prehospital personnel are called to enter a suspected crime scene, the following guidelines should be adhered to:

1. Establish scene safety.
    a. Make sure law enforcement is en route if not already present.
    b. Do **NOT** enter an unsafe scene until it is safely secured by law enforcement.
2. If you unknowingly arrive at a scene and suspect the possibility that a crime has been committed, have law enforcement respond.
3. Be careful **not** to touch or alter any surroundings unless it is absolutely necessary.
    a. Do **not** leave any personal items (gum wrappers, cigarette butts, medical supplies or packages, etc.) at the scene.
    b. If anything at the scene (including the patient) is moved, law enforcement must be advised and this should be documented.
    c. Never touch anything that may have been used as a weapon unless absolutely necessary to preserve safety.
4. Limit access to the immediate scene to essential personnel only. The fewer people entering the crime scene, the lesser the chance of disturbing evidence.
    a. Entry and exit routes should remain the same.
    b. When establishing if a patient is still alive (especially at a suspected homicide scene), it is often best if only one crew member enters the area initially.
    c. Avoid walking through blood if present.
    d. Any suicide note should **not** be handled.
5. If a viable patient is encountered, proceed with patient care. The following situations and responses may be indicated:
    a. Hanging – leave all knots intact, including the knot that the rope is suspended from and the knot making the noose. If the rope has to be cut to care for the patient, cut the rope in an area halfway between the noose and the suspension point.
    b. Weapons – unless absolutely necessary to make safe, EMS personnel should **not** move any weapons. If possible, this should be left to law enforcement. The weapon should be removed to a safe place, far away from the patient and bystanders. Firearms should **not** be tampered with, opened, or unloaded.
    c. When treating patients that have sustained penetrating wounds and the clothes need to be removed, do **not** cut through knife or bullet holes (may affect subsequent evidence analysis).
    d. Retain all removed clothing and personal effects, do not throw away anything. If possible place all recovered items in a clean paper bag.
6. Sexual assault – it is important that victims of sexual assault be moved quickly to a safe environment. It is vital that the patient **not** shower or wash any part of their body or clothing, change their clothing, or use the bathroom when able to wait.
    a. If the clothing underwear have already been removed, then either bring them into the ED with the patient for evidence collection or leave with law enforcement.
    b. All sexual assault victims (**both adult and pediatric**) should be transported to an appropriate emergency department that has a forensic nurse (SANE) program. Never use the verbiage “sexual assault” or “rape” on any radio communications (protect patient privacy). The term “assault” can be used by itself, or if necessary the ED may be contacted via cellular phone.
7. Deceased bodies
    a. Bodies of patients determined to be dead at the scene are **not** to be moved until authorized to do so by the Medical Examiner. This may require in some instances that the ambulance remain on the scene until released by the Medical Examiner.
    b. All invasive interventions on crime victims should be noted in the EMS run report and no indwelling device (IV catheter, EKG patches, ET tubes) should be removed. All should be left in place until removal is authorized by the Medical Examiner.
    c. Unless not allowed due to danger or prohibited by law enforcement, an EKG “strip” should be obtained on all patients documenting the rhythm of the deceased and timed to be given to the Medical Examiner. The exception to this guideline is obvious signs of death are noted on arrival (i.e. decay, decapitation, rigor, etc).
8. Occasionally, crime scenes are such that law enforcement officers may declare a patient dead and prohibit EMS personnel from entering the scene.
    a. When this situation arises, the fire officer should discuss the situation thoroughly with the law enforcement officer in charge.
    b. Ultimately the decision to allow entrance rests with the law enforcement officer in charge. If prohibited from accessing the patient, pleasantly request the law enforcement officer’s name and ID number, advising them it is only for documentation purposes and clearly reflect such in the PCR.
9. Chain of Custody
    a. Whenever it is necessary to remove any item from a crime scene, it is important that every effort be made to comply with the chain of custody or chain of evidence procedures.
    b. Evidence may include the patient’s body itself, clothing, belongings, etc.
    c. The evidence must always be in the possession or custody of an identifiable person or secure (locked) place and the chain of possession must be documented.

10. Dying declaration – is a statement made by a patient prior to death to convey some information. The patient may indicates the name of the person responsible for a crime, may ask for something related to a loved one or may confess to a crime themselves.

    a. Such statements may be admissible in court if the victim is critically injured, has a sense of impending death, and does not believe that there is any hope of recovery.

    b. In the event that you are present during such a statement, it is important that you try to remember the victim's exact words and the circumstances surrounding the statement.

    c. Try to record this information in writing and pass it on to appropriate representation as soon as possible.

TCP_15 Child Abuse & Domestic Violence Reporting

15.01 CHILD ABUSE RECOGNITION AND REPORTING

Assessment of a child abused based upon the following principles:

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

Children suffer several types of abuse. All are harmful to their physical and emotional development and all require intervention. Under the Child Abuse Prevention and Treatment Act (CAPTA), child abuse and neglect means, at a minimum, *"Any recent act, or failure to act, on the part of a parent or caretaker, which results in death, serious physical or emotional harm, sexual abuse, or exploitation, or an act or failure to act which presents an imminent risk of serious harm."* By Texas State law, all healthcare providers are obligated to report cases of suspected child abuse or neglect to either the local law enforcement agency or the Texas Department of Regulatory and Protective Services (TDRPS).

1. Stabilize and treat all injuries.
2. Immediately request law enforcement assistance.
3. Do not initiate a report to law enforcement or social services in front of the patient, parent, or caregiver.
4. If sexual abuse is suspected, discourage the patient from washing.
5. If patient, parent, or caregivers are hostile, protect your safety and immediately request law enforcement assistance.
6. Do not confront or become hostile to the parent or caregiver.
7. Document:
    - In their own words (in quotation marks) all statements by the patient, the parent, or caregiver, including statements made about the manner of the injuries
    - Any abnormal behavior of the patient, parent, or caregiver
    - The condition of the environment and other residents present
    - Who received the report of suspected abuse or neglect
    - If reporting is done after PCR completion, an addendum should be written and attached with reporting date, time, who reported to, etc. This will serve to protect the Provider.
8. Notification:
    - If a notification of abuse or suspected abuse has been made to Law Enforcement or Texas Department of Regulatory and Protective Services (TDRPS), notify the appropriate supervisor to provide support for the completion of reporting regulations and processes. Upon arrival at the destination hospital notify the accepting providers of your concerns.
    - Notifications made to personnel other than Law Enforcement or Texas Department of Regulatory and Protective Services (TDRPS) does not relieve you of your obligation of proper notification.

15.02 DOMESTIC VIOLENCE (PARTNER/ELDER ABUSE) RECOGNITION AND REPORTING

Domestic violence is physical, sexual, or psychological abuse and/or intimidation, which attempts to control another person in a current or former family, dating, or household relationship. Elder abuse is the physical and/or mental injury, sexual abuse, negligent treatment, or maltreatment of a senior citizen by another person. Abuse may be at the hand of a caregiver, spouse, neighbor, or adult child of the patient. The recognition, appropriate reporting, and referral of abuse is a critical step to improving patient safety, providing quality health care, and preventing further abuse.

Assessment of an abuse case is based upon the following principles:

- Protect the patient and the first responder and team from harm
- Suspect that the patient may be a victim of abuse, especially if the injury/illness is not consistent with the reported history
- Respect the privacy of the patient and family
- Collect as much information and evidence as possible and preserve physical evidence

1. Assess the/all patient(s) for any psychological characteristics of abuse, including excessive passivity, compliant or fearful behavior, excessive aggression, violent tendencies, excessive crying, behavioral disorders, substance abuse, medical non-compliance, or repeated EMS requests. This is typically best done in private with the patient.
2. Assess the patient for any physical signs of abuse, especially any injuries that are inconsistent with the reported mechanism of injury. Defensive injuries (e.g. to forearms), and injuries during pregnancy are also suggestive of abuse. Injuries in different stages of healing may indicate repeated episodes of violence.
3. Assess all patients for signs and symptoms of neglect, including inappropriate level of clothing for weather, inadequate hygiene, absence of attentive caregiver(s), or physical signs of malnutrition.
4. Immediately report any suspicious findings to the receiving hospital (if transported). If an elder or disabled adult is involved, the Local Law Enforcement Agency or Texas Department of Regulatory and Protective Services (TDRPS) must also be contacted.

TCP_16 REQUIRED REPORTING TO MEDICAL DIRECTOR AND DCPE

Texas Medical Board, Rule 197 requires Texas EMS Medical Directors to supervise and accept responsibility for numerous aspects of pre-hospital medicine operations. While the medical director is not immediately responsible for EMS operations, some operational features do fall within the purview of the medical director. Accordingly, EMS transport agencies and FROs covered under these guidelines will agree to comply with the reporting guidelines indicated below. Failure to comply will result in three levels of warning, verbal, written and final after which the medical direction agreement may be terminated or level of practice restrictions placed on the agency.

16.01 Items Requiring Immediate Reporting (must be reported within 24 hours of the event):

- Medical errors, medical equipment failures or unexpected adverse patient outcomes*.
- Medical complaints from patients, payers, medical facilities or State of Texas.
- Threats of legal action, lawsuits, subpoenas, etc.
- Narcotic related issues, loss, accidental destruction, DPS/DEA action.
- Disciplinary action against agency or providers from Texas DSHS.
- Airway management failure.
- Significant employee injury or exposure (notify EMS Training Captain).
- For any conflict/disagreement on scene.
- Any sentinel event*.
- Anything you believe DCPE needs to be made immediately aware of.
- Any item cited elsewhere in these policies.
    - These reporting items apply regardless of whom has assumed care of the patient (FRO, EMS provider, by-stander or third party medical participant).

16.01.a: Contact and reporting methods

- Pulsara or phone call (512) 854-2362 to the Medical Director on-call.
    - ***Required method for any * event above***.
- A follow up email or phone contact to the EMS Training Captain assigned to the ESD by the Department Clinical Coordinator.

16.02 Items Requiring Monthly Reporting:

- Addition or deletion of Texas DSHS certified personnel from roster (email to jennifer.lapaglia@traviscountytx.gov and the EMS Training Captain assigned to the ESD).
- Any case where providers have a question about appropriate care or would like patient follow-up. The ESD clinical contact should send this to the EMS Training Captain assigned to the ESD.

16.03 Items Requiring Annual Reporting: submitted for the previous year and due Jan 31st for New Year). Email to jennifer.lapaglia@traviscountytx.gov.

- Total number of advanced procedures performed (separate successful and unsuccessful)
    - RSI
    - Procedural sedation or chemical relaxation
    - Invasive procedures (pleural decompression, etc.)
    - Pacing, cardioversion
    - IO
- Total cardiac arrest with ROSC
- Total Termination of Resuscitation in the field
- STEMI, stroke and trauma activation
- Current membership roster for all Texas DSHS certified personnel, including expiration.

For any reporting issue involving medical care, access to the patient care record (PCR) must be made available if requested. For agencies using an electronic medical record and who have provided EMR access to the medical director, submission of relevant run number or patient identified is sufficient. For those using paper charting, a copy of the run sheet should be submitted.

Documents should be submitted and handled in accordance with HIPPA compliant procedures. They may be scanned, encrypted and sent electronically or hand delivered.

TCP_17 PATIENT CARE REPORTING & MAINTENANCE OF RECORDS

17.01 Reporting Requirements and Maintenance of Records - Any EMS provider or First Responder Agency covered under these guidelines shall adhere to the CMS defined statutes for record storage, maintenance and have a department policy for such if record maintenance is taking place outside of the ESO platform.

- Call types requiring documentation:
  - Treatment and transport
  - Treatment and refusal
  - Refusal of care
  - No injury calls (requires 2 victim identifiers and description of incident)
- Patient care reports shall be completed no more than 24 hours of patient contact.
- Any locked record that requires changes or additions should be done in the form of an addendum; do not alter the original record.
- FRO/Providers shall leave at minimum a "short report form" when delivering any prehospital patient to a facility (typically ED, L&D, etc.) that at minimum contains:
  - Basic call type and information (patient hx, meds, allergies)
  - Initial V/S, ending V/S
  - Pertinent exam findings and data (EKG interpretation, BGL, etc.)
  - Treatment
  - Response to treatment
- FRO/Providers shall complete all patient care records using a commercially approved ePCR approved by the EMS medical director.
- First responder organizations may use either a paper record or ePCR approved by the medical director.
- A copy of the completed patient care report shall be available to the licensed EMS provider within five (5) days of date of the incident (or immediately upon reasonable request).
- All patient care records, especially those on paper shall be properly stored and secured in accordance with proper HIPAA procedures. This includes:
  - A secure location to deposit reports following completion.
  - The ability to shred/destroy PHI containing documents.
  - A secure storage location, inaccessible to the general public, for medical records.
  - A written policy or process to ensure that other responders/employees do not access PHI records for patients they did not provide care for (excluding billing, QA/QI process).
- When necessary, the licensed EMS provider, the EMS provider's Medical Director, and the FRO (via the DCPE) shall exercise a Business Associate Agreement in compliance with HIPPA regulations to allow the exchange of protected information related to patient care.
- All medical records shall be kept for a minimum of 7 years, or until the patients 21st birthday, whichever is longer.
- All providers with an ePCR should have a formalized process on how the ePCR company will:
  - Protect and Store patient records
  - Provide records on request
  - Destroy records
  - Provide records to the provider/FRO upon termination of the ePCR contract or upon cessation of business
- For those agencies using ESO, you can reference the 2018 ESO Security Guide or for additional information, contact ESO @ www.esosolutions.com.

17.02 Documentation of the Patient Care Report

To provide consistent and accurate documentation on the PCR, the following are the minimum requirements for all patient encounters:

1. Be truthful, accurate, objective, pertinent, legible, and complete with appropriate spelling, abbreviations and grammar.
2. Use only approved medical abbreviations (refer to Appendix).
3. Reflect the patient's chief complaint and a complete history or sequence of events that led to their current request or need for care.
4. Contain a detailed assessment of the nature of the patient's complaints and the rationale for that assessment.
5. Reflect the initial physical findings, a complete set of initial vital signs, all details of abnormal findings considered important to an accurate assessment and significant changes important to patient care. Reflect ongoing monitoring of abnormal findings.
6. Summarize all assessments, interventions and the results of the interventions with appropriate detail so that the reader may fully understand and recreate the events.
7. For drug administrations, include the drug name, drug concentration, volume or dosage administered, route, administration time, indication, and response.
8. List all treatments in chronological order. Response to treatments should also be listed
9. For patients with extremity injury, note neurovascular status before and after immobilization. For patients with spinal immobilization, document motor function before/after spinal immobilization.
10. For IV administration, document the catheter size, site, number of attempts, type of fluid, and flow rate.
11. Include a lead II strip for all patients placed on the cardiac monitor (where applicable). Any 12-leads should also be included. Any significant rhythm changes should be documented. For cardiac arrests, the initial strip, ending

strip, pre and post defibrillation, pacing attempts, etc. should be attached. Or, electronically captured, uploaded and combined with the ePCR record.

12. Document clearly any requested orders, whether approved or denied and MD name.
13. Document any waste of narcotics including the quantity wasted, where wasted, and must have the name of the person who witnessed the waste.
14. Include an explanation for why an indicated and appropriate assessment, intervention, or action prescribed by the Clinical Operating Guidelines did **NOT** occur.
15. EMS Providers only - Be available in an acceptable time period after the patient encounter by leaving the ePCR short form at the hospital if transported.
16. Remain confidential and be shared only with legally acceptable entities.
17. If multiple System Organizations are on the scene, at least one System Provider/Responder making patient contact from each response organization is responsible for documenting ALL interactions, assessments and treatments their response organization provided to the patient on a separate PCR for their Organization.
18. Secure monitor data (.tdp file) from the monitor(s) for all airway management calls where applicable (or notify the DCPE of any airway management calls so they can secure the data).

Once the PCR is completed, original document will not be modified for any reason. Any changes required to correct a documentation error or for clarification shall be recorded in an addendum.

17.03 Vital sign documentation

1. Vital signs obtained mechanically should be checked manually to ensure that they correlate with the mechanical monitor. If there is a discrepancy, manual vital signs should be continued. Initial vital signs may be deferred until transport in severe trauma where other treatments and packaging may take priority and vital signs may interfere with the timely execution of these priorities. An initial complete set of vital signs includes:
    - Pulse rate
    - Systolic AND diastolic blood pressure
    - Respiratory rate
    - Pain / severity (pain scale used & score), how pain was treated and response to treatments with pain scale.
    - GCS
2. Based on patient condition and complaint, vital signs may also include:
    - Pulse Oximetry (required for patients with a respiratory complaint or finding or treatment for such)
    - Temperature
    - End Tidal CO2
3. If the patient refuses this evaluation, document the refusal in the PCR.
4. When any components of vital signs were obtained using the cardiac monitor, the data should be exported electronically to the patient care report. Where values are inconsistent with manually obtained values, values may be appropriately edited to reflect the manually obtained values. Documentation should reflect this as an edit.
5. The pulse rate should be obtained through palpation. A pulse oximeter heart rate is also acceptable.
6. Record the time vital signs were obtained.
7. Any abnormal vital sign should be repeated and monitored closely.
8. Vital signs should be obtained approximately every 10 minutes (5 minutes for patients considered to be critical). The FRO/provider should change the frequency as needed to appropriately care for the patient. **At a minimum**, a set of vital signs is obtained initially and again just prior to disposition (e.g. obtaining a refusal of transport, arrival at the ED, handing off the patient to hospital staff other than ED) **if** 10 minutes or more has elapsed since the first set of vital signs (5 minutes for patients considered to be critical).
9. An initial set of vital signs is obtained once the patient can be accessed and the patient consents to assessment.

TCP_18 Emergency Medical Dispatch

EMS units and FRO's will be dispatched in accordance to the standards agreed upon by the FRO's, Medical Directors of each organization and the Medical Priority Dispatch (MPD) Guidelines.

- This standard establishes a uniform level of response for the EMS System and provides for the safest and most appropriate level of response to the patient(s)
- EMS Units and First Responders will respond Code 1 or Code 3 as guided by communications. As more information from EMS Communications or on scene medical responders becomes available, the response may be upgraded to Code 3 or downgraded to Code 1.
- The FRO's maintain discretion through their individual departmental policy to modify a response mode if they believe it is in the patients best interests.
- Maintenance of 'Due Regard' for the public's safety always prevails in response mode decision making.
- Typical dispatch guidelines**:**

1. EMS Units and First Responders dispatched for Code 1 response, should not upgrade to a Code 3 response unless:
    - The EMS Communications personnel determine that the patient's condition has changed and upgrades the incident to a Code 3 response
    - Public Safety personnel on-scene requests a Code 3 response
    - FRO discretion
2. EMS Units and First Responders may be diverted from a lower priority incident (e.g., Priority 3, 4 or 5) to a higher priority incident (e.g., Priority 1 or 2) based on MPD Guideline, if the diversion provides a significant time savings.
3. The EMS unit or First Responder may divert their response if they come upon what appears to be a higher priority incident (e.g., en route to a Priority 3, 4 or 5 incident and comes upon an MVC with high potential for patients in need of immediate intervention or transport).
4. EMS Units and First Responders may by-pass what appears to be a lower priority incident and continue to the originally assigned incident. EMS Communications should be notified so that additional resources may be assigned to the lower priority incident.

TCP_19 Infant Abandonment

Texas law provides a responsible alternative to mothers who might otherwise abandon or harm a newborn child. It states that a parent may leave an unharmed infant, up to 60 days old, at any hospital, fire station or EMS station with "no questions asked."

Sec.262.302 of the Texas Family Code, states…(a) A designated emergency infant care provider shall, without a court order, take possession of a child who appears to be 60 days old or younger if the child is voluntarily delivered to the provider by the child's parent and the parent did not express an intent to return for the child.

(b) A designated emergency infant care provider who takes possession of a child under this section has no legal duty to detain or pursue the parent and may not do so unless the child appears to have been abused or neglected. The designated emergency infant care provider has no legal duty to ascertain the parent's identity and the parent may remain anonymous. However, the parent may be given a form for voluntary disclosure of the child's medical facts and history. (c) A designated emergency infant care provider who takes possession of a child under this section shall perform any act necessary to protect the physical health or safety of the child. The designated emergency infant care provider is not liable for damages related to the provider's taking possession of, examining, or treating the child, except for damages related to the provider's negligence.

- Protection to infants that are placed into the custody of an EMS provider under this law.
- Protection to EMS systems and personnel when confronted with this issue.

Process

- Initiate the Pediatric Assessment Procedure
- Initiate Newly Born Protocol as appropriate
- Initiate other treatment protocols as appropriate
- Keep infant warm
- Call local Department of Social Services as soon as infant is stabilized
- Transport infant to medical facility per protocol
- Assure infant is secured in appropriate child restraint device for transport
- Document protocols, procedures, and agency notifications in the PCR.

TCP 20 Accompanying EMS Providers

These are unique calls for service where the patient requires an ALS provider but the responding provider unit is a BLS or ALS MICU with a staffing configuration that leaves the FRO with the highest level of provider on scene, or if the FRO provides patient care outside the scope of the transport provider. Under these circumstances, the FRO will need to accompany the patient during transport and continue care as set forth in the patient care guidelines.

The FRO shall have a policy set forth that allows for a safe execution of any transport. The policy should address the following when applicable:

- Safety of the personnel during transport (reference the Provider agencies operation polices to ensure they align with the FRO. If they do not meet the FRO's standards, notification to the Provider agency and the DCPE should be made to address the issues).
- Communications that address notification process for any out-of-service time for the unit in its primary response area that include the agencies chain-of-command and MEDCOM
- Process to retrieve the provider and return the apparatus to service
- Notification with 24 hours to the DCPE
- Contact medical direction as needed

TCP_21 FRO Service and Notification of Calls

The FRO's shall be available for service 24-hours per day, 7 days per week, year round and shall promptly respond to requests for service. The Austin Fire Department (AFD) shall notify the FRO when needed. In situations when the FRO is unable to respond to calls for service, the FRO shall notify AFD communication personal immediately as well as the DCPE. Requests for mutual aid by the next closest appropriate apparatus will be made by AFD.

TCP_22 Medication Administration Safety and Handling/Storage

22.01 Medication Administration Safety

To standardize the appropriate medication administration methods necessary to improve patient safety and patient outcomes. The intention is to establish processes that will minimize the likelihood and impact of errors associated with medication administration by preventing the error from occurring or preventing the error from reaching the patient.

- All medications must be administered in accordance with current Clinical Guidelines, References, and Procedures.
- The PediaTape device (or other FDA approved pediatric measuring device) must be used to determine the estimated weight for all pediatric patients.
    - All details of medication administration must be accurately and completely documented in the patient care record. This documentation shall address applicable VS, signs/symptoms that warrant administration, and outcomes/changes in PT condition of the treatment.
- Medication checks are mandatory for **ALL** medications. Uniformly administering medications in the same format w/cross checks will reduce Rx administration errors. Following the 5 R's of:
    - Right patient
    - Right medication – read the drug name outload and confirm with team. Do not fall identify medications by color schemes.
    - Right dose – state concentration and dose required outload, confirm with team.
    - Right route – confirm appropriate route with team
    - Right time – confirm the appropriate time to administer medications
- Confirm no allergies at least two (2) times
- Confirm patient weight if Rx is weight based administration
- If aiding a provider agency in patient care during medication administration, using any checklists is approved if they are available and only if they meet or exceed this policy.

22.02 Medication Handling/Storage

Responsibilities for continuous storage and preservation of medications on emergency response units for **EMS Providers** falls within RULE §157.11. EMS vehicles must allow the proper and safe storage and use of all required equipment, supplies and medications and must allow all required procedures to be carried out in a safe and effective manner.

All vehicles shall have an environmental system capable of heating or cooling the patient(s) and staff, in accordance with the manufacturer specifications, within the patient compartment at all times when in service and which allows for protection of medication, according to manufacturer specifications, from extreme temperatures if it becomes environmentally necessary. The provider shall provide evidence of an operational policy which shall list the parenteral pharmaceuticals authorized by the medical director and which shall define the storage and/or FDA recommendations. Compliance with the policy shall be incorporated into the provider's Quality Assurance process and shall be documented on unit readiness reports.

RULE §157.14(e)(2)(b) states that the **First Responder Organization** must have a policy that addresses pharmaceutical storage. Medications must be maintained at the correct storage temperature. This information can be found in the manufacturer's prescribing information (found on the drug company's website, the PDR, or a copy that is provided by the pharmacy). A typical "Storage and Handling" section for a room temperature product reads: **Store at 20-25°C (68-77°F), excursions permitted to 15-30°C (59-86°F).** To determine a safe temperature range that accounts for the majority of pharmaceuticals carried by the Travis County FRO's/Providers under the DCPE, a maintenance range of 60 – 85 degrees will be used. The responsibility to ensure each individual medication is stored at the appropriate temperature falls on the FRO.

In the event that units are not equipped with environmental control units/equipment and the ambient temperature falls outside of these extremes, simply removing the medications and storing them in a location within the FDA and manufacturers guidelines will suffice.

Transactions reports

Per Federal law, specifically the Drug Supply Chain Security Act, all pharmaceuticals are required to be shipped with Transaction Reports. Maintenance of these reports on-site is mandatory. This office is awaiting clarification (from the FDA) of how long these records must be maintained and if an electronic version is sufficient.

TCP_23 Quality Management & Clinical Performance

The Texas Health and Safety Code (sect 773) and Texas Medical Board requirements for EMS Medical Directors (sect 197) establish guidelines in regards to System Performance Improvement.

The overarching goal of this process is improve the patient outcomes of our citizens and the visitors to Travis County. This is achievable through collaboration with the industries best practices and this process which will guide our education & training.

23.01 Quality Management—under development

23.02 Clinical Performance Review

When clinically related concerns are identified, Travis County's Performance / Quality Improvement staff will perform a systematic evaluation of the actions and omitted actions associated with the specific event or situation to identify opportunities for improvement. A clinical event review does not require actual harm or a negative patient outcome to have occurred.

To establish a standardized process for Travis County to review clinical concerns and/or reports of suboptimal clinical performance with the primary objective focused on the identification of individual and system improvements to clinical care. The DCPE will involve, whenever possible, the providers agency's administration to evaluate any clinical issues utilizing the Clinical Performance Review Process.

1. Travis County will foster an environment that encourages reporting of clinical concerns and errors including self-reporting.

2. At a minimum, a clinical performance review will be conducted when there is a deviation from clinical operating guidelines

3. Reporting of events will be provided to the Medical Director and DCPE within 24 hours. Deviations resulting in patient harm/death must be provided immediately.

4. DCPE Performance/Quality Improvement staff will conduct an initial review to:

a. gather pertinent facts, documentation and data

b. analyze the facts, data and related information

c. identify the cause(s) of the less than optimal performance

d. draft a plan for clinical improvement for review by the Medical Director

5. A report of the above findings will be drafted and submitted to the Medical Director within the prescribed time frame based on the severity of the event.

6. The DCPE will maintain copies of the Clinical Performance Review report for future review by authorized persons only.

7. All aspects of the Clinical Event Review including the proceedings, recordings and documents are considered confidential under the Texas Health and Safety Code Section 773.095.

8. All persons involved in the Review follow all requirements for confidentiality.

9. Travis County will ensure its identified performance/quality improvement staff is appropriately trained in the current methods of performance review and analysis.

10. All information, data, findings and causation will be reviewed by the Medical Director prior to implementation of the plan for clinical improvement where identified.

11. Review of each event and subsequent recommendations will follow the "Just Cause" process and algorithm.

Clinical Performance Review Process

Malicious	Reckless	Risky	Unintentional
Falsification of a patient care document	Clinician has made a conscious choice that disregards PT/community/coworkers safety.	Choice where the clinician has failed to recognize risk or justifying an unsafe choice.	Not a choice, but rather an unconcious error.
Intentionally withholding care from a patient	How severe was the action?		Training Issue?
Intentionally harming a patient	Did it result in harm?		Process Issue (COG/Policy/Procedure)?
Providing care while impaired by alcohol or drugs	Could it result in harm if repeated?		
Failure to remediate and/or participate in required education and/or review			
Immediate suspension of credentials pending the outcome of an investigation **OR** Immediate revocation	Immediate suspension of credentials pending the outcome of an investigation. Results range from written discipline, a PIP, re-training and up to revocation of the credentials.	Evaluate severity; Determine level of accountability; Develop PIP (and probation/discipline if applicable); re-train to correct behavior.	Committee review to evaluate any failures in process or training. Learn from our mistakes and share for education purposes. Develop and implement a PIP for the failed process.
The credential status of all providers practicing under the license of the DCPE Medical Director is at the discretion of the Medical Director.		Reality Question - would other clinicians with similar skills and knowledge do the same thing under similar circumstances? If Yes, then committee review of process and apply process improvement.	
		Does the clinician have a history of repeatedly making mistakes? Evaluation, coaching w/correct actions applied or suspension/revocation of credentials should be considered if warranted. Modify the above corrective actions accordingly.	

23.03 Clinical Performance

Travis County Emergency Services, Division of Clinical Performance and Education will set forth a format that allows for collaborative access to patient information and communication between this office and the FRO/Provider agencies that it is affiliated with. To meet these goals the agencies will agree upon a platform that provides this data in a way that it is modifiable, measurable, and protects patient information as set forth in the **HIPAA and Confidentiality** policy established by the DCPE.

The DCPE has established a list of data collection points, known as Key Performance Indicators (KPI's), applicable to patient encounters within the Travis County Emergency Service Districts (provider level dependent). A minimum of 2 categories will be selected for each chart reviewed. KPI's will be entered for 100% of patient encounters. Further retrospective clinical review will be conducted for those patient encounters involving cardiac arrest, ALS interventions, refusals, Stroke/STEMI/Trauma Alerts and sentinel events. KPI's that satisfy the requirements of the State of Texas Trauma Registry will be built into the selected platform. The following list are some of the KPI's to be measured (and are subject to change without notice at any time):

Travis County Division of Clinical Performance and Education

Universal Care Expectations

- Cardiac rhythm and end-tidal CO2 as appropriate
- 02 / Appropriate device - SAT 94-99%
- Blood pressure Q10
- Blood Glucose taken for Alerted Mental Status (AMS)
- Pulse Q10 minutes
- Respirations Q10 minutes
- O2 Sat Q10 minutes
- Deviations documented

Cardiac Arrest Results

- AED applied
- CPR 2 minutes prior to defibrillation
- Pit crew performed
- Anti-arrhythmic administration per guidelines
- IO successful

Advanced Airway

- Indications for advanced airway
- Confirmation of placement documentation
- Attempts

Chest Pain Summary

- Aspirin administration
- Documentation of Indications
- 02 administered
- Nitro provided if SBP > 100
- Time of onset

Stroke Summary

- Prehospital Stroke Scale performed
- Blood Glucose obtained
- Time last seen normal

Trauma Alert Summary

- Initial GCS obtained
- GCS reassessed
- Spinal Immobilization or clearance per criteria

Spinal Clearance Summary

- Documented Absence of injury
- Documented Absence of midline tenderness
- Documented absence of pain with movement
- Documented Absence of distracting injury
- Documented absence of communication impairment
- Documented normal mental status
- Documented Absence of intoxication
- Documented Absence of neuro findings

Fracture Summary

- Neuro Evaluation Before and After Splinting
- Pain scale documented
- Check pulse after splinting

Anaphylaxis Summary

- Multisystem involvement
- EPI administration
- Benadryl administration

Altered Mental Status Summary

- 02 Sat documented
- Blood Glucose obtained
- GCS assessed
- GCS reassessed

Congestive Heart Failure Summary

- O2 Sat obtained
- 02 administration
- Nitro administration
- Aspirin administration

Seizure Summary

- 02 Saturation obtained
- 02 administration
- Blood Glucose obtained
- Time of onset/duration/type
- Temperature for febrile seizures

Refusal Summary

- PT is ≥ 18 or emancipated minor
- PT is not suicidal/homicidal
- PT understands evaluation is incomplete
- Solution to obstacles have been sought
- PT instructed to seek medical attention
- PT instructed to call back at anytime
- Offer of treatment and transport
- Patient understood medical condition
- Patient has Decision Making Capacity
  - PT understands the nature of their illness
  - PT understands the risks of refusing including death
  - PT understands alternatives to EMS treatment/transport
  - PT can provide rational for refusal and debate this rationale

IV / IO Summary

- Number of attempts
- Drugs pushed
- Location and details of site documented

TCP_24 CLINICAL PATHOGEN EXPOSURES

24.01 Infection Prevention

Adherence to infection Prevention principles is the responsibility of each Responder/Provider. All EMS Responders/Providers must be aware of well-known infectious agents (Hepatitis B, influenza, etc.), as well as emerging new pathogens (Avian Flu, SARS, etc.) that present challenges to medicine and risks to Providers. A personal commitment to employing basic infection Prevention measures on every single incident will provide the simplest and best protection against infectious diseases.

24.02 Basic Protection Guidelines and Immunizations

The infection "triad" requires a portal of entry, an adequate amount of the infectious agent, and a susceptible host in order for a person to actually become infected. Through the engineering of safer equipment and the use of Personal Protective Equipment (PPE), we can prevent portals of entry and reduce the amount of materials to which you may be exposed.

Although it sounds simplistic and obvious, individuals that are well nourished, rested, and physically fit have immune systems that are more responsive and better prepared to mount an effective fight against invading pathogens. Taking care of ourselves decreases our long-term morbidity and allows us to recover more quickly should we become infected.

In any health care environment, Providers can expect to be routinely exposed to infectious agents. Immunizations are an extremely important weapon against infection from many of the more common agents. Keeping current on appropriate immunizations protects you, protects patients from becoming infected by you, and decreases overall disease transmission (this is a concept in public health known as herd immunity). As always, you should consult with your regular physician regarding your health care and immunization status. For healthcare workers, the currently available recommended immunizations (or documented immunity) include:

- Hepatitis B
- Measles
- Mumps
- Rubella
- Varicella
- Tetanus
- Diphtheria
- Pertussis
- Influenza (Pandemic & seasonal)
- Hepatitis A

Attention to ongoing hand washing, especially during the cold and flu season, is very important. Contact with contaminated surfaces provides a ready way for you to become infected and for you to infect others. Hands should be washed after each patient contact, the removal of gloves, and after cleaning all equipment. Waterless, alcohol-based hand cleaners are an acceptable alternative to soap and water provided there is no gross organic material present. To be effective, hand washing with soap and water needs to be performed for a minimum of twenty (20) seconds, using a vigorous rubbing together of all surfaces of lathered hands followed by thorough rinsing under a stream of water. If soap and water are not available at the scene, a waterless hand wash/wipe should be used before boarding the vehicle. Upon return to the station, all Providers should wash their hands with soap and water.

Additionally, it is important to conduct a self-check of your skin (particularly hands and exposed surfaces) prior to any potential patient contact. Identify scrapes, wounds, or other non-intact surfaces and cover all open and scabbed wounds with bandages. The integrity of any bandages should be monitored during your shift to ensure the continuation of their protection.

24.03 Personal Protective Equipment (PPE)

PPE is designed to stop the transmission chain of an infectious agent by preventing potentially infectious microorganisms from contaminating a Provider's skin, mucous membrane, or clothing, and subsequently being transmitted to others. While PPE reduces the risk, it does not completely eliminate the possibility of infection, and is only effective if chosen and used correctly.

Remember, PPE should always be readily available, not just carried in the vehicle for those “surprise” circumstances where the possibility of exposure exists.

There are instances that the selection of appropriate PPE should be obvious and regarded by all Providers as standard practice. These include:

Anytime patient contact is made and, it can be reasonably anticipated that contact with blood or other potentially infectious fluids will occur, gloves should be worn.

During any type of airway management procedure, or other situation that fluid splash contact with the Provider’s face is a possibility, the protection of mucous membrane is crucial. Effective mucous membrane protection may be afforded by use of the combination eye shield and mask apparatus, or a “Fit Tested” N95 mask in conjunction with department issued or approved eyewear (goggles).

Whenever the possibility exists that a patient’s bodily fluids could be splashed onto or directly contact a Provider, gowns should be utilized.

There are times when the selection of proper PPE, especially respiratory protection, is not so obvious and must be made based on how a disease is spread. In these situations, the difficulty in determining the appropriate level of protection is that a truly informed decision usually can’t be made until a patient assessment is completed and/or a history is obtained. By then, it’s too late! For that reason, a patient exhibiting any of the following signs or symptoms should be a signal to Providers, that in addition to gloves and, possibly a gown, some level of respiratory protection is required:

- Productive cough (with or without blood)
- Fever and chills with coughing
- Night sweats
- Dramatic (>10%) unexplained weight loss
- Fatigue (in the presence of other symptoms)
- Hemoptysis (coughing up blood)
- Nuchal rigidity (stiff neck)
- Chest and upper torso rash

In determining the type of respiratory protection needed, remember that a “Fit Tested” N95 mask will afford the best protection against disease spread via airborne particles (i.e., tuberculosis), while the combination eye shield and mask apparatus is appropriate protection against disease spread through larger droplets (i.e., meningitis). In either case, protection is only afforded if the mask is worn properly.

For a patient exhibiting signs and/or symptoms of a disease spread via airborne particles, the “Fit Tested” N95 mask should be donned prior to entering an enclosed area that the patient may have contaminated

When caring for a patient with signs and symptoms of a disease spread through larger droplets, a surgical type mask or combination eye shield and mask should be donned as soon as possible, and worn anytime the Provider is within six (6) feet of the patient.

Provide surgical masks to all patients with symptoms of a respiratory illness who can tolerate its placement. Provide instructions on the proper use and disposal of masks.

For patients who cannot wear a surgical mask; place a non-rebreather mask with supplemental O2, in addition to any additional medical treatment (s). Provide tissues and instructions on when to use them (i.e., when coughing, sneezing, or controlling nasal secretions), how and where to dispose of them and, the importance of hand hygiene after handling these materials.

Continue to use droplet and airborne precautions to manage patients with respiratory symptoms until it is determined that the cause of symptoms is not an infectious agent that requires precautions beyond standard precautions.

When in doubt, maximal rather than minimal PPE should be selected.

24.04 Sharps Hazards

The greatest risk for an occupational exposure to blood occurs with the use of needles and other sharp utensils. The most common occupational blood exposure occurs when needles are recapped. Needles that have contact with human tissue should not be recapped, re-sheathed, bent, broken, or separated from disposable syringes.

Used needles and other sharps shall be disposed of in approved sharps containers as soon as possible.

Providers should ensure that no sharp is used in a manner inconsistent with its intended purpose or attempt to circumvent the safety features of the device.

See Crime Scene Preservation regarding used sharps at a potential crime scene.

24.05 Cleaning and Disinfection of Equipment and Work Areas

Remember how important it is to keep all medical equipment clean and free from infectious agents. The essential part of cleaning and disinfecting equipment is ensuring the removal of all accumulated organic material. Failure to remove organic material provides a continuing breeding ground for organisms. After the removal of the organic material, disinfecting can take place.

Be thorough with your cleaning and use your PPE eyewear if you need to do heavy cleaning that may result in splashing. Remember to clean any surface that your gloved hand may have contacted. After applying your disinfectant, permit the equipment to air dry. Wiping dry the wet disinfected surface will negate the effects of the agent and render it useless. Upon completion of the cleaning, make sure you wash your hands.

24.06 Exposure Follow-up

The purpose of PPE, and always using sound infection prevention practices, is to reduce or eliminate the potential for infection. On occasion, a Provider is exposed to blood, bodily fluids, or airborne particles, and appropriate action must be taken. Many of these actions are time- dependent so it's important to initiate the reporting and follow up process as soon as possible.

Besides adherence to sound infection prevention practices, the most important thing you can do to ensure your health and well-being is to educate yourself. Become knowledgeable about infectious diseases, and the exposure reporting and follow-up process for your organization.

Knowledge of the process specific to your organization ensures the right people are notified in a timely manner should post-exposure testing, follow-up, and documentation be required. The following are general guidelines to be followed should you experience, or suspect that you have experienced, an exposure to blood or other infectious material:

- Withdraw from patient care as soon as it is appropriate. This is usually at the completion of care but may need to occur sooner in some cases.
- Take self-care steps and cleanse the wound (or irrigate the membranes) with the appropriate solution immediately after any exposure to a patient's bodily fluids.
- Don't attempt to "milk" any needle stick injuries. This does not appear to be useful in removing source patient material.

Exposures require immediate intervention. Report any suspected exposure to communicable diseases to the appropriate designated individual in your department as quickly as possible. Questions and consultation regarding post exposure actions should be immediately directed to the DCPE. Consultation may reveal that medical evaluation of the exposure, testing, follow-up, and/or additional documentation is necessary. In the case of a blood exposure due to needle stick (or other sharps), spray to mucous membrane, or patient blood contacting non-intact skin, the Provider should immediately travel, or be transported to, the closest appropriate facility for evaluation.

TCP_25 Clinical Laboratory Improvement Amendment (CLIA) Certificate of Waiver

This policy provides a provision that the Travis County Division of Clinical Performance and Education will hold the CLIA Waiver for the EMS Providers and First Responders that operate under this division.

The CLIA waiver certificate (or a copy) should be displayed in a prominent area and will need to be readily available upon request by the Centers for Medicare & Medicaid Services (CMS).

This Waiver covers the Blood Glucose Monitors, and requires that each meter be tested at least once per year. Meter testing is to be conducted in accordance with the manufacturers' specifications per the instructions that come with the meter and evidence of these tests must be available upon request during any audit.

The Providers/FRO agencies shall have a policy that sets a standard for scheduled testing of the Blood Glucose Monitor and how that test is recorded. The DCPE recommends testing at a minimum of once per month. The policy should also establish the storage of testing information and accessibility of that information in the event of an on-site audit.

TCP_26 Record Keeping

26.01 Training Records

The Division of Clinical Performance and Education (DCPE) only maintains records of training delivered/sponsored by this office. While there may be a provision granted by the First Responder Organization/Transport Organization that has implemented a practice to track such information the responsibility of individual certifications/licensure lies with the individual provider.

26.02 Records (general)

The DCPE only maintains records otherwise associated with the Department of State Health Services (DSHS) as they pertain to requirements set forth by the Federal, State, County or City bodies of governance.

TCP_27 FDA Transaction Report

An FDA Transaction report is a document which is required to accompany any 'drug' for its lifetime. For the purpose of this policy, a 'drug' is defined as any item which is produced by a pharmaceutical company and requires a prescription from a medical director to acquire (i.e. NS, LR, albuterol, etc.).

Anytime an item is received from a vendor a Transaction Report should be present. If this is not the case, please contact your sales rep to get a copy of this report. The FDA requires these records be maintained for 6 years. The DCPE asks that those records are maintained for 6 years after the use/destruction of the drug. Below is the statement from the FDA:

Generally, Section 582 of the Food, Drug, and Cosmetic Act, requires that records be maintained for six years. These include records of Transaction Information (TI), Transaction History (TH), and Transaction Statements (TS).

The DCPE will not mandate how these records are stored but suggests an electronic folder with each transaction report entered by date to maintain a chronological order of acquisition. As always, traditional forms of storage are acceptable.

If you have additional questions, the DSCSA is available at:
http://www.fda.gov/Drugs/DrugSafety/DrugIntegrityandSupplyChainSecurity/DrugSupplyChainSecurityAct/ucm376829.htm.

Transport Policy (ESD 11)

BLS Transport

This transport policy necessitates that Providers exercise good judgment when determining which patients will - or will not - be transported or will be transported by another agency with ALS capability. In all cases, the well-being of the patient shall be the paramount consideration.

Transport Decision Process

All providers on scene are expected to participate in patient care. Providers are responsible for conducting an initial evaluation to determine a chief complaint, level of distress and initial treatment plan.

The BLS providers and ALS providers will decide on the level of care the patient should receive during transport. **Any disagreements in level of care during transport will error on the side of the patient being transported by an ALS unit. When possible, consult medical control for additional guidance.**

The care of the following patients **will not** be transported by a BLS unit **unless** the ALS unit has an extended response time.

1. Any patient who requires additional or ongoing medications, intervention and/ or monitoring beyond the scope of practice of the providers.
2. Any patient that receives medications on scene beyond the scope of the providers.
    a. Exceptions include:
        i. Zofran

Exceptions to the above listed items:

No single document can list all the exceptions to a BLS transport policy. In general, when ALS patients are transported by BLS providers, the risks/benefit for the patient should be considered. Considerations include:

1. ETA of the responding ALS unit
2. Transport time to the appropriate destination
3. Severity of injury/illness
4. Treatment measures that may be available only after the arrival of ALS level care to the scene.

The PCR should reflect the decision-making process to determine which provider attends in the back of the ambulance. As with all documentation, both providers are responsible for the content of the ePCR.

Field Training Medical Officer (FTMO) requirements:
This policy outlines the minimum requirements which must be met by department member who is responsible for training clinical staff in preparation for medical credentialing under the DCPE. Other department staff may be used to train individuals in specific skills or operations, under the supervision of a department FTMO. The FTMO operates under the supervision of the department Clinical Training Coordinator.

EMS License / Certification:

- Current DSHS licensure at - or above - the level of provider whom they will be training.

Experience:

- 2 years related field experience involving direct patient contact, or the equivalent hours in hospital and/or ambulance rotations.

Teaching/Instructor certifications/Training attended:
One or more of the following:

- DSHS EMS Instructor Certification
- 'Teaching EMS' (DCPE sponsored) course
- Other training equivalency* that includes:
  - Training and educating adults
  - Providing feedback

*Must submit outline and training resources to DCPE for approval by Medical Director.

Initial requirements & maintenance:

- Required to train at least one credentialing candidate - under the supervision of the Clinical Training Coordinator/Training Officer for their ESD - prior to designation as an FTMO.
- Required to precept at least one credentialing candidate – or – teach at least one EMS related class at the FTO's cleared level – every two years.
- FTMO skills checkoffs and training pertinent to their role will be overseen by the Clinical Training Coordinator/Training Officer for their ESD.
- Updates to status as FTMOs will be made to the DCPE office.

Expectations:

- FTMOs are expected to maintain a thorough knowledge of COG updates, changes and procedures put forth by the DCPE / Medical Director.

TCP_30 FRO Transport Policy

30.01 Decision Making

Texas House Bill 624 enables firefighters to initiate transport of critically ill or injured patients in a non-ambulance transport vehicle. The decision to do so requires a very clear decision matrix to ensure that the initiation of patient transport is truly in the best interest of the ill or injured person and that all other more appropriate options have been exhausted.

The Travis County Division of Clinical Performance and Education (DCPE) provides medical direction for multiple Emergency Service District's (ESD) and other First Response Organizations (FRO). In compliance with HB 624, the following guidance and flow chart are being provided to those organizations that fall under DCPE Medical Direction.

This policy does not replace the section of TCP_13 Destination, Bypass and Diversion related to FRO transport during declared disaster operations. The transport requirements stated within that policy remain intact.

This policy also applies to ESD's who operate ambulance transport vehicles when those vehicles are unavailable.

A Travis County FRO may initiate transport of an ill or injured person in a non-ambulance transport vehicle when (***all must be present)***:

1. The FRO is on scene with an ill or injured person who has an immediate threat to life, limb or eyesight that requires emergent, time-sensitive intervention only available at an appropriate ***and*** fully capable medical facility.
2. The FRO is in direct contact with the local EMS transport authority ***and*** that EMS transport authority is reporting a significant delay in their arrival on scene.
3. The FRO is unable to obtain a mutual aid ambulance or air medical transport provider within a reasonable amount of time.
4. The FRO is in direct contact with the On-Line Medical Control (OLMC) physician via phone or Pulsara and that physician agrees with the FRO initiating transport in a non-ambulance transport vehicle.

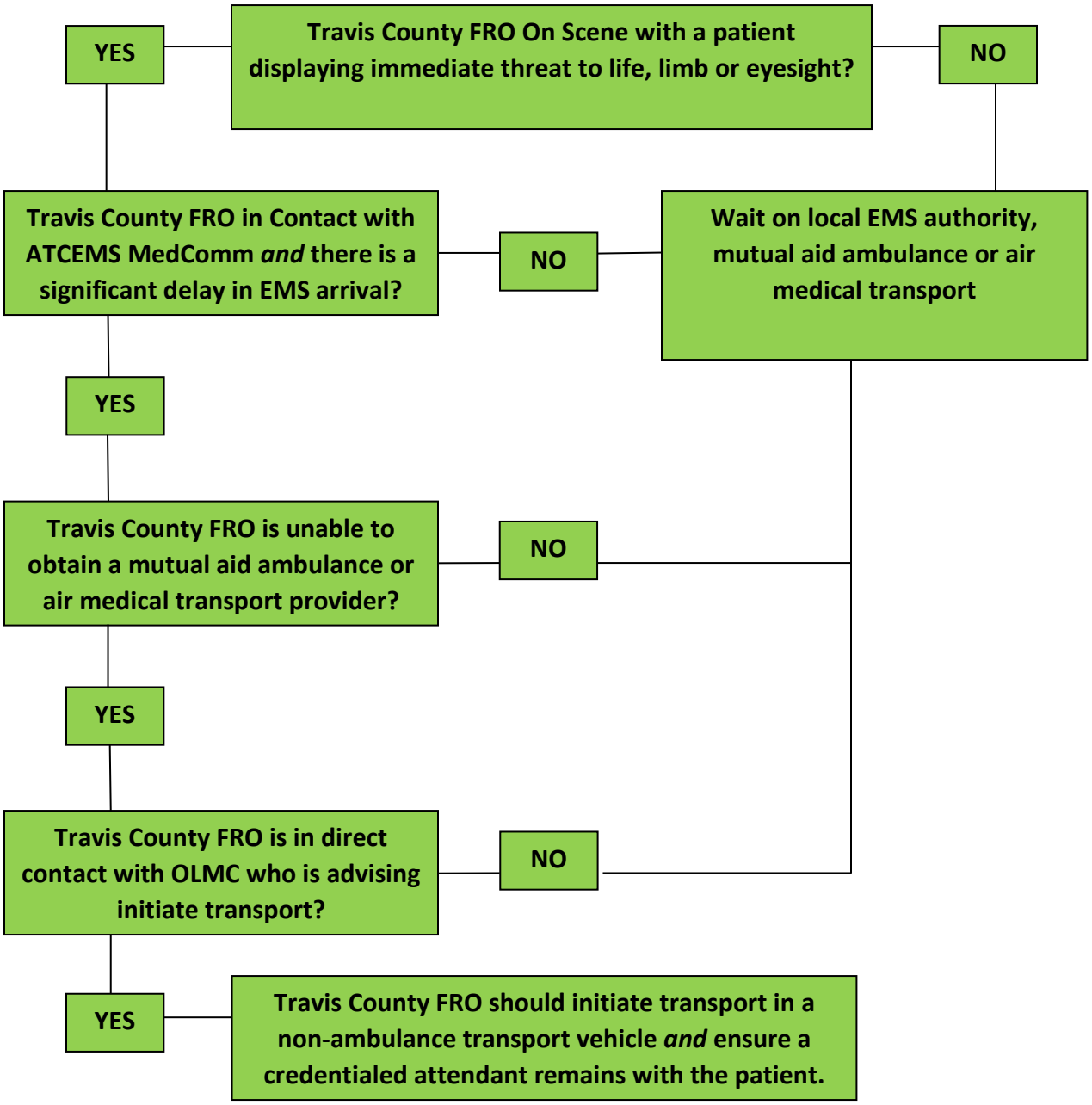
If the above conditions are met and a Travis County FRO initiates transport of a critically ill or injured patient in a non-ambulance transport vehicle:

1. The FRO shall determine if transport to an ambulance intercept location or the closest appropriate and fully capable medical facility will provide the patient with the most rapid access to life, limb or eyesight saving interventions.
2. The FRO will communicate to the local EMS authority where they are transporting to.
    a. If transporting to an intercept location, they will remain in contact with the local EMS transport authority regarding Estimated Time of Arrival (ETA) of the ambulance at the intercept site.

b. If transporting to an appropriate and fully capable medical facility, the FRO will make every attempt to contact that facility and advise them of:
    i. Patient condition (illness or nature of injury)
    ii. Current vital signs
    iii. Ongoing treatment provided during transport
    iv. ETA to their facility

3. The FRO will ensure that the patient has, at minimum, one system credentialed direct patient care attendant for the duration of the transport.

FRO Transport Decision Matrix



TCP 31 C4 and Integrated Services

Integrated Services is a joint program supported by Travis County and the City of Austin. The program utilizes call screening and routing best practices to more appropriately direct low priority, non-emergent needs of the community to providers with many resources that are not easily accessible during a traditional 911 response. Management of these non-emergent needs by Integrated Services has a significant impact on the availability of FRO's and transport entities to respond to life, limb, or eyesight emergencies.

In general, Integrated Services *may* provide the community and our ESD / FRO providers with a better set of options and resources to manage non-emergent needs. These services include but are not limited to:

- C4 (Collaborative Care Communications Center) with specially trained Paramedics for triage and assessment of non-emergent needs.
- Telehealth for minor care needs, prescriptions assistance and alternative dispositions that do not result in transport to the emergency department.
    - Physician Assistant response with an expanded scope of practice for wound care and minor infections/illness.
    - Community Health Paramedics with alternative transport options.
- Transport options to alternative destinations like urgent care centers, primary care, specialty care, and more.
- Maintenance of significant clinical references including extensive patient history.
- Addressing unmet needs like funding, primary care physicians, rehabilitation, hospice.
- Patient follow up for high-risk refusals, crew concerns regarding activities of daily living, frequent callers, post over-dose referrals, follow up and care.

Travis County ESD and FRO personnel are authorized to contact Integrated Services for non-emergent community needs via:

- C4 line 512-978-0405
- Pulsara (currently in development)

Travis County Medical Directors should also be involved in decisions regarding alternative dispositions, referrals, high-risk refusals, or any time the provider would like additional consultation.

If at any time a Travis County ESD or FRO provider believes a patient requires emergent response, they should notify EMS Communications and request the response they deem appropriate. Examples may include but are not limited to:

- SBP >160 or DBP >110
- HR >110 at rest
- SpO2 <94%
- BGL >300 or <70
- Temperature >100.4 F
- New or suspected new neurologic deficit

Each agency should determine an appropriate response policy with regard to Integrated Services and C4. The DCPE recommends referring patients to Integrated Services and C4 when responding or on scene providers deem it appropriate.

