PRE-HOSPITAL
PATIENT CARE GUIDELINES

COUNTIES OF
Adams•Benton•Franklin•Yakima

Written and Developed by:

- Kevin E Hodges, M.D., FACEP -

Medical Program Director

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Reviewed April 2022

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(Reviewed April 2022)

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PROTOCOL TITLE: PREFACE

In order to ensure conformance with local guidelines for pre-hospital care in Adams, Benton, Franklin, and Yakima Counties, the designated Medical Program Director (MPD) will implement guidelines, review agency conformance to establish protocols, and develop changes in medical policies as needed. Each MPD or designee is ultimately responsible for setting the standards for pre-hospital care and must be familiar with existing protocols upon designation. If deemed necessary, the MPD should present changes to the Emergency Medical Service (EMS) Council and County Medical Society in a timely manner.

Due to ongoing changes to EMS practices, the MPD or designee must review the current protocols biannually, no later than 24 months after the last review. Petition to the MPD for protocol change consideration may be made, and all changes and review must be accompanied by signed approval of the current MPD at the end of this document.

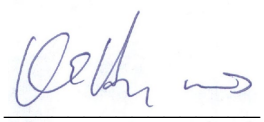
The MPD is encouraged to designate other local physicians who demonstrate interest and expertise in emergency care as medical directors of ambulance agencies in the region. All ambulance agencies that provide Advanced Life Support (ALS) level of care must have a designated Medical Director who ensures compliance with these protocols and is responsible for providing ongoing continuing medical education (CME) for personnel. Each ambulance agency must have a current protocol reference manual available to personnel at all times. The MPD or his/her designee will make every attempt to notify appropriate agencies of changes as they occur. It is the responsibility of each agency to make changes known to personnel.

Each Medical Director (MD) of an ALS ambulance service must develop a monitoring system to ensure protocol compliance, as well as to assure adequate CME for the EMS personnel. This usually includes review by the MD of all ALS runs, schedule staff/CME meetings, as well as periodic review and update of these protocols by EMS personnel.

As EMS Medical Program Director for Adams, Benton, Franklin and Yakima Counties, I hereby declare that I have read, understand, and approve of these patient care guidelines.

Adams/Benton/Franklin/Yakima County MPD Signature

June 30, 2020
Date



Kevin Hodges, M.D
Medical Program Director
Adams, Benton, Franklin and Yakima Counties

April 4, 2022
Date

PROTOCOL TITLE: INTRODUCTION

Patient Care Guidelines (PCG) are the written guidelines for EMS activities in Adams, Benton, Franklin and Yakima Counties and any communities with which mutual care agreements are active. PCG are mandated by the State of Washington EMS law (RCW) and regulation (WAC). These PCG shall define the scope of practice of all EMS personnel (BLS/ILS/ALS) in Benton-Franklin Counties. All EMS activities are supervised by the County Medical Program Director (MPD), a licensed physician whose EMS authority includes recommending certification/rectification of EMS personnel, training, and the development of written protocols that specify the scope and practice of all EMS personnel in this bi-county area.

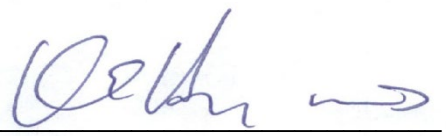
These protocols provide EMS providers of all levels a broad range of options in the management of patients at the scene and during transport. Written protocol cannot cover every situation that will be encountered in the field. In most cases the protocols should be followed as written. However, in situations the protocols do not specifically address, or where there is a need for immediate intervention, e.g., patient in extremis, code situations, the EMT should not be encumbered by requirements for immediate approval by Medical Control or destination hospital physician. Clinical judgment should be used to tailor treatment to the patient and the particular circumstances of illness or injury. Patient care procedures for incidents not addressed in these protocols should be performed in accordance with currently accepted standards. In addition, any deviation from the PCG should:

1. Be in the patient's best interest.
2. Be within the EMS provider's training and level of certification.
3. Be appropriately documented including procedure and rationale.

EMS personnel performance will be monitored retrospectively through the *established County QA/QI process* and patient evaluation. Accurate and complete documentation is required.

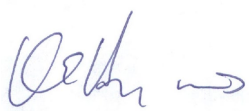
EMS providers are expected to function at the level of their state certification, including all relative endorsements.

Question and comments about the PCG should be addressed to the Benton-Franklin Counties Medical Program Director.



Adams, Benton, Franklin and Yakima County MPD Signature

June 30, 2021
Date



Kevin Hodges, M.D
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Adams, Benton, Franklin and Yakima Counties

April 4, 2022
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PROTOCOL TITLE: BLUNT TRAUMA DETERMINATION OF DEATH IN THE FIELD

The outcome of patients who suffer out-of-hospital cardiorespiratory arrest from blunt trauma is uniformly poor. These patients do not benefit from further intervention. Any victim of blunt trauma who presents meeting criteria for blunt-trauma code can be assumed to have sustained a terminal injury. No further resuscitative measures are necessary. Any BLS interventions in progress may be stopped.

1. Criteria for blunt trauma code: (All must be present)

    a. Present history of blunt trauma.
    b. Pulseless.
    c. Apneic / agonal respirations
    d. No palpable blood pressure.
    e. No heart sounds OR no electrical activity on monitor (asystole) OR wide-complex ventricular rhythm with rate less than 40/minute (agonal rhythm).

2. For all ALS units, documentation must include a rhythm strip unless obtaining the ECG strip is waived in preference for delivering care at the same scene to other victims of the blunt trauma. In the instance of one victim only, a rhythm strip will be used as part of the criteria for blunt trauma code and will be attached to the MIR.

3. Documentation on the run report must specifically address the above criteria.

An EMS provider may decide to continue resuscitative efforts for any reason. In this case, the documentation is expected to clearly document this decision-making process.

BLUNT TRAUMA DETERMINATION OF DEATH IN THE FIELD

April 4, 2022

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Adams, Benton, Franklin and Yakima Counties

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PROTOCOL TITLE: COMMUNICATIONS WITH HOSPITAL

Medical Control for any call shall fall under the following designation:

1. In general, the expected destination hospital serves as Medical Control.
2. If the patient meets criteria for ANY protocol-specific designation (strokes, trauma, cardiac), the protocol-designated hospital is Medical Control even if it is not the closest hospital or the ultimate destination hospital.
3. The DMCC (Disaster Medical Coordination Center) in the setting of any mass casualty or disaster response is as follows:
    a. Adams County- Deaconess Hospital
    b. Benton and Franklin Counties- Kadlec Regional Medical Center (See also Benton-Franklin County MCI Plan)
    c. Yakima County- Yakima Valley Memorial Hospital

Medical Control should be contacted for all medical and trauma patients at these intervals:

1. Enroute to medical or trauma call *if likely to require extensive ED resources*.

2. Enroute to the hospital with pertinent patient information as described below.

Additional contact with Online Medical Control and/or the receiving hospital may be indicated, especially in complex cases or multi-patient scenes.

If communications have been started with one hospital and the patient is ultimately transported to a different hospital, both the original Medical Control hospital and the receiving hospital should be notified immediately.

Communications between pre-hospital personnel and the supporting hospitals are a vital part of patient care. Transmissions should be succinct and follow the general outline below:

1. Patient's age and sex.

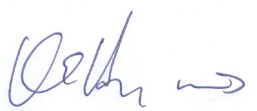
2. Chief complaint or problem.

3. Level of consciousness and vital signs.

4. Brief pertinent history, physical exam findings and pre-hospital treatment as needed to clarify patient status and stability.

5. An estimated time of arrival (ETA).

6. Any additional information requested by the receiving facility.



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PROTOCOL TITLE: CRITERIA FOR ALS TRANSPORT

In service areas with only BLS/ILS providers, a “rendezvous” with an ALS ambulance should be attempted for all patients who would benefit from ALS intervention considering factors such as patient condition and time required to effect a rendezvous and transfer patient care. In some cases it may be more effective for the BLS/ILS agency to transport the patient or to initiate transport and meet an ALS unit enroute. For units utilizing mixed ALS/BLS or ALS/ILS providers, this protocol may also be used to determine need to assign the patient and chart to the ALS provider. The following criteria is designed to assist you with the decision making process. When in doubt, default to ALS care.

I. ABNORMAL VITAL SIGNS (ADULTS):

1. Altered mental status
   a. GCS < or = 12.
   b. Associated symptoms/history may include diabetic problems, head injury, overdose, intoxication, seizures, sepsis

2. Hypotension

   a. Systolic BP less than 90 mmHg or MAP less than 65
   and/or
   b. Associated symptoms may include chest pain, shortness of breath, syncope (fainting), trauma, GI bleed, anaphylaxis (allergic reaction), severe abdominal or back pain, and acute altered level of consciousness.

3. Bradycardia

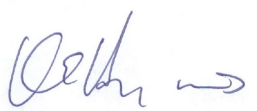
   a. Heart rate < 50 per minute with:
   b. Associated symptoms including chest pain, shortness of breath, syncope, hypotension, acute altered level of consciousness.

4. Tachycardia

   a. Heart rate: 100-120 per minute (mild); >120 per minute (significant)
   with:
   b. Associated symptoms; chest pain, shortness of breath, hypotension, trauma, cyanosis, stridor, wheezing, choking, low oxygen saturation (by oximeter).

5. Respirations

   a. Respiratory rate < 10 or > 29 per minute
   and/or



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b. Associated symptoms: chest pain, shortness of breath, hypotension, trauma, cyanosis, stridor, wheezing, choking, low oxygen saturation (by oximeter).

6. Pulse Oximetry (blood oxygen saturation or $Sa0_2$).
   a. Unreliable when patient not perfusing well or extremely tachycardic.
   b. $Sa0_2$ < 94% in patient without underlying pulmonary disease.
   c. $Sa0_2$ < 90% in patient with emphysema, or other chronic lung disease.
   d. Readings are without supplemental oxygen or without additional supplemental oxygen if the patient is on long-term home oxygen therapy.
   e. Associated symptoms: altered respiratory rate, chest pain, shortness of breath, hypotension, trauma, cyanosis, stridor, wheezing, choking.

II. ORGAN SYSTEM INVOLVEMENT

1. Neurologic Disease

   a. Acute altered level of consciousness.
   b. Recurrent or ongoing seizure activity.
   c. New spinal cord injury (i.e., paralysis).

2. Cardiac Disease

   a. Cardiac arrest (patient is unconscious and without a pulse).
   b. Chest pain.
   c. Palpitations

3. Respiratory Disease

   a. Respiratory arrest (patient is not breathing).
   b. Symptomatic asthma or emphysema.
   c. Choking or difficulty breathing.
   d. CPAP has been initiated.

4. Gastrointestinal Disease

   a. Significant vomiting of blood (especially if associated with lightheadedness or weakness).
   b. Significant rectal bleeding (especially if associated with lightheadedness or weakness).
   c. Severe abdominal pain.

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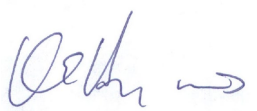
5. Obstetrics
   a. Active labor – regular uterine contractions with increasing frequency.
   b. History of complicated deliveries.
   c. Abnormal presentation.
   d. Post-delivery complication (i.e., heavy vaginal bleeding).
   e. Newborn complications.

III. TRAUMA

1. Any patient involved in a traumatic incident should be evaluated using the Washington State Trauma Triage Destination Procedures Tool. ALS rendezvous or Helicopter activation should be considered early in any patient meeting Trauma System Activation criteria (T-3)

2. Online Medical Control for every patient meeting Trauma Triage criteria is the highest level trauma center in the trauma system (See T-3). Pediatric trauma (age<14) medical control is the highest level pediatric trauma center in the trauma system.

3. Burns
   a. Burns with possible airway involvement
   b. Burns with associated injuries: electrical shock, fracture, airway
   c. 2nd or 3rd degree burns to face/head
   d. 2nd or 3rd degree burns > 20% of body



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PROTOCOL TITLE: DO NOT RESUSCITATE ORDERS

Patients who receive treatment and/or transport under these protocols must be treated when life-threatening problems develop. The protocols can at times come into conflict with the ethical issue of the right-to-die of the terminally ill.

The purpose of this protocol is to attempt to clarify EMS personnel's responsibility to the patient.

1. When EMS personnel respond to a cardiac or respiratory arrest patient, full resuscitation must be initiated with the following exceptions:

   a. The patient's private physician is present and orders that resuscitation attempts either not be initiated or be terminated.
   b. When history and obvious physical signs are present which indicate that death occurred and resuscitation attempts are inappropriate [i.e., putrefaction, rigor mortis, complete partition of body parts incompatible with life, or dependent lividity (livor mortis)].
   c. In the case of blunt trauma, see the Blunt Trauma Protocol (G-3).
   d. A patient has a written and signed DNR form such as a POLST form that specifies "Do not attempt resuscitation".
   e. The patient's family requests no resuscitation – in this case, you must establish who is requesting no resuscitation, their relationship with the patient and the reason given for requesting no resuscitation. These two elements must be clearly documented in the medical record.
   f. When in doubt, start BLS resuscitation and contact On-line Medical Control.

2. For those patients suffering from a terminal illness, and who have not reached the point of cardiac and/or pulmonary arrest, and cannot expect to realize any long-term benefit from pre-hospital care, and who have a written DNR order or advance directive:

   a. Do not perform resuscitative measures. (If resuscitation efforts have begun prior to learning of valid documentation, the following measures should be discontinued):
      i. Cardiopulmonary resuscitation.
      ii. Endotracheal Intubation (leave ET tube in place, but discontinue manual ventilation).
      iii. Defibrillation.
      iv. Administration of resuscitative medications.
      v. Positive-pressure ventilation.

   b. The following measures to ensure comfort are expected, as indicated:
      i. Position of comfort.
      ii. Manual airway control and suction.
      iii. IV line for hydration, antiemetics, anxiolytics, and/or analgesics. (Medications required for comfort)

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PROTOCOL TITLE: DO NOT RESUSCITATE ORDERS

iv. Oxygen for dyspnea including noninvasive ventilatory measures such as CPAP if desired and indicated.

3. For patients with a Washington State POLST (see form), follow the directives as written, with special attention paid to sections A (Cardiopulmonary Resuscitation) & B (Medical Interventions).
   a. Providers should verify:
      i. The form is signed by the patient or Power of Attorney and a medical provider.
      ii. If the form is not signed, it may be confirmed verbally by spouse and/or other family members present.

4. If any questions exist about presence of life or death or the presence of a viable DNR or POLST, resuscitation should be initiated at a BLS level while a determination of the level of care is determined.

5. If resuscitation appears unlikely after efforts have begun, consultation will be made with Medical Control to determine further action. (See Termination of Efforts in these protocols for further direction, C-10)

6. Once resuscitation has been initiated, treatment will continue and progress from BLS to ALS unless ordered to stop by the physician in charge or until a valid POLST form specifying “Do not attempt resuscitation” is presented.

7. Details of the entire resuscitation effort and physician consultation shall be documented in detail on the Medical Incident Report form.

8. If the patient is transported, a copy of the POLST form should accompany the patient to the ED and be presented to the ED staff.

9. In case of DNR with Comfort-Focused Treatment, every effort should be made to ensure the comfort of the patient. In general, those patients do not wish transfer to an ED. However, if the patient’s comfort issues cannot be reasonably managed at their current location, transport to the ED for comfort measures is reasonable and humane even if the patient is already enrolled in a hospice program. EMS providers should do everything reasonable within their scope of practice to ensure these patients’ comfort needs are met.

   The following measures to ensure comfort are expected, as indicated:
   a. Position of comfort.
   b. Manual airway control and suction.
   c. IV line for hydration, antiemetics, anxiolytics, and/or analgesics. (Medications required for comfort)

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PROTOCOL TITLE: DO NOT RESUSCITATE ORDERS

HIPAA PERMITS DISCLOSURE OF POLST TO OTHER HEALTH CARE PROVIDERS AS NECESSARY

Washington POLST
Portable Orders for Life-Sustaining Treatment
A Participating Program of National POLST

LAST NAME / FIRST NAME / MIDDLE NAME/INITIAL		
DATE OF BIRTH / /	GENDER (optional)	PRONOUNS (optional)

This is a medical order. It must be completed with a medical professional. Completing a POLST is always voluntary.
IMPORTANT: See page 2 for complete instructions.

MEDICAL CONDITIONS / INDIVIDUAL GOALS:	AGENCY INFO / PHONE (if applicable)

A CHECK ONE

Use of Cardiopulmonary Resuscitation (CPR): **When the individual has NO pulse and is not breathing.**

☐ **YES – Attempt Resuscitation / CPR** *(choose FULL TREATMENT in Section B)*
☐ **NO – Do Not Attempt Resuscitation (DNAR) / Allow Natural Death**

When not in cardiopulmonary arrest, go to Section B.

B CHECK ONE

Level of Medical Interventions: **When the individual has a pulse and/or is breathing.**
Any of these treatment levels may be paired with DNAR / Allow Natural Death above.

☐ **FULL TREATMENT – Primary goal is prolonging life by all medically effective means.** Use intubation, advanced airway interventions, mechanical ventilation, and cardioversion as indicated. Includes care described below.
Transfer to hospital if indicated. Includes intensive care.

☐ **SELECTIVE TREATMENT – Primary goal is treating medical conditions while avoiding invasive measures whenever possible.** Use medical treatment, IV fluids and medications, and cardiac monitor as indicated. ***Do not intubate.*** May use less invasive airway support (e.g., CPAP, BiPAP, high-flow oxygen). Includes care described below.
Transfer to hospital if indicated. Avoid intensive care if possible.

☐ **COMFORT-FOCUSED TREATMENT – Primary goal is maximizing comfort.** Relieve pain and suffering with medication by any route as needed. Use oxygen, oral suction, and manual treatment of airway obstruction as needed for comfort.
Individual prefers no transfer to hospital. EMS: consider contacting medical control to determine if transport is indicated to provide adequate comfort.

Additional orders (e.g., blood products, dialysis): _____

C

Signatures: A legal medical decision maker *(see page 2)* may sign on behalf of an adult who is not able to make a choice. An individual who makes their own choice can ask a trusted adult to sign on their behalf, or clinician signature(s) can suffice as witnesses to verbal consent. A guardian or parent must sign for a person under the age of 18. Multiple parent/decision maker signatures are allowed but not required. Virtual, remote, and verbal consents and orders are addressed on page 2.

Discussed with: ☐ Individual ☐ Parent(s) of minor ☐ Guardian with health care authority ☐ Legal health care agent(s) by DPOA-HC ☐ Other medical decision maker by 7.70.065 RCW	X **SIGNATURE** – MD/DO/ARNP/PA-C **(mandatory)**		DATE **(mandatory)**
	PRINT – NAME OF MD/DO/ARNP/PA-C **(mandatory)**		PHONE
	X **SIGNATURE(S)** – INDIVIDUAL OR LEGAL MEDICAL DECISION MAKER(S) **(mandatory)**	RELATIONSHIP	DATE **(mandatory)**
	PRINT – NAME OF INDIVIDUAL OR LEGAL MEDICAL DECISION MAKER(S) **(mandatory)**		PHONE

Individual has: ☐ Durable Power of Attorney for Health Care ☐ Health Care Directive (Living Will)
Encourage all advance care planning documents to accompany POLST.

SEND ORIGINAL FORM WITH INDIVIDUAL WHENEVER TRANSFERRED OR DISCHARGED

WSMA Washington State Medical Association — Physician Driven, Patient Focused

Washington State Department of Health

All copies, digital images, faxes of signed POLST forms are valid.
See page 2 for preferences regarding medically assisted nutrition.
For more information on POLST, visit **www.wsma.org/POLST**.

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Page 1

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Medical Program Director
Adams, Benton, Franklin and Yakima Counties

Date

PROTOCOL TITLE: DO NOT RESUSCITATE ORDERS

HIPAA PERMITS DISCLOSURE OF POLST TO OTHER HEALTH CARE PROVIDERS AS NECESSARY

LAST NAME / FIRST NAME / MIDDLE NAME/INITIAL	DATE OF BIRTH / /

Additional Contact Information (if any)

LEGAL MEDICAL DECISION MAKER(S) (by DPOA-HC or 7.70.065 RCW)	RELATIONSHIP	PHONE
OTHER CONTACT PERSON	RELATIONSHIP	PHONE
HEALTH CARE PROFESSIONAL COMPLETING FORM	ROLE / CREDENTIALS	PHONE

Preference: Medically Assisted Nutrition (i.e., Artificial Nutrition)

☐ Check here if not discussed

This section is NOT required. This section, whether completed or not, does not affect orders on page 1 of form.
Preferences for medically assisted nutrition, and other health care decisions, can also be indicated in advance directives which are advised for all adults. The POLST does not replace an advance directive. When an individual is no longer able to make their own decisions, consult with the legal medical decision maker(s) regarding their plan of care, including medically assisted nutrition. Base decisions on prior known wishes, best interests of the individual, preferences noted here or elsewhere, and current medical condition. Document specific decisions and/or orders in the medical record.

Food and liquids to be offered by mouth if feasible and consistent with the individual's known preferences.

☐ Preference is to avoid medically assisted nutrition.
☐ Preference is to discuss medically assisted nutrition options, as indicated.*
Discuss short- versus long-term medically assisted nutrition (long-term requires surgical placement of tube).

* Medically assisted nutrition is proven to have no effect on length of life in moderate- to late-stage dementia, and it is associated with complications. People may have documents or known wishes to not have oral feeding continued; the directions for oral feeding may be subject to these known wishes.

Discussed with: ____ Individual ____ Health Care Professional ____ Legal Medical Decision Maker

Directions for Health Care Professionals

NOTE: An individual with capacity may always consent to or refuse medical care or interventions, regardless of information represented on any document, including this one.

Any incomplete section of POLST implies full treatment for that section. This POLST is valid in all care settings. It is primarily intended for out of hospital care, but valid within health care facilities per specific policy. The POLST is a set of medical orders. The most recent POLST replaces all previous orders.

Completing POLST
- Completing POLST is voluntary for the individual; it should be offered as appropriate but not required.
- Treatment choices documented on this form should be the result of shared decision making by an individual or their health care agent and health care professional based on the individual's preferences and medical condition.
- POLST must be signed by an MD/DO/ARNP/PA-C and the individual or their legal medical decision maker as determined by guardianship, DPOA-HC, or other relationship per 7.70.065 RCW, to be valid. Multiple decision maker signatures are allowed, but not required.
- Virtual, remote, and verbal orders and consents are acceptable in accordance with the policies of the health care facility. For examples, see FAQ at www.wsma.org/POLST.
- POLST may be used to indicate orders regarding medical care for children under the age of 18 with serious illness. Guardian(s)/parent(s) sign the form along with the health care professionals. See FAQ at www.wsma.org/POLST.

NOTE: This form is not adequate to designate someone as a health care agent. A separate DPOA-HC is required to designate a health care agent.

Honoring POLST
Everyone shall be treated with dignity and respect.

SECTIONS A AND B:
- No defibrillator should be used on an individual who has chosen "Do Not Attempt Resuscitation."
- When comfort cannot be achieved in the current setting, the individual should be transferred to a setting able to provide comfort (e.g., treatment of a hip fracture). This may include medication by IV route for comfort.
- Treatment of dehydration is a measure which may prolong life. An individual who desires IV fluids should indicate "Selective" or "Full Treatment."

Reviewing POLST
This POLST should be reviewed whenever:
- The individual is transferred from one care setting or care level to another.
- There is a substantial change in the individual's health status.
- The individual's treatment preferences change.

To void this form, draw a line across the page and write "VOID" in large letters. Notify all care facilities, clinical settings, and anyone who has a copy of the current POLST. Any changes require a new POLST.

Review of this POLST form: Use this section to update and confirm order and preferences.

This meets the requirement of establishing code status and basic medical guidance for admission to nursing and other facilities.

REVIEW DATE	REVIEWER	LOCATION OF REVIEW	REVIEW OUTCOME
			☐ No Change ☐ Form Voided ☐ New Form Completed

SEND ORIGINAL FORM WITH INDIVIDUAL WHENEVER TRANSFERRED OR DISCHARGED

Copies, digital images, and faxes of signed POLST forms are legal and valid. May make copies for records.
For more information on POLST, visit **www.wsma.org/POLST**.

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Date

PROTOCOL TITLE: DOCUMENTATION

All patient contacts shall be documented on an MPD-approved form. The report is the medical legal document of the assessment and management of the patient. The importance of the completeness and accuracy of the report cannot be overemphasized. A complete and accurate document will assist with appropriate treatment after care of the patient has been transferred. This is a legal record and may be called upon as evidence in any court of law. All EMS medical documentation is expected to be reviewed under the local CQI process.

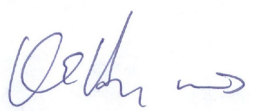
The narrative section of the EMS Medical Incident Report form will be completed using the following S.O.A.P. charting format:

S – <u>SUBJECTIVE and SCENE information</u>:
[Unit] responded to [call type]
Patient is [age] year old [gender] with [pertinent past medical history] complaining of [chief complaint].
[HPI History of the present illness] – this is where you put a few sentences describing the events today as relayed by the patient/family/bystanders. This should include a readable narrative of events leading to the 911 call. This should also include pertinent negatives. This may include useful information using mnemonics such as “OPQRST” or some elements of “SAMPLED”.
[PMHx Past medical history] Additional PMHx goes here, may include past surgical history if relevant.
Medications:
Allergies:

O- <u>OBJECTIVE information:</u>
[Age] y/o [gender] with brief description of general appearance, location and position upon arrival. This may include appearance of the scene if relevant.
[Physical Exam] Should follow a reasonable and intuitive pattern such as:
- Head to toe
- Primary exam, Secondary exam
- Systems based (HEENT, Cardiac, Pulmonary, GI… etc)
- Focused exam (on main problem area), brief rest of exam
- *Exam findings must have specificity; location (proximal/distal), deviation (medial/lateral), rotation, swelling, dislocation, status of controlled or uncontrolled bleeding, etc.*

[VS] – At least one set of vital signs or interpretation of vital signs (e.g. “tachycardic at 120, otherwise normal”.) May put in as many as necessary to give a good picture of the hemodynamic status of the patient.
[Test results] – ECG interpretations (with at least three data points)

DOCUMENTATION



Kevin Hodges, M.D
Medical Program Director
Adams, Benton, Franklin and Yakima Counties

<u>April 4, 2022</u>
Date

PROTOCOL TITLE: DOCUMENTATION

Rhythm strip interpretations (with at least three data points) Blood glucose, etc.

A - ASSESSMENT:

[Diagnoses] – These are your working diagnoses for the patient. You may have several diagnoses but MUST have at least one. Be as ***specific*** as you are comfortable being. For example, “Acute myocardial infarction” or “Acute Coronary Syndrome” or “PE”. You may also use the patient’s chief complaint as a diagnosis, (i.e. “Chest pain”), or combine the two ideas, “Chest pain, suspect MI”. Remember that all cardiac arrest charts MUST have “cardiac arrest” as one of the diagnoses.

Note: Your assessments should clearly flow from your subjective and objective parts of the chart. Further, your assessments should be supported in the rest of the chart. (E.g. If you put “Polysubstance abuse” as a diagnosis, it should be clear in the chart that the patient was using multiple substances).

P - PLAN:

This is a narrative of what happened during the call. What interventions were performed? Why were they performed? (For example; 8 mg Zofran for nausea & vomiting.) What were we thinking? This is the appropriate place to document your medical decision making. This may include statements such as, “Repeat neuro assessment showed decreasing mental status to GCS 6 so decision to intubate to protect airway.” Any deviation from protocol should be narrated here as well such as, “Blood glucose not repeated by EMS due to value from patient’s machine just prior to arrival.” Or, “Splinting and bandaging not completed at time of arrival to ED due to short transport time.” If you obtained approval from an E.D. Physician, this should also be documented.

The result of the treatment (improved, increased BP, no change, etc.)

Final documentation here should be to whom you transferred patient care.

[Name of person completing the chart], [certification level], [date & time signed] (unless otherwise already specified in EMR format.)
[Co-signature of lead paramedic, if applicable]

DOCUMENTATION

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Medical Program Director
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PROTOCOL TITLE: DOCUMENTATION

NOTE:

1. Document completely all instructions received via radio from Online Medical Control. Document the name of physician giving the order(s).

2. Document patient refusal of treatment, if it occurs (See G-10).

3. Document any rationale for any deviation from written protocol (See G-2).

4. Both a verbal report and written and or electronic report shall be provided to the supervising physician and/or designee at the time of patient transfer. If the written report cannot be provided at the time of patient transfer, a copy shall be completed within a reasonable time frame that shall **not exceed six (6) hours** after the patient has been delivered to the hospital.

5. If an agency is not using Image Trend, fax or fax server to transmit MIRs to the hospital is acceptable if security can be assured.

DOCUMENTATION

April 4, 2022

Kevin Hodges, M.D
Medical Program Director
Adams, Benton, Franklin and Yakima Counties

Date

PROTOCOL TITLE: INFECTIOUS DISEASE PROPHYLAXIS

All Washington State EMS and/or Fire Departments are required to have a written infection control plan.

The following guidelines should be followed in order to minimize risk to personnel:

1. Treat all patient contacts as potentially infectious.

2. Handle sharp items with extreme caution – Needles, scalpel blades and other sharp objects should be treated as potentially infective once they have been used. Place disposable items into puncture resistant containers located as close as possible to the area of use. Do not recap, bend, or purposefully break needles.

3. Wear protective gear when in contact with blood, body secretions, and tissue specimens as a safeguard, all blood, body secretions and tissue specimens should be treated as if they were contaminated. Emergency medical personnel shall wear protective disposable gloves with all patient contact both during treatment and when cleaning up. Safety glasses are to be worn when spattering is likely and disposable masks should be worn when signs of rash and/or fever indicate a communicable disease that may be spread through oral or respiratory secretions (chicken pox, measles, meningitis, whooping cough, TB, Covid-19).

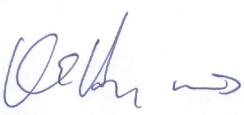
4. Wash thoroughly as soon as possible after contact with blood or body secretions. Use an antiseptic soap and running water and rinse thoroughly. When running water is not available, scrub with germicidal towelette or foam, and follow with soap and water wash as soon as possible. When practical, wash thoroughly before and between patient contacts. Change clothing soiled with blood or body secretions. Disposable gowns are recommended when spattering likely.

5. Use ventilation device (BVM, pocket mask etc.), for cardiopulmonary resuscitation.

6. Personnel suspecting exposure to an infectious disease, or if the mouth, eyes or an unprotected cut are directly exposed to blood or body secretions, or if a needle stick injury has occurred the affected personnel shall wash thoroughly, follow departmental procedure, and inform their supervisor.

7. All EMS providers are required to be current on their, HEP-B and Tetanus vaccinations. It is strongly recommended that all EMS personnel have an annual Flu shot, a TB test, and Covid-19 Vaccination.

INFECTIOUS DISEASE PROPHYLAXIS



Kevin Hodges, M.D
Medical Program Director
Adams, Benton, Franklin and Yakima Counties

April 4, 2022
Date

PROTOCOL TITLE: INTER-FACILITY TRANSPORT

Inter-facility transport will occur at BLS, ILS and ALS levels within the following general categories:

1. Transfer between hospitals for admission for services not available at originating hospital.
2. Transport and return of patient to facility.
3. Transport from hospital to extended care facility.
4. Transport of patient between other facilities at patient's request.

As a general rule, it is the responsibility of the transferring facility to ensure that the medical necessities for safe patient transfer are met. Medical instructions of the attending physician and registered nurses will be followed unless specifically contrary to standing orders. If a physician attends the patient during transfer, he or she will direct all care regardless of standing orders. If a registered nurse attends the patient, he or she will direct the care of the patient from the standing orders given by the physician at transfer or by contact with the receiving hospital physician. The registered nurse may desire to defer emergency care in some situations to the paramedic.

The responsibility for transfer to another facility resides with the transferring facility. Patients will not be transferred to another facility without first being stabilized to the extent possible based on the capabilities of the transferring facility. Stabilization includes adequate evaluation and initiation of treatment to assure that transfer of a patient will not, within reasonable medical probability, result in material deterioration of the condition, death, or loss or serious impairment of bodily functions, parts, or organs, except in situations where not transferring the patient is more likely to result in death or serious harm. Evaluation and treatment of patients prior to transfer to include the following:

1. Establish and assure an adequate airway and adequate ventilation.
2. Evaluation and management of a patient in labor.
3. Initiate control of hemorrhage.
4. Stabilize and splint the spine or fractures, when indicated.
5. Establish and maintain adequate access routes for fluid administration.
6. Initiate adequate fluid and/or blood replacement.
7. Determine if the patient's vital signs (including blood pressure, pulse, respiration, oximetry, and urinary output, if indicated) are sufficient to sustain adequate perfusion.

It is also the transferring facility's responsibility to establish the need for BLS, ALS, or Critical Care transport.

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Medical Program Director
Adams, Benton, Franklin and Yakima Counties

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PROTOCOL TITLE: INTER-FACILITY TRANSPORT

For an ALS response not meeting the above criteria, the following may apply:

1. You may initiate pre-hospital protocols and guidelines including the establishment of intravenous lines, airway control, etc.

2. You may refuse to transfer the patient until the facility has complied with the above evaluation and/or treatment. Should you decide this is necessary, contact Medical Control for concurrence and consultation, or contact the MPD directly.

If a BLS transport is requested and it is the judgment of the BLS crew that the patient needs to be transported by an ALS ambulance, it is mandated that dispatch is contacted and an ALS crew dispatched. Under no circumstances should a BLS crew transport a patient if, in their judgment, this is an ALS call. (Exception: mass casualty incidents and initiation of transport en route to meeting an ALS unit.)