Travis County Policies

TCP_01 ACKNOWLEDGEMENTS AND DISCLAIMER

TCP_02 LEGAL AND MEDICAL OVERSIGHT POLICIES

02.01 **The Intent of Patient Care Guidelines**

02.02 Delegated Medical Practice in Texas

02.03 APPROVED PROVIDER PARTICIPATION AND COVERAGE

02.04 APPROVED PROVIDER LIST

02.05 PROVIDER CREDENTIALING AND AUTHORIZATION

02.06 INDIVIDUAL PROVIDER CHANGES TO LEVEL OF PRACTICE

02.07 GENERAL SCOPE OF PRACTICE

02.08 Care rendered by NON-EMS medical professionals

TCP_03 DUTY TO ACT

TCP_04 Medical Direction

04.01 TRAVIS COUNTY EMERGENCY SERVICES MEDICAL DIRECTION

04.02 ON-LINE MEDICAL CONTROL PHYSICIAN (OLMC)

TCP_05 CONFIDENTIALITY & HIPAA

05.01 Release of Patient Information and Documentation

TCP_06 Patient Safety

TCP_07 Patient Type Definitions

07.01 Who is a "Patient"

07.02 Exception to the minor definition:

07.03 Exceptions to the minor consent rule:

07.04 Definition of a Pediatric Patient for Clinical Guideline application

07.05 Patient Refusal

07.06 Determination of Capacity

07.07 Intoxicated Patients

07.08 Law Enforcement and Medical Decision Making

07.09 False Calls and "No-Patients"

UNIVERSAL & AIRWAY

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UNIVERSAL PATIENT CARE UA.01

History	Signs and Symptoms	Differential

• Location
• Onset
• Duration
• Quality
• Radiation
• Severity
• Precipitating events
• Modifying factors
• Associated symptoms
• S-A-M-P-L-E
• Past Medical/Surgery
• Family
• Social
	• Primary Assessment
	  ○ Airway
	  ○ Breathing
	  o Circulation
	  o Disability
	  ○ Expose
	• Secondary Assessment
	  ○ HEENT
	  ○ Respiratory
	  ○ Cardiovascular
	  ○ Abdomen
	  ○ Extremities
	  ○ Neuro
		• Vascular
		• Infectious/Inflammatory
		• Trauma/Toxins
		• Autoimmune
		• Metabolic
		• Idiopathic
		• Neoplastic
		• Congenital

Consider Guidelines:

- Appropriate Clinical Guideline Adult or Pedi

Procedures:

BLS

- ❖ ***ALL Protocols (as stated in policy), are subject to availability of certain procedures or medications and are noted as 'if available' or denoted by a contrasting colored (IA)/(IA).***
- Pediatric patients are defined as those weighing < 37 kg's throughout these guidelines
- Scene safety, crew safety, PPE
- Take appropriate equipment to patient
- Initial Assessment/Physical Exam
  - Airway, breathing, circulation, disability, expose
  - Neuro, HEENT, Respiratory, Cardiovascular, Abdomen, Extremities
  - OPQRST
  - SAMPLE
  - Vital Signs
    - ✓ Initial assessment should include BP, pulse, respirations, SPO2, AVPU and GCS
    - ✓ Document as appropriate q 5 → 15 minutes per patient condition
    - ✓ Temperature as needed
    - ✓ Blood Glucose Level assessment as appropriate
    - ✓ Orthostatic vital sign assessment if appropriate for patient condition
- Oxygen: Target SPO2 94% ↔ 99%
- ETCO2: Target range 35-45 mmHg unless otherwise indicated **(I/A)**
- Use Medication Cross Check for all Medication Administrations
- On-line medical is always available and should be considered if you feel the patient would benefit from an intervention not outlined in these treatment guidelines.
  Contact number for On-line Medical Control is **(512) 854-2362 (854-ADOC)**
  Patients should be loaded for transport supine with the head of bed elevated ~ 20º

AEMT

- Consider Vascular Access Guideline
- Hypotension is defined as (throughout these guidelines):
  - Adult < SBP 90mmHg

  Pedi SBP < 70 + (age in years x 2)

ALS

- Monitoring & Interpretation of ECG
- If the patient meets any Rapid 12 lead criteria: Providers are to obtain a 12 lead ECG within 5 minutes of patient contact. Transmit 12 Lead ASAP

Pearls / Additional Considerations:

- Minimum Exam for every patient is: V/S, mental status/GSC, location of injury or complaint and pain scale.
- For the dosing of medications or electrical therapy an adult is defined as ≥ 37 kg.
- For the dosing of medications or electrical therapy a pediatric patient is < 37 kg and also defined by the PEDIA/Broselow Tape (or any other approved commercially available sizing chart). If the patient does not fit on the tape, they are considered an adult.
- Patients should be assessed for history of motion sickness and may be treated per nausea/vomiting Guideline.
- GCS reference

Modified Glasgow Coma Scale for Adults/Children/Infants			
	Adult/Child	**Infant**	**Score**
Eye Opening	Spontaneous	Spontaneous	4
	To speech	To speech	3
	To pain only	To pain only	2
	No response	No response	1
Best Verbal Response	Oriented, appropriate	Coos and babbles	5
	Confused	Irritable cry	4
	Inappropriate words	Cries to pain	3
	Incomprehensible sounds	Moans to pain	2
	No response	No response	1
Best Motor Response	Obeys commands	Spontaneously/Purposeful	6
	Localizes Pain	Withdraws to touch	5
	Withdraws from pain	Withdraws from pain	4
	Flexion-abnormal (decorticate)	Flexion-abnormal (decorticate)	3
	Extension (decerebrate)	Extension (decerebrate)	2
	No response	No response	1
If PT is intubated, unconscious, or preverbal, the most important part of this scale is motor response. Carefully evaluate motor response.			

AIRWAY UA.02

History	Signs and Symptoms	Differential
• Respiratory Rate • Effort • Adequacy	• SPO2 <90% • Cyanosis	• Apnea • Cardiac Arrest • Respiratory Failure • Airway Obstruction

Consider Guidelines:
• Failed Airway Guideline

			Procedures:	
B L S			• SpO2 Monitoring – **Goal**: maintain 94-99% • High flow oxygen • Open airway / suction • Foreign Body in Airway evaluation/removal as appropriate • NPA / OPA • BVM w/PEEP valve set at 5-10 cm H2O • BIAD (cardiac / respiratory arrest, GCS=3 • Monitor EtCO2: Target range 35-45 mmHg (**IA**)	
	A E M T		• IV/IO if appropriate • BIAD • Consider Gastric Tube Placement through BIAD only • Direct Laryngoscopy Procedure for Obstructed Airway	

		A L S	If BIAD insufficient:
			• Consider Oral-Tracheal Intubation
			  • Direct Laryngoscopy w/Bougie (2 Attempts)
			  • Video laryngoscopy (2 Attempts)
			• Consider failed airway procedure	

Pearls / Additional Considerations:
• If an airway is being maintained by BVM with Pulse Oximetry >90% advanced airway is not required. • Capnometry (EtCO2) and pulse oximetry is mandatory with all advanced airways. Colorimetric (EZ Cap) may be used for initial CO2 detection when continuous capnometry is not immediately available. Document Results. • If PT remains hypoxic after all BLS maneuvers are successful, consider turning up O2 and titrate PEEP up to a max of 10cmH2O PRN. • ALS: when attempting intubation keep all back-up airways (eg: BIAD, NPA/OPA, Cric) and adjuncts (eg: Bougie) ready and available. • If intubation attempt fails CHANGE something: different blade, smaller tube size, or use adjunctive maneuver. • An intubation attempt is when the laryngoscope blade passes the plane of the teeth or the tube is inserted into the nares. • Ventilatory rate should be targeted to maintain ETCO2 or 35-45, and SPO2 94%-99%. **Avoid Hyperventilation.** • Maintain SMR in those patients with suspected spinal injury. • Secure advanced airways in place with appropriate device. • If patient has return of gag reflex and removal of BIAD becomes necessary, immediately roll patient onto side and prepare to suction as airway is removed.

BEHAVIORAL UA.03

History	Signs and Symptoms	Differential
• Situational crisis • Psychiatric illness/medications • Injury to self or threats to others • Medic alert tag • Substance abuse/overdose • Diabetes • Past medical/Family	• Anxiety, agitation, confusion • Affect change, hallucinations • Delusional thoughts, bizarre behavior • Combative violent • Expression of suicidal/homicidal thoughts • Very "hot" to touch (excited delirium)	• Altered Mental Status differential causes • Hypoxia • Alcohol Intoxication • Toxin / Substance abuse • Medication effect/overdose • Withdrawal syndromes • Depression • Bipolar (manic-depressive) • Schizophrenia, anxiety disorders, etc • Excited Delirium

Consider Guidelines:

- Universal Patient Care Guideline
- Overdose
- Head Trauma
- Hyperthermia
- Altered Mental Status Guideline

Procedures:

BLS

- Scene Safety
- Establish GCS on ALL patients
- Blood Glucose Assessment when safe and appropriate
- Temperature Assessment, when safe and appropriate
- Identify the probable cause and with the appropriate guideline
- Remove patient from the stressful environment. Utilize verbal techniques (reassurance, calming)
- Physical restraint if needed per Procedure

AEMT

Excited Delirium

- Cold crystalloid boluses 30 ml/kg with temperature > 104 (up to 2 liters max in adults)

Dystonic Reaction

Adult

- Diphenhydramine 50 mg PO/IV/IO/Deep IM

Pedi

- Diphenhydramine 1 mg/kg PO/IV/IO/Deep IM (max 25mg)

ALS

Sedation:

Adult (IA)

- Midazolam: 2.5-5.0 mg IV/IO ***OR*** 5 mg IM/IN. May repeat PRN max total dose 10 mg with SBP > 100 mmHg
- ***OR*** Haloperidol 5 mg IM, May repeat X 1 dose q10 min
- ***OR*** Ketamine 4 mg/kg IM May repeat x1 q5 min.

Pedi (IA)

- Midazolam 0.1mg/kg IV/IO or 0.2mg/kg IM/IN (max 5mg)
- Ketamine 4 mg/kg IM May repeat x1 q5 min. (max 150mg)

** ***Restrained patients need continuous ETCO2, Pulse OX Cardiac Monitor***

Pearls / Additional Considerations:

- Consider your safety first. Physical restraint should be performed/assisted by Law Enforcement when available.
- Be sure to consider all possible medical/trauma causes for behavior (hypoglycemia, overdose, substance abuse, hypoxia, head injury, etc.)
- If a patient is suspected of excited delirium and suffers cardiac arrest, consider a fluid bolus and sodium bicarbonate early.
- Do not overlook the possibility of associated domestic violence or child abuse.
- All patients receiving either physical or chemical restraint must be continuously observed by ALS personnel on scene or immediately upon arrival. If possible and when safe to do so, apply ECG, ETCO2, Pulse Ox, and Blood Glucose.
- Any transported patient who is handcuffed or restrained by Law Enforcement should be accompanied by an officer whenever possible. If not possible, law enforcement must be immediately available.
- Restrained patients should never be maintained or transported in a prone position.

FAILED AIRWAY UA.04

History	Signs and Symptoms	Differential
• Two(2) failed intubation attempts or • Anatomy inconsistent with intubation attempts • Facial trauma • Swelling of the upper airway • Cannot Ventilate • Cannot Oxygenate	• Dropping SPO2 • Cyanosis • Decreased Level of Consciousness	• Foreign Body • Trauma • Anaphylaxis • Burns

Consider Guidelines:

- Airway

Procedures:

BLS

- Foreign Body in Airway evaluation/removal

If good air movement and/or SPO2> 90% with BVM Ventilation:

- Continue BVM Ventilation with OPA/NPA

AEMT

- IV/IO if appropriate
- BIAD

ALS

If <u>NO</u> good air movement with the above with dropping SPO2 and / or Facial Trauma/Swelling/other injury that prevents use of adjunct airway:

Adults and Pedi >10 y/o:

- Surgical Airway Procedure

Pedi <10 y/o:

- Needle cricothyrotomy procedure

Pearls / Additional Considerations:

- If intubation attempt fails CHANGE something: different blade, different provider, smaller tube size, or use adjunctive maneuver.
- An intubation attempt is when the laryngoscope blade passes the plane of the teeth or the tube is inserted into the nares.
- If an airway is being maintained by BVM with Pulse Oximetry >90%, an advanced airway is not required. If a BIAD is providing good ventilatory exchange and is functioning appropriately: DO NOT REMOVE or EXCHANGE.
- Capnography or Capnometry (EtCO2) is mandatory with all advanced airways. Document Results.
- Continuous pulse oximetry should be used and documented
- A secure airway is when the patient is now appropriately oxygenated and ventilated.
- An intubation verification form is required on all patients where an ETT, or surgical airway is used.
- Maintain SMR in those patients with suspected spinal injury.
- Notify Destination Hospital ASAP regarding patient's difficult or failed airway.

PAIN MANAGEMENT UA.05

History	Signs and Symptoms	Differential
• Age • Location • Duration • Severity (1-10) • Past Medical History • Medications • Drug allergies • Medications taken prior to arrival	• Severity (pain scale) • Quality • Radiation • Relation to movement, respiration • Increased with palpation of area.	• Per the specific protocol • Musculoskeletal • Visceral (abdominal) • Cardiac • Pleural/Respiratory • NeurogenicRenal (colic)

Consider Guidelines:

- Universal Patient Care Guideline

Procedures:

BLS

- Oxygen: Target SPO2 94% ↔ 99%
- Pain Scale assessment 0 – 10 or Wong-Baker faces for pediatric pain scale
- SMR Evaluation/Bandaging/Splinting as needed
- Ice Pack as needed
- Bilateral blood pressure measurements (for potential AAA dissection)
- Patient care according to Guideline based on a specific complaint
- Allow for the position of maximum comfort unless contraindicated

Pain severity > 6 and/or Patient requests pain medication

Adult (IA)

- **Acetaminophen** PO
- <65kg: 500mg
- >65kg: 1gm

OR

- **Ibuprofen** PO
- <65kg: 400mg
- >65kg: 600mg

Pedi (IA)

- **Acetaminophen** 15mg/kg (max 1 gm) PO

OR

- **Ibuprofen** (suspension) 10mg/kg (600 mg max) PO (>6 mo only)

AEMT

- IV and Crystalloid as needed

ALS

Pain severity > 6 and/or Patient requests pain medication or Contraindication to PO medication

Adult (IA)

- Ketorolac 15mg IV/IO/IM
- Ofirmev ≤65kg 15mg/kg IV/IO infused over 15 minutes
- Ofirmev >65kg 1000mg IV/IO infused over 15 minutes

Pedi (IA)

- Ketorolac 0.5mg/kg IV/IO/IM, max 15mg
- Ofirmev 15mg/kg IV/IO infused over 15 minutes, max of 500mg

Reassess patient q 5-10min for relief or reduction of pain to < 3

Continuous Pulse Ox and ETCO2 for patients receiving narcotics or sedation agents

Severe pain and/or contraindications to Ketorolac or Ofirmev

Caution in administration of IV/IO/IM narcotic pain medications w/SBP <100mmHg or MAP <65

Adult (IA)

- **Fentanyl**: 0.5-1 mcg/kg IV/IO/IM/IN up to 50mcg per dose, may repeat q 5 min(Max total 300mcg) As needed until improvement
  - Hold if SBP < 100mmHg

AND/OR

- **Ketamine** : 0.3 mg/kg in 50cc crystalloid IV/IO administered slowly, OR 1mg/kg IN/IM may repeat q 15 min x1

Pedi (IA)

- **Fentanyl :** 0.5-1 mcg/kg IV/IM/IN up to 50 mcg per dose, may repeat q 5min(Max total 300mcg)

Pearls / Additional Considerations:

- Pain severity (0-10) is a vital sign to be recorded pre and post-IV or IM medication delivery and at disposition.
- Vital signs should be obtained pre, 5 minutes post, and at disposition with all pain medications.
- Monitor patient closely for over sedation - refer to Overdose Guideline if needed.
- Abdominal pain in women of childbearing age should be treated as an ectopic pregnancy until proven otherwise
- Abdominal aneurysms may present as abdominal or back pain and are a concern in patients over the age of 50
- Do not administer Acetaminophen to patients with a history of liver disease.
- Do not administer Ketorolac to severe renal disease or kidney transplant, bleeding or clotting disorder, on anticoagulants, closed head injury or bleeding in the brain, stomach ulcer or hx of stomach or intestinal bleeding, surgical candidate, open fractures or fracture deformities, or breastfeeding mothers.
- Do not administer Ibuprofen in pediatrics less than six months of age.
- Any new bowel or bladder incontinence is a significant finding which requires immediate medical evaluation
- A spinal epidural abscess should be considered for a patient with a history of IV drug abuse or pain management injections.
- Controlled substances are discouraged for non-traumatic back pain.

VASCULAR ACCESS UA.06

History	Signs and Symptoms	Differential

Consider Guidelines:

- Universal Guidelines

Procedures:

BLS

- EMT may monitor crystalloid lock if previously established.

AEMT

- Choose site/size appropriate for procedural success. Do not delay transport for IV, especially in Trauma.
- Patient stable and 2 unsuccessful attempts, then discontinue attempts and consider alternate routes of treatment. Contact Med Control if needed.
- After 2 unsuccessful attempts and **patient unstable** then may administer IO
- IO Procedure
- Lidocaine (for IO access only)
  - Adult 40mg SIOP for perceived pain
  - Pedi 0.5mg/kg (Max 40mg) SIOP

ALS

Pearls / Additional Considerations:

- In the peri-arrest/cardiac arrest patient, any preexisting dialysis shunt or external venous catheter may be used.
- Intraosseous with the appropriate adult/pedi device.
- Recommend pressure bag for all IO fluid administration, and consider for any trauma
- Any prehospital fluids or medications approved for IV use, may be given through an intraosseous IV.
- All IV rates should be kept at KVO (minimal rate to keep vein open) unless administering fluid bolus/medications.
- Upper extremity IV sites are preferable to lower extremity site.
- Lower extremity IV sites are contraindicated in patients with vascular disease or diabetes.
- Vasoactive drips should be infused through large bore IV catheter through the antecubital or larger vein
- In post-mastectomy patients, avoid IV, blood draw, injection, or blood pressure in arm on affected side

CARDIAC

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ASYTOLE / PEA C.01

History	Signs and Symptoms	Differential
• Medications • Events leading to arrest • Estimated downtime • DNR • Existence of terminal illness • FBAO • End stage renal disease • Suspected hypothermia • Suspected overdose • Pulmonary embolus	• Unresponsive • Absent signs of circulation, movement, skin color, etc. • Absent or Abnormal Breathing (gasps) • No electrical activity on ECG	• Respiratory arrest • Foreign body • Medical vs. Trauma • VF • Pulseless VT • Asystole • PEA • Abuse/neglect/poisoning • Obvious Death • Consider H's & T's

Consider Guidelines:

- Cardiac Arrest Guideline
- Airway Guideline
- Environmental Hypothermia Guideline
- Hypotension Guideline (for fluid resuscitation)
- Altered Mental Status Guideline (for Hypoglycemia treatment)
- Overdose Guideline
- Multiple Trauma Guideline
- Trauma Arrest Guideline
- Post Resuscitation Guideline

Procedures:

BLS

- Criteria for withholding Resuscitation?
- PIT Crew CPR Procedure w/ BVM, Oxygen, AED, and BLS airway (may apply Nasal Cannula and run at 15 LPM).
- BIAD (do not interrupt compressions)
- Apply ETCO2 (IA)
- Identify cause of arrest / Look for treatable causes

AEMT

- IV/IO

ALS

- Apply cardiac monitor (IA)
- Confirm Asystole / PEA
- Continue CPR
- Rhythm check q 2 min and treat accordingly
- Intubation only if BIAD inadequate

Adult

- Epinephrine 1mg (0.1mg/ml concentration) IV/IO q 8min

Pedi

- Epinephrine 0.01mg/kg (0.1mg/ml concentration) IV/IO q 8min; max 1mg

Identify/Treat Correctable Causes (see Pearls below)

- Consider Needle Thoracostomy for the Asthma patient in arrest

Pearls / Additional Considerations:

- Always confirm asystole in more than one lead.
- **Correctable causes must be considered and addressed**:
  - Hypoxia-Ventilate/Oxygenate
  - Hypothermia-Rewarm
  - Hypovolemia-Crystalloid infusion bolus IV/IO
  - Hypoglycemia-Dextrose Infusion: IV/IO
  - Acidosis-Sodium Bicarbonate IV/IO
  - Hyperkalemia-Calcium Chloride IV/IO, Sodium Bicarbonate IV/IO
  - OD Calcium Channel Blocker-Calcium Chloride IV/IO
  - Tension Pneumothorax-Chest Decompression (consider for Asthma patients in arrest)
  - Cardiac Tamponade
  - Pulmonary Embolus
- Wide complex PEA (>0.12sec) Consider metabolic causes(Acidosis, Hyperkalemia, OD CA Channel Blocker, Acute MI)
- Narrow complex PEA (<0.12sec) consider Mechanical causes (Cardiac Tamponade, Tension Pneumothorax, Mechanical Hyperinflation, Pulmonary Embolism, Hypovolemia, Acute MI Pump Failure)
- **Pediatrics**: Respiratory arrest is a common cause of cardiac arrest. Oxygenation and airway management is critical.

BRADYCARDIA C.02

History	Signs and Symptoms	Differential

• Past Medical History
• Medications
  ○ Beta-Blockers
  ○ Calcium Channel Blockers
  ○ Digoxin
  ○ Cholinergics
  ○ Clonidine
• Pacemaker
• Events prior to onset
	• HR <60/min with signs of hypo perfusion
	• Hypotension/Shock
	• Acute altered LOC
	• Chest pain
	• CHF
	• Syncope
	• Respiratory insufficiency
		• Acute MI/Ischemia
		• Hypoxia
		• Pacemaker Failure
		• Hypothermia
		• Sinus Bradycardia
		• Electrolyte Abnormality (K+)
		• Increased BP or ICP, Head Injury
		• Sick Sinus Syndrome
		• AV Blocks
		• Drugs/Rx
		  ○ CA Channel Blocker
		  ○ Beta-Blocker
		  ○ Digoxin
		  ○ Cholinergics
		  ○ Clonidine
		• Congenital heart
		• Metabolic problem

Consider Guidelines:

- Universal Patient Care Guideline
- Hypotension Guideline
- Respiratory Distress Guideline
- Altered Mental Status Guideline
- Overdose Guideline
- Airway Guideline
- Pain Management Guideline (for TCP)

Procedures:

BLS

- Airway management / Oxygenation: Target SPO2 94% ↔ 99%
- Identify potential causes (see "differential" list above).
- Apply cardiac electrodes **(IA).**

⇒ ***If Infant / Pediatric (<37kg) and HR < 60 with poor perfusion despite airway intervention, begin CPR***

AEMT

- IV/IO
- Hypotension: Crystalloid 20 ml/kg bolus IV/IO. Repeat PRN (max. 2 Liters)
  - Adults titrate to SBP > 90mmHg or MAP >65
  - Pedi titrate to age-appropriate SBP (70+(age in years x 2)
- Hold IV fluids after the first bolus if clinical signs of pulmonary edema
- Consider Hypoglycemia
  - ***Adults-*** *Dextrose infision D10W Premixed 250mL Bag, IV/IO, Titrate to patient condition and response.*
  - ***Pediatrics*** *– Dextrose infusion D10W Premixed 5 ml/kg (0.5gm/kg) max 250mL (25 gm), IV/IO, titrate to patient condition and response.*

ALS

- 12 Lead ECG

Adult:

- Consider Atropine 0.5-1mg q 3 minutes max of 3 mg.
- Transcutaneous Pacing-consider sedation **(IA):** Midazolam: 2.5-5.0 mg IV/IO ***OR*** 5 mg IM/IN. May repeat PRN(max total dose 10 mg) with SBP > 100 mmHg

Suspected Ca Channel Blocker OD:

- Calcium Chloride 1 gm IV/IO **(IA)** over 10 mins
  Or
- Calcium Gluconate 3 gm IV/IO (IA) over 10 mins

Suspected Beta Blocker OD:

- Glucagon 1 mg IV/IO **(IA).**

Persistent hypotension

- Consider Epinephrine: **Push dose** 5-20 **mcg** per dose IV/IO q 1-5 min to SBP >90 mmHg or MAP >65
  - Take 10mL syringe with 9mL of NS, Add 1mL **(0.1mg)** of Epinephrine **1mg/10mL (1:10,000).** Concentration 10mcg/mL
- Consider Norepinephrine (Levophed) **Push dose (IA):** 8-32 mcg per dose IV/IO q 1-5 min to SBP >90 mmHg or MAP >65
  - Mix 4mg of Norepinephrine in 250mL sodium chloride, withdraw 10mL into a syringe. Concentration is 16 mcg/mL.
- Consider Norepinephrine (Levophed) Infusion **(IA)** 2-30 mcg/min IV/IO Infusion titrated to SBP > 90mmHg

Pedi:

HR < appropriate range for age along with symptoms of poor perfusion (Hypotension, AMS, delayed capillary refill)

- Epinephrine (**Push dose**) (IA): 1mcg/kg (max 20mcg or 2mL) IV/IO q 1-5 min to age-appropriate SBP: 70 + (age in years x 2)
  - **Preperation:** Take 10mL syringe with 9mL of NS, Add 1mL **(0.1mg)** of Epinephrine **1mg/10mL (1:10,000).** Concentration 10mcg/mL
- Consider Atropine 0.02 mg/kg IV/IO (Min 0.1 mg/max 0.75 mg) May repeat x 1 every 5 mins
  If patient still symptomatic or unstable
- Epinephrine (**code dose**) (IA) 0.01 mg/kg IV/IO (0.1 mL/kg of (0.1 mg/mL, max 1mg) repeat q 8 min
- Consider transcutaneous pacing with appropriate pain management **(IA).**
- Consider Epinephrine infusion: 0.1-1 mcg/kg/min **(IA)** **(**max 20mcg/min)

Persistent hypotension

- Consider Norepinephrine (Levophed) Infusion (IA) 0.05-1 mcg/kg/min, titrate to age appropriate SBP (max 30mcg/min).

Pearls / Additional Considerations:

- **Treatment of bradycardia is based on the presence of symptoms. If asymptomatic, monitor only.**
- Assure the patient is adequately oxygenated.
- Caution with fluid administration in the CHF patient population.
- Pediatric HR ranges may be referenced using BROSELOW, PEDIATAPE, or other appropriate sources.
- The use of Atropine for bradycardia in the presence of an MI may worsen ischemia.
- Consider treatable causes for bradycardia (Beta-blocker OD, Calcium channel blocker OD, hypoglycemia, etc.), treat appropriately.
- Atropine is ineffective in 3rd-degree blocks
- The use of lidocaine in heart block can worsen bradycardia and lead to asystole and death.
- **If wide complex bradycardia, consider hyperkalemia.**
- IV Glucagon = Emesis

CARDIAC ARREST C.03

History	Signs and Symptoms	Differential
• Events leading to arrest • Estimated downtime • Past medical history • Medications • DNR/Hospice • Bystander CPR • AED use	• Unresponsive • Abnormal breathing (gasps) • Pulseless • Lividity or rigor	• Medical vs. Trauma • VF • Pulseless VT • Asystole • PEA • Profound Hypotension • Consider H's & T's

Consider Guidelines:

- Universal Patient Guideline
- Ventricular Fibrillation/Pulseless Ventricular Tachycardia Guideline
- Asystole/Pulseless Electrical Activity Guideline
- Trauma Arrest Guideline
- Post Resuscitation Guideline

Procedures:

BLS

- Criteria for withholding Resuscitation?
- PIT Crew CPR Procedure w/ BVM, Oxygen, AED, and BLS airway (may apply Nasal Cannula and run at 15 LPM). Defibrillation q 2min with AED prompts.
- BIAD (do not interrupt compressions)
- Apply ETCO2 (IA)
- Utilize Automated Compression Device (Lucas, Autopulse) (IA).

AEMT

- IV/IO

ALS

- Apply monitor (I/A)
- Assess Rhythm
- Proceed to appropriate rhythm guideline
- Intubation only if BIAD inadequate
- Needle Thoracostomy for the Trauma or Asthma patient in arrest

Pearls / Additional Considerations:

- Immediate and Adequate compressions with timely defibrillation are the keys to success.
- AED pads - Use pediatric pads on PT's <8 years old. If pedi pads are not available, use adult pads in the anterior-posterior placement (we want to make sure the pads aren't too close together and not touch each other. AED pads on <1yo patients should be guided by the specific manufacturer's recommendations on their pads.
- Treat the cause of arrest as soon as resources permit. Refer to guidelines for trauma, hypoxia, acidosis, or other appropriate cause.
- **H's & T's**:
  - Hypoxia-Ventilate/Oxygenate
  - Hypothermia-Rewarm
  - Hypovolemia-Crystalloid infusion bolus IV/IO
  - Hypoglycemia-Dextrose Infusion: IV/IO
  - Acidosis-Sodium Bicarbonate IV/IO
  - Hyperkalemia-Calcium Chloride IV/IO, Sodium Bicarbonate IV/IO
  - OD Calcium Channel Blocker-Calcium Chloride IV/IO
  - Tension Pneumothorax-Chest Decompression (consider for Asthma patients in arrest)
  - Cardiac Tamponade
  - Pulmonary Embolus
- Pediatric arrest is most often an airway / oxygenation issue. Consider this in treating cause of arrest.
- For Infant: If HR <60 with signs of poor perfusion despite airway management begin CPR.
- Use Pit-Crew Model CPR whenever possible.
- Perform Cardiac Arrest Checklist during resuscitation.
- Make room to work. Procedures require space and patient access.
- Reassess airway frequently and after every patient move.
- Do not interrupt compressions for airway placement, ventilation, medication administration.
- **Criteria for withholding resuscitation includes:** Valid DNR**.** Signs of obvious death: • Rigor mortis and/or dependent lividity; • Decomposition; • Decapitation; • Incineration. Submersion greater than 20 minutes. Fetal death with a fetus < 20 weeks.

CHEST PAIN, SUSPECTED ACUTE CORONARY SYNDROME C.04

History	Signs and Symptoms	Differential
• Take: Viagra, Levitra, Cialis • Past medical history (MI, Hypertension, Hyperlipidemia, Angina, Diabetes, Post- Menopausal) • Family HX cardiovascular disease < 55 years old • Chest Pain with exertion • Smoker • Stimulants	• Pain or pressure between navel and jaw • Heart racing", "palpitations," or "heart too slow." • CHF signs and symptoms • Syncope • Severe Weakness if > 45 years old • Difficulty breathing (no obvious respiratory cause)	• Angina vs. Myocardial infarction Pericarditis • Pulmonary embolism • Asthma / COPD • Pneumothorax • Aortic dissection • GI reflux or Hiatal hernia • Esophageal spasm • Chest wall injury or pain • Pleuritic pain • Overdose (Cocaine)

Consider Guidelines:

- Universal Patient Care Guideline
- Bradycardia Guideline
- Narrow Complex Tachycardia Guideline
- Hypotension Guideline
- N/V Guideline

Procedures:

BLS

- Oxygen: Titrate to SA02>94% -99%
- Aspirin 324 mg PO X1
- Acquire 12 lead EKG –or- Apply 12 Lead ECG electrodes (if trained and equipped).
- **Patient Assist** NTG SL 0.4 mg q 5 min if SBP ≥ 100, until patient is pain free.

AEMT

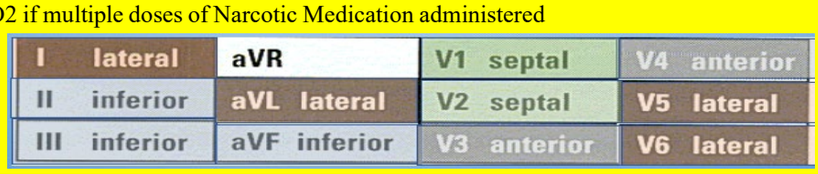
- NTG SL 0.4 mg q 5min if SBP ≥ 100, until patient is pain-free.

ALS

- 12 Lead ECG within 5 min. of Pt. contact
  - STEMI: Declare a "STEMI alert," <15 minutes on-scene time, and initiate transport to appropriate STEMI Center**. Transmit 12 Lead ASAP whenever possible.**
- Inferior wall MI consider. Normal Saline 250-500 ml. May repeat X1
- Fentanyl (IA): 1 mcg/kg IV/IM/IN up to 100 mcg may repeat 50 mcg q 5 min (Max total 300 mcg) SBP> 100mmHg. As needed until improvement

Pearls / Additional Considerations:

- Do not administer Nitroglycerin to any patient who has used Viagra (sildenafil) or Levitra (vardenafil) in the past 24 hours or Cialis (tadalafil) in the past 48 hours due to potential severe hypotension.
- A STEMI Alert should be declared in a symptomatic patient with >1mm ST elevation in two or more contiguous leads (see chart below) or witnessed new-onset LBBB.
- Maintain high concern for patients who are symptomatic but do not present with EKG changes or presents with EKG changes but are not symptomatic.
- If a patient has ECG changes or is going directly to a cardiac cath lab, attempt to establish a second IV but do NOT delay transport.
- Monitor for hypotension and respiratory depression after administration of Nitroglycerin and fentanyl.
- People with diabetes and geriatric patients often have atypical pain or only generalized complaints.
- Hyper-sympathetic state from stimulant abuse usually presents with sustained HR >120 bpm and HTN. If chest pain occurs in the setting of stimulants, utilize benzodiazepine per Overdose/Toxic Ingestion Guideline in addition to the above.
- ETCO2 if multiple doses of Narcotic Medication administered



NARROW COMPLEX TACHYCARDIA C.05

History	Signs and Symptoms	Differential
• Medications (Aminophylline, Stimulants, Thyroid supplements, Decongestants, Digoxin) • Diet (caffeine, chocolate) • Drugs (nicotine, cocaine) • Past medical HX (A-fib, COPD, CAD, PSVT)	• QRS less than 0.12 sec • Rate >100. • >150 for symptoms in Adult usually. • >180 in Children • >220 in Infants • Dizziness • CP • SOB • Syncope / near syncope • Palpitations/fluttering	• Heart disease (WPW, Valvular) • Sick sinus syndrome • Myocardial infarction • Electrolyte imbalance • Exertion, Pain, Emotional stress • Fever • Hypoxia or Anemia • Hypovolemia • Drug effect / Overdose (see Hx) • Hyperthyroidism • Pulmonary embolus

Consider Guidelines:

- Universal Patient Care Guideline
- Hypotension Guideline
- Wide Complex Tachycardia Guideline
- Change in rhythm, go to appropriate Guideline

Procedures:

BLS

- Oxygen Target SPO2 94%-99%
- Airway management as necessary
- Application of ECG electrodes for 12 lead

AEMT

- IV
- IV crystalloid as needed to manage hypotension

ALS

- Continuous 12 lead monitoring whenever possible

Stable:

Adult

- Attempt vagal maneuvers
- Adenosine 12mg IV push RAPID follow immediately with 10ml flush.
- If ineffective repeat Adenosine 12mg IV push RAPID follow immediately with 10ml flush.

Pedi

- Attempt vagal maneuvers (Ice pack, Valsalva)
- Adenosine 0.2 mg/kg IV IV push RAPID (max 6mg) May repeat x 1

Unstable:

Adult

- Synchronized cardioversion @ 200J. If ineffective repeat prn synchronized at 200J.
- Consider sedation prior to cardioversion (IA): Midazolam: 2.5 – 5.0 mg IV/IO OR 5 mg IM/IN May repeat PRN max total dose 10 mg with SBP > 100 mmHg

Pedi

- Synchronized Cardioversion 0.5 – 1J/kg May repeat x1 @ 2J/kg (use pediatric pads in patient <10kg).
  Consider sedation prior to cardioversion (IA): Midazolam 0.05 mg/kg IV/IO/IN (max 2.5 mg) titrated to effect with SBP >70 + (age in years x 2) mmHg

Pearls / Additional Considerations:

- Carefully evaluate the rhythm to distinguish Sinus Tachycardia, Supraventricular Tachycardia and Ventricular Tachycardia.
- AED pads. Use pediatric pads on those <8 years old. If pedi pads are not available, use adult pads in the anterior-posterior placement (we want to make sure the pads aren't too close together and not touch each other. AED pads on <1yo patients should be guided by the specific manufacturer's recommendations on their pads.
- Use caution in patient currently on antihypertensive medication
- Adenosine may not be effective in identifiable atrial flutter/fibrillation, but is not harmful.
- Monitor for hypotension after administration of Diltiazem.
- Monitor for respiratory depression and hypotension associated with Midazolam.
- Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.
- Continuous pulse oximetry is required for all Atrial Fibrillation Patients.
- Maximum Physiologic HR calculation 220 minus (-) age in years = Max HR
- Rapid ventricular response is defined as rate > 100 however rate related signs and symptoms are uncommon with HR ≤ 150/min in patients with healthy heart. Consider rate control at lower heart rates if symptomatic.

POST-RESUSCITATION C.06

History	Signs and Symptoms	Differential
• Respiratory Arrest • Cardiac Arrest	• Return of pulse	• Continue to address specific differentials associated with original dysrhythmia

Consider Guidelines:

- Airway Guideline
- Hypotension Guideline
- Wide Complex Tachycardia Guideline
- Bradycardia Guideline

Procedures:

BLS

- Repeat Primary Assessment and remove ITD if not done already.
- If using LUCAS Device: release and retract Compression Pad
- Continue ventilatory support using airway already in place, as tolerated by patient
  - Sa02 goal 94% - 99%
  - Resp Rate appropriate to age (adult <12)
    - ***DO NOT HYPERVENTILATE***
- Declare a Resuscitation Alert to a designated Resuscitation Center of Excellence as soon as possible
- Monitor vital signs and neurological status closely.

AEMT

- Consider BIAD
- Obtain IV/IO (do not delay transport)
- IV crystalloid bolus as needed to manage hypotension

ALS

- Cardiac Monitor and 12 Lead EKG
- Manage hypotension per hypotension guideline
- Manage cardiac ectopy / bradycardia as needed
- Intubation only if BLS airway / BIAD airway inadequate

Pearls / Additional Considerations:

- Hyperventilation is a significant cause of hypotension and cardiac arrest in the post resuscitation phase and it must be avoided.
- Most patients immediately post resuscitation will require ventilatory assistance.
- Oxygen should be titrated to SaO2 of >94 but <100%.
- The condition of post-resuscitation patients fluctuates rapidly and continuously, and they require close monitoring. Appropriate post resuscitation management can best be planned in consultation with medical control.
- If patient has return of gag reflex and removal of BIAD becomes necessary, immediately roll patient onto side and prepare to suction as airway is removed.
- Common causes of post-resuscitation hypotension include hyperventilation, hypovolemia, pneumothorax, and medication reaction to ALS drugs.
- Significant ectopy is defined as a dysrhythmia that meets treatment criteria as part of another Guideline.
- **These patients must be stabilized prior to moving and should only be transported to Resuscitation Centers of Excellence**

VENTRICULAR FIBRILLATION & PULSELESS TACHYCARDIA C.07

History	Signs and Symptoms	Differential
• Events leading to arrest • Estimated Down Time • Past Medical History • Medications • Renal Failure / Dialysis • DNR / Existence of terminal illness • FBAO • Hypothermia	• Unresponsive, Apneic, Pulseless • Ventricular fibrillation or ventricular tachycardia on ECG	• Asystole • Artifact / Device Failure • Cardiac • Endocrine / Medicine • Drugs • Pulmonary • Respiratory failure • Foreign body • Hyperkalemia • Infection (croup, epiglottitis) • Hypovolemia (dehydration) • Congenital heart disease • Trauma • Tension pneumothorax • Hypothermia • Toxin or medication • Hypoglycemia • Acidosis

Consider Guidelines:

- Cardiac Arrest Guideline
- Airway Guideline
- Environmental Hypothermia Guideline
- Hypotension Guideline (for fluid resuscitation)
- Altered Mental Status Guideline (for Hypoglycemia treatment)
- Overdose Guideline
- Multiple Trauma Guideline
- Trauma Arrest Guideline
- Post Resuscitation Guideline

Procedures:

BLS

- Criteria for withholding Resuscitation?
- PIT Crew CPR Procedure w/ BVM, Oxygen, AED, and BLS airway (may apply Nasal Cannula and run at 15 LPM). Defibrillation q 2min with AED prompts.
- BIAD (do not interrupt compressions)
- Apply ETCO2 (IA)
- Identify cause of arrest / Look for treatable causes

AEMT

- IV/IO

ALS

- Apply cardiac monitor (IA)
- Confirm V-Fib / Pulseless V-Tach
- Continue CPR
- Check rhythm q 2 minutes
- Intubation only if BIAD inadequate
- Treat cause of arrest (see H's and T's in Pearls below)

Adult

- Manual defibrillation at maximum joule setting q 2 mins
- Epinephrine 1 mg(0.1mg/ml) IV/IO - Repeat q 8 minutes
- Amiodarone 300mg IV/IO push - Repeat in 4 min at 150 mg IV/IO push x 1

If refractory to 4 shocks, 450 mg Amiodarone administered, and V-Fib/V-Tach persists:

- Lidocaine (IA) 1 – 1.5 mg/kg IV/IO every 4 minutes until max dose=3mg/kg

Consider:

- Magnesium Sulfate 2 grams slow IV/IO push (over 5 mins) for Torsades
- Calcium Chloride/Gluconate 1 gram IV/IO
- Sodium Bicarbonate 1meq/kg IV/IO
- Double Sequential Defibrillation (IA)

Pedi

- Defibrillate @ 2 J/kg. Repeat defibrillation q 2mins @ 4 J/kg.
- Epinephrine 0.01 mg/kg IV/IO (0.1 mL/kg of (0.1mg/mL) Repeat q 8min (max 1mg)
- Amiodarone 5 mg/kg IV/IO (max 300mg) may repeat x1 (max 2nd dose 150mg)

If VF/VT refractory to Amiodarone:

- Lidocaine (IA) 1mg/kg IV q 5 min (Max 3 mg/kg)

If Torsades de pointes:

- Magnesium Sulfate 50%, 25–50mg/kg IV/IO over 5 minutes. May repeat same dose q- 5 minutes until a maximum total dose of 2 grams.

Pearls / Additional Considerations:

- In order to be successful in adult or pediatric arrests, a cause must be identified and corrected.
- Correctable causes:
  - Hypoxia-Ventilate/Oxygenate
  - Hypothermia-Rewarm
  - Hypovolemia-Crystalloid infusion bolus IV/IO
  - Hypoglycemia-Dextrose Infusion: IV/IO
  - Acidosis-Sodium Bicarbonate IV/IO
  - Hyperkalemia-Calcium Chloride IV/IO, Sodium Bicarbonate IV/IO
  - OD Calcium Channel Blocker-Calcium Chloride IV/IO
  - Tension Pneumothorax-Chest Decompression (consider for Asthma patients in arrest)
  - Cardiac Tamponade
  - Pulmonary Embolus
- Calcium and sodium bicarbonate should be given early if hyperkalemia is suspected (renal failure, dialysis)
- Polymorphic VT (Torsades) may benefit from magnesium sulfate.
- If Lidocaine converts: contact OLMC for additional bolus doses of 1-1.5 mg/kg IV.
- **Pediatrics:** Respiratory arrest is a common cause of cardiac arrest. Unlike adults early ventilation intervention is critical.
- Caution in administering Mag Sulfate bolus' causing respiratory depression.
- AED pads - Use pediatric pads on PT's <8 years old. If pedi pads are not available, use adult pads in the anterior-posterior placement (we want to make sure the pads aren't too close together and not touch each other. AED pads on <1yo patients should be guided by the specific manufacturer's recommendations on their pads.

WIDE COMPLEX TACHYCARDIA WITH PULSE C.08

History	Signs and Symptoms	Differential
• Past medical history / medications, diet, drugs • Syncope / Near syncope • Palpitations • Pacemaker • Allergies: Lidocaine / Novocaine • CAD, CHF, Cardiomyopathy	• Ventricular Tachycardia on ECG (Runs or Sustained) • Rate usually 150-180 bpm for sustained V-Tach for Adult. • Rate usually >180 bpm for sustained V-Tach for Pedi. • Palpable Pulse and QRS > 0.12 sec • Conscious, rapid pulse • Chest Pain, Shortness of Breath • Dizziness	• Artifact / Device Failure • Cardiac • Endocrine/Electro lyte • Hyperkalemia (consider if slow, wide complex) • Drugs/Toxic exposure • Pulmonary disease

Consider Guidelines:

- Universal Patient Care Guideline
- Hypotension Guideline
- Change in rhythm, go to appropriate Guideline

Procedures:

	Stable	Unstable/Pre-Arrest
BLS	• Oxygen titrate to SpO2 94%-99% • Airway management as needed • Application of ECG electrodes for 12 lead	• Oxygen titrate to SpO2 94%-99% • Airway management as needed • Application of ECG electrodes for 12 lead
AEMT	• IV • IV crystalloid bolus as needed to manage hypotension	• IV/IO • IV crystalloid bolus as needed to manage hypotension
ALS	• Continuous 12 Lead ECG **Adult** • Amiodarone 150mg IV over 10 minutes. May repeat x2 150 mg q10 min (max. total dose 450 mg) If refractory to Amiodarone: • Lidocaine (IA) 1-1.5 mg/kg IV q 5 min (Max 3 mg/kg) If Torsades de pointes consider: • Magnesium Sulfate 50% 2 grams Slow IV/IO push over 5 min **Pedi** • Amiodarone 5mg/kg IV over 20 minutes. (max. dose of 150 mg) If refractory to initial therapy initiate transport and consider: • Lidocaine (IA) 1mg/kg IV q 5 min (Max 3 mg/kg) Torsades de pointes consider: • Magnesium Sulfate 50% 25-50mg/kg IV over 20 minutes (max dose 2 grams)	• Continuous 12 Lead ECG when possible **Adult** • Synchronized Cardioversion at 200J. Repeat at 200J PRN. • Consider sedation (IA): Midazolam: 2.5 – 5.0 mg IV/IO OR 5 mg IM/IN May repeat PRN (max total dose 10 mg). Hold for SBP < 100 mmHg • Amiodarone 150mg IV over 10 min. May repeat x2 q10 min (max. total dose 450 mg) • 12 lead ECG after conversion **Pedi** • Synchronized Cardioversion 0.5 – 1J/kg. May repeat @ 2J/kg • Consider sedation (IA): Midazolam 0.05 mg/ kg IV/IO (max 2.5mg) titrated to effect. Hold for SBP <70 + (age in years x 2) mmHg. Do Not admin if <5kg • Amiodarone 5mg/kg IV over 20 min. (max. dose of 150 mg) 12 lead ECG after conversion

Pearls / Additional Considerations:

- For witnessed / monitored ventricular tachycardia, try having patient cough
- AED pads. Use pediatric pads on those <8 years old. If pedi pads are not available, use adult pads in the anterior-posterior placement (we want to make sure the pads aren't too close together and not touch each other. AED pads on <1yo patients should be guided by the specific manufacturer's recommendations on their pads.
- **If Lidocaine converts: contact OLMC for additional bolus doses of 1-1.5 mg/kg IV or Lidocaine drip.**
- Maximum dose of antiarrhythmic should be given before changing antiarrhythmic.
- If hyperkalemia or tricyclic OD consider Sodium Bicarbonate 1 mEq/kg early in intervention.

Procedures

12-Lead ECG Placement

Auto-Injector

Awake Prone Positioning

Cardiac Pacing

Cardioversion

Child Birth and Complications

CPAP: Continuous Positive Airway Pressure

CPR Procedure

Double Sequential External Defibrillation

Eye Irrigation

Foreign Body Airway Obstruction

Gastric Tube Insertion

I-gel Airway (BIAD)

Insulin Pump

Intra-Muscular Injections

Intraosseous Infusion

LUCAS

Medical and Trauma Arrest Termination of Resuscitation Checklist

Nasal Drug Delivery Device

Needle Cricothyrotomy

Orotracheal Intubation

Pain Assessment and Documentation

Pelvic Binder

Pleural Decompression

Pressure Infusion Bag

Refusal of Care, Lift Assist & Capacity Checklists

Restraints

START or Jump START Triage Algorithm

STEMI Alert Criteria

Stroke Alert Criteria

Surgical Cricothyrotomy

Taser Probe Removal

Tourniquet

Tracheostomy Tube Change Replacement

Vagus Nerve Stimulator (VNS)

Ventricular Assist Device (VAD)

Wound Packing

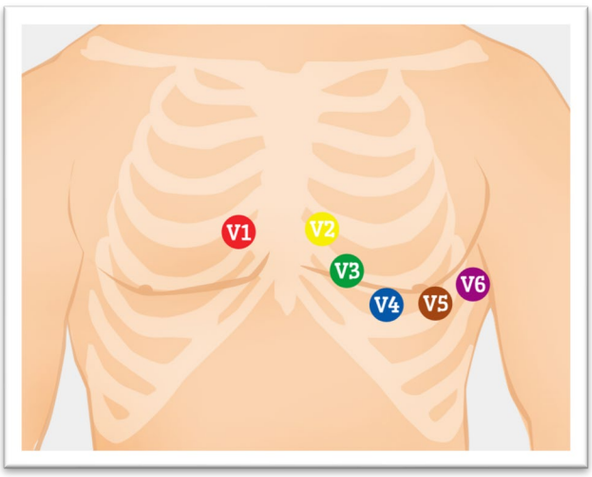
12-Lead ECG Placement

1. Assess PT

2. Administer oxygen as patient condition warrants.

3. Expose chest and prep as necessary. Modesty of the patient should be respected as best as possible.

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



RA -Right arm

LA -Left arm

RL -Right leg

LL -Left leg

V1 -4th intercostal space at right sternal border

V2 -4th intercostal space at left sternal border

V3 -Directly between V2 and V4

V4 -5th intercostal space at midclavicular line

V5 -Level with V4 at left anterior axillary line

V6 -Level with V5 at left midaxillary line

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

6. Enter the required patient information (patient name, etc.) in to the 12-lead ECG device.

7. Instruct patient to remain still.

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

9. For patients with cardiac complaint, keep all leads connected at all times practical to allow automatic ST-segment monitoring to proceed.

10. Monitor the patient while continuing with the treatment guideline.

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

Auto-Injector Delivered Medication

Clinical Indications:

- When guideline indicates medication delivery via auto-injection
- When other administration routes are unsuccessful or unavailable

Contraindications:

- None

Notes/Precautions:

- Appropriate equipment
- Disinfectant wipe and Band-Aids
- Appropriate injection sites
- Do NOT place thumb over either end of the auto-injector at any time.

Procedure:

1. Prepare equipment.
2. Check label, date, and appearance of medication.
3. Locate appropriate injection site.
    - Vastus Lateralis located on the lateral aspect of the thigh
    - Injection is given into the mid-thigh
4. When time permits expose target site and prep with disinfectant (not required as injectors are designed to work through clothing.).
5. Remove the auto-injector from its storage container.
6. Do Medication Administration Cross Check
7. Form a fist around the auto-injector with black or orange tip facing down. Do NOT place thumb over either end of the auto-injector.
8. Remove the Gray or Blue safety cap with your other hand.
9. Position at a 90 degree angle the Black or Orange “needle end” cap against the desired injection site press very firmly listening for an audible “click.”
10. Hold auto-injector in place for 10 seconds to allow complete delivery of medication.
11. Remove auto-injector and dispose of the sharp in an appropriate container.
12. Massage the injection site for 10 seconds to speed delivery of the medication.
13. Observe patient for response to medication.
14. All patients receiving auto-injector medications should be transported to the hospital for further evaluation and observation.

Awake Prone Positioning

Clinical Indication:
Awake patients with influenza like illness or possible COVID-19 presenting in respiratory distress with acute low SpO2.

Contraindications:
Shock (e.g. persistent MAP < 65 mmHg and unresponsive to pressors)
If patient has a MAP > 65 on pressors and is stable prone positioning may be considered
Acute bleeding (e.g. hemorrhagic shock, massive hemoptysis)
Multiple fractures or trauma (e.g. unstable fractures or femur, pelvis, face)
Spinal instability, including patients at risk such as rheumatoid arthritis
Open chest and/or abdominal wound
Pregnancy
Tracheal surgery or sternotomy within two weeks
Burns

Relative Contraindications:
Weight more than 135 kg
Life threatening arrhythmias
Recent pacemaker
Recent thoracic or abdominal surgery
Difficult airway or difficult intubation

Procedure:
Explain the procedure to the patient.
Help patient lie on their belly in a prone position.
Make sure support devices are well secured to the patient (e.g. it could be helpful to use tegaderm to anchor a nasal cannula).
Help patient lie in lateral recumbent position, alternating with prone position as much as is tolerated.
Monitor

Pathophysiology:
Same physiology as proning a patient who is intubated (proning is proning). May improve secretion clearance.
May recruit atelectatic lung tissue in the dependent lung bases

Cardiac Pacing

Clinical Indications:

- Adult patient with unstable bradycardia (HR <60 and signs of hypo perfusion such as SBP <90 mm Hg, change in mental status, chest pain, CHF)
- Pediatric patients with unstable bradycardia unresponsive to treatable causes (PEDI, SBP < 70 + (age in years x 2) mmHg). Unresponsive to aggressive Oxygenation and Ventilation attempts

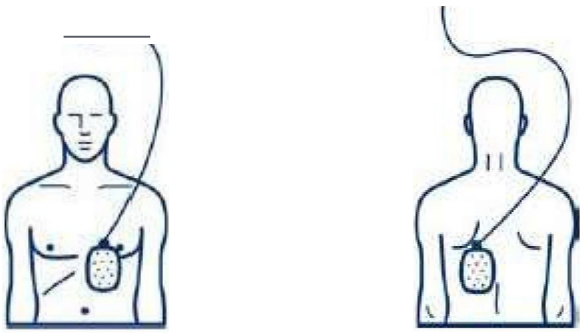
Contraindications:

- Hypothermia with a temperature <86 degrees F

Procedure:

1. Attach standard four lead monitor.
2. Apply defibrillation/pacing pads assuring clean dry contact surface (shave/dry):
3. One pad to anterior left mid chest next to sternum. (medial/inferior to pectoral muscle)
4. One pad to posterior left mid chest next to spine. (medial/inferior to scapula)
5. For pediatric patients use correct size and type pads for pacing and patient weight.
6. Select pacing mode on the monitor.
7. Adjust heart rate to 80 BPM (adult) or 100 BPM (child).
8. Note presence of pacer spikes.
9. Increase output until electrical capture of the rhythm on the monitor.
10. If unable to capture at maximum output discontinue pacing immediately.
11. If capture observed, check for corresponding pulse and assess vital signs.
12. Consider the use of sedation or analgesia.
13. Document the procedure, time of intervention and response in the patient care report.

Anterior-Posterior Placement for Pacing (Standard)



Cardioversion

Clinical Indications

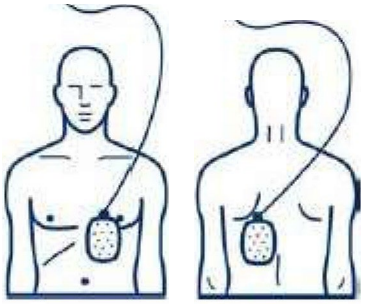
- Unstable tachydysrhythmia with a pulse (ventricular tachycardia, torsade de pointe, SVT, A-fib/Flutter with RVR, etc.) in accordance with the appropriate tachydysrhythmia Guideline

Contraindications;

- Repetitive, self-terminating, short-lived tachycardias (i.e., runs of non-sustained VT)

Procedure:

1. Confirm that the rhythm on the monitor coincides with a patient in an unstable condition
2. Set to synchronized cardioversion mode watching for R wave markers on each ORS complex.
3. If the R wave markers do not appear, or appear elsewhere on the ECG, adjust the ECG size or gain up or down until they appear on each R-wave.
    - If markers still do not appear, select another lead or reposition the ECG electrodes
    - If these methods are ineffective unsynchronized cardioversion may be required
4. Apply self-adhesive pads in the anterior/posterior position, ensuring firm contact with patient's skin.
5. Consider the use of pain/sedating medications.
6. Charge device to appropriate energy level and clear all personnel from direct patient contact
7. Depress and hold discharge buttons until electrical charge is delivered. (There may be substantial delay between pressing the button and the actual discharge of energy).
8. Reassess the patient. If rhythm deteriorates into VF/pulseless VT, switch to asynchronous mode and immediately defibrillate per Patient Care Guidelines.
9. Document the procedure, time performed and patient response in the patient care report.



Child Birth and Complications

Imminent delivery with crowning

Procedure:

1. Delivery should be controlled so as to allow a slow, controlled delivery of the infant. This will prevent injury to the mother and infant.

2. Consider additional resources as there will be two potential patients.

3. Support the infant's head as it delivers.

4. If the umbilical cord is around the neck, slip it over the head. If unable to free cord from the neck, double clamp the cord and cut between the clamps.

5. Suction the airway with a bulb syringe.

6. While continuing to support the head, gently lower the head to encourage delivery of the anterior shoulder.

7. Once the anterior shoulder delivers gently lift the head and anterior shoulder to allow delivery of the posterior shoulder.

8. Be prepared to support the infant while delivering the remainder of the body.

9. Clamp the cord 6 inches and place second clamp 9 inches from the abdomen and cut the cord between the clamps.

10. Record APGAR scores at 1 and 5 minutes.

11. Follow the New Born Care Guideline for further treatment.

12. The placenta will deliver spontaneously, usually within 5-25 minutes of the infant. Do not force the placenta to deliver or pull on the umbilical cord.

13. Massage the uterus and/or initiate breast feeding (as infant and/or maternal condition allows) to stimulate uterine contractions, decrease bleeding and initiate delivery of the placenta. If the placenta delivers it should be retained for inspection. For post-partum hemorrhage refer to guideline Obstetrical Emergency.

Complications: Breech

The largest part of the fetus (head) is delivered last. In general, breech presentations include buttocks presentation and/or extremity presentation. An infant in a breech presentation is best delivered in the hospital setting since an emergency cesarean section is often necessary. However, if it is necessary to perform a breech delivery in a pre-hospital setting, the following procedures should be performed:

Treatment: Breech Presentation

1. Position mother with her buttocks at edge of bed, legs flexed.

2. Allow the fetus to deliver spontaneously up to the level of the umbilicus. If the fetus is in a front presentation, gently, extract the legs downward after the buttocks are delivered.

3. After the infant's legs are clear, support the baby's body with the palm of the hand and the volar surface of the arm.

4. After the umbilicus is visualized, gently extract a 4"-6" loop of umbilical cord to allow for delivery without excessive traction on the cord. Gently rotate the fetus to align the shoulder in an anterior-posterior position. Continue with gentle traction until the axilla is visible.

5. Gently guide the infant upward to allow delivery of the posterior shoulder.

6. Gently guide the infant downward to deliver the anterior shoulder.

7. During a breech delivery, avoid having the fetal face or abdomen toward the maternal symphysis.

8. The head is often delivered without difficulty. However, be careful to avoid excessive head and spine manipulation or traction.

9. As the head passes the pubis, apply gentle upward pressure until the mouth appears over the perineum. Immediately suction mouth, then nose.

10. If the head does not deliver immediately, action must be taken to prevent suffocation of the infant.

- Place a gloved hand in the vagina with the palm toward the babies face.

- Form a "V" with the index and middle fingers on either side of the infant's nose.

- Gently push the vaginal wall away from the infant's face, so that the infant can breathe, until the head is delivered.

If unable to deliver infant's head within three (3) minutes, maintain the infant's airway with the "V" formation and rapidly transport to the hospital.

Complications: Shoulder Dystocia

This occurs when the fetal shoulders impact against the maternal symphysis, blocking shoulder delivery. Delivery entails dislodging one shoulder and rotating the fetal shoulder girdle into the wider oblique pelvic diameter. The anterior shoulder should be delivered immediately after the head.

Treatment: Shoulder Dystocia

1. Position mother on her left side in a dorsal-knee-chest position to increase the diameter of the pelvis or position mother with buttocks off the edge of the bed and thighs flexed upward as much as possible.

2. Apply firm, open hand pressure above the symphysis pubis.

3. Attempt to guide the infant's head downward to allow the anterior shoulder to slip under the symphysis pubis.

4. Gently rotate the fetal shoulder girdle into the wider oblique pelvic diameter. The posterior shoulder usually delivers without resistance.

5. Complete the delivery as above.

6. If delivery does not occur, maintain airway patency as best as possible and immediately transport.

Complications: Prolapsed Umbilical Cord

This occurs when the cord slips down into the vagina or presents externally after the amniotic membranes have ruptured. Fetal asphyxia may rapidly ensue if circulation through the cord is not re-established and maintained until delivery.

Treatment: Prolapsed Umbilical Cord

1. If the umbilical cord is seen in the vagina, insert two gloved fingers into the vagina and gently elevate the presenting part to relieve pressure on the cord and restore umbilical pulse. DO NOT attempt to reposition or push the cord back into the uterus.

2. Position the mother in Trendelenburg or knee-chest-position to relieve pressure on the cord.

3. Instruct the mother to "pant" with each contraction to prevent her from bearing down.

4. If assistance is available, apply moist sterile dressings to the exposed cord.

5. Maintain hand position during rapid transport to the receiving hospital. The definitive treatment is an emergency cesarean section.

Complications: Uterine Inversion

This is a turning "inside out" of the uterus. Signs and symptoms include postpartum hemorrhage with sudden and severe abdominal pain. Hypovolemic shock may develop rapidly.

Treatment: Uterine Inversion

1. Do not attempt to detach the placenta or pull on the cord.

2. Make one (1) attempt to reposition the uterus:

- Apply pressure with the fingertips and palm of a gloved hand and push the uterine fundus upward and through the vaginal canal.

- If procedure is ineffective, cover all protruding tissues with moist sterile dressings and rapidly transport to hospital.

Complications: Postpartum Hemorrhage

This is defined as the loss of 500 ml or more of blood in the first twenty-four (24) hours following delivery. The most common cause is the lack of uterine muscle tone and is most frequently seen in the multigravida and/or multiple birth mother. However, any other obstetrical malady may cause hemorrhage.

Treatment: Significant hemorrhage following delivery or delayed placenta delivery

Unless multiple births are anticipated, begin fundal massage.

CPAP -Continuous Positive Airway Pressure Ventilation

Clinical Indications:

- Congestive Heart Failure/Pulmonary Edema
- Submersion/Drowning
- Chronic Obstructive Pulmonary Disease
- Acute Respiratory Distress

Contraindications:

- Respiratory Arrest
- Agonal respirations
- Unconscious
- Altered mental status - unable to protect their own airway
- Shock associated with cardiac insufficiency
- Pneumothorax
- Facial Trauma
- Active Vomiting

Notes/Precautions/Possible complications:

- Gastric Distention
- Reduce cardiac output
- Hypoventilation
- Pulmonary barotrauma
- Excessive secretions

Procedure:

1. Ensure all necessary equipment is available and assembled.
2. Set up for ETCO2 Monitoring.
3. Connect CPAP to O2 source and select liter flow setting.
    a. For O-Two CPAP system: 8L = 5 PEEP, 10L = 8 PEEP, 12L = 10 PEEP 15L = 15 PEEP (same brand as ATCEMS).
    b. For Pulmodyne Go-PAP system: Run at 10 LPM. PEEP is independent of flow and is adjusted on generator at the facemask. You will have approx. 40 minutes of run time on a full D tank, you will lose 5-6 minutes of run time with each neb treatment that you run off the same tank.
4. Oxygen must be flowing prior to placing the device on the patient's face.
5. Fully explain the procedure to the patient.
6. Have the patient hold the mask to face and instruct them to breathe slowly and deeply.
7. Once the patient is comfortable with the mask, secure the head piece to the mask and tighten to fit.
    a. Note: with the Go-PAP system, leaks are often caused by overtightening the mask when securing to the patient. If your system continues to leak after loosening the mask, consider change face mask sizes.
8. Continuously monitor the patient's respiratory status and SAO2.
9. The adjunctive delivery of a Neb treatment with the CPAP device is an approved procedure and treatment modality. Patient presentation and distress level should dictate the timing or use of this procedure. The addition of a Nebulizer in this fashion should not create delays in the use of CPAP and only providers who are trained and appropriately equipped should use this.
10. If the patient decompensates as indicated by:
    a. Decreased LOC

b. Decreased SAO2 (from initial reading with CPAP)
c. Bradycardia with hypotension
d. Agonal respirations
e. Respiratory arrest
f. Pneumothorax

Discontinue CPAP and manage the patient per the appropriate guideline.

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CPR Procedure

Position 3 Priority Actions:

- Assess/clear/open OPA patient's airway. Apply N/C @ 15 lpm
- If pedi begin immediate BVM vent, once every 3-4 secs
- If Adult begin immediate BVM vent, once every 5-6 secs. Insert BIAD as needed at step 6.

Position 4 priority actions:

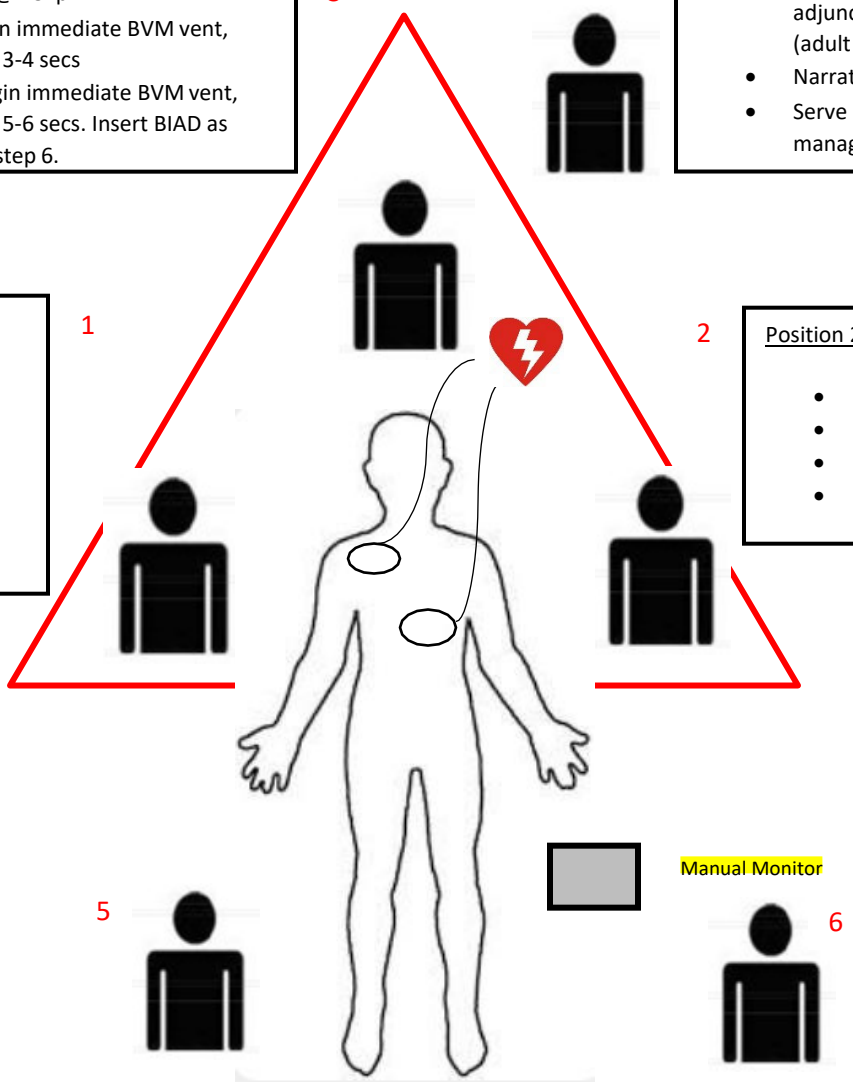
- Assist position 3 with airway adjuncts & BVM & N/C)2 as needed (adult & pedi.)
- Narrate call into AED
- Serve as CLS team leader manage/monitor pit crew checklist

Position 1 priority actions:

- Assess patient for pulse and respirations
- Begin pit crew if pulseless
- Ensure no unscheduled breaks in compressions
- Squeeze bag during off compression cycle

Position 2 priority actions:

- Turn on AED/apply pads
- Turn on metronome
- Narrate call if no position 4
- Squeeze bag during off compression cycle



Adult priorities of care (in order of priority):

- Chest compressions
- Defibrillation
- Airway/ventilation

Pedi priorities of care (in order of priority):

- Chest compressions
- Airway/ventilation
- Defibrillation

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Team Leader's Pit Crew Checklist

Adult Pit Crew (≥37 kg or ≥81 lbs.)

1. Initial Actions (Goal < 30 sec)
   - ⎦ Assess for cardiac arrest (1,2)
   - ⎦ Move patient to adequate space (1,2,3)
   - ⎦ Power on AED (2,4)
   - ⎦ Narrate all actions (2,4)
2. CPR / BVM – 1st set (Goal ~2min)
   - ⎦ 100 manual compressions (1)
   - ⎦ Place CPR feedback puck (2)
   - ⎦ Assemble BVM & place OPA & N/C@ 15lpm (3)
   - ⎦ Turn on metronome(2)
   - ⎦ Place AED pads & connect (2)
   - ⎦ Squeeze bag
   - ⎦ 2nd set 100 manual compressions (2)
   - ⎦ Remaining compressions if needed (1)
3. AED / Shock – 1st (Goal < 15 sec)
   - ⎦ Check carotid pulse during analysis (1)
   - ⎦ Clear patient & deliver shock if indicated(2)
   - ⎦ Resume chest compressions (1)
4. CPR – 2nd set (Goal ~2min)
   - ⎦ 100 manual compressions (1)
   - ⎦ Squeeze bag (3)
   - ⎦ Prepare BIAD (2)
   - ⎦ 2nd set 100 manual compressions (2)
   - ⎦ Remaining compressions if needed (1)
5. AED/Shock – 2nd (Goal <15 sec)
   - ⎦ Check carotid pulse during analysis (1)
   - ⎦ Clear patient & deliver shock if indicated (2)
   - ⎦ Hold bag after connected to Igel (3)
   - ⎦ Resume chest compressions (1)
6. CPR & BIAD – 3rd set (Goal ~2min)
   - ⎦ 100 manual compressions (1)
   - ⎦ Squeeze bag
   - ⎦ Insert BIAD w/o stopping CPR(3)
   - ⎦ 2nd set 100 manual compressions (2)
   - ⎦ Remaining compressions if needed (1)

   Repeat steps 5 & 6 until ROSC/TOR/TSP.

Pediatric and Infant Pit Crew (> 5 days and <37 kg or <81lbs)

1. Initial Actions (Goal < 30 sec)
   - ⎦ Assess for cardiac arrest (1,2)
   - ⎦ Move patient to adequate space (1,2,3)
   - ⎦ Power on AED (2,4)
   - ⎦ Narrate all actions (2,4)
2. CPR / BVM – 1st set (Goal ~2 min)
   - ⎦ 100-120 manual compressions(1)
   - ⎦ Open/clear airway. Assemble BVM & place OPA. May place on NC @ 15lpm (3)
   - ⎦ Turn on metronome (2)
   - ⎦ Place AED pads & connect (2)
   - ⎦ 2nd set 100 manual compressions (2)
   - ⎦ Remaining compressions if needed (1)
3. AED / Shock – 1st (Goal <15 sec)
   - ⎦ Check carotid or brachial pulse during analysis (1)
   - ⎦ Clear patient & deliver shock if indicated (2)
   - ⎦ Resume chest compressions (1)
4. CPR & OPA/O2 – 2nd set (Goal ~2min)
   - ⎦ 100-120 manual compressions (1)
   - ⎦ If not done already, move to 2 handed mask seal (3)
   - ⎦ Squeeze bag on count by P3
   - ⎦ Assist P3 with adding OPA & N/C @ 15lpm and connect tubing to O2 as soon as available (1,2,4)
   - ⎦ 2nd set 100-120 manual compressions (2)
   - ⎦ Remaining compressions if needed (1)
5. AED / Shock – 2nd (Goal < 15 sec)
   - ⎦ Check carotid pulse during analysis (1)
   - ⎦ Clear patient & deliver shock if indicated (2)
   - ⎦ Resume chest compressions (1)
6. CPR – 3rd set (Goal ~2 min)
   - ⎦ 100-120 manual compressions (1)
   - ⎦ Squeeze bag on count by P3
   - ⎦ 2nd set 100-120 manual compressions (2)
   - ⎦ Remaining compressions if needed (1)

   Repeat steps 5 &6 until ROSC/TOR/TSP.

Cardiac Arrest Checklist:

- ☐ Pit crew positions identified
- ☐ Continuous compressions being performed with metronome
- ☐ Nasal Cannula & BVM are attached to oxygen and flowing
- ☐ Monitor screen visible to compressors and code commander
- ☐ Code commander is identified and positioned at the monitor
- ☐ BVM mask attached to tubing if not being used
- ☐ ETCO2 waveform is present and being monitored
- ☐ IV/IO access has been obtained
- ☐ Gastric distention has been considered/addressed
- ☐ Family is receiving care and is at the patient's side

Consider & Treat Causes of Arrest:

- ☐ Hypovolemia
- ☐ Hypoxia (CO, Cyanide)
- ☐ Hydrogen Ions (Acidosis)
- ☐ Hypothermia
- ☐ Hyper/Hypokalemia (dialysis)
- ☐ Hypoglycemia
- ☐ Tablets/Toxins (B-blocker, narcotics)
- ☐ Tamponade
- ☐ Tension pneumothorax
- ☐ Thrombosis (MI or PE)
- ☐ Trauma

The resuscitation audio recording provides a means of improving our methods, protocols and training in order to improve the care we provide to cardiac arrest patients. The recording should describe what is happening at the scene with respect to clinical care. Providers should think of this process as being equivalent to what you would say if the Medical Director were on the phone with you during the resuscitation efforts and you were describing to him/her what is going on at the scene. The audio recording is for quality improvement use only.

For each cardiac arrest narration, attempt to include as many of these elements as is possible:

- ✓ Team leader name & Unit # Witnessed arrest?
- ✓ Circumstances prior arrest

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Interventions and actions should be verbalized for the recording:

- ✓ Briefly describe the patient (age, gender)
- ✓ Bystander CPR?
- ✓ Who did the CPR?
- ✓ Briefly describe unusual findings
- ✓ Moving patient to larger space
- ✓ End tidal CO2 placed
- ✓ Compressions started/stopped
- ✓ I-gel being placed/verified
- ✓ Switched compressors
- ✓ Pulse present/absent during AED analysis
- ✓ AED's activation/decision (shock, no shock)
- ✓ LUCAS applied/adjusted
- ✓ CPR Feedback Puck placed
- ✓ Patient has ROSC/pulses Vent.

Age	Location	Depth	Rate
Infant	Over sternum, between nipples (inter-mammary line), 2-3 fingers	0.5 to 1 inch (1/3 the anterior-posterior chest dimension) Allow Full Chest Recoil.	100-120 / minute
Child	Over sternum, just above the xyphoid process, heel of one hand.	1 to 1.5 inches (1/3 the anterior-posterior chest dimension) Allow Full Chest Recoil.	100-120/minute
Adult	Over sternum, just above the xyphoid process, hands with interlocked fingers	1.5 to 2 inches (1/3 the anterior-posterior chest dimension). Allow Full Chest Recoil.	100 minute (3 compressions every 2 seconds)

Digital Thoracostomy
DCPE Training Captain Procedure

Clinical Indications:

- (DCPE TC) Patients with suspected tension pneumothorax as evidenced by:
  - Respiratory distress with clinical signs of hypoperfusion/tension physiology.
  - Absent of decreased breath sounds on the effected side.
  - Difficulty with PPV.
  - Physical signs during chest examination (SQ air, flail segment, crepitus, chest wall injury).
- (DCPE TC) Patient in traumatic arrest with chest or abdominal trauma in whom resuscitation is indicated.
- (DCPE TC) Patients who have previous needle decompression with reoccurring signs of tension physiology or need for PPV.

Contraindications:

- Not properly equipped to perform the procedure.

Procedures:

1. Provide appropriate oxygenation and ventilation.
2. Consider procedural sedation with Ketamine if indicated.
3. Prepare equipment and don appropriate PPE.
4. Cleanse and prep the site.
5. Identify incision site:
   a. 4th intercostal space, anterior midaxillary line.
   b. Using a scalpel, make a 4-5cm vertical incision just above and parallel to the 5th rib through the skin and subcutaneous tissue.
   c. Use a finger to locate the top of the 5th rib (superior aspect).
   d. Utilize Kelly type forceps to blunt dissect the 4th intercostal space penetrating to the pleural space. ***NOTE: a rush of air may be noted.***
   e. Open the Kelly type forceps vertically and horizontally to enlarge the opening, then close the forceps.
   f. Insert a gloved finger along the Kelly type forceps into the opening. ***NOTE: Be cautious for the presence of fractured ribs.***
   g. Remove the Kelly type forceps and clear any adhesions/clots with the gloved finger and confirm you are in the pleural space:
      i. Feel for mobile lung tissue with PPV or spontaneous respirations.
   h. Apply a chest seal device when applicable.
   i. If tension physiology resumes, reinsert a gloved finger into the opening.

Double Sequential External Defibrillation

Clinical Indications:

Refractory to at least 3 shocks pads placed Anterior / Anterior (Vector 1**) AND**

Refractory to 1 additional shock pads placed Anterior / Posterior (Vector 2) **AND**

V-fib/pulseless

V-tach NEVER converted

Procedure:

1. The code Commander should complete the cardiac arrest checklist to assure all interventions have been performed and causes of cardiac arrest have been considered.
2. Ensure high quality CPR is being performed and the above criteria have been met.
3. Prepare the sites for attachment of an additional set of external defibrillation pads by drying the sites and minimizing interference of hair or other obstacles to good pad conduction.
4. Apply a new set of external defibrillation pads in the anterior/posterior while ensuring they do not contact the initial set of pads.
5. Assure that controls for the second cardiac monitor are accessible to the Code Commander
6. Select the maximum energy setting on both devices. Charge both devices 15 seconds in advance of the anticipated break in CPR. Assure chest compressions continue while the device is charging.
7. At the prescribed time in the compression cycle discontinue compressions and assess the rhythm.
8. If a shock indicated assertively state, “CLEAR” and visualize from the patient’s head to toe to assure no one is touching the patient and deliver the DSED by depressing both shock buttons simultaneously.
9. Immediately resume chest compressions. After 2 minutes of continuous CPR, pause briefly (< 10 sec) to perform pulse check and analyze rhythm.
10. Repeat the procedure every two minutes as indicated by the patient’s response and rhythm.

Eye Irrigation

Clinical Indications:

Irrigation of eye after chemical exposure/burn Assist with removal of foreign material from eye

Contraindications:

Impaled object in eye Trauma to globe of eye

Notes/Precautions:

Care should be taken that the patient does not rub eyes as additional damage can occur

Procedure:

1. Remove contact lenses (if present).

2. Use Isotonic Crystalloid alone or mix 100 mg Lidocaine (5 mL of a 2% solution) in 1 L of Isotonic Crystalloid

3. Initiate irrigation and direct the tip of the IV tubing at the medial canthus (corner of the eye nearest the nose) and allow to flow laterally. Do not allow irrigation fluid to come in contact with unaffected eye.

4. Continue irrigation throughout transport. All patients should receive transport to the ED to evaluate for corneal injury.

Foreign Body Airway Obstruction

Clinical Indications:

1. Sudden onset of respiratory distress often with coughing, wheezing, gagging, or stridor due to a foreign body obstruction of the upper airway.
2. Respiratory arrest where ventilation cannot be accomplished after repositioning of airway.

Equipment: Laryngoscope, Magill's forceps, suction.

Procedure:

Conscious:

1. Assess the degree of foreign body obstruction of the upper airway.
    a. Do not interfere with mild obstruction, allow the patient to clear the airway by strong coughs.
    b. In severe foreign body airway obstructions, the patient may not be able to make a sound.
    c. The victim may clutch their neck in the universal choking sign.
2. For infants, deliver five (5) back blows followed by five (chest thrusts) repeatedly until the object is expelled or the victim becomes unresponsive.
3. For children, perform a sub diaphragmatic abdominal thrust, also known as the Heimlich Maneuver, until the object is expelled, or the victim becomes unresponsive.
4. For adults, a combination of maneuvers may be required.
    a. First, sub diaphragmatic abdominal thrusts should be used in rapid sequence until the obstruction is relieved or the victim becomes unresponsive.
5. Chest thrusts should be used in obese patients and in patients who are in the late stages of pregnancy.

Unconscious:

1. If the victim becomes unresponsive, begin CPR.
2. Have suction at the patient's side due to possible stimulation of gag reflex.
3. Look inside the mouth prior to administering ventilations.
    a. If a foreign body is visible, remove it.
4. Attempt ventilations using BVM. Do not insert OPA or BIAD until airway is cleared.
5. Continue cycle of Chest Compressions, visualization then attempted ventilations, until the airway is open/clear. Use suction as needed to assist in clearing the Airway.
6. AEMT and ALS level providers should perform direct laryngoscopy (if available) to visualize the posterior oropharynx and remove object.
    a. Using a laryngoscope, tongue depressor or other appropriate device, displace the tongue to directly visualize the posterior oropharynx.
    b. If a foreign body is visualized, use Magill's forceps to remove.
        i. Use caution not to displace the object further into the patient's airway.
7. Do not perform blind finger sweeps in the patient's mouth / posterior pharynx, as this could cause objects to be lodged further into the airway.

Gastric Tube Insertion

Clinical Indications:

Adult and pediatric cardiac arrest or comma following placement of advanced airway

Patients who are vomiting or, at risk for aspiration due to altered mental status

When requested by On-Line Medical Control

Contraindications:

Actual or suspected laceration or perforation of the esophagus

Suspected fractures of the cribiform plate as evidenced by severe maxillofacial trauma (Nasal gastric tube placement only)

Ingestion of a caustic substance

Anticoagulant use (e.g., coumadin, warfarin) or disorders of coagulopathy (hemophilia) is a relative contraindication

Procedure:

1. Select appropriate sized tube according to patient size and measure the correct length for insertion. To measure length: While holding the distal end of the tube, measure the distance from the patient's earlobe to the bridge of his/her nose, and from there to a point just below the xiphoid process

Mark this length with a piece of tape to serve as a future guide point

2. In the unconscious or arrested patient with an advanced airway in place, the orogastric route of insertion may be preferred.
3. If an iGel is used the appropriate size gastric tube must be inserted through the gastric lumen of the iGel airway.
4. Lubricate distal 3 to 6 inches of the tube (preferably with Lidocaine jelly) and select the most widely patent nostril.
5. Support the back of the patient's head and gently advance tube straight back along the floor of the nasal cavity (in an anterior-to-posterior direction, not cephalad). If resistance is felt, rotate tube slightly to help advance it into position.
6. Continue to insert the tube past the glottic opening into the esophagus. Continue to insert the tube into the nose until the pre-measured mark reaches the front edge of the nostril.
7. After reaching the predetermined mark confirm that the tube has not curled up into the oropharynx or pharynx. While listening over the epigastrium, inject 20-30 mL of air into the tube and listen for "gurgling" to indicate proper placement. Aspirate and observe for gastric contents (may not always be present).
8. If no sounds are heard over the epigastrium, and you notice fogging or misting in the tube, or patient cannot cough or speak, immediately withdraw the tube and oxygenate the patient.
9. If tube placement has been confirmed, securely tape the proximal end where it enters the nostril to the bridge of the nose.
10. After tube is firmly secured, connect the proximal end to suction device and suction as needed.

i-gel O2 Airway (BIAD)

Clinical Indications:

- Cardiac arrest after assuring continuous compressions, defibrillation and BLS airway management has been completed
- Non-cardiac arrest patient without a gag reflex
- Intubation is difficult/impossible due to patient access or airway anatomy

Contraindications:

- Patients who are conscious or who have an intact gag reflex
- Patients with known ingestion of caustic substances
- Deforming facial trauma that prevents proper seating of the airway

Size Selection:

Select the appropriate size i-gel o2 by assessing the patient's anatomy and ideal body weight.

i-gel size	Patient size	Patient weight guidance (kg)
1	Neonate	2-5
1.5	Infant	5-12
2	Small paediatric	10-25
2.5	Large paediatric	25-35
3	Small adult	30-60
4	Medium adult	50-90
5	Large adult+	90+

Pre-use checks:

1. Inspect the packaging and ensure it is not damaged prior to opening.
2. Inspect the device carefully, check that the airway is patent and confirm there are no foreign bodies or a bolus of lubricant obstructing the distal opening of the airway or gastric channel.
3. Carefully inspect inside the bowl of the device ensuring surfaces are smooth and intact and also that the gastric channel is patent.
4. Discard the device if the airway tube or the body of the device looks abnormal or deformed.

Pre-insertion preparation:

1. Always wear gloves.
2. Initiate pre-oxygenation procedures.
3. Open the i-gel O2 package, and on a flat surface remove the inner tray containing the airway support strap and sachet of lubricant and place to one side.
4. In the final minute of pre-oxygenation, remove the i-gel o2 open the sachet of supplied lubricant and place a small bolus of the lubricant on the base of the inner side of the main shell of the packaging.
5. Grasp the i-gel O2 along the integral bite block and lubricate the back sides and front of the cuff with a thin layer of lubricant. This process may be repeated if lubrication is not adequate, but after lubrication has been completed. Check that no BOLUS of lubricant remains in the bowl of the cuff or elsewhere on the device. Avoid touching the cuff of the device with your hands.

Insertion procedure:

1. Position the patient in the “sniffing position” unless otherwise contraindicated.
2. Grasp the lubricated i-gel along the integral bite block. Position the device so that the i-gel o2 cuff outlet is facing towards the chin of the patient.
3. Introduce the leading soft tip into the mouth of the patient in a direction towards the hard palate.
4. Glide the device downwards and backwards along the hard palate with a continuous but gentle push until a definitive resistance is felt.
5. Confirm the patient’s incisors are resting on the integral bite block and secure in place.
6. Apply end-tidal CO2 monitoring.
7. Secure the i-gel o2 utilizing the elastic band included with the kit or tape
8. Continually assess and document patient status and ventilatory management per COGs.

Insulin Pump

Clinical Indications

Patient that is hypoglycemic with altered mentation and an insulin pump in place

Contraindications

None

Notes/Precautions:

Care is directed at treating hypoglycemia first, then stopping administration of insulin

Procedure

1. Refer to appropriate PPE procedure.
2. Turn off insulin pump, if possible.
3. If no one familiar with the device is available to assist, disconnect pump from patient by: Using quick-release where tubing enters dressing on patient's skin -or-

As a last resort completely removing the dressing, thereby removing the subcutaneous needle and catheter from under patient's skin. Use caution to avoid needle stick as it will be without any safety features.

Transport patient to hospital.

5. If patient is refusing transport against medical advice (AMA): Encourage the patient to eat,

Ensure the patient is with a competent person to observe the patient and assure they eat,

Instruct them to follow-up with their physician Instruct them to call back if symptoms return.

Intramuscular Injections

Clinical Indications:

- When the rate of absorption needs to be slower and/or prolonged in action
- When other administration routes are unsuccessful or unavailable.
- Route indicated by Guideline

Contraindications: None

Notes/Precautions:

- Appropriate equipment
- Needles size and length
  - 1/2 to 1 inch for deltoid, 1 to1.5 inch for larger muscles
  - 25/27 gauge for aqueous medications, 18/21 gauge for oily or thicker medications
- Appropriate size ml syringe for medication dose
- Disinfectant wipe and Band-Aids
- Appropriate injection sites
  - Posterior deltoid for injections of up to 2 ml in adults contingent upon muscle mass development
  - Vastus Lateralis for injections of 2 ml or less in children and adults
  - Ventrogluteal site for injections of 2 to 5 ml in adults or 2 ml or less in children

Procedure:

1. Prepare equipment.
2. Check label, date, and appearance of medication.
3. Five "R's": Right patient / Right drug / Right dose / Right route / Right time.
4. Locate appropriate injection site.
5. Deltoid:
   - Identify the bony portion of the shoulder where the clavicle and scapula meet [the acromioclavicular joint (AC)]
   - Measure 3 to 4 fingers-width down the arm from AC joint
   - Slide one to two fingers-width posteriorly on the arm
6. Vastus Lateralis sites:
   - Located on the anterior and lateral aspects of the thigh
   - Divide the area into thirds between the greater trochanter of the femur and the lateral femoral condyle
   - Injection is given into the middle third
7. Ventrogluteal site:
   - Place heel of palm on patient's greater trochanter of the femur
   - Place index finger on the anterior superior iliac spine and spread other fingers posteriorly
   - Injection is given in the V formed between the index finger and the second finger
8. Do Medication Administration Cross Check
9. Using a circular motion from selected site outward, cleanse site with disinfectant.
10. With one hand, stretch or flatten the skin overlying the selected site. This will allow for smoother entry of the needle.
11. In the other hand, hold syringe like a dart and quickly thrust the needle into the tissue and muscle at a 90-degree angle.
12. Slowly inject medication.
13. After all medication is injected, quickly withdraw syringe and dispose of in an approved container.
14. Gently massage over the injection site to increase absorption and medication distribution.
15. Apply firm pressure and place Band-Aid over site.

Intraosseous Infusion

Clinical Indications:

- As the initial means of circulatory access in cardiac arrest (ILS)
- Patient where rapid vascular access is unavailable by other means in the following conditions:
    - Multisystem trauma with severe hypovolemia
    - Severe dehydration with vascular collapse and/or loss of consciousness
    - Respiratory failure or respiratory arrest
    - After 2 unsuccessful attempts & patient is unstable

Contraindications:

- Fracture proximal to proposed intraosseous site
- History of Osteogenesis Imperfecta
- Current or recent infection at proposed intraosseous site
- Previous intraosseous insertion within 24 hours
- Joint replacement at or above the selected site

Procedure:

1. Prepare Io device according to manufacturer guidelines and ensuring all necessary insertion and stabilization equipment if present.
    - Examine needle set to ensure that seal is intact, and needle is sterile, unused.

2. Sites:
    a. ***Only manufacturer recommended sites are authorized.***
    b. COG Approved sites (based on IO device manufacturer recommendations):

Adult	**Pediatric**
Humeral Head	
Distal Femur	Distal Femur
Proximal Tibia	Proximal Tibia

3. Landmark for insertion as follows:

    - Humeral head: Adduct and internally rotate the arm, or alternatively, place the patient palm on the umbilicus with the elbow on the ground. To landmark on the anterior shoulder, palpate the greater tubercle by letting it sink into the palm of your hand. Insert needle at this landmark at an approximate 45-degree angle as if aiming toward the opposite hip.
    - Proximal Tibia: Identify anteromedial aspect of the proximal tibia palpated just below the inferior border of the patella. Insertion site is 1-2 cm (2 finger breadths) below this on the flat surface of the tibia.
    - Distal Femur: Secure site with leg outstretched to ensure knee does not bend. The insertion site is mid-line, approximately 1-2 cm (2 finger breadths in adults) proximal to the superior border of the patella (depending on patient age and anatomy). Aim the needle set tip at a 90-degree angle to the bone for insertion.

4. Prep the selected insertion site with disinfectant.
5. Hold the intraosseous needle at 60–90-degree angle aimed away from the nearest joint. Follow manufacturer insertion procedures until a "pop" or "give" is felt indicating a loss of resistance. Do not advance the needle further.
6. Remove the stylet and place in approved sharps container.
7. If the patient is alert and likely to experience pain with infusion or medication administration, lidocaine 40mg (adult) may be instilled in the catheter line prior to fluid/medication administration. Administering lidocaine and wait approximately 30 seconds prior to flushing the site if patient's condition permits. If the patient's condition does not permit this step, skip to step 7.

Pediatric IO Lidocaine 0.5mg/kg	**Drug amount (mg)**	**Volume infused (ml)**	**Volume infused (ml)**
Or use dosages below:		**1%**	**2%**
Newborn-5yrs (4kg -20kg)	**10mg**	1ml	0.5ml
5yrs-10yrs (20kg-36kg)	**20mg**	2ml	1ml
>10yrs (>36kg)	**40mg**	4ml	2ml

*Max dose lidocaine is 3-5mg/kg

8. Attach a syringe filled with at least 5 ml of NS and aspirate to confirm placement. Inject 5 ml of NS to clear the needle while observing for infiltration.
9. Attach IV tubing and adjust flow rate as desired. A pressure bag should be used to enhance flow where appropriate.
10. Stabilize and secure the needle.
11. When administering medications via the I0 route delivery should be followed with a 10ml flush of a crystalloid.
12. Document the procedure, time and result on the patient care report and apply wrist band as appropriate if time allows.

Kendrick Traction Device (KTD)

Used for open or closed mid-shaft femur fracture

Contraindications:

- Injuries immediately proximal, or involving the knee joint
- Injury to the pelvis
- Partial amputation
- Lower leg or ankle injuries
- If use would delay transport of a patient with a life-threatening condition

Notes/Precautions:

- Isolated proximal femur fractures in the elderly are usually best managed with anatomical splinting utilizing a scoop stretcher. Traction splints are not appropriate for proximal femur fractures

Procedure:

1. Patient should be supine.
2. Check distal circulation, sensation, and motion.
3. Apply the ankle hitch tightly, slightly above the ankle bone.
4. Tighten stirrup by pulling the GREEN tabbed strap until the hitch fits snugly under the heel.
5. Apply upper thigh system by sliding male buckle under the leg at the patella, and using a “see-saw” motion, slide the strap upward until positioned in the groin.
6. Engage the buckle and cinch the strap until the traction pole receptacle is positioned at the belt-line or pelvic crest. Assure that genitalia is clear of strap.
7. Snap out traction pole making sure that each joint of the pole is securely seated.
8. Place traction pole alongside the leg so that one section (8”) extends beyond the bottom of the foot.
9. Adjust pole length as required (i.e., pediatric vs. adult). Insert pole end, or ends, into the traction pole receptacle.
10. Secure elastic strap around knee.
11. Place YELLOW tab over pointed (dart) end of traction pole and apply traction by pulling RED tab.
12. Patient comfort will be the primary objective. Traction should be applied smoothly by grasping the strap on each side of the buckle and simultaneously feeding and pulling with equal pressure.
13. Finish packaging by applying upper (thigh) and lower (ankle) elastic straps.
14. Reassess distal circulation, sensation, and motion.
15. Secure to long spine board, scoop, etc.

LUCAS

Clinical Indications:

- Adult patient in cardiac arrest

Contraindications:

- Device does not fit patients
- Patient <18 years of age
- Traumatic Cardiac Arrest
- Obviously Pregnant

Notes/Precautions:

- Minimize interruptions in chest compressions to place device.
- Must be appropriately trained
- Use an Anterior-Posterior pad placement.
- LUCAS device is only to be used for Compressions during required patient movement, Patient Transport to Hospital and staffing shortages.

Procedure:

1. Remove from bag.
2. Ensure that operation knob is in the ADJUST position.
3. Assemble/Prepare device, in accordance with the type being used (electric or pneumatic)
4. Pause chest compressions at 2 minute pause (Pit-crew model).
5. Apply Posterior AED pad and Place patient on backboard.
6. Place back plate under patient on backboard below armpits.
7. Resume chest compressions.
8. Attach LUCAS device to back plate.
9. Position suction cup.
    - Lower edge immediately above end of sternum
    - Pressure pad centered over middle of sternum
    - Lower suction cup & pressure pad to the point where it just comes into contact with the patient's chest
10. If pad does not fit, return to manual chest compressions.
11. Turn operation knob to ACTIVE.
12. Check device for proper position.
13. Attach stabilization straps.
14. LUCAS device should never be left unattended or with an untrained provider.
15. To stop LUCAS, turn operation knob to LOCK. Should only be done
    - if device improperly placed
    - damage to the patient is occurring
    - to assess the patient
    - while AED is analyzing and charging
16. Once patient has a sustained ROSC, release and retract the "pressure pad" to allow for greater chest excursion and tidal volume during BVM usage.

Nasal Drug Delivery Device

Clinical Indications:

- Patients requiring rapid medication administration in accordance with Guideline and other route(s) of administration are not immediately available
- Medications currently System approved for this route:
    - Midazolam (Versed) see individual Guideline for application (Adult and Pedi)
    - Fentanyl (Sublimaze) for Pain management (Adult and Pedi)
    - Naloxone (Narcan) for opiate overdoses (Adult and Pedi)

Procedure:

1. Airborne PPE (N95 and eye protection) should be worn when administering medication via this route.
2. Dose appropriate medications should be drawn up into syringe.
3. Attach MAD device to syringe.
4. Do Medication Administration Cross Check
5. Administer medications by aerosolizing medication in patient nostril (limit of 1.0 ml per nostril).
6. Due to fluid contamination dispose of in an approved sharps container.

Needle Cricothyrotomy

Indications:

- Patients <10 years of age

With obstructed airway or in whom all conventional methods of oxygenation have failed

- Contraindications:
- Anytime a less invasive maneuver would allow oxygenation of the patient Tracheal transection

Notes/Precautions:

- Cricothyroid membrane is located by:
    - Palpating the protuberant midline portion of the thyroid cartilage (“Adams apple”) Move the fingertip inferiorly until it rests in the soft, flat depression between the thyroid cartilage and the cricoid cartilage

To minimize the risk of dislodgement:

- The individual completing the procedure should direct any/all patient movement BVM is to be disconnected from the ET tube adapter any patient movement the catheter is to be reassessed following any patient movement

Appropriate size angiocath is generally 14-18 gauge, depending on size of the child

Procedure:

1. Position patient supine with head slightly extended unless contraindicated due to suspected cervical spine injury.
2. Prepare anterior surface of the neck with disinfectant.
3. Locate the cricothyroid membrane.
4. Place thumb and index finger of non-dominant hand on either side of the tracheal cartilage to stabilize the trachea and anchor and stretch the skin slightly.
5. Connect appropriately sized angiocath to a 10/12 cc syringe.
6. Pierce the skin and cricothyroid membrane at a 45-degree angle, directing the catheter tip inferiorly while pulling suction on the syringe until air is aspirated freely.
7. Advance the catheter to the skin and withdraw needle.
8. Connect catheter to 3.0 mm pediatric ET tube adapter.
9. With a BVM attached to 100% oxygen begin ventilating and confirm proper placement.
10. With hub of catheter snug against the neck, tape catheter firmly in place. Catheter and ET tube adapter are to be always secured by hand Catheter should secured with tape and benzoin to prevent slipping
11. Providers may continue to use backboards to assist in patient movement as needed.

Orotracheal Intubation

Clinical Indications:

- Inability to adequately ventilate a patient with a Bag Valve Mask or prolonged EMS transport requires a more advanced airway.
- An unconscious patient without a gag reflex who is apneic or is demonstrating inadequate respiratory effort.
- Risk to benefit ratio of oral tracheal intubation to BIAD insertion favors oral tracheal intubation.
- Inability to adequately oxygenate/ventilate a patient after attempted BIAD insertion.
- Patient suspected having suffered inhalation injuries with impending airway compromise.

Contraindications:

- None of the presence of the need for definitive airway management.

Procedure:

1. Prepare, position and oxygenate the patient using appropriate BLS maneuvers and 100% oxygen.
    a. Attempt to maintain SaO2 at or above 94%.
2. Select proper ET tube size and have all equipment available and operational (including suction).
3. Direct laryngoscopy (DL):
    a. Using laryngoscope visualize vocal cords using cricoid pressure/BURP maneuver as needed.
        i. If unable to visualize the cords change patient position, or blade size/type.
    b. Begin insertion of a Flex Guide ETT Introduce (Bougie). Must be used for each attempt.
    c. Tactile confirmation of tracheal clicking will be felt as the distal tip of the introducer bumps against the tracheal rings.
    d. If tracheal clicking cannot be felt, continue to gently advance the introducer until 'hold up' is felt.
    e. Tracheal "clicking" and "hold up" are positive signs that the introduce has entered the trachea.
    f. Lack of tracheal clicking or hold-up is indicative of esophageal placement.
    g. While holding the introducer securely, and without removing laryngoscope, advance endotracheal tube over the proximal tip of the introducer.
    h. As the tip of the endotracheal tube passes beyond the teeth, consider rotating the tube 90 degrees counterclockwise (1/4 turn to the left) so tube bevel does not catch on the arytenoid cartilage.
4. Video laryngoscopy (VL):
    a. Visualize the oropharynx while introducing the blade midline into the mouth.
    b. Once the blade is in the hypopharynx, shift your view to the screen and pivot the tip of the blade anteriorly to view the epiglottis and glottic opening.
    c. Transition your view back to the mouth and carefully guide the endotracheal tube with stylet into the mouth, along the blade.
    d. Transition back to the screen and guide the endotracheal tube into view and through the vocal cords.
        i. If using a rigid stylet, it should be withdrawn ~2 inches and should not pass the vocal cords.
5. While maintaining view of the vocal cords, advance the endotracheal tube to the proper depth.
6. Holding endotracheal tube securely, remove introducer (DL) or stylet (VL).
7. Inflate ETT cuff with 3-10 mL of air.
8. Auscultate for absence of breath sounds over epigastrium and presence of bilateral breath sounds. If unilateral or unequal breath sounds adjust tube position and/or consider causes for this finding. If unsure of placement at any time remove the ETT and resume ventilations with BVM.
9. Apply ETCO2 monitor. After 3 ventilations ETCO2 should be >10 or comparable to pre-intubation values. If <10 check for adequate circulation, equipment failure and Ventilatory rate. If no cause can be found remove the ETT and resume BVM ventilation.
10. Record initial, ongoing and final ETCO2 values in the PCR.

11. Secure the ETT using commercial device whenever possible.
12. Document ETT size, depth of insertion, time of successful intubation and number of attempts.
13. Document confirmation of the ETT by presence of breath sounds, absence of sounds over the epigastrium, end tidal CO2 and/or capnography and any/all additional methods of confirmation.
14. Reconfirm correct placement after each patient movement.
15. Consider gastric distention and place an NG/OG tube after airway is secured with ETT.
16. Providers may continue to use backboards to assist in patient movement as needed.
17. Document in PCR confirmation indications of successful orotracheal intubation.

Orthostatic Vital Sign Assessment

Clinical Indications:

-Patient situations with suspected blood, fluid loss, or dehydration with no indication for spinal immobilization

-Changes in skin color

-Lightheadedness or dizziness

-Patients ≥ 8 years of age, or patients larger than the PEDIA Tape

Contraindications:

-Patients that are obviously hypotensive

Procedure:

1. Gather and prepare standard sphygmomanometer and stethoscope.
2. With the patient supine, obtain pulse and blood pressure
3. Have the patient sit upright
4. After 30 seconds, obtain blood pressure and pulse
5. If the systolic blood pressure falls more than 20mmHg or pulse increases more than 20 beats per minute or the patient develops symptoms such as lightheadedness, weakness, or pre-syncopal symptoms the patient is considered to be orthostatic.
6. If no symptoms or significant change in vital signs, have the patient stand. Repeat steps #4 and #5 above.
7. If a patient is symptomatic while sitting, lying or is obviously volume depleted based on history or physical exam, formal orthostatic examination should be omitted and fluid resuscitation initiated.

Pain Assessment and Documentation

Clinical Indications:

Any patient

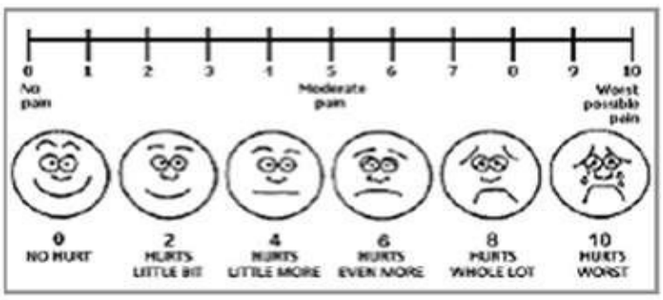
Definitions:

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

Procedure:

1. Initial and ongoing assessment of pain intensity and character is accomplished through the patient's self report.
2. Pain should be assessed and must be documented in the PCR/ePCR during initial assessment, before starting pain control treatment, with each set of vitals after a pharmaceutical pain management intervention, and with vital signs until transfer of care.
3. Three pain scales are available: the 0 – 10 Scale, the Wong-Baker "faces", and the FLACC.
   0 – 10 Scale: the most familiar scale used by EMS for rating pain with patients. It is primarily for adults and is based on the patient being able to express their perception of the pain as related to numbers. Avoid coaching the patient; simply ask them to rate their pain on a scale from 0 to 10, where 0 is no pain at all and 10 is the worst pain ever.
   Wong-Baker "FACES" Scale: This scale is primarily for use with pediatrics but may also be used with geriatrics or any patient with a language barrier. The faces correspond to numeric values from 0-10. This scale can be documented with the numeric value.
   FLACC Scale: This scale has been validated for measuring pain in children with mild to severe cognitive impairment and in pre-verbal children (including infants).

Wong-Baker Faces



Face 0	Very happy. Doesn't hurt at all
Face 2	Hurts just a little bit.
Face 4	Hurts a little more
Face 6	Hurts even more
Face 8	Hurts a whole lot
Face 10	Hurts as much as you can imagine. Don't have to be crying to feel this bad

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

Pelvic Binder

Clinical Indications:

- Potential unstable pelvic fracture

Contraindications:

- Provided the patient is of appropriate size for the size of SAM Sling® available, there are no contraindications for its use in the presence of appropriate assessment findings

Notes/Precautions:

- Anytime application of the SAM Sling® is a consideration, consideration of the Spinal Restriction Guideline should be as well.
- The SAM Sling® is a force-controlled device that won't allow the belt to be over tightened
- "Auto stop" buckle has spring-loaded prongs that lock the buckle in place when the right amount of force is applied
- Except for two small metal springs in the buckle, the SAM Sling® is transparent to X- rays
- Once properly applied, the Sling should be removed only under the supervision of a physician
- If necessary to remove the Sling
    - Do not cut to remove
    - Release orange pull handle in order to remove

Procedure:

1. Unfold Sling with white surface facing up.
2. Place white side of Sling beneath patient at level of buttocks along a line drawn between greater trochanters and the symphysis pubis.
3. Firmly close Sling by placing black Velcro side of flap down on blue surface of Sling.
4. Fold back material as needed.
5. Try to place buckle close to midline.
6. Grab orange handle on outer surface of flap and release from flap by pulling upward.
7. With or without assistance pull both orange handles in opposite directions to tighten Sling.
8. Keep pulling until the buckle "clicks" and the free handle stops.
9. Maintain tension and firmly press orange handle against the blue surface of the Sling.

Pleural Decompression

Clinical Indications:

- (ALS) Patients with suspected tension pneumothorax as evidenced by
    - Hypotension (SBP<90), clinical signs of shock and at least one of the following:
        - Jugular vein distention.
        - Absent or decreased breath sounds on the affected side.
        - Hyper-resonance to percussion on the affected side.
        - Increased resistance when ventilating a patient.
        - Tracheal deviation away from the side of injury (a late sign).
- (ALS / AEMT) Patient in traumatic arrest with chest or abdominal trauma in whom resuscitation is indicated should receive immediate bi-lateral pleural decompression.
    - ***See data tracking submission below***

Contraindications:

- Bilateral decompression should not be performed without positive pressure ventilations

Procedures:

1. Administer high flow oxygen.
2. Prepare equipment and don appropriate PPE.
3. Identify and prep the site
    a. Lateral placement (preferred site):
        i. Fourth or fifth intercostal space in the anterior-axillary line.
    b. Anterior placement (alternate site when unable to access lateral chest wall or multiple attempts are necessary).
        i. Locate the second intercostal space in the mid-clavicular line.
4. Prepare the site with disinfectant.
5. Insert the appropriate catheter perpendicular to the chest wall over the top of the inferior rib.
6. Advance the needle-catheter assembly through the parietal pleura until a “pop” is felt and air or blood exits the catheter.
7. Advance only the catheter until the hub is in contact with the chest wall.
8. Remove the needle leaving the plastic catheter in place.
9. Consider placing one-way valve or creating a flutter valve from the finger of an exam glove. This should not delay the pleural decompression procedure.

For any Traumatic Arrest Pleural Decompression, the data tracking form must be submitted within 24 hours. The link or QR code below will direct the provider to the form.

Submit Pleural Decompression Data Tracking Form

Pressure Infusion Bag

Clinical Indications:

- Inadequate gravity flow of IV fluid

Contraindications:

- Controlled drip rates required for fluid or medication administration
- IV/10 where patency of line is in question

Procedure:

1. Purge the air from the IV bag.
2. Spike the bag as usual.
3. Invert the bag and squeeze to expel all of the air from the IV bag, drip chamber, and tubing.
4. Establish 10/IV and assure patency.
5. Place IV bag into the net pocket of the pressure infusion bag and inflate infusion bag untilthe desired amount of pressure has been applied.
6. Once patient has been delivered to receiving facility, deflate infusion bag and remove the IV fluid bag.
7. If the bag is grossly contaminated, dispose of it.
8. If the bag is not grossly contaminated, decontaminate it in the same fashion as a blood pressure cuff.

Push Dose Epinephrine

Clinical Indications:

- Non-trauma related hypotension
- As a bridge or adjunct to other clinically indicated vasopressors as well as fluid therapy (as appropriate).

Contraindications:

- Hypertension
- Hypotension caused by trauma.

Notes/Precautions:

- Use 3 way stop-cock for mixing when available. Exercise caution when using needles.

Procedure:

1. Prepare equipment.
2. Check label, date, and appearance of medication and saline.
3. Take a 10 ml NS flush syringe and purge 1 ml, leaving 9 ml of NS in the syringe.
4. Using this same syringe, draw up 1 ml (100mcg) of epinephrine from a 10ml ampule of 0.1mg/ml epinephrine (cardiac arrest dose ampule, 1:10,000).
5. You now have: Epinephrine 100mcg in10 mls at 10 mcg/ml concentration. Label the syringe appropriately.
6. Do Medication Administration Cross Check
7. ADULTS: Administer 5-20 mcg (0.5-2 ml) of epinephrine every 1-5 minutes as needed to treat hypotension.
   PEDIATRIC: Administer 1mcg/kg (max 20mcg or 2mL) of epinephrine every 1-5 as needed to treat hypotension.
8. Patients should be advanced to other therapies (eg. Norepinephrine) as time and circumstances permit.
   *NEVER ADMINISTER FULL CONCENTRATION 0.1MG/ML EPINEPHRINE TO PATIENTS WITH A PULSE.

Refusal of Care, Lift Assist & Capacity Checklists

Refusal of Care/Treatment Checklist:

- PT is > 18 or emancipated minor.
- Pt is not suicidal/homicidal.
- Pt demonstrates capacity (see capacity checklist below).
- Pt understands evaluation is incomplete.
- Solutions to obstacles have been sought.
- Pt instructed to seek medical attention.
- Pt instructed to call back at any time.
- Above documented fully in PCR.

The preference is to allow the highest credentialed provider on scene to complete the refusal form. Except for **high risk** refusals, a refusal may be obtained by an on scene EMT or AEMT credentialed provider. **High risk** refusals must be obtained by a credentialed paramedic (or above). No provider should obtain a refusal from a patient for whom proper evaluation and assessment would require skills that fall outside of the provider's credentialing level (e.g., 12 lead EKG interpretation). If any question exists, **contact medical control.**

The following constitute **high risk** patient refusals:

- Any fall involving a patient on anticoagulants.
- Systolic BP greater than 200.
- Respirations greater than 30 or less than 12.
- Any vital sign outside of normal age parameters (refer vital signs reference chart)
- Serious chief complaint (chest pain, SOB, syncope, etc.).
- Significant MOI or high suspicion of injury.
- Age greater than 65 or less than 3 with any of the above

If any of the above presentations exist, inform the patient/family that patient has high risk features, and we recommend transport for medical evaluation.* ***Contact Medical Control* *to discuss the situation with the patient. If available, involve family members in the discussion regarding the patient's decision to refuse. Consider LE if you believe the patient does not meet the capacity criteria to make informed decisions regarding their health and safety.*

Lift Assist History Checklist for BLS and ILS Providers/Responders:

In addition to the **high risk** criterion: If patient answers YES to any of the following 4 questions during a lift assist evaluation, the patient is considered in the "high risk" category, and Travis County FRO's should treat the situation as such.