Transporting personnel should be provided with a verbal or succinct written report (from either the physician or attendant RN) about the patient's condition, to include:

1. Present medical illness, including pertinent current medications.

2. Reason for transfer.

3. Pertinent medical history, including allergies.

4. Medications to be administered in transfer.

5. Patient's code status.

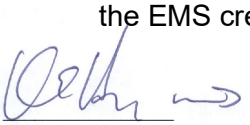
In the event of either an ALS, or BLS crew onboard and an emergency occurs enroute that is not anticipated prior to transport, pre-hospital protocols and guidelines will immediately apply. The destination facility should be contacted as soon as possible to inform them of changes in the patient's condition, and for concurrence of any orders, as appropriate.

Responding to an Urgent Care, Clinic, or other medical facility with a provider on-site

Establish whether or not the patient has been evaluated by a provider

1. If the patient has not had a medical screening examination by a physician or PA-C, or ARNP, then proceed per normal protocols and transport destination guide.

2. If the patient has received a medical screening examination by a physician (MD or DO), PA-C, or ARNP, the medical provider on scene will dictate the transport destination. The provider may defer transport and treatment decision to the EMS crew or may ask for information or opinions of the EMS crew prior to the provider making the decision. If a medical provider has made a decision on destination, that decision must be honored by the EMS crew regardless of State or local EMS destination protocols.



April 4, 2022
Kevin Hodges, M.D — Date
Medical Program Director
Adams, Benton, Franklin and Yakima Counties

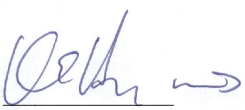
PROTOCOL TITLE: INTER-FACILITY TRANSPORT

Factors to consider:

- If a provider has arranged a destination and accepting provider already, deviation from this destination can cause significant medical and legal complications and should only be considered in the direst of medical circumstances (e.g. unstable and uncontrolled airway)
- Patient/family preference should generally play a large part in the initial destination decision.
- Recent procedure or history with a specific facility (e.g. Patient with chest pain had a cath two weeks ago at Trios, should typically go to Trios)
- All parties – EMS, medical provider, and patient/family, should be in agreement on destination prior to loading patient for, or otherwise initiating transport.
- In cases of disagreement between the patient and the medical provider regarding destination, the EMS crew should allow those two parties to decide on a destination prior to leaving the facility.

Any deviation from this guideline or from the transport protocols should be reported to the MPD.

Note: See also IFT protocol/appendix for advanced transfusion protocols for use by paramedics who have successfully completed the MPD-approved training program.



April 4, 2022

Kevin Hodges, M.D
Medical Program Director
Adams, Benton, Franklin and Yakima Counties

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PROTOCOL TITLE: REFUSAL OF TREATMENT AND/OR TRANSPORT

It is necessary to obtain patient consent before rendering emergency medical care. Expressed/informed consent must be received from competent adult patients. Implied consent is assumed in the case of life-threatening injury or illness when the patient is unconscious, disoriented, a mentally incompetent adult, or a minor whose parent or legal guardian is unavailable.

Capacity relates to the soundness of mind and to an ability to comprehend both the nature and the consequences of one's acts.

Decision-making capacity exists along a continuum, referring to the ability of a patient to make a specific decision at a specific time; it is not a global determination. Medical decision-making capacity is present when the patient is able to understand information about the medical condition and its consequences, to reason and deliberate about the various choices, to make a choice consistent with his or her values and goals, to communicate this choice to the medical provider, and to maintain this choice consistently over time.

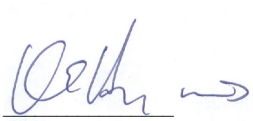
Decision-making capacity may be altered by acute physical or mental illnesses, substance abuse, and other factors. The presence of physical illness, mental illness, substance abuse or intoxication does not universally mean the person does not have the capacity to make informed decisions.

A competent adult has the right to refuse treatment.

When there is a disagreement between the patient and the EMS providers regarding medical need or care, in addition to the algorithm below, it is the duty of the EMS provider to:

1. Explain their medical concerns
2. Explain the recommended treatment course
3. Explain the benefits of this recommended course
4. Explain the risks of refusal of any or all of the recommended actions.
5. Assess the patient's ability to comprehend the situation and the consequences of refusing assessment, treatment, and/or transport.
6. Document all of the above including factors that weigh in your decision such as severity of the life-threat, presence of intoxicants, profound disability due to mental illness, head injury, and all other factors.

If a patient is unable to comprehend and understand the nature of the current event and/or the consequences of their decisions to refuse, then they lack capacity to make that decision for themselves. In these situations, an EMS crew may reasonably compel a patient to seek necessary medical treatment/transport.



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Kevin Hodges, M.D Date
Medical Program Director
Adams, Benton, Franklin and Yakima Counties

*MSE (Medical Screening Evaluation)
Includes: Hx, PE, VS, BG, ECG or 12 Lead as appropriate

PROTOCOL TITLE: REFUSAL OF TREATMENT AND/OR TRANSPORT

A patient with the capacity to refuse care who elects to refuse treatment and/or transport must sign a MPD approved refusal form. In addition to a signed refusal form any patient contact must include a completed MIR to document the medical screening exam (MSE) including the patient's chief complaint, pertinent patient history, physical assessment, at least one set of vital signs, relevant medical testing (EKG, BG, etc.), proposed treatment, description of expected benefits of treatment/transport, and risks of refusal and patient's rational for refusal. It must be clear in the MIR that the patient's mental status has been assessed and the patient has the capacity to refuse.

If the patient refuses to sign the form, obtain a signature from someone that has witnessed the patient's refusal. The witness should ideally be someone other than yourself or your crewmember.

When the wishes of the patient and the recommendations of the EMS crew conflict, consider contacting Online Medical Control and fully document all your actions.

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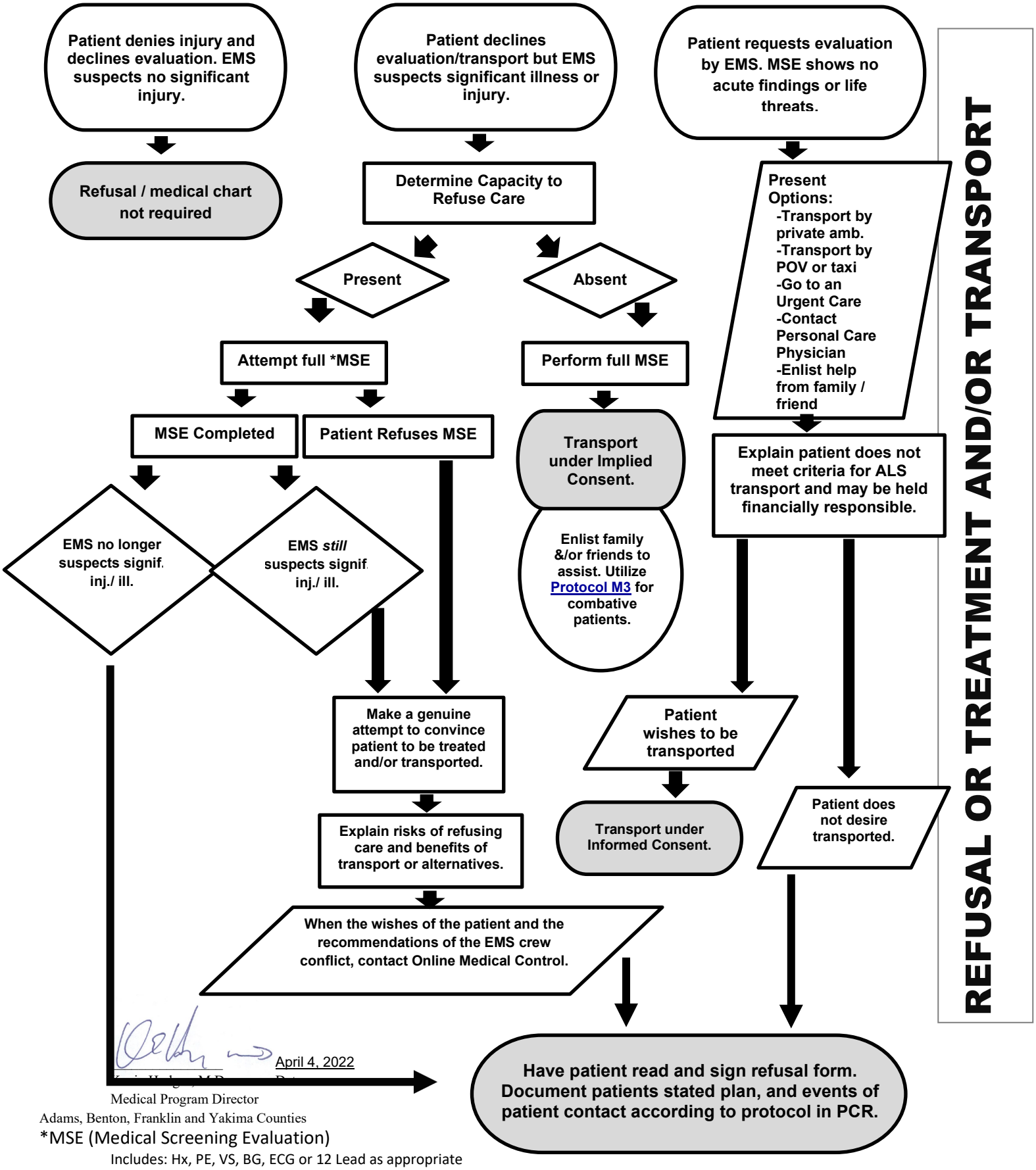
Kevin Hodges, M.D Date
Medical Program Director
Adams, Benton, Franklin and Yakima Counties

*MSE (Medical Screening Evaluation)
Includes: Hx, PE, VS, BG, ECG or 12 Lead as appropriate

PROTOCOL TITLE: REFUSAL OF TREATMENT AND/OR TRANSPORT



April 4, 2022

Medical Program Director

Adams, Benton, Franklin and Yakima Counties

*MSE (Medical Screening Evaluation)

Includes: Hx, PE, VS, BG, ECG or 12 Lead as appropriate

PROTOCOL TITLE: RESPONDING TO A MEDICAL FACILITY W/ A PROVIDER ON-SITE

Responding to an urgent care, clinic, or other medical facility with a provider on-site

Establish whether or not the patient has been evaluated by a provider.

1. If the patient has not been evaluated by a physician or PA-C, or ARNP, then proceed per normal protocols and transport destination guide.

2. If the patient has been evaluated by a physician, PA-C, or ARNP, the medical provider on scene will dictate the transport destination. The provider may defer transport and treatment decision to the EMS crew or may ask for information or opinions of the EMS crew prior to the provider making the decision. If a medical provider has made a decision on destination, that decision must be honored by the EMS crew regardless of State or local EMS destination protocols.

Factors to consider:

- If a provider has arranged a destination and accepting provider, deviation from this destination can cause significant medical and legal complications and should only be considered in the direst of medical circumstances (e.g. unstable and uncontrolled airway)

- Patient/family preference should generally play a large part in the initial destination decision.

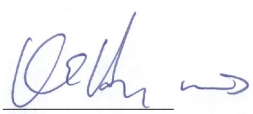
- Recent related procedure or history with a specific facility (e.g. Patient with chest pain had a cath two weeks ago at Trios, should typically go to Trios)

- All parties – EMS, medical provider, and patient/family, should be in agreement on destination prior to loading patient for, or otherwise initiating transport.

- In cases of disagreement between the patient and the medical provider regarding destination, the EMS crew should allow those two parties to decide on a destination prior to leaving the facility grounds.

Any deviation from this guideline or from the transport protocols should be reported to the MPD.

RESPONDING TO A MEDICAL FACILITY W/ A PROVIDER ON-SITE



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Medical Program Director
Adams, Benton, Franklin and Yakima Counties

Date

PROTOCOL TITLE: RELATIONSHIP BETWEEN EMS AND GOOD SAMARITAN PHYSICIAN ON-SCENE

When a physician, or other medical provider (PA-C, ARNP) is in attendance, on-scene at a location other than a medical facility (e.g. Good Samaritan at a MVC), the EMS team will attempt to comply with the provider's instructions for the patient, including transport destination. Online Medical Control may be contacted if needed. Assisting providers should be made aware that the EMS unit is already operating directly under the Online Medical Control Physician.

The provider at the scene should be provided with the following options:

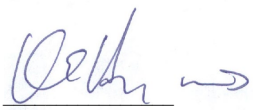
1. Request to talk directly to the Online Medical Control Physician to offer advice and assistance.

2. Offer assistance to the ALS team with another pair of eyes, hands or suggestions, leaving the ALS team under Medical Control.

3. Take total responsibility for the patient with the concurrence of the Medical Control Physician. If the physician elects this option he/she must also accompany the patient in transport.

   If during transport the patient's condition should warrant treatment other than that requested by the private provider, Medical Control may be contacted for information and guidance.

RELATIONSHIP BETWEEN EMS AND GOOD SAMARITAN PHYSICIAN ON-SCENE



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Kevin Hodges, M.D
Medical Program Director
Adams, Benton, Franklin and Yakima Counties

Date

PROTOCOL TITLE: SCHEDULE 2 MEDICATIONS

Schedule 2 medications are those medications that are classified as controlled substances by the U.S. Food and Drug Administration. The purchase, storage, dispensing, and record keeping of Schedule 2 medications will be handled in the following manner:

RECORD KEEPING: Each EMS agency authorized to obtain and dispense Schedule 2 medications will maintain appropriate orderly records. Copies of these records will be provided to the County MPD at his/her request.

Upon written request, the EMS agency will provide the County Medical Program Director and/or the agency's medical advisor the original records, when by his/her judgment an audit is necessary. The following information should be supplied with the audit request.

1. Names of all personnel who have access to Schedule 2 medications.

2. Name of the designated control person.

3. Name and FDA physician control number.

CONTROL: The EMS agency will designate one individual who will be responsible for record keeping and security of the controlled substance. This individual will be responsible for reporting any discrepancies to the County Medical Program Director.

PURCHASE: Purchase of Schedule 2 medications must be on a Federal Narcotics form DEA 222, which contains the name and address of the EMS agency, as well as the name and FDA physician control number of the Medical Program Director. Alternatively, agencies may work with the MPD or agency medical adviser to establish an on-line account (i.e: CSOS).

Copies of the DEA 222 indicating the source and date of purchase must be maintained by the EMS agency and the EMS/MPD administrative office for the purpose of inventory, should a problem arise.

STORAGE IN-HOUSE: Storage will be in a locked container that inhibits forced entrance. That container will be stored in a cabinet that is also locked.

Keys to the storage facility, if applicable, will be in control of the paramedic on duty. If no paramedic is on duty, the highest-ranking individual on duty at that facility will be responsible for the keys and for maintaining the appropriate records.

STORAGE IN THE FIELD: Schedule 2 medications will be handled in one of two ways in the field:

1. The paramedic may carry them in a container that slips on/over the belt and has a cover sufficient to keep the medications from freely falling out; or

2. They may be stored in a locked container that inhibits forced entrance, with that container being stored in a cabinet or compartment on the apparatus that is also

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Medical Program Director
Adams, Benton, Franklin and Yakima Counties

PROTOCOL TITLE: SCHEDULE 2 MEDICATIONS

locked. Keys to the apparatus storage will remain in control of the duty paramedic on the apparatus.

DAILY DRUG RECORD: Each agency is responsible for maintaining a mechanism to track who is responsible for controlled medications at all times and the amount of medications that are in said person's control. This should be a daily record so discrepancies can be found quickly.

1. Off-duty paramedic signature.
2. On-duty paramedic signature.
3. Milligrams/micrograms of medication changing hands.

DISPENSING: Control and dispensing of Schedule 2 medications is the sole responsibility of the paramedic. They will be responsible for properly recording the following information on the patient's MIR form and in the agency's record book:

1. Date.
2. Agency Run Number.
3. Amount of medication dispensed and wasted in mg.
4. Signature of paramedic dispensing medication, and witness of the wasting of medication.

RETURNS / DISPOSAL Returns/disposal of controlled substances shall be performed in the following manner:

1. Controlled substances may not be returned to the vendor through which they were purchased. A third party must be utilized – this will be the Reverse Distributor.
2. Wasting of expired medications in order to dispose of them is not acceptable.
3. The following forms must be utilized for returning controlled substances:
   a. Schedule II shall utilize DEA Form-222
   b. Schedule III-V shall utilize the purchasing invoice.

SCHEDULE 2 MEDICATIONS

April 4, 2022

Kevin Hodges, M.D Date
Medical Program Director
Adams, Benton, Franklin and Yakima Counties

PROTOCOL TITLE: SUDDEN UNEXPLAINED INFANT DEATH (SUID)

The goal of field EMS care in the case of Sudden Unexplained Infant Death (SUID) is to provide resuscitation treatment to the infant, if indicated, as well as supportive care to the family until other resources can be mobilized.

Discuss transport decision with Medical Control.

1. If no signs of obvious death:

   a. Verify cardiopulmonary arrest.
   b. Refer to appropriate Pediatric Cardiopulmonary Arrest protocol.

2. If signs of obvious death; disfiguration of face with “squashed nose”; frothy, blood-tinged mucous around infant’s mouth or nostrils; livor mortis (pooling of blood in dependent body areas may appear as blotching); rigor mortis.

   a. Do not initiate resuscitation procedures unless family refuses to acknowledge the infant’s death.
   b. Acknowledge the parent’s and family’s feelings of grief, and provide calm, authoritative guidance.
   c. Consider activation of the Critical Incident Stress Debriefing (CISD) Team after the incident.
   d. Observe scene carefully and document:

      i. Location and position of child.
      ii. Objects immediately surrounding the child.
      iii. Behavior of all individuals present.
      iv. The explanations provided.
      v. Emesis in mouth or foreign body present.

3. Assess for and consider possible abuse mechanism. If suspected, notify CPS by telephone immediately following completion of the call. Document notification time and CPS representative taking report or time voice message is left.

   1-866-**END**HARM (1-866-363-4276)

   http://www.dshs.wa.gov/ca/safety/abuseReq.asp?2

Kevin Hodges, M.D
Medical Program Director
Adams, Benton, Franklin and Yakima Counties

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PROTOCOL TITLE: RESPIRATORY DISEASE PRE-HOSPITAL CARE

I. Triggers

1. Activation of the EMS Viral Respiratory Disease, Pandemic SOPs is made by Agency Administrators and the MPD in consultation with the Public Health Officer.

2. Communications.

   a. 9-1-1 Operations/Dispatch.

      i. Activate their pre-determined applicable criteria-based dispatch protocol and advise emergency responders of positive symptom(s) patients.

   b. Situation Reports.

      i. The Public Health Officer, the Agency Administrators and MPD will ensure situation reports are provided to emergency responder agencies to distribute to stations/personnel.

   c. Shift Briefings – All EMS agencies will provide ongoing shift briefings to include:

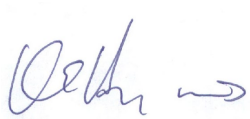
      i. Status of outbreak including last 24 hour activity
      ii. Hospital status
      iii. PPE, Infection Control
      iv. Status of EMS Pandemic SOP

II. Worker Safety/Infection Control

1. Personal Protective Equipment (PPE):

   a. Enhanced PPE Procedures:

      i. All Patient Contact – standard precautions or PPE including: gloves, NIOSH approved mask, and eye protection.
      ii. Patients with respiratory/GI symptoms – PPE outlined above, plus: disposable gown/overalls and shoe covers; cover patient with surgical face mask.
      iii. Change in response configuration to minimize personnel exposure at each call.
      iv. Every job regardless of Pt. Contact – PPE including: NIOSH approved mask, eye protection, regular hand washing, and cleaning of work surfaces (minimum prior to each shift/staff change)



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2. Vaccination / Antiviral Therapy:

   a. Emergency Responder Points of Distribution (POD) – Agency administrators in consultation with the County Health Department will consider/coordinate activation of the Emergency Responder PODs for appropriate vaccination/antiviral therapy.

   b. Staff Entry Control Process:

      i. All EMS agencies shall establish a decontamination and health care screening site(s) to clear employees prior to entering the work site and start of each shift.

3. Decontamination and Cleaning of Equipment/Work Areas.

   a. Enhanced Decontamination Procedures:

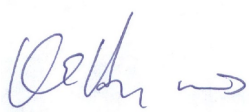
      i. Clean off all surfaces and equipment (including glasses and stethoscope) using agency's anti-microbial agents/disinfectants or alcohol based hand cleaner.
      ii. Dispose of all cleaning supplies in red hazardous waste bag
      iii. (Driver Prior to Transport/Attending Technician at end of Transport/patient care) Remove disposable gown/overalls, face mask, gloves and disposable BP cuff into hazardous waste bag and secure.
      iv. First Responders: Place all equipment used during the call in a red hazardous waste bag until decontamination prior or en route to next call.
      v. Use bio-wipes or alcohol based hand cleaner to clean hands and forearms until soap and water are available
      vi. (Driver on arrival at receiving facility) Use new suit, gloves, face mask, and eye protection.
      vii. Once patient has been transferred, decontaminate inside of ambulance patient care area and equipment prior to arrival at next call.

III. Patient Care and Transport (Respiratory Distress (Flu Like) Symptoms)

1. PPE & Standard Precautions.

2. Assess Patient for Priority Symptoms.

   a. Chief Complaint.
   b. Vital Signs (including temperature).
   c. Medical History/Travel History.



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Adams, Benton, Franklin and Yakima Counties

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3. Medical Control will advise 9-1-1 and Fire/EMS agencies which of the following Care and Transport options to use:

   a. **Care and Transport to ED.**

      i. Allow patient to achieve position of comfort
      ii. Cover patient with surgical face mask, or administer O2 via face mask, to reduce aerosolization of virus
      iii. EKG, IV TKO (if patient has signs of dehydration, administer fluids per protocol)
      iv. Administration of antiemetics as necessary based on patient symptoms.
      v. Passive cooling techniques based on temperature
      vi. Provide "Infection Control Guidance for Families".

         1. If the equipment and the procedures have been provided to pre-hospital EMS agencies and time allows, based on patient condition, then do mouth and throat swabs of members within the immediate patient living/work area.

      vii. Use proper patient isolation techniques.

         1. Close off ambulance driver's compartment.
         2. Drape patient / Isolation Pod.

      viii. Early EMS Report

4. **Care and No Transport.**

   a. Provide a hand out explaining the demand of limited resources and decision of no transport.
   b. Provide "Home Care and Protective Equipment for Families Packet" and explain contents and use.
   c. Advice to call 9-1-1 should priority symptoms occur.
   d. Advise Home Health Care of patient condition and location for in home support and care.

If ordered by Public Health Officer, distribution of anti-viral medications.

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C1

BRADYCARDIA

- Obtain SAMPLE Hx
- Determine DNR Status
- Consider underlying causes

Bradycardia – Persistent symptomatic bradycardia or bradycardia causing hemodynamic changes

Oxygen via cannula @ 4 lpm if stable

Oxygen via NRM @ 15 lpm if unstable

HR > 60 Focus on O_2 & PPV
HR < 60 Start CPR
Neonatal HR < 100 BVM & PPV
Epinephrine IVP (0.01 mg/kg 1:10,000 IV/IO)

BLS - ILS
Call for ALS Transport
Keep in supine position
ILS – Start IV **Crystalloid**

ALS
Stable or Unstable
Persistent Bradycardia resulting in AMS, ischemic chest pain, breathing difficulty, unstable BP, N/V, dizziness, heart failure

Stable
Narrow Complex Bradycardia
1 mg Atropine IVP

Search for reversible causes
H's T's – (C11)

Unstable or Wide Complex
(2nd or 3rd degree blocks)

No Response to **Atropine**
- Repeat **Atropine** 1 mg IVP
- Max dose 3 mg

Transcutaneous Pacing

Refractory to **Atropine**
- **Epinephrine** 2–10 mcg/min (Titrate to effect)

No Response to **TCP**

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Date

C2

PROTOCOL TITLE: CARDIOGENIC SHOCK

I. BASIC LIFE SUPPORT

1. Establish and maintain airway.
2. Administer O_2 @ 10-15 L/min via nonrebreather mask.
3. Frequent vital signs.

II. INTERMEDIATE LIFE SUPPORT

4. Establish two large-bore IVs and administer 30mL/kg Crystalloid bolus.
   a. **Reassess patient (including lung sounds) every 500mL.** Do not administer fluid challenge if patient displays signs and symptoms of volume overload. Stop fluid challenge if patient develops pulmonary edema.

III. ADVANCED LIFE SUPPORT

5. Establish cardiac monitor.
6. Administer **Levophed** if no response or inadequate response to fluid challenge. Initial rate of 2-4 mcg/min IV/IO, titrated to maintain systolic blood pressure >90mmHg.
   a. Consult drug table for drip rates if necessary
7. For hypotension refractory to fluid bolus, may give **glucagon** 2 mg IV push. Repeat per A-A1 Chart

CARDIOGENIC SHOCK

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April 4, 2022
Date

PROTOCOL TITLE: CHEST PAIN (Suspected cause Coronary Artery Disease)

I. BASIC LIFE SUPPORT

1. Establish and maintain airway.

2. If SaO_2 < 94% administer O_2 to keep SaO_2 ≥ 94%. Do not routinely use O_2 if SaO_2 > or = to 94%

3. If able to swallow administer 324 mg chewable **Aspirin.**

4. If patient continues to have signs and symptoms of chest pain and has their own physician-prescribed **Nitroglycerine**, contact Online Medical Control for approval to assist patient with **Nitroglycerine** tablets or sublingual spray.

5. If provider has successfully completed MPD-approved 12-lead training: Obtain 12-Lead ECG at the earliest opportunity and transmit to Medical Control. Do not delay care. Do not delay transport greater than 4 minutes to obtain ECG. If unable to transmit, present at ED upon arrival. (See triage guidelines for transport destination per Protocol C-9)

6. Reassessment after **Nitroglycerine** administration.

   a. Monitor blood pressure.
   b. Question patient about effect.
   c. If systolic blood pressure > 100 mmHg and patient is still having chest pain, repeat Nitroglycerine dose every 5 minutes to maximum three doses.
   d. Record & document all findings & reassessment.

II. INTERMEDIATE LIFE SUPPORT

7. Establish peripheral IV with **crystalloid** @ TKO rate.

8. Administer **Nitroglycerine,** 0.4 mg, sublingual tablet or spray.

   a. If systolic blood pressure > 100 mmHg and patient is still having chest pain, repeat **Nitroglycerine** dose every 5 minutes to maximum three doses.

III. ADVANCED LIFE SUPPORT

Note: Patients presenting with symptoms and EKG consistent with acute ST-elevation myocardial infarction (STEMI) shall be transported rapidly to the nearest facility capable of emergent cath-lab intervention. Exceptions in extreme circumstances will be reviewed by the MPD. In any case, follow triage guidelines for transport destination per Protocol C9.

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PROTOCOL TITLE: CHEST PAIN (Suspected cause Coronary Artery Disease)

1. Obtain and transmit 12-lead ECG. Notify Online Medical Control immediately to review the ECG if suspected STEMI.

2. Establish IV crystalloid @ TKO rate and cardiac monitor.

3. Administer **Nitroglycerine,** 0.4 mg, sublingual, or spray.

   a. If systolic blood pressure > 100 mmHg and patient is still having chest pain, repeat **Nitroglycerine** dose every 5 minutes to maximum three doses.
   b. If suspected Right Ventricular Infarct administer 500 cc **crystalloid bolus** prior to **Nitroglycerine.** Consider use of opiate pain medication instead of Nitroglycerine.

1. If pain unrelieved after 3 **Nitroglycerine**, administer **Fentanyl** 1mcg/kg IV/IO titrated to effect, max dose of 3 mcg/kg.
2.
   a. May substitute **Morphine Sulfate** 2-4 mg IV; may repeat every 3-5 minutes until pain relieved or to total 20 mg given

3. Watch for dysrhythmias.

4. Consider non-cardiac causes of chest pain; such as pericarditis, pneumonia, gastric esophageal reflux disease, pneumothorax, etc.

CHEST PAIN – (Suspected Cause Coronary Artery Disease)

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April 4, 2022
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PROTOCOL TITLE: CHF WITH ACUTE PULMONARY EDEMA

I. BASIC LIFE SUPPORT

1. Initial assessment to include lung sounds.
2. Sit patient up if possible and dangle legs.
3. If stable, administer 0_2 @ 4-6 L/min via nasal cannula.
4. In unstable, administer 0_2 @ 10-15L/min via nonrebreather mask.
5. If provider has successfully completed MPD-approved CPAP training: Consider CPAP per protocol P-2 and initiate ALS rendezvous.
6. If provider has successfully completed MPD-approved 12-lead training: Obtain 12-Lead ECG at the earliest opportunity and transmit to Medical Control. Do not delay care. Do not delay transport greater than 4 minutes to obtain ECG. If unable to transmit, present at ED upon arrival.
7. Consider ETCO2 monitoring if available.

II. INTERMEDIATE LIFE SUPPORT

8. Establish peripheral IV access with crystalloid @ TKO rate.
9. Reassess lung sounds frequently.

III. ADVANCED LIFE SUPPORT

10. Establish cardiac monitor.
11. If patient in extremis:
    a. CPAP per Protocol P-2.
    b. BVM assist, intubate as needed.
    c.BiPAP per protocol P-2
12. Drug Therapy – SBP > 100
    a. **Nitroglycerine**, 0.4 mg sublingual every 3-5 minutes to a max. of 1.2 mg. and/or 2 inches **Nitropaste** applied to chest.

CHF WITH ACUTE PULMONARY EDEMA

April 4, 2022

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C5

CPR & AED DEFIBRILLATION

- Obtain SAMPLE Hx
- Determine DNR Status Early & Obtain Paperwork
- Perform BLS if DNR status is in question

Definitions

HQ CC = High Quality Chest Compressions
HPCPR = High Performance CPR @ either 30:2 or 10:1 if highly trained & practiced.
POx = Passive Oxygen

Unresponsive or lifeless Patient

Check Carotid Pulse & Look for signs of Breathing Simultaneously for <10 Seconds

---

If Pulseless or HR<60

If Pulses Present but Not Breathing

Initiate Adult Rescue Breathing
1 Vent / 6 seconds
or

1 Vent / 3-5 seconds

Pulse Check every 2 minutes & Establish ECG

Initiate HQCC

Initiate HPCPR (P18) as Team Builds

- HQCC, AED/Defib
- Asystole / PEA / No Shock: Place SGA before BVM
- VF/pVT / Shock: Place NC w/ ETCO2 @ 15lpm for POx
- Fill Timekeeper Roll ASAP with 3rd Rescuer.

DO NOT Start IV Until 4th Rescuer Arrives

Ventilate with Low Volume or Peds BVM

Continue HPCPR until AED / DEFIB Arrives
10:1 (Adult 2 Rescuer)
30:2 (Child 1 Rescuer)
15:2 (Child 2 Rescuer)

If ALS, & using Manual Defib – go to VF/Pulseless Algorithm

Place Pads A/P when Possible
Analyze for shockable rhythm ASAP
(Goal is 1-3 minutes after EMS arrival)

Shockabl

Not Shockable

- **Monitor SaO2 & ETCO2 waveforms for CPR quality and ROSC**
- **Perform resuscitation where ETCO2 >20 for minimum of 40 minutes in VF/pVT and PEA arrest, minimum 30 minutes for Asystole**

- **Give 1 shock every 2 min if indicated**
- **Resume CPR immediately after shock**
- **Perform HPCPR 2 minutes between pulse & rhythms checks.**

- **Give 1 shock every 2 min if indicated**
- **Resume CPR immediately after shock**
- **Perform HPCPR 2 min between pulse & rhythms checks.**

Double sequential defibrillation shall not be performed. For refractory VF ensure pads are placed A/P and consider changing out pads if VF rhythm persists.

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April 4, 2022
Date

C6

PULSELESS ARREST-VF/VT & ASYSTOLE/PEA

- **Obtain SAMPLE Hx**
- **Determine DNR Status**
- **Bring DNR to ER**

Pulseless Arrest
Establish HPCPR (P-18) with Emphasis on Chest Compressions

Follow C5

VF / pVT

Asystole / PEA

1st Shock ASAP
- 200 Joules (Lifepak)
- 120 Joules (Zoll)

Resume HPCPR
Perform 5 Cycles / 2 Minutes

Build Team

Build Team in Order:
1. Scout with HQCC
2. Defib/AED & SGA
3. Time Keeper
4. IV/IO
5. Advanced Airway

Pulse / Rhythm Check
Every 2 Minutes

Shockable

2nd Shock
- 300 Joules (Lifepak)
- 150 Joules (Zoll)

Not Shockable

Resume CPR Immediately
Push appropriate medication after defibrillation **or** if not shockable rhythm.

Rotate Compressors Every 2 Minutes

TRAUMA
If arrest is result of hypovolemic shock, withhold Epi. Focus on fluids, airway & breathing.

Epinephrine 1 mg
Refractory PEA after 4 doses, move to Levophed (4-10 mcg/min)

Pulse / Rhythm Check
Every 2 Minutes

During CPR
Avoid Hyperventilation
Consider H's and T's

Epi (0.01 mg/kg 1:10,000)
Lidocaine (1 mg/kg)
Amiodarone (5mg/kg)

Discontinue efforts

Shockable

3rd Shock
- 360 Joules (Lifepak)
- 200 Joules (Zoll)

Give Antidysrhythmic for Persistent VF/VT
- **Amiodarone** 300 mg OR
- **Lidocaine** 1 – 1.5 mg/kg

Continue Cycle: CPR → Shock/Med → CPR→
- Search for **H's and T's**
- May repeat **Amiodarone** with 150 mg
- Max dose **Lidocaine** 3 mg/kg
- Consider **Magnesium Sulfate** 2 g IV after conversion of Torsades

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April 4, 2022
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PROTOCOL TITLE: Post R.O.S.C Management

History:	Signs/Symptoms:	Differential:
• Confirmed cardiac arrest of presumed cardiac etiology or unknown etiology	• Return of spontaneous circulation as evidenced by ETCO2 >20 and palpable blood pressure.	• Continue to address specific differentials associated with the original dysrhythmia.