- Have you had any recent falls or illness that include fever, chills, nausea, vomiting, diarrhea, shortness of breath, chest pain, dizziness or other illness?
- Did you faint or pass out?
- Have you had any new or worsening weakness?
- Is the reason you called us today a new problem for you?

Risk-Benefit Disclosure (Read to all "high risk" patients refusing the transporting agencies evaluation):

"There is potential that you have a serious underlying medical condition that casued your fall or that occurred because of your fall. You have received a basic screening exam only and we are unable to fully evaluate you for many potential illnesses or injuries. Despite this, you are refusing a more advanced assessment by one of our advanced level providers."

Capacity Checklist:

Patient can express in their own words:

- An understanding of the nature of their illness.
- An understanding of the risks of refusal including death.
- An understanding of alternatives to EMS treatment/transport.
- Pt can provide rationale for refusal and debate this rationale.

A patient with any of the following MAY lack decision making capacity and should be carefully assessed for their ability to perform the above.

- Orientation to person, place or time that differs from baseline.
- History of drug/alcohol ingestion with appreciable impairment such as slurred speech or unsteady gait.
- Head injury with LOC, amnesia, repetitive questioning.
- Medical condition such as hypovolemia, hypoxia, metabolic emergencies (e.g., diabetic issues); hypothermia, hyperthermia, etc.

If any question exists about their capacity, contact online medical control.

Restraints

Clinical Indications:

Any patient who may harm himself or others, may be gently restrained to prevent injury to the patient or crew. Physical or chemical restraint must be humane and used only as a last resort. Other means to prevent injury to the patient or crew must be attempted first. These efforts could include reality orientation, distraction techniques, verbal distraction, or other less restrictive therapeutic means

Procedure:

1. Attempt less restrictive means of managing the patient.

2. Request law enforcement assistance.

3. Ensure that there are sufficient personnel available to physically restrain the patient safely.

4. Restrain the patient in a lateral or supine position. No devices such as backboards, splints, or other devices will be placed on top of the patient. The patient will never be restrained in the prone position.

5. The patient's upper extremities should be restrained with 1 arm at or above the level of the head and 1 arm at or below the waist level if possible; unless clinically inappropriate.

6. The restrained patient must be under constant observation by a PL4 credentialed provider at all times. This includes direct visualization of the patient as well as cardiac and pulse oximetry monitoring.

7. The extremities that are restrained will have a circulation check at least every 15 minutes. The first of these checks should occur as soon after placement of the restraints as possible. This MUST be documented on the PCR.

8. Documentation on the patient care report (PCR) should include the reason for the use of restraints, the type of restraints used and the time restraints were placed. Use of the Restraint Checklist is highly recommended.

9. If the above actions are unsuccessful, or if the patient is resisting the restraints, sedation should be utilized in accordance with the Behavioral/ Excited Delirium Guideline. At this time the patient must be constantly monitored by a PL5 Credentialed Provider with ECG, ETCO2, SPO2 capabilities.

10. If a patient is restrained by law enforcement personnel with handcuffs or other devices EMS personnel cannot remove, a law enforcement officer must accompany the patient to the hospital in the transporting EMS vehicle or be immediately available.

Restraints Checklist:

All other calming attempts have failed (verbal de-escalation and/or reduce stimulation)

Adequate personnel to effect restraint (consider LE)

Place Pt. in supine position restrained with1 arm up and 1 arm down (unless clinically contraindicated)

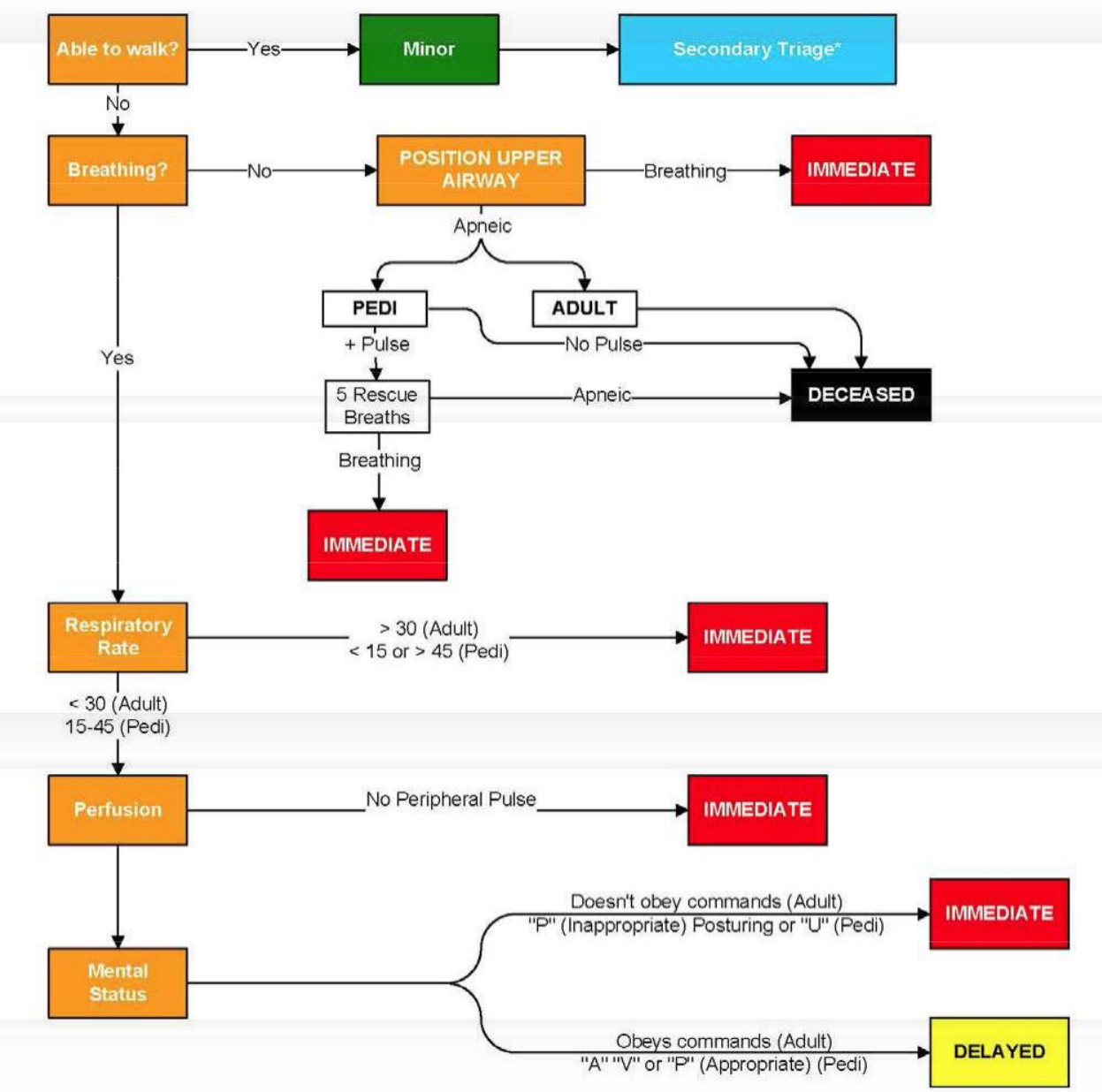
PD immediately available if handcuffed EMS personnel in constant attendance Chemical sedation administered

Continuous SPO2, ETCO2, ECG Monitor, Vital Signs Continuous assessment of neurovascular status every 15 min. Adequate personnel for transport

Excited Delirium considered Documentation:

- Efforts prior to restraint
- Time of restrain
- Chemical sedation
- Continuous monitoring
- Neurovascular status evaluation Pulse, Motion, Sensorium (PMS) Notification of DMO to report use of physical and/or chemical restraint.

START or Jump START Triage Algorithm



* Using the Jump Start Algorithm, first evaluate all children/adults who did not walk under their own power.

All EMS providers are encouraged to use the Triage Algorithm any time there are more than 2-3 patients requiring evaluation, treatment or transport.

STEMI Alert Criteria

In order to more consistently assess and apply the notification for a STEMI Alert the following criteria have been developed in conjunction with Regional Mission Lifeline initiative.

A STEMI Alert should be called when a patient is currently "symptomatic" for an Acute Coronary Syndrome (ACS) event **AND** has new or presumably new ST elevation >1 mm in two anatomically contiguous leads **AND** does not have exclusion criterion listed below in the ACS Consultation section.

The STEMI Alert notification should 1st be "declared" to Communications via radio or phone. As soon as possible transmit a 12 lead ECG and; whenever possible, the patients name should accompany the 12 lead ECG.

The transport Hospital should be notified of the STEMI Alert as soon as practical by Communications and; the Alert must be included in the Transport radio report to the Hospital with the patient condition information.

STEMI Alert Exclusions & ACS Consult Criteria

The Provider should not declare a STEMI Alert and should consult with the anticipated receiving Hospital prior to transport. And, transmit a 12 lead ECG with "ACS Consult – Facility Name" in the patient ID field.

Patients that are currently "asymptomatic" for an ACS event however, have ECG readings consistent with the above STEMI Alert Criteria.

OR

Patients who are "symptomatic" for ACS and have evidence of Isolated V1 and V2 elevation only, LBBB, LVH, Early Repolarization, Ventricular/Ventricular Paced, Diffuse ST Elevation, or Non-Specific ST Changes or other type "Abnormal" ECG findings including poor quality ECG tracing.

The declaration of the Alert or use of the ACS Consult option should be based upon the patient's current condition and the Provider's judgment.

Stroke Alert Criterion:

This criterion is for patients exhibiting current signs and symptoms of a Stroke as evidenced by using the "Cincinnati Prehospital Stroke Scale" (CPSS).

If the patient's current presentation and history (last known well) are suggestive of stroke (< 24 hours), early notification **(STROKE ALERT)** and rapid transport to a designated Stroke Center per Hospital Transport Grid Clinical Reference. The "ALERT" status declaration is made to Communications for their assistance in advance notification of the Hospital that is selected by the Transport Providers.

Transport Guidelines for patients designated as "STROKE ALERT" are as follows. If "last known well" is **≤ 3 hours**.

- These patients are transported to Hospital Facilities that are System designated as Primary **or** Comprehensive Stroke Centers.
- Transporting to a Primary Stroke Center is appropriate if**: the transport time to a Comprehensive Stroke Center is > 15 minutes (approx.) longer than the transport time to a Primary Stroke Center.** This time is **estimated** by the Transport Providers based upon their immediate location and known current traffic/travel conditions. Should traffic/travel conditions deteriorate during transport; the Providers should advise communications and divert to the nearest Primary Stroke Center.

If "last known well" is **> 3 hours** or evidence of a LVO.

- These patients are transported to Hospital Facilities that are System designated as Comprehensive Stroke Centers.
- Patients that present with current Stroke signs and symptoms ≤ 24 hours are to be transported to a Comprehensive Stroke Center for an evaluation taking into account the above 3 hour transport criterion

Patient's that are without a current Stroke presentation and have a history suggestive of a T.I.A. are to be transported to a Primary **or** Comprehensive Stroke Center for an evaluation. These T. I. A. patients' are **not** considered Stroke Alert Patients.

Suctioning Airway Adjuncts

Clinical Indications:

1. Any credentialing level if properly equipped to perform the procedure.
    a. Equipment required:
        i. Fully operational portable suction device
        ii. Sterile suction catheter of appropriate size for device
        iii. Gloves
        iv. Saline flush up to 10mL
2. Obstruction of the airway secondary to secretions, blood, and or any other substance in a patient currently being assisted by an airway adjunct such as an i-gel, nasotracheal tube, endotracheal tube, tracheotomy tube, or a cricothyrotomy tube.

Contraindications:

1. Lack of proper equipment available to perform the procedure.

Notes/Precautions:

1. Special circumstances that may result in inaccurate pulse oximetry readings:
    a. States of decreased peripheral perfusion - hypotension, hypothermia, hypoperfusion
    b. Carbon monoxide poisoning, methemoglobinemia, cyanide poisoning
    c. Excessive ambient light on the pulse oximeter probe - sunlight, fluorescent lights
2. Remember to treat the patient and not the pulse oximeter reading. The pulse oximeter reading should never be used to withhold oxygen or airway interventions from a patient in respiratory distress.

Procedure:

1. Ensure suction device is in proper working order.
2. Pre-oxygenate the patient.
3. Attach suction catheter to suction device, keeping sterile plastic covering over catheter.
4. Measuring depth:
    a. **SUPRAGLOTTIC AIRWAYS**-If using a catheter to suction a supraglottic airway adjunct, measure catheter depth from the proximal end of the airway device to the patient's earlobe to the top of the larynx. Note the measurement on the catheter.
    b. **ENDOTRACHEAL OR TRACHEOSTOMY TUBE**-If using a catheter to suction an advanced airway adjunct, begin at the proximal opening of the airway to the angle of the jaw to the suprasternal notch. ***Judgment must be used regarding the depth of the suctioning with cricothyrotomy and tracheostomy tubes*****.** Note the measurement on the catheter.
5. If applicable, remove automatic or manual ventilation devices from the airway.
6. With the thumb port of the catheter uncovered, insert the catheter through the airway device.
7. Once the desired depth has been reached, occlude the thumb port and remove the suction catheter slowly.
8. Small volume (< 10 mL) of normal saline lavage may be used as needed to help dissolve obstructions due to mucus plugging of the suction catheter.
9. Reattach the ventilation device and ventilate the patient.
10. Document time and result in the PCR.

Surgical Cricothyrotomy

Indications:

- Indicated with a failed airway, and the inability to ventilate the patient by any other methods (BVM, ETI, BIAD).

Contraindicated:

- Unable to identify appropriate landmarks
- Age < 10 years (move to Needle Cricothyrotomy)
- Anytime a less invasive maneuver would allow oxygenation of the patient Tracheal transection
- Fractured larynx, significant damage to the cricoid cartilage or larynx

Notes/Precautions:

- To minimize the risk of dislodgement:
  - ✓ The individual completing the procedure should direct any/all patient movement BVM is to be disconnected from the ET tube during any patient movement
  - ✓ The ET tube is to be reassessed following any patient movement

Procedure:

1. Position patient supine with head slightly extended unless contraindicated due to suspected cervical spine injury.
2. Prepare anterior surface of the neck with disinfectant as time allows.
3. Place thumb and index finger of non-dominant hand on either side of the tracheal cartilage to stabilize the trachea and anchor and stretch the skin slightly.
4. Palpate the tracheal cartilage and locate the cricothyroid (CT) membrane, perform a vertical incision over the CT membrane midline beginning ½ - 1 inch superior and extending ½ - 1 inch inferior.
5. Visualize the CT membrane and perform a horizontal punch incision through the CT membrane. Upon completion of this incision, activate the blade safety component.
6. After blade safety activation place finger of non-dominant hand into the incision to dilate the incision and serve as a landmark.
7. Advance the angled end of an ETT introducer (Bougie) past your finger through the incision. Remove your finger once the tip of the Bougie is confirmed inside the incision. The Bougie should advance easily until “hold-up”.
8. Advance an appropriately sized cuffed endotracheal tube (ETT) over the Bougie (1-2 cm past cuff) and remove the Bougie.
9. Maintaining control of the proximal end of the ETT, inflate the cuff and confirm placement of the ETT.
10. Secure the ETT with tape maintaining continuous stabilization by hand. ETT is to be always secured by hand.
11. Providers may continue to use backboards to assist in patient movement as needed.

Taser Probe Removal

For patients with uncomplicated conducted electrical weapon (Taser®) probes embedded subcutaneously in non-sensitive areas of skin

Contraindications:

- Patients with conducted electrical weapon (Taser®) probe penetration in vulnerable areas of body as mentioned below should be transported for further evaluation and probe removal
- Probes embedded in skin above level of clavicles, genitalia or female breasts
- Suspicion that probe might be embedded in bone, blood vessel, or other sensitive structure

Procedure:

1. Ensure wires are disconnected from weapon.
2. Stabilize skin around probe using non-dominant hand.
3. Grasp probe by metal body using dominate hand.
4. Remove probe in single quick motion.
5. Wipe wound with disinfectant wipe and apply dressing.
6. Treat probes as exposed sharps hazard and dispose of accordingly.
7. Law Enforcement may need to keep as evidence

Tourniquet

Clinical Indications:

- Life threatening extremity hemorrhage that cannot be controlled by other means
- Serious or life threatening extremity hemorrhage where conditions patient location, tactical or hazmat environment, etc. prevent the use of standard hemorrhage control techniques
- Life threatening condition(s) that require immediate attention and significant extremity hemorrhage where the use of a tourniquet is more expedient than standard hemorrhage control

Contraindications:

- Non-extremity hemorrhage
- Proximal extremity location where tourniquet application is not practical

Procedure: Guiding Principle: place it High and Tight

1. Place tourniquet proximal to wound (axillary area for upper extremities and inguinal area for lower extremities).
2. Tighten until loss of distal pulses. Failure to adequately tighten the tourniquet to the loss of pulses may cause restriction of venous return and result in a compartment syndrome.
3. Secure tourniquet. Tourniquet should be easily visible on the affected limb.
4. Note time of tourniquet application and communicate this to receiving care providers.
5. Dress wounds per standard wound care Guideline.
6. Provide pain control per Pain Management Guideline M-16 or PM-06 as needed.
7. An additional tourniquet may be placed just distal to the 1st one if, the hemorrhage is unable to be controlled with 1 tourniquet.

Adjusting or loosening an effective tourniquet is not recommended. If the provider believes a tourniquet was placed incorrectly or without justification, contact OLMC for guidance.

Tracheostomy Tube Change/Replacement

Clinical Indications:

Presence of Tracheostomy site with urgent or emergent indication to change the tube, such as:
Obstruction that will not clear with suction

Dislodgement

Inability to oxygenate/ventilate the patient without other obvious explanation

Procedure:

1. Have all airway equipment prepared for standard airway management, including equipment of orotracheal intubation and failed airway.

2. Have airway device (endotracheal tube or tracheostomy tube) of the same size as the tracheostomy tube currently in place as well as 0.5 size smaller available (e.g., if the patient has a #6.0 Shilley, then have a 6.0 and a 5.5 tube).

3. Lubricate the replacement tube(s) and check the cuff.

4. Remove the tracheostomy tube from mechanical ventilation devices and use a bag-valve apparatus to pre-oxygenate the patient as much as possible.

5. Once all equipment is in place, remove devices securing the tracheostomy tube, including sutures and/or supporting bandages.

6. If applicable, deflate the cuff on the tube. If unable to aspirate air with a syringe, cut the balloon off to allow the cuff to lose pressure.

7. Remove the tracheostomy tube.

8. Insert the replacement tube. Confirm placement via standard measures.

9. If there is any difficultly placing the tube, re-attempt procedure with the smaller tube size.

10. If difficulty is still encountered, use standard airway procedures such as oral bag-valve mask or endotracheal intubation. More difficulty with tube changing can be anticipated for tracheostomy sites that are immature – i.e., less than two weeks old. Great caution should be exercised in attempts to change immature tracheotomy sites.

11. Document procedure, confirmation, patient response, and any complications in the PCR

Tracheostomy Pearls:

Always talk to family / caregivers as they have specific knowledge and skills.

Important to ask if patient has undergone laryngectomy. This does not allow mouth/nasal ventilation by covering stoma.

Use patient's equipment if available and functioning properly. Estimate suction catheter size by doubling the inner tracheostomy tube diameter and rounding down.

Suction depth: Ask family / caregiver. No more than 3 to 6 cm typically. Instill 2 – 3 mL of NS before suctioning. Do not suction more than 10 seconds each attempt and pre-oxygenate before and between attempts.

DO NOT force suction catheter. If unable to pass, then tracheostomy tube should be changed.

Always deflate tracheal tube cuff before removal. Continual pulse oximetry and EtCO2 monitoring if available.

DOPE: Displaced tracheostomy tube / ETT, Obstructed tracheostomy tube / ETT, Pneumothorax and

Equipment failure.

Vagus Nerve Stimulator (VNS)

Clinical Indications:

Patients with an implanted Vagus Nerve Stimulation device used in the management of seizures and a magnet for increasing stimulation or temporarily disabling the device

Contraindications:

Use of magnet for any other condition other than activating the VNS device

Notes/Precautions:

The patient and/or family should be familiar with the device and are usually able to manage the patient/device

Procedure:

1. Assist the patient and/or family in using the device as they have been instructed.

2. In the absence of a known procedure the stimulation may be increased in the presence of seizure:

Pass the magnet over the vagal nerve stimulator generator for 1-2 seconds; Repeat process in 60 seconds;

May repeat up to total of 3 times.

3. Transport patient to hospital.

Ventricular Assist Device (VAD)

A ventricular assist device (VAD) is a mechanical pump that is used to support heart function and blood flow in people who have weakened hearts. Some common reasons for VAD implantation are MI, Heart Failure, myocarditis, and cardiomyopathy and heart surgery.

How does a VAD work?

The device takes blood from a lower chamber of the heart and helps pump it to the body and vital organs, just as a healthy heart would.

What are the parts of a VAD?

The basic parts of a VAD include: a small tube that carries blood out of your heart into a pump; another tube that carries blood from the pump to your blood vessels, which deliver blood to your body; and a power source.

What is the power source?

The power source is either batteries or AC power. The power source is connected to a control unit that monitors the VAD functions. The batteries are carried in a case usually located in a holster in a vest around the patient's shoulders.

What does the control unit (or controller) do?

The control unit gives warnings or alarms if the power is low or if it senses that the device isn't functioning properly.

MOST patients have a tag located on the controller around their waist that lists the type of device, the institution that put it in and a number to call.

Patient Management:

1. Assess the patient's airway and intervene per the Airway Management Guideline
2. Auscultate heart sounds to determine if the device is functioning and what type of device it is. If it is a continuous flow device, you should hear a "whirling sound".
3. Assess the device for any alarms.
4. Look on the controller located around the patient's waist or in the VAD PAK and see what device it is.
5. Intervene appropriately based on the type of alarm and patient guide.
6. You may follow the standard Cardiac Arrhythmia Guidelines, EXCEPT: NO Chest Compressions and NO Thrombolytics
7. Defibrillation/Cardioversion are the standard processes
8. Assess Vital Signs – use Mean BP with Doppler, if available. The first sound you will hear is the Mean Arterial Pressure (MAP)
9. If no Doppler available, use the Mean on the Non-Invasive BP cuff
10. Transport to the closest VAD Center. Call the number listed on the device for advice.
11. Bring all of the patient's equipment and paperwork to the Emergency Department.
12. Allow the trained caregiver to ride in the patient compartment when possible. They may be able to serve as an expert on the device if the patient is unconscious or unable to answer for themselves.

Pearls:

- ✓ ALWAYS talk to family / caregivers as they have specific knowledge and skills. CALL THE VAD COORDINATOR EARLY as per patient / family instructions or as listed on the device. They are available 24 / 7 and should be an integral part of the treatment plan.
- ✓ QUESTIONS TO ASK: DOES THE PATIENT HAVE A DNR? Can the patient be cardioverted or defibrillated if needed? Can CHEST COMPRESSIONS be performed in case of pump failure?
- ✓ Deciding when to initiate Chest Compressions is very difficult. Consider that chest compressions may cause death by exsanguination if the device becomes dislodged. However, if the pump has stopped the heart will not be able to maintain perfusion and the patient will likely die.
- ✓ Ideally, plan the decision in advance with a responsive patient and the VAD coordinator, however, If a VAD patient is unresponsive and pulseless with a non-functioning pump and has previously indicated a desire for resuscitative efforts, begin compressions. Contact the VAD coordinator and the on call System Medical Director.
- ✓ Common complications in VAD patients include Stroke and TIA (incidence up to 25%), bleeding, dysrhythmia, and infection.
- ✓ The Cardiac Monitor and 12 lead EKG are not affected by the VAD and will provide important information.
- ✓ Defibrillate / Cardiovert as normal. Do NOT place the pads over the device that is under the patient's skin.
- ✓ Keep in mind it may be difficult to obtain an accurate SpO2 because of little or no pulse.
- ✓ BE CAREFUL WHEN REMOVING / CUTTING CLOTHING so you don't inadvertently dislodge or cut the drive line.
- ✓ VAD patients are preload dependent. Consider that a FLUID BOLUS can often reverse hypo perfusion.
- ✓ Transport patients with ALL device equipment including any instructions, hand pumps, backup batteries, primary and secondary controllers, as well as any knowledgeable family members or caregivers.

Wound Packing

Clinical Indications:

- Control of junctional hemorrhage; **axilla, groin**
- Control of hemorrhage in upper and lower extremities

Contraindications:

- Wounds of the head, neck, chest and abdomen
- Wounds that can be controlled without packing

Procedure:

1. Immediately apply direct pressure to the wound, using gauze, clean cloth or whatever it takes to slow or stop the hemorrhage-until you have time to get out your wound packing supplies out.
2. Place your gloved finger into the wound to apply initial pressure to the target area (with your target being the vein, artery or both) and then find and compress the source of bleeding. Keep in mind that the body's anatomy presents with major vessels running close to bones. So, whenever possible, utilize a bone to assist with vessel (i.e., bleeding) control. This will also give you an idea of which direction the wound travels and you can insert the gauze accordingly.
3. Pack the wound with gauze. Tightly! Your goal is to completely and tightly pack the wound cavity to stop hemorrhage. Begin packing by rolling end of gauze into a small, tight ball and then pack gauze into the wound with the other hand, while simultaneously maintaining pressure on the wound with your gloved finger and inserting gauze under the gloved finger exerting pressure.
4. It's critical that the gauze be packed as **deeply into the wound** as possible to put the gauze into direct contact with the bleeding vessel. **Keep packing!** The key to successful wound packing is that the wound be very tightly packed, applying as much pressure as possible to the bleeding vessel. This pressure against the vessel is the most important component of hemorrhage control.
5. When you have packed all the gauze you can into the wound then apply very firm pressure to the packed wound for 3-5 minutes with both hands if possible. This step pushes the packing firmly against the bleeding vessel and aids in clotting.
6. Secure a **snug pressure dressing** with an ETD, Israeli Bandage or an Ace bandage over the packing.
    a. For neck wounds, the pressure bandage should be wrapped from the injury site toward the anterior chest and follow under the opposing arm then back around to the injury site and under the opposing arm until the tail can be tied off. ***Pressure dressings should not be circumferential around the neck.***
7. Should the bleeding continue, gauze manufacturers recommend removal of the original packing and repacking with fresh gauze. The rationale for this is that they assume it wasn't packed properly the first time, or perhaps the packing didn't quite get to the bleeding vessel. Prior to repacking, another option is to pack more gauze into the wound, if possible. If no further packing is possible,

you must decide whether to remove the gauze and start over or simply apply as much direct pressure to the wound as possible and transport. Transport shouldn't be delayed for extensive packing and repacking of the wound.

MEDICAL

TABLE OF CONTENTS

ALLERGIC REACTION M.01

History	Signs and Symptoms	Differential
• Medication history • Onset and location • Past medical history • Past history of reactions • New clothing, soap, detergent • New environment • Medication allergy/exposure • Food allergy/exposure	• Edema/Voice Changes • Itching or hives • Facial swelling • Coughing/wheezing or respiratory distress • Chest or throat constriction • Difficulty swallowing • Hypotension or shock	• Urticaria (rash only) • Anaphylaxis (systemic effect) • Shock(vascular effect) • Angioedema(drug induced) • Aspiration/Airway obstruction • Vasovagal event • CHF

Consider Guidelines:

- Universal Patient Care Guideline
- Respiratory Distress Guideline
- Hypotension Guideline

Procedures:

		Hives / Rash only, No Respiratory Distress	Mild to Moderate Respiratory Distress	Severe Respiratory Distress and / or Hypotension	
BLS		**Adult** Diphenhydramine 25 mg PO (IA) **Pedi** Diphenhydramine 1 mg/kg PO (liquid only for patients <25kg)(max 25mg) (IA)	• Oxygen • Albuterol 2.5 mg Neb may repeat x2 (7.5 mg total) if respiratory symptoms persist • Consider CPAP-Max. 5 cm H20 PEEP **Adult** • Diphenhydramine 25 mg PO (IA) **Pedi** • Diphenhydramine 1 mg/kg PO (liquid only for patients <25kg)(max 25mg) (IA)	**Adult** • Epinephrine 0.3 mg (1mg/ml concentration) IM or Adult EPI Pen • Diphenhydramine 50 mg PO (IA) **Pedi** • Epinephrine .15 mg (1mg/mL concentration)-For patient 8-30 kg or EPI Pen Jr. • Diphenhydramine 1 mg/kg PO (liquid only for patients <25kg)(max 25 mg) (IA)	
AEMT			**Adult** • Consider crystalloid bolus titrated to perfusion (use age-appropriate BP parameters) • Diphenhydramine 50 mg IV/IM **Pedi** • Diphenhydramine 1 mg/kg IV/IM x1)(max 25 mg)	**Adult** • Consider crystalloid bolus titrated to perfusion (use age-appropriate BP parameters) • Diphenhydramine 50 mg IV/IM **Pedi** • Diphenhydramine 1 mg/kg IV/IM x1)(max 25 mg) •	
	ALS		**Adult** • Methylprednisolone 125 mg IV **Pedi:** • Methylprednisolone 2 mg/kg IV (max 125mg)	**Adult** • Epinephrine 0.3 mg (1 mg/ml) IM May repeat q 5-10 min. (additional dosing is titrated to the patients continuing response to a severe reaction)Max total EPI 1.2 mg • Methylprednisolone 125 mg IV **Pedi** • Epinephrine 0.01 mg/kg IM (max single dose 0.3 mg) May repeat q 5 min x 2 • Methylprednisolone 2 mg/kg IV (max 125mg)	

Pearls / Additional Considerations:

- These patients should receive a 12 lead ECG and should be continuously monitored
- Systemic Allergic Reaction should be considered in patients who:
  - Have symptoms in 2 or more separate body systems (e.g.' skin, respiratory, circulatory, GI) and
  - History consistent with or suspicious of recent exposure to allergen
- Any patient with respiratory symptoms or extensive reaction should receive IV or '*Deep*' IM diphenhydramine
- The shorter the onset from exposure to symptoms, the more sever the reaction
- Cold pack to bite or sting site
- For persistent wheezing in severe reaction may run up to 7.5 mg Albuterol continuous neb.

ALTERED MENTAL STATUS M.02

History	Signs and Symptoms	Differential
• Known diabetic, medic alert tag • Drugs, drug paraphernalia • Past medical history • Medications • Seizure activity • History of trauma	• Decreased mental status • Change in baseline mental status • Bizarre behavior • Hypoglycemia (cool, diaphoretic skin) • Hyperglycemia (warm, dry skin; fruity breath; Kussmaul resp; signs of dehydration)	• Diabetes (hyper / hypoglycemia) • Head trauma • CNS (stroke, tumor, seizure, infection) • Cardiac (MI, CHF) • Infection • Thyroid (hyper / hypo) • Shock (septic, metabolic, traumatic) • Toxicologic/Carbon Monoxide • Opiate Overdose • Acidosis / Alkalosis • Environmental exposure • Pulmonary (Hypoxia) • Electrolyte abnormality

Consider Guidelines:

- Universal Patient Care Guideline
- Trauma Guideline
- Head Trauma Guideline
- Spinal Motion Restriction Guideline
- Seizure Guideline
- Overdose Guideline
- Behavioral Guideline

Procedures:

BLS

- Oxygen, target SpO2 94-99%
- Target EtCO2: range 35-45 mmHg **(IA)**
- Blood Glucose Assessment (Use heel stick for infants)

Hypoglycemia (Glucose < 50; if > 50 look for other causes)

Adult

- Oral Glucose 15 grams if the patient is not obtunded. May repeat x1 q 15 minutes

Pedi

- Oral Glucose 7.5 Grams if the patient is not obtunded. May repeat x 1 q 15 minutes

AEMT

- IV/IO

Adult

- Dextrose Infusion D10W - Titrate to patient condition and response IV/IO
  Use Premixed 250mL Bag **(IA)**; **or** D-50% 12.5-25gm - *acceptable if only dextrose available*
- If no IV access Glucagon 1 mg IM **(IA)**

Pedi

- Dextrose Infusion D10W Premixed 5ml/kg (0.5gm/kg) max 250ml (25gm) IV/IO
- Glucagon 0.1mg/kg (max dose 1mg) **(IA)**

Hyperglycemia: Glucose >300 or Signs of Dehydration

Adult

- IV Crystalloid 1000 mL Bolus

Pedi Glucose >200 or Signs of Dehydration

- IV Crystalloid 10ml/kg Bolus

ALS

- Assess Cardiac Monitor & 12 Lead ECG if available

Pearls / Additional Considerations:

- Be aware of AMS as presenting signs of an environmental toxin or Haz-Mat exposure and protect personal safety.
- Check glucose; however, do not ignore other potential causes of AMS! See the list of differential diagnoses above.
- It is safer to assume hypoglycemia than hyperglycemia if doubt exists. Recheck blood glucose after Dextrose or Glucagon.
- Do not let alcohol confuse the clinical picture. Alcoholics frequently develop hypoglycemia.
- Hyperglycemia is treated with fluids. These patients are volume-depleted; glucose will begin to clear with adequate hydration.
- Patents on oral hypoglycemics are at risk for repeat episodes of hypoglycemia; monitor closely and encourage transport.
- In a patient with a known history of diabetes who wish to refuse care after glucose is >100, make certain that the patient eats and that there is someone to observe them for repeat hypoglycemic episodes.

Pedi: Use volume control device (IV Burette) **OR** 20ml syringe w/3-way stopcock for D10W administration

EPISTAXIS M.03

History	Signs and Symptoms	Differential
• Age • Past medical history • Medications(HTN, anticoagulants, Aspirin, NSAIDS) • Previous episodes of epistaxis • Trauma • Duration of bleeding • Quantity of bleeding	• Bleeding from nasal passage • Pain • Nausea • Vomiting	• Trauma • Infection (viral URI or Sinusitis) • Allergic rhinitis • Lesions (polyps, ulcers) • Hypertension

Consider Guidelines:

- Universal Patient Care Guideline
- Airway Guideline
- Trauma Guidelines
- Hypotension Guideline

Procedures:

BLS	• Ice packs • Compress nostrils • Tilt head forward • Neo-Synephrine (phenylephrine) (IA). Nasal Spray - 2 sprays to affected nostril and direct pressure
AEMT	• Consider IV • Crystalloid Bolus PRN, titrate to SBP >90mmHg (max. 2 Liters)

ALS	• Adult SBP >90
	  • 1mg/10mL soaked intranasal gauze
	• Adult SBP <90
	  • TXA 2gm IV/IO slow IVP (IA)
	• Pedi SBP >70 + (age in years x2)
	  • 15mg/kg soaked intranasal gauze
	• Pedi SBP <70 + (age in years x2)
	  • 15mg/kg slow IV/IO

Pearls / Additional Considerations:

- Recommended Exam: Mental Status, HEENT, Heart, Lungs, Neuro
- Avoid Neo-Synephrine in patients who have a blood pressure of greater than 110 diastolic or known coronary artery disease.
- Bleeding may also be occurring posteriorly. Evaluate for posterior blood loss by examining the posterior pharynx.
- Anticoagulants can contribute to bleeding and include warfarin (Coumadin), heparin, enoxaparin (Lovenox), dabigatran (Pradaxa), rivaroxaban (Xarelto), and many over the counter headache relief powders
- Anti-platelet agents can contribute to bleeding. Examples are aspirin, clopidogrel (Plavix), aspirin/dipyridamole (Aggrenox), and ticlopidine (Ticlid).

FEVER / INFECTION CONTROL REACTION M.04

History	Signs and Symptoms	Differential
• Age • Duration of fever • Severity of fever • Past medical history • Medications • Immunocompromised(transplant, HIV, diabetes, cancer) • Environmental exposure • Last acetaminophen or ibuprofen	• Warm, flushed, diaphoretic • Chills/Rigors • Tachycardia • Myalgia's • Cough • Headache • Mental status changes • Dysuria • Abdominal pain • Rash/Petechiae	• Infections/Sepsis • Cancer/Tumors • Medication or drug reaction • Connective tissue disease • Autoimmune disease • Vasculitis • Hyperthyroid (Storm) • Environmental exposure • Meningitis

Consider Guidelines:

- Universal Patient Care Guideline
- Hypotension Guideline
- Nausea/Vomiting Guideline
- Appropriate Clinical Guideline by Complaint

Procedures:

BLS

- Consider Appropriate PPE
- Temperature assessment (age appropriate)
- Oxygen: Target SPO2 94% ↔ 99%
- Cooling measures and/or unbundle
- If fever: ≥ 100.4° F for (Adult & Pediatric) (NON- Environmental)

Adult (IA)

- **Acetaminophen** PO
- <65kg: 500mg
- >65kg: 1gm

OR

- **Ibuprofen** PO
- <65kg: 400mg
- >65kg: 600mg

Pedi (IA)

- **Acetaminophen** 15mg/kg (max 1 gm) PO

OR

- **Ibuprofen** (suspension) 10mg/kg (600 mg max) PO (>6 mo only)

AEMT

- If Dehydration and not able to PO fluids: IV and fluid challenge with Crystalloid titrated to effect

ALS

If fever: ≥100.4F for Adult and Pediatric **NON-Environmental cause**

Adult (IA)

- Ketorolac 15mg IV/IO/IM
- Ofirmev (acetaminophen) ≤65kg 15mg/kg IV/IO infused over 15 minutes
- Ofirmev (acetaminophen) >65kg 1000mg IV/IO infused over 15 minutes

Pedi (IA)

- Ketorolac 0.5mg/kg IV/IO/IM, max 15mg
- Ofirmev (acetaminophen) 15mg/kg IV/IO infused over 15 minutes, max of 500mg

Pearls / Additional Considerations:

- PO is preferred route for acetaminophen / Ofirmev. Use IV only if patient unable to tolerate PO.
- If increased temperature, utilize passive cooling by removing excessive clothing or covers.
- **Contact precautions** include standard PPE plus gown utilization, gloves change after every patient contact and strict hand washing precautions. This level of precautions is utilized when the patient is suspected of having multi-drug-resistant organisms (e.g., MRSA, scabies, or zoster (shingles) or other illnesses spread by contact.
- **Droplet precautions** include standard PPE plus a standard surgical mask for providers who accompany patients in the back of the ambulance and a surgical mask or NRB O2 mask for the patient. This level of precaution should be utilized with suspected influenza, meningitis, mumps, streptococcal pharyngitis, and other illnesses spread via large particle droplets. A patient with a potentially infectious rash should be treated with droplet precautions.
- **All-hazards precautions** (Airborne Precautions) include standard PPE, contact precautions, and an N-95 mask for providers. This level of precautions is utilized during the initial phases of an outbreak when the etiology of the infection is unknown or when the causative agent is highly contagious (e.g., SARS, TB).
- Rehydration with fluids increases the patient's ability to sweat and improves heat loss.
- Allergies to NSAIDs (non-steroidal anti-inflammatory medications) are a contraindication to Ibuprofen.
- NSAIDs should not be used in the setting of environmental heat emergencies.

- Patients with a history of liver failure should not receive acetaminophen.

HYPERTENSIVE EMERGENCY M.05

History	Signs and Symptoms	Differential
• Established dx of HTN • Associated disease (CAD, A-fib, renal disease, DM) • Rx such as beta blockers, ACEI, calcium channel blockers • Missed doses, out of med's, non-compliance • Recent changes in urination or swelling of extremities • Anti-coagulants	• Evaluate for end organ damage • Chest pain • Shortness of breath • Headache, neurologic symptoms • Decreased urination • Bounding pulses • Asymptomatic?	• Chronic (routine) HTN • Malignant HTN • New onset HTN • ACS, PE, CVA • Renal failure, urinary retention • Pain, other stimulus (e.g. anxiety) • Drugs • Dissection

Consider Guidelines:

- Universal Guideline
- Nausea/Vomiting Guideline
- Chest Pain, ACS Guideline
- Stroke Guideline
- Pulmonary Edema Guideline

Procedures:

BLS

- Oxygen Target SPO2 94% ↔ 99%
- For systolic BP > 220 mmHg and/or diastolic BP > 110 mmHg readings –confirm BP
- Assess BP on both arms
- Keep patient head elevated
- If symptomatic, treat using appropriate guideline

AEMT

- IV/IO

ALS

- 12-lead

Pearls / Additional Considerations:

- In most case hypertension does not need to be treated in the pre-hospital setting
- Goal reduction in prep for tPA administration for stroke patients is SBP <180mmHg and DBP <110mmHg
- If a **KNOWN** intracranial hemorrhage of aortic dissection is present, contact OLMC for instructions.
- If patient is hypertensive and bradycardic, consider head injury/increased ICP as cause.
- Contact med control for additional BP medication dosing if needed.
- Beta-blockers are contra-indicated in patients who have had cocaine or are bradycardic.

Hypotension (non-trauma) M.06

History	Signs and Symptoms	Differential
• Blood loss – vaginal or gastrointestinal bleeding, AAA, ectopic pregnancy • Vomiting • Diarrhea • Fever • Infection • Cardiac Ischemia (MI, CHF) • Medications • Allergic reaction • Pregnancy	• Restlessness, confusion, weakness • Syncope • Hypotension • Tachycardia • Pale, cool, clammy skin • Delayed capillary refill, weak pulses • Coffee-ground emesis • Bloody/Tarry stools • Vomiting • Diarrhea • Infection • Fever	• Sepsis • Shock • GI Bleed • Dehydration • Vomiting • Diarrhea • Ectopic pregnancy • Dysrhythmias • Pulmonary Embolism • Tension Pneumothorax • Toxic exposure • Medication • Anaphylaxis

Consider Guidelines:

- Universal Patient Care Guideline
- Altered Mental Status
- Nausea/Vomiting Guideline
- Appropriate Cardiac Guideline
- Appropriate Overdose/Toxicology guideline

Procedures:

BLS

- Oxygen, target SPO2 94-99%
- Assess temperature
- Keep patient warm
- Rule out and/or correct other causes of hypovolemia
- Lay patient supine with head of bed elevated 20◦

AEMT

- IV/IO
- Crystalloid bolus 20ml/kg IV/IO may repeat x 3 PRN
  - **Adults** titrate to SBP >90 mmHg or MAP >65
  - **Pediatrics** titrate to age-appropriate SBP: 70 + (age in years x 2)
- Hold IV fluids after the first bolus if clinical signs of pulmonary edema are present

ALS

- Epinephrine **(push-dose)** (IA)
  - **Adult:** 5-20 **mcg** per dose IV/IO q 1-5 min to SBP >90 mmHg or MAP >65
    - Preparation:Take 10mL syringe with 9mL of NS, Add 1mL **(0.1mg)** of Epinephrine **1mg/10mL (1:10,000).** Concentration 10mcg/mL
  - **Pediatrics: 1mcg/kg (max 20mcg or 2mL)** per dose IV/IO q 1-5 min to age-appropriate SBP of 70 + (age in years x 2)
    - Preparation: Take 10mL syringe with 9mL of NS, Add 1mL **(0.1mg)** of Epinephrine **1mg/10mL (1:10,000).** Concentration 10mcg/mL
- Norepinephrine (**push dose)** (IA)
  - **Adults:** 8-32 **mcg** per dose IV/IO q 1-5 min to SBP >90 mmHg or MAP >65
    - Mix 4mg of Norepinephrine in 250mL sodium chloride, withdraw 10mL into a syringe. Concentration is 16 mcg/mL.
  - **Pediatrics: Push dose not approved**
- Norepinephrine **(infusion)** (IA)
  - **Adults:** 2-30mcg/min IV/IO infusion titrated to SBP >90mmHg or MAP >65
  - **Pediatrics:** 0.05-1 mcg/kg/min titrated to age-appropriate SBP **(max 30 mcg/min)**

Pearls / Additional Considerations:

- Hypotension is defined as a Systolic blood pressure of (less than) <90 mmHg or MAP <65 in adult patients.
- Hypotension is defined as a Systolic blood pressure of (less than) <70 + (age in years x 2) in pediatric patients.
- Consider all possible causes of shock and treat per the appropriate guideline.
- Patients should always have adequate intravascular fluid load before using vasopressors.
- Place in supine position unless otherwise contraindicated.
- Vasopressors may be given through large bore, proximal IVs. Ensure patiency prior to administration.
- Caution should be used in patients with known cardiac insufficiency.
- **Pediatrics:** Use a volume control device (IV Burette) or 20mL syringe w/3 way stopcock for fluid infusions.

NAUSEA / VOMITING M.07

History	Signs and Symptoms	Differential
• Time of last meal • Last bowel movement/emesis • Improvement or worsening with food or activity • Other sick contacts • Past Medical History • Past Surgical History • Medications • LMP/Pregnancy • Travel history • Bloody emesis or diarrhea • Untreated water • Suspected food poisoning	• Nausea • Vomiting • Fever • Pain • Rigidity • Anorexia • Constipation • Diarrhea • Hematemesis	• CNS (Increased pressure, headache, stroke, CNS Lesions, trauma or hemorrhage), • Vestibular • ACS • Drugs (NSAIDs, antibiotics, narcotics, chemotherapy.) • GI or Renal disorders • Diabetic Ketoacidosis • Uremia • Gynecologic disease (Ovarian Cyst / PID) • Infections (pneumonia, influenza) • Electrolyte abnormalities • Food or Toxin induced • Pregnancy

Consider Guidelines:

- Universal Patient Care Guideline
- Altered Mental Status Guideline
- Hypotension Guideline

Procedures:

BLS

- Glucose Assessment
- Orthostatic Vital Signs

AEMT

- IV
- Crystalloid for hypotension
- Ondansetron (Zofran) IV/IM/IO/PO/SL (IA)
  - Adult 4mg, may repeat x1 q 15 min PRN
  - Pedi 0.1mg/kg (max 4mg), may repeat x 1 q 15 min PRN
    - ½ tablet (2mg) PO/SL if btwn 12-23 kg
    - 1 tablet (4mg) PO/SL if >23 kg
    - No PO Zofran if <12kg
- If persistent nausea/vomiting, consider Diphenhydramine (IA)
  - Adult 25mg IV/IO/PO/Deep IM
  - **Pedi** 1mg/kg IV/IO/PO/Deep IM, Max of 25mg

ALS

Pearls / Additional Considerations:

- Diabetic ketoacidosis may present as vomiting and/or abdominal pain.
- Number of times of emesis
- The appearance of emesis: (bloody, coffee grounds, bilious –green bile--, solids and liquid or just liquid)
- Tachycardia is most commonly the first indication that the N/V patient is suffering from hypovolemia.

OVERDOSE M.08

History	Signs and Symptoms	Differential
• Ingestion or suspected ingestion of a possibly toxic substance • Substance ingested, route, quantity • Time of ingestion • Reason (suicidal, accidental, criminal) • Available medication in the home • Past medical history, medications	• Mental status changes • hypotension/ hypertension • Decreased respiratory rate • Tachycardia, dysrhythmias • Seizures	• Tricyclic antidepressants • Acetaminophen (Tylenol) • Depressants • Stimulants • Anticholinergic • Cardiac medications • Solvents, alcohols, cleaning agents • Insecticides (organophosphates)

Consider Guidelines:

- Universal Patient Care Guideline
- Behavioral Guideline
- Chest Pain Guideline
- Airway Management Guideline

Procedures:

BLS

- Oxygen Target SPO2 94% ↔ 99%
- Monitor ETCO2: Target range 35-45 mmHg (IA)
- Basic Airway Maneuvers
- Narcotic OD: Naloxone if respirations are severely depressed with hypoxia
  - ✓ Adult 0.4 to 2 mg IN/IM (repeat PRN)
  - ✓ Pedi 0.1 mg/kg IN/IM (max 2mg)

AEMT

- Consider airway management procedures as needed
- IV
- Narcotic OD: Naloxone If respirations depressed:
  - ✓ Adult 0.4 to 2 mg IV/IN/IM (repeat PRN)
  - ✓ Pedi 0.1 mg/kg IV/IN/IM (max single dose 2mg, repeat PRN)
- Dystonic Reaction
  - Diphenhydramine
    - ✓ Adult 50mg PO/IV/IO/Deep IM
    - ✓ Pedi 1 mg/kg PO/IV/IO/Deep IM (max 25mg)

ALS

- 12 Lead Continuous Monitor
- Pace PRN
- Tricyclic OD
  - Sodium Bicarbonate
    - ✓ Adult 1mEq/Kg IV/IO, consider 2nd dose 1mEq/Kg if QRS is persistently >120ms after 5 min, otherwise follow by a maintenance drip. (100 mEq in 1000 mL of NS and run at 100mL/hr)=(100gtts/min)
    - ✓ Pedi 1meq/kg IV/IO (max 37mEq)
- Stimulant OD
  - Sedation: (IA)
    - ✓ Adult Midazolam: 2.5 – 5.0 mg IV/IO OR 5 mg IM/ IN May repeat PRN max total dose 10 mg with SBP > 100 mmHg
    - ✓ Pedi Midazolam 0.05 mg/kg IV/IO titrated to effect with age-appropriate SBP (max 2.5mg)
- Calcium Channel Blocker OD
  - Adult
    - ✓ Calcium Chloride 1 gram IV over 10 minutes **OR**
    - ✓ Calcium Gluconate 1 gram IV over 10 minutes
  - Pedi
    - ✓ Calcium Chloride 20mg/kg slow IVP/IO (Max 1 Gram) **OR**
    - ✓ Calcium Gluconate 60mg/kg slow IVP/IO (Max 1 Gram)
- Beta-blocker OD
  - Glucagon (IA)
    - ✓ Adult 1mg IV
    - ✓ Pedi 0.1mg/kg IV (max 1mg)
  - Epinephrine
    - ✓ Adult infusion 2-20 mcg/min

Pearls / Additional Considerations:

- Do not rely on the patient history of ingestion, especially in suicide attempts.
- **Tricyclic**: 4 major areas of toxicity: seizures, dysrhythmias, hypotension, decreased mental status or coma; the rapid progression from alert mental status to death.
- **Depressants**: decreased HR, decreased BP, decreased temperature, decreased respirations, and non-specific pupils. Narcotics: Repeat doses of Naloxone should be considered in patients who are responsive to the first dose and then deteriorate again. Other causes of decreased mental status and apnea should be considered.
- **Stimulants**: increased HR, increased BP, increased temperature, dilated pupils, and seizures.
- **Anticholinergic**: increased HR, increased temperature, dilated pupils, and mental status changes.
- **Cardiac Meds**: dysrhythmias and mental status changes.
- **Solvents**: Nausea, vomiting, and mental status changes.
- **Insecticides**: increased or decreased HR, increased secretions, nausea, vomiting, diarrhea, pinpoint pupils.
- Consider contacting the US/Texas **Poison Control Center** for guidance**. Healthcare Provider 800-816-1100** or **General Provider 1-800-222-1222**

PULMONARY EDEMA M.09

History	Signs and Symptoms	Differential
• Past medical history • Medications (digoxin, Lasix) • Viagra, Levitra, Cialis • Cardiac history (myocardial infarction, CHF) • Medication Compliance • Dietary Indiscretion	• Bilateral rales • Jugular vein distention • Pink, frothy sputum • Peripheral edema • Diaphoresis • Hypotension, shock • Chest pain • Respiratory distress • Apprehension • Orthopnea	• Myocardial infarction • Congestive heart failure • Pulmonary embolus • Pericardial tamponade • Pleural effusion • Pneumonia • Asthma • Anaphylaxis • Aspiration • COPD • Toxic Exposure

Consider Guidelines:

- Universal Patient Care Guideline
- Airway Management Guideline
- Hypotension Guideline
- Chest Pain Guideline
- Respiratory Distress Guideline

Procedures:

BLS	• Oxygen, Target SPO2 94% ↔ 99% • Monitor ETCO2: Target range 35-45 mmHg (IA) • Position of Comfort • 324mg Aspirin PO if Chest Pain • CPAP 10cmH2O with rales / rhonchi indicating wet lung sounds • **Patient Assist** NTG 0.4 mg SL q 5min if SBP ≥ 100
AEMT	• IV/IO • NTG 0.4 mg SL q 5min if SBP ≥ 100 mmHg • Crystalloid bolus 500ml (hold for systolic BP>160)
ALS	• 12 Lead ECG • If acute Ischemic Changes with ST Elevation: declare a STEMI Alert and expedite transport to appropriate STEMI Center. **Transmit 12 Lead ASAP** (I/A) • Norepinephrine (Levophed) IV infusion, titrated to Systolic > 90 (following fluid resuscitation) 2-30 mcg/min IV

Pearls / Additional Considerations:

- Avoid Nitroglycerin in any patient who has used Viagra or Levitra in the past 24 hours or Cialis in the past 48 hours due to possible severe hypotension.
- Careful monitoring of level of consciousness, BP, and respiratory status with above interventions is essential.
- Consider myocardial infarction in all these patients. If suspected give ASA.
- Allow the patient to be in their position of comfort to maximize their breathing effort.
- For O-Two CPAP system: **8L = 5 PEEP, 10L = 8 PEEP, 12L = 10 PEEP**
- For Pulmodyne System: set at 10lpm (PEEP is then adjusted at generator on the face mask).
- Patient BP may drop with CPAP. Consider hypotension management if providing CPAP.

RESPIRATORY DISTRESS M.10

History	Signs and Symptoms	Differential
• Asthma, COPD, CHF, Stroke • Home treatment (oxygen, nebulizer) • Medications compliance (theophylline, steroids, inhalers) • Toxic exposure, smoke inhalation. • Occupation • Travel	• Shortness of breath • Pursed lip breathing • Decreased ability to speak • Increased respiratory rate and effort • Wheezing, rhonchi, rales, stridor • Use of accessory muscles • Fever, cough • Tachycardia	• Asthma/COPD (Emphysema, Bronchitis) • Anaphylaxis • Aspiration • Pleural effusion • Pneumonia • ILI (Influenza Like Illness) • Pulmonary embolus • Pneumothorax • Cardiac (MI or CHF) • Pericardial tamponade • Hyperventilation • Inhaled toxin (Carbon monoxide, etc.)

Consider Guidelines:

- Universal Patient Care Guideline
- Airway Guideline
- Pulmonary Edema Guideline

Procedures:

BLS			**Wheezing** • Oxygen: Target SPO2 94% ↔ 99% • Assist with patient MDI –or- • Albuterol 2.5 mg Neb may repeat x2 (7.5 mg total) if wheezing persists • Ipratropium Bromide 0.5 mg Neb may repeat x1 (max 1mg). • Consider CPAP at 5 cm H20 (if refractory to nebulized medications) • Monitor ETCO2: Target range 35-45 mmHg (IA)	**Stridor** • Oxygen • Nebulized Crystalloid 3ml repeat as needed • Monitor ETCO2: Target range 35-45 mmHg (IA)	
	AEMT		• Consider Crystalloid Bolus 20ml/kg **Adult** • Epinephrine 0.3 mg (1mg/ml) IM for severe wheezing (**Contact Medical Control).**	• Consider Crystalloid Bolus 20ml/kg	
		ALS	**Adult** • Consider 12 lead ECG • Magnesium Sulfate 2 grams IV place into 50 ml/Crystalloid and infuse over 20 min • Methylprednisolone 125 mg IV • Epinephrine 0.3 mg (1mg/ml) IM for severe wheezing (**Contact Medical Control** for patients > 50) **Pedi** > 2 yrs. Old • Methylprednisolone 2 mg/kg IV/IM (max dose 125 mg) Continued Resp. Distress: • Epinephrine 0.01mg/kg(1mg/mL) IM (max dose 0.3mg) • Magnesium Sulfate 50% 50mg/kg IV over 20 min.(max dose 2 grams) < 2 yrs. Old with suspected bronchiolitis • Epinephrine Neb 0.5mg (0.1mg/ml concentration) 5ml.	**Adult** • Consider 12 lead ECG • Epi Neb 2mg (1mg/ml concentration) mixed into 1 ml Crystalloid • Methylprednisolone 125 mg IV • Epinephrine 0.3 mg (1mg/ml) IM (Contact Medical Control for patients >50) **Pedi** • Epinephrine Neb 0.5mg (0.1mg/ml concentration) 5ml. > 2 yrs. Old Methylprednisolone 2 mg/kg IV/IM (max dose 125 mg)	

Pearls / Additional Considerations:

- A silent chest in respiratory distress is indicative of severe bronchospasm and is a pre-respiratory arrest sign.
- Administer Albuterol / Atrovent in absence of wheezing if patient's condition is considered to be caused by bronchospasm or COPD.
- ETCO2 & Pulse Oximetry must be monitored continuously if initial saturation is less than 95%, or there is a decline in patient's status despite normal pulse oximetry readings.
- Chronic COPD may have elevated CO2 at baseline. Utilize assessment to determine worsening / impairment.
- Sedation may be necessary for patients to tolerate CPAP. Consider Ketamine (IA) for bronchodilation effect. Sedate these patients cautiously.
- Consider Awake Prone Positioning procedure for patients with Influenza Like Illness (e.g., Covid-19).
- For severe asthma may run up to 7.5 mg Albuterol continuous neb.
- Consider contacting Medical Control if patient is refractory to therapy.

SEIZURE M.11

History	Signs and Symptoms	Differential
• Reported/witnessed seizure activity • Previous seizure history • Medical alert tag information • Seizure medications • History of trauma • History of diabetes • History of pregnancy	• Decreased mental status • Sleepiness • Incontinence • Observed seizure activity • Evidence of trauma • Unconscious	• CNS (Head) trauma • Tumor • Metabolic, Hepatic, or Renal failure • Hypoxia • Electrolyte abnormality (Na, Ca, Mg, K+) • Drugs, Medications, Non- compliance • Infection / Fever • Alcohol withdrawal • Eclampsia • Stroke • Hyperthermia • Hypoglycemia

Consider Guidelines:

- Universal Patient Care Guideline
- Consider Suspected Stroke Guideline
- Consider Spinal Motion Restriction Guideline
- Airway Guideline
- Altered Mental Status Guideline
- Temperature/Infection Control Guideline

Procedures:

BLS

- Oxygen, Target SPO2 94% ↔ 99%
- Monitor ETCO2: Target range 35-45 mmHg (IA)
- BGL assessment,
- BLS Airway Management
- ***Patient Assist:*** Vagus Nerve Stimulator (VNS) q 60 sec may repeat x 3
- ***Patient assist*** Patient's own prescribed and pre-measured Diastat (rectal valium) or IN valium (IA)

AEMT

- IV if appropriate
- ETCO2 monitoring (IA)
- If Pediatric Temp > 100.4:
  - Acetaminophen (IA) 15mg/kg PO (max 650mg)
  - Ibuprofen (IA) 10mg/kg PO (max 600mg)

ALS

<u>Active Seizure</u>

- Midazolam (IA)
  - Adult 5 mg IM/IN/IO/IV May repeat PRN (max total dose 10 mg). Hold for SBP < 100 mmHg

Pedi 0.1mg/kg IV/IO/IM/IN (max total 5 mg). Hold for SBP < age appropriate value. Do not admin if <5kg.

Pearls / Additional Considerations:

- Status epilepticus is defined as two or more successive seizures without a period of consciousness or recovery. This is a true emergency requiring rapid airway control, treatment, and transport
- Grand mal seizures (generalized) are associated with loss of consciousness, incontinence, and tongue trauma.
- Focal seizures (petit mal) affect only a part of the body and are not usually associated with a loss of consciousness
- Jacksonian seizures are seizures which start as a focal seizure and become generalized
- Assess possibility of occult trauma and substance abuse.
- Assess temperature in pediatrics.
- Be prepared to assist ventilations, especially if a benzodiazepine is used.
- Avoid hypoxemia
- Seizures in a pregnant or postpartum patient, see OB Emergencies.
- Addressing the ABCs and verifying blood glucose is more important than stopping the seizure. Hypoglycemia is the 2nd most common cause of seizure
- In an infant, a seizure may be the only evidence of a closed head injury.

SEPSIS / SEPTIC SHOCK M.12

History	Signs and Symptoms	Differential
• Recent illness • Recent surgery/wound • Fever • Nausea/vomiting • Diarrhea	• Altered Mental Status • Fever • Obtunded/General malaise • Rash • Hypotension • Tachycardia • Increase respiratory rate	• Arrhythmia • Pulmonary embolism • Anaphylaxis • Drug intoxication • Heat stroke • Hypothermia • Hypoglycemia • Dehydration • Stroke

Consider Guidelines:

- Altered Mental Status
- Cardiac
- Hypotension (non-trauma)

Procedures:

BLS

- Oxygen Target SPO2 94% ↔ 99%
- Monitor ETCO2: Target range 35-45 mmHg (IA)
- BGL Assessment
- Keep patient warm

AEMT

- IV and fluid challenge with Crystalloid
  - Adult 30 mL/kg (x2)
  - **Pedi** 20ml/kg (x2) to age appropriate SBP

ALS

- 12-lead
- Norepinephrine infusion, titrated to a map of >65mmHg if not responsive to fluid **(IA)**
  - Adult 2-30mcg/min IV
  - **Pedi** 0.05 – 1mcg/kg/min IV (max 30mcg/min)

Pearls / Additional Considerations:

- Suspicion for sepsis exists when a patient presents with a suspected or known infection, and **two or more** of the following **(Adult patient ranges*)**:
  - ✓ MAP <65, SBP = or < 100 or >200
  - ✓ Temp <97 F or > 100.4 F (Elderly sepsis patients often become hypothermic instead of developing fever)
  - ✓ Heart rate <50 or >100
  - ✓ Respiratory rate <8 or >22
  - ✓ Altered mental status (AVPU <A or new agitation, confusion or change from baseline with patient who have pre-existing altered mentation)
  - ✓ ETCO2 <30 or >45

  *For pediatric patients with suspected sepsis, refer to the pediatric vital signs chart. Evaluation of ETCO2 and mentation in pediatrics is the same as for adults.

- Hypoglycemia is not uncommon in patients with sepsis, particularly those on beta blockers (patient may be hyperglycemic as well).
- Treat wheezing, hypoxia, dyspnea, and pain as per appropriate clinical guideline.
- Sinus tachycardia may be misinterpreted as SVT or A-Fib. Sinus tachycardia rate >150 bpm in the adult patient or >180 in the pediatric patient may be seen in the septic patient
- Historically only about 3% of pediatric sepsis patients receive IV fluid resuscitation in the field. **Treat all suspected sepsis patients with IVF, per the COG.**

SUSPECTED STROKE M.13

History	Signs and Symptoms	Differential
• Previous CVA, TIAs • Previous cardiac/vascular surgery • Associated diseases: diabetes, hypertension, CAD • Atrial fibrillation • Medications (blood thinners) • History of trauma • DNR/Code status	• Altered mental status • Weakness/Paralysis • Blindness or other sensory loss • Aphasia/Dysarthria • Syncope • Vertigo/Dizziness • Vomiting • Headache • Seizures • Respiratory pattern change • Hypertension/hypotension	• Altered Mental Status • TIA(Transient ischemic attack) • Seizure • Hypoglycemia • Hypoxia/Hypercarbia • Stroke Thrombotic/Embolic (85%) Hemorrhagic (15%) • Tumor • Trauma

Consider Guidelines:

- Universal Patient Care Guideline
- Altered Mental Status Guideline
- Seizure Guideline
- Hypertension Guideline

Procedures:

BLS

- Oxygen, Target SPO2 94% ↔ 99%
- Monitor ETCO2: Target range 35-45 mmHg(IA)
- Head of bed elevated
- BGL Assessment
- Cincinnati Pre-hospital Stroke Screen (CPSS) Assessment
- VAN Stroke Scale
- Verify time last seen normal, patient baseline prior to event, and if patient is taking anti-coagulants.

AEMT

- Proximal IV
- 2nd IV if time permits

ALS

- 12 Lead ECG

Pearls / Additional Considerations:

- If "last known well" is < 24 hours, patient should be transported to facility designated as Primary or Thrombectomy Capable Centers.
- Onset of symptoms is defined as the last time the patient was seen symptom free (i.e. awakening with stroke symptoms would be defined as an onset time of the previous night when patient was symptom free)
- Whenever possible, a family member should accompany the patient to the hospital to provide a detailed history.
- Be alert for airway problems/changes (difficulty in swallowing, vomiting)
- The differential listed on the Altered Mental Status Guideline should also be considered.
- Be alert for airway problems (swallowing difficulty, vomiting).
- Hypoglycemia can present as a localized neurological deficit, especially in the elderly.

CINCINNATI PREHOSPITAL STROKE SCALE

****1 or more abnormal findings are conclusive for a potential stroke****

Facial Droop Normal: Both sides of face move equally Abnormal: One side of face does not move at all	**Arm Drift** Normal: Both arms move equally or not at all Abnormal: One arm drifts compared to the other ****if present, move to VAN Assessment***	**Speech** Ask patient to say: *"you can't teach an old dog new tricks".* Normal: current words, no slurring Abnormal: incorrect words, slurred words, no speech

VAN Assessment for LVO

Vision: Does pt report: • new double vision • blurred vision • blindness • difficulty seeing your fingers Yes = VAN positive, No= Continue exam	Aphasia: Have patient name two objects. Also repeat a simple phrase. Is patient: • unable to form words • unable to name objects • unable to repeat phrase • unable to follow simple commands? Yes= VAN positive, No= Continue exam	Neglect: Have patient look left then right. Touch them on each arm separately, then together. Does patient: • have forced gaze to one side • have the inability to feel one side • Ignore when touching either side Yes= VAN positive, No= Stroke alert

If at any point in exam patient is VAN positive, stop exam and transport to Thrombectomy capable center with "LVO Alert".
If VAN is Negative but CPSS positive, transport to Primary Stroke Center with "Stroke Alert".

If the thrombectomy capable center is more than 15 minutes past the primary stoke center, you may transport to the primary center. Additionally, consider STAR Flight for rapid transport of VAN positive patient to Thrombectomy Capable Center.

SYNCOPE M.14

History	Signs and Symptoms	Differential
• Pre-syncopal symptoms • Occult blood loss (GI, ectopic) • MP, vaginal bleeding • Nausea, vomiting, diarrhea • Chest pain/palpitations • Shortness of breath • PMHx: Cardiac, CVA, Sz • New medications	• Loss of consciousness with recovery • Lightheadedness, dizziness • Palpitations, slow or rapid pulse • Pulse irregularity • Decreased blood pressure	• Vasovagal • Hypotension/Shock • Cardiac/PE • Micturition/Defecation syncope • Stroke • Hypoglycemia • Seizure • Toxicological • Medication effect (hypotension)

Consider Guidelines:

- Universal Patient Care Guideline
- Altered Mental Status Guideline
- Hypotension Guideline
- Bradycardia Guideline
- Narrow Complex Tachycardia Guideline
- Spinal Motion Restriction Guideline

Procedures:

BLS

- Oxygen, Target SPO2 94% ↔ 99%
- Monitor ETCO2: Target range 35-45 mmHg (IA)
- Blood Glucose Level Assessment
- Spinal Motion Restriction Assessment
- Cincinnati Pre-hospital Stroke Screen (CPSS) Assessment
- Orthostatic vital sign assessment if appropriate

AEMT

- IV if necessary
- IV fluid with Crystalloid as needed for dehydration or hypotension not caused by hemorrhage.

ALS

- 12 Lead ECG

Pearls / Additional Considerations:

- Consider stroke guidelines if patient is taking anti-coagulants.
- Assess for signs and symptoms of trauma if associated or questionable fall with syncope.
- Consider dysrhythmias, GI bleed, ectopic pregnancy, and seizure as possible causes of syncope.
- More than 25% of geriatric syncope is cardiac dysrhythmia based.

Travis County Parks BLS Minimum Equipment List (MEL)

BLS Airway Adjuncts

- NPA – 1 of each Fr: 18, 22, 26
- OPA – 1 of each 40, 60, 80, 100
- Water soluble lubricating jelly – 4

Portable Oxygen Delivery System

- Oxygen bottle (may be one of either A, super C, D, or E size) – 1
- Cylinder pressure gauge (brass preferred) – 1
- Adjustable liter flow meter with high pressure port (brass preferred) minimum flow 15 Lpm – 1
- Oxygen cylinder wrench – 1
- Oxygen administration supplies
    - Nasal cannula – 2
    - Non-rebreathing mask – 2
    - Pediatric non-rebreathing – 1

Bandages, Dressings and Splinting

- Latex free Band-Aids – 5
- 4x4s –10
- Ice Packs - 4
- Trauma dressing – 1
- Occlusive dressing – 1
- Triangular bandages – 3
- Self-adhering gauze bandages (Kerlex or acceptable equivalent) – 3
- Adhesive tape (should be hypoallergenic/latex free when available) –1 roll
- Padded Splint packs **OR** 2-Sam Splints & 1 Padded Long Board Splint
- Commercially Designed Tourniquet - 2

Spinal Motion Restriction (per Organization's Primary Response Apparatus)

- Adjustable Adult C-Collar –1
- Adjustable Pedi C-Collar -1

Sterile (Saline Solution or Water) for irrigation

- Minimum volume amount –500 mL

Miscellaneous Equipment

- Latex Free Blood pressure cuff
    - Pedi, Adult – 1
- Infant and Large Adult cuffs optional
- Stethoscope Adult sized – 1 Pediatric optional
- Pen light or flashlight type device – 1
- Heavy duty bandage scissors or paramedic shears – 1

Personal Protective Equipment (latex-free equipment should be available) – 1 for each team member

- Protective eye wear (goggles, full-peripheral glasses, or face masks)
- Protective face mask/shield
- HEPA TB or NIOSH N95 facemask
- Exam gloves (latex free) – 3 pair appropriate sizes for crew

- Antiseptic hand sanitizer (waterless antiseptic agent) – 1

AED Device - 1 (per Organization's Primary Response Apparatus)

- Adult Pads-1 (Recommend 2)
- Pedi Pads -1

One of the following devices for delivery of artificial ventilation in adult/pediatric patients

- Latex free Bag Valve Mask Device w/face masks of appropriates size
- Infant, Child and Adult bags are suitable for supporting adequate tidal volumes for the entire pediatric age range
- Reservoir bag or enrichment tube with oxygen tubing appropriate for each BVM

Portable suction device

- V-VAC or Suction Easy or other system approved equivalent – 1
- Rigid Suction Catheter -1
- Back-up power supply **OR** spare battery

Glucometer and Kit including:

- Glucose clinical Test strips – 5
- Calibration and check test strips – 1 each
- Test control solution and instructions –1 bottle
- Disposable and retractable safety lock lancet – 5
- Disinfectant/Alcohol prep pads – 2
- Band-aids - 2

Medications:

- Albuterol sulfate 0.083% 3 mL unit dose vial – 3 doses
- Adult & PEDI EPI Auto Injector- 1 OR **(in lieu of EPI Auto Injectors)**
- Baby Aspirin (chewable) tablets –1 bottle
- Epinephrine Anaphylaxis Kit – 2 (if trained in use)
  - Each Kit contains:
    - Epinephrine 1mg/1mL ampule
    - 0.3 ml safety syringe with Adult IM needle (1"-1.5", 20-23g) and pediatric IM needle (3/4"-1" 22-24g)
    - Disinfectant prep pads
    - Band-Aids
    - 4x4s (sterile package)
- Neo-Synephrine (phenylephrine) nasal spray – (optional)
- Oral glucose or Level Glucose minimum of 15 grams

Nebulizer Kit

- T piece adapter – 1
- Nebulization chamber – 1
- Mouthpiece – 1
- Face mask assembly (Adult and Pedi)– 1ea
- Oxygen supply tubing – 1
- Flex tubing – 1

Advanced Airway and Ventilation Equipment (Optional)

I-gel Airways sizes:

- 3.0 -1 (IA)
- 4.0 -1 (IA)
- 5.0 -1 (IA)

Pulse Oximeter (required with BIAD Airway)

- With probes adult and pediatric – 1 each

ILS/ALS FRO Minimum Equipment List (MEL)

BLS Airway Adjuncts

- NPA – 1 of each small, medium, large
- OPA – 1 of each small, medium, large
- Water soluble lubricating jelly – 4

Portable Oxygen Delivery System

- Oxygen bottle (may be one of either A, super C, D, or E size) – 1
- Cylinder pressure gauge (brass preferred) – 1
- Adjustable liter flow meter with high pressure port (brass preferred) minimum flow 15 Lpm – 1
- Oxygen cylinder wrench – 1
- Oxygen administration supplies
    - Nasal cannula – 2
    - Non-rebreathing mask – 2
    - Pediatric non-rebreathing – 1
    - In-line and Sidestream ETCO2 Nasal Cannula's – if equipped to monitor

Bandages, Dressings and Splinting

- Latex free Band-Aids – 5
- Sterile 4x4s –10
- Non-sterile 4x4s – 10
- Ice Packs - 6
- Trauma dressing – 1
- Occlusive dressing – 2
- Triangular bandages – 3
- Self-adhering gauze bandages (Kerlex or acceptable equivalent) – 3
- Adhesive tape (should be hypoallergenic/latex free when available) –1 roll
- Padded Splint packs **OR** 2-Sam Splints
- Commercially Designed Tourniquet - 2
- Pelvic Binder (Sam Sling) –1 ea size small and large

Spinal Motion Restriction (per Organization's Primary Response Apparatus)

- Long Back Board with straps –1
- Adjustable Adult C-Collar –1
- Adjustable Pedi C-Collar --1
- Head Blocks –1 package or set.
- Recommend that agencies carry additional SMR supplies for MCI's, etc.

Sterile (Saline Solution or Water) for irrigation

- Minimum volume amount –500 mL (Saline Fluids listed under Vascular Access Equipment may be used to fulfill this requirement also).

Sterile OB Kit – 1

- Sterile scissors for cutting the umbilical cord may or may not be stocked separate from the obstetrical pack to assure sterility. However, if present, scissors must be of the blunt tipped variety.
- Bulb suction device (if not included in OB kit) – 1

Miscellaneous Equipment

- Latex Free Blood pressure cuff
  - Pedi, Adult – 1
- Infant and Large Adult cuffs optional
- Stethoscope Adult sized – 1 Pediatric optional
- Pen light or flashlight type device – 1
- Heavy duty bandage scissors or paramedic shears – 1
- Thermometer (digital electronic) – 1
  - (minimum temp of 88 F and at least 104 F)
  - Measures by oral, rectal, or axillary methods
  - Cover probes (if applicable)
- PediaTape (or other FDA approved pedi measuring device) - 1
- ECG Electrodes – 1 package (if carrying monitor, optional otherwise)

Personal Protective Equipment (latex-free equipment should be available)

- Protective eye wear (goggles, full-peripheral glasses, or face masks) – 4
- Protective face mask/shield – 4
- HEPA TB or NIOSH N95 facemask – 4
- Exam gloves (latex free) – 3 pair appropriate sizes for crew
- Antiseptic hand sanitizer (waterless antiseptic agent) – 1
- Simple "surgical type" face masks for patient use - 4

AED Device - 1 (per Organization's Primary Response Apparatus)

- Adult Pads-1 (Recommend 2)
- Pedi Pads -1

One of the following devices for delivery of artificial ventilation in adult/pediatric patients

- Latex free Bag Valve Mask Device w/face masks of appropriates size w/PEEP valves.
- Infant, Child and Adult bags are suitable for supporting adequate tidal volumes for the entire pediatric age range.
- Reservoir bag or enrichment tube with oxygen tubing appropriate for each BVM.
- 12fr or 16fr NG tubes w/confirming device (i.e. Toomey syringe)

Portable suction device

- V-VAC or Suction Easy or other system approved equivalent – 1
- Flexible Suction Catheters 6Fr, 10Fr, 16Fr – 1 each
- Rigid Suction Catheter -1
- Spare Suction Tubing appropriate for equipment used.
- Spare Canister appropriate for equipment used – 1 each.

- Back-up power supply **OR** spare battery

Glucometer and Kit including:

- Glucose clinical Test strips – 5
- Calibration and check test strips – 1 each
- Test control solution and instructions –1 bottle
- Disposable and retractable safety lock lancet – 5
- Disinfectant/Alcohol prep pads – 2
- Band-aids - 2

Medications:

- Acetaminophen 32 mg/1 mL liquid PO Pedi dose – 1 bottle (optional)
- Acetaminophen 80 mg/Tablet PO Meltaways – 1 bottle (optional)
- Acetaminophen PO 1 gram – 1 dose (optional)
- Albuterol sulfate 0.083% 3 mL unit dose vial – 3 doses
- Baby Aspirin (chewable) tablets –1 bottle
- Dextrose-minimum 25 grams (D10W 250mL S/W)
- Diphenhydramine 50 mg for IV or IM
- Diphenhydramine PO 25 mg – 2 doses (optional)
- Diphenhydramine PO Liquid 12.5mg/5mL Cups – 2 cups (optional)
- Epinephrine Anaphylaxis Kit – 1
    - Each Kit contains:
        - Epinephrine 1mg/1mL ampule
        - 0.3 ml safety syringe with needles appropriate for Adult IM and pediatric IM injections (see TC Procedure: *Intra-Muscular Injections*).
        - Disinfectant prep pads
        - Band-Aids
        - 4x4s (sterile package)
- EPI Auto Injector Adult & PEDI - 1 OR **(in lieu of EPI Auto Injectors)**
- Glucagon 1mg – 1 (optional)
- Ibuprofen PO –1 COG dose (optional)
- Ipratropium Bromide 0.02% 2.5 mL unit dose vial – 1 dose
- Lidocaine 100 mg
- Naloxone minimum of 4 mg for IV/IM/IN
- Neo-Synephrine (phenylephrine) nasal spray – (optional)
- Nitroglycerin SL tablets or SL Spray – 1 bottle
- Oral glucose or Level Glucose minimum of 15 grams
- Zofran SL/PO – 4mg PO (optional)
- Zofran IV – 4mg IV (optional)

Nebulizer Kit:

- T piece adapter – 1
- Nebulization chamber – 1
- Mouthpiece – 1
- Face mask assembly (Adult and Pedi)– 1ea
- Oxygen supply tubing – 1

- Flex tubing – 1
- Saline for Nebulization: 3 mL unit dose vial – 2ea

Advanced Airway and Ventilation Equipment

- I-gel Airways sizes:
  - 1.0 -1
  - 1.5 -1
  - 2.0 -1
  - 2.5 -1
  - 3.0 -1
  - 4.0 -1
  - 5.0 -1
- Laryngoscope handle (C battery size) – 1
- Extra bulb – 1 (if used for light source)
- Extra C cell sized batteries – 2
- Laryngoscope blades
  - Miller sizes 0, 1, 2, 3, and 4 – 1 each
  - Macintosh sizes 1, 2, 3 and 4 – 1 each
- Magill forceps Large and Small – 1each

Pulse Oximeter (required with BIAD Airway)

- With probes adult and pediatric – 1 each

Capnography

- Adult – 1 (optional, but preferred; Required of ALS/Paramedic agency)

Continuous Positive Airway Pressure Ventilation (CPAP) 1 Kit (incl. adult mask sizes large & small and Child mask)

Vascular Access Equipment

- 10-drop (macro) infusion IV set – 1
- 60-drop (micro) infusion IV set (Burette acceptable) OR 20ml syringe w/3-way stopcock for D10W administration (IV extension is recommended for the 3-way stopcock but not required).
- IV tourniquet (latex free) – 2
- IV loop – 1
- 0.9% Normal Saline solution OR Lactated Ringers OR Plasma-Lyte (referred to as 'crystalloids in the guidelines), various volumes for a total of 1500ml - 1
- System approved intravenous catheters (self-sheathing, needle-less system)
  - 18 gauge – 2
  - 20 gauge – 2
  - 22 gauge-- 1
  - 24 gauge –1
- Saline lock hubs – 2
- Disinfectant/Alcohol prep pads – 5
- Small sharps safety container – 1
- 0.9% sodium chloride vial or prefilled syringe (5 or 10 mL) – 2

- Tegaderm/Venigard – 2
- Pressure infusion bag – 1
- 3 ml safety syringe with /without needle – 2

Mucosal Atomization Device- 1
Sterile Needles:

- Assorted sizes (18, 25/27 gauge) – 2 each

IO Driver and associated Adult/Pedi and Bariatric size Needles and Supplies -1 set.

Optional Equipment /Medications

- Emesis bags/containers - 2
- Commercial made BIAD tube holder (1 Adult)

Needle Decompression kit (commercial kits are an option if trained to use it)

- **10-14 gauge, 3" or longer angio-cath – 2**
- **Disinfectant**

ALS/Paramedic Agency additional equipment/Rx

- Full complement of cuffed ETT's sizes 4.0-8.0 (4, 4.5, 5, etc)
- Adult and Pedi bougie
- 10ml syringe
- ETT securing device.
- Cricothyrotomy kit (commercial kits are an option if trained to use it)
    - #10 safety scalpel (surgical airway)
    - 4x4 gauze -4
    - Chlorohexidine prep
    - Bougie
    - Hemo-Stat **OR** trach hook
    - 6.0 ETT with cuff & 10ml syringe
- Needle Cricothyrotomy Kit (commercial kits are an option if trained to use it)
    - 14-gauge angio-cath
    - 10ml syringe
    - Chlorohexidine prep x2
    - 3.0 ETT adaptor
- 250ml NS – 1
- 60-drop (micro) infusion IV set – 1
- In-line and Sidestream ETCO2 Nasal Cannula's
- ALS Additional Medications:
    - Adenosine 6mg – 3
    - Amiodarone 150mg – 3
    - Atropine 1mg – 2
    - Calcium Chloride **OR** Gluconate 1gm – 1

- Epinephrine (1:10000) 1mg – 3
- Hydroxocobalamin (CYNO-KIT) – optional
- Ketorolac – optional
- Magnesium Sulfate 2gms
- Norephinephrine 4mg– 1
- Ofirmev - optional
- Sodium Bicarbonate 50mEq – 2
- Solu-medrol (methylprednisolone) 125mg – 1
- TXA 1gm -2

Effective Date: 10.01.2024

Medical Director Signature:

Travis County Fire Rescue ESD#11 Ambulance MEL BLS-AEMT	LIC# 1000988
Approved by: Dr. Taylor Ratcliff	**Date:** October 2024
Signature: 	**Minimum Ambulance stock including Medical Bags**
OB kit	**2**
Trauma Dressing	**3**
15' Splint Board	**1**
Sam Splint	**3**
Pelvic Binder Sm	**2**
Pelvic Binder Lg	**2**
Trauma Tourniquet (CAT)	**4**
IO Device Infant	**2**
IO Device Pedi	**2**
IO Device Adult	**2**
IO Start Kit	**2**
Burette Set 150ml 60Gtt	**2**
Pressure Infuser	**2**
1000ml Sodium Chloride	**4**
D10 250ml	**2**
Extension Set(saline Lock Hubs)	**2**
10 Drop/Luer Lock extension set	**2**
Venigard	**4**
Eye Pro	**5**
Protective Facemask/Shield	**4**
Saline Syringe Flush 10ml	**4**
IV Tourniquet	**6**
18G IV Cath	**4**

Travis County Fire Rescue ESD#11 Ambulance MEL BLS-AEMT	LIC# 1000988
20G IV Cath	4
22G IV Cath	3
24G IV Cath	3
18G Needle	4
25/27G Needle	4
Twin Pack	4
3ml Vanish Point	4
1ml Insulin Syringe(EPI)	4
3ml Blunt Syringe	4
Epi Vial	2
Albuterol 3ML	6
Ipratropium Bromide 2.5ML	3
Pedi Tape	2
Acetaminophen PO Oral Syringe (Optional)	2
Children's Oral Diphenhydramine (Optional)	2
3ml Sodium Chloride	2
Oral Glucose 15Grams	2
Asprin chewable Tablet 81mg Bottle	2
Diphenhydramine Tablets (Optional)	4
Acetaminophen/Non-Asprin (Optional)	4
Ibuprofen (Optional)	4
Diphenhydramine Vial	2
Ondansetron Vial	2
Glucagon 1mg (Optional)	2
Ondansetron Tablet (Optional)	2
Nitroglycerin PO	2
Naloxone 4mg Minimum w/ Nasal Atomizer	2

Travis County Fire Rescue ESD#11 Ambulance MEL BLS-AEMT	LIC# 1000988
Lidocaine 100mg	2
Nasal Cannula	4
Non-Rebreather Infant	3
Non-Rebreather Pedi	3
Non-Rebreather Adult	4
Capno Canula	3
CPAP Kit	3
Blue CPAP Mask	2
Red CPAP Mask	2
Green CPAP Mask	2
Infant BVM	2
Pedi BVM	2
Adult BVM	3
1 Igel	2
1.5 Igel	2
2 Igel	2
2.5 Igel	2
3 Igel	2
4 Igel	2
5 Igel	2
Tube Tamer Pedi	2
Tube Tamer Adult	2
OPA 5.5	2
OPA 6	2
OPA 7	2
OPA 8	2
OPA 10	2
OPA 11	2

Travis County Fire Rescue ESD#11 Ambulance MEL BLS-AEMT	LIC# 1000988
OPA 12	2
NPA 28	2
NPA 30	2
NPA 32	2
Lubricating Jelly	8
In-line Entitle CO2	2
Mac 1	2
Mac 2	2
Mac 3	2
Mac 4	2
Miller 0	2
Miller 1	2
Miller 2	2
Miller 3	2
Miller 4	2
Laryngoscope Handle	2
Extra C Batteries	2
Adult Forceps	2
Pedi Forceps	2
Suction set with appropriate tubing	2
Flexible Suction Catheter 6fr	2
Flexible Suction Catheter 10fr	2
Flexible Suction Catheter 16fr	2
Salem Sump 10fr	2
Salem Sump 16fr	2
Pillows	2
Stretcher Sheets	5
Mega Mover	1

Travis County Fire Rescue ESD#11 Ambulance MEL BLS-AEMT	LIC# 1000988
Blankets	2
Child Restraints for safe cot transport	1
Biohazard Bags	2
Zoll monitor, SpO2 Adult/Pedi , Capo	1
Infant AED Pads	2
Adult AED Pads	3
Printer Paper	2
Suction Battery spare	1
Suction Canister spare	1
Stretcher Battery spare	1
Stretcher Charger in unit	1
12-Lead Electrodes	2
Head Blocks	2
Pedi C-Collar	2
Adult C-Collar	2
Medical Gloves appropriate size for crew box with Minimum 5 pairs	1
Soft Restraints pair	1
Infant BP Cuff	2
Pedi BP Cuff	2
Adult BP Cuff	2
Extra Large BP Cuff	2
Stethoscope	3
Cold Packs	12
Hot Packs	10
Bandaids	15
4x4	20
Alcohol Swab	20
Petroleum Gauze	4

Travis County Fire Rescue ESD#11 Ambulance MEL BLS-AEMT	LIC# 1000988
Ace Wrap	4
Triangle Bandage	6
Coban	6
Roller Gauze	4
500ml Sterile Water (May substitute IV Fluid)	2
Regional CATRAC Triage Tags 25	25
Pedi Tape	2
Razor	2
Oral Thermometer	3
Rectal Thermometer	3
Thermometer covers	4
Sharps Shuttle	3
Pen Light	3
n95	8
Surgical face ask for PT use	8
BGL Kit w/ 5 strips, 5 Lancets, test solution, prep pads, 5 band-aid	2
BGL Calibration strips with solution kit	1
Lancets Extra	10
Trauma Sheers	3
Stethoscope	3
Emesis Bag	4
Apparatus Suction Mounted Canister Set	1
Apparatus Mounted Sharps Container	1
Cleaning Wipes	1
O2 Regulator	2
O2 Bottle portable	3
Apparatus Oxygen Tank 500 minimum	1

Travis County Fire Rescue ESD#11 Ambulance MEL BLS-AEMT	LIC# 1000988
Back Board IA	**1**
36’ Splint	**1**

Field Guide for COGs

Medication Formulary

Adult Medications (≥37 kg)

For each medication administration:

1. Verify that the CONCENTRATION listed here is the current drug concentration you are about to administer.
2. Estimate weight (weight in kg = weight in pounds / 2.2). Determine dose volume for the approximate weight.
3. If all Medication Cross-Check verifications are correct and another System provider agrees, administer the appropriate drug volume per the attached formulary.
4. In the Adult dosing chart, a **!** indicates a maximum or minimum dosage or volume that may not correlate to weight.
5. May include minimal “rounding” of doses and/or volumes for weight ranges and drug safety.
6. Volume in ml to Administer by Approx. Weight at any given concentration.
7. Food and Drug Administration Pregnancy Medication Category System
    - Category A: Controlled studies show no risk. Adequate, well-controlled studies on pregnant women have failed to demonstrate a risk to the fetus.
    - Category B: No evidence of risk in humans. Either animal study shows risk, but human findings do not, or if no adequate human studies have been performed, animal findings are negative for risk.
    - Category C: Risk cannot be ruled out. Human studies are lacking, and animal studies are either positive for fetal risk or lacking. However, potential benefits may justify the potential risk.
    - Category D: Positive evidence of risk. Investigational or post-marketing data show risk to the fetus. Nevertheless, the potential benefits may outweigh the potential risk.
    - Category X: Contraindicated in pregnancy. Studies in animals or humans, or investigational or post-marketing reports, have shown fetal risk, which outweighs any possible benefit to the patient.

Pediatric Medications (< 37kg)

For each medication administration

1. Verify dose for appropriate age or weight per each guideline and verify that the CONCENTRATION listed here is the same drug concentration you are about to administer.
2. Use the PEDIATAPE or similar product to estimate the weight and the Color-Coded Drug List to verify the correct volume for the weight range.
3. If all Medication Cross-Check verifications are correct and another System provider agrees, administer the appropriate drug volume per the attached formulary.
4. Select the next higher length color zone for obese children.
5. May include minimal “rounding” of doses and/or volumes for weight ranges and drug safety.
6. Volume in ml to Administer by Approx. Weight at Given Concentration.
7. The maximum dose is usually the typical adult dose.

Lbs to Kg Conversion Chart

Weight in lb	Weight in kg
6.5 lbs	3
11 lbs	5
15 lbs	7
20 lbs	9
24 lbs	11
29 lbs	13
33 lbs	15
37 lbs	17
42 lbs	19
46 lbs	21
51 lbs	23
55 lbs	25
59 lbs	27
64 lbs	29
66 lbs	30
73 lbs	33
77 lbs	35
81 lbs	37

Weight in lb	Weight in kg
88 lbs	40
99 lbs	45
110 lbs	50
12 lbs	55
132 lbs	60
143 lbs	65
154 lbs	70
165 lbs	75
176 lbs	80
187 lbs	85
198 lbs	90
209 lbs	95
220 lbs	100
231 lbs	105
242 lbs	110
253 lbs	115
264 lbs	120
275 lbs	125

Drug Formulary Table of Contents

Acetaminophen (APAP) (Tylenol)

Indications	Fever with/without seizures or pain
Contraindications	Allergy, Hypersensitivity, Use caution with liver disease
Precautions	Pregnancy Category B. Use with caution with known thrombocytopenia or Liver Disease
Adverse/Side Effects	N/V, abdominal pain
Class	Analgesic, Antipyretic
Mechanism of Action	Equivalent to aspirin in both analgesic and antipyretic effects. Unlike aspirin, acetaminophen has little effect on platelet function, no effect on homeostasis, and is not known to produce gastric bleeding. Acetaminophen is not an NSAID, as it has no anti-inflammatory properties. Absorption is rapid, peak 1-2 h, duration 3-4 h, ½ life 1-2 h. APAP is processed in the liver.

Adult Dose

Pain Management/Fever/Infection Control Reaction

Up to 1 gram po max.

- <70kg (154lbs) 500mg
- ≥70kg (154lbs) 1 gram

Pediatric Dose

Pain Management/Fever/Infection Control Reaction

- 15mg/kg (max 1gm)

May be liquid or tablets

Pediatric Tylenol Dosing

Step 1
Calculate Dose

Dose 15mg/kg
Max Dose 500mg
Liquid Concentration = 32mg/mL
Meltaway tablets = 80mg each

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
mg dose	45	75	105	135	165	195	225	255
mL dose	1.4mL	2 mL	3mL	4mL	5mL 2 tablets	6mL 2 tablets	7mL 3 tablets	8mL 3 tablets

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
mg dose	285	315	345	375	405	450	495	500	500
mL dose	9mL 3 tablets	10mL 4 tablets	11mL 4 tablets	12mL 5 tablets	12mL 5 tablets	14mL 5 tablets	15mL 6 tablets	15mL 6 tablets	15mL 6 tablets

Adenosine

Indications	Narrow Complex Tachycardia, including WPW and SVT refractory to vagal maneuvers
Contraindications	Known Sick Sinus Syndrome, Known History of Long QT Syndrome, Pregnancy Category C, Irregular Wide-Complex Tachycardia
Precautions	Advising the patient of the side effects of adenosine before administering can help minimize patient anxiety. Large bore IV, antecubital access or IO access IV wide open during the administration It may help to have your partner administer the fluid bolus Start your EKG printout before administration, and continue printing through bolus and conversion Administration of adenosine will cause a period of asystole & various conversion dysrhythmias, be patient; most will transiently resolve. Generally safe to use in pregnancy and is the drug of choice for acute termination of maternal supraventricular tachycardia.
Adverse/Side Effects	Flushing, dizziness, chest pain, lightheadedness, dyspnea, numbness, headache, nausea/vomiting, diaphoresis, palpitations, metallic taste
Interactions	Additive Effects-Digoxin, calcium channel blockers Antagonistic Effects-Methylxanthines (caffeine, theophylline) Potentiating Effects-Dipyridamole (Persantine), Carbamazepine (Tegretol)
Class	Supraventricular Antiarrhythmic, Nucleoside
Mechanism of Action	Slows tachycardias associated with the AV node via modulation of the autonomic nervous system without causing negative inotropic effects. It acts directly on sinus pacemaker cells and vagal nerve terminals to decrease chronotropic & dromotropic activity. Slows conduction through the AV node, blocks reentry pathways through the AV node, and can transiently slow conduction in the SA node. Immediate onset and peak, half-life 10s.
Adult Dosing	**Narrow Complex Tachycardia** • Administer 4 mL (12 mg) IV/IO Rapid Push with a 10 ml Flush; may repeat x 1
Pedi Dosing	**Narrow Complex Tachycardia** • 0.2 mg/kg IV/IO (max 6 mg); may repeat x 1

Pediatric Adenosine Dosing

Step 1
Calculate Dose

Dose 0.2mg/kg May repeat x 1
Max Dose 6 mg
Concentration 3mg/1mL

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
mg dose	0.6mg	1mg	1.4mg	1.8mg	2.2mg	2.6mg	3mg	3.4mg
mL dose	0.2mL	0.3mL	0.5mL	0.6mL	0.7mL	0.9mL	1mL	1.1mL

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
mg dose	3.8mg	4.2mg	4.6mg	5mg	5.4mg	6mg	6mg	6mg	6mg
mL dose	1.3mL	1.4mL	1.5mL	1.7mL	1.8mL	2mL	2mL	2mL	2mL

Albuterol

Indications	Bronchospasm (may or may not hear wheezing)
Contraindications	None in the emergency setting
Precautions/Side Effects	Palpitations, Tachycardia, Anxiety, Nervousness, Dizziness, HA, Tremor, N/V, Less frequent HTN, Dysrhythmias, Chest Pain
Interactions	Antagonistic Effect-Beta Blockers Additive Effects, MAOI's, TCA's, other sympathomimetic drugs
Class	Beta2 Agonist, Sympathomimetic
Mechanism of Action	Acts Selectively on Beta2 receptor sites in the lungs, relaxing bronchial smooth muscle, decreasing airway resistance, & relieving bronchospasm. Although Albuterol is beta selective, it will cause some CNS stimulation, cardiac stimulation, increased diuresis, & gastric acid secretion. Onset 5-15 minutes, peak 1-1.5h, duration 3-6h, half-life 3h.
Adult & Pediatric Dosing	**Respiratory Distress, Drowning, Allergic Reaction** • Administer 3ml (2.5 mg) each dose, max of 7.5mg total, may be continuous as needed

Amiodarone

Indications	Ventricular Arrhythmias or Wide Complex Tachycardia with or without a pulse
Contraindications	Bradycardia, second/third-degree block; None in Cardiac Arrest
Adverse effects	Vasodilation (usually not associated with decreased cardiac output secondary to the negative inotropic effects), hypotension, bradycardia, AV block, increased QT interval, V-Tach
Class	Antiarrhythmic, Primarily Class II but has properties of all of the Vaughan Williams classifications
Mechanism of Action	Prolongs the duration of all cardiac fibers' action potential and refractory period. Depresses the Phase 0 slope by causing a sodium blockade. Causes a Beta block as well as a weak calcium channel blockade. A Potassium-channel blocker (Class III antiarrhythmic) primarily blocks the potassium channels responsible for phase 3 repolarization. Blocking these channels slows (delays) repolarization, which leads to an increase in action potential duration and an increase in the effective refractory period. (ERP). Relaxes vascular smooth muscle, decreases peripheral vascular resistance, and increases coronary contractility. The drug has a rapid onset; serum concentrations drop to 10% w/in 30-45 min
Adult Dosing	**Pulseless VF/VT *(IV Push)*** • 1st Dose: Administer 6 mL (300 mg) IV/IO Push; may consider 2nd Dose after 4 minutes • 2nd Dose: Administer 3 mL (150 mg) IV/IO Push **Wide Complex Tach w/ Pulse (Infusion)** • Administer 3 mL (150 mg) IV/IO over 10 min; may repeat x 2, q10 minutes. • MAXIMUM DOSE is 450 mg of Amiodarone per Adult Patient
Pedi (<37kg) Dosing	**Pulseless VF/VT *(IV Push)*** • 5 mg/kg IV/IO push (max dose: 300 mg) • Second dose 5mg/kg IV/IO (max dose: 150 mg) **Wide Complex Tach w/Pulse (Infusion)** • 5mg/kg IV/IO over 20 min (max dose: 150 mg), no repeat dosing.

Adult Amiodarone Infusion Dosing

Mix 50mg (1mL) in 50mL of NS or 150mg (3mL) in 150mL of NS

Use a 10-drop set and an inline medication filter is preferred.

Note: Most dial-a-flows will run up to 300 drops per minute when combined with a 60 drop set.

Step 1: Calculate Dose	**Dose: Wide Complex Tachycardia: 150mg over 10 minutes may repeat 2 times q10 minutes** **Max Total Dose : 450mg** 50mg (1mL) in 50mL or 150mg (3mL) in 150mL = 1mg/mL
	Adult Dose
mg dose	**150mg**
drops per minute	**900gtt/min w/60 gtt set** **or** **150 gtt/min w/10 gtt set**

Pediatric Amiodarone Cardiac Arrest Dosing

Step 1
Calculate Dose

Dose: Cardiac Arrest: 5mg/kg
Max Dose 150 mg
Concentration 50mg/1mL

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
mg dose	15mg	25mg	35mg	45mg	55mg	65mg	75mg	85mg
mL dose	0.3mL	0.5mL	0.7mL	0.9mL	1.1mL	1.3mL	1.5mL	1.7mL

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
mg dose	95mg	105mg	115mg	125mg	135mg	150mg	150mg	150mg	150mg
mL dose	1.9mL	2.1mL	2.3mL	2.5mL	2.7mL	3mL	3mL	3mL	3mL

Pediatric Amiodarone Infusion Dosing

Mix mg/kg dose in 50mL of NS and run at 150gtt/min

Use a **60** drop set and an inline medication filter if available.

Note: Most dial-a-flows will run up to 300 drops per minute combined with a 60 drop set.

Step 1
Calculate Dose

Dose: Wide Complex Tachycardia: 5mg/kg over 20minutes
Max Dose 150 mg
50mg (1mL) in 50mL = 1 mg/1mL

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
mg dose	15mg	25mg	35mg	45mg	55mg	65mg	75mg	85mg
mL dose	0.3mL	0.5mL	0.7mL	0.9mL	1.1mL	1.3mL	1.5mL	1.7mL

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
mg dose	95mg	105mg	115mg	125mg	135mg	150mg	150mg	150mg	150mg
mL dose	1.9mL	2.1mL	2.3mL	2.5mL	2.7mL	3mL	3mL	3mL	3mL

Aspirin

Indications	Cardiac related Chest pain, Acute ACS, STEMI
Contraindications	Allergy, ulcer, GI bleeding, Under 19 years of age
Precautions	Other blood thinners Patients with known ASA or NSAID-sensitive asthma Pregnancy Category D
Adverse/Side Effects	N/V, diarrhea, heartburn, GI bleeding
Class	Analgesic, Antipyretic, NSAID, platelet inhibitor
Mechanism of Action	Inhibits prostaglandins' formation associated with pain, fever, and inflammation. Inhibits platelet aggregation by acetylating cyclooxygenase, permanently disabling it so it cannot synthesize prostaglandins and Thromboxanes. Since Thromboxane A2 is important in clotting, its absence does not allow blood to clot effectively. Onset 5-30m, Peak in 15 min to 2 hr, duration 1-4h.
Adult Dosing	**Chest pain, Suspected Acute Coronary Syndrome, Pulmonary Edema w/Chest pain,** • Administer 4 each @ 81 mg per tablet (324 mg) PO
Pedi Dosing	No pediatric dosing

Atropine Sulfate

Indications	Symptomatic Bradycardia (if TCP is not immediately available) Organophosphate poisoning
Contraindications	A-fib and A-flutter may be useful in blocks caused by Digoxin; 2nd-degree type II and 3rd-degree HB atropine is ineffective.
Precautions	Slow administration of atropine can cause paradoxical bradycardia Use caution in the presence of a suspected MI
Adverse/Side Effects	Pupil dilation, tachycardia, V-tach, V-fib, HA, dry mouth
Class	Parasympatholytic
Mechanism of Action	Competitive antagonist that selectively blocks all muscarinic responses to acetylcholine. Blocks vagal impulses, thereby increasing SA node discharge, enhancing AV conduction and cardiac output. Potent anti-secretory effects caused by the blocking of acetylcholine at the muscarinic site. Atropine is also useful in treating the symptoms associated with nerve agent poisoning. Rapid onset, peak in 2-4 m IV, half-life 2-3 h
Adult Dosing	**Bradycardia** • Administer 0.5-1 mg (0.5-1 mL of 1mg/10mL or 1.3 – 2.5mL of 0.4 mg/mL)IV/IO every 3 minutes (max of 0.04 mg/kg) **Organophosphate Poisoning** • 2-6 mg IM/IV/IO, repeat q5 minutes PRN
Pedi Dosing	**Bradycardia** • Administer 0.02 mg/kg IV/IO (Minimum 0.1mg/Max 0.75mg) May repeat x1 every 5 minutes **Organophosphate Poisoning** • Administer 0.05 mg/kg IV/IM/IO, repeat q 5 minutes PRN (Minimum 0.1mg/Max 1.85mg single dose)

Adult Atropine Dosing

Organophosphate Poisoning Dosing 2-6mg IM/IV/IO, Repeat q 5minutes PRN

Bradycardia Dosing 0.5-1 mg q 3 minutes **max of 0.04mg/kg**

Dose in mg	0.5mg	1mg	2mg	3mg	4mg	5mg	6mg
Concentration 1mg/10mL	5mL	10mL					
Concentration 0.4mg/mL	1.3mL	2.5mL	5mL	7.5mL	10mL	12.5mL	15mL

Pediatric Bradycardia Atropine Dosing

Step 1
Calculate Dose

Dose: Bradycardia: 0.02mg/kg IM/IV/IO Repeat x1 q 5minutes
Minimum Dose: 0.1mg
Max Dose : 0.75mg
Concentration: 1mg/10mL = 0.1mg/mL

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
mg dose	0.1mg	0.1mg	0.14mg	0.18mg	0.22	0.26mg	0.3mg	0.34mg
mL dose with 0.1mg/mL	1mL	1mL	1.4mL	1.8mL	2.2mL	2.6mL	3mL	3.4mL

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
mg dose	0.38mg	0.42mg	0.46mg	0.5mg	0.54mg	0.6mg	0.66mg	0.7mg	0.75
mL dose with 0.1mg/mL	3.8mL	4.2mL	4.6mL	5mL	5.4mL	6mL	6.6mL	7mL	7.5mL

Pediatric Organophosphate Poisoning Atropine Dosing

Step 1
Calculate Dose

Dose: Organophosphate Poisoning 0.05mg/kg IV/IO Repeat PRN q 5 minutes
Minimum Dose: 0.1mg Max Dose : 1.85mg
Concentration: 1mg/10mL = 0.1mg/mL
Or 8mg/20mL = 0.4mg/mL

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
mg dose	0.15mg	0.25mg	0.35mg	0.45mg	0.55mg	0.65mg	0.75mg	0.85mg
mL dose with 0.1mg/mL	1.5mL	2.5mL	3.5mL	4.5mL	5.5mL	6.5mL	7.5mL	8.5mL
mL dose with 0.4mg/mL	0.4mL	0.6mL	0.9mL	1.1mL	1.4mL	1.6mL	1.9mL	2.1mL

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
mg dose	0.95mg	1.05mg	1.15mg	1.25mg	1.35mg	1.45mg	1.55mg	1.65mg	1.75mg
mL dose with 0.1mg/mL	9.5mL	10.5mL	11.5mL	12.5mL	13.5mL	14.5mL	15.5mL	16.5mL	17.5mL
mL dose with 0.4mg/mL	2.4mL	2.6mL	2.9mL	3.1mL	3.4mL	3.6mL	3.9mL	4.1mL	4.4mL

Calcium Chloride

Indications	Calcium channel blocker toxicity/overdose, acute hyperkalemia, acute hypocalcemia, acute hypermagnesemia, hydrofluoric acid burn
Contraindications	None in the emergency setting
Adverse effects	Arrhythmias including bradycardia or cardiac arrest, Syncope, N/V, Hypotension, and Necrosis with extravasation. Calcium chloride will precipitate when used with sodium bicarbonate, toxicity with digitalis, and may antagonize the effects of calcium channel blockers.
Class	Inotropic Agent(electrolyte)
Mechanism of Action	Replaces elemental calcium, essential for regulating the excitation threshold of nerves and muscles. Calcium is also essential for blood clotting mechanisms, maintenance of renal function, and bone tissues. Calcium increases myocardial contractile force and ventricular automaticity. Additionally, serves as an antidote for magnesium sulfate and calcium channel blocker toxicity. Onset and peak are immediate.
Adult Dosing	***Pulseless* VF/VT Cardiac Arrest, Asystole/PEA Cardiac Arrest w/ Presumed Hyperkalemia or Calcium Channel Blocker OD** • Administer 1gm IV/IO push ***Pulse Present* Bradycardia - suspected Calcium Channel Blocker OD** • Administer 1gm over 10 minutes ○ Mix 1gm (10mL) in 50ml of NS or other IC, using a 10gtt set = 60 gtt/min
Pedi Dosing	***Pulse or Pulseless* Calcium Channel Blocker OD, Cardiac Arrest with presumed Hyperkalemia or Calcium Channel Blocker OD** • Calcium Chloride 20mg/kg slow IVP/IO, max 1 gm • Calcum Gluconate 60mg/kg slow IVP/IO, max 1 gm

Pediatric Calcium Chloride Dosing

Step 1
Calculate Dose

Dose: Calcium Channel OD
Calcium Chloride 20mg/kg Slow IVP/IO
Calcium Gluconate 60mg/kg Slow IVP/IO
Max Dose 1gm
Concentration 1gm/10mL

Calcium Chloride Dosing 20mg/kg

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
Calcium Chloride mg dose	60mg	100mg	140mg	180mg	220mg	260mg	300mg	340mg
Calcium Chloride mL dose	0.6mL	1mL	1.4mL	1.8mL	2.2mL	2.6mL	3mL	3.4mL

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
Calcium Chloride mg dose	380mg	420mg	460mg	500mg	540mg	600mg	660mg	700mg	740mg
Calcium Chloride mL dose	3.8mL	4.2mL	4.6mL	5mL	5.4mL	6mL	6.6mL	7mL	7.4mL

Pediatric Calcium Gluconate Dosing

Calcium Gluconate Dosing 60mg/kg

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
Calcium Gluconate mg dose	180mg	300mg	420mg	540mg	660mg	780mg	900mg	1gm
Calcium Gluconate mL dose	1.8mL	3mL	4.2mL	5.4mL	6.6mL	7.8mL	9mL	10mL

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
Calcium Gluconate mg dose	1gm	1gm	1gm	1gm	1gm	1gm	1gm	1gm	1gm
Calcium Gluconate mL dose	10mL	10mL	10mL	10mL	10mL	10mL	10mL	10mL	10mL

Dextrose (D10W)

Indications	Symptomatic Hypoglycemia, cardiac arrest (Newly Born with heart rate <60), or altered mentation with glucose level <50
Contraindications	None with symptomatic hypoglycemia. Use with caution in patients with suspected increased ICP
Precautions/Side Effects	Patients may complain of warmth, pain, or burning at the injection site. Extravasation causes necrosis. Infusing through larger vessels decreases the risk of necrosis.
Class	Carbohydrate
Mechanism of Action	Principal form of glucose used by the body. Dextrose (aka glucose) is one of the basic building blocks of all sugars. Glucose is a monomer and is therefore readily processed in the blood. Through glycolysis, glucose is turned into pyruvate, producing a small amount of chemical energy (ATP). Pyruvate is further processed through the Citric Acid Clyde (Kreb's Cycle), yielding more energy (GTP, FADH2, and NADH) and CO2.
Adult Dosing	**Altered Mental Status, Bradycardia** • D10W Premixed 250 ml bag, titrate to effect
Pedi Dosing	**Altered Mental Status, Bradycardia** • 5 mL/kg (0.5 g/kg max dose 25 g)IV/IO premixed bag and titrate to effect. ○ Use Volume Control Device (IV Burette) or 20mL syringe w/3-way stopcock **Newly Born** • 1-2 mL/kg IV/IO

Pediatric Dextrose Infusion

Use a volume control device such as a 30cc syringe with a three-way stopcock or IV Burette set.