POST R.O.S.C. MANAGEMENT

Continue to identify etiology & treat causes of H's & T's

ROSC

Establish Full Set of Vital Signs (BP, HR, ETCO2, SaO2, BG, Temp.)

Perform 12 Lead & Transmit ASAP

Perform Full Neuro Exam

Neuro Exam
- Deep pain response
- Babinski reflex
- Pupillary response
- Posturing
- Corneal reflex

Activate Appropriate Team at ER (Stroke, Trauma, Cardiac)

H's & T's

Hypovolemia
Hypoxia, Hypoglycemia
Hydrogen ion (Acidosis)
Hypo/**H**yperkalemia
Hypothermia

Tension Pneumothorax
Tamponade, cardiac
Toxins
Thrombosis, pulmonary
Thrombosis, coronary

IF available, deploy mechanical CPR device for use during transport.

Prepare for Transport

Airway / Breathing

Circulation

If not intubated and patient is not responding to or following commands intubate per (P-7)

Establish 2nd IV of 18g or larger. Consider fluid resuscitation per P-25

Ventilate patient at 10-12 VPM. Do not hyperventilate

Consider Levophed Drip for persistent hypotension <90 or MAP <65

If Hyperkalemia is suspected, reference C-11.
Do not administer Ca+ and Na Bicarb in same line.

TRANSPORT

Pearls:
- Patients experiencing ROSC should be handled gently.
- Reassess airway frequently and with every patient move.
- Document unusual events in Patient Care Report (PCR).
- Document activation of Teams in PCR.

April 4, 2022

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PROTOCOL TITLE: WIDE/NARROW TACHYCARDIA

C8

- **Obtain SAMPLE Hx**
- **Determine DNR Status**
- **Bring DNR to ER**

Tachycardia

BLS – ILS
Apply oxygen if unstable*
Call for ALS Transport
Keep in supine position or POC
ILS – Start IV **Crystalloid**

***Unstable Patient defined as:** **Presence of ischemic chest pain, shortness of breath, n/v, back or jaw pain, hypotension, acute altered mental status, or acute heart failure**

Unstable*
Narrow- Go straight to Synchronized Cardioversion @ 50 - 100 J
Wide- Go straight to Synchronized Cardioversion @ 100 J

ALS
Determine Rhythm & Patient Status
Perform 12 Lead

SVT
(Regular Narrow Complex) Rate >150

Vagal Maneuvers

Adenosine 6 mg
Rapid IVP 10 cc Flush

If flutter waves seen or no Response: Consider Atrial Dysrhythmia

Adenosine 12 mg
Rapid IVP 10 cc Flush

If No Response

Adenosine 12 mg
Rapid IVP 10 cc Flush

Lidocaine (1 mg/kg IV/IO), repeat up to 3mg/kg
Amiodarone (5mg/kg IV/IO), repeat up to 15mg/kg

Adenosine (0.1 mg/kg IV/IO), repeat at 0.2mg/kg

A-Fib / Flutter
If rate is >(220-age) & SBP is >100

Cardizem 0.25 mg/kg
Slow IV, then drip
5-10 mg/hour

If No Response

After 10 min.
Cardizem 0.35 mg/kg
Slow IV then drip 15mg/hour

If No Response

Amiodarone 150 mg
Over 10 minutes

If rate controlled initiate maintenance drip:
Amiodarone 1mg/min

V-Tach with Pulses

Amiodarone 150 mg
Over 10 minutes

or

Lidocaine
0.5 - 0.75 mg/kg

If No Response

Amiodarone
300 mg Over 10 minutes
Lidocaine
1 – 1.5 mg/kg

If rate controlled with Lidocaine, initiate maintenance drip:
Lidocaine 1 – 4 mg/min

Other Considerations
- Consider: H's & T's
- Consider **Cardizem** for refractory SVT after **Adenosine**
- Consider refractory wide complex tachycardia could be aberrant SVT - use **Adenosine**
- Torsades - use **Mag Sulfate** ONLY after successful defib
- Consider **Procainamide** for Stable VT

WIDE/NARROW TACHYCARDIA

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April 4, 2022
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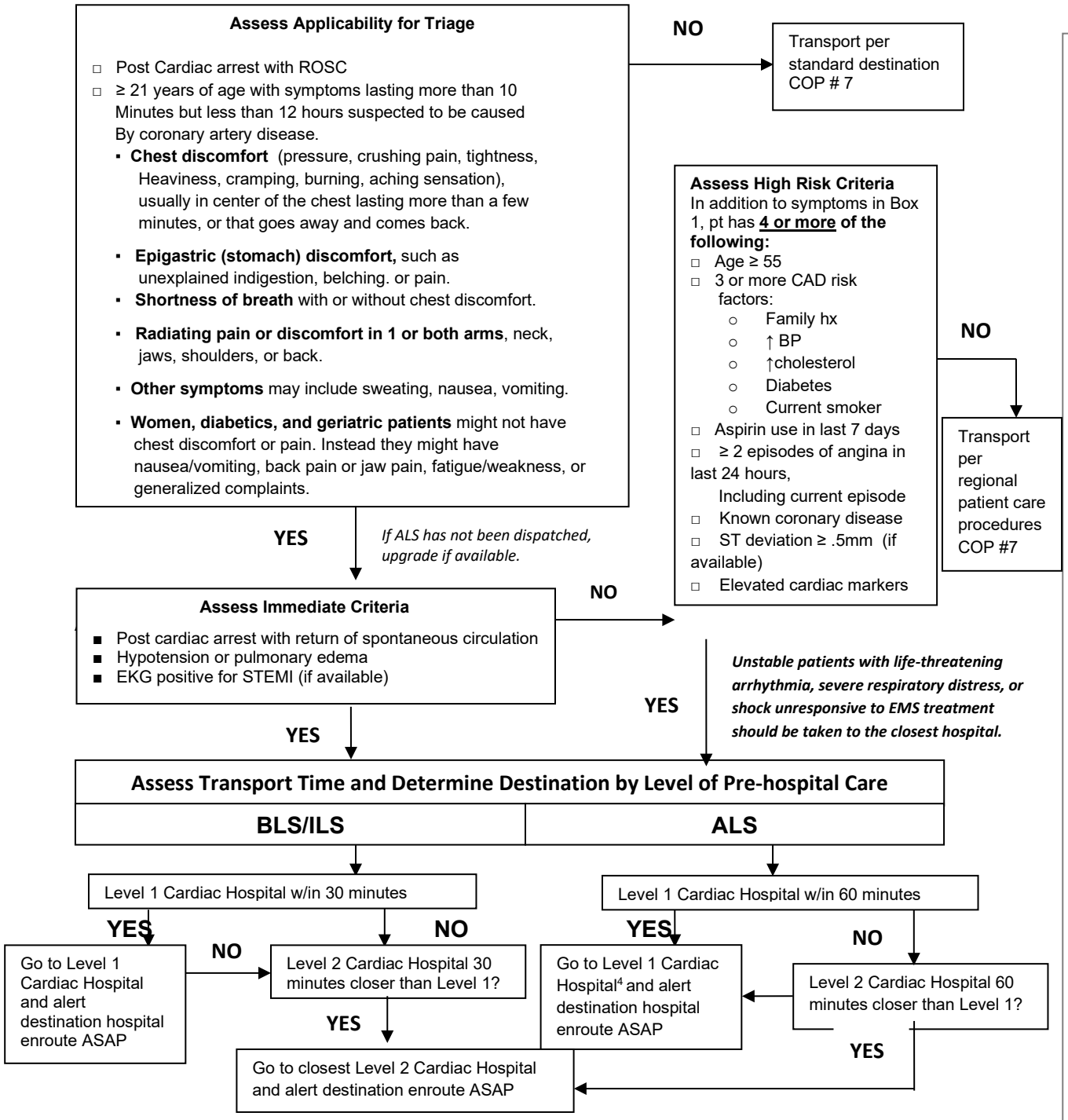
PROTOCOL TITLE: CARDIAC TRIAGE DESTINATION PROCEDURE

Pre-Hospital Cardiac Triage Destination Procedure



CARDIAC TRIAGE DESTINATION

April 4, 2022

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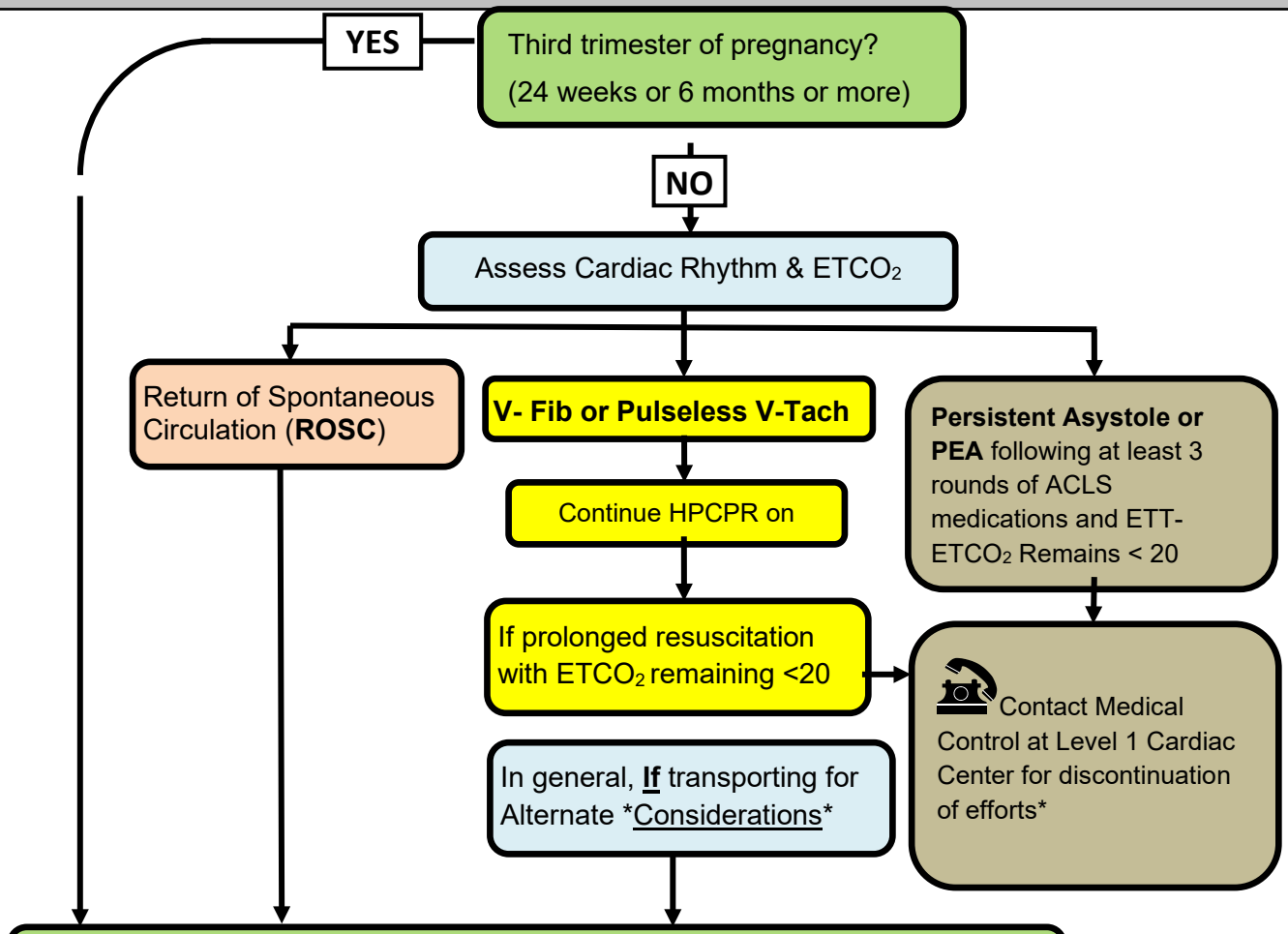
PROTOCOL TITLE: CARDIAC ARREST TRANSPORT/TERMINATION GUIDELINE



Considerations

- Consider transport where location is not conducive to leaving patient, and appropriate to do so, e.g. public location
- Consider transport if family members demanding transport, or similar
- If transporting due to *considerations* and not ROSC, continue full HPCPR efforts until turnover of patient care
- Do not discontinue resuscitation efforts while transporting
- Transport prior to ROSC may decrease survival rates due to difficulty in maintain HPCPR
- Do not transport patients after discontinuing resuscitation efforts on scene
- Ensure a Chaplain or similar is on scene or enroute to assist family members

CARDIAC ARREST TRANSPORT/TERMINATION GUIDELINE

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April 4, 2022
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PROTOCOL TITLE: SPECIAL CONDITIONS AND H's & T's

PREGNANCY

1. High Quality CPR
2. Defibrillate as appropriate and normal
3. Prioritize oxygenation and airway management
4. Start IV/IO above the diaphragm
5. Provide continuous lateral uterine displacement
    a) Using two hands, push the gravid uterus from the right toward the left side of the abdomen
6. Transport ASAP to nearest hospital for emergency cesarean
    a) Emergency cesarean section delivery improves maternal and fetal survival

H's & T's

Hypovolemia
Hypoxia, **H**ypoglycemia
Hydrogen ion (Acidosis)
Hypo/**H**yperkalemia
Hypothermia

Tension Pneumothorax
Tamponade, cardiac
Toxins
Thrombosis, pulmonary
Thrombosis, coronary

HYDROGEN ION (ACIDOSIS)

1. Acidosis in cardiac arrest is best managed by normal ventilation
2. Sodium Bicarbonate should not be used for acidosis except in specific toxidromes (e.g. Tricyclic Antidepressant Overdose, Aspirin overdose)
3. For patients with suspected metabolic acidosis (e.g. DKA w/ BG > 500 mg/dL, ASA overdose, TCA overdose, Sepsis) initially presenting with spontaneous respirations, the patient's intrinsic respiratory rate and base line $ETCO_2$ should be considered the target values for ventilatory management

HYPOTHERMIA AND DROWNING

1. High Quality CPR
2. Standard airway management for aspiration of water (suction, PPV)
3. Remove all wet clothing, aggressively dry the patient, and prevent further heat loss
4. Follow standard ACLS guidelines for resuscitation. There is no evidence that standard resuscitative therapy is impacted by patient core body temperature, per AHA 2020 ACLS Guideline
5. Passive warming
6. Immediate rapid transport for invasive rewarming at the Emergency Department

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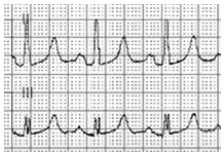
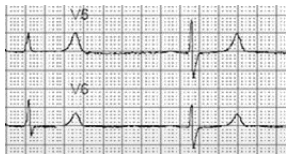
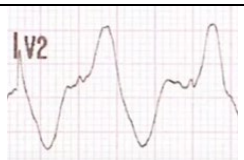
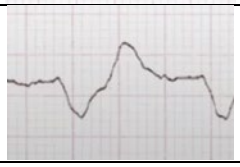
PROTOCOL TITLE: SPECIAL CONDITIONS AND H's & T's

HYPERKALEMIA (Peri-arrest, arrest or ROSC)

1. Patient presentation; consider treatment if any one of each column is present.

Presentation/History	ECG Changes	
Missed Dialysis or	Peaked symmetrical T waves (Especially V3 – V6 amplitudes > 10 mm) or	
DKA (Diabetic Ketoacidosis) or	Unstable Bradycardia/Conduction Blocks w/ diminished or absent P waves or	
Excited Delirium Syndrome or	Really Wide QRS Complex Rhythm or	
Rhabdomyolysis	Sign-Wave ECG (QRS merges w/ T wave)	

IF Hyperkalemia is suspected, DO NOT give Amiodarone or Lidocaine!

2. 1 - 2 g Calcium Gluconate IV (May need additional doses)
3. Albuterol Nebulizer treatments 5-10 mg
4. A normal ECG does not exclude a hyperkalemia diagnosis

BETA BLOCKER OR CALCIUM CHANNEL BLOCKER OD (Arrest or Peri-arrest)

1. Presentation: Bradycardia and Hypotension
   a) Monitor blood glucose level
      i. CCB OD may result in hyperglycemia
      ii. BBl OD may result in hypoglycemia
2. Consider Calcium Gluconate 1 – 2 grams q 10 minutes for both Beta Blocker and Calcium Channel Blocker Overdoses

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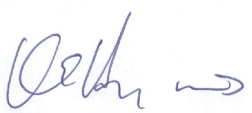
3. Consider 2 mg glucagon IV (most effective in bradycardia w/ pump failure, not effective in vasodilation) Glucagon half-life is 15 minutes, if hemodynamic improvement occurs re-dosing will be necessary
4. Administer vasopressors
    a) Epinephrine 2-10 mcg/min to improve inotropy and chronotropy
    b) Norepinephrine 1-30 mcg/min for vasoconstriction
        i. Dihydropyridine CCB (e.g. amlodipine, nifedipine)
        ii. Beta-blockers with vasodilatory effects (e.g., betaxolol, bucindolol, carteolol, carvedilol, celiprolol, labetalol, nebivolol)

CRASHING ASTHMATIC/CARDIAC ARREST

1. Continuous Albuterol nebulizer
2. IM epinephrine 0.3 – 0.5 mg, may repeat 1-2 times
3. Epinephrine drip 2-10 mcg/min titrated up to 15 mcg/min
4. Consider Magnesium sulfate 2 g IV over 5 minutes
5. Ketamine 2 mg/Kg and Fentanyl Citrate 1-3 mcg/Kg for sedation with intubation (may increase bronchial dilation) Use ideal body weight instead of actual body weight in obese patients.
6. Use 0 PEEP
7. Use low respiratory rate and low tidal volume to prevent AutoPEEP
8. If chest is distended, BVM ventilation becomes difficult, blood pressure decreases, or ventilator peak inspiratory pressure increases above 30 cmH_2O, disconnect BVM/ventilator and compress thorax to force exhalation and relieve AutoPEEP.
9. In cardiac arrest, evaluate for tension pneumothorax

ANAPHYLAXIS

1. Cardiac arrest secondary to anaphylaxis, standard resuscitative measures and immediate administration of epinephrine takes priority



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PROTOCOL TITLE: SPECIAL CONDITIONS AND H's & T's

TRAUMA

Standard ACLS is not effective for cardiac arrest due to trauma-related hypovolemia. Epinephrine and standard ACLS pharmacology should not be routinely used to treat traumatic arrest secondary to blood loss. Cardiac arrest in the setting of blunt force trauma has a statistically poor prognosis and protocol G-3 should be referenced. Treatment of patients who suffer traumatic cardiac arrest while under the care of EMS personnel shall focus on BLS and finding reversable causes. Trauma that is asphyxial in nature, such as hangings, diving or drowning, or some other mechanism of trauma specifically affecting the airway should focus on airway and breathing, and it may be appropriate to include traditional ACLS interventions. The following should be rapidly assessed or considered:

1. Ensure patent airway and adequate oxygenation/ventilation
2. Assume hemorrhagic shock. Control massive bleeding; apply tourniquets high on extremities with significant bleeding, control massive bleeding from junctional wounds by packing the wound with hemostatic dressings
3. Evaluate for tension pneumothorax, perform needle thoracentesis in accordance with protocol (P-15)
4. Apply occlusive dressing to open penetrating chest wounds
5. Apply pelvic splint for all multi-system trauma
6. Rapidly establish venous access and administer 30 mL/Kg crystalloid solution for volume expansion
7. Straighten and splint all long bone fractures
8. Initiate rapid transport per protocol (T-3)

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PROTOCOL TITLE: ACUTE ABDOMEN

An Acute Abdomen is defined as non-traumatic, severe, persistent abdominal pain of sudden onset that requires immediate medical or surgical review.

Examples of pathologies that may create an acute abdomen:

- Upper abdomen: Cholecystitis, peritonitis, acute hepatitis, acute pancreatitis, GERD/ulcers.
- Lower abdomen: Appendicitis, diverticulitis, ectopic ruptures, ovarian cysts.
- Other sites: AMI, abdominal aortic aneurysm (AAA), kidney stones, aortic dissection.

I. BASIC LIFE SUPPORT

1. Establish and maintain airway.
2. Apply O_2 via nasal cannula at 2-4 L/min.
3. Allow patient to lie in a position of comfort.
4. Pain management per protocol (P-13)

   a. Nitrous Oxide (Nitronox)
   b. Acetaminophen (Tylenol) 650-1000 mg PO.
      i. Pediatric Dose: 15 mg/kg PO.

5. Consider **Zofran** (Ondansetron) 4-8 mg PO for nausea or vomiting.
   Note: BLS/ILS providers must complete A.B.F.Y. County course before authorized to administer Zofran (Ondansetron).
6. Consider ALS rendezvous per guideline.

II. INTERMEDIATE LIFE SUPPORT

7. Establish peripheral IV with crystalloid @ TKO rate if VS are normal.
8. BP < 90 mm/hg systolic and/or HR >120 should receive a 30cc/kg bolus of crystalloid.

9. Contact medical control for further fluid orders if VS still abnormal.

III. ADVANCED LIFE SUPPORT

10. Establish IV and Cardiac Monitor.
11. Consider immediate life-threatening causes, such as abdominal aortic aneurysm (AAA). If the patient is unstable:
    a. Document presence or absence of pulses in lower extremities.
    b. Consider multiple IVs.

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ACUTE ABDOMEN

PROTOCOL TITLE: ACUTE ABDOMEN

c. Frequent vital sign monitoring.
d. Do not delay transport.

12. Treat pain as needed per pain management protocol (P-13). Do not withhold pain medications in the Acute Abdomen.

13. Treat nausea/vomiting:
    a. **Zofran (**ondansetron**)** 4-8 mg IV, IM, PO.
    OR
    b. **Reglan** (metoclopramide) 5-10 mg IV, IM.

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PROTOCOL TITLE: ANAPHYLAXIS AND ALLERGIC REACTION

I. BASIC LIFE SUPPORT

1. Establish and maintain airway.

2. **Albuterol (Proventil®)** 2.5 mg in 3 cc unit dose of 0.9% **NaCl** per nebulizer mask for wheezing.

Note: BLS providers must complete A.B.F.Y County course before authorized to administer Albuterol.

3. **Diphenhydramine (Benadryl**) 25-50mg PO.

   a. **Pediatric dose;** 1-2 mg/kg PO.

Note: BLS/ILS providers must complete A.B.F.Y. County course before authorized to administer diphenhydramine.

If patient is displaying signs & symptoms of respiratory distress and/or shock (ie. Anaphylaxis):

4. Administer **Epinephrine Auto-injector** from your EMS supplies or patient's physician prescribed Epi.

   a. Adult – **EpiPen** (0.3 mg).

      i. If **Epi-Pen** not available, consider.
      ii. **Epinephrine,** 1:1,000, 0.3-0.5 mg IM.

   b. Infant/Child –**EpiPen Jr.** (0.15 mg) describes individual who is under 10 years of age and/or weighing < 60 lbs.

      i. If Epi-Pen not available: Epinephrine 1:1000 0.15 mg IM.

      Ensure Epi-PEN is not expired, cloudy or crystallized.

   c. Record time of injection & reassess in two minutes.
   d. Continue supportive care.

Note: BLS/ILS providers must complete A.B.F.Y. County course before authorized to administer Epinephrine.

II. INTERMEDIATE LIFE SUPPORT

5. Establish IV access with crystalloid @ rate indicated by clinical findings and vital signs.
6. Diphenhydramine (Benadryl) 25-50 mg slow IVP, IO, deep IM 1-2mg/kg slow IVP, IO, IM

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PROTOCOL TITLE: ANAPHYLAXIS AND ALLERGIC REACTION

III. ADVANCED LIFE SUPPORT

Allergic reaction

Hives, redness, localized swelling or itching. Maybe swelling of the face or eyes and causing some tightness in the throat and/or mild bronchoconstriction.

7. **SoluMedrol** 125mg IV.
8. Duoneb per nebulizer mask or through BVM PRN wheezing. Repeat PRN.
9. EKG monitor

If no improvement, progressing laryngeal edema, worsening dyspnea, or hypotension consider:

a. **Epinephrine,** 1:1,000, 0.3-0.5 mg IM.
   or
b. **Epinephrine** 1:10,000, 0.3-0.5 mg IV, IO.
c. Consider Racemic **Epinephrine**, dilute 0.5 mL in 3 cc unit dose of **NS**, per nebulizer mask.
d. Endotracheal intubation/RSI if respiratory failure.

Continued signs of shock despite treatment.

a. **Epinephrine** drip.
b. **May repeat Epinephrine 1:1000 or 1:10000 every 5 minutes if needed.**

Epi gtt info from drug table

1 mg Epi in 500 ml NS = 2 mcg/ml

Dose	gtt/min 60 gtt set
0.1 mcg/min	3
0.5 mcg/min	15
1 mcg/min	30
2 mcg/min	60
4mcg/min	120

PEDIATRIC:

2 mg Epi in 500 ml NS = 4 mcg/ml

Dose	gtt/min 60 gtt set
0.1mcg/min	1.5
0.25 mcg/min	3.75
0.5 mcg/min	7.5
1 mcg/min	15
2 mcg/min	30

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PROTOCOL TITLE: BEHAVIORAL EMERGENCIES

I. BASIC LIFE SUPPORT and INTERMEDIATE LIFE SUPPORT

General Considerations

- Be aware of dangers to patient or medical personnel.
- Summon law enforcement.
- Request Mental Health Professional as needed.
- Approach patient in a calm manner.
- Show self-confidence and convey concern for patient.
- Reassure patient he/she should and will be taken to a hospital where there are people that are interested in helping him/her.

General Approach

- Transport the patient as quickly as possible to an appropriate facility without causing undo emotional or physical harm.
- If the patient appears to have significant mental or behavioral disorder and is refusing transport, determine capacity to refuse (G10). You may consider requesting police and/or mental health professional assistance. Police intervention may be limited by existing state law.

You may utilize additional mental health resources to assist with evaluation and care of a mental health emergency.

- Adams County utilize Adams County Mental Health at 509-488-5611.
- Benton and Franklin counties call the county Crisis worker at 509-783-0500.
- Yakima County request the DCR who may be contacted through the 911 dispatcher.
- Other specific resources may exist in your area.

- Never stay alone with a violent patient and have enough help to restrain him/her if needed.
- Consider the armed patient potentially homicidal as well as suicidal.
- For severe or dangerous agitation/combativeness that represents an acute danger to the patient or EMS personnel, consider physical restraint:
  - 4-point soft restraints – secure patient safely in supine position to gurney or backboard.

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- Spitting or biting patients may be secured with a spit sock/hood, surgical mask, or an oxygen mask that has flowing oxygen.

***Violent patients judged as unsafe for transport may be sedated by ALS personnel.**

II. ADVANCED LIFE SUPPORT

1. For severe or dangerous agitation/combativeness refractory to verbal redirection, consider chemical restraint in conjunction with physical restraint:

   a. **Ketamine** 250 mg IM / 1-2 mg/kg IV. May repeat x1 after 5 minutes if needed.
      i. Good general chemical restraint with few contraindications.

   b. **Versed (midazolam)** 1-5 mg IV, IM, or intranasal. May repeat x1 after 5 minutes if needed
      i. May be medication of choice in known or suspected sympathomimetic overdose (e.g. cocaine, methamphetamines).

   Note: Use of chemical restraint also falls under monitoring guidelines for sedation Protocol **P-23**.

Law enforcement personnel may assume responsibility for patient restraint but must accompany patient to the emergency department and law enforcement restraint method must not prevent the patient from being transported in a supine position.

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PROTOCOL TITLE: STROKE

I. BASIC LIFE SUPPORT

Notify Medical Control

1. Establish and maintain airway.
2. Place patient in lateral position, on paralyzed side if present.
3. If SaO2 < 94%, administer oxygen if to keep SaO2 > 94%.
4. Obtain blood glucose level. Treat hypoglycemia as necessary.
5. Complete Stroke pre-screening criteria such as Cincinnati prehospital Stroke Scale. Obtain and clearly note to time of onset of symptoms.
6. Suction PRN.
7. If evidence of trauma, initiate cervical immobilization.
8. If time permits, complete "Thrombolytic Checklist" below.

II. INTERMEDIATE LIFE SUPPORT

9. Establish peripheral IV with crystalloid @ TKO rate.

III. ADVANCED LIFE SUPPORT

10. Assess airway, if unstable or if no gag reflex present consider endotracheal intubation/RSI.
11. Establish IV and cardiac monitor.
12. Screen for thrombolytic therapy. If patient may meet criteria for thrombolytics initiate rapid, early transport and early notification of the receiving hospital. Patients who may meet criteria for thrombolytic therapy should be preferentially transported to a facility capable of utilizing thrombolytics.

NOTE: Patients who meet the following criteria can be routed directly to CT when ordered to do so by the ER physician. It is paramount for EMS to ensure the following in order to help the Stroke Team reduce "Door to Drug" and/or intravascular intervention times.

1. Establish firm time of symptom onset less than 24 hours
2. Positive BEFAST Assessment
3. Airway managed and controlled appropriately
4. Blood Sugar controlled above 80 mg/dl

Pre-hospital Stroke Triage Destination Procedure

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PROTOCOL TITLE: STROKE

Assess Applicability for Triage
Report from patient or bystander of one or more sudden.
- □ Numbness or weakness of the face, arm, or leg, especially on one side of the body.
- □ Confusion, trouble speaking or understanding
- □ Trouble seeing in one or both eyes.
- □ Trouble walking, dizziness, loss of balance or coordination.
- □ Sudden severe headache with no known cause.

NO → Transport per normal destination procedure (COP #7)

YES

Perform B.E.F.A.S.T. Assessment

- □ **B**alance (unexplained vertigo/unsteadiness)
- □ **E**yes (sudden loss or blurred vision, diplopia)
- □ **F**ace (unilateral facial droop) yes/no
- □ **A**rms (unilateral drift/weakness) yes/no
- □ **S**peech (abnormal/slurred) yes/no
- □ **T**ime last normal (determine time patient last known normal)

Yes to any one sign = YES
No to all signs = NO

NO → Transport per normal destination procedure (COP #7)

YES

Determine Destination*
Estimate time patient last normal to arrival at stroke center emergency department

** If unable to manage airway, consider rendezvous with ALS or intermediate stop at nearest facility capable of definitive airway management.*

If a stroke center is not available within transport times by ground, consider air transport or contact medical control for destination decision.

If there are two or more facilities of the same level to choose from, patient preference, insurance, physician practice patterns, and local rotation agreements may be considered.

< 4.5 hrs	**Transport** patient to the nearest highest level 1, 2, 3 stroke center within 30 minutes transport time.
≥ 4.5 - 24 hrs	**Transport** patient to nearest: □ Level 1 stroke center within 60 minutes transport time, and/or □ Nearest Level 2 stroke center if no Level I facility within 60 minutes
> 24 hrs or unknown	**Transport** patient to level 1, 2, or 3 stroke center within 30 minutes transport time per COP #7 (A-B7)

Limit scene time and alert destination hospital en route ASAP

Purpose

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STROKE

PROTOCOL TITLE: STROKE

The purpose of the Stroke Triage and Destination Procedure is to help you identify stroke patients in the field so you can take them to the most appropriate hospital. Like trauma, stroke treatment is time-critical the sooner a patient is treated, the better their chances of survival. Fast treatment can mean less disability, too. For strokes caused by a blood clot in the brain (ischemic), systemic clot-bursting medication must be administered within 4.5 hours from the time they first have symptoms but in some cases intra-arterial interventions may be beneficial up to 24 hours after onset. For bleeding strokes (hemorrhagic), time is also critical. As an emergency responder, you play a crucial role in getting patients to treatment in time.

Stroke Assessment – B.E.F.A.S.T.
The B.E.F.A.S.T assessment tool (also known as the Cincinnati Prehospital Stroke Scale + Time) is a simple but reasonably accurate way to tell if someone might be having a stroke. It's easy to remember: Balance, Eyes, Facial droop, Arm drift, Speech, + Time. If face, arms, or speech is abnormal, it's likely your patient is having a stroke. You should immediately transport the patient to a stroke center per the triage tool and regional patient care procedures. Alert the hospital on the way. Transport should not be delayed for IV and EKG monitoring.

Test	Normal	Abnormal
Balance: Subjective or objective findings of balance abnormalities	No physical exam indicators of balance abnormalities	Unexplained dizziness, unsteadiness or sudden falls especially when accompanied by any other symptoms below.
Eyes: Check for diplopia, blurred vision, loss or sudden change in vision or eye deviation	No identified changes or abnormalities in vision	Sudden dimness or loss of vision, particulary in one eye, diplopia or blurred vision and/or eye deviation.
Facial droop: Ask patient to show his or her teeth or smile.	 Both sides of the face move equally.	 One side of the face does not move as well as the other
Arm drift: Ask the patient to close his or her eyes and extend both arms straight out for 10 seconds. The palms should be up, thumbs pointing out.	 Both arms move the same or both arms are do not move at all.	 One arm drifts down, or one arm does not move at all.
Speech: Ask the patient to repeat a simple phrase such as "Firefighters are my friends."	The patient says it correctly, with no slurring.	The patient slurs, says the wrong words, or is unable to speak.
Time: Ask the patient, family or bystanders the last time the patient was seen normal.		

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PROTOCOL TITLE: STROKE

Stroke warning signs:

- Sudden numbness or weakness of the face, arm or leg, especially on one side of the body.
- Sudden confusion, trouble speaking or understanding.
- Sudden trouble seeing in one or both eyes.
- Sudden trouble walking, dizziness, loss of balance or coordination.
- Sudden, severe headache with no known cause.

Encourage family to go to the hospital to provide medical history, or obtain contact information for a person who can provide medical history.

Report to ED:
Possible IV t-PA contraindications: symptom onset more than 180 minutes • head trauma or seizure at on-set • recent surgery, hemorrhage, or heart attack • any history of intracranial hemorrhage

THROMBOLYTIC CHECKLIST

This checklist is intended as a tool for the pre-hospital identification of patients who may benefit from the administration of thrombolytics for acute stroke and to facilitate the administration of thrombolytics in the ED.

Date:_____Time:_____Amb/Unit#: _____Run #:_____

Patient Name:_____ Age:_____ Est.Wt:_____lbs/kg
Time last seen at baseline: _____
Time of symptom onset: _____
Onset Witnessed or reported by: _____

Symptoms from CPSS Scale (circle abnormal findings)

BALANCE ABNORMALITY IN ADDITION TO ANY ONE OF THE FOLLOWING FINDINGS = POSSIBLE STROKE

EYESIGHT eye deviation sudden dimness loss of vision diplopia

FACIAL DROOP: R L

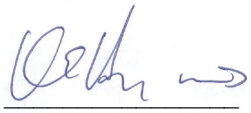
ARM DRIFT: R L

SPEECH: slurred wrong words mute

Report Possible Contraindications to tPA in handoff (check all that apply)

Current use of anticoagulants	Yes	No	?
Blood pressure consistently >185/110	Yes	No	?
History or current evidence of hemorrhage (intracranial, internal or GI)	Yes	No	?
Intracranial or intraspinal surgery within the last 3 months	Yes	No	?
Recent major surgery	Yes	No	?
Stroke within the last 3 months	Yes	No	?
Serious trauma within the last 3 months to head or body	Yes	No	?
Current or recent pregnancy	Yes	No	?

Have you identified any contraindications to thrombolytic therapy? □ **YES** □ **NO**



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PROTOCOL TITLE: HYPERGLYCEMIA

I. BASIC LIFE SUPPORT

1. Establish and maintain airway.
2. Obtain vital signs.
3. Check blood glucose.

II. INTERMEDIATE LIFE SUPPORT

4. Establish peripheral IV with crytsalloid and administer 30mL/kg bolus if signs of dehydration or blood glucose > 300mg/dL.
5. Transport and obtain follow-up vital signs.

III. ADVANCED LIFE SUPPORT

6. Establish cardiac monitor.
7. For altered mental status, consider a second IV line and see Protocol **M12**

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PROTOCOL TITLE: HYPOGLYCEMIA

I. BASIC LIFE SUPPORT

1. Establish and maintain airway.

2. If stable, administer O_2 @ 2-4 L/min via nasal cannula.

3. If unstable, administer O_2 @ 10-15 L/min via nonrebreather mask.

4. Determine blood sugar, if < 80 mg/dL and patient is conscious and able to swallow without difficulty:

   a. Administer **Oral Glucose** 15 g.
      Or
   b. Orange juice or an equivalent high concentration of sugar solution PO.

   An adult patient may elect not to be transported if:

   c. Blood sugar > 80.
   d. Normal LOC.
   e. The patient is able to eat on their own and re-check own blood glucose level.
   f. The patient has someone on scene to assist them, and summon EMS if necessary.
   g. See also Protocol **G10** – Patient refusal

      Note: If patient is on oral hypoglycemics they are at high risk for recurrent hypoglycemia - call online medical control.

II. INTERMEDIATE LIFE SUPPORT

5. Establish peripheral IV access with crystalloid @ TKO rate.

   a. May consider establishing IV access with a solution of D10%

6. Adult Administer **Dextrose, D_{50}** 25 g IV, IO bolus.

   a. If using D10%, administer up 250 ml to achieve dose of 25g

   b. May repeat **D_{50}** up to 25g after 5-10 minutes if no response and blood glucose remains < 80 mg/dL.

7. Pediatrics 0.5-1 g/kg **Dextrose** based on the following dilutions up to 25g. For D10%, 0.5 – 1.0 g/kg is equivalent to 5 ml – 10 ml/kg fluid

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a. Age < 1 year may use D10% or dilute D50% or D25% to **12.5% Dextrose.**
b. Age 1-8 years may use D10% or dilute D50% to **D25%.**
c. Age > 8 years may use D10% or **D50%.**

III. ADVANCED LIFE SUPPORT

8. Consider cardiac monitor.

9. If suspected alcohol abuse and/or malnutrition, administer **Thiamine (Betalin®)** 100 mg IV bolus prior to administration of **D_{50}**.

    a. May repeat **D_{50}** up to 25g (250 ml if using D10%) after 5-10 minutes if no response and blood glucose < 70.

10. If unable to establish IV and patient is unable to take oral glucose, administer **Glucagon,** 1.0 mg IM.

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PROTOCOL TITLE: HYPOTENSION /HYPOVOLEMIA– UNKNOWN ETIOLOGY

Adult with systolic blood pressure (SBP) < 90mm Hg or mean arterial pressure (MAP) < 65mm Hg, not clearly falling under another protocol.

Pediatric
Shock in children is subtle and may be difficult to detect. Use clinical judgment and incorporate vital signs.

Assessment and Vital Sign Parameters
Pt presents with cool, clammy, or mottled skin, and tachycardia. Pt. has a >5 second capillary refill. Additionally, pt is irritable or unresponsive, Altered mental status for self. History of vomiting and diarrhea, or trauma.

TACHYCARDIA
Newborn---------- HR > 180/min.
Infant ----------HR> 160/min.
Toddler ----------HR > 140/min.
Preschooler------ HR> 130/min.
Adolescent -------HR > 120/min.

LOW SYSTOLIC BLOOD PRESSURE
Newborn---------- < 60 mm Hg
Age 1 year or older----< 70 + (2 x age in years)

I. BASIC LIFE SUPPORT

1. Establish and maintain airway.
2. Administer 0_2 @ 10-15 L/min per NRM, assist as needed with BVM and OPA/NPA.
3. Control bleeding.
4. Consider shock position.

5. Maintain body temperature above 97˚ F.
6. If patient will tolerate position, place patient supine and elevate lower extremities.

II. INTERMEDIATE LIFE SUPPORT

7. Establish large-bore IV with crystalloid.
   a. Administer fluid bolus of 30 mL/kg crystalloid. (May repeat x 1)

   Administer 20 mL/kg crystalloid. (May repeat x 1)

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PROTOCOL TITLE: HYPOTENSION /HYPOVOLEMIA– UNKNOWN ETIOLOGY

III. ADVANCED LIVE SUPPORT

8. Establish cardiac monitor.

9. Administer **Levophed** if no response or inadequate response to fluid challenges. Initial rate of 2-4mcg/min IV/IO, titrated to maintain systolic blood pressure >90mmHg. Consult drip table (A-A2) for rates, rate adjustments should be limited to 2-4mcg/min every 5 minutes.

10. For hypotension refractory to fluid bolus, may give **glucagon** 2 mg IV push. Repeat PRN.

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PROTOCOL TITLE: NAUSEA AND VOMITING

I. BASIC LIFE SUPPORT

1. If stable, administer O_2 @ 2-4 L/min via nasal cannula.

2. If unstable, administer O_2 @ 10-15 L/min via nonrebreather mask.

3. Administer Ondansetron (Zofran) 4-8 mg PO.
Note: BLS/ILS providers must complete A.B.F.Y. County course before authorized to administer Ondansetron (Zofran).

4. Pediatrics administer Zofran based on the following:

   a. <1 yo 1 mg PO.
   b. 1-8 yo 2 mg PO.
   c. >8 yo 4 mg PO.

5. Assess neurological and cardiac status.

II. INTERMEDIATE LIFE SUPPORT

6. Establish peripheral IV with crystalloid @ TKO rate.

   Administer 30mL/kg IV bolus if evidence of hypovolemia.

   Administer 20 mL/kg IV bolus if evidence of hypovolemia

7. Administer **Zofran** 4-8 mg IV IM, IO, or PO.

8. Pediatrics administer **Zofran** based on the following:

   d. <1 yo 1 mg IV, IO, IM, PO.
   e. 1-8 yo 2 mg IV, IO, IM, PO.
   f. >8 yo 4 mg IV, IO, IM, PO.

III. ADVANCED LIFE SUPPORT

9. If refractory vomiting, suspected migraine, or contraindication to Zofran, consider Reglan (metoclopramide) 5-10mg IV, IM.

10. Establish Cardiac Monitor. Consider 12-lead ECG.

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PROTOCOL TITLE: OBSTETRICAL EMERGENCIES

I. BASIC LIFE SUPPORT

Obtain history and perform physical assessment:

1. History to include, but not limited to:

   a. Gravidity (number of times pregnant).
   b. Parity (number of life births).
   c. How many weeks pregnant.
   d. Medical problems during the pregnancy.
   e. Presence or absence of prenatal care.
   f. High risk patient.
   g. Taking medications regularly (e.g., insulin, seizure medications).
   h. Recent use of drugs, (e.g., cocaine, ETOH).

2. Assessment to include:

   a. Any vaginal bleeding?
   b. Any fluid loss?
   c. Cramps or contractions and frequency.
   d. Palpate fundus for contractions.

3. Establish and maintain airway.

4. If stable, administer O_2 @ 2-4 L/min per nasal cannula.

5. If unstable, administer O_2 @ 10-15 L/min per nonrebreather mask.

6. Transport in left lateral recumbent position.

7. For Vaginal Bleeding: Transport any recognizable or suspected products of conception or fetal material present at the scene to the receiving facility.

8. If crowning is present on visual examination, or if multiparous patient and contractions <2 minutes apart, and transport time >15 minutes, prepare for delivery.

II. INTERMEDIATE LIFE SUPPORT

For complicated obstetrical emergencies, contact medical control.

9. Establish large-bore peripheral IV with crystalloid @ TKO rate.

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PROTOCOL TITLE: OBSTETRICAL EMERGENCIES

III. ADVANCED LIFE SUPPORT

POST-PARTUM HEMORRHAGE

10. If postpartum hemorrhage profuse and patient exhibiting sign of shock massage uterus firmly, treat hypovolemia with positioning, oxygen and IV fluids. Contact medical control if considering **TXA** administration.

TOXEMIA

1. Pre-eclampsia if BP >160/110 with edema, **Magnesium Sulfate** 2-4 grams IV slow, over 30 minutes diluted in 50-100 ml crystalloid.

2. Eclampsia (Toxemia), seizure and/or postictal.

   a. **Lorazepam 2–4 mg IV, may repeat until cessation of seizure**
   b. **Magnesium Sulfate 2-4g IV slow,** over 30 minutes diluted in 50-100 ml crystalloid.

CARDIO-PULMONARY ARREST

1. For those patients who suffer cardiopulmonary arrest who are in the third trimester of pregnancy, full resuscitative measures should be continued, even if it is obvious that the mother will not survive. Patients who meet criteria of obvious nonacute mortality (such as dependent lividity, see protocol **G6**) should not receive resuscitation efforts.

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PROTOCOL TITLE: OVERDOSE

I. BASIC LIFE SUPPORT

1. Responsive, alert patient with gag reflex:

   a. Establish and maintain airway.
   b. Administer O_2 via NC/NRB to maintain SpO_2 of 94-98%.
   c. Ventilate or assist ventilation with BVM, OPA/NPA if patient apneic or hypoventilating.

2. If suspected **opioid overdose** and patient has a decreased of inadequate respiratory rate:

   a. Administer **Naloxone (Narcan®)**. 1mg Intranasally via intranasal drug delivery device. May repeat **ONCE** on opposite nostril if no respiratory improvement is noted after 5 minutes.
   b. Ongoing assessment with documentation of reaction to any administration of **Naloxone (Narcan®)**.

II. INTERMEDIATE LIFE SUPPORT

3. Establish peripheral IV with crystalloid @ TKO rate.

4. If suspected **opioid overdose** and patient has a decreased or inadequate respiratory rate:

   a. Administer **Naloxone (Narcan®)**, 0.4 - 2 mg IV, IM, IO, or IN via intranasal mucosal atomizer device. May repeat every 2-3 minutes to a maximum of 10 mg. Titrate to respiratory effect.
      i. Consider direct distribution of Naloxone to the patient or to those that are close to the patient. (if available)
   b. Ongoing assessment.

III. ADVANCED LIFE SUPPORT

5. Assess airway, if unstable or if no gag reflex present consider endotracheal intubation/RSI.

6. $EtCO_2$ and cardiac monitor.

7. If ingestion unknown and patient has diminished level of consciousness or depressed respiratory rate:

   a. May administer:

      i. **Narcan** 0.4-2 mg IV.
      ii. **Thiamine** 100 mg IV.

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iii. **D50** 25 grams, may repeat x 1 in 5 minutes, PRN.

8. If suspected Bath Salts/MDPV/Synthetic Psychoactive Stimulants:

   a. Consider prophylactic IV fluid bolus if suspected rhabdomyolysis.
   b. **Lorazepam** 2-4 mg IV/IM/IO or **Midazolam** 1-5 mg IV/IM/IO/intra-nasal for seizures, hypertension, or profound hypertension and/or sever tachycardia.
   c. **Ketamine** 250 mg IM / 1-2 mg/kg IV for chemical restraint if indicated.
   d. Monitor ECG, SaO_2, $EtCO_2$

Note: See M3 for chemical or physical restraint if needed.

9. If suspected **Tricyclic Antidepressant (TCA)** overdose:

a. If QRS widening (but still <0.12s), but not increasing, may give **magnesium sulfate** 2 grams IVPB over 10 min.
b. If HR sustained greater than 120 bpm, EKG shows QRS widening more than 0.12s, hypotension refractory to fluid bolus, or ventricular dysrhythmias: may administer **sodium bicarbonate** 1mEq/kg slow IV push.
c. May use **norepinephrine (Levophed)** 2-4 mcg/min for hypotension refractory to fluid bolus.
d. **Lorazepam** 2-4 mg IV/IM or **Midazolam** 1-5 mg IV/IM/intranasal for seizures.
e. **Amiodarone** and beta blockers are contraindicated for ventricular dysrhythmias in TCA overdose.

10. If suspected Beta Blocker overdose:

a. For SBP<90 give IV fluid bolus 30ml/kg. Place patient in Trendelenburg position.
b. For hypotension refractory to fluid bolus, may give **glucagon** 2 mg IV push. Repeat PRN.
c. For bradycardia, may administer **atropine** 0.5-1mg IV with repeated doses at 5 minute intervals until desired response.
d. **May use norepinephrine (Levophed) drip (initiate at 2-4mcg/min)**

11. If suspected Calcium Channel Blocker overdose:

a. For hypotension (BP<90) refractory to fluid bolus, may give **glucagon** 2 mg IVP.
b. May give **calcium gluconate** 1-2 grams IV over 5 min for signs and symptoms of toxicity (i.e. bradycardia or hypotension). May repeat dose in 10 minutes.

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PROTOCOL TITLE: OVERDOSE

c. May use **Levophed**. Administer **Levophed** if hypotension persists. Initial rate of 2-4mcg/min IV/IO, titrated to maintain systolic blood pressure >90mmHg. Consult drip table (A-A2) for rates, rate adjustments should be limited to 2-4mcg/min every 5 minutes.

12. If suspected Cocaine, Amphetamine, or PCP overdose:

a. May administer **Lorazepam** 1-2 mg increments IV for chest pain or hypersympathetic state (sustained HR>120 or SBP>180) related to overdose.
b. Refer to Acute Coronary Syndrome protocol for patients with chest pain (C-3).

13. If suspected Bath Salts/MDPV/Synthetic Psychoactive Stimulants:

a. Consider prophylactic IV fluid bolus if suspected rhabdomyolysis.
b. **Lorazepam** 2-4 mg IV/IM/IO or **Midazolam** 1-5 mg IV/IM/IO/intra-nasal for seizures or hypertension.
c. **Ketamine** 250 mg IV/IM for chemical restraint if indicated.
d. Monitor ECG, SaO_2, $EtCO_2$

NOTE: In all cases follow ACLS guidelines for dysrhythmia (per protocol).

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PROTOCOL TITLE: SEIZURES

I. BASIC LIFE SUPPORT

1. If stable, administer O_2 @ 4-6 L/min via nasal cannula.
2. If unstable, administer O_2 @ 10-15 L/min via nonrebreather mask.
3. Physical assessment and history.
4. Check blood glucose.
5. Airway measures as necessary (suction, NPA/OPA, etc)

- If seizure terminates spontaneously and patient has history of previous seizures with ongoing medical management of those seizures, and clinical situation dictates – patient may have option of not being transported to the hospital.
- Be sure to document a description of the seizure including duration and post-ictal findings.
- For pediatric patients, assess whether the seizure may be febrile in nature. If so remove heavy or swaddling clothes, keep patient lightly dressed.

a. For pediatric seizures associated with a fever greater than 103˚ consider **acetaminophen** 20 mg/kg PO or PR (suppository).

II. INTERMEDIATE LIFE SUPPORT

6. Establish peripheral IV with crystalloid @ TKO rate.
7. If blood glucose <80.

a. Administer **Dextrose** 50%, 25 g slow IV push.
b. For children 8 years old or less administer 0.5-1.0 mg/kg up to 25g of **Dextrose** diluted as follows:

i. <1 years of age, 10% solution.
ii. 1-3 years not greater than 25% solution.
iii. >3 years may use 50% solution.

8. Patients experiencing seizures lasting greater than 5 minutes, having reoccurring seizures or experiencing new onset of seizure without prior history must be transported.

III. ADVANCED LIFE SUPPORT

9. In the case of witnessed continuous seizure activity >5min with respiratory compromise or repetitive seizures without a return to consciousness:

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SEIZURES

PROTOCOL TITLE: SEIZURES

a. Administer:

i. **Lorazepam** 2 - 4 mg slow IV push, IM or intranasally using intranasal drug delivery device.
Or
ii. **Midazolam** 1 - 5 mg IV, IM or intranasally using intranasal drug delivery device.

c. Establish cardiac monitor.
d. Continue monitoring airway.

11. Pediatric Seizures

a) Consider **lorazepam** (peds dose) 0.1 mg/kg slow IV (max 4 mg) over 2-5 minutes or same dose IM.
or
b) **Midazolam** 0.5-5mg IV, IM or intranasal atomized **midazolam** 0.2 mg/kg using a nasal drug delivery device;
or
c) After two unsuccessful attempts at peripheral venipuncture, and patient remains unconscious consider intraosseous (IO) route.

Be alert for respiratory complications.

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PROTOCOL TITLE: ALTERED-MENTAL STATUS

I. BASIC LIFE SUPPORT

1. If patient has good gag reflex & adequate respiratory drive, administer 0_2 @ 10-15 L/min, nonrebreather mask.

2. If patient has no gag reflex, establish OPA/NPA & assist ventilation with BVM & supplemental 0_2 @ 10-15 L/min.

3. Look for underlying causes of unconsciousness as needed. Consider trauma.

   a. Obtain blood sample with glucometer.
   b. Normal levels run between 80-110 mg/dL.
   c. Report findings to Medical Control.

4. If suspected opioid overdose and patient has a decreased or inadequate respiratory rate:

   a. Administer **naloxone** (**Narcan®**), 1mg Intranasally via intranasal drug delivery device. May repeat **ONCE** in opposite nostril if no respiratory improvement is noted after 5 minutes.
   b. Ongoing assessment with documentation of reaction to any administrations of **naloxone** (**Narcan®**).

II. INTERMEDIATE LIFE SUPPORT

5. Establish IV access with crystalloid @ TKO rate.

6. If BG < 80 mg/dl, administer **Dextrose D_{50}** 25 gm IV.

7. Administer **naloxone (Narcan®),** 0.4-2 mg IV, IM, IN. Titrate 0.4 mg PRN to maintain airway and respirations.

III. ADVANCED LIFE SUPPORT

8. Establish cardiac monitor.

9. If suspected chronic alcohol abuse or malnutrition, administer **Thiamine, (Betalin®)** 100 mg IV or IM, prior to administration of **D_{50}**.

This protocol should be followed regardless of suspected events. If events unknown, all treatment should be given, no assumptions should be made.

ALTERED-MENTAL STATUS

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PROTOCOL TITLE: SEPSIS

I. BASIC LIFE SUPPORT

1. Establish and maintain airway.
2. Place patient in position of comfort.
3. Obtain blood glucose level. Treat hypoglycemia per Hypoglycemia (M6)
4. Obtain oral or rectal temperature.
5. Obtain $ETCO_2$ measurement if equipped and trained to do so. $ETCO_2$ < 25 mmHg is concerning for lactic acidosis.
6. Treat respiratory distress with O_2 as needed.
7. Evaluate history, signs and symptoms, and consider differential diagnoses.
8. Evaluate Sepsis Screen.
9. If Sepsis Screen positive and you are the transporting unit, notify receiving hospital.

Sepsis Screen

Must have obvious or suspected source of infection AND any of these SIRS criteria:

- SBP < 90 mmHg or MAP < 65
- Heart Rate > 90/min
- Respiratory Rate > 20/min
- GCS < 15
- Temperature > 100.3 F or < 96.0 F (>37.9 C or < 35.5 C)
- $ETCO_2$ < 26 mmHg on at least 2 consecutive measurements 5 minutes apart.

II.INTERMEDIATE LIFE SUPPORT

1. Establish vascular access; IV/IO
2. Review Altered Mental Status Protocol **M12** if applicable
3. Crystalloid fluid bolus IV/IO: 30ml/kg with reassessment every 500mL
   a. Peds 20mL/kg with reassessment every 500mL

III.ADVANCED LIFE SUPPORT

1. If SBP < 90, MAP < 65, or age appropriate hypotension after first fluid bolus:
   a. Adult: Initiate **norepinephrine** infusion IV/IO 2-4 mcg/min. Titrate to SBP > 90 mm/Hg up to 30 mcg/min
   b. Peds: Initiate **norepinephrine** infusion IV/IO 0.1 - 2.0 mcg/kg/min Contact medical control.

2. Use caution with PEEP > 5cm H_2O if CPAP or mechanical ventilation is used for airway management.

SEPSIS

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PROTOCOL TITLE: ASTHMA

I. BASIC LIFE SUPPORT

1. Establish and maintain airway.

2. Using pulse oximetry, if available, administer oxygen, titrate SaO_2 to >93%. Monitor respiratory status regularly.

3. **Albuterol** 0.5 ml (2.5 mg) in 3 cc 0.9% **NaCl** if wheezing. Repeat as needed.

   Note: BLS providers must complete A.B.F.Y. County course before authorized to administer Albuterol.

   a. Consider adding **Ipratropium Bromide (Atrovent)** 2.5 ml per nebulizer mask. May repeat prn q 5 min. x 2.
   OR
   Duoneb 3ml mixed in nebulizer may be substituted for albuterol/atrovent treatments.

4. CPAP is indicated for moderate to severe asthma.

5. If patient has no gag reflex, establish OPA and assist ventilation with pocket mask or BVM and supplemental oxygen @ 15 L/min.

6. Place I-Gel if patient is in respiratory arrest.

II. INTERMEDIATE LIFE SUPPORT

7. Establish peripheral IV with 0.9% **NaCl** @ TKO rate.

8. Ongoing assessment.

III. ADVANCED LIFE SUPPORT

9. Consider IV and cardiac monitor, supplemental oxygen.

10. **For moderate to severe asthma:**

    a. **SoluMedrol** 125mg IV

11. **For severe asthma exacerbation, consider:**

    a. **Epinephrine** (1:1,000) 0.3-0.5 mg IM, SQ or **Epinephrine** (1:10,000) 0.3-0.5 mg IV.
    b. **Racemic Epinephrine –** 0.25-0.5 ml of 2.25% diluted in 3ml NaCl, nebulized.

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PROTOCOL TITLE: ASTHMA

12. CPAP is indicated for moderate to severe asthma in conjunction with pharmacotherapy.

13. Consider endotracheal intubation/RSI and positive-pressure ventilation if patient has a decreased level of consciousness or other signs of respiratory failure.

PEDIATRIC ASTHMA DOSING

1. **Epinephrine** - 0.01 mg/kg of 1:1,000 SQ, (max: 0.3 cc).

   a. May repeat in 20 minutes.

2. **Solu-Medrol** – 1 – 2 mg/kg IV to max 125mg, for severe or refractory episode.

3. **Racemic Epinephrine** – 0.3-0.5 mL in 3 cc unit dose of 0.9% **NaCl** per nebulizer mask.

4. **Epinephrine drip** (per table A-A2)

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PROTOCOL TITLE: CHRONIC OBSTRUCTIVE PULMONARY DISEASE

I. BASIC LIFE SUPPORT

1. Establish and maintain airway.

2. Administer O_2 @ 2-4 L/min by nasal cannula.

3. If hypoventilating, assist ventilation with BVM.

4. Monitor SaO_2 & attempt to maintain at 90%.

5. **Albuterol (Proventil®)**, 2.5mg in 3 cc unit dose of 0.9% **NaCl** via nebulizer. Repeat as needed

Note: BLS providers must complete A.B.F.Y. County course before authorized to administer Albuterol.

a. Consider mixing with **Ipratropium Bromide (Atrovent)** 2.5 ml (0.02% soln.) per nebulizer mask. May repeat as needed. This may be mixed with first and any subsequent albuterol nebulizer treatment.

Note: **Duoneb** may be substituted for individual **albuterol/atrovent** treatments.

Consider CPAP

II. INTERMEDIATE LIFE SUPPORT

6. Establish peripheral IV.

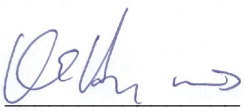
III. ADVANCED LIFE SUPPORT

7. Establish IV and cardiac monitor and oxygen supplementation.

a. For moderate to severe COPD exacerbation:

i. **SoluMedrol** 125mg IV.

b. Consider endotracheal intubation/RSI and positive-pressure ventilation if patient has a decreased level of consciousness or other signs of respiratory failure.



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PROTOCOL TITLE: PEDIATRIC RESPIRATORY EMERGENCIES

I. BASIC LIFE SUPPORT

1. Establish and maintain airway. If obstruction present, treat per protocol for airway obstruction.

2. Administer O_2 @ 10-15 L/min per nonrebreather mask. If not tolerated, may administer blow-by oxygen.

3. **Albuterol (Proventil®)** 2.5 mg in 3 cc (unit dose) of 0.9% **NaCl** per nebulizer mask. May repeat x 2 as needed. (May substitute DuoNeb)

   Note: BLS providers must complete A.B.F.Y. County course before authorized to administer Albuterol.

4. Frequent vital signs.

5. If decreased level of consciousness assist ventilation with BVM.

6. Monitor SaO_2.

II. INTERMEDIATE LIFE SUPPORT

7. Establish IV.

8. If indicated, consider IO route.

III. ADVANCED LIFE SUPPORT

9. Establish IV and cardiac monitor.

10. **Albuterol** 0.5 ml (2.5 mg) in 3 cc 0.9% **NaCl** if wheezing.

11. Consider endotracheal intubation/RSI and positive-pressure ventilation if patient has failed BVM ventilation and has a decreased level of consciousness or other signs of respiratory failure.

ASTHMA

1. **Albuterol** 0.5 ml (2.5 mg) in 3 cc 0.9% **NaCl** if wheezing. (May Substitute DuoNeb)

2. **Solumedrol** 1-2 mg/kg IV

3. **Epinephrine** - 0.01 mg/kg of 1:1,000 SQ, (max: 0.3 cc). (May repeat in 20 minutes).

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4. **Racemic Epinephrine** – 0.3-0.5 mL in 3 cc unit dose of 0.9% **NaCl** per nebulizer mask.

CROUP / EPIGLOTTITIS

1. Calm patient if possible keep patient in a seated position.
2. Assess rate and quality of respirations: note retractions.
3. Nebulizer of humidified oxygen for mild respiratory distress.
4. For stridor or retractions which are present at rest, or signs of significant respiratory distress:

   a. Humidified High flow 0_2
   b. **Racemic epinephrine (may be contraindicated if true epiglottitis)**

      i. <6mo: 0.25ml (2.25%) mixed in 3-5 cc 0.9% **NaCl** via nebulizer mask.
      ii. > 6mo: 0.5ml (2.25%) mixed in 3-5 cc 0.9% **NaCl** via nebulizer mask.

   c. **Solumedrol** 1-2 mg/kg IV

5. If child loses consciousness or develops periods of apnea with respiratory depression, initiate BVM ventilation.

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PROTOCOL TITLE: UPPER AIRWAY OBSTRUCTION

I. BASIC LIFE SUPPORT

1. If complete foreign body obstruction:
   a. Use abdominal and/or chest thrusts. For pregnant patients, use chest thrusts.
   b. Post-removal, suction and place patient in left lateral recumbent position.
2. Administer O_2 @ 10-15 L/min, per nonrebreather mask.
3. If partial obstruction and patient breathing satisfactorily, or if hypoxic after removal, administer O_2 @ 10-15 L/min per nonrebreather mask and transport ASAP in position of comfort.

II. INTERMEDIATE LIFE SUPPORT

4. Establish IV access, after airway is managed.

III. ADVANCED LIFE SUPPORT

5. If manual attempts unsuccessful, perform direct laryngoscopy and attempt removal with Magill forceps or other appropriate instrument.
6. Follow with endotracheal intubation, if necessary.
7. If ventilation still not possible on adult patient, perform cricothyrotomy per protocol (P-11).

8. For failed airway, consider needle cricothyrotomy (P-12).

UPPER AIRWAY OBSTRUCTION

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PROTOCOL TITLE: BURNS

I. BASIC LIFE SUPPORT

1. Critical burns are defined as combination burns involving partial thickness (2nd degree burns) and full thickness (3rd degree burns) involving more than 20% combined of the total body surface, or the presence of facial burns, or respiratory involvement.

2. Remove patient from hazardous environment.

   a. Remove all constricting items and smoldering or non-adherent clothing.
   b. Brush any dry solids off patient.
   c. Dilute and rinse any chemicals with water.

3. Ensure an adequate airway.

4. If critical burns, administer O_2 @ 10-15 L/min per nonrebreather mask.

5. Determine location, extent, and depth of burns and any associated trauma or complications.

6. Cover small burns with sterile dressing moistened with normal saline.

7. Cover moderate to severe burns with dry, sterile dressings.

8. If hands or feet involved, separate digits with sterile gauze pads.

9. Cover to conserve body heat and keep patient warm.

10. Obtain history to include: mechanism or source of burn; time elapsed since burn; whether patient was in a confined space with smoke or steam, and how long; and whether there was loss of consciousness.

II. INTERMEDIATE LIFE SUPPORT

Establish large-bore IV with **Lactated Ringers (LR)**, or other crystalloid if **LR** unavailable**.** If total burn surface area is >15-20% infuse at rate calculated by 1 hour Parkland Formula:

0.25 x (Body weight in kg) x (%BSA burned) = Fluid to be infused first hour

III. ADVANCED LIFE SUPPORT

11. Monitor airway status and treat as indicated with supplemental O_2. Consider early endotracheal intubation/RSI for airway burns with respiratory distress.

12. Establish cardiac monitor and IV. IV fluid administration per the Parkland Formula above.

14. **Morphine Sulfate or Fentanyl Citrate** per pain management protocol

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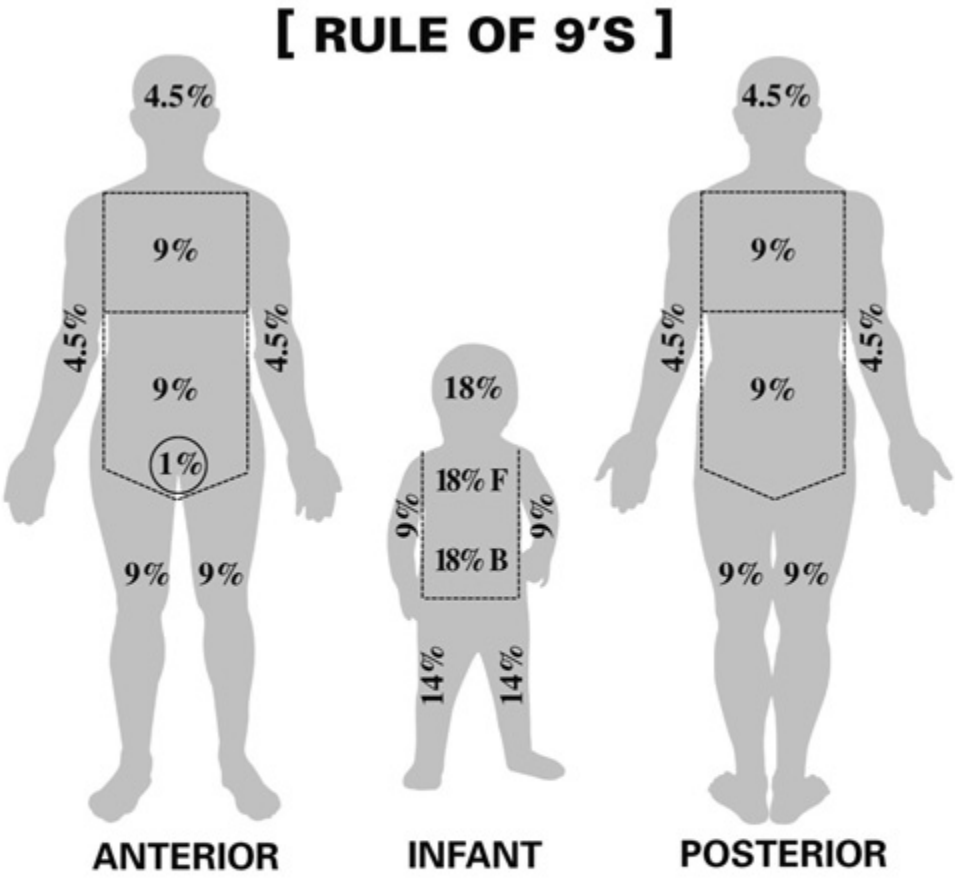
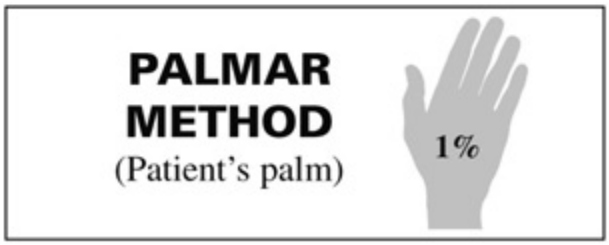
PROTOCOL TITLE: BURNS

(P-13 , P-14).