Step 1 **Calculate Dose**	Dose: 0.5g/kg Max Dose 25gm 10% Dextrose in 250mL = 1gm/10mL

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
gm dose	1.5gm	2.5gm	3.5gm	4.5gm	5.5gm	6.5gm	7.5gm	8.5gm
Total ML	15mL	25mL	35mL	45mL	55mL	65mL	75mL	85mL

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
mg dose	9.5gm	10.5g	11.5gm	12.5gm	13.5gm	14.5gm	15.5gm	16.5gm	17.5gm
Total ML	95ml	105mL	115mL	125mL	135mL	145mL	155mL	165mL	175mL

Diphenhydramine

Indications	Allergic reaction, anaphylaxis, adult dystonic reaction or abdominal pain, nausea/vomiting
Contraindications	Known allergy
Precautions	Antihistamine Toxicity: • Remember: "red as a beet, dry as a bone, hot as a hare, blind as a bat, mad as a hatter, and full as a flask." • Brugada-like ECG patterns are seen with anticholinergic toxicity • Elimination mechanism concerns • Potent anticholinergic agent • Pregnancy Category B
Adverse/Side Effects	Mydriasis, photophobia, ataxia, tachycardia, dizziness, drowsiness
Class	Antihistamine, ethanolamine, anticholinergic
Mechanism of Action	Diphenhydramine blocks the effects of Histamine (H1 histamine) on the H1 receptor site through a competitive competition for the peripheral H1 site. When diphenhydramine is bound, the H1 site cannot be stimulated, preventing histamines' effects (swelling, hives, itching, etc.). As an antihistamine, diphenhydramine is one of the most effective antihistamines. The onset of 15m IV, peak 1-4h, ½ life 2-10h.
Adult Dosing	**Behavioral (Dystonic Reaction), Overdose (Dystonic Reaction)** • Administer 50mg PO/IV/IO/Deep IM **Allergic Reaction (Hives/Rash only, no Respiratory Distress)** • Administer 25mg PO **Allergic Reaction (Mild to Moderate Respiratory Distress or Severe Respiratory Distress and/or Hypotension)** • 25-50 mg PO • 50mg IV/IO/Deep IM **Nausea/Vomiting** • 25mg IV/IO/Deep IM/PO

Pedi Dosing (<37kg)

<5kg DO NOT ADMINISTER

Behavioral (Dystonic Reaction), Overdose (Dystonic Reaction) or Allergic Reaction (Mild, Moderate, or Severe), Nausea/Vomiting

- 1mg/kg IV/IO/Deep IM/PO; Max 25mg

Pediatric Diphenhydramine (Benedryl) Injectible Dosing

Step 1
Calculate Dose

Dose: 1mg/kg IV,IO, IM, PO
Max Dose 25mg
Do not Administer <5kg
Concentration: 50mg/mL – Injectable
12.5mg/5mL = 2.5mg/mL – PO solution

50mg/mL Injectable

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
mg dose	No dose	5mg	7mg	9mg	11mg	13mg	15mg	17mg
Total injectable ML	No dose	0.1mL	0.1mL	0.2mL	0.2mL	0.3mL	0.3mL	0.3mL

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
mg dose	19mg	21mg	23mg	25mg	25mg	25mg	25mg	25mg	25mg
Total injectable ML	0.4mL	0.4mL	0.5mL	1mL	1mL	1mL	1mL	1mL	1mL

Pediatric Diphenhydramine (Benedryl) PO Dosing

PO Solution 12.5mg/5mL = 2.5mg/mL									
Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg	
mg dose	3mg	5mg	7mg	9mg	11mg	13mg	15mg	17mg	
Total Oral Solution ML	1mL	2mL	2.5mL	3.5mL	4.5mL	5mL	6mL	6.5mL	
Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
mg dose	19mg	21mg	23mg	25mg	25mg	25mg	25mg	25mg	25mg
Total Oral Solution ML Or Tablet	7.5mL	8.5mL	9mL	10mL Or 25mg capsule	10mL Or 25mg capsule	10mL Or 25mg capsule	10mL Or 25mg capsule	10mL Or 25mg capsule	10mL Or 25mg capsule

Epinephrine

Indications	Cardiac Arrest, bradycardia, allergic reaction/anaphylaxis, hypotension, respiratory distress, overdose (betablocker), newlyborn arrest
Contraindications	None in the emergency setting
Precautions	Tachydysrhythmias, coronary artery disease
Adverse/Side Effects	Palpitations, anxiety, tremulousness, headache, dizziness, nausea, vomiting, increased myocardial oxygen demand
Class	Sympathetic Agonist. Epinephrine is a naturally occurring catecholamine. It is a potent alpha- and beta-adrenergic stimulant with more profound beta effects.
Mechanism of Action	Epinephrine works directly on alpha- and beta-adrenergic receptors with effects of increased heart rate, cardiac contractile force, increased electrical activity in the myocardium, increased systemic vascular resistance, increased blood pressure, and increased automaticity. It also causes bronchodilation. Onset <2min IV, 5-10 IM, Peak IV 5 min, Peak 20 min IM, Duration 5-10 min IV, 20-30 min IM
Adult Dosing	**Cardiac Arrest (Asystole/PEA, V-fib/V-tach,** • 1mg (10mL) IV/IO (concentration 1mg/10mL); q 8 min **Anaphylaxis (EMT/AEMT)** • Adult Epi Pen (0.3mg) IM • 0.3mg = 0.3mL (1mg/1mL concentration) IM **Anaphylaxis (Paramedic)** • 0.3 mL (1mg/1mL concentration) IM; q 5-10 min; max total of 1.2 mg **Hypotension (Push Dose)** • 5 – 20 mcg IV/IO q 1-5 min to SBP > 90mmHg or MAP >65 ○ Take 10mL syringe with 9mL of NS, Add 1mL **(0.1mg)** of Epinephrine **1mg/10mL (1:10,000)** concentration**.** Concentration: 10mcg/mL **Overdose (Beta-Blocker)** • 2 – 20 mcg/min infusion

Respiratory Distress

- 0.3mg (1mg/mL concentration) IM (contact Medical Control for patients >50)
- 2mg (1mg/1mL concentration) mixed in 1mL NS Nebulized

Pedi Dosing

Cardiac Arrest (Asystole/PEA, V-fib/V-tach

- 0.01mg/kg = 0.1mL/kg (1mg/10mL concentration); max dose 1mg, IV/IO; q 8 min

Bradycardia

- 0.01mg/kg IV/IO max 1mg (1mg/10mL concentration); repeat q3-5
- 0.1-1mcg/kg/min infusion

Anaphylaxis (EMT/AEMT)

- **<8 kg: do not administer**
- **8 – 30kg:** Epi Pen Jr. (0.15mg)
- **8 – 30kg:** 0.15 mg = 0.15mL (1mg/1mL concentration)
- **>30kg:** Epi Pen Adult (0.3mg)
- **>30kg:** 0.3mg = 0.3mL (1mg/1mL concentration)

Anaphylaxis (Paramedic)

- 0.01mg/kg IM; max single dose 0.3mg; may repeat q5 min x 2

Hypotension (Push dose)

- **1.0 mcg/kg (max 20mcg or 2mL)** per dose IV/IO, q 1-5 min to age-appropriate SBP: 70 + (age in years X 2)
  - Take 10mL syringe with 9mL of NS, Add 1mL **(0.1mg)** of Epinephrine **1mg/10mL (1:10,000)** concentration**.** Concentration: 10mcg/mL

Respiratory Distress

- 0.01mg/kg (1mg/1mL concentration) IM; Max dose 0.3mg
- 0.5mg = 5mL (1mg/10mL concentration) Nebulized

Newly Born

- 0.01 – 0.03 mg/kg = 0.1 – 0.3 mL/kg (1mg/10mL concentration), repeat q 3 min PRN

Adult Push Dose Epinephrine Dosing

For hypotension

Take a 10mL syringe with 9mL of NS.

Add 1mL (0.1mg) of Epinephrine 1mg/10mL (1:10,000)

Mixed concentration: 100mcg/10mL =10mcg/mL

Dosing 5-20mcg IV/IO q1-5 minutes to SBP >90mmHg

Adult Epinephrine Infusion Chart

Mix 2mg (2mL) of 1:1,000 Epinephrine into 250mL sodium chloride

Concentration = 8mcg/1mL

For infusions of 16-20mcg/min, a 10 drop set may be utilized to facilitate more accurate dosing

	mcg/min									
	2	**3**	**4**	**5**	**6**	**8**	**10**	**12**	**16**	**20**
10 drops/min set	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**20**	**25**
60 drops/min set	**15**	**23**	**30**	**38**	**45**	**60**	**75**	**90**	**120**	**150**

EMT/AEMT Epinephrine Allergic Reaction Dosing

<8 kg: do not administer

8 – 30kg: Epi Pen Jr. **OR** 0.15mg (0.15mL) Epinephrine (1:1,000)

>30kg: Epi Pen Adult **OR** 0.3mg (0.3mL) Epinephrine (1:1,000)

Pediatric Epinephrine Allergic Reaction

ALS Providers Dosing Only

Step 1
Calculate Dose

Dose: 0.01mg/kg may repeat x2 q 5 minutes
Max Single Dose: 0.3mg
Concentration 1mg/1mL

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
gm dose	0.03mg	0.05mg	0.07mg	0.09mg	0.11mg	0.13mg	0.15mg	0.17
Total ML	0.03mL	0.05mL	0.07mL	0.09mL	0.11mL	0.13mL	0.15mL	0.17mL

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
mg dose	0.19mg	0.21mg	0.23mg	0.25mg	0.27mg	0.3mg	0.3mg	0.3mg	0.3mg
Total ML	0.2mL	0.2mL	0.2mL	0.25mL	0.3mL	0.3mL	0.3mL	0.3mL	0.3mL

Pediatric Epinephrine Cardiac Arrest Dosing

Step 1
Calculate Dose

Dose: 0.01mg/kg
Max Dose: 1mg
Concentration 1mg/10mL =0.1mg/mL

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
gm dose	0.03mg	0.05mg	0.07mg	0.09mg	0.11mg	0.13mg	0.15mg	0.17
Total ML	0.3mL	0.5mL	0.5mL	1mL	1mL	1.5mL	1.5mL	2mL

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
mg dose	0.19mg	0.21mg	0.23mg	0.25mg	0.27mg	0.30mg	0.33mg	0.35mg	0.37mg
Total ML	2mL	2mL	2mL	2.5mL	3mL	3mL	3mL	3.5mL	4mL

Pediatric Push Dose Epinephrine Dosing

For hypotension

Preparation: Take 10mL syringe with 9mL of NS, Add 1mL **(0.1mg)** of Epinephrine **1mg/10mL (1:10,000)** concentration**.**

Concentration: 10mcg/mL. **Total volume in syringe should be 10ml**

Dose: 1.0 mcg/kg (max 20mcg or 2mL) per dose IV/IO, q 1-5 min to age-appropriate SBP: 70 + (age in years X 2).

Maximum of 20mcg or 2mL per dose IV/IO q 1-5 min

Titrate to age-appropriate SBP of 70+(age in years x 2)

Patient Weight	3kg	5kg	7kg	9kg	10kg	12kg	15kg
Volume	0.3mL	0.5mL	0.7mL	0.9mL	1mL	1.2mL	1.5mL
Dose in Mcg (0.5-2ml admin)	3mcg	5mcg	7mcg	9mcg	10mcg	12mcg	15mcg

Patient Weight	20kg	25kg	30kg	35kg	37kg
ML of 1 :10,000 to mix in 10ml syringe after discard	2ml	2ml	2ml	2ml	2ml
Dose in Mcg 0.5-2ml admin)	20mcg	20mcg	20mcg	20mcg	20mcg

Pediatric Epinephrine Infusion

Must use 60gtt set. Mix mL of Epinephrine 1mg/mL (1:1000) based on pt. weight in kg into 250mL NS.

Step 1
Determine

Dose: 0.1-1 mcg/kg/min
Max Dose 1mcg/kg/min
Concentration based on Pt. Weight in kg x 0.08 =mL Epi into 250ml NS

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
mL of Epi into 250mL bag	**0.2mL**	**0.4mL**	**0.6mL**	**0.7mL**	**0.9mL**	**1mL**	**1.2mL**	**1.4mL**

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
mL of Epi into 250mL bag	**1.5mL**	**1.7mL**	**1.8mL**	**2mL**	**2.2mL**	**2.4mL**	**2.6mL**	**2.8mL**	**3mL**

Step 2
Determine Rate

Dose in mcg/kg/min	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
Drops/minute	19	37	56	74	93	111	130	148	167	185

Glucagon

Indications	Hypoglycemia, Bradycardia (Betablocker OD),
Contraindications	None in the emergency setting
Precautions	Glucagon for hypoglycemia is only effective if there are sufficient stores of glycogen in the liver
Adverse/Side Effects	Hypotension, dizziness, headache, nausea, vomiting, and N/V are common when given IV/IO
Class	Hormone secreted by the alpha cells of the pancreas
Mechanism of Action	Glucagon causes a breakdown of stored glycogen to glucose and inhibits the synthesis of glycogen from glucose. Glucagon exerts a positive inotropic action on the heart and decreases renal vascular resistance. Onset 5-20 min, Peak 30 min, duration 1-1.5 hr, half-life 30 min.
Adult Dosing	**Hypoglycemia** • 1mg (1mL) IM **Bradycardia (Betablocker OD)** • 1mg IV/IO **Overdose (Betablocker OD)** • 1mg IV/IO
Pedi (<37 kg) Dosing	**Hypoglycemia** • 0.1mg/kg IM; max 1mg **Overdose (Betablocker OD)** • 0.1 mg/kg IV, max 1 mg

Pediatric Glucagon Dosing

Step 1 **Calculate Dose**	Dose: 0.1mg/kg IV, IO or IM Max Dose: 1mg Concentration 1mg/mL

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
gm dose	0.3mg	0.5mg	0.7mg	0.9mg	1mg	1mg	1mg	1mg
Total ML	0.3mL	0.5mL	0.7mL	0.9mL	1mL	1mL	1mL	1mL

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
mg dose	1mg	1mg	1mg	1mg	1mg	1mg	1mg	1mg	1mg
Total ML	1mL	1mL	1mL	1mL	1mL	1mL	1mL	1mL	1mL

Haloperidol (Haldol)

Indications	Used to treat certain mental/mood disorders (e.g., schizophrenia, schizoaffective disorders), Tourette's disorder, abdominal pain, nausea
Contraindications	Severe toxic central nervous system depression, Parkinson's disease
Precautions	Elderly patients with dementia-related psychosis Pregnancy Category C
Adverse/Side Effects	Tachycardia, hypotension, and hypertension. QT prolongation and/or ventricular arrhythmias. Dystonia
Class	Antipsychotic
Mechanism of Action	The precise mechanism of action has not been established. This drug is known to be substantially excreted by the kidney. Onset ~5-15 min, Peak 20 min, Duration, half-life 21 hours
Adult Dosing	**Behavioral** • 5mg IM, may repeat x 1 q 10 min
Pedi (<37 kg) Dosing	No Pediatric Dose

Ibuprofen

Indications	Relieves pain and swelling (inflammation) fever
Contraindications	Known hypersensitivity, Allergies to NSAIDS. It should not be given to patients who have experienced asthma, coagulation disorders, or pit viper envenomation. Patients receiving anticoagulants should be carefully monitored.
Precautions/Side Effects	Pregnancy (especially third trimester) aspirin-sensitive asthma, coagulation disorders, or patients receiving anticoagulants should be carefully monitored.
Class	Non-steroidal anti-inflammatory drug (NSAID)
Mechanism of Action	Ibuprofen possesses analgesic and antipyretic activities. Its mode of action, like other NSAIDs, is not completely understood but may be related to prostaglandin synthesized inhibition, by blocking the enzyme in your body that makes prostaglandins. Decreasing prostaglandins helps to reduce pain, swelling, and fever. Onset 20-30 min, Peak 1-2 hours, duration 4-6 hours, half-life 1-2 hrs
Adult Dosing	**Pain Management** • **<70 kg:** 400mg PO • **>70kg:** 600mg PO **Fever/Infection Control Reaction** • **<70 kg:** 400mg PO • **>70kg:** 600mg PO
Pedi (<37 kg) Dosing	**Pain Management** • **>6 months of age:** 10mg/kg (600mg max) PO **Fever/Infection Control Reaction** • **>6 months of age:** 10mg/kg (600mg max) PO **Seizure** • **>6 months of age and temp >100.4F:** 10mg/kg (600mg max) PO

Adult Ibuprofen Dosing Chart

<70kg (<154lbs) – 400mg Ibuprofen (2-200mg tablets)

≥70kg (≥154lbs) – 600mg Ibuprofen (3-200mg tablets)

Pediatric Ibuprofen Dosing Chart

Step 1
Calculate Dose

Dose: 10mg/kg
Precautions : >6mo old only
Max Dose: 600mg
Concentration 100mg/5mL = 20mg/mL

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
gm dose	30mg	50mg	70mg	90mg	110mg	130mg	150mg	170mg
Total ML	1.5mL	2.5mL	3.5mL	4.5mL	5.5mL	6.5mL	7.5mL	8.5mL

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
mg dose	190mg	210mg	230mg	250mg	270mg	300mg	330mg	350mg	370mg
Total ML	9.5mL	10.5mL	11.5mL	12.5ml	13.5mL	14.5mL	15.5mL	16.5mL	17.5mL

Ipratropium Bromide (Atrovent)

Indications	Respiratory distress (Bronchial asthma, reversible bronchospasm associated with chronic bronchitis and emphysema), drowning,
Contraindications	Known hypersensitivity to Ipratropium Bromide or Atropine
Precautions	Use caution when administering this drug to elderly patients and those with cardiovascular disease or hypertension, narrow-angle glaucoma
Adverse/Side Effects	Palpitations, anxiety, dizziness, headache, nervousness, tremor, hypertension, arrhythmias, chest pain, nausea, vomiting, dry mouth, headache, dries secretions
Class	Anticholinergic
Mechanism of Action	Anticholinergic agent is closely related to atropine and has the same actions as atropine. Acts directly on the smooth muscle and decreases secretions. Reduces the vagally mediated reflex bronchospasm caused by inhaled irritants. It causes bronchodilation and dries respiratory tract secretions. Ipratropium acts by blocking acetylcholine. ~10% of inhaled dose reaches lower airway, ~0.5% reaches systemic distribution, peak 1.5-2 hr, duration 4-6hr, ½ life 1.5-2 hr.
Adult and Pedi Dosing	**Respiratory Distress** 0.5 mg by nebulizer, may repeat x 1 (1mg max) **Drowning** 0.5mg by nebulizer, may repeat x 1 (1mg max)

Ketamine

Indications	Analgesia
Contraindications	Known Hypersensitivity to Ketamine, hypertension, angina, stroke. Relative contraindication in head trauma with elevated ICP.
Precautions	Previous gastric ulcer, asthma, renal impairment, weight under <50kg, asthmatics, consider dose reduction by 50% in patients >65 due to concern for an age-related reduction in renal function,
Adverse Effects	Emergency reactions, hypertension, increased cardiac output, tachycardia, tonic-clonic movements, increased salivation, hallucinations or vivid dreams, nystagmus.
Class	General anestethetics, systemic
Mechanism of Action	Dissociative anestetheic by NMDA receptor blocade. IV onset: 1 minute. IM/IN onset 3-4 minutes. Duration between 10-30 minutes.

Adult Dosing	**Pain Management**
	• 0.3 mg/kg in 50cc crystalloid IV/IO admintistered slowly.
	  ○ Repeat doisng q 15 min x1.
	• 1 mg/kg IM/IN
	  ○ Repeat doisng q 15 minutes x1.

Ketorolac (Toradol)

Indications	Moderately severe, acute pain, Fever
Contraindications	Known Hypersensitivity to Ketorolac, Aspirin, or NSAIDS; renal/kidney disease, Patients with active peptic ulcer disease or GI bleeding, asthmatics with a history of reactions to NSAIDS, history of bleeding or clotting disorders, pregnant patients or patients who are breastfeeding, Trauma other than isolated extremity trauma, anticipated surgery within seven days, recent use of NSAIDS or Lithium, Severe renal/kidney disease, kidney transplant recipient or donor, pit viper enevenomation.
Precautions	Previous gastric ulcer, asthma, renal impairment, weight under <50kg, asthmatics, consider dose reduction by 50% in patients >65 due to concern for an age-related reduction in renal function,
Adverse Effects	Headache, drowsiness, dizziness, dyspepsia, nausea, GI pain, edema, diarrhea, edema, allergic reaction/anaphylaxis, liver failure, postoperative bleeding, GI bleeding, and Acute renal failure
Class	Non-steroidal Anti-inflammatory drug (NSAID)
Mechanism of Action	The primary mechanism of action responsible for Ketorolac's anti-inflammatory, antipyretic, and analgesic effects is the inhibition of prostaglandin synthesis by competitive blocking of the enzyme cyclooxygenase (COX). It is a non-selective COX inhibitor. Onset ~ 10 minutes, Peak 75-150 minutes, Duration 6-8 hours, ½ life 4-6 hours
Adult Dosing	**Pain Management** • 15mg IV/IO/IM **Fever/Infection Control** • 15 mg IV/IO/IM
Pediatric Dosing	**Pain Management** • 0.5mg/kg IV/IO/IM, max of 15mg **Fever/Infection Control** • 0.5mg/kg IV/IO/IM, max of 15mg

Lidocaine

Indications	Cardiac Arrest (V-Fib/Pulseless V-tach), post-resuscitation care, wide complex tachycardia with a pulse, pain management for IO Flush, eye injury,
Contraindications	Second and third-degree heart blocks, CHF, shock
Precautions	CNS depression may occur when the drug exceeds 300 mg/hr. Lidocaine should be used with caution when administered concomitantly with Procainamide and beta-blockers as drug toxicity may result. Caution with elderly patients.
Adverse/Side Effects	Drowsiness, seizures, confusion, hypotension, bradycardia, heart blocks, nausea, vomiting, respiratory and cardiac arrest, slurred speech,
Class	Antiarrhythmic (Class 1b), Sodium channel blocker
Mechanism of Action	Lidocaine depresses depolarization and automaticity in the ventricles and increases the ventricular fibrillation threshold by increasing phase IV repolarization. It functions well in hyperkalemic and acidotic states and thus works well in ischemic tissue. Onset 3min, peak 5-7 min, duration 10-20 min, ½ life 1.5-2 hr.

Adult Dosing	**Vascular Access (IO insertion)**
	• 40mg Slow IO push for perceived pain
	V-Fib & Pulseless V-Tach
	• 1-1.5mg/kg IV/IO q 4 minutes (Max total 3mg/kg)
	  ○ If it converts with Lidocaine, contact OLMC for additional bolus doses of 1-1.5mg/kg IV/IO or infusion.
	Wide Complex Tach w/pulse
	• If refractory to Amiodarone: 1-1.5mg/kg IV/IO q 5 min (Max 3mg/kg)
	  ○ If it converts with Lidocaine, contact OLMC for additional bolus doses of 1-1.5mg/kg IV/IO or infusion.
	Eye Irrigation
	• Mix 100mg in 1L of isotonic crystalloid for eye irrigation

Pediatric Dosing

Vascular Access (IO insertion)

- 0.5mg/kg (Max 40mg) Slow IO push for perceived pain

V-Fib & Pulseless V-Tach

- 1mg/kg IV/IO q 5 minutes (Max total 3mg/kg)
    - If it converts with Lidocaine, contact OLMC for additional bolus doses of 1mg/kg IV/IO or infusion.

Wide Complex Tach w/pulse

- If refractory to Amiodarone: 1mg/kg IV/IO q 5 min (Max 3mg/kg)
    - If it converts with Lidocaine, contact OLMC for additional bolus doses of 1mg/kg IV/IO or infusion.

Eye Irrigation

- Mix 100mg in 1L of isotonic crystalloid for eye irrigation

Pediatric Lidocaine IO Flush

Pediatric IO Lidocaine 0.5mg/kg	Drug amount (mg)	Volume infused (ml)	Volume infused (ml)
	1%	1%	2%
4kg -20kg (Newborn-5yrs)	10mg	1ml	0.5ml
20kg-36kg (5yrs-10yrs)	20mg	2ml	1ml
>36kg (>10yrs)	40mg	4ml	2ml

*Max dose lidocaine is 3-5mg/kg

Adult Lidocaine Dosing

Step 1
Calculate Dose

Dose: 1-1.5mg/kg q 4 minutes
Max Dose: 3mg/kg
Concentration: 2% -100mg/5mL =20mg/mL
1% - 50mg/5mL =10mg/mL

Patient Weight	40kg	45kg	50kg	55kg	60kg	65kg	70kg	75kg	80kg
mg dose	40-60mg	45-67.5mg	50-75mg	55-82.5mg	60-90mg	65-97.5mg	70-105mg	75-112.5mg	80-120mg
mL dose using 2% Lidocaine	2-3mL	2.3-3.4mL	2.5-3.7mL	2.8-4.1mL	3-4.5mL	3.3-4.9mL	3.5-5.3mL	3.8-5.6mL	4-6mL
mL dose using 1% Lidocaine	4-6mL	4.5-6.8mL	5-7.5mL	5.5 -8.3mL	6-9mL	6.5-9.8mL	7-10.5mL	7.5-11.3mL	8-12mL

Patient Weight	85kg	90kg	95kg	100kg	105kg	110kg	115kg	120kg	125kg
mg dose	85-127.5mg	90-135mg	95-142.5mg	100-150mg	105-157.5mg	110-165mg	115-172.5mg	120-180mg	125-187.5mg
mL dose using 2% Lidocaine	4.3-6.4mL	4.5-6.8ml	4.8-7.1ml	5-7.5mL	5.3-7.9mL	5.5-8.3mL	5.8-8.6mL	6-9mL	6.3-9.4mL
mL dose using 1% Lidocaine	8.5-12.8mL	9m-13.5L	9.5-14.3mL	10-15mL	10.5-15.8mL	11-16.5mL	11.5-17.3mL	12-18mL	12.5-18.8mL

Pediatric Lidocaine Dosing

Wide Complex Tachycardia/Vfib Pulseless Vtach

Step 1
Calculate Dose

Dose: 1mg/kg q 5 minutes
Max Dose: 3mg/kg
Concentration: 2% -100mg/5mL =20mg/mL
1% - 50mg/5mL =10mg/mL

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
Mg dose	3mg	5mg	7mg	9mg	11mg	13mg	15mg	17mg
mL Dose using 2% Lidocaine	0.15mL	0.25mL	0.35mL	0.45mL	0.55mL	0.65mL	0.75mL	0.85mL
mL Dose using 1% Lidocaine	0.3mL	0.5mL	0.7mL	0.9mL	1.1mL	1.3mL	1.5mL	1.7mL

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
mg dose	19mg	21mg	23mg	25mg	27mg	30mg	33mg	35mg	37mg
mL Dose using 2% Lidocaine	0.15mL	0.25mL	0.35mL	0.45mL	0.55mL	0.65mL	0.75mL	0.85mL	1.85mL
mL Dose using 1% Lidocaine	1.9mL	2.1mL	2.3mL	2.5mL	2.7mL	3mL	3.3mL	3.5mL	3.7mL

Lidocaine Infusion (OLMC ONLY)

Mix 100mg (5mL) in 50mL of NS.

Use a 60 drop set preferrably with a dial-a-flow. **Concentration =** 2mg/mL

Dose in mg/min				
mg/min	**1**	**2**	**3**	**4**
Drops/min	**30**	**60**	**90**	**120**

30gtt/min = 100min to infuse 50mL

60gtt/min = 50 min to infuse 50mL

90gtt/min = 33 min to infuse 50mL

120gtt/min = 25min to infuse 50mL

Magnesium Sulfate 50%

Indications	Cardiac Arrest (V-Fib/Pulseless V-Tach), Wide Complex Tachycardia with a pulse (Torsade de Pointes), Respiratory Distress or Failure (asthma, COPD), OB seizures (eclampsia)
Contraindications	Hypotension, third-degree AV block, routine dialysis patients, known hypocalcemia
Precautions	Magnesium Sulfate should be administered **slowly** to minimize side effects. Use caution in patients with known renal insufficiency. In hypermagnesemia, **Calcium Chloride** should be available as an **antidote** if serious side effects occur
Adverse/Side Effects	**Hypotension,** cardiac arrest, **respiratory/CNS depression**, flushing, sweating, bradycardia, decreased deep tendon reflexes, drowsiness, respiratory depression, arrhythmia, hypothermia, itching, and rash.
Class	Antiarrhythmic (Class V), Electrolyte
Mechanism of Action	Magnesium Sulfate is a salt that dissociates into the Magnesium cation and the sulfate anion. Magnesium is an essential element in numerous biochemical reactions that occur within the body. Magnesium Sulfate acts as a calcium channel blocker and blocks neuromuscular transmission. Hypomagnesemia can cause refractory ventricular fibrillation. Magnesium Sulfate is also a central nervous system depressant for seizures associated with eclampsia and a bronchodilator. Onset is immediate, duration 30min
Adult Dosing	**V-Fib & Pulseless V-Tach** • 2gm slow IV/IO push over 5 minutes for Torsades **Wide Complex Tach w/pulse** • 2gm slow IV/IO push over 5 minutes for Torsades **Respiratory Distress** • 2gm in 50mL of crystalloid infused over 20 minutes **Obstetrical Emergencies (Seizures)** • 4gm in 50mL of crystalloid infused over 5 minutes

Pediatric Dosing

V-Fib & Pulseless V-Tach

- 25-50mg/kg slow IV/IO push over 5 minutes, may repeat same dose q 5 minutes until a max total of 2gm for Torsades

Wide Complex Tach w/pulse

- 25-50mg/kg IV/IO infusion over 20 minutes, max dose 2 gm for Torsades

Respiratory Distress

- 50mg/kg in 50mL infuse over 20 minutes, max dose 2gm

Adult Magnesium Sulfate Infusion

Note: Most dial-a-flows will run up to 300 drops per minute when combined with a 60-drop set.

Protocol	Respiratory Distress	OB Seizures
Dose	4mL (2mg) into 50mL NS infuse over 20 minutes	8mL (4gm) into 50mL NS, infuse over 5 minutes
drops per minute	60gtt set = 150 gtts	10gtt set = 100gtts 60gtt set = 600gtts

Pediatric Magnesium Sulfate Infusion

Mix IV dose into 50mL NS and infuse over 20 minutes.

With 60 drop set 20 minutes = 150 gtts

Step 1
Calculate Dose

Dose: Vtach/V-fib and Wide Complex tachycardia 25-50mg/kg IV/IO over 20 minutes
Max dose 2 grams
VIAL concentration 1gm/2mL

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
Mg dose	75-150mg	125-250mg	175-350mg	225-450mg	275-550mg	325-650mg	375-750mg	425-850mg
mL to be mixed into 50mL NS	0.15-0.3mL	0.25-0.5mL	0.35-0.7mL	0.45-0.9mL	0.55-1.1mL	0.65-1.3mL	0.75-1.5mL	0.85-1.7mL

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
Mg dose	475-950mg	525-1050mg	575-1150mg	625-1250mg	675-1350mg	725-1450mg	775-1550mg	825-1650mg	875-1750mg
mL to be mixed into 50mL NS	0.95-1.9mL	1.05-2.1mL	1.15-2.3mL	1.25-2.5mL	1.35-2.7mL	1.45-2.9mL	1.55-3.1mL	1.65-3.3mL	1.75-3.5mL

Methylprednisolone (Solu-medrol)

Indications	Allergic Reaction/Anaphylaxis, Respiratory Distress presume bronchospasm
Contraindications	None in the emergency setting
Precautions	One single dose can be given in the prehospital setting
Adverse/Side Effects	Hypertension, hyperglycemia, vertigo, headache, nausea, hiccups, and peptic ulcer
Class	Glucocorticoids steroid
Mechanism of Action	Methylprednisolone is a synthetic steroid with potent anti-inflammatory properties. Effective as anti-inflammatory agents, they are used to manage allergic reactions, asthma, and anaphylaxis. Methylprednisolone alters the body's immune response. Swelling is reduced because it prevents the white blood cells from traveling to the area. Onset: within 1 hr route dependent, peak ~45 min, ½ life – 45-120 min, duration 18 hours
Adult Dosing	**Allergic Reaction** • 125mg IV/IO **Respiratory Distress** • 125mg IV/IO
Pediatric Dosing	**Allergic Reaction** • 2mg/kg IV/IO (max 125mg) **Respiratory Distress** • 2mg/kg IV/IO/IM (max 125mg)

Pediatric Methylprednisolone (Solumedrol) dosing

Step 1 **Calculate Dose**						Dose 2mg/kg Max Dose 125 mg Concentration 3mg/1mL		
Patient Weight	**3kg**	**5kg**	**7kg**	**9kg**	**11kg**	**13kg**	**15kg**	**17kg**
mg dose	**6mg**	**10mg**	**14mg**	**18mg**	**22mg**	**26mg**	**30mg**	**34mg**
mL dose	**0.1mL**	**0.2mL**	**0.2mL**	**0.3mL**	**0.35mL**	**0.4mL**	**0.5mL**	**0.5mL**

Patient Weight	**19kg**	**21kg**	**23kg**	**25kg**	**27kg**	**30kg**	**33kg**	**35kg**	**37kg**
mg dose	**38mg**	**42mg**	**46mg**	**50mg**	**54mg**	**60mg**	**66mg**	**70mg**	**74mg**
mL dose	**0.6mL**	**0.7mL**	**0.7mL**	**0.8mL**	**0.9mL**	**1mL**	**1.1mL**	**1.1mL**	**1.2mL**

Naloxone (Narcan)

Indications	Reversal of respiratory depression caused by opiates or synthetic narcotics
Contraindications	Known allergy, known hypersensitivity, neonates with narcotic use by mother
Adverse effects	Tachycardia, hypotension with rapid administration, HTN, dysrhythmias, N/V, and diaphoresis. In neonates, it can cause seizures due to opioid withdrawal, which may be life-threatening.
Class	Opioid antagonist
Mechanism of Action	Naloxone hydrochloride is an opioid antagonist that antagonizes opioid effects by competing for the same receptor sites. Naloxone hydrochloride reverses the effects of opioids, including respiratory depression, sedation, and hypotension. Onset <2 min, peak < 2 min, Duration 2-20min, ½ life 60-90 min
Adult Dosing	**Overdose** • 0.4 – 2 mg IV/IO/IN; may repeat PRN
Pediatric Dosing	**Overdose** • 0.1mg/kg IV/IO/IN (max single dose 2mg); may repeat PRN **Newly Born** • 0.1mg/kg IV/IN/IO (max 0.4mg)

Pediatric Naloxone Dosing

Step 1
Calculate Dose

Dose: 0.1mg/kg IV, IO or IN
Max Dose: 2 mg
Concentration 1mg/mL

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
mg dose	0.3mg	0.5mg	0.7mg	0.9mg	1.1mg	1.3mg	1.5mg	1.7mg
Total ML	0.3mL	0.5mL	0.7mL	0.9mL	1.1mL	1.3mL	1.5mL	1.7mL

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
mg dose	1.9mg	2mg	2mg	2mg	2mg	2mg	2mg	2mg	2mg
Total ML	1.9mL	2mL	2mL	2mL	2mL	2mL	2mL	2mL	2mL

Neo-Synephrine (Phenylephrine)

Indications	Epistaxis
Contraindications	Known allergy, pediatric hypersensitivity to sympathomimetic (e.g., pseudoephedrine)
Adverse Effects	Temporary burning, stinging, dryness in the nose, runny nose, and sneezing may occur
Class	Nasal decongestant, sympathomimetic amine
Mechanism of Action	After intranasal administration, phenylephrine stimulates alpha-adrenergic receptors on the nasal mucosa (direct effect), causing vasoconstriction of local vessels. The vasoconstrictive action decreases mucosal edema, thereby leading to a decongestant effect. Rapid onset, duration up to 10 hours.
Adult Dosing	**Epistaxis** • 1-2 gtts or sprays
Pedi (<37 kg) Dosing	**Epistaxis** • 1-2 gtts or sprays

Nitroglycerin

Indications	Chest Pain, CHF/Pulmonary Edema
Contraindications	Hypotension, hypovolemia, severe bradycardia or tachycardia, use of **erectile dysfunction** drugs within 24 hours and up to 48 hours depending on extended-release medications.
Precautions	Headache, tachycardia
Adverse/Side Effects	Hypotension, syncope, tachycardia, headache,
Class	Nitrate
Mechanism of Action	Potent vasodilator with antianginal, anti-ischemic, and antihypertensive effects. Relaxes vascular smooth muscle by an unknown mechanism. Decreases peripheral vascular resistance, preload, and afterload. Onset 1-3 min SL, Peak 5-10 min SL. Duration is 20-30 min SL
Adult Dosing	**Chest Pain, suspected Acute Coronary Syndrome** • **EMT Dosing Patient Assist Only:** 0.4mg SL q 5 min if SBP ≥100 mmHg until pain-free • 0.4mg SL q 5 min if SBP ≥ 100 mmHg until pain-free **Pulmonary Edema** • **Patient Assist:** 0.4mg SL q 5 min if SBP ≥100 mmHg • 0.4mg SL q 5 min if SBP ≥ 100 mmHg
Pediatric Dosing	**No Pediatric Dosing**

Norepinephrine (Levophed)

Indications	Hypotension, sepsis, shock persisting after adequate fluid volume replacement
Contraindications	Known allergies to Norepinephrine; should not be given to patients who are hypotensive from blood volume deficits except as an emergency measure to maintain coronary and cerebral artery perfusion until blood volume replacement therapy can be completed.
Precautions	Caution should be used in patients on MAOIs or antidepressants of the triptyline or imipramine types as it can cause severe, prolonged hypertension. Can cause allergic reactions and asthmatic episodes in certain susceptible people; it is unknown the overall prevalence of sulfite (a component of Norepinephrine) sensitivity in the general population but is seen more frequently in asthmatics than non-asthmatics.
Adverse Effects	Body as a whole: Ischemic injury due to potent vasoconstrictor action and tissue hypoxia. Bradycardia is probably a reflex result of a rise in blood pressure, arrhythmias, tachycardia, Anxiety, transient headaches, Respiratory difficulties, and Extravasation necrosis at the injection site. Gangrene of extremities has been rarely reported. Overdoses or conventional doses in hypersensitive persons (e.g., hyperthyroid patients) cause severe hypertension with violent headache, photophobia, stabbing retrosternal pain, pallor, intense sweating, and vomiting.
Class	Sympathomimetic: Alpha/Beta agonist
Mechanism of Action	Norepinephrine acts predominantly on alpha-adrenergic receptors to constrict resistance and capacitance vessels, thereby increasing systemic blood pressure and coronary artery blood flow. Norepinephrine also acts on beta1-receptors, although quantitatively less than either epinephrine or isoproterenol. In relatively lower doses, the cardiac-stimulant effect of Norepinephrine is predominant; with larger doses, the vasoconstrictor effect predominates. Like epinephrine, Norepinephrine has direct agonist effects on effector cells containing alpha and beta receptors. Onset 1-2 minutes
Adult Dosing	**Hypotension (After fluid resuscitation)** • **Push Dose:** 8-32 mcg per dose IV/IO q 1-5 min to SBP > 90 or MAP >65 ○ Mix 4mg of Norepinephrine in 250mL sodium chloride, withdraw 10mL into a syringe. Concentration is 16 mcg/mL. • **Infusion:** 2-30 mcg/min IV/IO infusion, titrated to SBP >90 or MAP >65 **Pulmonary Edema** • 2-30mcg/min IV/IO infusion, titrated to SBP >90 and MAP >65, **after fluid resuscitation** **Sepsis/Septic shock** • 2-30mcg/min IV/IO infusion, titrated to SBP >90 and MAP >65, **after fluid resuscitation** **Multi-Trauma (Neurogenic shock)** • 2-30mcg/min IV/IO infusion, titrated to SBP >90 and MAP >65

Pediatric Dosing

Hypotension (After fluid resuscitation)

- **Infusion:** 0.05-1 mcg/kg/min, titrated to age-appropriate SBP (max 30 mcg/min)
- **Push Dose: No Approved**

Sepsis/Septic shock (After fluid resuscitation)

- 0.05-1mcg/kg/min IV/IO infusion, titrated to age-appropriate SBP (max 30 mcg/min)

Multi-Trauma (Neurogenic shock)

- 0.05-1mcg/kg/min IV/IO infusion, titrated to age-appropriate SBP (max 30 mcg/min)

Adult Push Dose Norepinephrine Dosing

Adults: 8-32 mcg per dose IV/IO q 1-5 min to SBP >90 mmHg or MAP >65

Mix 4mg of Norepinephrine in 250mL sodium chloride, withdraw 10mL into a syringe. Concentration is 16 mcg/mL.

Administer 0.5-2mL per single dose IV/IO q 1-5 min to SBP >90 mmHg or MAP >65

Adult Norepinephrine (LEVOPHED) Infusion Chart

Mix 4mg (4mL) of Levophed into 250mL sodium chloride

Use a 60 drop set. **Concentration =** 16mcg/1mL

	Dose in mcg/min											
	2	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
Drops/min	**8**	**11**	**15**	**19**	**22**	**26**	**30**	**34**	**38**	**41**	**45**	**49**

	Dose in mcg/min											
	13	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
Drops/min	**49**	**53**	**56**	**60**	**64**	**68**	**71**	**75**	**78**	**82**	**86**	**90**

		Dose in mcg/min				
	25	**26**	**27**	**28**	**29**	**30**
Drops/min	**94**	**97**	**101**	**105**	**109**	**112**

Pediatric Norepinephrine Dosing

Mix 4mg (4mL) of Levophed into 250mL sodium chloride

Use a 60 drop set. **Concentration =** 16mcg/1mL

Step 1
Calculate Dose

Dose: hypotension: 0.05-1mcg/kg/min titrated to age appropriate SBP
Max dose 30mcg/min
Concentration: 4mg (4mL) in 250mL sodium chloride = 16mcg/1mL

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
Mcg/kg/min	0.15-3	0.25-5	0.35-7	0.45-9	0.55-11	0.65-13	0.75-15	0.85-17
Drops per min	1-11	1-19	1-26	1-34	1-41	1-49	1-56	1-64

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
Mcg/kg/min	0.95-19	1.05-21	1.15-23	1.25-25	1.35-27	1.45-30	1.55-30	1.65-30	1.75-30
Drops per min	1-71	1-78	1-86	1-94	1-101	1-112	1-112	1-112	1-112

Ofirmev (IV Tylenol/IV Acetaminophen)

Indications	Moderately severe, acute pain, Fever
Contraindications	Known hypersensitivity to Acetaminophen or any IV formulation components and in patients with severe hepatic impairment or severe active liver disease.
Precautions	Caution in patients with hepatic impairment or active liver disease, Caution in patients with severe renal impairment, Caution in patients who have ingested Acetaminophen within the past 6 hours
Adverse Effects	Most common adverse events are nausea, vomiting, headache, and insomnia. Can cause hypokalemia, hypotension, hepatic injury, Stevens-Johnson Syndrome (SJS), Toxic epidermal necrolysis (TEN), Acute generalized exanthematous pustulosis (AGEP), and anaphylaxis
Class	Analgesic, antipyretic
Mechanism of Action	The precise mechanism of Acetaminophen's analgesic and antipyretic properties is not established but is thought to involve central actions primarily. In animal and human studies, Acetaminophen has been shown to have analgesic and antipyretic activities. Single doses of Ofirmev up to 3000 mg and repeated doses of 1000mg every 6 hours for 48 hours have not been shown to cause a significant effect on platelet aggregation. Acetaminophen does not have any immediate or delayed impact on small vessel hemostasis. Clinical studies of healthy subjects and patients with hemophilia showed no significant changes in bleeding time after receiving multiple doses of oral Acetaminophen. Acetaminophen is not an NSAID, as it has no anti-inflammatory properties.
Adult Dosing	**Pain Management** • **≤ 65 kg:** 15mg/kg IV/IO infused over 15 minutes • **> 65 kg:** 1000 mg IV/IO infused over 15 minutes **Fever/Infection Control** • **≤ 65 kg:** 15mg/kg IV/IO infused over 15 minutes • **> 65 kg:** 1000 mg IV/IO infused over 15 minutes
Pediatric Dosing	**Pain Management** • 15mg/kg IV/IO infused over 15 minutes, max of 500 mg **Fever/Infection Control** • 15mg/kg IV/IO infused over 15 minutes, max of 500 mg

Ondansetron (Zofran)

Indications	Moderate to severe nausea, vomiting, N/V w/environmental hyperthermia
Contraindications	Known allergy, do not use Zofran concurrently with Procainamide, Haldol, or Amiodarone due to QT prolongation. Hypersensitivity to the drug, prolonged QT syndrome, concurrent use of Apomorphine (Apokyn, an anti-parkinsonian drug), If the patient has reacted to Anzemet or Kyytril, Zofran may cause a reaction as well.
Adverse Effects	Arrhythmias (including ventricular and supraventricular tachycardia, premature ventricular contractions, and atrial fibrillation), bradycardia, electrocardiographic alterations (including second-degree heart block, QT/QTc interval prolongation, and ST-segment depression), palpitations, and syncope, slow heart rate, anxiety, trouble breathing, agitation, fever, blurred vision
Class	Anti-emetic, Selective Serotonin (5HT3) Receptor Antagonist
Mechanism of Action	Ondansetron reduces the activity of the vagus nerve, which activates the vomiting center in the medulla oblongata and blocks serotonin receptors in the chemoreceptor trigger zone. It has little effect on vomiting caused by motion sickness. Safely tolerated at high dose ranges. Onset – Rapid, Half-life – 3-4 hours
Adult dosing	**Nausea/Vomiting** • 4 mg IV/IO/IM/PO/SL, may repeat x 1 q 15 minutes **Environmental Hyperthermia** • 4mg IV/IO/IM/PO/SL, may repeat x 1 q 15 minutes

Pediatric dosing	**Nausea/Vomiting**
	• 0.1 mg/kg IV/IO/IM (max 4mg), may repeat x 1 q 15 minutes
	  ○ **No PO/SL if <12 kg**
	  ○ ½ tablet (2mg) PO/SL if between 12 – 23 kg
	  ○ 1 tablet (4mg) PO/SL if >23 kg
	
	Environmental Hyperthermia
	• 0.1 mg/kg IV/IO/IM (max 4mg), may repeat x 1 q 15 minutes
	  ○ **No PO/SL if <12 kg**
	  ○ ½ tablet (2mg) PO/SL if between 12 – 23 kg
	  ○ 1 tablet (4mg) PO/SL if >23 kg

Pediatric Zofran (Ondansetron) Dosing

Step 1
Calculate Dose

Dose: 0.1mg/kg IV, IO, IM, PO, SL
Max Dose: 4 mg
No PO Zofran if <12kg
No IV Zofran if <6kg
Concentration 4mg/2mL = 2mg/mL

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
gm dose	0.3mg	0.5mg	0.7mg	0.9mg	1.1mg	1.3mg	1.5mg	1.7mg
Total ML	No IV	No IV	0.35mL	0.45mL	0.55mL	0.65mL	0.75mL	0.85mL
Tablets	No tablets	No tablets	No tablets	No tablets	No tablets	½ tablet (2mg)	½ tablet (2mg)	½ tablet (2mg)

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
mg dose	1.9mg	2.1mg	2.3mg	2.5mg	2.7mg	3mg	3.3mg	3.5mg	3.7mg
Total ML	0.95mL	1.05mL	1.15mL	1.25mL	1.35mL	1.45mL	1.55mL	1.65mL	1mL
Tablets	½ tablet (2mg)	½ tablet (2mg)	½ tablet (2mg)	1 tablet (4mg)	1 tablet (4mg)	1 tablet (4mg)	1 tablet (4mg)	1 tablet (4mg)	1 tablet (4mg)

Oral Glucose

Indications	Altered mental status - Hypoglycemia (< 50 mg/dl) with patients who can protect their airway
Contraindications	Known allergies, patients who are unable to protect their airways, unconscious
Adverse Effects	Nausea, airway compromise during administration
Class	Monosaccharide, Carbohydrate
Mechanism of Action	After absorption from the GI tract, glucose is distributed in the tissues and provides a prompt increase in circulating blood sugar, onset- rapid
Adult Dosing	**Altered Mental Status** • 15g PO (1 tube), if the patient can protect their airway, may repeat x 1 q 15 minutes
Pediatric Dosing	**Altered Mental Status** • 7.5g PO (1/2 tube), if the patient can protect their airway, may repeat x 1 q 15 minutes

Sodium Bicarbonate

Indications	Metabolic Acidosis (severe hypoxia, late cardiac arrest), hyperkalemia, tricyclic or phenobarbital overdose, crush syndrome
Contraindications	None on an indicated condition
Precautions	Should be avoided in pediatric DKA except in cardiac arrest.
Adverse Effects	Metabolic alkalosis, hyperirritability, seizures, tetany (electrolyte imbalance), cardiac & respiratory arrest, lowering of serum potassium, decreased fibrillation threshold, fluid overload
Class	Alkalinizing Agent
Mechanism of Action	In the presence of hydrogen ions, sodium bicarbonate dissociates to sodium and carbonic acid; the carbonic acid picks up a hydrogen ion changing to bicarbonate, then dissociates into water and CO2, functioning as an effective bugger and alkalinizing the blood. In summary, increases plasma bicarbonate, which can buffer metabolic acids and move TCAs and phenobarbital off receptor sites and back into circulation. Onset – immediate, duration 1-2 hours
Adult dosing	**Behavioral – Excited Delirium cardiac arrest only** • 1mEq/kg IV/IO **Asystole/PEA –Suspected Hyperkalemia or suspected Acidosis** • 1mEq/kg IV/IO **Cardiac Arrest -- Suspected Hyperkalemia or suspected Acidosis** • 1mEq/kg IV/IO **V-fib & Pulseless V-Tach -- Suspected Hyperkalemia or suspected Acidosis** • 1mEq/kg IV/IO **Wide Complex Tach w/Pulse – Suspected Hyperkalemia or Tricyclic OD** • 1mEq/kg IV/IO **Overdose – Tricyclic OD** • 1mEq/kg IV/IO **Crush Injuries** • 50mEq added to 1000mL of crystalloid – for every 1000mL bag administered • 1mEq/kg IV/IO slow IV/IO push immediately before reperfusion/release

Pediatric dosing

Asystole/PEA – Acidosis/Hyperkalemia – OLMC only

- 1mEq/kg IV/IO (max 37mEq)

Cardiac Arrest – Acidosis/Hyperkalemia – OLMC only

- 1mEq/kg IV/IO (max 37mEq)

V-Fib & Pulseless V-Tach – Acidosis/Hyperkalemia – OLMC only

- 1mEq/kg IV/IO (max 37mEq)

Wide Complex Tach w/Pulse – Suspected Hyperkalemia or Tricyclic OD

- 1mEq/kg IV/IO (max 37mEq)

Overdose – Tricyclic OD

- 1mEq/kg IV/IO (max 37mEq)

Crush Injuries

- 50mEq added to 1000mL of crystalloid – for every 1000mL bag administered
- 1mEq/kg IV/IO slow IV/IO push immediately before reperfusion/release

Pediatric Sodium Bicarbonate Dosing

Step 1
Calculate Dose

Dose: Tricyclic OD - 1mEq/kg IV, IO
Max Dose: 37 mEq
Concentration 50mEq/50mL = 1mEq/mL

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
mEq dose	3mEq	5mEq	7mEq	9mEq	11mEq	13mEq	15mEq	17mEq
Total ML	3mL	5mL	7mL	9mL	11mL	13mL	15mL	17mL

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
mg dose	19mEq	21mEq	23mEq	25mEq	27mEq	30mEq	33mEq	35mEq	37mEq
Total ML	19mL	21mL	23mL	25mL	27mL	30mL	33mL	35mL	37mL

Tranexamic Acid (TXA)

Indications	Moderate to severe hemorrhage from trauma and/or injury <3 hours old, SBP <90 mmHg, Pedi SBP <70+(age in yrs. x 2)
Contraindications	In patients with hypersensitivity to tranexamic acid or any of the ingredients. Patients with acquired defective color vision, history of venous or arterial thromboembolism, greater than 3 hours from traumatic injury, in patients with active intravascular clotting.
Precautions	Use with caution in patients with hx of thrombotic events or potentially active MI or pulmonary embolism
Adverse/Side Effects	Dizziness, nausea, vomiting, chest pain, fatigue, and headache, can increase the risk for thrombosis. Allergic dermatitis, giddiness, and hypotension have been reported occasionally. Hypotension can usually be avoided by not injecting more than 10mL per minute.
Class	Antifibrinolytic Agent
Mechanism of Action	Tranexamic acid is a competitive inhibitor of plasminogen activation and, at much higher concentrations, a noncompetitive inhibitor of plasmin, i.e., actions similar to aminocaproic acid. Tranexamic acid is about ten times more potent in vitro than aminocaproic acid. Tranexamic acid binds more strongly than aminocaproic acid to both the plasminogen molecule's strong and weak receptor sites in a ratio corresponding to the difference in potency between the compounds. Tranexamic acid concentrations of 1 mg per mL do not aggregate platelets in vitro. Onset 5-15 min, duration 3 hours

Adult Dosing	**Multi-Trauma**
	• 2gm slow push IV/IO
	
	Epistaxis
	• SBP >90
	  ○ 1gm/10mL soaked intranasal guaze
	• SBP <90
	  ○ 2gm slow push IV/IO

Pediatric Dosing	**Multi-Trauma**
	• 15mg/kg slow push IV/IO
	Epistaxis
	• SBP >70 +(age in years x2)
	  ○ 15mg/kg soaked intranasal guaze
	• SBP <70 +(age in years x2)
	  ○ 15mg/kg slow push IV/IO

Pediatric TXA Dose

Step 1
Calculate Dose

Dose: 15mg/kg IV/IO slow push
Max dose 2 grams
Concentration: 1gm/10mL = 100mg/mL

Patient Weight	3kg	5kg	7kg	9kg	11kg	13kg	15kg	17kg
Mg dose	45mg	75mg	105mg	135mg	165mg	195mg	225mg	255mg
mL dose	0.45mL	0.75mL	1.05mL	1.35mL	1.65mL	1.95mL	2.25mL	2.55mL

Patient Weight	19kg	21kg	23kg	25kg	27kg	30kg	33kg	35kg	37kg
Mg dose	285mg	315mg	345mg	375mg	405mg	450mg	495mg	525mg	555mg
mL dose	2.85mL	3.15mL	3.45mL	3.75mL	4.05mL	4.50mL	4.95mL	5.25mL	5.55mL

TRAUMA

TABLE OF CONTENTS

BITES AND ENVENOMATIONS T.01

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

Consider Guidelines:

- Universal Patient Care Guideline
- Pain Control Guideline
- Allergic Reaction Guideline
- Hypotension Guideline
- Seizure Guideline
- Nausea/Vomiting Guideline

Procedures:

BLS

Insect Bite

- Remove stinger if appropriate. Apply ice pack. Minimize movement. Remove constricting items

Snake Bite

- Immobilize the affected extremity in a functional or extended position at - or above - the level of the heart. Minimize movement. Remove constricting items. Mark area of swelling with time.
- **NO Ice**
- Pain management as needed

AEMT

- IV as needed.

ALS

- Pain management as needed (avoid NSAIDS)

Pearls / Additional Considerations:

- Human bites have a very high risk of infection due to oral bacteria.
- Carnivore bites are much more likely to become infected and all have risk of Rabies exposure.
- Cat bites may rapidly progress to infection due to a specific bacteria (Pasteurella multocida).
- Venomous snakes in this area are generally of the pit viper family: rattlesnake, copperhead, and water moccasin. -- Coral snake bites are rare: Very little pain but very toxic. "Red on yellow - kill a fellow, red on black - venom lack." -- It is NOT necessary to take the snake to the ED with the patient.
- Black Widow spider bites have minimal pain initially but may develop muscular pain and severe abdominal pain (spider is black with red hourglass on belly).
- Brown Recluse spider bites are minimally painful to painless. Little reaction is noted initially but tissue necrosis at the site of the bite develops over the next few days (brown spider with fiddle shape on back). OK to use ice pack for this bite.
- Evidence of infection: swelling, redness, drainage, fever, red streaks proximal to wound.
- Immunocompromised patients are at an increased risk for infection.(diabetes, chemotherapy, transplant patients)
- May use soap and water to clean wounds if time and patient condition allows.
- Consider contacting the US/Texas Poison Control Center for guidance. 1-800-222-1222

BURNS T.02

History	Signs and Symptoms	Differential
• Type of exposure(Electrical, Heat, Gas, Chemical) • Inhalation injury • Time of Injury • Past medical history and Medications • Other trauma • Loss of Consciousness • Tetanus/Immunization status	• Burns, pain, swelling, abrasion • Dizziness • Loss of consciousness • Hypotension/shock • Airway compromise/distress singed facial or nasal hair, hoarseness/wheezing	• Superficial (1°) red and painful • Partial thickness (2°) blistering • Full thickness (3°) painless and charred or leathery skin • Respiratory distress/failure • Chemical • Thermal • Electrical • Radiation • Cyanide/CO Exposure • Other trauma

Consider Guidelines:

- Universal Patient Care Guideline
- Airway Guideline
- Eye Injury/Complaint Guideline
- Pain Management Guideline

Procedures:

BLS

- Oxygen: Titrate to Sp02 > 94% -99%

Thermal

- Remove rings, bracelets, and other constricting items
- Burns < 10% body surface area:
  - Cool down the wound with Normal Saline or Sterile Water
  - Cover burn with a Dry sheet or dressings
- Burns > 10% body surface area:
  - Cover burn with a Dry sheet or dressings
  - Calculate burn % using rule of 9's (Adult), rule of palms, or Lund Browder (Pedi)

Chemical

- Remove clothing or expose area Brush off any dry chemicals or powder
- Continuously flush area with water or crystalloid

AEMT

- Burns >10% BSA (Partial and Full Thickness)
  - Adult IV Crystalloid using ISR Rule of 10 (see Pearls below)
  - **Pedi** IV Crystalloid using Parkland Formula (4ml x Kg x %TBSA, ½ over first 8hr).

ALS

- High Voltage Electrical or Lighting Consider 12 Lead ECG
- Pain management as necessary
- Monitor ETCO2 if multiple doses of Narcotic Medication administered

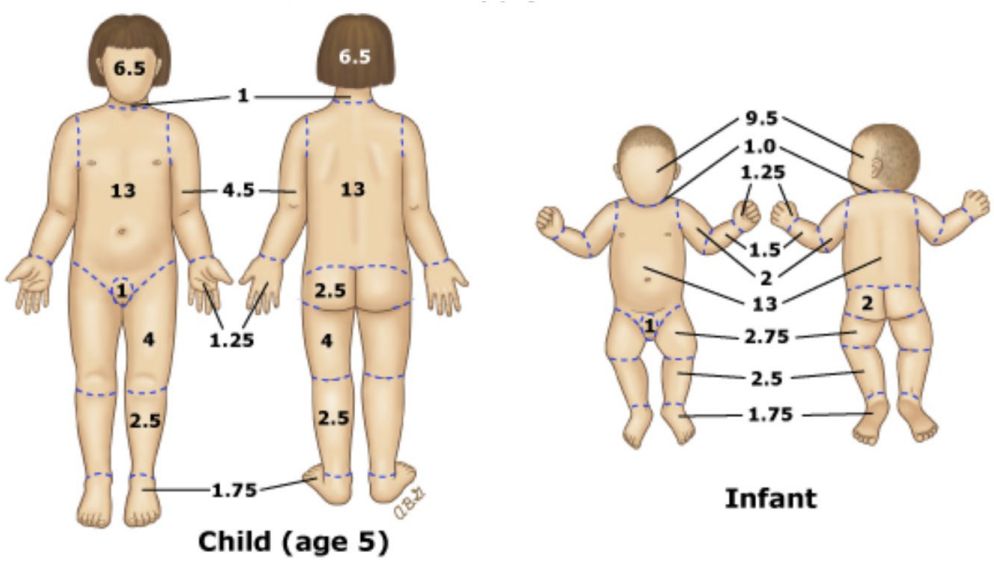
Pearls / Additional Considerations:

- **ISR Rule of 10 (Adults)**:
  - Patients 40-80 kg: % TBSA x 10 ml = initial rate (ml/hr)
  - Patients > 80 kg: add 100 ml/hr for every 10 kg > 80 kg

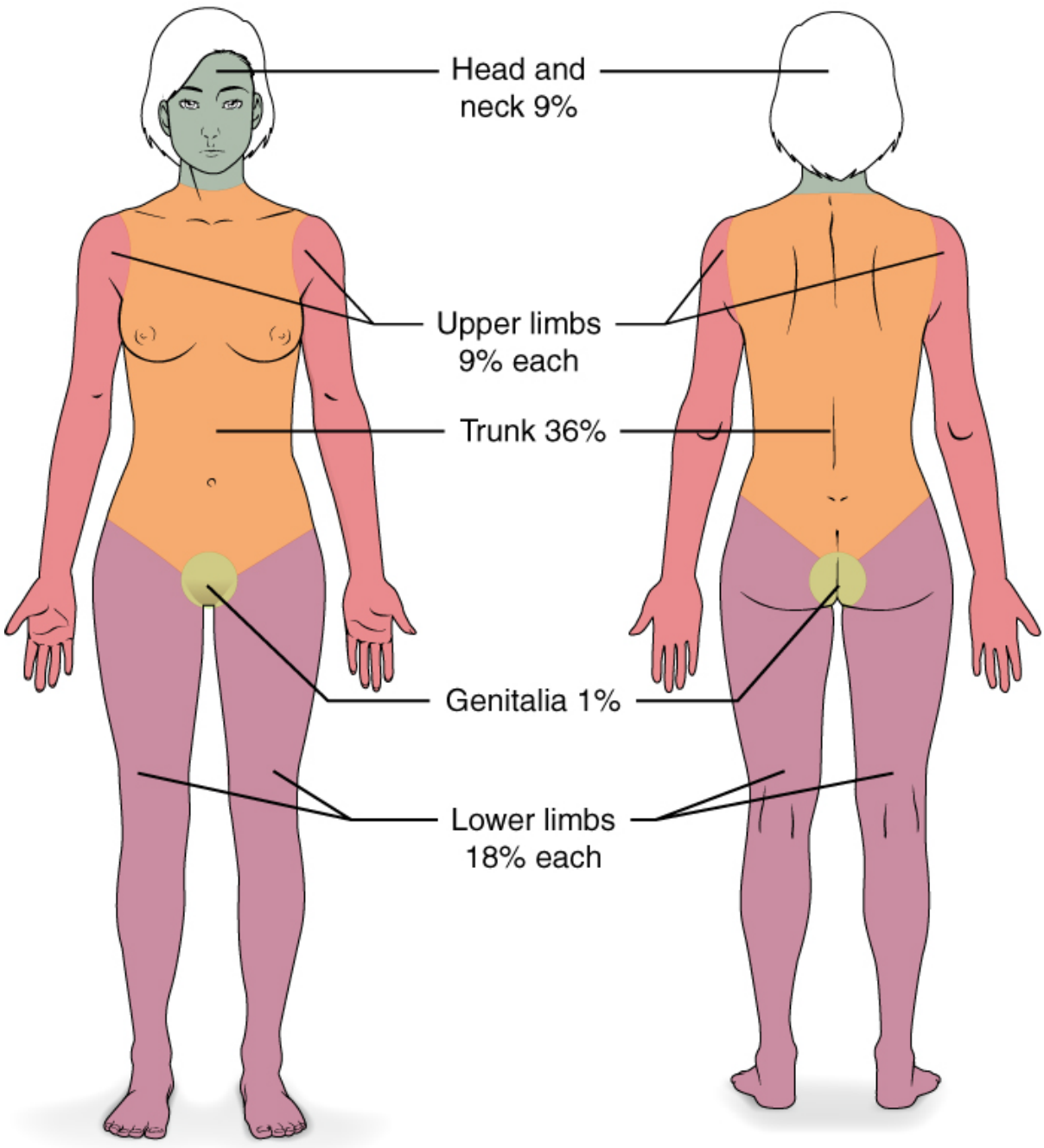
Example: 75 kg patient, 50% TBSA = initiate fluid at 500 ml/hr; 100 kg patient, 50% TBSA = 700 ml/hr

- **Critical Burns:**
  - >20% 2° and 3° body surface area (BSA) age > 10;
  - >10% BSA age < 10 or > 50;
  - 3° burns >5% BSA;
  - 2° and 3° burns to face, eyes, hands or feet or genitalia; electrical burns; respiratory burns; deep chemical burns;
  - Burns with extremes of age or chronic disease; and burns with associated major traumatic injury.

- Minor burns (< 5% BSA 2nd and 3rd) not complicated by airway compromise or trauma do not require transport to a trauma center.
- Evaluate BSA using chart or use one side of patient's hand. Palm = 1% BSA
- Potential CO/CN exposure should be treated with 100% oxygen.
- Circumferential burns to extremities are dangerous due to potential vascular compromise 2° to soft tissue swelling.
- Burn patients are prone to hypothermia - Never apply ice or cool burns that involve >10% body surface area.
- Do not overlook multiple system trauma with burn injuries. Transport multisystem trauma to nearest appropriate trauma center. Isolated burn injuries transport directly to burn center.



Numbers refer to the percentage body surface area burned.


Head and
neck 9%
Upper limbs
9% each
Trunk 36%
Genitalia 1%
Lower limbs
18% each

DROWNING T.03

History	Signs and Symptoms	Differential

• Submersion in water regardless of depth
• Possible history of trauma ie: diving board
• Duration of immersion
• Temperature of water
• Fresh/Salt Water
	• Unresponsive
	• Mental status changes
	• Decreased or absent vital signs
	• Vomiting
	• Coughing
	• Rales/Ronchi
		• Trauma
		• Pre-existing medical problem
		• Pressure injury (diving)
		  ○ Barotrauma
		  ○ Decompression sickness

Consider Guidelines:

- Universal Patient Care Guideline
- Cardiac Arrest Guideline
- Respiratory Distress Guideline
- Spinal Motion Restriction Guideline If traumatic mechanism
- Airway Guideline
- Hypothermia Guideline

Procedures:

BLS

Conscious patient:

No Respiratory Distress:

- Oxygen titrate to SPO2 between 94%-99%
- Monitor ETCO2: Target range 35-45mmHg (IA)
- Continue to monitor patient

Respiratory Distress:

- Oxygen titrate to SPO2 between 94%-99%
- Albuterol 2.5 mg Neb may repeat x2 (7.5mg total) if respiratory symptoms persist.
- Ipratropium Bromide 0.5 mg Neb may repeat x1 (max 1mg)
- CPAP start at 5 cm H2O, up to 15cm H2O with continued respiratory distress/hypoxia.

Unconscious patient:

- Assess breathing and pulse.
- Airway management w/ PEEP 5 cm H2O up to 15cm H20 for pulmonary edema / CPR as appropriate (refer to appropriate COG).
- Consider BIAD

AEMT

Conscious patient:

- Respiratory Distress: Albuterol 2.5 mg Neb (continuous as needed (max 10mg))

Unconscious patient:

- Consider BIAD

ALS

- Consider intubation in the persistently apneic patient

Pearls / Additional Considerations:

- Criteria for resuscitation includes suspected arrest from cause other than submersion, patient submersion time less than 20 minutes (based on time last seen on the surface or 911 call) or less than 20 minutes from arrival of the first Public Safety entity until the patient is in a position for resuscitative efforts to be initiated.
- Rescue efforts may switch to recovery at the discretion of the Incident Commander based on estimated submersion time and/or time elapsed before effective resuscitation efforts can be initiated.
- If PT remains hypoxic after all BLS maneuvers are successful, consider turning up O2 and titrate PEEP up to a max of 15cmH2O PRN. Consider potential for hypotension with higher PEEP.
- SMR should be used when a suspected or known traumatic mechanism preceded the drowning.
- All victims should be transported for evaluation due to potential for worsening over the next several hours.
- Drowning is a leading cause of death among would-be rescuers. Allow appropriately trained rescuers to remove victims from areas of danger.
- With pressure injuries (decompression/barotrauma), if possible, transport dive computer and/or dive logs with patient.
- Consider CPAP early if respiratory distress for any age if adequate mask seal can be established.

EYE INJURY T.04

History	Signs and Symptoms	Differential
• Time and injury/onset • Blunt/penetrating/chemical • Involved chemicals/MSDS • Wound Contamination • Medical Hx • Tetanus status • Normal visual acuity • Medications • Detached retina	• Pain, swelling, blood • Deformity, contusion • Visual deficit/Loss • Leaking aqueous/vitreous humor • Upwardly fixed eye • Shooting or streaking light • Visual contaminants • Rust ring • Lacrimation	• Abrasion/Laceration • Globe rupture • Retinal nerve damage • Chemical/thermal burn • Orbital Fx • Orbital compartment syndrome • Neurological event • Acute glaucoma • Retinal artery occlusion

Consider Guidelines:

- Universal Guideline
- Pain Guideline
- Nausea/Vomiting Guideline

Procedures:

BLS

- Evaluate pupils
- Complete neuro exam
- Screen for unrecognized chemical/agent exposure
- If chemical or burn: irrigate with copious amounts of sterile water or Crystalloid solution
- **Cover both eyes** when indicated
- If out of the socket: Cover with sterile water or Crystalloid soaked gauze
- If impaled object: stabilize, then **cover both eyes**

AEMT

- IV as needed
- Avoid vomiting (Consider Zofran prophylaxis)
- Irrigation with Lidocaine: Mix 100mg of 2% Lidocaine in 1L of Isotonic crystalloid, irrigate the affected eye with Lidocaine irrigation solution

ALS

Pearls / Additional Considerations:

- Normal visual acuity can be present even with severe injury.
- Remove contact lens when possible. If adherent to globe do not force. Irrigation may assist in removal.
- Any chemical or thermal burns to the face/eyes should raise concern for a respiratory insult
- Orbital fx raise concern for globe or nerve injury or compartment syndrome and the need for repeat assessments
- Always cover both eyes to prevent further insult
- Use shields, not pads, to prevent additional pressure on the injured eye. Pads ok for the uninjured eye.
- DO NOT remove impaled objects
- Suspected globe rupture or compartment syndromes require emergent evaluation.

HEAD TRAUMA T.05

History	Signs and Symptoms	Differential
• Time of injury • Mechanism: blunt/penetrating • Loss of consciousness • Bleeding • Medical HX, meds, allergies • Evidence of multi-trauma • Helmet use or damage to helmet	• Pain, swelling, bleeding • Altered mental status • Unconscious • Respiratory distress/failure • Vomiting • Significant mechanism of injury • Pupillary abnormalities • CSF leaking from ears, nose, mouth • Seizure • Altered GCS	• Skull fracture • Brain injury (concussion, contusion, hemorrhage, or laceration) • Epidural hematoma • Subdural hematoma • Subarachnoid hemorrhage • Intracranial hemorrhage • Spinal injury • Abuse • Alcohol Intoxication

Consider Guidelines:

- Universal Patient Care Guideline
- Spinal Motion Restriction Guideline
- Multiple Trauma Guideline
- Airway Guideline
- Seizure Guideline
- Altered Mentation Guideline

Procedures:

BLS

- Consider SMR
- Control external hemorrhage
  - ***Wound packing is not performed on wounds above the neck***
- Oxygen, target SPO2 94%↔ 99%
- Elevate head of bed to ~20º
- Assist ventilations as needed to SAO2 > 94% and ETCO2 goal ~35mmHg (I/A)
- Blood Glucose
- Obtain and Record GCS
- Monitor and reassess patient q 5 min

AEMT

- IV/IO
- Avoid hypotension in the head injured patient
  - Crystalloid 20ml/kg IV/IO PRN
    - ✓ Adult titrate to SBP>110mmHg (or MAP of 80mmHg)
    - ✓ **Pedi** titrate to SBP > 90mmHg

ALS

- Seizure
  - Midazolam (IA)
    - ✓ Adult 5 mg IM/IN/IO/IV May repeat PRN (max total dose 10 mg). Hold for SBP < 100 mmHg
    - ✓ **Pedi** 0.1mg/kg IV/IO/IM/IN (max total 5 mg). Hold for SBP < age appropriate value. Do not admin if <5kg.

Pearls / Additional Considerations:

- **Avoid Hypotension, Hypoxia and AVOID Hyperventilation. ETCO2 target is 35-40mmHg.**
- Head of bed should always be elevated with head injuries.
- Increased intracranial pressure (ICP) may cause hypertension and bradycardia (Cushing's Response).
- If hypotension consider spinal shock or additional occult injury as source.
- Hypotension is devastating to neurologic injury and should be aggressively treated. IVF may be used to target SBP.
- It is essential to monitor and document baseline mental status and any change in the level of consciousness.
- Evidence of brain herniation includes blown pupil, Cushing's reflex, rapid decline in GCS, or bradycardia.
- Consider Restraints if necessary for patient's and/or personnel's protection per the Restraint Procedure.
- Concussions are periods of confusion or LOC associated with trauma which may have resolved by the time EMS arrives. Any documented loss of consciousness, prolonged confusion or mental status abnormality should be evaluated by a physician ASAP.

Glascow Coma Score (GCS)	**Adult**	**Infant**	**Score**
Eye opening	Spontaneous	Spontaneous	4
	To speech	To speech	3
	To pain only	To pain only	2
	No response	No response	1
Best verbal response	Oriented, appropriate	Coos and babbles	5
	Confused	Irritable cries	4
	Inappropriate words	Cries to pain	3
	Incomprehensible sounds	Moans to pain	2
	No response	No response	1
Best motor response	Obeys commands	Moves spontaneously and purposefully	6
	Localizes painful stimulus	Withdraws to touch	5
	Withdraws in response to pain	Withdraws to response in pain	4
	Flexion in response to pain	Abnormal flexion posture to pain	3
	Extension in response to pain	Abnormal extension posture to pain	2
	No response	No response	1

GCS Reference

MULTI-TRAUMA T.06

History	Signs and Symptoms	Differential

• Time and mechanism of injury
• Damage to structure or vehicle
• Location in structure or vehicle
• Others injured or dead
• Speed and details of MVC
• Restraints/protective equipment
• Past medical history
• Medications
	• **M** – Massive Hemorrhage
	• **A** – Airway
	• **R** – Respirations (decompression)
	• **C** – Circulation (IV, TXA)
	• **H** – Hypothermia/Head Injury (keep warm, manage head injury)
	• Pain, swelling
	• Deformities
	• Hypotension/Shock
	• Arrest
		• Chest
		  ○ Tension pneumothorax
		  ○ Flail chest
		  ○ Pericardial tamponade
		  ○ Open chest wound Hemothorax
		• Intra-abdominal bleeding
		• Pelvis/Femur fracture
		• Spine fracture/Cord injury
		• Head injury (see Head Trauma)
		• Extremity fracture / Dislocation
		• HEENT (Airway obstruction)
		• Hypothermia

Consider Guidelines:

- Universal Patient Care Guideline
- Airway Guideline as needed
- Spinal Motion Restriction Guideline

Procedures:

BLS

- Control external hemorrhage and apply tourniquet (s) as necessary
- Wound Packing (Junctional/Extremity only) with pressure dressing as appropriate for patient. (I/A).
- Junctional Tourniquets if needed (I/A).
- BLS Airway management
- Place occlusive dressing/chest seal over open pneumothorax
- Evaluate for SMR
- Assess GCS score
- Apply pelvic binder if appropriate
- Elevate head of bed and keep patient warm
- Oxygen**,** Target SPO2 94% ↔ 99%
- Monitor ETCO2: Target range 35-45 mmHg (IA)
- Bandage/splint injuries as appropriate for patient condition
- <u>If amputation</u>: **Do not delay transport for tissue retrieval**
  - Rinse amputated part with sterile (IC or water).
  - Wrap part in IC moistened gauze
  - Place tissue into plastic bag or container.
  - Place bag / container on ice

AEMT

SBP

- **Adult < 90 mmHg**
  - If suspected neurologic injury maintain MAP >80 (or SBP >110)
  - Compressible Hemorrhage: Crystalloid bolus to maintain SBP 90 mmHg (Max 2L)
  - NON-Compressible Absence of Neurologic Injury: Crystalloid bolus to maintain SBP 70 mmHg
- **Pedi < SBP 70 + (age in years x 2) mmHg**
  - If suspected neurologic injury maintain SBP 90mmHg
  - Compressible Hemorrhage: Crystalloid bolus to maintain age appropriate SBP 70 + (age in years x 2) mmHg
  - NON-Compressible without suspicion of TBI: SBP 60+ (age in years x 2) mmHg

ALS

- 12 lead placement and acquisition if appropriate and equipped
- SBP < 90 mmHg
- Consider chest decompression
- Consider TXA
  - Adult - IV/IO 2gm slow push (IA)
  - **Pedi** - IV/IO 15mg/kg slow push (IA)
- Neurogenic Shock: Norepinephrine (Levophed) (IA)
  - Adult 2-30 mcg/min IV infusion titrated to SBP > 90
  - **<u>Pedi</u>** 0.05-1 mcg/kg/min IV titrated to age appropriate SBP (max 30mcg/min)

Pearls / Additional Considerations:

- **<u>Pediatric</u>**:
  - Defined as < 37 kg
  - Consider non-accidental trauma (child abuse)
- Consider chest decompression with signs of shock and diminished/absent breath sounds. If patient arrests perform bilateral decompression
- If patient meets Trauma Activation criteria interventions should be performed enroute. Minimize scene time.
- Severe bleeding from an extremity not rapidly controlled by direct pressure may necessitate the application of a tourniquet
- Junctional areas (axilla, groin) may require wound packing for bleeding control.
- Permissive hypotension should be used in the absence of neurologic injury.
- Peripheral neurovascular status should be documented on all extremity injuries and before and after splinting procedures.
- In amputations, time is critical. Transport and notify medical control immediately, so that the appropriate destination can be determined.
- If an amputation is incomplete, splint affected digit or limb in physiologic position
- Hip dislocations and knee and elbow fracture/dislocations have a high incidence of neuro-vascular compromise
- Urgently transport any injury with vascular compromise
- Blood loss may be concealed or not apparent with extremity injuries

SPINAL MOTION RESTRICITION T.07

History	Signs and Symptoms	Differential
• Back/Neck Pain • Mechanism of injury	• Back/Neck Pain	• Trauma

Consider Guidelines:

- Trauma Guideline
- Head Trauma
- Altered Mental Status
- Syncope

Procedures:

	Transport on LSB/Scoop	Transport w/C-collar ONLY	NO SMR Needed
BLS	• Paralysis • Multi-system Trauma who cannot follow commands • Acute neuro changes with MOI	• Age > 65 • Neck Pain • Back Pain (new onset) • Intoxicated and cooperative • Cervical bony midline Tenderness • Consider for those with a language barrier	• **NO** Injury • **NO** Midline tenderness • **NO** Pain with movement • **NO** Distracting injury • **NO** communication impairment • **Normal mental status** • **NO** Intoxication • **NO** neuro abnormalities
AEMT			
ALS			

Pearls / Additional Considerations:

- **Recommended Exam**: Mental Status, Skin, Neck, Heart, Lungs, Abdomen, Back, Extremities, Neuro
- Consider SMR in any patient with arthritis, cancer, dialysis or other underlying spinal or bone disease.
- The decision to NOT implement SMR in a patient is the responsibility of all Providers/Responders.
- In very old and very young, a normal exam may not be sufficient to rule out spinal injury.
- Patient's Range of Motion (ROM) should NOT be assessed if patient has midline spinal tenderness. If ROM is assessed, the patient should touch his chin to his chest, extend his neck (look up), and turn his head from side to side (shoulder to shoulder) without pain.
- A LSB may be used to assist in patient movement and extrication. It's use as a patient movement tool alone does not necessarily indicate a requirement for SMR. Provider/Responder judgement and application of this Guideline will determine the need for SMR.
- If a C-collar will not fit the patient, towels or other such materials should be used to stabilize the patients C-spine in lieu of the C-collar.

SMR Guidelines:

- Utilization of the LSB should occur in consideration of the individual patient's benefit vs. risk.
- Whether or not a LSB is utilized, spinal precautions are STILL VERY IMPORTANT in patients at risk for spinal injury. Adequate spinal precautions may be achieved by placement of a hard cervical collar and ensuring that the patient is secured tightly to the stretcher, ensuring minimal movement and patient transfers, and manual in-line stabilization during any transfers.
- If the Provider or First Responder has a concern for spinal cord injury not addressed by these criteria; patients may be SMR at the Provider's/Responder's discretion. **If a patient has been SMR it should not be removed pre-hospital.**

TRAUMATIC ARREST T.08

History	Signs and Symptoms	Differential
• Patient who has suffered traumatic injury and is now pulseless	• Evidence of penetrating trauma • Evidence of blunt trauma	• Medical condition preceding traumatic event as cause of arrest. • Tension Pneumothorax • Hypovolemic Shock • External hemorrhage • Unstable pelvic fracture • Displaced long bone fracture(s) • Hemothorax • Intra-abdominal hemorrhage • Retroperitoneal hemorrhage • Cardiac tamponade

Consider Guidelines:

- Universal Patient Care Guideline
- Post Resuscitation Guideline
- Spinal Motion Restriction Guideline

Procedures:

BLS

- CPR Procedure w/ BVM, Oxygen, BLS airway (may apply Nasal Cannula and run at 15 LPM). BIAD as needed.
  (Consider criteria for withholding resuscitation – see pearls below)
- Control bleeding;
  - Pelvic Binder Procedure
  - Tourniquet Procedure
  - Wound Packing Procedure
- Support ALS procedures for trauma as appropriate (see pearls below)

AEMT

- Establish large bore IV and/or or proximal IO access.
- Consider Bilateral Pleural Decompression Procedure for known/suspected chest trauma
  - Submit Pleural Decompression Tracking form

ALS

- Intubation only if BIAD inadequate
- Consider TXA
  - Adult - IV/IO 2gm slow push (IA)
  - **Pedi** - IV/IO 15mg/kg slow push (IA)

Pearls / Additional Considerations:

- **FOR BLUNT TRAUMA, ALS Transport Providers may perform the following procedures PRIOR TO TRANSPORT:** Bilateral simple thoracostomies / ensuring adequate airway for oxygenation and ventilation / initiation of blood products / TXA administration / cardiac or thoracic ultrasound.
- Discontinuation/No initiation of Resuscitation.
  1. Injuries obviously incompatible with life (decapitation, incineration, obvious destruction of vital organs of torso/head)
  2. Drowning with submersion > 20 minutes from arrival of first Public Safety entity to patient in position for resuscitation.
- If uncertainty exists regarding medical or traumatic cause of arrest, consider using medical cardiac arrest guidelines

CRUSH INJURIES T.09

History	Signs and Symptoms	Differential

• Prolonged immobility
• Compressed body part(s)
• Time/Duration of compression
• Renal/Cardiac history
• Additional trauma
• Loss of consciousness
• Air quality
	• <u>Compartment Syndrome</u>
	  ○ Pain on passive stretch
	  ○ Paresthesia
	  ○ Paralysis
	  ○ Pallor
	  ○ Pulselessness
	• Hypotension/Shock
	• Altered Mental Status
		• Skin irritant exposure
		• Toxic inhalation
		• Dust concretions in airway
		• Hypo/Hyperthermia
		• Hyperkalemia
		• Dehydration
		• ECG Abnormalities
		• Additional trauma

Consider Guidelines:

- Universal Guideline
- Airway Guideline
- Multiple Trauma Guideline
- Wide Complex Tachycardia
- Cardiac Arrest Guideline
- Spinal Motion Restriction Guideline

Procedures:

BLS

- Treatment in a confined space should be performed only by appropriately trained personnel.
- NOTE: Air quality monitoring should be conducted and documented prior to entry into a confined space.
- Continuous air quality monitoring must be maintained once contact is made with the victim and when any rescuer is in a confined space.
- Document air quality measurement at the patient location on PCR.
- Remove rings, bracelets, and other constricting items
- N95 mask PRN for dust environment
- Oxygen: Target 94%-99%

AEMT

- Large-bore IV access x 2
- Maintenance infusion at 1.5L/hr during extrication.
- If adequate hemodynamics may reduce to 500ml/hr **once extricated**

ALS

- Sodium Bicarbonate 1 amp should be added to each liter crystalloid
- ECG Monitoring, once practical
- Push Sodium Bicarbonate 1mEq/kg slow IV push at the time of reperfusion/release
- Fentanyl (Adult and Pedi) 1mcg/kg IV/IM/IN/IO if SBP > 100mmHg; may repeat at 0.5mcg/kg q 5min for a max of 300mcg (IA)

Pearls / Additional Considerations:

- Consider Rocuronium as the first line paralytic for DAI/RSI if required due to the risk of hyperkalemia in crush injured patients.
- Hydration should begin prior to extrication whenever possible. Large volume resuscitation prior to removal of the crush object and extrication is critical to preventing secondary renal failure and death.
- Crush injury is usually seen with compression of 4-6 hrs. but may occur in as little as 20 min.
- If possible, monitor the patient for signs of compartment syndrome (pain, pallor, paresthesias, pulselessness)
- Crush injury victims can 3rd space > 12L in the first 48 hrs.
- Elderly patients should be monitored closely for volume overload but do NOT withhold fluids unless there are clinical signs/symptoms of volume overload.
- The larger the mass crushed (i.e., more limbs), the greater the likelihood of severe rhabdomyolysis and renal failure.
- Crush injury may cause profound electrolyte disturbances resulting in dysrhythmias. Monitor if possible.
- Do not overlook treatment of additional injuries, airway compromise, or hypothermia/ hyperthermia.
- Nebulized saline and/or albuterol should be administered to victims with dust concretions in the airway.
- ETCO2 monitoring if multiple doses of Narcotic Medication are administered

APGAR Scoring

The APGAR score is tool used to evaluate and document a newborn's response to the extra uterine environment. It is generally performed at 1 minute, and again at 5 minutes after birth.

APGAR scores

10 Infant is in best possible condition
7-9 Infant is slightly depressed but near normal 4-6 Infant is moderately depressed
0-3 Infant is severely depressed

Thorough assessment, not APGAR scoring, should determine if, and what type of resuscitation efforts may be required for a newborn

APGAR

1 Minute		5 Minutes
	A Appearance P Pulse G Grimace A Activity R Respiratory 0=Absent 1=Weak 2=Strong	
Total_____		Total_____

	Sign	0 Points	1 Point	2 Points
A	Appearance (Skin Color)	Blue-gray, pale all over	Pink except for extremities	Pink over entire body
P	Pulse	Absent	<100/min	>100/min
G	Grimace (Reflex Irritability)	No response to stimuli	Grimaces in response to stimuli	Sneezes, coughs, pulls away
A	Activity (Muscle Tone)	Absent, flaccid	Arms and legs flexed	Active movement
R	Respiration	Absent	Slow, irregular	Good, crying

APGAR scores should be assessed at 1 minute and again at 5 minutes after birth.
Resuscitation efforts should not be stopped or delayed in order to obtain an APGAR Score

Approved Abbreviations

A

Â	Before	**A&Ox3**	Alert & oriented to (PPT)
AAA	Abdominal aortic aneurysm	**Abd**	Abdomen
AB	Abortion	**ABC**	Airway, breathing, circulation
ABG	Arterial blood gas	**a.c.**	Before meals
A/C	Aircraft	**ACE**	Angiotensin-converting enzyme
ACS	Acute Coronary Syndrome	**a.d.**	Right ear (auris dexter)
ADD	Attention deficit disorder	**A.E.**	Above elbow (amputation)
AED	Automated external defibrillator	**A Fib**	Atrial fibrillation
Af	Atrial flutter	**AIDS**	Acquired immunodeficiency syndrome
AIVR	Accelerated Idioventricular rhythm	**A.K.**	Above knee (amputation)
ALS	Advanced Life Support	**AMI**	Acute myocardial infarction
Ant	Anterior	**AOS TF**	Arrived On Scene To Find
APAP	Acetaminophen (APAP)	**APS**	Adult Protective Services
APGAR	Appearance, Pulse, Grimace, Activity, Respiratory effort	**ARDS**	Adult respiratory distress syndrome
AS	Left ear (auris sinistra)	**ASA**	Acetyl salicylic acid (Aspirin)
ATF	Arrived to find	**AV**	Atrioventricula

AVA	Alternate vascular access	**AVM**	Arteriovenous malformation

B

BBB	Bundle branch block	**BBS**	Bilateral breath sounds
B.E.	Below elbow (amputation)	**BGL**	Blood glucose level
B.I.A.D. **b.i.d.**	Blind Insertion Airway Device Twice a day	**B.K**	Below knee (amputation)
BLS	Basic life support	**BM**	Bowel movement
BP	Blood Pressure	**BS**	Breath, bowel sounds
BSA	Body surface area	**BVM**	Bag valve mask

C

C	With	**Cº**	Centigrade
C/C	Chief complaint	**c/o**	Complains / complaining of
CA	Carcinoma, cancer	**Ca++**	Calcium
CABG	Coronary artery bypass graft	**CAD**	Coronary artery disease
CAO x 3 or 4 or PPT	Conscious, Alert, & Oriented to Person, Place, Time & Events	**CAT/CT**	Computerized axial tomography scanner
CBC	Complete blood count	**Cc**	Cubic centimeter
Cm	Centimeter	**CCB**	Calcium channel blocker
CCU	Coronary / critical care unit	**CHF**	Congestive heart failure
CHI	Closed head injury	**CID**	Cervical Immobilization Device
CK	Creatine kinase	**CK-MB**	Creatine kinase myocardial band
Cl	Chlorine	**CNS**	Central nervous system
COPD	Chronic obstructive pulmonary disease	**CO**	Cardiac output / carbon monoxide

CO2	Carbon dioxide	**+CMS**	Positive circulatory, motor & sensory function
CNS	Central nervous system	**CP**	Chest pain
CPAP	Continuous positive airway pressure	**CPR**	Cardiopulmonary resuscitation
CPS	Child Protective Services	**CRT**	Capillary refill time
CPSS	Cincinnati Prehospital Stroke Screen	**CSF**	Cerebrospinal fluid
CSM	Carotid sinus massage	**CTA**	Clear to auscultation
CVA	Cerebrovascular accident	**CVP**	Central venous pressure
Cx	Chest	**CXR**	Chest x-ray
C-spine	Cervical Spine		

D

DCAP BTLS	Deformities, Contusions, Abrasions, Penetrations, Paradoxical movements, Burns, Tenderness, Lacerations, Swelling	**DIC**	Disseminating intravascular coagulation
Diff	Difficulty	**Disch**	Discharge
D&C	Dilatation & curettage	**dL**	Deciliter (1/10 liter: 100 ml)
DAE	Dysbaric air embolism	**DKA**	Diabetic ketoacidosis
DM	Diabetes mellitus	**DNAR**	Did not attempt resuscitation
DNR	Do-not-resuscitate	**DOB**	Date of birth
DOE	Dyspnea on exertion	**DOS**	Dead on scene
DPT	Diphtheria, pertussis, tetanus	**DT's**	Delirium tremens
D5W	Dextrose 5% in water	**D10W**	Dextrose 10% in water
D25W	Dextrose 25% in water	**D50**	50% Dextrose
DVT	Deep vein thrombosis	**Dx**	Diagnosis

E

ECG/EKG	Electrocardiogram	**EDC**	Estimated date of confinement
EEG	Electroencephalogram	**EF**	Ejection fraction
e.g.	For example	**EPS**	Electrophysiological study
ER/ED	Emergency room/department	**Epi**	Epinephrine
Est.	Estimated	**ESRD**	End stage renal disease
ETA	Estimated time of arrival	**ET**	Endotracheal
ETC02	End-tidal carbon dioxide	**ETOH**	Ethyl alcohol, alcoholic beverage
ETT	Endotracheal tube	**EXP**	Expansion
EXT	Extremity(s)		

F

F	Female	**Fº**	Fahrenheit
FBAO	Foreign body airway obstruction	**FHx**	Family history
FHR	Fetal heart rate	**Fr**	French
FSP	Full spinal precaution	**FUO**	Fever of unknown origin
Fx	Fracture		

G

G (+ #)	Gravida (G3, G4 etc.)	**GCS**	Glasgow coma scale/score
GERD	Gastroesophageal reflux disease	**GI**	Gastrointestinal
Gm, g	Gram	**Gtts**	Drops
GU	Genitourinary	**GYN**	Gynecology

H

h, hr	Hour	**H/A**	Headache

HAV	Hepatitis A virus	**HBV**	Hepatitis B virus
HCTZ	Hydrochlorothiazide	**HCV**	Hepatitis C virus
HEENT	Head, eyes, ears, nose, throat	**H&H**	Hemoglobin and hematocrit
Hg	Mercury	**HIV±**	Human immunodeficiency virus
HR	Heart rate	**HRT**	Hormone replacement therapy
hs	At bedtime	**HTN**	Hypertension
Hx	History		

I

ICD	Implanted cardioverter defibrillator	**ICP**	Intracranial pressure
ICU	Intensive care unit	**IDDM/DM I**	Insulin dependent diabetes mellitus (Type I)
ILS	Intermediate life support	**IM**	Intramuscular
IMV	Intermittent mechanical ventilation	**Inf**	Inferior
IO	Intraosseous	**IPPB**	Intermittent positive pressure breathing
IU	International units	**IV**	Intravenous
IVP	IV push	**IVR**	Idioventricular rhythm

J

J	Joules	**JVD**	Jugular venous distention

K

K+	Potassium	**KED**	Kendrick extrication device
KTD	Kendrick traction device	**KVO**	Keep vein open
Kg	Kilogram		

L

L	Left or Liter	**L spine**	Lumbar spine
L&D	Labor and delivery	**L/S**	Lung sounds
Lac	Laceration	**LAD**	Left axis deviation / left anterior descending
Lbs	Pounds	**LBBB**	Left bundle branch block
LGL	Lown-Ganong-Levine syndrome	**Liq**	Liquid
LLQ	Lower left quadrant	**LMA**	Laryngeal Mask Airway
LMP	Last menstrual period	**LOC**	Level/loss of consciousness
Lpm	Liter per minute	**LR**	Lactated Ringer's
LSB	Long spine board	**LSD**	Lysergic acid diethylamide
LUQ	Left upper quadrant	**LVAD**	Left Ventricular Assist Device
LVH	Left ventricular hypertrophy		

M

m	Meter	**M**	Male
mA	Milliamperes	**mg**	Milligram
MAE	Moves all extremities	**MAP**	Mean arterial pressure
Mcg	Microgram	**MCL**	Midclavicular line, modified chest lead
MDI	Metered dose inhaler	**mEq**	Milliequivalent
mL	Milliliter	**mm**	Millimeter
MMR	Measles, mumps, rubella	**MOI**	Mechanism of injury
Mph	Miles per hour	**MS**	Morphine Sulfate, Multiple Sclerosis
MVA	Motor vehicle accident	**MVP**	Mitral valve prolapse

N

Na+	Sodium	**NAD**	No apparent / acute distress

N/C	Nasal canula	**NES**	Non-English Speaking
NGT	Nasogastric tube	**NH**	Nursing home
NICU	Neurological, neonatal intensive care unit	**NIDDM/DM II**	Non insulin dependent diabetes mellitus (Type II)
NKA	No known allergies	**NKDA**	No known drug allergies
NMB	Neuromuscular blockade	**NOI**	No obvious injury
NP	Nurse Practitioner	**NPA**	Nasopharyngeal airway
NPO	Nothing by mouth	**NRB**	Non-rebreather mask
NS	Normal saline	**NSAID**	Non-steroidal anti-inflammatory drug
NT	Nasotracheal	**NTG**	Nitroglycerin
N/V/D	Nausea, vomiting, diarrhea		

O

02	Oxygen	**OB**	Obstetrics
OBS	Organic brain syndrome	**OBV**	Obvious
OD	Overdose, right eye (oculus dexter)	**OLMC**	On-line medical consultation
OOH	Out of hospital	**OPA**	Oropharyngeal airway
OPP	Organophosphate poisoning	**OPQRST**	Pain Assessment: onset, provocation, quality, radiation, severity, time
OS	Left eye (oculus sinister)	**OR**	Operating room
oz.	Ounce	**OSS**	Oregon Spine Splint
Ø	No or none		

P

p	After	**p.c.**	After meals
P (+ #)	Parity (P3, P4 etc)	**PA**	Physician assistant, pulmonary artery

PAI	Pharmacologically assisted intubation, Pre-Arrival Instructions	**PASTMED**	Provoking incident, Associated chest pain, Sputum production, Time of onset, Meds, Exercise tolerance, Diagnosis
PCI	Percutaneous coronary intervention	**pC02**	Carbon dioxide pressure
PCP	Phencyclidine, Primary Care Physician	**PCT**	Patient care to
PE	Physical exam, pulmonary emboli, pulmonary edema	**PEA**	Pulseless electrical activity
PEEP	Positive end expiratory pressure	**PERRL**	Pupils equal round reactive to light
PICU	Pediatric intensive care unit	**PID**	Pelvic inflammatory disease
PMD	Primary/Private medical doctor	**Pn**	Pain
PND	Paroxysmal nocturnal dyspnea	**P02**	Partial pressure of oxygen
PO	By mouth	**POC**	Position of comfort
post.	Posterior	**POV**	Privately operated/owned vehicle
p.r.	Per rectum	**PRBC's**	Packed red blood cells
PRN	As needed	**PSVT**	Paroxysmal supraventricular tachycardia
Pt.	Patient	**PTA/PTOA**	Prior to (our) arrival
PTS	Pediatric trauma score	**PVC**	Premature ventricular contraction
PVT	Polymorphic ventricular tachycardia	**P/W/D**	Pink warm and dry

Q

Q	Every	**Qh**	Every hour
q.i.d.	Four times a day		

R

R	Right	**RAD**	Right axis deviation, reactive airway disease
RBBB	Right bundle branch block	**Rbc**	Red blood cell, red blood (cell) count
RCA	Right coronary artery	**RHD**	Rheumatic heart disease
RLQ	Right lower quadrant	**ROSC**	Return of spontaneous circulation
+ROM	Positive range of motion	**RN**	Registered nurse
RR	Respiratory rate	**RSV**	Respiratory syncytial virus
RTS	Revised trauma score	**RUQ**	Right upper quadrant
Rx	Prescription		

S

š	Without	**s/s**	Signs / symptoms
SA02	Oxygen saturation of arterial oxyhemoglobin	**SARS**	Severe acute respiratory syndrome
SBP	Systolic blood pressure	**SC, SQ**	Subcutaneous
SCI	Spinal cord injury	**SCUBA**	Self contained underwater breathing apparatus
IDS	Sudden infant death syndrome	**SL**	Sublingual, Saline Lock
SOAPE	Subjective, Objective, Assessment, Plan, Enroute	**SOB**	Shortness of breath
SROM	Spontaneous Rupture of Membranes	**St**	States
STD	Sexually transmitted disease	**SUV**	Sport utility vehicle
SVT	Supraventricular tachycardia	**Sx**	Symptoms

T

T spine	Thoracic spine	**TBI**	Traumatic brain injury
Temp	Temperature	**tab**	Tablet

TB	Tuberculosis	**Tbsp**	Tablespoon
TCP	Transcutaneous pacing	**TCA**	Tricyclic antidepressant
TdP	Torsades de Pointes	**TIA**	Transient ischemic attack
t.i.d.	Three times a day	**TKO**	To keep open
TOT	Turned Over To	**Tsp**	Teaspoon
Tx	Treatment		

U

u	Unit	**µg**	microgram
U/A	Upon arrival, urine analysis	**URI**	Upper respiratory infection
UTI	Urinary tract infection	**UTL**	Unable to locate
UTO	Unable to obtain		

V

VD	Venereal disease	**Vol**	Volume
VO	Verbal order	**VF**	Ventricular fibrillation
VS	Vital signs	**Vt**	Tidal volume
VT	Ventricular tachycardia		

W

w/	With	**w/o**	Without, wide open
WDWN	Well developed, well nourished	**WNL**	Within normal limits
WPW	Wolf-Parkinson-White		

X

X-fer	Transport	**X-port**	Transport

Y

y/o	Years old

SYMBOLS

α	Alpha	ß	Beta
@	At	?	Questionable, possible
♀	Female	♂	Male
1°	First degree	2°	Second degree
3°	Third degree	x	Times
△	Delta (change)	+	Positive
–	Negative	=	Equal
≠	Not equal to	≈	Approximately
↓	Decreased / below / lower	↑	Elevated / increased / upper
→	Move/went to	↔	Between
#	Number		

Bradycardia Pediatric/Infant Hypotension and HR <60

Pediatric and Infant Pit Crew

(> 5 days and <37 kg or < 81 lbs.)

1. Initial Actions (Goal < 30 sec)

- ☐ Assess for cardiac arrest (1,2)
- ☐ Move patient to adequate space (1,2,3)
- ☐ Power on AED (2,4)
- ☐ Narrate all actions (2,4)

2. CPR / BVM - 1st set (Goal ~ 2 min)

- ☐ 100 manual compressions (1)
- ☐ Open/clear airway, assemble BVM ASAP and ventilate on room air once every 3-4 seconds (3)
- ☐ Turn on Pedi vent. timing light & metronome (2)
- ☐ Place AED pads & connect (2)
- ☐ 2nd set 100 manual compressions (2)
- ☐ Remaining compressions if needed (1)

3. AED / Shock —1st (Goal < 15 sec)

- ☐ Check carotid or brachial pulse during analysis (1)
- ☐ Clear patient & deliver shock if indicated (2)
- ☐ Resume chest compressions (1)

4. CPR & OPA/O2—2nd set (Goal ~ 2 min)

- ☐ 100 manual compressions (1)
- ☐ If not already done, move to 2 handed mask seal (3)
- ☐ Squeeze bag on count by P3 or Pedi timing light(1,2)
- ☐ Assist P3 with adding OPA & N/C @ 25lpm and connect tubing to O2 as soon as available (1, 2, 4)
- ☐ 2nd set 100 manual compressions (2)
- ☐ Remaining compressions if needed (1)

5. AED / Shock—2nd (Goal < 15 sec)

- ☐ Check carotid pulse during analysis (1)
- ☐ Clear patient & deliver shock if indicated (2)
- ☐ Resume chest compressions (1)

6. CPR - 3rd set (Goal ~ 2 min)

- ☐ 100 manual compressions (1)
- ☐ Squeeze bag on count by P3 or timing light (1,2)
- ☐ 2nd set 100 manual compressions (2)
- ☐ Remaining compressions if needed (1)

Repeat steps 5 & 6 until ROSC/TOR/TSP.

****numbers in parentheses refer to Positions****

Charting Standards Document 1.8.2020

The intent of this document is to standardize charting on the ESO platform which is in place for Travis County. Some data points are required by the state and unmodifiable. Others help capture consistent data points which satisfy the Key Performance Indicator's (KPI's). The KPI's in turn help the DCPE and ESD's measure performance and identify areas that direct change in clinical practice, education, and ultimately impact patient outcomes. This is a living document and may change often. If you find discrepancies, have issues or suggestions, please use your chain of command and forward these to our office for review.

The data points within this document MAY NOT satisfy the requirements of your particular agency (i.e. NFIRS). Each agency has the ability to modify (add to, but not take away) this document to suit each ESD's individual date collection requirements.

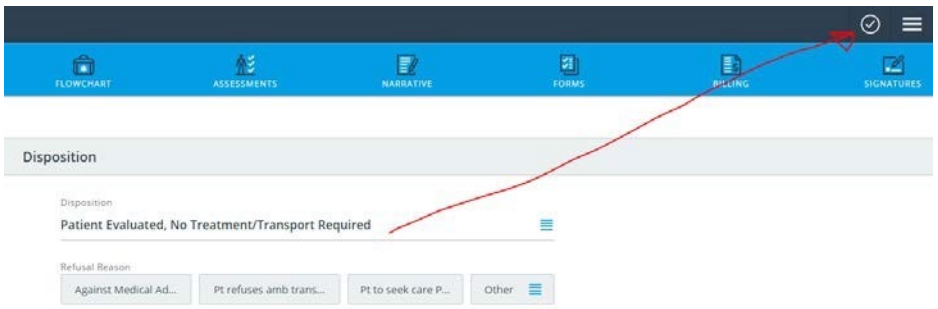
I. Incident

A. Response
   1. Incident Number - populated by EMD
   2. Run Number - populated by EMD
   3. Run Type - this should always be 911 Response or Public Assist for (non-medical i.e. lift assist, non-injury calls)
   4. Priority
   5. Unit
   6. Level of Care - select appropriate
   7. EMD Complaint - enter dispatch complaint

B. Scene
   1. Location
   2. MCI if it applies

C. Personnel

D. Disposition
   1. In most every instance this should be 'Patient treated, transferred care to another EMS professional'. Click on the 'check box' to determine the mandatory fields. There are approximately 30 fields to enter. ~7 of these auto populate. In addition to these 30 validation fields are the assessment and any interventions.



Other accepted entries for the 'Disposition':

a. Patient evaluated, not treatment/transport required (no patient)
b. Patient refused evaluation/care
c. Patient treated, released AMA
d. Cancelled prior to arrival
e. Cancelled on scene/no patient found
f. Patient dead on scene - no resuscitation attempted
g. Assist Agency. This is elected when EMS is on-scene and has established patient care. Regardless of the fact that EMS will write a chart documenting patient care, this is your account of the call – what you and your crew did to aid the patient. Any skill you perform or any care you render should be documented, even if under the direction of EMS.

2. Transferred to
3. Transferred unit

Avoid all other entries - this spreads the data fields.

E. ~~Destination - If known~~
F. Times - Attempt to note EMS on scene and transfer of care time.
G. Additional Factors if they apply

II. **Patient** - an 'UTO' (unable to obtain) switch is active in the event you cannot. Enter a reason either 'PT Refused' or 'Other'; enter the reason for 'Other', i.e. AMS, Unconscious, etc.

A. Demographics - for 'refusals' & 'no patients' only name and DOB, and any other required validation points required to complete the chart are necessary under the **Patient** tab.

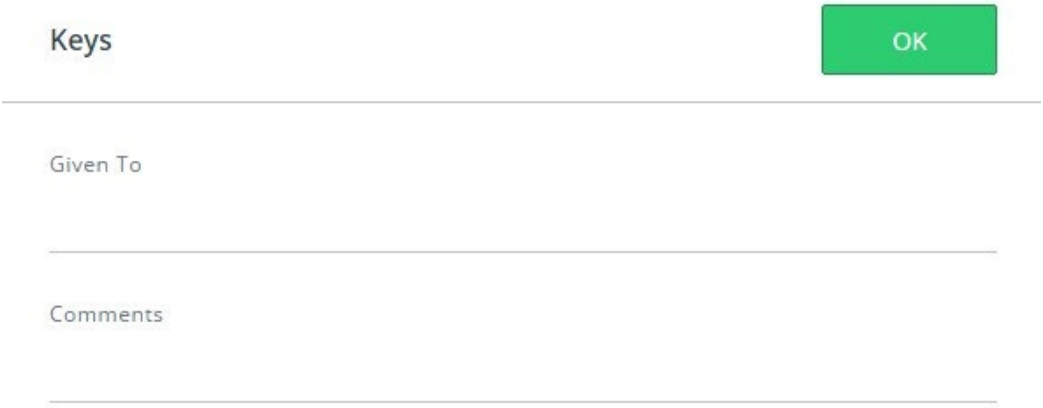
1. Complete name
2. Birthdate
3. Weight, especially if administering Rx
4. Gender
5. Race
6. Ethnicity

Items 2, 3, 4, 5, and 6 all benefit research that drives our practice. Failure to document this information eliminates each patient from these studies - complete whenever possible. B. Contact - Patients residence.

C. History
D. Allergies
E. Medications
F. Belongings - if you notice any high value possession, you are urged to enter these items in the event any allegations are

insinuated. To correctly do so, select 'Add Belongings', select the appropriate item in the drop down, then select
'OK'. Next select the 'Details' tab and select 'Edit' (see below)

A window will open to document whom (if at all) the keys were given to/left with Patient and a comments section.



III. **Vitals** - As per the DCPE policy, TCP_17; please document an initial and q10min thereafter. If your contact time is short, attempt to enter an initial set and hand off set of VS when possible (even if they come from the transport agencies monitor). If the situation prevents a complete assessment, pulses, LOC, skin, and appearance all suffice as VS. In the situation of Rx administration, please document VS before and after administration and any changes in patient condition related to the administration.

IV. **Flowchart** - All procedures & administrations are to be entered here. Details are paramount, i.e. which nare a NPA was placed in, response to each procedure. KPI's are populated from these pages and drive all data queries which subsequently drive education. Refer to the KPI's at the end of this document (or in policy) to verify that required fields are completed to capture each data set. However, do not falsify information to satisfy the requirements. **ANY procedure/therapy performed must be entered in this section. This includes 'prior to your arrival' (i.e dispatch told them to take aspirin) and during your patient contact time - this is documented using the 'Prior to Arrival'**

key and simply state by whom in the comments; set the time just a minute prior to your arrival if you didn't see it happen.

A. Airway - if applicable. Dropdowns for Orotracheal intubation only permit for a single selection of 'Assist Device', so if you used video and a bougie, select one and place the other in the comments at the bottom of the section put type of ETI device in the dropdown and place bougie (or assist devices) in the comment simply by 'Bougie' 'rigid stylet' so queries can be consistent.

B. Critical Care - does not apply C. Defib/Cardio - if applicable

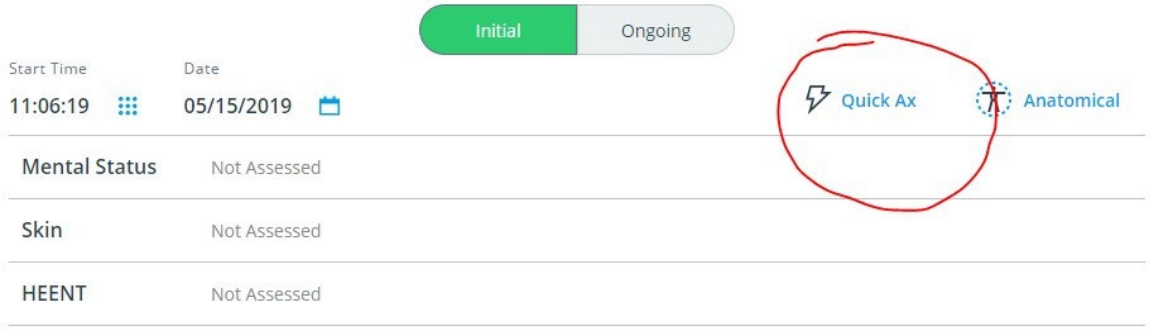
D. IV Therapy - if applicable

E. Medication - if applicable

1. At any time an IV drip is initiated, place the concentration and drip rate in the comments (i.e 4mg/250ml, 38gtt/min); Also enter any deviations from the COG with your clinical decision making reason for that deviation.
2. Medical Control - only enter information that is outside of your COG's (i.e.
   med control order for a drip, or physician on-scene.