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PROTOCOL TITLE: CHEST INJURIES

I. BASIC LIFE SUPPORT

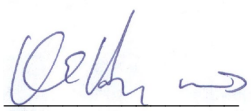
1. Establish and maintain airway.
2. If stable, administer O_2 @ 2-4 L/min via nasal cannula.
3. If unstable, administer O_2 @ 10-15 L/min per nonrebreather mask.
4. Assess for penetrating injuries and apply occlusive dressings.
5. Cervical immobilization as indicated (T-4).

II. INTERMEDIATE LIFE SUPPORT

6. If BP < 90 mmHg:
   a. Establish large-bore peripheral IV with 0.9% **NaCl** and run at rate that maintains blood pressure at 90 systolic or greater.
      i. Consider additional IV lines.
7. If BP >90 mmHg and patient is stable:
   a. Establish large-bore IV with 0.9% **NaCl** and run at TKO rate.

III. ADVANCED LIFE SUPPORT

8. Monitor airway status, and treat as indicated with supplemental O_2. Consider early endotracheal intubation/RSI for severe chest injury with respiratory distress.
9. Assess for tension pneumothorax and perform needle chest decompression as indicated. (P-12)
10. Establish cardiac monitor and IV/IO. Consider 2nd IV access for unstable pt.
    a. Other considerations:
       i. IV fluid resuscitation.
       ii. Occlusive dressings for penetrating injuries.
11. For any severe chest injury, rapid transport and trauma team activation is indicated.
12. Pain management per protocol. (P-13, P-14)



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PROTOCOL TITLE: MULTISYSTEM TRAUMA

I. BASIC LIFE SUPPORT

1. Establish and maintain airway.

2. Administer O_2 @ 10-15 L/min by nonrebreather mask.

3. Control severe external hemorrhage as indicated.

   a. Apply direct pressure to uncontrolled, active hemorrhaging.
   b. If extremity wound and hemorrhage is uncontrolled, consider application of tourniquet.
   c. If unable to control hemorrhage and location of wound is not conducive to tourniquet application, consider application of an MPD approved hemostatic agent (QuikClot, per manufacturer's guidelines)

4. Early transport and activation of the trauma system

5. Provide cervical immobilization as indicated per protocol T-4.

6. Stabilize unstable pelvic or femur fractures.

   a. Pelvic sling.
   b. Femur traction splint.

7. ***Do not delay*** transport to splint minor fractures or treat minor injuries.

II. INTERMEDIATE LIFE SUPPORT

8. Establish 2 large-bore IVs 0.9 % **NaCl** and run at rate that maintains systolic blood pressure of 90.

III. ADVANCED LIFE SUPPORT

9. Consider early endotracheal intubation/RSI as patient clinical status indicates.

10. Assess for tension pneumothorax and perform needle chest decompression as indicated. (P-12)

11. Pain management (P-13, P-14)

12. For major crush or suspension injuries, consider early consultation with online medical control (OMC) for further guidance.

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13. In the setting of hemorrhagic shock from trauma less than 3 hours old, with anticipated need for massive blood transfusion due to marked internal or external blood loss, the criteria for Tranexamic acid administration are:

    a. Adult trauma patients equal to or greater than 16 years of age.
    b. Traumatic injury less than 3 hours old.
    c. Hemorrhagic shock due to trauma: systolic BP 90mmHg or less: and/or sustained heart rate more than 110 bpm
    d. Patient has received at least 500mL of crystalloids and other hemorrhagic control measures have been initiated, i.e. direct pressure, etc.

    Tranexamic acid (TXA) 1gram IVP administered over 10 min. in 100 mL or 250 mL NS (may piggy-back).
    Notify receiving facility that TXA was initiated in the field.

IV. TRAUMA

1. Any patient involved in a traumatic incident should be evaluated using the Washington State Trauma Triage Destination Procedures Tool.

    a. Consider early helicopter activation per COPS A-B5

Reminder: Online Medical Control for any patient meeting trauma system criteria is the expected trauma center destination for the patient.

State of Washington Trauma Criteria defines pediatric patient as age <14.

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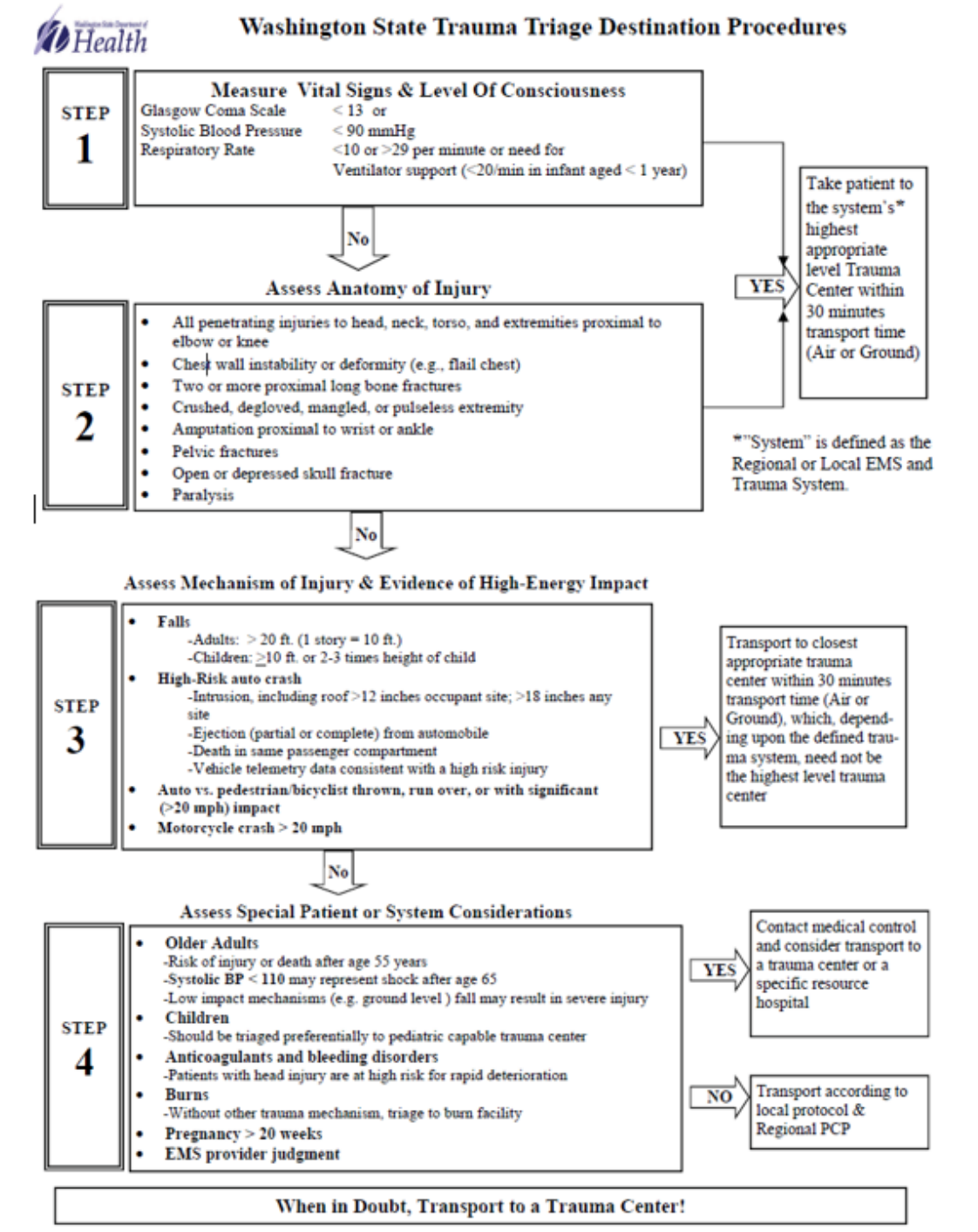
PROTOCOL TITLE: MULTISYSTEM TRAUMA



MULTISYSTEM TRAUMA

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T4

PROTOCOL TITLE: ASSESSMENT OF SPINAL INJURIES

High Risk Criteria:
- Fall from a height (>6 feet, or down 5 stairs.)
- Motor vehicle collision (high speed, rollover, ejection, motorcycle, pedestrian.)
- Diving injuries.
- Obvious blunt force trauma above the clavicles.
- Found unconscious with signs of significant trauma above the clavicles.
- Any other mechanism of injury that may indicate significant energy transfer to the spinal column.

Low Risk Criteria:
- Falling from a standing position where there are no signs of trauma above the clavicles.
- Penetrating trauma **unless** neurological deficit is present.

Determine Patient Criteria Status

Maintain C-spine while performing assessment.

Perform standard patient assessment and obtain full history & vital signs.

Perform C-Spine Clearance Evaluation in Order:
1. Age is greater than 65
2. GCS less than15 or Mental Status Orientation is less than 4/4 (Person, Place, Time, Event)
3. There are signs of intoxication (drugs or alcohol)
4. There are major distracting injuries; (fractures, burns, significant chest or abdominal trauma).
5. There are focal neurological deficits; (loss of sensation or motion in any extremity).
6. There is pain, deformity or tenderness to posterior cervical or upper thoracic spine. (**See Note**)
7. Patient is unable to turn head 45 degrees left & right without pain, numbness, or loss of sensation in any extremities.
8. Patient experiences pain in cervical or upper thoracic spine with deep cough.

Assessment produces any concerns for cervical spine trauma.

YES

NO

NO to All

Patient C-spine is cleared and patient may be transported in a position of comfort.

YES to Any of The Above

Immobilize the neck/cervical spine
- Utilize cervical collar and fit appropriately to the patient.
- May substitute padding along the back & sides of neck for anatomically difficult patients.
- Allow patient to assume any position of comfort.
- Utilize other padding and positioning methods as needed with goal of comfort during transport.

NOTE ON LBBs:
In general, long spine boards are not to be used for routine immobilization or transport. Use LBB, along with slat stretcher, scoop stretcher, KED, and other adjuncts as needed to facilitate transfer/extrication and patient comfort. LBB is also indicated to facilitate good chest compressions during CPR.

ASSESSMENT OF SPINAL INJURIES

April 4, 2022

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Medical Program Director
Adams, Benton, Franklin and Yakima Counties

Date

Attention to spinal precautions among at-risk patients is paramount. This includes application of a cervical collar, adequate security to a stretcher, minimal movement/transfers, and maintenance of stabilization during any necessary movement/transfers.

PROTOCOL TITLE: BLOOD DRAWS FOR LAW ENFORCEMENT

I. BLOOD DRAWS FOR LAW ENFORCEMENT

1. Blood may be drawn for legal alcohol and/or drug determination at the request of law enforcement as provided by RCW 46.61.520 and RCW 46.61.522. Blood samples for law enforcement may be obtained only if:

    a. The patient's condition indicates the need for IV therapy as required by protocol.
    b. The procedure would not result in a transport delay which could potentially be detrimental to the patient.
    c. The patient is unconscious, or
    d. The patient is under arrest for the crime of vehicular homicide or vehicular assault, or
    e. The patient is under arrest for the crime of driving under the influence of intoxicating liquor or drugs, which arrest results from an accident in which another person is injured and there is a reasonable likelihood that said person may die as a result of injuries sustained in the accident.

2. Law enforcement will provide an evidence kit that contains two gray top vacutainers. These are the only containers to be used when obtaining blood samples for law enforcement.

3. Remember that alcohol preps cannot be used to prepare skin for needle insertion. The pad must contain no alcohol. A pad containing Betadine or Povidone-Iodine is acceptable.

4. Law enforcement must complete and sign the ***Adams-Benton-Franklin-Yakima Counties Direction To Take A Blood Test*** form and return it to the provider while at the scene.

5. Attach the completed form to your agency's copy of the medical incident report (a copy may also be attached to the patient's hospital chart).

6. Document the procedure on the medical incident report.

BLOOD DRAWS FOR LAW ENFORCEMENT

April 4, 2022

Kevin Hodges, M.D
Medical Program Director
Adams, Benton, Franklin and Yakima Counties

Date

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ADAMS-BENTON-FRANKLIN-YAKIMA COUNTIES
DIRECTION TO TAKE A BLOOD TEST

INSTRUCTIONS: This form must be completed and signed by a law enforcement officer and returned to the attending EMS personnel. Law enforcement must provide the appropriate blood tubes.

PATIENT: _____ DATE: _____ TIME: _____

EMS AGENCY TO PERFORM PROCEDURE:
_____

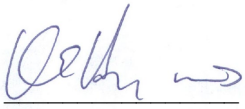
The undersigned states that the above name patient is either (1) unconscious or (2) under arrest for the crime of vehicle homicide as provided in RCW 46.61.520, or vehicular assault as provided in RCS 46.61.522, or that such person is under arrest for the crime of driving under the influence of intoxicating liquor or drugs as provided in RCW 46.61.502, which arrest results from an accident in which another person has been injured and there is reasonable likelihood that such a person may die as a result of injuries sustained in the accident.

The undersigned directs personnel from the above named agency to administer a blood test (draw blood) without the consent of the patient so unconscious or so arrested.

Officer: _____Signature: _____

Law Enforcement Agency:

_____



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Adams, Benton, Franklin and Yakima Counties

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PROTOCOL TITLE: CPAP / BIPAP

CPAP is an alternative method to maintain oxygenation in some patients. It should never be used if a patient is in severe distress that requires Intubation.

I/II. BLS/ILS

Advise Medical Control ASAP when pt is placed on CPAP, so preparation can be made for patient arrival.

Indications

1. Acute Congestive Heart Failure.
2. Acute hypoxic respiratory failure (including asthma).
3. Severe worsening COPD.
4. Patient's preference to avoid intubation.

Exclusion Criteria/Contraindications

1. Facial deformity.
2. Hemodynamic instability.
3. Inability to clear secretions.
4. Inability to tolerate mask.
5. Inability to maintain airway or respiratory drive.
6. Patient unable to follow directions due to AMS.

Initiating CPAP Therapy

1. Explain therapy to patient.
2. Attach oxygen delivery tubing to 55psi connection on oxygen regulator.
3. Prepare circuit to apply to patient.
4. Initiate setting at pressure of 5 cmH_2O, may increase to 10 cmH_2O, titrate to clinical effect. Initiate therapy with pressure (PEEP) prior to increasing FiO2.
5. Apply mask manually, then tighten straps to stop any leaks.
   a. Any leaks will be manifested with the sound of air hissing when pt is not breathing.

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i. Press the mask firmly on patient's face and hissing should stop.
ii. Re-adjust straps if necessary.

b. Oxygen supply will be rapidly consumed if there is a mask leak.

6. Reassess patient status frequently. If patient failing CPAP therapy, consider intubation/RSI.

III. ALS

BI-LEVEL VENTILATION (BIPAP)

1. Indications
   a. Respiratory distress and hypoxia consistent with CHF, pulmonary edema, COPD, or hypoxemic respiratory failure.
   b. May be used for preoxygenation of select patients prior to intubation.

2. Contraindications
   a. Systolic blood pressure <100 in adult patients.
   b. Pediatric patients.
   c. Respiratory arrest.
   d. Inability to cooperate.
   e. Inability to protect and maintain airway.
   f. Presence of tracheostomy or recent esophageal anastomosis.
   g. Inability to maintain adequate mask seal.
   h. Active vomiting.

3. Adverse Effects/Complications
   a. Barotrauma
   b. Increased intra-thoracic pressure, decreased venous return to the heart, decreased cardiac output. (Presenting as hypotension & tachycardia)
   c. Gastric insufflation which may result in vomiting
   d. Drying of mouth and nasal passages.
   e. Skin and facial irritation from mask and harness.
   f. Non-invasive ventilation associated pneumonia

4. Procedure
   a. Assemble equipment per manufacturer's recommendations. Consider using a test lung during setup.
   b. Explain the process to the patient.
   c. Select non-invasive ventilation mode on the ventilator
      i. Set inspiratory positive airway pressure to 15.
      ii. Set expiratory positive airway pressure to 5-8.

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iii. Set a low respiratory rate in order to allow patient to initiate all respirations.

d. Set inspiratory time to 1 second, this should be shortened to 0.8 in pediatrics or in patients with a RR >30.
e. Titrate FiO2 to maintain oxygen saturations (SPO2) of 94-98%, or >90% in asthmatics & patients with chronic respiratory conditions.
f. Once ready to initiate BiPap, place the mask on the patient, secure the harness firmly around the patient's head.
g. Check for air leaks, adjusting the mask and harness as needed.
h. Continuously reassess the efficacy of ventilations via physical findings (e.g. chest rise, auscultation, skin signs) and monitoring equipment (e.g. PIP's, ETCO2, SPO2) keeping in mind that ETCO2 monitoring may be unreliable in BiPap patients.
i. If high pressure alarm sounds, immediately reassess equipment for kinked tubing, and coach patient on their breathing, if appropriate.
j. If low pressure alarm sounds, immediately reassess for leaks or disconnection.

5. Considerations
   a. All BiPap patients must have continuous waveform capnography, pulse oximetry, and ECG monitoring.
   b. BiPap can be very uncomfortable. Provide reassurance and coaching to the patient.
   c. BiPap patients can deteriorate rapidly, be prepared to intubate if the patient's mental or respiratory status declines.
   d. Consider administering a light dose of fentanyl or ativan to aid with air hunger or anxiety.
   e. Ensure that the backup respiratory rate is slower than the patient's respiratory rate. BiPap is intended to support respirations, not to initiate them.

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PROTOCOL TITLE: BLOOD GLUCOSE MONITORING

INDICATIONS

- Any altered mentation.
- Seizure or postictal states.
- Known or suspected diabetic.
- Clinically suspected hyper or hypoglycemia.

I. BLS

1. Use appropriate BSI precautions.
2. Prepare all necessary equipment.
3. Turn on meter, make sure meter is coded correctly to match strip.
4. Obtain blood sample.
   a. Cleanse area with alcohol prep and allow to dry.
   b. Use lancet device to obtain a capillary blood droplet.
   c. Apply the drop of blood to the test spot. Make sure the drop of blood completely covers the test spot on the test strip.

Contact Medical Control with test results.

5. Record the results.
   a. Normal levels for a non-diabetic pt. run between 60 – 110 mg/dl.
   b. A diabetic pt. with a blood sugar of 80 mg/dL or less showing signs & symptoms of hypoglycemia should be given **oral glucose** (sugar) if conscious and able to swallow safely.

II. ILS

1. N/A

III. ALS

1. N/A

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Adams, Benton, Franklin and Yakima Counties

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PROTOCOL TITLE: INTRAOSSEOUS INFUSION EZ-IO ADULTS & PEDIATRIC

I. BLS
N/A

II./III. ILS/ALS

This procedure is only for ILS and ALS providers who have been trained in this technique.

EZ-IO DEVICE

The use of I.O. for venous access in adults when vascular access is needed and peripheral IV cannot be established and patient exhibits ONE or more of the following:

1. An altered mental status (GCS of 8 or less)
2. Respiratory failure, respiratory arrest
3. Hemodynamic instability
4. Cardiac arrest
5. Severe burns

CONTRAINDICATIONS

1. Suspected or known fractures in the extremity targeted for IO infusion.
2. Previous IO attempt in the same bone within 48 hours
3. Pre-Existing Medical Condition (tumor near site or peripheral vascular disease).
4. Infection at insertion site.
5. Inability to locate landmarks.

PROCEDURE – TIBIAL INSERTION

1. Locate insertion site and cleanse using aseptic techniques (anterior-medial tibial plateau 1-3 cm below tibial tuberosity).
    a. Push the needle set through the skin at the insertion site until you feel the needle tip encounter the bone, ensuring the 5mm mark on the needle is visible. Using the drill, apply firm steady pressure through the cortex. Stop when the flange touches the skin or a sudden decrease in resistance is felt.
2. Confirm placement.

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a. ALS Only: Consider administering 20 - 50 mg (1 - 2.5ml) **Lidocaine** over two minutes to the conscious adult pt., for anesthetic.

b. Flush or bolus the EZ-IO catheter rapidly with 10 ml of crystalloid solution.

3. Dress site, secure tubing.

4. If unsuccessful, or subcutaneous swelling occurs:

   a. Remove needle and dress wound.

   b. Make second attempt at another site.

PROCEDURE- PROXIMAL HUMERAL INSERTION

WARNINGS: Selection of the proximal humeral site is not indicated in patients weighing less than 40kg.

a. Caution should be exercised with the proximal humeral site in patients that may become awake/combative as dislodgement may occur.

b. Sites near total joint replacements should not be first choice.

c. Abduction of the humerus should be avoided and securing the extremity should be routine.

d. The yellow 45 mm EZ-IO needle is the only needle approved for use when utilizing the humeral insertion method.

1. Position the patient for the procedure. Choose one of the following two options for positioning the patient prior to proximal humeral insertion:

   OPTION #1

   a. With the patient in the supine or semi-fowlers position, place the patient's hand over their abdomen (elbow adducted and humerus internally rotated).

   b. Secure the patient's arm in place across the abdomen.

   OPTION #2

   a. Place the patient's arm alongside of the body adducting the patient's elbow then pronate the wrist so that the thumb is down and out, thus internally rotating the humerus.

   b. Secure the patient's arm in place to prevent movement.

2. Locate the insertion site (the most prominent aspect of the greater tubercle 1 to 2 cm above the surgical neck).

   a. Stabilize the IO site and push the needle set through the skin at the insertion site until you feel the needle tip encounter the bone, ensuring the 5mm mark on the needle is visible. Using the drill, apply firm steady pressure through the cortex. (Note: for best results, when utilizing the humeral insertion method, the manufacturer recommends inserting the needle completely to the flange and not leaving any part of the needle exposed).

   b. Confirm placement
      i. ALS Only: Consider administering 20-50 mg (1-2.5 ml) Lidocaine over two minutes to the conscious adult patient for anesthetic.
      ii. Flush or bolus the EZ-IO catheter rapidly with 10 ml of crystalloid solution.

   c. Dress site, secure tubing.

   d. If unsuccessful or subcutaneous swelling occurs:
      i. Remove needle and dress wound.
      ii. Make second attempt at another site.

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PROTOCOL TITLE: INTRAOSSEOUS INFUSION-JAMSHIDI TECHNIQUE

I. BLS

1. N/A

II./III. ILS and **ALS**

This procedure is for ILS and ALS providers who have been trained to perform this technique.

Jamshidi style needle

1. The technique is indicated in children 6 years and under, generally pt is unconscious.

2. The use of Intraosseous Infusion (IO) for venous access in children is indicated when urgent vascular entry is required in a critically ill child and cannulation of peripheral veins has failed.

3. The preferred site is the proximal tibia.

   a. Choose leg least injured, if trauma.

      i. Prepare equipment. #15g and #18g Jamshidi needle, 5cc syringe, 10cc, sterile crystalloid solution, betadine pads, tape.

         a. 18g for infants, possibly toddlers.
         b. 15g for larger children.

      ii. Prep anterior tibial plateau with betadine, 1-3 cm below tibial tuberosity, on the flat medial surface of bone.
      iii. place and secure extremity in an externally rotated position, place towel roll under knee for support.
      iv. Insert 1" bone marrow needle with obturator in place through skin, periosteum and cortex of bone at a right angle to the bone and 45-60^{o} angle away from the knee. Rotate needle as you advance it.
      v. When needle "pops" into marrow of tibia, remove obturator and attach 10 cc syringe with 5cc crystalloid solution and aspirate.
      vi. Administer the 5cc of saline and bone marrow mixture back into the bone, there should be minimal resistance.
      vii. Attach IV tubing using a burette chamber to needle hub and flush with crystalloid solution. If successful, IV solution should flow rapidly.
      viii. Tape-secure needle and tubing to leg.
      ix. Administer indicated drugs and fluids.

   b. If unsuccessful, or subcutaneous swelling occurs:

      i. Remove needle and dress wound.
      ii. Make second attempt in other leg.

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INTRAOSSEOUS INFUSION-JAMSHIDI TECHNIQUE

PROTOCOL TITLE: I-GEL AIRWAY

I. BLS with supraglottic airway endorsement / ILS

INDICATIONS

1. Airway management of unconscious and unresponsive patient; may be used as primary advanced airway or rescue device when placement of ETT has failed.

CONTRAINDICATIONS

1. Responsive patient with intact gag reflex.
2. Facial trauma or distorted airway prevents glottic seal

INSERTION INSTRUCTIONS

I-Gel Size	Patient Size	Patient Weight (Kg)
Yellow 3	Small Adult	30-60
Green 4	Medium Adult	50-90
Orange 5	Large Adult	90+

1. Select appropriate size I-Gel, reference chart above.
2. Apply light layer of lubricant to all sides of the cuff as well as front and back of the stem. Ensure no large amounts of lubricant obstructing distal airway.
3. Grasp lubricated I-Gel firmly along integral bite block and position device with the cuff opening directed upward (anterior)
4. Place patient in sniffing position and gently pull chin to open mouth. Use modified jaw thrust in C-spine precaution patients.
5. Introduce the distal end into the mouth and glide the device downward along the hard palate with continuous pressure until resistance is felt after the cuff seats the glottic opening and the patient's teeth are resting on the integral bite block.
6. Ventilate with supplemental O2 and confirm proper placement with chest rise, bilateral lung sounds and ETCO2 capnography if available.
7. Once confirmed, secure I-Gel using standard methods, i.e. ETT tape, etc.

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PROTOCOL TITLE: I-GEL AIRWAY

II. ALS

GASTRIC CHANNEL USE

I-Gel Size	Maximum NG Tube (FG)
Yellow 3	12
Green 4	12
Orange 5	14

1. Select appropriate size NG tube, reference chart above.
2. Measure NG tube from I-Gel NG port to halfway between xiphoid process and umbilicus for insertion depth.
3. Apply liberal amount of lubricant to the I-Gel NG port and introduce NG tube while gently advancing to appropriate depth.

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PROTOCOL TITLE: OROTRACHEAL INTUBATION (OTI)

I. BLS

N/A

II. ILS

N/A

III. ALS

It is expected that the procedure for orotracheal intubation is well understood and practiced by the paramedic. This protocol is a general protocol for OTI and other advanced airway management procedures performed by the paramedic. OTI should be initiated in a short period of time so as to prevent delay in the provision of adequate ventilation, and airway protection.

1. Prepare the following equipment and supplies:

   a. BVM with functioning 0_2 system.
   b. Suction unit with rigid pharyngeal tip.
   c. Laryngoscope, endotracheal tubes, lubricant, stylet, and 10mL syringe.

2. Assess and document (MOANS/LEMON) for possible difficult airway. Have a back-up plan.

3. Assist ventilation with supplemental 0_2 as necessary; hyperoxygenate prior to intubation attempt.

4. Perform the intubation.

Primary placement confirmation

1. Direct visualization, watching tube pass through vocal cords.

2. Watch for chest to rise & fall.

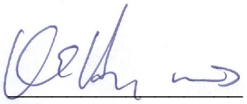
3. Look for mist in the tube.

4. Auscultate lateral lung fields and epigastrium with a stethoscope.

Secondary placement confirmation

1. Cardiac Arrest: Use the EDD and end-tidal CO_2.

2. Perfusing Rhythm: use the end-tidal CO_2 detection device. May additionally use EDD but this should not replace CO_2 detection device.



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3. Once ET tube placement has been confirmed, secure tube and continue ventilation with the BVM.

4. Proper tube placement using a primary and secondary confirmation technique must be reassessed following any point at which a patient is moved (e.g., floor to stretcher; ambulance to ED; etc.).

NOTE: If unable to intubate using ETT after three attempts by the most experienced provider, consider using a King LT, or other rescue device. See P10 (Airway Algorithms)

Documentation of OTI

1. Proper documentation of the placement of an Endotracheal Tube (ETT) requires the following items:

   a. Date and time.
   b. MOANS/LEMON or other appropriate documentation of difficult airway assessment.
   c. Medications used if applicable.
   d. Primary placement confirmation technique used.
   e. Secondary placement confirmation technique used.
   f. ETT Placement verification used after significant patient movement.
   g. Size of tube, and depth of tube at the teeth.
   h. How tube was secured.

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PROTOCOL TITLE: 2ND CONFIRMATION DEVICES-OROTRACHEAL INTUBATION

ESOPHAGEAL DETECTOR DEVICE (EDD)

PURPOSE

1. The EDD, (syringe aspirating device that connects to proximal end of the ET tube) is used following orotracheal intubation of adult patients.

2. It is ***not*** to be used in pediatric patients.

3. Proper placement **MUST** also be verified through auscultation of the lungs and over the epigastrum.

PROCEDURE

1. Attach the EDD to the ET tube and rapidly pull back on the syringe.

   a. Free flow of air supports placement of the ET tube into the trachea.
   b. Resistance to flow suggests that the ET tube may be in the esophagus or right mainstem.
   c. If unsure ET tube is in the proper position, remove immediately.

CONTRAINDICATED

1. Pediatric Intubation with uncuffed tubes.

END-TIDAL CO_2 / CAPNOGRAPHY

1. Quantitative End Tidal Monitoring is the preferred method. In the absence of quantitative measuring equipment, a colorimetric device may be substituted.

2. Observe for waveform on monitor.

3. Attach $ETCO_2$ detection device in line between ET tube and BVM.

4. Cardiac Arrest $ETCO_2$ readings may be used to assist evaluation of chest compressions.

5. RSI $ETCO_2$ readings:

6. End-tidal readings should be maintained between 35-45 mm/Hg, may vary for people with lung disease.

   a. If ET CO_2 is >45 increase RR.
   b. If ET CO_2 is <35 decrease RR.

NOTE: The absence of returned end-tidal CO_2 in a patient who is in cardiac arrest is not itself an indication for extubation but should cause the paramedic to further investigate the placement of the ETT

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PROTOCOL TITLE: RSI

III. ADVANCED LIFE SUPPORT

RAPID SEQUENCE INTUBATION (RSI)

1. **Prepare** the following equipment and supplies:

   a. BVM with functioning 0_2 system
   b. Suction unit with rigid pharyngeal tip
   c. Laryngoscope, endotracheal tubes, stylet, and syringe
   d. Appropriate medications to be utilized

      i. Ensure functioning and secure IV line is in place.
      ii. Establish cardiac monitor, pulse oximetry, ETCO2 monitoring
      iii. Assess (MOANS/LEMON) for possible difficult airway, have a back-up plan.

2. **Pre-Oxygenate**

   a. Patient on NRB high flow for > 3 minutes or 8-10 vital capacity breaths.
      OR
   b. Patient with CPAP on 100% FiO_2 for > 3 minutes.
      OR
   c. Assisting ventilations with BVM but DO NOT FORCE AIR INTO GUT, no positive pressure ventilations.
      OR
   d. Consider apneic oxygenation therapy via high-flow nasal cannula.

NOTE: BVM ventilation is preferred management in children < 8 years. Intubation should be attempted **only** if attempts to ventilate with BVM are ineffective. Pediatrics- same dose as adults, consult Broselow tape. Do not use paralytics if age < 12 months.

3. Paralysis with Induction Administer an Induction agent (sedation):

   a. **Etomidate (Amidate)** 0.3 mg/kg. Use with caution in patients with hypotension, severe asthma, or severe cardiovascular disease.
      OR
   b. **Midazolam (Versed®)** 2.5 -5 mg IV or IM.
      OR
   c. **Ketamine** 1-2mg/kg IV. **Ketamine** may be the drug of choice for patients with reactive airway disease.

   d. Position patient in preparation for intubation and explain to them what you are doing.

   e. Administer paralytic medication

      1. **Succinylcholine** (immediately after the induction agent**)** 1-2 mg/kg IV (depolarizing agent)

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OR

2. If the patient has a contraindication to succinylcholine, may administer **Rocuronium** (immediately after the induction agent) 1 mg/kg IV (non-depolarizing agent).

4. **Protect and Position the Airway-**
   a. May consider laryngeal manipulation (BURP) if needed for assistance with visualization of the glottis.
   b. Elevation of the head of the bed at 20-30 degrees of Semi-Fowler's position is indicated, if possible, to help prevent aspiration.

5. **Placement and Proof-** Perform direct laryngoscopy and place ET Tube per Endotracheal Intubation protocol.

   a. If first attempt is unsuccessful, re-oxygenate using BVM for 30-60 seconds.
   b. If relaxation was inadequate, administer a second dose of paralytic agent.
   c. If repeated intubation attempts fail, ventilate with BVM until spontaneous respiration returns, or move to rescue airway. (See P10 – Airway Algorithms)
   d. If further intubation attempts fail and patient cannot be ventilated per BVM go to (P10) – Airway Algorithms
   e. Confirm tube placement utilizing primary and secondary confirmation techniques.