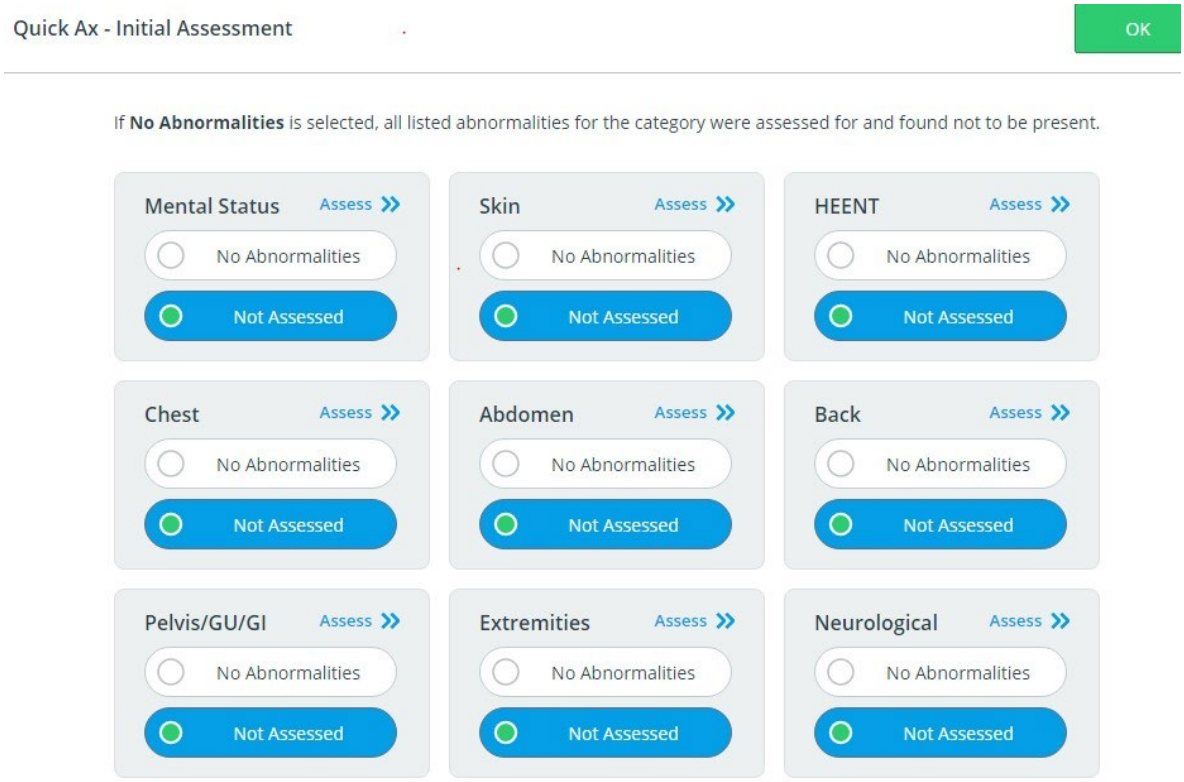
F. Other - if applicable

V. Assessments - only document findings or pertinent negatives. Do not select the check boxes if you didn't exam for it, or it simply does not apply. It clutters the charts and in some instances contradicts other findings. If you didn't check for it, don't document that you didn't see it. Use all drop downs whenever possible, (i.e. 'no abnormalities' or 'not assessed'). An easy and clean method to chart 'no abnormalities' is selecting the 'Quick Ax' as shown below.



This screen will appear, allowing you to simply state 'No Abnormalities', 'Not assessed', or select the blue colored 'Assess' in the upper right hand corner of each section. This allows you select any findings or pertinent negatives. Again, please do not select additional negatives if they do not apply, i.e. selecting positive wheezing in the left lung fields and negative in the right fields, then following up with negative rales, rhonchi, absent, decreased, etc; if they do not apply.

There is also an 'Anatomical' tab next to the 'Quick Ax'. This allows documentation of any findings i.e. lacerations, bruising, burns, etc.



A. Mental Status
B. Skin C. HEENT
   D. Chest
   E. ABD
   F. Back
   G. Pelvis/GU/GI
   H. Extremities
   I. Neurological

VI. Narrative

A. Impression -- The 'primary impression', 'secondary impression' & 'protocol used' entries drive all KPI's evaluated (**DO NOT ENTER ANYTHING IN 'PROTOCOL USED').** Be consistent in your selections. If a patient has chest discomfort that is non-cardiac in nature, i.e. a MVC, baseball bat, they fall on a rock, etc., then select 'Chest Pain, Other (Non-Cardiac)'; all other chest pains, medical in nature, should be 'Chest Pain/Discomfort'. Be specific if a multi-system issue is present.
Did the Chest pain cause the MVC, or did the MVC cause the chest pain?
   1. Enter a Primary and Secondary impression if applicable.

2. Choose Medical, Trauma, or Medical & Trauma B. Signs/Symptoms - only select pertinent findings/negatives;

C. Complaint- document what the patient stated.

D. Injuries

E. Factors - always document barriers to care.

F. F. Transport - N/A

G. Narrative - the narrative should paint a picture of what you saw, what you may have heard the PT (or person someone associated with the PT) say. Do not add statements which are not pertinent to the PT's care, i.e. a bystander said the car that hit them was speeding, or I love my cat. A quick review of your entries (IV, Rx, etc.) are acceptable, but no specifics - those go in the flowchart and assessment portions. This is where contradictions in charting usually occur.

VII. Forms- please fill out if they apply; they only ask a few details that drive our practices

VIII. Billing - as mandated by your agency and as you feel pertinent. **IX. Signature**

******Upload any pertinent documents as applicable and per the policy.**

KPI's (reference TCP 23 Quality Management and Clinical Performance

Universal Care Expectations

- Cardiac rhythm and end-tidal CO2 as appropriate
- 02 / Appropriate device - SAT 94-99%
- Blood pressure Q10
- Blood Glucose taken for Alerted Mental Status (AMS)
- Pulse Q10 minutes
- Respirations Q10 minutes
- O2 Sat Q10 minutes
- Deviations documented

Cardiac Arrest Results

- AED applied
- CPR 2 minutes prior to defibrillation
- Pit crew performed
- Anti-arrhythmic administration per guidelines
- IO successful

Advanced Airway

- Indications for advanced airway
- Confirmation of placement documentation
- Attempts

Chest Pain Summary

- Aspirin administration
- Documentation of Indications
- 02 administered
- Nitro provided if SBP > 100
- Time of onset

Stroke Summary

- Prehospital Stroke Scale performed
- Blood Glucose obtained
- Time last seen normal

Trauma Alert Summary

- Initial GCS obtained
- GCS reassessed
- Spinal Immobilization or clearance per criteria

Spinal Clearance Summary

- Documented Absence of injury
- Documented Absence of midline tenderness
- Documented absence of pain with movement
- Documented Absence of distracting injury
- Documented absence of communication impairment
- Documented normal mental status
- Documented Absence of intoxication
- Documented Absence of neuro findings

Fracture Summary

- Neuro Evaluation Before and After Splinting
- Pain scale documented
- Check pulse after splinting

Anaphylaxis Summary

- Multisystem involvement

- EPI administration
- Benadryl administration

Altered Mental Status Summary

- 02 Sat documented
- Blood Glucose obtained
- GCS assessed
- GCS reassessed

Congestive Heart Failure Summary

- O2 Sat obtained
- 02 administration
- Nitro administration
- Aspirin administration

Seizure Summary

- 02 Saturation obtained
- 02 administration
- Blood Glucose obtained
- Time of onset/duration/type
- Temperature for febrile seizures

Refusal Summary

- PT is ≥ 18 or emancipated minor
- PT is not suicidal/homicidal
- PT understands evaluation is incomplete
- Solution to obstacles have been sought
- PT instructed to seek medical attention
- PT instructed to call back at anytime
- Offer of treatment and transport
- Patient understood medical condition
- Patient has Decision Making Capacity
    - PT understands the nature of their illness
    - PT understands the risks of refusing including death
    - PT understands alternatives to EMS treatment/transport
    - PT can provide rational for refusal and debate this rationale

IV / IO Summary

- Number of attempts
- Drugs pushed
- Location and details of site documented

Modified Glasgow Coma Scale for Adults/Children/Infants			
	Adult/Child	**Infant**	**Score**
Eye Opening	Spontaneous	Spontaneous	4
	To speech	To speech	3
	To pain only	To pain only	2
	No response	No response	1
Best Verbal Response	Oriented, appropriate	Coos and babbles	5
	Confused	Irritable cry	4
	Inappropriate words	Cries to pain	3
	Incomprehensible sounds	Moans to pain	2
	No response	No response	1
Best Motor Response	Obeys commands	Spontaneously/Purposeful	6
	Localizes Pain	Withdraws to touch	5
	Withdraws from pain	Withdraws from pain	4
	Flexion-abnormal (decorticate)	Flexion-abnormal (decorticate)	3
	Extension (decerebrate)	Extension (decerebrate)	2
	No response	No response	1
If PT is intubated, unconscious, or preverbal, the most important part of this scale is motor response. Carefully evaluate motor response.			

Basic Receiving Facilities	Seton Medical Center Williamson	**Round Rock Medical Center**	Dell Seton at UT	**Seton Medical Center at Austin**	St Davids Medical Center	**North Austin Medical Center**	Heart Hospital of Austin	**South Austin Medical Center**	**Seton Northwest Hospital**	BSW Hospital Round Rock	**Cedar Park Regional Medical Center**	Seton Medical Center Hays	**BSW Medical Center - Lakeway**	BSW Pflugerville	**Dell Children's Medical Center**	North Austin Medical Center Children's Hospital	**BSW Medical Center - Pflugerville**	Seton Southwest Hospital	**Sobering Center**	St. David's Cedar Park SED	**St. David's Bee Cave SED**	St. David's Pflugerville SED	**Dell Childrens North**	**Texas Children's North**
All Ages Alpha - Charlie <20 weeks OB	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓		✓	✓	✓		
All Ages Alpha - Charlie OPEN fractures	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓						
Psychiatric ≥ 18 y/o NOT OB	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓						
ETOH or Narcotic only ODs per COG																			✓					
Comprehensive Receiving Facilities If OB and STEMI, Stroke, Medical ROSC, or Sexual Assault - must go to a Perinatal Facility with those capabilities.																								
≥ 18 y/o Alpha - Echo NOT OB	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓										
STEMI Alert NOT OB	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓											
Resuscitation Alert NOT OB	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓											
Primary Stroke Ctr: Stroke Sx < 4 hours, IF >transport time >15 min longer to Comp.	✓	✓				✓		✓		✓	✓	✓	✓											
Comprehensive Ctrs. Sx.≤ 24 hours																								
Trauma Alert ≥ 15 y/o **OB is OK**	✓	✓	✓					✓				✓												
Sexual Assault ≥ 18 y/o NOT OB	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓		✓	✓	✓		
Burns to: Face, Hands/Feet, Genatalia, Inhalation, Chemical, Electrical and/or ≥ 10% BSA 2nd or 3rd degree ≥ 15 y/o OB is OK			✓																					
Perinatal Centers ≥ 20 weeks OB																								
Alpha - Charlie		✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓										
Alpha - Echo		✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓										
Pediatric Facilities																								
≤ 17 y/o Alpha-Echo < 20 weeks OB or STEMI, Resusciation Alerts or NOT OB															✓	✓								
≤ 17 y/o Injured **NO** Trauma Alert																✓								
≤ 14 y/o Injured **NO** Trauma Alert															✓	✓							✓	✓
≤ 14 y/o Injured Trauma Alert															✓									
≤ 17 y/o Stroke Alert NOT OB															✓								✓	✓
Sexual Assault ≤ 17 y/o NOT OB															✓								✓	✓

MEDICAL and Trauma ARREST Termination of Resuscitation Checklist

MEDICAL ARREST: Termination of Resuscitation (> 30 minutes) Checklist:

Adequate CPR has been administered Airway managed with ET, BIAD, Cric. IV/IO Access has been **achieved**

Rhythm appropriate meds/treatment administered

Identified reversible causes have been addressed.

Failure to establish sustained ROSC at any time

Failure to establish recurring/persistent v-fib

Arrest not due to suspected hypothermia

Providers agree with decision to cease efforts

System credentialed paramedic level provider contact Medical Control for TOR orders.

TRAUMATIC ARREST: Termination of Resuscitation Checklist:

Pt is pulseless and apneic on arrival of first Provider **AND**

Lacks respiratory effort after basic airway maneuvers **AND**

Identified reversible causes have been addressed **AND**

Medical cause of arrest has been considered.

System credentialed paramedic level provider contact Medical Control for TOR orders.

In all cases/circumstances continue CPR (if started or continued by System Provider/Responder) while obtaining TOR.

Trauma/Stroke

List of Anticoagulant & Antiplatelet Medications

Anticoagulant Medications

Brand Name	Generic Name
Acova	Argatroban
Arixtra	Fondaparinux
Coumadin	Warfarin
Eliquis	Apixaban
Fragmin	Dalteparin
Heparin	Heparin
Jantoven	Warfarin
Lixiana	Enoxaparin
Pradaxa	Dabigatran
Savaysa	Edoxaban
Xarelto	Rivaroxaban
Lovenox	Enoxaprain

Antiplatelet Medications

Brand Name	Generic Name
Aggrenox	Aspirin & Dipyridamole
Aspirin 325mg (NOT 81mg)	Acetylsalicylic acid
Brillinta	Ticagrelor
Effient	Prasugrel
Persantine	Dipyridamole
Plavix	Clopidogrel
Pletal	Cilostazole
Ticlid	Ticlopidine

Vital Signs Reference Chart

To ensure consistency in the assessment and treatment of patients that may be suffering circulatory system problems, the following definitions apply:

Heart Rate

Tachycardia

Adult: HR >100bpm

Pediatric: See pediatric vital sign reference chart below.

Bradycardia

Adult: HR <60 bpm

Pediatric See pediatric vital sign reference chart below.
A HR <60bpm coupled with signs of poor perfusion in children <8 years of age is an ominous sign.

Infant HR <60bpm with poor perfusion despite airway intervention begin CPR

Blood Pressure

Hypotension

Adult: SBP <90mmHg with associated signs and symptoms of hypotension

Pediatric: SBP < 70mmHg + (age in years x 2) with associated signs and symptoms of hypotension

Permissive Hypotension: SBP of ≥70mmHg should be target when treating patients who are suffering from non-compressible bleeding in pelvis and/or thorax.

Hypotension with Head Trauma / Traumatic Brain Injury

Adult Head Trauma: SBP >110 should be target when treating adult patients suffering from isolated TBI.

Pediatric Head Trauma: SBP >90 should be target when treating pediatric patients suffering from isolated TBI.

Shock index: HR ÷ Systolic BP

Normal value is 0.5-0.8. Any value > 0.9 is considered a positive shock index. May be indicative of compensation in the presence of blood or fluid loss.
*Note: As soon as HR matches the systolic BP, the shock index is already 1.

ETCO2

Normal Range: 35mmHg - 45mmHg

Isolated Head Trauma: Target 35mmHg - 40mmHg

SPO2

Adult + Pediatric: Target range 94% - 99%

Blood Glucose

Hyperglycemic Blood glucose level of >300 mg/dl

Hypoglycemic Blood glucose level of <50 mg/dl

Important DCPE Phone Numbers

Online Medical Control Phone Number:
512.854.2362 (512.854.ADOC)

Poison Control:
800.222.1222

Abbreviations:

< Less than

> Greater than

≤ Less than or equal to

≥ Greater than or equal to

SBP = Systolic Blood Pressure

HR = Heart Rate

BPM = Beats per minute

ETCO2 = End Tidal Carbon Dioxide

Pediatric Patient = <37kg

SP02 = Pulse Oximetry

Glasgow Coma Scale

Modified Glasgow Coma Scale for Adults/Children/Infants				
		Adult/Child	Infant	Score
Eye Opening		Spontaneous	Spontaneous	4
		To speech	To speech	3
		To pain only	To pain only	2
		No response	No response	1
Best Verbal Response		Oriented, appropriate	Coos and babbles	5
		Confused	Irritable cry	4
		Inappropriate words	Cries to pain	3
		Incomprehensible sounds	Moans to pain	2
		No response	No response	1
Best Motor Response		Obeys commands	Spontaneously/Purposeful	6
		Localizes Pain	Withdraws to touch	5
		Withdraws from pain	Withdraws from pain	4
		Flexion-abnormal (decorticate)	Flexion-abnormal (decorticate)	3

		Extension (decerebrate)		Extension (decerebrate)	2
		No response		No response	1
If PT is intubated, unconscious, or preverbal, the most important part of this scale is motor response. Carefully evaluate motor response.					

Pediatric Vital Signs Reference Chart		(Colors **NOT** correlated with Pedia/Broselow tape)
Birth(12 h, 3 kg)	Systolic Pressure	60-76
	Systolic Hypotension	<50
	Heart Rate	100-180
	Respiratory Rate	30-40
Neonate(<28 d, 96 h)	Systolic Pressure	67-84
	Systolic Hypotenstion	<60
	Heart Rate	100-180
	Respiratory Rate	30-40
Infant(1 mo-1 year)	Systolic Pressure	72-104
	Systolic Hypotension	<70
	Heart Rate	100-160
	Respiratory Rate	30-40
Toddler(1-2 years)	Systolic Pressure	70-100
	Systolic Hypotension	<70 + (age in years x 2)
	Heart Rate	80-130
	Respiratory Rate	20-30
Preschooler(3-5 years)	Systolic Pressure	76-110
	Systolic Hypotension	<70 + (age in years x 2)
	Heart Rate	80-120
	Respiratory Rate	20-30
School-Age(6-9 years)	Systolic Pressure	80-120
	Systolic Hypotension	<70 + (age in years x 2)
	Heart Rate	70-110
	Respiratory Rate	18-30

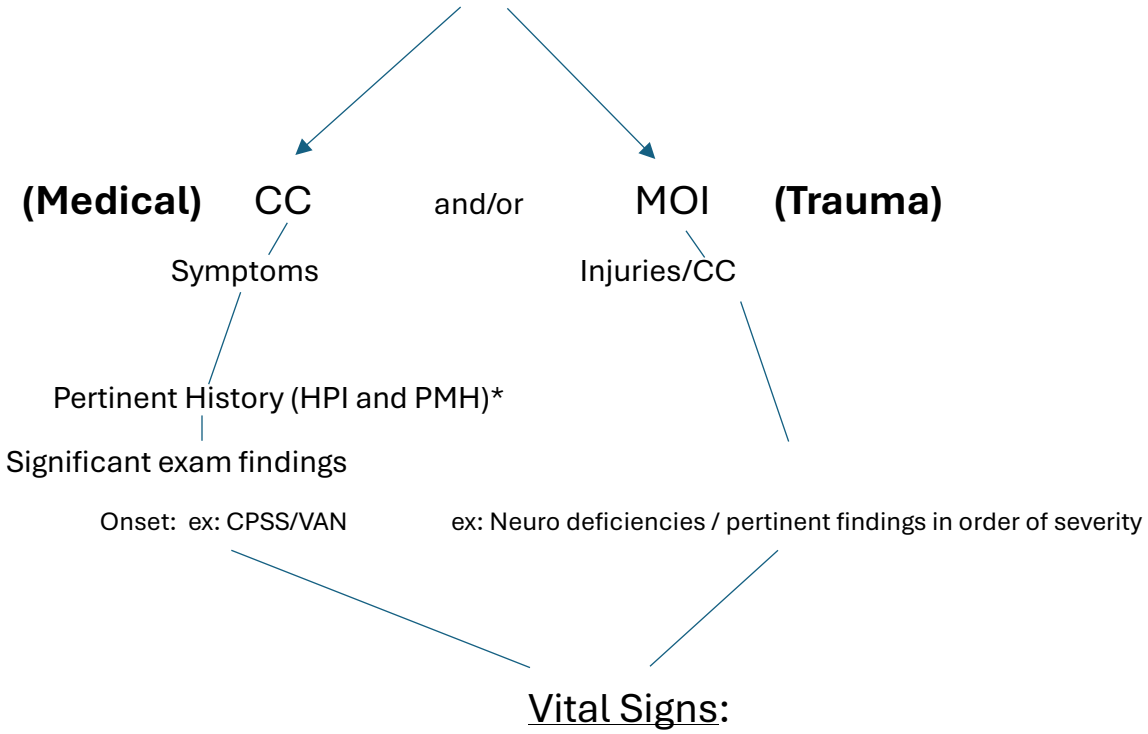
Preadolescent (10-11 years)	Systolic Pressure	90-120
	Systolic Hypotension	<90
	Heart Rate	70-110
	Respiratory Rate	18-30
Adolescent(12-15 years)	Systolic Pressure	100-120
	Systolic Hypotension	<90
	Heart Rate	60-100
	Respiratory Rate	12-20
Temperature	Rectal	97.9°F - 100.4°F / 36.6-38° C
	Ear	96.4°F - 100.4°F / 35.8-38° C
	Oral	96°F - 99.5°F / 35.5-37.5° C
	Axillary	97.7°F - 99.5°F / 36.5-37.5° C
	Temperature ranges do not vary with age. Axillary, tympanic and temporal temps for screening(less accurate). Rectal and oral temps for definitive measurement(unless contraindiction).	

Verbal **CAN** report

(Pass-on)

Conditions

Begin with: Age & Sex of patient



- Significant *and* pertinent (otherwise, state WNL)
- Trends
- Shock Index *if* pertinent:

Actions

- Treatments: procedures, meds, intervention
- Response to treatments/unsuccessful procedures ex: failed intubations

Needs

- Other necessary treatments
- Next medication times
- Resources needed / en route ex: SF ETA

*HPI- history of present illness (chief complaint, nature, duration, etc.)

*PMH- past medical history (anything pertinent to pt condition)

Example (Medical):

We have a 55 y/o male pt who is c/o substernal chest pain which he rates 8/10 for the last 2 hrs; also c/o nausea and has vomited twice. He has a history of coronary artery disease with no previous MI. He is tachycardic at 108 with a BP of 170/88, is pale and cool, denies SOB. 12 lead is non-diagnostic.

He has been given 324mg Aspirin and 1 SL NTG, with no changes in his pain.

He is requesting to go to St David's South Austin.

Do you have any questions?

Example (Trauma):

We have a 27 y/o female patient who was the restrained passenger in a motor-vehicle roll-ver. She is awake and oriented, self-extricated from the vehicle, and is complaining of right upper quadrant pain. She has abrasions to her elbow and a laceration to the left forearm, exam is otherwise negative. She is tachycardic with a positive shock index.

We have an IV established, and a cervical collar in place.

We will need you to bring your blood.

Patient is requesting transport to hospital.

Do you have any questions?

OB

TABLE OF CONTENTS

CHILDBIRTH / LABOR OB01

History	Signs and Symptoms	Differential

• Due date or LMP
• Time contractions started/how often
• Rupture of membranes
• Time/amount of any vaginal bleeding
• Sensation of fetal activity
• Past medical and delivery history
• Gravida/Para Status
• Medications
• High Risk pregnancy(known)
	• Episodic pain
	• Vaginal discharge or bleeding
	• Crowning or urge to push
	• Meconium
		• Abnormal presentation
		  ○ Buttock
		  ○ Foot
		  ○ Hand
		• Prolapsed cord
		• Placenta Previa
		• Abruptio placenta
		• Premature labor

Consider Guidelines:

- Universal Patient Care Guideline
- Procedure: Child Birth and Complications
- Obstetrical Emergencies Guideline
- Newly Born Guideline
- If postpartum hemorrhage OB Emergencies Guideline
- Hypotension Guideline

Procedures:

BLS

- Oxygen, target SPO2 94% -- 99%
- Visually inspect perineum for crowning (No digital vaginal exam)
  - No Crowning, monitor and reassess document frequency/duration of contractions
  - Crowning > 36 weeks Gestation
    - ✓ see Childbirth and Complications Procedure.
    - ✓ If abnormal presentation see complications section in Childbirth and Complications Procedure.
    - ✓ Once delivery complete, see OB.02: Newly Born COG
- Priority Symptoms:
  - Crowning ≤ 36 wks gestation
  - Abnormal presentation
  - Severe vaginal bleeding
  - Multiple gestation

AEMT

- Vascular access
- Consider crystalloid bolus (not to exceed 1 liter)

ALS

- Consider TXA for postpartum hemorrhage, IV/IO 2gm slow push

Pearls / Additional Considerations:

- Document all times (delivery, contraction frequency, length). Record APGAR at 1 minute and 5 minutes after birth.
- If maternal seizures: refer to the Obstetrical Emergencies Guideline. Eclampsia can occur up to 2 months postpartum.
- After delivery, allowing child to nurse and massaging the uterus (lower abdomen) will promote uterine contraction and help to control postpartum bleeding.
- Postpartum hemorrhage defined as blood loss > 1000 ml or > 500 with signs / symptoms. The perineum should be check for bleeding from vaginal tears. Bleeding should be controlled by direct pressure over the laceration.
- The most common cause of postpartum hemorrhage is uterine atony due to prolonged labor, or multiple gestations.

NEWLY BORN OB.02

History	Signs and Symptoms	Differential

• Due date and gestational age
• Multiple gestation (twins etc.)
• Meconium
• Delivery difficulties
• Congenital disease
• Medications(maternal)
• Maternal risk factors
  ○ substance abuse
  ○ smoking
	• Respiratory distress
	• Peripheral cyanosis or mottling (normal)
	• Central cyanosis(abnormal)
	• Altered level of responsiveness
	• Bradycardia
		• Airway failure
		  ○ Secretions
		  ○ Respiratory drive
		• Infection
		• Maternal medication effect
		• Hypovolemia
		• Hypoglycemia
		• Congenital heart disease
		• Hypothermia

Consider Guidelines:

- Universal Patient Care Protocol (For Mother)
- Bradycardia Guideline
- Narrow Complex Tachycardia Guideline

Procedures:

BLS

- Birth – Term, tone, breathing/crying? APGAR?
  - Yes- keep with mother, warm and dry infant, position airway, clear secretions PRN.
  - No – Warm and dry, position airway, clear secretions PRN (mouth then nose), stimulate infant
- Check blood sugar
- If apnea/gasping, then reposition airway, SPO2 monitor and supplemental O2
- If apnea/gasping and HR < 100 bpm then PPV at a rate of 40 – 60 bpm. Check for chest movement and if absent, reposition infant, mask adjustment, suction mouth/nose, open mouth, increase pressure and re-attempt ventilations. If still no chest movement, consider BIAD.
- ***AFTER 30 seconds***, if HR < 60 bpm, initiate chest compression at a 3:1 ratio (90 compressions: 30 ventilations per minute)

AEMT

- IV/IO access PRN
- Crystalloid 10ml/kg
- Consider D10 1-2 ml/kg IV
- Consider Naloxone 0.1 mg/kg IV/IN/IO (max 0.4mg for newborn)

ALS

- After 60 sec of CPR, Epinephrine 0.1 – 0.3 ml/kg IV (1:10,000) repeat q 3 min PRN

Pearls / Additional Considerations:

- Non vigorous infant as evidenced by poor muscle tone, poor/absent respiration and heart rate < 100 bpm
- If power suction is used, negative pressure must not exceed 100mmHg.
- **CPR**: Birth to 5 days 90 compressions with asynchronous ventilations at 30 per minute.
- It is extremely important to keep infant warm
- Maternal sedation or narcotics will sedate infant (Naloxone effective but may precipitate seizures)
- Consider hypoglycemia in infant and administer Dextrose with BGL < 50.
- Prefer 3-way stop cock with syringe for fluid admin.
- Document 1 and 5 minute APGAR score.
- Pre-ductal SPO2 targets after birth
  - 1 min 60%-65%
  - 2 min 65%-70%
  - 3 min 70%-75%
  - 4 min 75%-80%
  - 5 min 80%-85%
  - 10 min 85%-95%

OBSTETRICAL EMERGENCIES OB.03

History	Signs and Symptoms	Differential
• Past medical history • Hypertension meds • Prenatal care • Prior pregnancies/births • Gravida/Para	• Vaginal bleeding • Abdominal pain • Seizures • Hypertension • Severe headache • Visual changes • Edema of hands and face	• Preeclampsia/Eclampsia • Placenta Previa • Placenta abruption • Spontaneous abortion

Consider Guidelines:

- Universal Patient Care Guideline
- Childbirth/Labor Guideline
- Hypotension Guideline
- Seizure Guideline
- Altered Mental Status Guideline as needed

Procedures:

BLS

- Oxygen, target SPO2 94% – 99%
- Monitor ETCO2: Target range 35-45 mmHg (IA)
- Postpartum Hemorrhage
  - Fundal Massage
  - Encourage infant to breast feed

AEMT

- Consider vascular access
- Consider Crystalloid for vaginal bleeding

ALS

- For Seizures, give Magnesium Sulfate IV, infuse 4 grams in 50ml Crystalloid over 5 minutes

Pearls / Additional Considerations:

- Eclamptic seizures may occur up to 2 months postpartum. Always consider in pregnant / recently pregnant seizing patient.
- Severe headache, vision changes, edema, or RUQ pain may indicate preeclampsia.
- In the setting of pregnancy, hypertension is defined as a SBP greater than >140 or a DBP > 90, or relative increase of 30 systolic and 20 diastolic from the patient's normal (pre-pregnancy) blood pressure.
- Ask patient to quantify bleeding - number of pads used per hour and duration.
- Any pregnant patient involved in a MVC should be seen immediately by a physician for evaluation and fetal monitoring.
- Magnesium may cause hypotension and decreased respiratory drive, monitor closely.
- Postpartum hemorrhage defined as blood loss > 1000mL or greater than 500mL with signs/symptoms. 500mL blood loss is commonly seen in uncomplicated vaginal deliveries without signs or symptoms. The perineum should be checked for bleeding from vaginal tears which may be mistaken for uterine bleeding. Bleeding should be controlled by direct pressure over the laceration.
- The most common cause of postpartum hemorrhage is uterine atony due to prolonged labor or multiple gestations
- If > 20 weeks, consider left lateral position.

ENVIROMENTAL

TABLE OF CONTENTS

ENVIRONMENTAL HYPERTHERMIA E.01

History	Signs and Symptoms	Differential
• Age • Recent exertion or heat exposure • Lack of acclimatization • Limited access/control of fluid intake • Cardiovascular disease • Medications (antipsychotics, anticholinergics, diuretics) • Alcohol/Drug use	• Weakness • Nausea & vomiting • Headache • Cramping • Syncope • Diaphoresis or anhydrosis • Altered Mental Status • Bizarre behavior • Hypotension • Tachycardia	• CVA • Dehydration • Heat Stroke/Exhaustion • Encephalopathy • Fever/Meningitis • Head Trauma • Overdose/Toxin • Hypoglycemia • Alcohol withdrawal • Excited Delirium

Consider Guidelines:

- Universal Patient Care Guideline
- Altered Mental Status Guideline

Procedures:

BLS

- Oxygen: Target SPO2 94% ↔ 99%
- Monitor ETCO2: Target 35-45(IA)

Normal Mental Status:

- Encourage PO fluids as tolerated
- Ice packs PRN
- Wet patient and increase airflow PRN
- Remove to shaded/cool environment Discontinue any physical activity

Altered Mental Status:

- Cold water immersion ASAP (IA)

Bridge treatments until ice water bath available:

- Ice packs to neck, axilla and groin
- Wet patient and increase airflow

Diagnostics:

- Obtain rectal temperature
- Obtain Blood Glucose

Temp >102.2F (39 C)

- Continue active cooling measures

Temp < 102.2F (39 C) – or shivering, or improvement in patient LOC or mental status

- Discontinue Active cooling
- Continue symptomatic treatment

AEMT

- IV crystalloid 1 L IV May repeat x 1 PRN
- Cold IV crystalloid 20mL/Kg IV to max 2L – (I/A) - May repeat additional bolus 10mL/KG IV

If nausea/vomiting prevent PO fluids:

Adult:

- Ondansetron (Zofran) 4 mg PO **OR** Ondansetron (Zofran) 4mg IV/IM PRN May repeat PO/IV/IM x1 q15 minutes (IA)

Pedi:

- Ondansetron (Zofran) 0.1 mg/kg PO (max 4mg) OR Ondansetron (Zofran) 0.1 mg/kg (max 4mg) IV/IM PRN May repeat PO/IV/IM x1 q15 minutes (IA)

ALS

If shivering develops:

Adult:

- Sedation for shivering (IA): Midazolam: 2.5 – 5.0 mg IV/IO OR 5 mg IM/IN May repeat PRN max total dose 10 mg. Hold with SBP < 100 mmHg

Pedi:

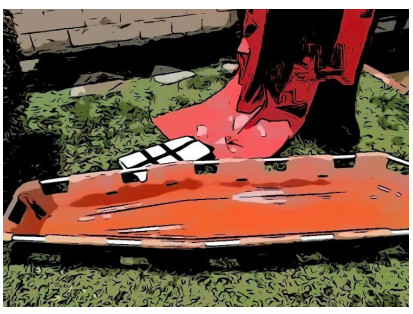
- Sedation for shivering (IA): Midazolam 0.05 mg/kg IV/IO (max total 5 mg) titrated to effect. Hold for SBP <70 + (age in years x 2) mmHg.

Pearls / Additional Considerations:

- IMMEDIATE cooling should take place in any patient suspected of Heat Stroke. Reducing core temperature promptly is necessary to prevent permanent neurological and organ damage. COOLING MUST BEGIN IN THE FIELD!
- Cold water immersion preferred for cooling (protect airway)! Cool to 102.2F, stop if patient shivering.
- Exertional heat stroke should be suspected in anyone with hx of recent exertion and bizarre behavior or syncope.
- Any AMS should have Blood Glucose performed. Severe heat emergencies may lead to liver dysfunction and hypoglycemia.
- If Cold Crystalloid is not available, ILS may begin normal Crystalloid boluses.
- Rectal temperature should be obtained with provider and patient safety in mind.
- Consider Rhabdomyolysis

Algorithm for Cold Water Immersion in the Field:

1. Patient demonstrates neurologic abnormalities (i.e. inappropriate behavior, confusion, slurred speech, ataxia, coma, seizures) and/or Rectal Temperature > 102.2 Fahrenheit (39 Celsius).
2. Continue active cooling measurements (i.e. remove from heat source, ice packs, evaporative cooling, IVFs) while preparing for cold water immersion.
3. Construct a bath utilizing a Stokes or Ferno basket and line with a tarp or mega-mover.



4. Open the outlet on the fire apparatus and fill the tarp with tank (~ 83 Fahrenheit) or hydrant (~79 degrees) water.

5. Increase cooling by adding 5 gallons of ice water (reduces immersion water temperature to ~71 degrees).

6. Place the patient into the basket and draw the tarp up, around the patient, submerging the patient up until their neck. MAINTAIN PATIENT'S AIRWAY ABOVE WATER.

7. Continue emergency care and active cooling until temperature < 102.2 Fahrenheit (39 Celsius) or patient is shivering. Then proceed with transport to advanced care.

ENVIRONMENTAL HYPOTHERMIA E.02

History	Signs and Symptoms	Differential
• Extreme cold or chronic exposure to cold • Past medical history • Medications • Ambient temperature • Exposure to wind/water • Duration of exposure • Extremes of age • Alcohol/Drugs • Infections/sepsis	• Cold, clammy • Shivering • Mental status changes (confusion, lethargy, ataxia) • Extremity pain or sensory abnormality • Bradycardia • Hypotension or shock • Unconscious	• Metabolic disorder (hypoglycemia, hypothyroidism) • Toxins • Environmental exposure • Shock • Sepsis • Alcohol/Drugs

Consider Guidelines:

- Universal Patient Care Guideline
- Appropriate Clinical Guideline Based on patient symptoms

Procedures:

BLS

- Oxygen: Target SPO2 94% ↔ 99%
- Monitor ETCO2: Target range 35-45 mmHg (IA)
- Remove wet clothing
- Handle very gently if < 86 F (< 30C)
- Wrap in warm blankets
- Glucose Assessment Procedure
- Give warmed, humidified oxygen (I/A)

AEMT

- Warm IV fluids if available - 100-104F (38-40C)

Adult:

- Warmed IV crystalloid 500 - 1000 ml bolus May repeat (Max 2 Liters); titrate to Systolic BP >90. DO NOT FLUID OVER LOAD.

Pedi:

- Warmed IV crystalloid bolus 20 ml/kg IV May repeat 10ml/kg bolus x 2 PRN. Treat to a goal to maintain age appropriate SBP

ALS

- Avoid intubation. BLS airway preferred.

Pearls / Additional Considerations:

- <u>Hypothermia severity</u>:
  - Mild: 89.6-95 F (32-35 C) – Patient usually awake.
  - Moderate: 82.4-89.6 F (28-32 C) – Usually AMS / Decreasing LOC
  - Severe: < 82.4 F (<28 C) – Decreased LOC
- < 93 F (34 C) shivering may diminish. < 88 F (31 C) shivering may stop.
- Extremes of age are more susceptible (young & old)
- Ventricular fibrillation is common cause of death with temperature less than 86 F (30 C)
- Handle patients gently to reduce this risk. Transport immediately for re-warming.
- If the temperature is unable to be measured, treat the patient based on the suspected temperature.
- Fluid overload can occur due to decreased cardiac output. Only provide fluid to correct hypotension.
- Hypothermia may produce severe physiologic bradycardia. Do not treat bradycardia unless profound hypotension unresponsive to fluids.

History	Signs and Symptoms	Differential
• Exposure, ingestion, suspected ingestion of a possibly toxic substance • Substance ingested, route, quantity • Exposure source, duration • Time of ingestion • Reason (suicidal, accidental, criminal) • Available medication in home • Past medical history, medications • Possible pregnancy	• Mental status changes • Neurological Impairments • Coma • Vision impairments • Hypotension/ Hypertension • Decreased respiratory rate • Tachycardia, bradycardia, chest pain, dysrhythmias, cardiac arrest • Respiratory distress/failure • Seizures • Headache, Nausea/Vomiting • SLUDGE • DUMBELS	• Toxic Exposure ○ Carbon Monoxide ○ Cyanide ○ Ammonia ○ Chlorine ○ Fumigants ○ Anticholinergic ○ Solvents, alcohols, cleaning agents ○ Organophosphates ○ Caustics (Sodium Hydroxide, etc.) ○ Acid's (Hydrofluoric acid, etc.)

Consider Guidelines:

- Universal Patient Care Guideline
- Respiratory Distress Guideline
- Overdose Guideline
- Other pertinent Guidelines based on clinical presentation (i.e. Seizure, Pain Management, Cardiac, Eye Complaint, Multi-system Trauma, etc.)

Procedures:

BLS

- **SCENE SAFETY IS PARAMOUNT!**
- Request HAZMAT team where indicated.
- If trained and properly equipped:
  - Remove patient from source of exposure
  - Remove clothing
  - Decontaminate patient
- Oxygen is indicated regardless of values demonstrated by monitoring devices
- Consider contact Poison Control for 'guidance'.
  - Healthcare Provider **800-816-1100**
  - General Public, Alternate **800-222-1222**
  - Be prepared to provide them:
    - ✓ Name, age, weight
    - ✓ Substance name and quantity (if known)
    - ✓ Exposure route and time
    - ✓ Name of facility to which patient will be transported
- **Carbon Monoxide (CO)**
  - Monitor CO levels (I/A)
    - ✓ CO level >10mmHg in a non-smoker with acute exposure AND signs/symptoms is likely a toxic exposure.
    - ✓ CO levels between 10-15mmHg in a long-time smoker are not unusual at baseline
    - ✓ Determine Ambient CO and exposure time
  - Consider CPAP if tolerated
- **Cyanide**
  - Consider CPAP if tolerated
- Oxygen: Target SPO2 94% ↔ 99%
- Monitor ETCO2: Target range 35-45 mmHg (IA)

AEMT

- Establish 2 proximal IV's where time and resources permit
- Consider Crystalloid bolus for hypotension

ALS

- Continuous 12-lead
- **Organophosphate Poisoning**
  - Mark 1 kit **(I/A)**
  - Atropine
    - ✓ Adult 2-6 mg IM/IV/IO, repeat q 5 mins PRN
    - ✓ Pedi 0.05 mg/kg, IM/IV/IO, repeat q 5 min PRN (min 0.1mg, max 1.85mg single dose)
- **Carbon Monoxide (CO)**
  - Consider mild sedation **(IA)** for anxiety in CPAP candidates
- **Cyanide**
  - Consider mild sedation **(IA)** for anxiety in CPAP candidates
  - Hydroxocobalamin (CYANO-KIT) **(IA)**
    - ✓ Adult 5 gm in 200 ml NS over 15 min
    - ✓ **Pedi** 70 mg/kg in 200ml NS over 15 min (max 5gm)

Pearls / Additional Considerations:

- Team safety is prioritized over all patient/bystanders; Involve LE; **ALWAYS** maintain a high level of suspicion at these scenes. If the call is a CBRNE attack, be prepared for secondary attacks targeting FRO's and bystanders.
- DECON of HAZMAT patients should be performed by trained personnel prior to initial patient contact or transport
- Do NOT begin transport until all contaminated clothing has been removed and patient has been decontaminated and cleared by HAZMAT for transport
- Organophosphate exposure victims often require multiple doses of Atropine and will likely exhaust the agency supply. Call for additional units with inventory early.
- Monitor for development of pulmonary edema and/or shock.
- Pulse oximeter readings are unreliable in presence of cyanide or CO poisoning.
- Be alert for exposure related acute dyspnea/tachypnea without cyanosis, nausea/vomiting, seizures, hyper/hypotension
- Anticholinergic: increased HR, increased temperature, dilated pupils, and mental status changes.
- Solvents: Nausea, vomiting, and mental status changes.
- Insecticides: increased or decreased HR, increased secretions, nausea, vomiting, diarrhea, pinpoint pupils.
- Cyanide poisoning
  - Mix hydroxocobalamin carefully with strict adherence to the instructions. **Do NOT shake**.
  - Patients may take on a 'red' skin appearance following administration. This is a normal response when administering this medication.
  - Cyanokit alters some lab values, take package insert to treating physician.

Medical Directive
Division of Clinical Performance and Education

Binax Provider Self Testing

Personnel affected: All Personnel
Effective Date: August 2, 2021
Expiration Date: Until Further Notice

As a result of the increasing COVID-19 cases and new evidence of contagion levels of both vaccinated and unvaccinated personnel, all staff, before entering their duty station, should conduct and observe the results of a Binax antigen test.

Our goal is to keep our Travis County providers and community safe. The recent evidence from the CDC suggests that vaccinated providers with minimal symptoms are carrying the same viral load as non-vaccinated individuals whose symptoms are more severe. Thus, it is difficult to ascertain if a headache or allergy-like symptoms are the Delta variant of COVID-19.

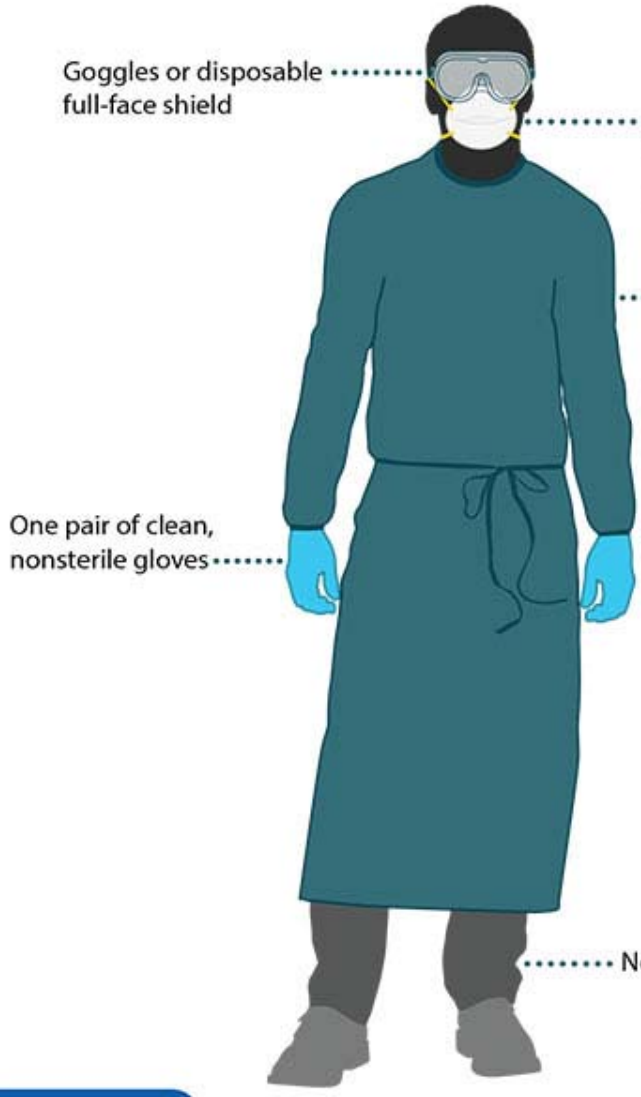
The Binex antigen tests will be provided to you and take 15 minutes to result. The instructions can be found here https://www.youtube.com/watch?v=baQQfoX-JXo Unlike PCR tests that require a more invasive swab, these tests only require ½ inch insertion of the swab into the nostril. The test is simple and non-invasive.

If a positive result is obtained, contact your front-line supervisor. If a negative result, proceed on shift as usual.

Those Departments conducting courses with outside personnel, or cadet courses, should test those individuals prior to entry to the building.

COVID 19 CORONAVIRUS DISEASE

COVID-19 Personal Protective Equipment (PPE) for Healthcare Personnel



CDC

For more information: **www.cdc.gov/COVID19**

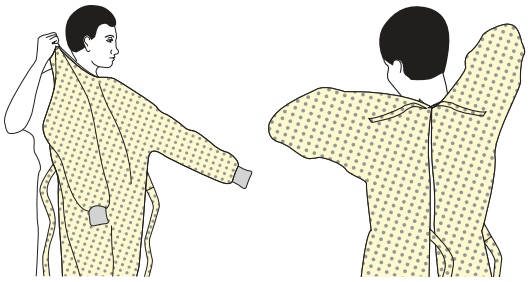
CS 375461-A 02/21/2020

SEQUENCE FOR PUTTING ON PERSONAL PROTECTIVE EQUIPMENT (PPE)

The type of PPE used will vary based on the level of precautions required, such as standard and contact, droplet or airborne infection isolation precautions. The procedure for putting on and removing PPE should be tailored to the specific type of PPE.

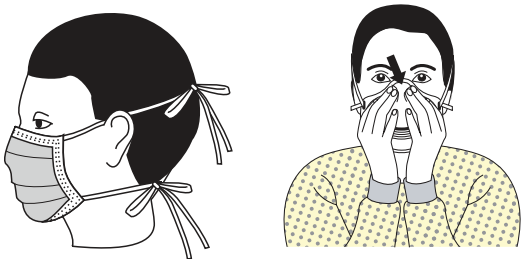
1. GOWN

- Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
- Fasten in back of neck and waist



2. MASK OR RESPIRATOR

- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator

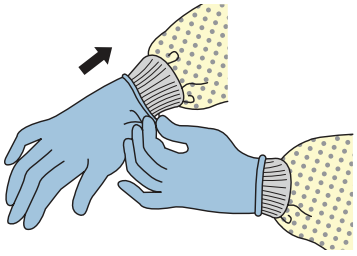


3. GOGGLES OR FACE SHIELD

- Place over face and eyes and adjust to fit

4. GLOVES

- Extend to cover wrist of isolation gown



USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION

- Keep hands away from face
- Limit surfaces touched
- Change gloves when torn or heavily contaminated
- Perform hand hygiene

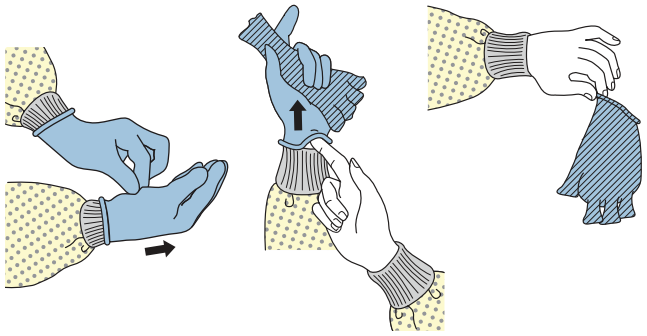
CS250672-E

HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 1

There are a variety of ways to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. Here is one example. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator **after** leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GLOVES

- Outside of gloves are contaminated!
- If your hands get contaminated during glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Using a gloved hand, grasp the palm area of the other gloved hand and peel off first glove
- Hold removed glove in gloved hand
- Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over first glove
- Discard gloves in a waste container

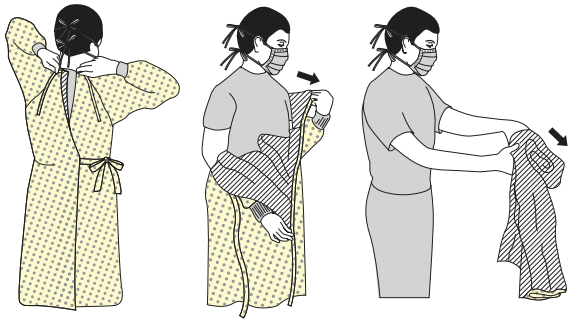


2. GOGGLES OR FACE SHIELD

- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band or ear pieces
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container

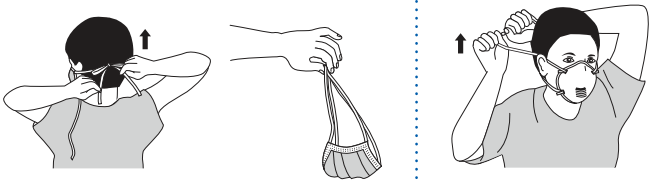
3. GOWN

- Gown front and sleeves are contaminated!
- If your hands get contaminated during gown removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Unfasten gown ties, taking care that sleeves don't contact your body when reaching for ties
- Pull gown away from neck and shoulders, touching inside of gown only
- Turn gown inside out
- Fold or roll into a bundle and discard in a waste container

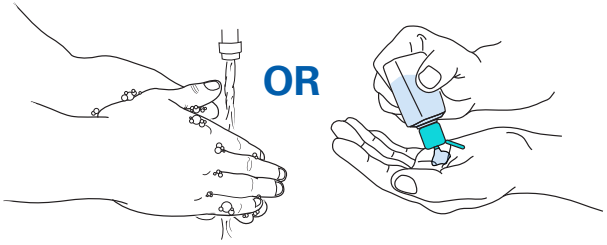


4. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — DO NOT TOUCH!
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in a waste container



5. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE



PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE

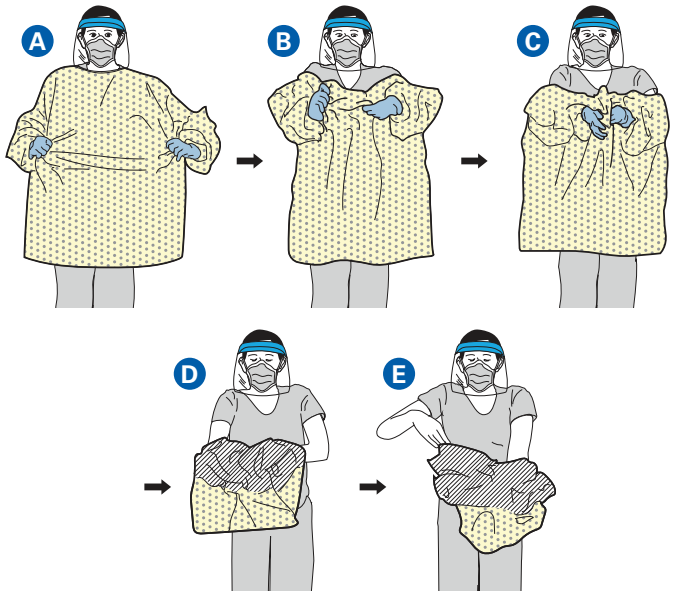
CS250672-E

HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 2

Here is another way to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator **after** leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GOWN AND GLOVES

- Gown front and sleeves and the outside of gloves are contaminated!
- If your hands get contaminated during gown or glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp the gown in the front and pull away from your body so that the ties break, touching outside of gown only with gloved hands
- While removing the gown, fold or roll the gown inside-out into a bundle
- As you are removing the gown, peel off your gloves at the same time, only touching the inside of the gloves and gown with your bare hands. Place the gown and gloves into a waste container

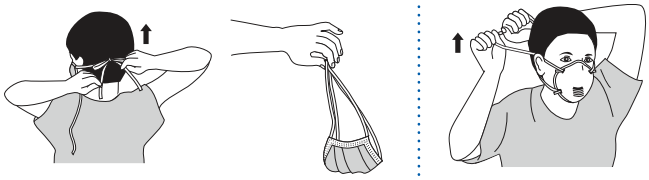


2. GOGGLES OR FACE SHIELD

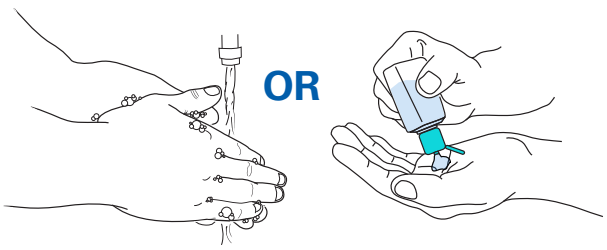
- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band and without touching the front of the goggles or face shield
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container

3. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — DO NOT TOUCH!
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in a waste container



4. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE



PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE

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Adrenal Insufficiency M.0

History	Signs and Symptoms	Differential
• Medication History • Past Medical History • Adrenal disorders • Long term steroid use • Trauma affecting pituitary • Auto-Immune disease • Cancer, HIV, or TB • CAH • History of recent stress/injury/illness	• Weakness • Persistent headache • Nausea/Vomiting/Diarrhea • Abdominal pain • Altered mental status • Listlessness • Darkening of the skin • Dehydration • Dizziness • Diarrhea • Hypotension • Hypoglycemia	• Hyperkalemia • Diabetic hypoglycemia • Hypovolemic • Gastroenteritis • Diabetic ketoacidosis

Consider Guidelines:

- Universal Patient Care Guideline
- Hypotension Guideline
- Nausea/Vomiting Guideline
- Altered Mental Status / Hypoglycemia

Procedures:

BLS

- Glucose Assessment
- Vital signs
- Temperature Assessment
- SpO2 Monitoring – **Goal:** maintain 94-99%
- Monitor EtCO2: Target range 35-45 mmHg **(IA)**

AEMT

- IV
- Crystalloid IV NS bolus (20mL/kg) if appropriate.
- For hypoglycemia – see Altered Mental Status/Hypoglycemia guideline
- For vomiting/nausea – see Nausea/Vomiting guideline
- **Patient Assist:** Patient's own prescribed **injectable hydrocortisone (IM/IV/IO)**
- (Standardized dosing below, dosing may vary per patient / physician)

Age (years)	Dose in mg (mL) assuming 250mg/2mL	Dose in mg (mL) assuming 100 mg/ 2mL
Under 3	25mg (0.2mL)	25mg (0.5mL)
3-10	50mg (0.4mL)	50mg (1mL)
Over 10	100mg (0.8mL)	100mg (2mL)

ALS

- 12 lead ECG
- ECG monitoring
- For hypotension – see Hypotension (non-trauma) guideline
  - Patients may be refractory to pressors; contact medical control if hypotension continues after a fluid bolus and steroid administration.
- If the patient's own prescribed **injectable hydrocortisone** is not present and there is a high suspicion of Adrenal Insufficiency, or Addisonian crisis, methylprednisolone (Solu-Medrol) may be administered.
- Methylprednisolone (Solumedrol) IM/IO/IV push

Age (years)	Dose in mg (mL) assuming 125mg/2mL
Under 2	25 mg (0.4mL)
3-10	50 mg (0.8mL)
Over 10	125 mg (2mL)

Pearls / Additional Considerations:
• The patient can be identified as being at risk for Acute Adrenal Insufficiency or Addison crisis by the presence of a medical alert bracelet/identification, patient records, family or medical confirmation, or is identified as having a disease (Congenital Adrenal Hyperplasia, Chronic systemic steroid use, history of Adrenal Insufficiency, etc.) that could lead to Acute Adrenal Insufficiency or Addison crisis. • Follow the direction / guidelines as written by the patient's personal physician, which should be in possession of the patient or guardian / care giver. If in doubt contact medical control. • Administer hydrocortisone or methylprednisolone as soon as possible after identifying that the patient is at risk for adrenal insufficiency. • Administer fluid bolus after administration of steroids and contact medical control if the patient continues to be hypotensive. • Monitor ECG for signs of hyperkalemia which can be present in patients with adrenal crisis.