6. **Post Intubation Management-**

   a. **Versed** 2.5-5 mg for post-intubation sedation of patient begins to resist ventilation or VS indicate patient is distressed.
      OR
   b. **Fentanyl** 1 – 3 mcg/kg

7. **Consider Long-Term Neuromuscular Inhibition:** If any of the following:

a) Prolonged transport time
b) Inadequate control of line or ETT integrity despite above sedatives

(1) **Required: Continuous reliable End-tidal CO_2 monitoring**
(a) Administer **Rocuronium** 0.5 mg/kg IV
1. May repeat q 30 minutes PRN strong muscular activity threatening line or ETT integrity despite sedation

RSI

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PROTOCOL TITLE: RSI

Bradycardia in the Adult secondary to RSI

1. In the event that bradycardia occurs in the adult during the direct laryngoscopy attempt, stop and ventilate per BVM with supplemental 0_2.

   Administer 1 mg **Atropine** IVP prior to any reattempt at intubation.

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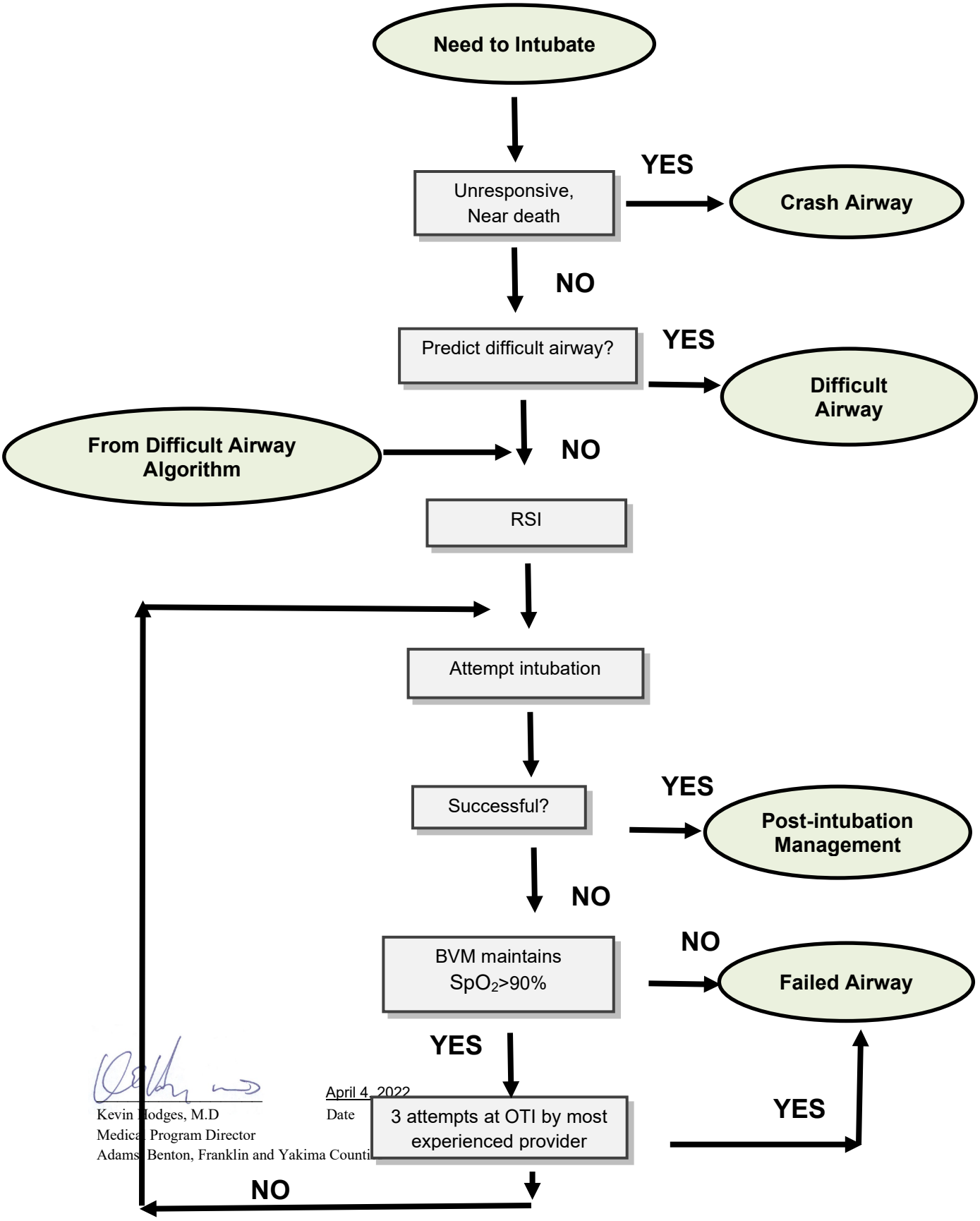
PROTOCOL TITLE: AIRWAY ALGORITHMS

MAIN EMERGENCY AIRWAY MANAGEMENT ALGORITHM



AIRWAY ALGORITHMS

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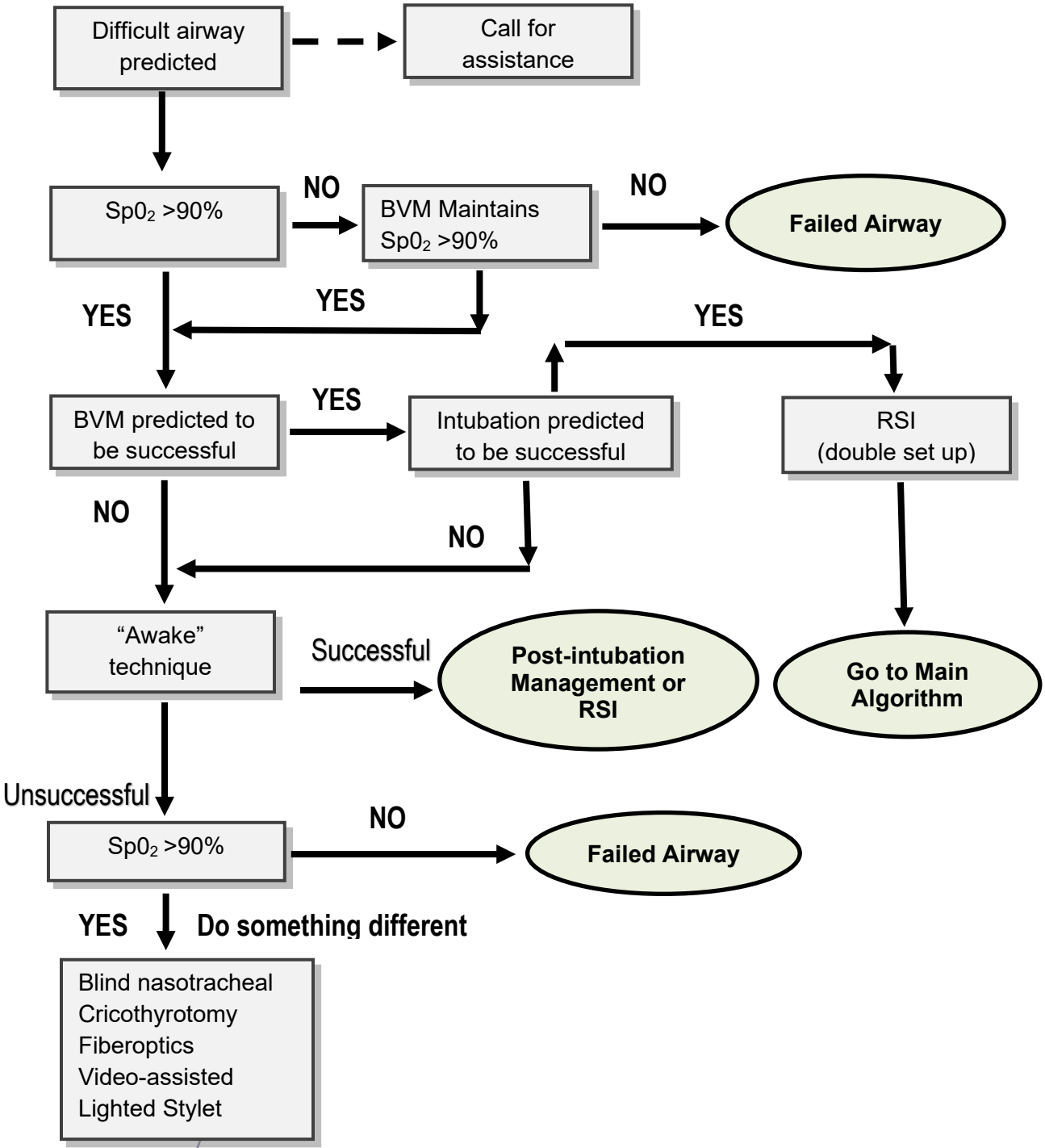
PROTOCOL TITLE: AIRWAY ALGORITHMS

DIFFICULT AIRWAY ALGORITHM



AIRWAY ALGORITHMS

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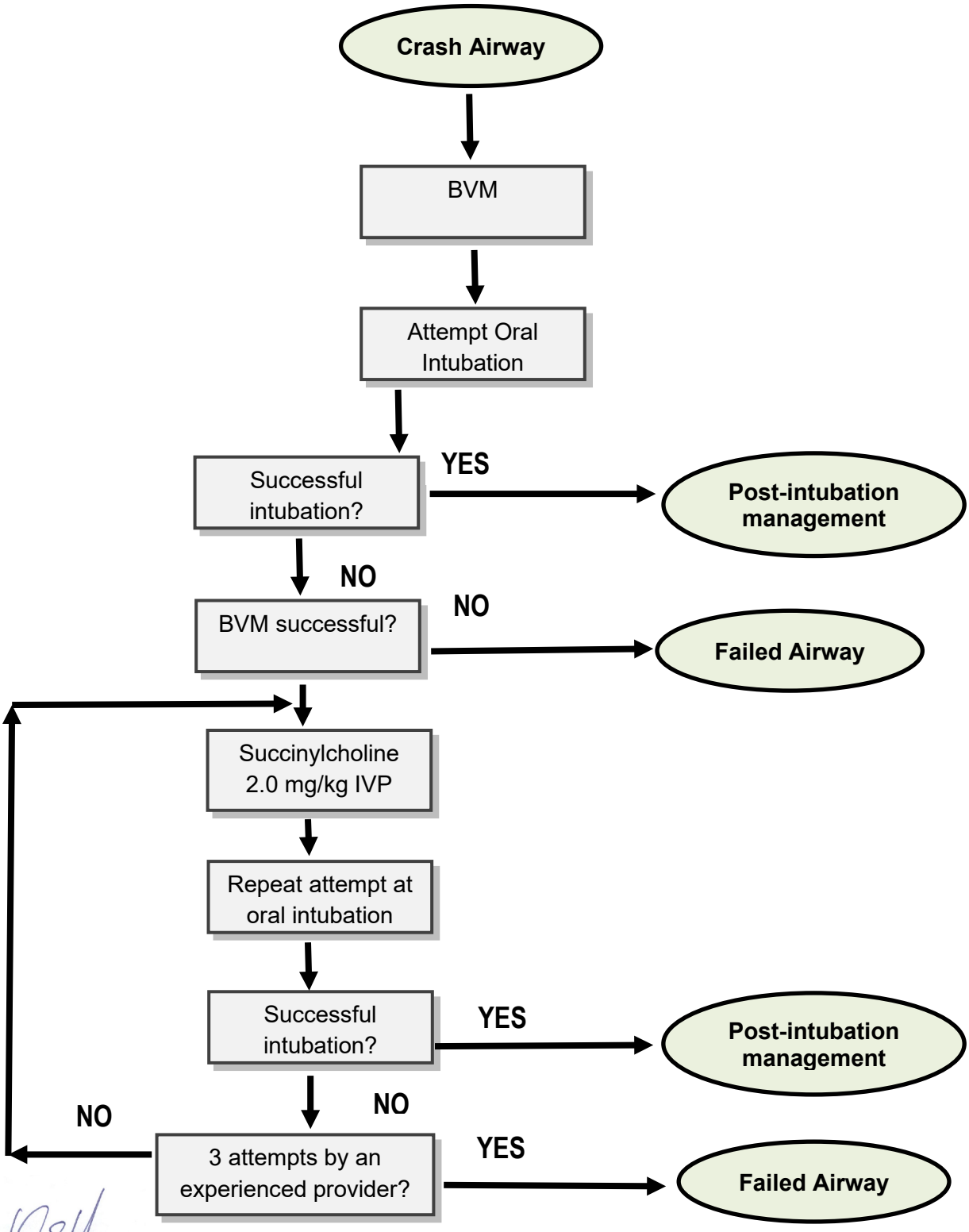
PROTOCOL TITLE: AIRWAY ALGORITHMS

CRASH AIRWAY ALGORITHM



AIRWAY ALGORITHMS

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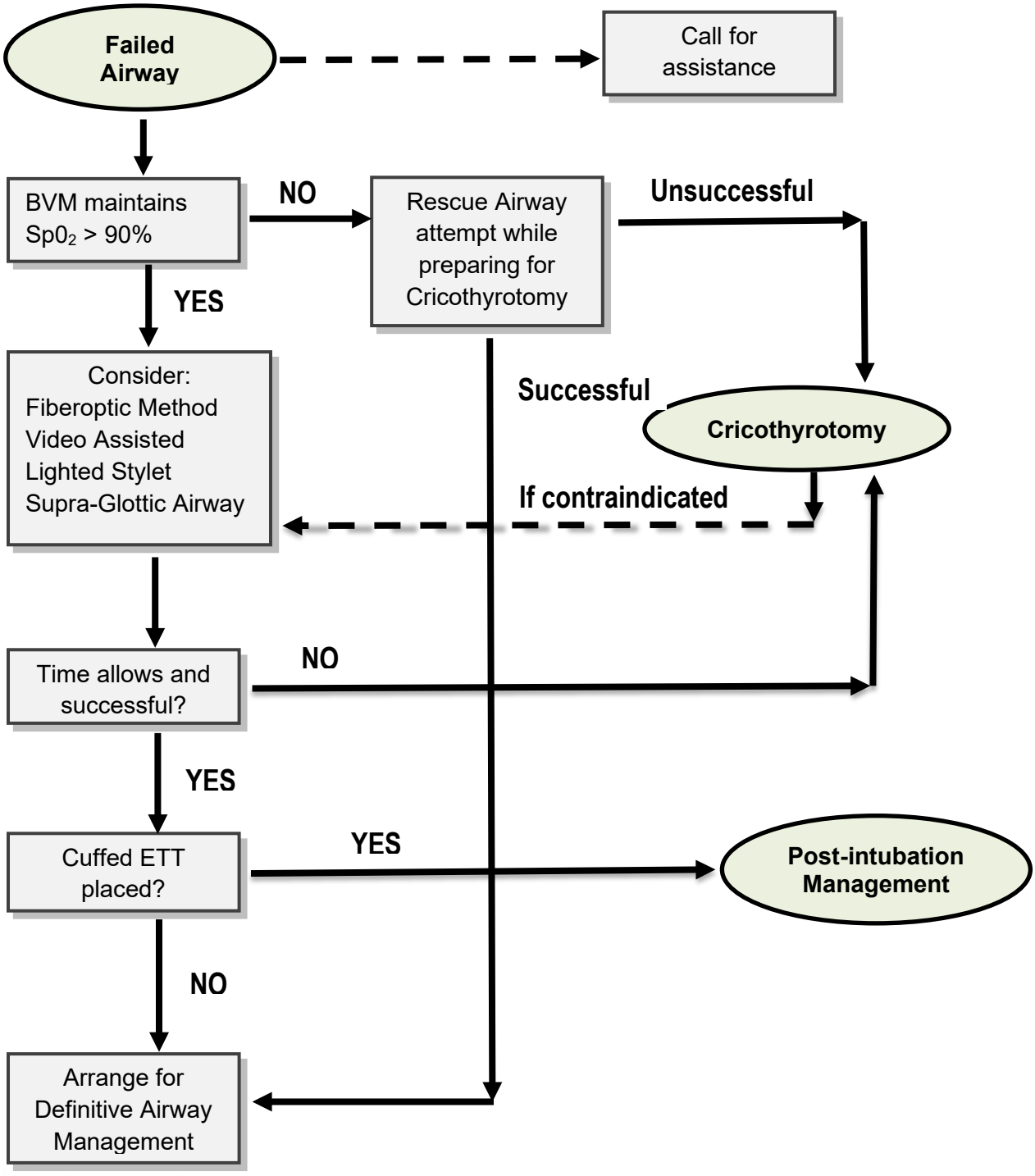
PROTOCOL TITLE: AIRWAY ALGORITHMS

FAILED AIRWAY ALGORITHM



AIRWAY ALGORITHMS

April 4, 2022

Kevin Hodges, M.D
Medical Program Director
Adams, Benton, Franklin and Yakima Counties

Date

PROTOCOL TITLE: OPEN CRICOTHYROTOMY

ALS personnel should be trained in this procedure prior to performing this procedure.

ADVANCED PROCEDURE

OPEN CRICOTHYROTOMY

III. ALS

INDICATION

Life-threatening upper airway obstructions where other non-invasive or manual measures have failed to establish an airway and attempts at ventilation have failed and tracheal intubation is not feasible or has failed.

NOT TO BE USED IN PEDIATRIC MANAGEMENT.

PROCEDURE

1. Decision made to perform surgical cricothyrotomy based on failed airway.

    a. Elevate head of bed to 30 degrees, protect cervical spine, as indicated.
    b. Identify the cricothyroid membrane in the midline between the thyroid and cricoid cartilage. Consider marking site or do not take finger from site after locating.
    c. Prep with iodine soap or equivalent.
    d. Manually stabilize the cricothyroid cartilage with thumb and index finger.
    e. Make a vertical skin incision approximately 2.5 cm in length over the lower one-half of the cricothyroid membrane and expose the membrane.
    f. Make a horizontal incision through the cricothyroid membrane.
    g. Insert a Bougie, your finger, or Trousseau Dilator into the incision to maintain control of the stoma, dilating the hole with your finger, Trousseau Dilator or tracheal hook.
    h. Insert an appropriately sized, cuffed ET tube or tracheostomy tube into the cricothyroid membrane incision. Direct the tube caudally into the trachea. Inflate the cuff and ventilate the patient.
    i. Secure the ET tube.
    j. Control local bleeding with direct pressure.
    k. Rapid transport.

OPEN CRICOTHYROTOMY

Kevin Hodges, M.D
Medical Program Director
Benton-Franklin Counties

April 4, 2022
Date

PROTOCOL TITLE: PEDIATRIC NEEDLE CRICOTHYROTOMY

ALS personnel should be trained in this procedure prior to performing this procedure.

III. ALS

INDICATIONS

1. Foreign body airway obstruction that cannot be removed by laryngoscopy and Magill forceps, and is not distal to the cricothyroid membrane.
2. Infection (epiglottitis), trauma, angioedema or other conditions that preclude proximal access to the glottic opening.
3. Only to be used in the pediatric patient under 12 years old.
4. Multiple failed attempts at orotracheal intubation by the most skilled provider.
5. Complete inability to ventilate patient using a BVM despite repositioning.
6. A last resort rescue procedure where the alternative is death.

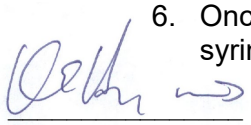
This is considered a temporizing means of rescue oxygenation until a more definitive airway can be placed.

PREPARE THE FOLLOWING IN ADVANCE:

1. 12-14 gauge 1 1/4 inch angiocath.
2. BVM or Transtracheal Jet Ventilation device (TTJV) or similar device with regulator.
3. 10 cc Syringe with 3 cc NaCl.
4. 3.0 ETT with the BVM-ETT attachment piece removed (fits on a 14 gauge angio- catheter).
5. Betadine swabs.

PROCEDURE:

1. Identify the cricothyroid membrane if possible, using the same technique as in adult cricothyrotomy. Place a towel under the shoulders to facilitate hyperextension.
2. Cleanse the area with betadine or equivalent.
3. Immobilize the larynx with thumb and middle finger of non-dominant hand, while the index finger palpates the membrane.
4. Introduce a 14 gauge 1.25 inch angiocatheter attached to a 10 cc syringe with 3 cc of crystalloid through the cricothyroid membrane caudally in the long axis of the trachea at a 30 degree angle to the skin.
5. As the needle enters the trachea pull back on the syringe, and bubbling should be seen indicating successful placement into the trachea. Resistance indicates the catheter is in the tissue.
6. Once in the trachea, the catheter can be advanced and the needle with syringe removed.



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Medical Program Director
Benton-Franklin Counties

April 4, 2022
Date

PEDIATRIC NEEDLE CRICOTHYROTOMY

PROTOCOL TITLE: PEDIATRIC NEEDLE CRICOTHYROTOMY

7. Attach the BVM-ETT adaptor from a 3.0 ETT to the angio catheter.

VENTILATION:

1. Pediatric patient <5 years old:

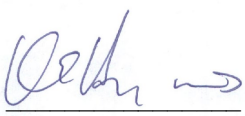
   a. Use of a BVM attached to an oxygen source is adequate, and preferred in the pediatric patient less than 5 years old.
   b. Provide a 0.5 to 1 second burst ventilation with the BVM to overcome resistance.
   c. The I:E ratio for BVM method should be 1:3, and adjusted based on oxygen saturation and $ETCO_2$ readings, and chest rise.

2. Pediatric Patient >5 years old:

   a. A BVM may be used, and should be attempted first, and evaluated for oxygen saturation and chest rise.
   b. Provide a 0.5 to 1 second burst ventilation with the BVM to overcome resistance.
   c. If oxygenation and chest rise is inadequate use TTJV. The pressure should be turned down to 20psi (from the normal 50 psi in the adult) to prevent barotrauma.
   d. The I:E ratio should be 1:3, and adjusted based on oxygen saturation and $ETCO_2$ readings, and chest rise.

Note: If progressive resistance is encountered with bag ventilations, allow for additional expiratory time and consider manually expelling air with gentle bilateral chest compression.

The pressures required to ventilate the pediatric patient through a needle catheter using a BVM will cause the pop-off valve to open. This valve must be occluded to allow flow into the catheter.



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Benton-Franklin Counties

April 4, 2022
Date

PROTOCOL TITLE: PAIN CONTROL

I. BLS

1. **Nitrous Oxide (Nitronox)**

Note: BLS/ILS providers must complete A.B.F.Y. County course before authorized to administer Nitrous Oxide (Nitronox).

2. **Acetaminophen (Tylenol)**, 650-1000mg PO x 1
   Pediatric dose: 15 mg/kg PO

II. ILS

Note: For nausea administer **Zofran** 4-8 mg IV,IO,IM, PO.

III. ALS

When controlling and managing pain, pain medications should be administered in a timely and prudent manner.

1. The use of the following medications are appropriate for pain management in addition to ILS measures:

   a. **Fentanyl Citrate** 50mcg IV/IO/IM (opioid naïve patient), or 100mcg IV/IO/IM (opioid tolerant patient), May repeat dose Q 10 minutes as needed for severe pain to max 3mcg/kg.
   Pediatric dose: 1 mcg/kg IV/IO (Do not exceed adult single dose of 50mcg or 100mcg).

   OR

   Fentanyl Citrate 2mcg/kg intranasal

   b. **Morphine Sulfate**, 2-10 mg IV, IO (opioid naïve patient) or 4-20mg IV/IO (opioid tolerant patient). May repeat Q 10 minutes titrated to effect.
   Pediatric dose: 0.1 - 0.2 mg/kg IV, IO, IM

   c. **Ketorolac (Toradol)**, 15mg IV or 30mg IM. Note: May be drug of choice in renal colic (kidney stone), pelvic pain, and chronic pain.

Note: Intramuscular injections have no role in the treatment of chronic pain.

2. Administration of **Fentanyl** Citrate beyond 3mcg/kg or **Morphine Sulfate** beyond 20 mg requires consultation with medical control.

3. **Ketamine** 15mg IV x 1 may be used in conjunction with above therapies. If utilized it should be given early in therapy.

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April 4, 2022
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PAIN CONTROL

PROTOCOL TITLE: PAIN MANAGEMENT IN SEVERE TRAUMA

PAIN MANAGEMENT IN SEVERE TRAUMA

STANDARD

Management of patients with significant orthopedic or major soft-tissue trauma who require increased pain control and where traditional analgesics will be ineffective/inadequate. In these patients a dissociative agent such as ketamine may be beneficial. This decision should be made early as this dissociative dose is intended to replace, not supplement, the standard pain control protocol.

PURPOSE

Patients with severe trauma and/or abnormal circumstances may need more pain relief than routine patients. **Ketamine** can be used in its dissociative dosing to achieve pain control without the hemodynamic effects and respiratory depression of opiate pain medications.

Ketamine for full dissociation could be beneficial in the following circumstances:

- Severely entangled patients with significant trauma
- Traumatic amputation
- Severe burns
- Severe, multi-system trauma (i.e.: numerous long bone fractures, pelvic fractures, etc.)
- Patients in whom the paramedic feels traditional pain control will be inadequate

REQUIREMENTS

- Mechanism must be an acute traumatic incident, NOT chronic pain or exacerbation of chronic pain
- Clearly objective findings are required; subjective report of extreme pain is not sufficient
- Age > 12 months

PROCEDURE

ADVANCED LIFE SUPPORT ONLY

1. Obtain needed history from patient PRIOR to dissociation.
2. Elevate head of bed.

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April 4, 2022
Date

PROTOCOL TITLE: PAIN MANAGEMENT IN SEVERE TRAUMA

Monitoring Requirements:

- Must be able to monitor patient's airway
- Continuous SaO_2 monitoring
- Continuous $ETCO_2$ monitoring
- 4-Lead ECG

DOSING

1. **Ketamine** 1-2 mg/kg IV or 250-500 mg IM
2. Repeat dose may be necessary if prolonged prehospital time

For pediatric patients:

1. **Ketamine** 1mg/kg IV or 4 mg/kg IM
2. Repeat dose may be necessary if prolonged prehospital time

SIDE EFFECTS / PRECAUTIONS

Patient will be sedated and may not be able to answer questions or follow commands.

Laryngospasm could occur- Assist ventilations and initiate Larson Maneuver to correct

Emergence reactions- Some patients experience agitation, crying, hallucinations, dreams, or altered perceptions when ketamine is wearing off.

In order to mitigate these symptoms:

1. Repeat dose of **Ketamine** OR
2. Add **Versed** 1-5 mg IV/IM

For pediatric patients:

1. Repeat dose of **Ketamine** OR
2. Add **Versed** 0.03 mg/kg IV/IM

CONTRAINDICATIONS

- Age < 12 months
- Non-acute pain/trauma
- Allergy to ketamine
- Known pregnancy
- Unavailability of appropriate monitoring

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April 4, 2022
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PROTOCOL TITLE: PLEURAL DECOMPRESSION

I/II. BLS/ILS

N/A

III. ALS

INDICATION

Tension pneumothorax in a rapidly deteriorating, unstable patient.

PROCEDURE

1. Establish airway.
2. Administer 100% O_2 via NRB mask 10-15 LPM.
3. Follow trauma protocol for chest trauma
4. Decompress chest.
   a. Identify the second intercostal space in midclavicular line on the side of the tension pneumothorax
      OR
   b. 4th or 5th intercostal space in the anterior axillary line
   c. Prep with iodine soap or equivalent.
   d. Attach a #10-#14 gauge over-the-needle catheter to a 35 or 50 mL syringe.
   e. If conscious, place patient in upright or semi-fowler position.
   f. If unconscious the patient may be supine when procedure performed.
   g. Insert needle/catheter into the skin at a 90 degree angle to chest wall directly over the superior aspect of the third rib into the second intercostal space.
   h. Intercostal nerve, artery and vein run beneath the ribs so avoid this area.
   i. Puncture the parietal pleura; a “pop” is usually felt. A rush of air with a rapidly improving patient helps confirm the diagnosis.
   j. Aspirate as much air as possible; if necessary, the syringe can be removed to allow “free flow” of air from the pneumothorax until equilibrium is reached.
   k. Remove the needle, secure the catheter to the skin; apply a flutter-valve, if possible.

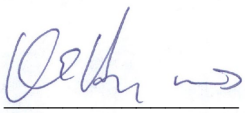
CAUTIONS

1. Understand and review the signs and symptoms of tension pneumothorax.
   a. Hypoxia, respiratory distress, hypotension
   b. Hyperresonance over the affected side
   c. Distended neck veins, tracheal shift away from the affected side is a very late finding and may not be present at all.
   d. Traumatic arrest, significant blunt or penetrating trauma

2. This procedure to be used only in life-threatening situations.

3. Complications include local hematomas, cellulitis, and pneumothorax.

4. This procedure will create a pneumothorax whether one previously existed or not.



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April 4, 2022
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PLEURAL DECOMPRESSION

PROTOCOL TITLE: TRANSCUTANEOUS PACING

I/II. BLS/ILS
N/A

III. ALS

TRANSCUTANEOUS PACING

INDICATIONS

A. Hemodynamically unstable or symptomatic bradycardia. (e.g. hypotension, AMS, angina, pulmonary edema)

B. Type II second degree heart block

C. Third degree heart block

D. Bradycardia with symptomatic ventricular escape rhythms.

PROCEDURE

1. Establish rhythm and baseline vitals.
2. High flow O_2 via NRB mask 10-15 lpm..
3. **Atropine** per bradycardia protocol **C1**.
4. Attach pacing pads, and monitoring electrodes.
5. Turn pacer function “on”
6. Select: demand operation, if stand-alone pacemaker.
7. Adjust ECG gain to sense intrinsic QRS complexes if necessary.
8. Set pacing rate 60-80 bpm.
9. Increase mA incrementally until electrical capture is achieved.
   a. Electrical capture: wide QRS, and broad T- wave after each pacer spike.
   b. Add 2 mA to setting to maintain capture
10. Feel for a pulse, preferably femoral or radial to confirm mechanical capture.
    a. Mechanical capture: Pulse, rise in BP, increase in LOC, improved color/temperature, etc.
11. Document with rhythm strips.

SEDATION

12. If patient is conscious, assess patient comfort, consider sedation as needed.
    a. **Lorazepam (Ativan)**1-2 mg IV
    b. **Midazolam (Versed),** 1-5 mg, may repeat to max 5 mg IV, IO.
13. Pain management per protocol P13.

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Benton-Franklin Counties

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TRANSCUTANEOUS PACING

PROTOCOL TITLE: TRANSCUTANEOUS PACING

DOCUMENTATION

1. Date, time baseline rhythm, pacing rhythm strips.
2. Current (mA) required to capture.
3. Pacing rate and mode selected.
4. Patient response to pacing: electrical/mechanical.
5. Medications used.
6. Date, time pacing terminated.

CONTRAINDICATIONS

A. Asystole as presenting rhythm.

B. Pediatric patient too small for correct application of pacer pads.

C. Severe hypothermia.

D. Patient meeting death in field criteria.

E. Patient with signs of penetrating or blunt trauma.

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April 4, 2022
Date

PROTOCOL TITLE: ISTAT BLOOD CHEMISTRY ANALYSIS

*****Participating agencies only*****

I. Basic Life Support
N/A

II. Intermediate Life Support
N/A

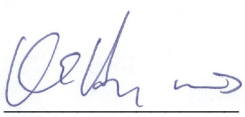
III. Advanced Life Support

Indications

1. iStat blood panels may be drawn and run in lieu of collecting blood specimens for hospital laboratory testing.
2. iStat blood draws should only be performed when an IV is to be started and the patient has consented to being transported to a hospital.
3. iStat values are not to be used to determine if a patient should be transported to a hospital or refuse care.
4. Chem 8 or EC8 panels should be drawn and run for trauma and medical patients anytime an IV is started.
5. EC 8 panels should be drawn and run for any patient with a chief complaint of dyspnea/shortness of breath.
6. Serial EC 8 panels should be drawn for any patient on a ventilator to validate ventilator settings. The venous blood gas values should be used to titrate ventilatory rate, PEEP, and FiO_2 settings.
7. cTnI (Troponin I) panels should be drawn for all patients complaining of chest pain, shortness of breath, or suspected Acute Coronary Syndromes/anginal equivalents.

Precautions

1. Do not delay patient transport to obtain blood chemistry values. The blood draw should occur at the time of the IV start and cartridge testing can be performed en route to the destination hospital.
2. Avoid prolonged torniquet application during venipuncture, potassium values elevate with venous stasis.
3. Avoid having the patient clench and relax their fist in attempting to locate a suitable vein, this may result in erroneously elevated potassium values.
4. If serial blood draws are necessary for trending values, a second IV should be established away from any IV fluid administration sites and used for serial blood draws. Fluid administration will dilute the sample and cause inaccurate values.



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April 4, 2022
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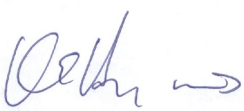
ISTAT BLOOD CHEMISTRY ANALYSIS

PROTOCOL TITLE: ISTAT BLOOD CHEMISTRY ANALYSIS

ISTAT BLOOD CHEMISTRY ANALYSIS

Technique

1. Prepare the venipuncture site as normal for starting an IV.
2. Once the catheter is in place, remove the stylet and attach a 1 mL "Gaslyte" heparin syringe to the catheter hub and draw 1 mL of blood. The syringe must be full in order for the blood/heparin ratio to be correct for blood chemistry analysis purposes. Normal procedures to prevent hemolysis should be followed during the draw. If frothy blood occurs in the syringe, discard the syringe and attempt the draw again with a new syringe.
3. Immediately cap the Gaslyte syringe, connect the IV tubing, and set the appropriate drip rate for the patient's condition. If the blood sample syringe is left uncapped, the values may be inaccurate.
4. Roll the syringe in hand 6 times, invert the syringe and repeat. This creates a homogeneous blood/heparin mixture.
5. If drawing from an established IV saline lock; first take a 10 mL syringe, withdraw 5 mL of blood and discard, then draw 1 mL with the Gaslyte syringe. Flush with 10 mL NS after completing the draw.
6. Chem 8 and EC8 cartridges must be run within 2 minutes of draw for blood chemistry values to be accurate.
7. cTnI cartridges must be run within 30 minutes of draw.
8. To place a blood sample in an iStat cartridge and perform a test:
    a. Roll the Gaslyte syringe in hand 6 times
    b. Invert and roll the syringe again 6 times
    c. Remove the cap, discard 4 drops of blood onto a 4x4 gauze
    d. Add blood sample to cartridge well to the indicated fill line
    e. Close cover over the sample well
    f. Replace the cap on the sample syringe if a second test will be run from the same sample
    g. Place the test cartridge in the analyzer
    h. Allow the test to run for the specified time, print the results and review
9. Significant out of range results should be reported to the Medical Control physician. The Level of Action for cTnI is 0.08 ng/mL
10. A printed copy of all test results should be left with the receiving facility staff. The patient's name must be recorded on the results print out.
11. iStat blood analysis values will be documented in the electronic patient care report (ePCR) and a scanned copy of the iStat results print out shall be attached to the ePCR to meet Medical Testing Site licensing requirements.



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April 4, 2022
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PROTOCOL TITLE: ISTAT BLOOD CHEMISTRY ANALYSIS

Special Notes

Chem 8 Reference Ranges:

	REPORTABLE RANGE	REFERENCE RANGE (ARTERIAL)	REFERENCE RANGE (VENOUS)
Sodium (Na)	100-180 mmol/L (mEq/L)	138-146 mmol/L (mEq/L)	138-146 mmol/L (mEq/L)
Potassium (K)	2.0-9.0 mmol/L (mEq/L)	3.5-4.9 mmol/L (mEq/L)	3.5-4.9 mmol/L (mEq/L)
Chloride (Cl)	65-140 mmol/L (mEq/L)	98-109 mmol/L (mEq/L)	98-109 mmol/L (mEq/L)
TCO_2	5-50 mmol/L (mEq/L)	23-27 mmol/L (mEq/L)	24-29 mmol/L (mEq/L)
Anion Gap*	(-10)-(+99) mmol/L (mEq/L)	10-20 mmol/L (mEq/L)	10-20 mmol/L (mEq/L)
Ionized Calcium (iCa)	0.25-2.50 mmol/L, 1.0-10.0 mg/dL	1.12-1.32 mmol/L, 4.5-5.3 mg/dL	1.12-1.32 mmol/L, 4.5-5.3 mg/dL
Glucose (Glu)	1.1-38.9 mmol/L, 20-700 mg/dL	3.9-5.8 mmol/L, 70-105 mg/dL	3.9-5.8 mmol/L, 70-105 mg/dL
Urea Nitrogen (BUN)/Urea	3-140 mg/dL, 1-50 mmol/L (Urea)	8-26 mg/dL, 2.9-9.4 mmol/L (Urea)	8-26 mg/dL, 2.9-9.4 mmol/L (Urea)
Creatinine (Crea)	0.2-20.0 mg/dL, 8-1768 µmol/L	0.6-1.3 mg/dL, 53-115 µmol/L	0.6-1.3 mg/dL, 53-115 µmol/L
Hematocrit (Hct)	15-75%PCV, 0.15-0.75 Fraction	38-51%PCV, 0.38-0.51 Fraction	38-51%PCV, 0.38-0.51 Fraction
Hemoglobin* (Hgb)	5.1-25.5 g/dL, 51-255 g/L	12-17 g/dL, 120-170 g/L	12-17 g/dL, 120-170 g/L

EC8 Reference Ranges:

REPORTABLE RANGE		REFERENCE RANGE (ARTERIAL)	REFERENCE RANGE (VENOUS)
Sodium (Na)	100-180 mmol/L	138-146 mmol/L	138-146 mmol/L
Potassium (K)	2.0-9.0 mmol/L	3.5-4.9 mmol/L	3.5-4.9 mmol/L
Chloride (Cl)	100-180 mmol/L	138-146 mmol/L	138-146 mmol/L
Anion Gap*	100-180 mmol/L	138-146 mmol/L	138-146 mmol/L
Glucose (Glu)	20-700 mg/dL	70-105 mg/dL	70-105 mg/dL
Urea Nitrogen (BUN)/Urea	100-180 mmol/L	138-146 mmol/L	138-146 mmol/L
Hematocrit (Hct)	15-75%PCV	38-51%PCV	38-51%PCV
Hemoglobin* (Hgb)	5.1-25.5 g/dL	12-17 g/dL	12-17 g/dL
pH	6.5-8.2	7.35-7.45	7.31-7.41
PCO_2	5-130 mmHg	35-45 mmHg	41-51 mmHg
TCO_2*	5-50 mmol/L	23-27 mmol/L	24-29 mmol/L
HCO_3*	1.0-85.0 mmol/L	22-26 mmol/L	23-28 mmol/L
Base Excess (BE)*	(-30)-(+30) mmol/L	(-2)-(+3) mmol/L	(-2)-(+3) mmol/L

cTnI Reference Ranges:

	REPORTABLE RANGE	REFERENCE RANGE (VENOUS)
Cardiac Troponin I (cTnI)	0.00-50.00 ng/mL	0.00-0.08 ng/mL*
		* Represents the 0 to 99% range of results.

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April 4, 2022
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PROTOCOL TITLE: HIGH PERFORMANCE CPR

STANDARD
Improve survival rates for all pre-hospital sudden cardiac arrest patients.

PURPOSE
The High Performance CPR (HPCPR) guideline is built upon a common framework including: clearly identified roles, common terminology, interoperability between agencies, similar equipment, continually practiced skills, and a common goal of increased survival for cardiac arrest patients.

PROCEDURE
Agencies and responders are encouraged to do the best you can with the resources available. Agencies should develop practices to identify how they will fill the HPCPR common roles and how to best utilize their resources to achieve success. Agencies and responders should practice and reinforce their skills on a frequent and regular basis utilizing CPR training equipment capable of providing CPR quality feedback as much as possible.

1. HPCPR COMMON ROLES
   a. Scout / Initial Compressor
   b. AED / Defibrillation / SGA Placement
   c. Time Keeper / Coordinator
   d. IV / Advanced Airway

The common roles are listed in order of priority and should be filled in that order as much as possible and resources allow. It is understood that these rolls may be shared or combined based on the resources available on scene until additional help arrives.

2. SCOUT / INITIAL COMPRESSOR
   a. Responders assuming this role should quickly locate the patient and identify the presence of cardiac arrest. Patients in cardiac arrest will be unconscious and not breathing, or not breathing normally, e.g. agonal respirations, and will not have a pulse. Pulse checks should be achieved in less than 10 seconds.
   b. If possible “Push clothes up” to reveal the chest; otherwise begin compressions on clothing until it can be removed.
   c. Immediately start high quality chest compressions.

      i. Chest compressions should begin where the patient is located. High quality chest compressions include compressions on a hard surface with full recoil, the proper depth and appropriate rate. This may require the patient to be moved once adequate personnel are present to do so safely. Full recoil means the personnel performing the compressions does not lean or place any weight on the patient between compressions. The proper depth for adult compressions is 50 mm or 2 inches. The compression rate is 100-120 per minute. The compressor should count out loud during compressions. Strictly limit

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interruptions. **Do not stop compressions for IV/IO, ETT, or other procedures.**

ii. Any pause in compressions should be limited to <10 seconds in duration.

iii. Mechanical compression devices (Lucas 2, Autopulse, others), may be utilized only in the setting of MPD approved device used according to manufacturer's instructions, and only in the absence of adequate personnel to perform adequate HP-CPR, longer duration of events, or due to safety issues, such as during transport. **The deployment of a mechanical device shall not delay the initiation of chest compressions.** (See Mechanical Devices below)

3. AED / DEFIBRILLATOR OPERATOR

a. The AED / Defibrillator operator should set up and apply the AED/ Defibrillator to the patient as quickly as possible. Do NOT disturb compressor, do not interrupt compressions. Cut or remove the clothes from the patient.

b. Perform a quick look and shock as appropriate:

i. If rhythm is VF/pVT or AED advises "Shock", after delivering the shock, place passive oxygenation with nasal cannula at 15 Lpm.

a. Passive oxygenation may be delivered for up to 6 minutes prior to placement of the SGA and positive pressure ventilations

b. Use a pediatric or low volume BVM for pediatric and adult patients at a ratio of 10:1 (compressions/ventilations) non-synchronized

1. Check with your manufacturer to deliver the appropriate Lpm to achieve 100% FiO2. (Pediatric BVM delivers higher FiO2 at a lower Lpm flow than adult BVM's.)
2. BVM's with PEEP valves set at 5cm/H2O are preferred.

ii. If rhythm is Asystole/PEA, immediately place an SGA (Supraglottic Airway) and deliver appropriate ventilations

a. Use a pediatric or low volume BVM for pediatric and adult patients at a ratio of 10:1 (compressions/ventilations) non-synchronized.

b. Check with your manufacturer to deliver the appropriate Lpm to achieve 100% FiO2. (Pediatric BVM delivers higher.

c. BVM's with PEEP valves set at 5 cm/H2O are preferred.

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PROTOCOL TITLE: HIGH PERFORMANCE CPR

4. TIME KEEPER COORDINATOR

   a. Every effort shall be made to ensure one of the first three rescuers fills the timekeeper role. The Time Keeper / Coordinator starts and monitors the stop watch on scene and communicate the time to all the providers on scene. The Coordinator is responsible to evaluate CPR performance, ensuring the compressor is performing compressions correctly with full recoil, proper depth, and the appropriate rate. The Coordinator is responsible to ensure interruptions to compressions are strictly limited to the 2 minute mark. The Coordinator is also responsible to coordinate compressors and ensure smooth compressor transitions every 2 minutes. **Time Keepers are highly encouraged to use a cardiac arrest flow sheet to track progress through the code.**

   b. The Coordinator calls out the time **BENCHMARKS**.
      i. **"30 Seconds"** – This allows all the providers on scene to keep track of time.
      ii. **"1 minute"** – The half way mark.
      iii. **"1 minute 30 seconds"** – The trigger for the monitor operator to get into position and prepare for charging. At this point the Coordinator solicits or if necessary, designates the next compressor, who should move into position to prepare to take over compressions.
      iv. **"1 minute 45 seconds, Charge The Defibrillator"** – The Monitor operator selects the energy level and charges the monitor, and checks for a pulse during compression to verify pulse, therefore is in position to check for a pulse during rhythm analysis. (Follow AHA/manufacturer prescribed joules settings.)
      v. **"10, 9, 8, 7, 6, 5, 4, 3, 2, 1 – 2 minutes"** – The pivotal moment that requires strict coordination and practice to ensure the absolutely shortest pause as possible, no more than 10 seconds. Rhythm analysis occurs, clearing the patient, and shocking occurs as appropriate. The next compressor is in position immediately begins compressions following the shock or no shock indication.

   c. AED Specific 2 minute Guideline
      i. Do not touch the patient during rhythm analysis. If SHOCK is indicated – Perform 30 compressions while AED is charged and then SHOCK. If NO-SHOCK is indicated check pulse for < 10 seconds and immediately start 2 minutes of CPR if no pulse.

5. IV/AIRWAY

   a. The IV/IO skills are to be completed by the appropriately certified personnel during the 2 minute compression periods. Do not interrupt compressions to complete these procedures. If the first line ACLS

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medication can be administered soon, IV/IO should be given priority over airway.

i. Peripheral IV access with a large bore catheter is preferred.
ii. If unable to obtain IV access, next look to humoral head IO. Only use the tibial IO if no other access is available.

b. Placement of an advanced airway (ETT) is appropriate for longer duration events, after ROSC, or if the GA is not providing adequate airway management.

6. MECHANICAL CHEST COMPRESSION DEVICES (MCD)

a. Follow the manufacturer's instructions regarding appropriate use. MCD's can be utilized for patients older than 12 years old and are appropriate for cardiac arrest of non-traumatic nature.
b. Use of MCD's should not delay or significantly interrupt high quality chest compressions and should be implemented by highly trained and very proficient providers. Agencies and providers who utilize MCD's should be prepared for possible device failure and have the necessary resources available to continue HPCPR without their use.
c. The use of MCD's only replaces the task of HQCC (High Quality Chest Compressions). All other elements of HPCPR shall be accomplished, including pulse checks, ETCO2 monitoring, verification of compression quality, etc.

7. FOLLOW-UP

Following completion of the cardiac arrest incident, providers should complete a thorough and complete patient care report.

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PROTOCOL TITLE: MEDICAL BLOOD DRAWS

STANDARD

Accomplish blood draws in the field that meet Joint Commission standards, which includes labeling of the specimens, to include patient name, DOB, date & time of draw, and phlebotomists name or initials.

PURPOSE

The medical standard for blood draws require certain elements of documentation occur at the time of the blood draw, in the presence of the patient to ensure labs do not get mixed with other patients in the facility, which could lead to deadly reactions or treatments if the incorrect blood is attributed to the wrong patient.

Blood draws accomplished in the field can be very beneficial to the patient and staff in the Emergency Department. Labs drawn in the field can reduce the time to laboratory results as much as 20 – 30 minutes.

The following are patients who could benefit most from labs being drawn in the field:

- Ischemic chest pain
- Stroke patients
- Metabolic imbalances
- Toxicological
- Trauma

PROCEDURE

Paramedics, AEMTs, and EMTs with an IV endorsement shall follow this procedure when performing a blood draw in the field setting. Blood draws should not be accomplished if obtaining the blood draw will delay more critical care required by the patient.

If the provider determines it is appropriate and beneficial to the patient to accomplish the blood draw at the time of intravenous access, the following procedure must be followed.

1. Using as large of a cannula as possible, (preferably 20 ga or larger), slowly and gently draw labs into a 10 – 12 cc syringe. Care should be taken to put the least amount of back pressure on the syringe as possible. Use of a Vacutainer adapter instead of the syringe method is permitted.
2. After the syringe is filled to the 10 cc mark, immediately connect the syringe to an approved blood transfer device for vacutainer filling.
3. Fill blood tubes in the following order and to the appropriate amount. (See table)

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PROTOCOL TITLE: MEDICAL BLOOD DRAWS

Order to be Drawn	Tube Color	Additive	Purpose	Amount	Mix by Inverting
1	Blue	Citrate	Coag Studies	Vacuum	3 – 4 x
2	Gold / Tiger-top / Red	SST	Serum chemistries	Half	5 x
3	(Sage) Green	Lithium Heparin	Point of care troponin/creatinine	To Label Line or at least half-full	8 – 10 x
4	(Light) Green	Lithium Heparin	Chemistry, Drug levels, Troponin	To Label Line	8 – 10 x
5	Purple / Lavender	EDTA	Blood count	To Label Line	8 – 10 x

4. After filling the tubes, gently mix the blood by inverting the tubes 180 degrees, the appropriate number of times for mixing of additive. (See table)

5. Immediately after filling the tubes, the provider who witnessed the blood leaving the draw site and entering the syringe, and witnessed the blood transfer from the syringe into the vacutainer, must initiate labeling and maintain the custody of the blood until the labs are fully labeled.
    a. Using a permanent marker, write the patient name, DOB, time/date of draw and providers name on medically clean zip lock bag.
    b. Place lab specimens in the zip lock bag and seal.
    c. Tape the zip lock bag and lab specimens to the IV bag.
    d. Maintain contact with patient and labs until arriving at the Emergency Department and individual labeling of each vacutainer is accomplished.
        i. It is permissible to use the hospital labels that are created for the patient to identify the patient and time of draw.
        ii. **IMPORTANT**: The person maintaining the custody of the blood specimens must maintain visual contact of the blood specimens until the tubes are individually labeled.
        iii. Blood tubes CANNOT be handed over to ER Staff until the labs are labeled by the EMS person, using the facility labels / stickers.

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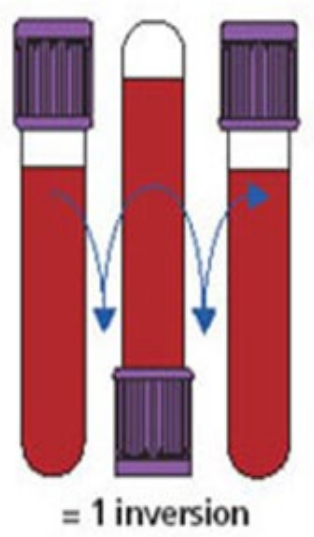
PROTOCOL TITLE: MEDICAL BLOOD DRAWS

1. Prior to labeling the tubes, the provider should verify the patient name and DOB one last time.



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PROTOCOL TITLE: WOUND PACKING OF PENETRATING INJURIES-ADULTS

I./II./III. BLS / ILS / ALS

Wound packing with Combat Gauze - wound packing shall only be done utilizing "Combat Gauze Brand" gauze.

INDICATIONS

1. A penetrating junctional injury (a wound that is in the portion of the extremity unable to be reached by a tourniquet).
2. A penetrating wound to the patient's pelvis or shoulder.
3. An extremity wound uncontrolled by the use of a tourniquet.

CONTRAINDICATIONS

1. Use in the abdominal or chest cavity.
2. Use in place of a tourniquet in a distal injury.

PROCEDURES

1. Attempt to control hemorrhage with tourniquet or direct pressure on wound.
2. Open one end of the Quick Clot package and begin to pull dressing out.
3. Pack wound with two finger method as deep as possible, filling cavity.
4. Use entire package until gauze is packed to the outside of the cavity.
5. If more than one package is needed, a second package can be used, or normal gauze packed on top.
6. If bleeding is not controlled, all gauze should be removed and new gauze applied to the wound again, starting the process over.
7. Continuous pressure over gauze may be needed to facilitate in hemorrhage control.

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PROTOCOL TITLE: EMS MEDICAL ERROR INCIDENT FORM

Standard

In keeping with best practices for self-reporting of patient near misses as they relate to medical errors; EMS providers will self-report these types of incidents to the MPD using the appropriate documentation.

The sole intention of this or any other self-reporting practice is for quality assurance and improvement in the EMS system as a whole.

Exception: Those instances which arise to the level of criminal act, gross negligence, carelessness, or willful and wanton misconduct, as defined within WAC 192-150-205.

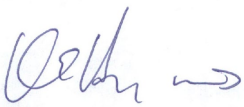
Purpose

1. Studies show that when medical errors occur, be it a medication or procedural error, and the error is quickly reported, patients have better outcomes, higher satisfaction ratings, and are less likely to sue the agency or institution involved.

2. When an EMS provider performs or witnesses a medical error (as defined) it is paramount that the incident be reported in a timely manner, so steps can be taken to reduce the chance of significant concomitant harm to the patient.

> *First, staff must recognize when errors occur. Second, the reporting system must be user-friendly, not difficult or time-consuming. Third, the organization must have a just culture, one that encourages and rewards reporting and focuses not on individual blame and punishment but rather on improving systems and processes. As an organization works to become more safety-oriented by training staff to identify errors and unsafe conditions, and as its senior leadership fosters a just culture, it can expect to see more and more self-reported medication errors.*
>
> Institute for Healthcare Improvement
> http://www.ihi.org/resources/Pages/Measures/NumberofSelfReportedMedicationErrors.aspx

3. A medical error is defined as a preventable adverse effect of care, whether or not it is evident or harmful to the patient. This might include an inaccurate or incomplete diagnosis or treatment of a disease, injury, syndrome, behavior, infection, or other ailment.
    a. For the purposes of Adams, Benton, Franklin and Yakima County EMS, a Medical Error will be defined as follows:
        i. A preventable adverse effect of care, as provided by administration of a medication or procedure, whether or not it is evident or harmful to the patient.



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EMS MEDICAL ERROR INCIDENT FORM

PROTOCOL TITLE: EMS MEDICAL ERROR INCIDENT FORM

ii. Examples:

1. **Wrong medication**; (e.g.: Use of a medication for a condition that is not medically acceptable or prescribed within the BF County Protocols.)
2. **Use of medication where it is contraindicated**; (e.g.: Administration of Cardizem when patient blood pressure is less than 100 SBP.)
3. **Medication overdose or under dose**; (e.g.: Any dosing that is not consistent with the current BF County Protocols)
4. **Wrong medication route** ; (e.g.: Administering a medication via a route that is not consistent or is contraindicated. i.e.: Giving 1:1,000 Epinephrine IV vs IM/SQ)
5. **Failing to administer an appropriate medication without cause**; (e.g.: Not administering Narcan for a patient suffering from an opiate OD.)
6. **Failed or inappropriate use of a procedure without rapid recognition and rapid corrective action**; (e.g.: Unsuccessful Rapid Sequence Intubation, esophageal intubation, cricothyrotomy, needle decompression, chemical restraint, etc.)
7. **Technical errors or omissions during a procedure**; (e.g.: failing to administer an induction agent for a patient with an RSI being performed.)
8. **Failure to recognize the loss or ineffectiveness of a procedure or care**; (e.g.: infiltrated IV site where large bolus of medication or fluid is administered into tissue, failure to recognize a displaced endotracheal tube, etc.)
9. **Any other occurrence where a provider believes an error may have occurred**.

Procedure

1. Paramedics, AEMTs and EMTs must maintain a heightened sense of awareness for medical errors such as medication administration issues and procedural missteps.
2. When an EMS provider realizes a Medical Error has occurred, they will follow these steps:

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PROTOCOL TITLE: EMS MEDICAL ERROR INCIDENT FORM

a. Report the medical error to the ER physician and RN who is receiving the patient at the ER.
    i. If the medical error occurs, with a patient who is not transported to the ER, the EMS provider will notify the MPD at BFCountyMPD@gmail.com as soon as possible after the completion of the call.
b. The EMS provider will fully document the care of the patient in a standard PCR, to include the medical error and any observed effects or absence of effects on the patient due the error. This shall also include any interventions taken to correct or monitor adverse effects.
c. Once back in service and as soon as time permits, the EMS Provider shall complete the Medical Error Form and submit it to his/her agencies EMS Officer for review.
d. After the EMS Officer is satisfied with the documentation provided, the EMS Officer will forward the completed documentation to the MPD's Office for review.
    i. There will be no punitive action taken by the MPD's Office or the Agency in relation to a Medical Error **if the above procedure is followed**.
    ii. If through review of the event, the incident rises to the level of required reporting as defined by the U.D.A (Uniform Disciplinary Act), the incident will be forwarded to the Washington State Department of Health as required by RCW 18.130.

EMS MEDICAL ERROR INCIDENT FORM

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P21

PROTOCOL TITLE: EMS MEDICAL ERROR INCIDENT FORM

South Central Region
MEDICAL ERROR REPORT FORM
For QA/QI Purposes

Each person who played a role in the medical error must complete this document.

Date: Click here to enter a date.	Incident #: Click here to enter text.	Choose an item.
Personnel Involved/Witness	Click here to enter text.	Click here to enter text.
Click here to enter text.	Click here to enter text.	Click here to enter text.
Hospital Patient was Transported to: Choose the appropriate ER destination.		
Doctor whom error was reported to: Click here to enter text.		

Describe the actions and events that led to the medical error/incident. Please reference Protocol P21 for the definition of what constitutes a medical error.

Click here to enter text.

Describe in detail the steps that will be taken to prevent a future medical errors of this nature; process, team interaction, education, training, communication, etc.

Click here to enter text.

Provider Signature

Provider Name (Print/Type)

EMS Officer

Medical Program Director

Complete this form, print, sign and forward to agency EMS Officer. Confidential / QA

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EMS MEDICAL ERROR INCIDENT FORM

PROTOCOL TITLE: PICC LINE ACCESS

I/II BLS/ILS
N/A

III ALS

A PICC line is, by definition and per its acronym, a peripherally inserted central catheter. It is long, slender, small, flexible tube that is inserted into a peripheral vein, typically in the upper arm, and advanced until the catheter tip terminates in a large vein in the chest near the heart to obtain intravenous access. It is similar to other central lines as it terminates into a large vessel near the heart. However, unlike other central lines, its point of entry is from the periphery of the body, the extremities. Typically, the upper arm is the area of choice.

I. Indications:

PICC lines may be accessed when:

1. There is a need for drug or fluid administration and traditional means of venous access are unsuccessful.

2. Patient or patient's caregiver requests use of PICC line

II. Contraindications:

1. Inability to aspirate or infuse through the catheter.

2. Catheter located in any place other than the patient's upper arm.

3. Need for rapid fluid resuscitation.

III. Procedure

1. Use clean gloves and maintain sterility as much as possible.

2. If there is a needleless type port on the distal end of the catheter, perform the following: (see figure 1*)

   a. Scrub the port with an alcohol pad for at least 15 seconds and allow drying for at least 5 seconds.

   b. Attach a 10 ml syringe (without saline) to the port.

   c. Unclamp if necessary (needless port may not have a clamp)

   d. Attempt to aspirate at least 5 ml of blood. Blood should draw freely. If it does not, remove the syringe and DO NOT use the catheter for access.

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e. If blood aspirates freely, remove the 10 ml syringe with blood and discard.

f. Attach a 10 ml syringe with NS and gently flush the line. Never use a smaller syringe and DO NOT use the catheter for access

g. If line flushes, remove the syringe and attach the catheter to the end of the IV tubing and begin infusion of NS> Adjust the rate to the needs of the patient within the limits of the catheter.

h. Administer medications through IV tubing port if indicated.

3. If there is a capped needle-type port on the distal end of the catheter, perform the following: (see figure 2**)

a. Scrub the cap with an alcohol pad for at least 15 seconds and allow to dry for at least 5 seconds.

b. Clamp the catheter tubing using ONLY the existing clamp on the catheter and then remove the cap. **Never allow a central line to be open to air**.

c. Attach a 10 ml syringe on the catheter end.

d. Unclamp the catheter.

e. Attempt to aspirate at least 5 ml of blood. Blood should draw freely. If it does not, re-clamp the line and remove the syringe. DO NOT use the catheter for access.

f. If blood aspirates freely, clamp the catheter again.

g. Remove the 10ml syringe with blood and discard.

h. Attach a 10 ml syringe with isotonic solution.

i. Unclamp and gently flush the line. Never use a smaller syringe. If line does not flush, re-clamp the line and remove the syringe. DO NOT use the catheter for access.

j. If line flushes, re-clamp and remove the syringe.

k. Attach the catheter to the end of the IV tubing.

l. Unclamp the catheter and begin infusion of NS. Adjust the rate according to the needs of the patient within the limits of the catheter.

m. Administer medications through IV tubing port if indicated.

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PROTOCOL TITLE: PICC LINE ACCESS

IV. NOTES & PRECAUTIONS

1. Do not administer medications, flush or aspirate with less than a 10 cc syringe. Smaller size syringes generate too much pressure and can damage the catheter.

2. Do not attempt reinjection of aspirated blood as it may contain clots.

3. The maximum flow rates for a PICC line is 125 ml/hr. for less than size 2.0 French and 250 ml/hr for catheters over 2.0 size French.

4. Keep patient's arm straight to avoid kinking the PICC line and obstructing flow.

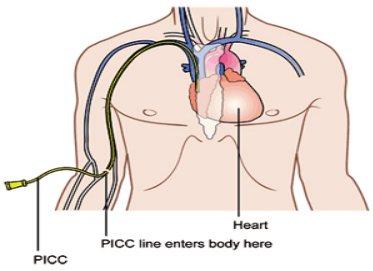
5. Ensure all line connections are secure.

6. PICC lines access the patient's central circulation and the risk of infection is high. Avoid contamination to ports and connections while accessing.

7. Do not administer the following medications through PICC line:

   a. Adenosine – The line may rupture during rapid infusion due to over pressurization.

   b. Dextrose 50% - The catheter can be damaged due to the viscosity of the fluid.



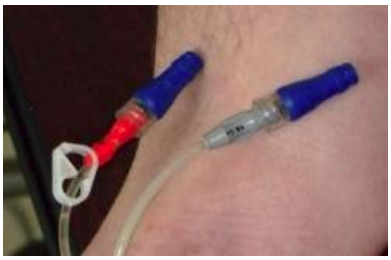


*Figure 1 – Needless port

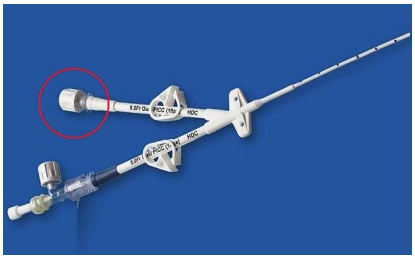


**Figure 2-Needle type port with cap

PICC LINE ACCESS

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PROTOCOL TITLE: SEDATION

Definition: Procedural sedation and analgesia, previously referred to as conscious sedation, is defined as "a technique of administering sedatives or dissociative agents with or without analgesics to induce a state that allows the patient to tolerate unpleasant procedures while maintaining cardiorespiratory function".

III. ADVANCED LIFE SUPPORT

1. Possible Indications:

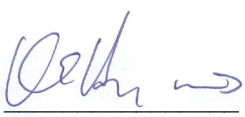
a. Pre-procedural sedation to facilitate painful procedures such as electrical cardioversion
b. Induction for RSI
c. Dramatic examples of severely painful injuries such as large body percentage burns (P14)
d. Chemical restraint to prevent bodily harm to EMS personnel, patients, and/or bystanders due to violent patients in the setting of excited delirium. (M3)

2. Selecting a sedative agent: Your selection may take into consideration route of administration, onset of action, duration of action, patient allergies or prior adverse reactions, and primary indication for sedation.

a. **Benzodiazepines** – Sedative hypnotics creating a sleep-like state with impairment of memory of events following administration: "anterograde amnesia". May have some respiratory and hemodynamic depression, especially when used in combination with other sedatives. Benzodiazepines may be the sedative of choice in the setting of alcohol withdrawal complications such as Delirium Tremens.

i. **Versed** (midazolam) – Short acting benzodiazepine sedative hypnotic. Onset of action 1-2 minutes with peak effect in 5-10 minutes. Duration of action highly variable and may range from 45 minutes to 6 hours.
– Sedative dose 1-5 mg IV. May repeat Q 5 minutes PRN but generally should not exceed 10mg

ii. **Ativan** (lorazepam) – Longer acting benzodiazepine sedative hypnotic. Rapid onset of action when given IV at about 1-2 minutes with significant clinical effect. IM administration is rapidly and predictably absorbed very well at 83-100% of the total dose though therapeutic onset may take 5-10 minutes when given intramuscularly. Duration of action may be 8 hours or more.
– Sedative dose 1-2 mg IV or IM, may repeat Q5 minutes PRN but should generally not exceed 4 mg



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b. **Geodon** (ziprasodone) – Antipsychotic, long-acting. May be drug of choice in a patient with known schizophrenia or other psychotic disorder. Can prolong QT making patient more susceptible to dysrhythmias, especially in conjunction with other QT-prolonging medications such as Zofran (ondansetron). Onset of sedative effects may take 15-30 minutes with 5-12 hours of clinical effect

– Dose is 10-20mg IM only. Due to the QT-prolonging effects of Geodon (ziprasidone) is should NOT be given intravenously.

c. **Ketamine** (Ketalar, others) – Dissociative agent with NMDA blocking and other effects producing a catatonic-like state with anesthesia. Rapidly absorbed and effective IM or IV. Ketamine preserves airway reflexes including the gag reflex. Ketamine has some bronchodilatory effects that may make it the induction agent of choice in the setting of asthma.

- Dose is 250 mg IM / 1-2 mg/kg IV

d. Etomidate (Amidate) – Short-acting general anesthetic. IV only. Onset of action in 45-90 seconds with peak effect in about 2 minutes. Duration of action is variable but may be reliably expected to be 7-11 minutes. Etomidate has very little statistical effect on respiratory and hemodynamic (HR and BP) status so may be the agent of choice for particularly hemodynamically fragile patients. Etomidate is associated with increased mortality in septic patients, thought to be due to induced adrenal insufficiency.

–Dose is 0.3 mg/kg IV

3. Monitoring Requirements

a. All sedated patients are expected to be continuously monitored with:
- **i.** Cardiac monitoring
- **ii.** SaO2 monitoring
- **iii.** ETCO2 monitoring (with wave-form monitoring if available)
- **iv.** Frequent mental status assessments
- **v.** VS reassessment Q 5 min or more frequently

b. When sedating a patient the paramedic should always be ready to provide ABC interventions including, but not restricted to:
- **i.** Supplemental oxygen
- **ii.** BVM ventilation
- **iii.** Intubation or other advanced airway protection and management

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iv. IV fluids for sedative-induced hypotension

Sedated patients are expected to have IV access prior to, or soon after, sedation.

Consider two large-bore IVs to ensure access and ability to rapidly administer IV fluids in the setting of dehydration or hypotension.

Documentation of sedation is expected to include all of the above including specific rationale/indication for the sedation.

Pearls-

- Sedation is potentially hazardous and should never be performed without clear indication, planning, preparation, monitoring, and documentation.
- Risks of sedation increase significantly in the setting of polypharmacy due to other drugs taken or given to the patient (especially sedative medications) including prescription medications, other EMS medications, or illegal/recreational drug use.
    - Use special caution with combination of benzodiazepines and opioid medications.
- Other factors increasing the risks of sedation include advanced age, predicted difficult airways, and comorbid diseases such as underlying heart and lung diseases.

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PROTOCOL TITLE: PORTABLE VENTILATORS

III. ADVANCED LIFE SUPPORT

Indications

1. Inter-facility transport of an intubated patient.
2. Mechanical ventilation of a patient intubated in the pre-hospital setting.

Contraindications

1. Intubated patient with a known pneumothorax without a chest tube in place.
2. Patients less than 20 kg except for inter-facility transfers of ventilated patients.

Adverse Effects/Complications

1. Increased intra-thoracic pressure
2. Decreased venous return to the heart and decrease cardiac output (hypotension, tachycardia)
3. Increased V/Q ratio (ventilation/perfusion ratio)
4. Decreased blood flow to the kidneys with resultant fluid retention (edema)
5. Air trapping and intrinsic PEEP (auto PEEP)
6. Barotrauma
7. Nosocomial infections of the lungs and sinuses
8. Respiratory alkalosis
9. Agitation and increased respiratory distress
10. Increased work of breathing

Procedure

1. **Lung Protection Strategy (all patients except COPD / Emphysema / Asthma)**

    a. Assemble per manufacturer's recommendations and if available set PEEP to 5 cm H_2O
    b. A Heat and Moisture Exchange Filter should be used, if available, to heat inspired air, add moisture, and filter out debris and pathogens. Pre-select, select, or confirm SIMV mode (or equivalent).
    c. Determine patient's height and IBW using chart and select appropriate tidal volume between 6 – 8 ml/kg
    d. Set initial respiratory rate to 18 breaths/minute (this RR will equal and I:E ratio of 1:2 and allows for complete exhalation)
    e. Initially set FiO_2 to 1.0 (100%)
    f. Set inspiratory time (2 seconds for adults, 1 second for pediatrics)
    g. Set pressure support to 10 cm/H_2O if available
    h. Once the patient is intubated and tube placement is confirmed, attach the ventilator circuit and begin ventilation.

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i. Allow the ventilator to operate for 2 minutes, then assess for the following:

i. Plateau Pressure: maintain at less than 30 cmH2O. If Plateau Pressure exceeds 30 cmH_2O, decrease Tidal Volume by 10% every 2 minutes until the target pressure is achieved. If the ventilator alarms "Low Minute Volume" and Plateau Pressure is less than 30 cmH_2O, Tidal Volume may be increased by 10% every 2 minutes until the alarm is satisfied, provided the Plateau Pressure remains below 30 cmH_2O.

ii. EtCO2: Maintain between 35-45 mmHg. If $EtCO_2$ is high, increase respiratory rate every 2 minutes until target is achieved. If $EtCO_2$ is low, decrease respiratory rate every 2 minutes until target is achieved. Use caution in metabolic acidosis and closed head injury patients. (see Special Considerations below)

iii. SpO_2: After 2 minutes, reduce FiO_2 to 0.3 (30%) and monitor, SpO_2 target should be 90-98%. If SpO_2 fall below 90%, increase FiO_2 and PEEP stepwise using the ARDSNET chart below, FiO2 and PEEP should increase and decrease in tandem to achieve targe SpO_2.

2. Obstruction Patients (COPD, Emphysema, Asthma)

a. Assemble per manufacturer's recommendations and if available set PEEP to 5 cm H_2O

b. A Heat and Moisture Exchange Filter should be used to heat inspired air, add moisture, and filter out debris and pathogens. Pre-select, select, or confirm SIMV mode (or equivalent)

c. Determine patient's height and IBW using chart and select appropriate tidal volume starting at 6 mL/kg

d. Set initial respiratory rate to 10 breaths/minute (this RR will equal an I:E ratio of 1:6 and allows for complete exhalation)

e. Initially set FiO_2 to 1.0 (100%)

f. Set inspiratory time (2 seconds for adults, 1 second for pediatrics)

g. Set pressure support to 10 cm/H_2O if available

h. Once the patient is intubated and tube placement is confirmed attach the ventilator circuit and begin ventilation.

i. Allow the ventilator to operate for two minutes then assess for the following:

i. Plateau Pressure: maintain at less than 30 cmH_2O. If Plateau Pressure exceeds 30 cmH_2O, decrease Tidal Volume by 10% every two minutes until the target pressure is achieved.

ii. $EtCO_2$: Air trapping is a primary problem with COPD/Emphysema/Asthma patients. Allowing for complete exhalation is essential. These patients may have elevated $ETCO_2$. Hypercarbia up to 80 mmHg is acceptable for short term transport. Increasing the

respiratory rate to adjust the $EtCO_2$ is ineffective as this will interfere with exhalation an potentially cause barotrauma.

iii. SpO_2: After 2 minutes reduce FiO_2 to 0.3 (30%) and monitor. SpO_2 target should be 90-98%. If SpO_2 falls below 90% increase FiO_2 by 0.1-0.2 (10-20%) every 1-2 minutes to achieve target SpO_2 PEEP should not need to be adjusted above physiologic normal (5 cmH_2O)

3. Monitoring ventilator patients during transport

a. Continuously monitor Plateau Pressure (or Peak Pressure if Plateau Pressure is not available), $EtCO_2$, SpO_2, lung sounds, chest rise and adequacy of sedation

b. Verify BPM rate by counting ventilations delivered for one minute

c. If pressure-limit alarm sounds, immediately reassess equipment and patient for kinked tubing, airway obstruction, tension pneumothorax, etc.

d. Always have BVM device available for use in the event of device failure.

Considerations

- All ventilated patients must be monitored for waveform capnography, pulse oximetry, and ECG monitoring
- Ensure adequate sedation and analgesia throughout the transport
- Patients with suspected metabolic acidosis (diabetic ketoacidosis, sepsis, ASA or TCA poisonings, etc.) that present with $EtCO_2$ less than 32 mmHg should be maintained at their initial $EtCO_2$ value as the patient is compensating for acidosis through increased ventilatory rate
- Maintain SPO_2 level of 94 to 98%. Asthma patient may be permissively allowed to stay in the range of 88-92% to prevent excessing pressures.
- If the high pressure alarm alerts or if the patient is unable to maintain SpO2 values above 90%, remove the ventilator, resume ventilations with BVM with 5 cmH_2O PEEP and 100% O_2, and evaluate for the following:
    1. Displaced tube
    2. Tension pneumothorax
    3. Post intubation hemodynamic collapse
    4. Air trapping in the lungs (Auto PEEP)
    5. ET tube cuff leak
    6. Obstruction of the ET tube
    7. Obstruction of the ventilation circuit
    8. Failure of the oxygen source
    9. Equipment failure.
- If patient has sudden decrease in SpO_2, BP, increase in P-Plat, and/or increase/decrease in HR, evaluate for developing Tension Pneumothorax.
- $EtCO_2$ is notoriously inaccurate in patients with hypovolemia, chest/pulmonary trauma, and closed head injuries. $EtCO_2$ should not be

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used as a target value in these patients. A ventilatory rate of 10-18 breaths per minute in order to maintain an SPO_2 of 90-90% and maintaining a SBP >90 mmHg should be the target goal.

MALES				Patient	FEMALES			
IBW	6ml	7ml	8ml	Height	IBW	6ml	7ml	8ml
22.4	134	157	179	4'0"	17.9	107	125	143
24.7	148	173	198	4'1"	20.2	121	141	162
27	162	189	216	4'2"	22.5	135	158	180
29.3	176	205	234	4'3"	24.8	149	174	198
31.6	190	221	253	4'4"	27.1	163	190	217
33.9	203	237	271	4'5"	29.4	176	206	235
36.2	217	253	290	4'6"	31.7	190	222	254
38.5	231	270	308	4'7"	34	204	238	272
40.8	245	286	326	4'8"	36.3	218	254	290
43.1	259	302	345	4'9"	38.6	232	270	309
45.4	272	318	363	4'10"	40.9	245	286	327
47.7	286	334	382	4'11"	43.2	259	302	346
50	300	350	400	5'0"	45.5	273	319	364
52.3	314	366	418	5'1"	47.8	287	335	382
54.6	328	382	437	5'2"	50.1	301	351	401
56.9	341	398	455	5'3"	52.4	314	367	419
59.2	355	414	474	5'4"	54.7	328	383	438
61.5	369	431	492	5'5"	57	342	399	456
63.8	383	447	510	5'6"	59.3	356	415	474
66.1	397	463	529	5'7"	61.6	370	431	493
68.4	410	479	547	5'8"	63.9	383	447	511
70.7	424	495	566	5'9"	66.2	397	463	530
73	438	511	584	5'10"	68.5	411	480	548
75.3	452	527	602	5'11"	70.8	425	496	566
77.6	466	543	621	6'0"	73.1	439	512	585
79.9	479	559	639	6'1"	75.4	452	528	603
82.2	493	575	658	6'2"	77.7	466	544	622
84.5	507	592	676	6'3"	80	480	560	640
86.8	521	608	694	6'4"	82.3	494	576	658
89.1	535	624	713	6'5"	84.6	508	592	677
91.4	548	640	731	6'6"	86.9	521	608	695
93.7	562	656	750	6'7"	89.2	535	624	714
96	576	672	768	6'8"	91.5	549	641	732

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PROTOCOL TITLE: ISOTONIC (CRYSTALLOID) FLUID BOLUS

I. BASIC LIFE SUPPORT

- N/A

II. INTERMEDIATE LIFE SUPPORT

- Large bore IV(s) with isotonic fluids.
- Unless otherwise specified in the guidelines (i.e. Burns, hyperglycemia) titrate isotonic IV goal is 30ml/kg (may use ideal body weight instead of actual body weight in obese patients to avoid excessive volume). May titrate to SBP > 90mmHg in trauma patients.
- May repeat bolus x 1 if needed.

- Peds 20ml/kg. Repeat x 2 if needed to max 60ml/kg.

III. ADVANCED LIFE SUPPORT

- If patient is refractory to first 30ml/kg IV fluid bolus may initiate vasopressors. Target to MAP of 65mmHg.
- May repeat bolus x 1 if needed.
- Fluid bolus should not delay aggressive medical interventions and resuscitation in unstable patients.

ISOTONIC FLUID BOLUS

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PROTOCOL TITLE: INTERFACILITY INTRAVENOUS INFUSIONS

The purpose of the protocols in this section is to authorize paramedics to monitor specified intravenous infusions in adult patients during interfacility transports.

Only those paramedics who have successfully completed a training program approved by the county MPD office for the specified medications will be permitted to monitor them during interfacility transports. Training must include the use of mechanical infusion pumps.

Initiation & Maintenance:

1. Patients that are candidates for paramedic transport will have the infusions initiated by the sending facility staff, prehospital personnel will not initiate the infusions.

2. Paramedics are allowed to transport up to two medication infusions and one maintenance fluid. There may not be more than one vasopressor medication infusing.

3. All effort should be made for the medication to be infused by mechanical intravenous infusion pump. If pump failure occurs and cannot be corrected, the paramedic will stop the infusion and notify the transferring hospital.

4. Paramedics may restart an infusion if there is an interruption due to infiltration or accidental disconnection of the IV line, provided that the IV site is patent.

5. Signed transfer orders from the transferring physician must be obtained prior to initiating transport. Transfer orders must certify that the patient is stable for transfer and orders for maintaining the medication during the transport.

Monitoring:

1. The patient shall be placed on cardiac, blood pressure, and pulse oximetry monitors. Vital signs shall be monitored continuously every 15 - 30 minutes unless otherwise specified

2. The infusion dose, rate, and concentration shall be checked by the paramedic to ensure that the medication is administered in compliance with transferring physician's orders.

3. The infusion rate will be maintained as ordered by the transferring physician. In no case will changes be made to the medication drip rate, except to stop the infusion for the reasons specified within these protocols.

All calls involving the transfer of patients with the infusions listed within these protocols shall be reviewed through the ambulance provider's CQI program to determine compliance with policy and transferring physician orders. Reports of audits will be submitted to the county MPD Office when requested.

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PROTOCOL TITLE: INTERFACILITY INTRAVENOUS ACETYLCYSTEINE INFUSIONS

The purpose of this protocol is to authorize paramedics to monitor intravenous acetylcysteine infusions during interfacility transport.

Only those ALS Ambulance providers approved by the county MPD office are permitted to provide the service of monitoring acetylcysteine infusions during interfacility transports from approved hospital(s) within their service area.
General information on acetylcysteine:

a. Acetylcysteine (Mucomyst) is an antioxidant and glutathione inducer used to help prevent or lessen liver damage caused by taking large quantities of acetaminophen. It can also be used as a mucolytic in patients with certain lung conditions.

b. Indications:
    i. Acetaminophen overdose.
    ii. Thins and loosens mucus in lung diseases such as emphysema, bronchitis, cystic fibrosis, pneumonia.

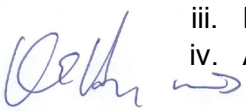
c. Contraindications:
    i. Known hypersensitivity to acetylcysteine

d. Precautions:
    i. May cause bronchospasm in asthmatic patients, monitor asthmatic patients closely and discontinue infusion if bronchospasm occurs, treating symptoms per protocol for asthma.

e. Interactions:
    i. There are several medications that are known to interact with acetylcysteine including:
        - Activated Charcoal
        - Azithromycin
        - Erythromycin
        - Vancomycin

f. Standard dosing for IV infusions:
    i. Loading dose: 150 mg/kg infused over one hour.
    ii. Second dose: 50mg/kg infused over four hours.
    iii. Third dose: 100mg/kg infused over sixteen hours.

g. Indications for discontinuing infusion include but are not limited to:
    i. Infiltration of IV site, may resume infusion through new IV site at same rate.
    ii. Active bleeding
    iii. Mechanical infusion pump failure
    iv. Allergic reaction



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INTERFACILITY INTRAVENOUS ACETYLCYSTEINE INFUSIONS

PROTOCOL TITLE: INTERFACILITY INTRAVENOUS ANTIBIOTIC INFUSIONS

The purpose of this protocol is to authorize paramedics to monitor intravenous antibiotic infusions during interfacility transport.

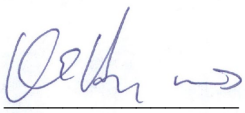
Only those ALS Ambulance providers approved by the county MPD office are permitted to provide the service of monitoring antibiotic infusions during interfacility transports from approved hospital(s) within their service area.

1. General Information on Antibiotics

    a. Beta-Lactams: The beta-lactams include penicillins and cephalosporins. The mode of actions (MOA) of all beta-lactams is to bind to and inactivate enzymes required for bacterial wall synthesis.
        i. Penicillins: Penicillins are used for disease due to gram-positive organisms and some gram-negative cocci. These medications are inexpensive but can cause a life-threatening anaphylactic reaction in those who are allergic.
            1. Examples of Penicillins:penicillin, ampicillin, piperacillin and tazobactam (Zosyn) and ampicillin and sulbactam (Unasyn)
            2. Indications: Bacterial infections such as syphilis, endocarditis, respiratory tract infections, bacterial meningitis, urinary tract infections and gastrointestinal infections.
            3. Dose Range: Dose is influenced by patient weight, but for ampicillin is typically 500 mg every 6 hours. Administered in 10-15 minutes.
            4. Medication interaction: Ampicillin is **incompatible** with D5W, dopamine, diphenhydramine, lorazepam, midazolam, ondansetron, and sodium bicarb.
            5. Side Effects: Nausea, vomiting, diarrhea, and rash.
            6. Reasons to stop infusion: Allergic reaction, infiltration, cardiac arrest

        ii. Cephalosporins: Cephalosporins are used with both gram-positive and gram-negative activity. They typically do not produce an anaphylactic reason, but people can be allergic to it.
            1. Examples: cephalexin (Keflex), cefazolin (Ancef), ceftriaxone (Rocephin)
            2. Indications: Cholecyctitis, urinary tract infection, and cellulitis
            3. Dose Range: ceftriaxone (Rocephin) dose is 1 to 2 Gms IV over 30 minutes
            4. Medication Interaction: ceftriaxone is **incompatible** with amiodarone, diltiazem, morphine, and sodium bicarbonate
            5. Side Effects: pain at injection site, headache, nausea, vomiting, and seizures

INTERFACILITY INTRAVENOUS ANTIBIOTIC INFUSIONS



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6. Reasons to stop infusion: allergic reaction, infiltration, cardiac arrest, seizure.

NOTE: Cross-reactivity of allergic reactions to cephalosporins in patients allergic to PCN is <15%

b. Quinolones: broad-spectrum antibiotics (effective for both Gram-negative and Gram-positive bacteria) that play an important role in treatment of serious bacterial infections, especially hospital-acquired infections and others in which resistance to older antibacterial classes is suspected.
   i. Examples: ciprofloxacin (Cipro), Levaquin, Avelox
   ii. Indications: hospital acquired pneumonia, UTI, pyelonephritis
   iii. Typical Doses: *ciprofloxacin* (Cipro) – 400 mg, *levofloxacin* (Levaquin) – 500 mg, *moxifloxacin* (Avelox) – 400 mg all over 60 minutes
   iv. Medication Interaction: Can cause QT prolongation, use caution with other medications that prolong QT interval
   v. Side Effects: Nausea, diarrhea, abdominal pain, headache, dizziness, tendonitis and tendon rupture
   vi. Reasons to stop infusion: allergic reaction, infiltration, cardiac arrest, pump failure, administration/completion of full dose

c. Sulfonamides: One of a group of drugs derived from sulphanilamide that prevents the growth of bacteria.
   i. Examples: sulfamethoxazole and trimethoprim (Bactrim)(Septra)
   ii. Indications: Severe UTI, Prophylaxis for immunosuppressed, MRSA and other skin infections
   iii. Dose Range: 10-20 mg/kg/24 hours spread over 6, or 12 hours. Administered in 60-90 minutes.
   iv. Medication Interaction: incompatible with diltiazem, lorazepam, magnesium sulfate and morphine
   v. Side Effects: Nausea, vomiting, and rash are most frequent
   vi. Reasons to stop infusion: allergic reaction, infiltration, cardiac arrest, pump failure, administration/completion of full dose. Treat symptoms of nausea and vomiting with ondansetron.

d. Macrolides: Action is primarily bacteriostatic but may be bactericidal at high concentrations, or depending on the type of microorganism.
   i. Examples: azithromycin (Zithromax)
   ii. Indications: Community-acquired pneumonia, Pelvic Inflammatory Disease (P.I.D.)
   iii. Dose Range: 500 mg over at least 1 hour
   iv. Medication Interaction: **Incompatible** with amiodarone and midazolam
   v. Side effects: Usually mild to moderate in severity and reversible after discontinuation – abdominal pain, arrhythmias, cough, dizziness, dyspnea, facial edema, hypotension, injection site pain, rash, and vomiting.
   vi. Reasons to stop: Allergic reaction, infiltration, cardiac arrest

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e. Atypical:
   i. Vancomycin: Vancomycin is primarily used to treat serious infections caused by gram-positive bacteria which are known or suspected to be resistant to other antibiotics.
      1. Example: Vancomycin
      2. Indications: Complicated skin infections, bloodstream infections, endocarditis, bone and joint infections, and meningitis
      3. Dose Range: 7.5 mg/kg up to 500 mg at a rate of 10 mg/min or 60 minutes, whichever is longer
      4. Medication Interaction: **Incompatible** with amiodarone, diltiazem, lorazepam, magnesium sulfate, midazolam, morphine, ondansetron and sodium bicarbonate
      5. Side Effects: Severe hypotension with or without red blotching of the face, neck, chest, and extremities, and cardiac arrest can occur with too-rapid administration. Chills, dizziness, fever, rashes, pain at infection site, anaphylaxis, dyspnea, Stevens-Johnson Syndrome, and wheezing.
      6. Reasons to stop infusion: Allergic reaction, infiltration, cardiac arrest, pump failure, administration/completion of full does. If minor side effects are progressive or any major side effect occur, discontinue the drug

   ii. Flagyl: Works by stopping the growth of bacteria and protozoa
      1. Example: metronidazole (Flagyl)
      2. Indications: Used to treat bacterial infections of the vagina, GI tract, skin, joints, and respiratory tract.
      3. Dose Range: 15 mg/kg over 1 hour
      4. Medication Interaction: **Incompatible** with diltiazem, dopamine, lorazepam, magnesium sulfate, methylprednisolone, midazolam, morphine, and vasopressin.
      5. Side Effects: Most serious include – aseptic meningitis, encephalopathy, and optic and peripheral neuropathy. Others include – abdominal cramping, dizziness, dry mouth, epigastric distress, fever, flushing, metallic taste (expected), nausea, rash, seizures and Stevens-Johnson Syndrome.

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PROTOCOL TITLE: INTERFACILITY INTRAVENOUS BLOOD PRODUCT INFUSIONS

The purpose of this protocol is to authorize paramedics to monitor blood product infusions during interfacility transport.

Only those ALS ambulance providers approved by the county MPD office will be permitted to provide the service of monitoring blood product infusions during interfacility transports from approved hospital(s) within their service area.

The following parameters shall apply in all cases where paramedics transport patients with preexisting infusions of blood products:

1. Blood Product Administration:
    a. Signed transfer orders from the transferring physician must be obtained prior to transport. Transfer orders must certify that the patient is stable for transfer and provide orders for number of units to be infused, as well as any parameters for additional units expected to be infused during transport.
    b. The paramedic shall confirm that blood products are within 4 hours from their removal from the blood bank.
    c. Paramedics will verify blood compatibility by performing cross-checks including patient information, blood product type, Rh factor, and expiration date prior to administration.
    d. Additional units may be initiated as infusions complete, as ordered by the transferring physician.
    e. Blood products should only be administered through large bore (18g or greater) IV, central line, or intraosseous needle. Smaller bore is acceptable in children or if approved by physician.
    f. Blood product infusions should only be administered through blood-specific tubing with an in-line filter, primed with normal saline. Associated fluid must be normal saline, blood products must not be infused alongside Lactated Ringers.
    g. Blood products may be infused via infusion pump, provided the pump is has been tested and approved as safe for use with the product being infused.
    h. No medication shall be administered through the same line as blood products.

2. Patient Monitoring:
    a. Baseline vital signs, including an initial temperature reading will be obtained, as close to the initiation of the infusion as possible.
    b. A follow-up temperature will be obtained 15 minutes later, with the infusion being discontinued if the patient reaches a temperature of >38C or an increase of 1C above the starting temperature. This process should be repeated for each additional unit administered.
    c. Vital signs shall be monitored and documented at a minimum of every 5-15 minutes while blood products are being infused.

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d. If signs of a transfusion reaction develop, (fever, chills, hives, dyspnea, pain at the transfusion site) the transfusion should be immediately discontinued.

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PROTOCOL TITLE: INTERFACILITY INTRAVENOUS HEPARIN INFUSIONS

The purpose of this protocol is to authorize paramedics to monitor intravenous heparin infusions during interfacility transport.

Only those ALS ambulance providers approved by the county MPD office will be permitted to provide the service of monitoring heparin infusions during interfacility transports from approved hospital(s) within their service area.

1. General Information on Heparin:

    a. Heparin is an anticoagulant which acts to: prevent the conversion of fibrinogen to fibrin, prevent the conversion of prothrombin to thrombin, inactivate Factor X and enhance the inhibitory effects of antithrombin III.

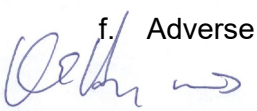
    b. Pharmocokinetics:
        i. SC: Onset 20-60 minutes; duration 8-12 hours
        ii. IV: Onset immediate; peak 5 minutes; duration 2-6 hours
        iii. Metabolized in the liver and the reticuloendothelial system
        iv. Excreted in urine
        v. Half-life of 1.5 hours.

    c. Indications for the use of Heparin:
        i. In preventing additional clot formation or growth in DVT, MI, Pulmonary embolism, DIC, stroke or arterial thrombosis
        ii. Prophylactically to keep IV lines open (i.e. heparin flushes and locks);
        iii. Prophylactically before open heart surgery
        iv. Post DVT, PE and MI to prevent clotting
        v. Atrial fibrillation to prevent embolization
        vi. As an anticoagulant in transfusion and dialysis

    d. Contraindications:
        i. Allergy to heparin
        ii. Bleeding disorders – hemophilia, etc.
        iii. Blood dyscrasias such as leukemia with bleeding
        iv. Peptic ulcer disease
        v. Severe hypertension
        vi. Severe hepatic disease
        vii. Subacute bacterial endocarditis
        viii. Active bleeding from any site.

    e. Precautions:
        i. Pregnancy (class C);
        ii. Alcoholism (due to decreased liver function)
        iii. Elderly (due to decrease liver and renal function and increased injury capability).
        iv. Severe renal disease

    f. Adverse Effects:



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i. Hemorrhage from any site. May manifest as easy bruising, petechiae, epistaxis, bleeding gums, hemoptysis, hematuria, melena
ii. Fever, chills (due to allergy)
iii. Abdominal cramps, nausea, vomiting, diarrhea (due to allergy)
iv. Anorexia (secondary to above)
v. Rash, uticaria (due to allergy)

g. Interactions:
   i. Oral anticoagulants warfarin (Coumadin) – increase the actions of heparin
   ii. Salicylates (aspirin) – increase the actions of heparin
   iii. Corticosteriods – increase the actions of heparin
   iv. Corticosteriods – actions are decreased by heparin
   v. Dextran – increase the action of heparin
   vi. Nonsteriodan anti-inflammatory drugs ibuprofen, naproxen (Aleve, Naprosyn) (Midol), *ketorolac (*Toradol), piroxicam (Feldene), indomethacin (Indocin) – increase the actions of heparin
   vii. Diazepam – action increase by heparin

h. Standard Dosages and Routes:
   i. Paramedics may not transport heparin infusions if dose exceeds 2000 units per hour.
   ii. DVT/PE prophylaxis: 5,000 units subcutaneous every 8-12 hours
   iii. Active clot suppression:
      1. Loading Dose (1) Adult: 5000 -7000 units IVP. (2) Child: 50-100 units/kg IVP.
      2. Maintenance (1) Adult: 1000-2000 units per hour IV titrated to a PTT level. (2) Child 15-25 units per hour IV titrated to a PTT level.

i. Special Considerations:
   i. Avoid IM infections of other procedures, which may cause bleeding.
   ii. Overdoses are treated in hospital with protamine sulfate 1:1 solution (protamine is not authorized for paramedic use.)

j. Indications for discontinuing infusion include but are not limited to:
   i. Infiltration of IV site, may resume infusion through new IV site at same rate.
   ii. Active bleeding
   iii. Mechanical infusion pump failure
   iv. Allergic reaction

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PROTOCOL TITLE: INTERFACILITY INTRAVENOUS INSULIN INFUSIONS

The purpose of this protocol is to authorize paramedics to monitor intravenous insulin infusions in **adult** patients during interfacility transport.

Only those ALS ambulance providers approved by the county MPD office will be permitted to provide the service of monitoring insulin infusions during interfacility transports from approved hospital(s) within their service area.

1. Insulin Infusions:
    a. Blood Sugar shall be checked at a minimum of twice per transport – once when assuming patient care as well as just prior to arrival at receiving facility. Additional blood-sugar readings should be obtained at least once per hour.

    b. Insulin infusion concentrations are generally 1 unit per 1ml, confirm any variations with sending healthcare personnel.

2. General Information on Insulin:

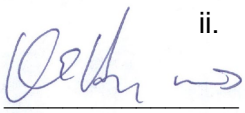
    a. Hypoglycemia is associated with worse outcomes than hyperglycemia. The danger of both hyperglycemia and hypoglycemia is related to the level and duration of the glucose abnormality. The aim is to reduce such glucose variability. Important considerations include allowing 6-8 hours to safely lower glucose to target, reducing the risk of hypoglycemia, accounting for patient insulin sensitivity and resistance. Hyperglycemia may result from stress, infection, steroid therapy, decreased physical activity, discontinuation of outpatient regimens, and nutrition.

    b. Pharmacokinetics:
        i. Onset 5-10 minutes
        ii. Half-life of 5-10 minutes

    c. Indications for the use of Insulin:
        i. Hyperglycemia >200mg/dl
        ii. Diabetic Ketoacidosis
        iii. Hyperkalemia

    d. Contraindications:
        i. Hypoglycemia
        ii. Known Hypersensitivity. Bovine / Porcine

    e. Precautions:
        i. Hypoglycemia
        ii. Hypokalemia



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INTERFACILITY INTRAVENOUS INSULIN INFUSIONS

iii. Due to unpredictable sugar metabolism and uptake, patients on an insulin drip should be NPO

f. Adverse Effects:
   i. Headache
   ii. Nausea
   iii. Rhinitis
   iv. Diarrhea
   v. Local allergic reaction

g. Standard Dosages for Insulin drips:
   i. Continuous IV Infusion: Insulin infusions are generally set up with a concentration of 1 unit per 1ml, confirm and variations with sending healthcare personnel. Insulin should be administered at rate dictated by sending physician and is typically 0.1 units/kg/hr.

h. Stoppage of drip / medication
   i. If complications develop, consult online medical control and notify receiving facility of change in condition – if hypoglycemia develops, do not discontinue infusion, instead administer 25g D50 and initiate D5drip at 150-250ml/hr.

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PROTOCOL TITLE: INTERFACILITY INTRAVENOUS NITROGLYCERIN INFUSIONS

The purpose of this protocol is to authorize paramedics to monitor intravenous nitroglycerin infusions during interfacility transport.
Only those ALS ambulance providers approved by the county MPD office will be permitted to provide the service of monitoring nitroglycerin infusions during interfacility transports from approved hospital(s) within their service area.

1. Nitroglycerin (Tridil) Infusions:
    a. Infusion fluid shall be D5W or NS
    b. Nitroglycerin infusion concentration shall be 25 mg/250 ml or 50 mg/250ml.
    c. In cases hypotension (SBP < 90), the medication drip will be discontinued, and the transferring hospital and base hospital will be notified.

2. General Information on Nitroglycerin
    a. Nitroglycerin is a vasodilating agent that belongs to a group of drugs referred to as nitrates. Nitroglycerin acts to: relax vascular smooth muscle; vasodilate both arteries and veins (especially veins); increase venous pooling; decrease venous return to the heart; increase arterial relaxation; decrease systemic vascular resistance; decrease cardiac workload; decrease cardiac oxygen consumption; dilate the large epicardial arteries; and lower diastolic more than systolic blood pressure.

    b. Pharmacokinetics:
        i. SL: Onset 1 - 3 minutes; duration 30 minutes
        ii. Transdermal (patch): Onset 0.5 - 1 hour; duration 12 - 24 hours
        iii. Transdermal (ointment): Onset 0.5 - 1 hour; duration 2 - 12 hours
        iv. PO (sustained release): Onset 20 - 40 minutes; duration 3 - 8 hours
        v. IV: Onset usually immediate; duration is variable
        vi. Metabolized by the liver
        vii. Excreted in urine
        viii. Half-life of 1 - 4 minutes.

    c. Indications for the use Nitroglycerin:
        i. Sublingual:
            1. Relief of acute anginal pain or related ischemic symptoms
            2. Congestive Heart Failure (CHF) to decrease preload, reducing myocardial workload.

        ii. Intravenous:
            1. Diagnosed MI or unstable angina pectoris, even in the absence of chest pain, to decrease
            2. Relief of persistent ischemic chest pain that does not respond to other medications;
            3. Hypertension when associated with diagnosed MI of unstable angina pectoris (not used solely for blood pressure control).
            4. Congestive Heart Failure (CHF) to decrease preload, reducing myocardial workload.

    d. Contraindications:

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i. Allergy to nitrates;
ii. Increased intracerebral pressure such as in cases of stroke, head trauma or intracerebral bleeding;
iii. Hypotension;
iv. Hypovolemia;
v. Treatment of hypertension without progressively worsening signs of organ damage, ischemia or neurologic deficit.

e. Precautions:
i. Pregnancy (class C);
ii. Glaucoma patients (can increase intraocular pressure);
iii. Lactation (fetal effects in animal studies);
iv. May require decreased dosing in patients with liver disease.
v. Patient taking erectile dysfunction medications (e.g. Cialis, Viagra)

f. Adverse Effects:
i. Hypotension;
ii. Headache (from vasodilation);
iii. Dizziness and syncope (from hypotension)
iv. Nausea / Vomiting;
v. Tachycardia (in response to hypotension);
vi. Paradoxical bradycardia (in rare instances);
vii. Pallor, sweating (from hypotension);
viii. Flushing, sweating (from vasodilation);
ix. Rash, if allergic to nitrates.

g. Interactions:
i. Alcohol – combined with nitroglycerin can worsen hypotension;
ii. Aspirin – can increase serum nitrate concentrations;
iii. Calcium channel blockers – combined with nitroglycerin can worsen orthostatic hypotension;
iv. B-blockers, diuretics, anti-hypertensives – can increase actions of nitroglycerin.

h. Standard Dosages for nitroglycerin drips:
i. For diagnosed patients with ischemic symptoms:
1. Continuous IV Infusion: Starting 10 - 20 mcg/min and increased by 5 or 10 mcg/min every 5 -10 minutes until the desired hemodynamic or clinical response is achieved. Most patients respond to 50 - 200 mcg/min and the lowest possible dose should be used. When indicated, rates should be decreased in 10 minute intervals.

i. Special Considerations:
i. Glass infusion bottles and non-polyvinyl tubing must be used, as plastics will absorb nitroglycerin and alter the dose administered.
ii. Do not use in-line filters.
iii. Attach drip to port closest to catheter insertion.

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PROTOCOL TITLE: INTERFACILITY INTRAVENOUS OCTREOTIDE INFUSIONS

The purpose of this protocol is to authorize paramedics to monitor intravenous octreotide infusions during interfacility transport.

Only those ALS ambulance providers approved by the county MPD office will be permitted to provide the service of monitoring octreotide infusions during interfacility transports from approved hospital(s) within their service area.

1. General information on Octreotide:

    a. Octreotide is a peptide drug that decreases the secretion of gastroenterohepatic peptides. Octreotide-potent inhibitor of GH, insulin, and glucagon secretion. Also decreases splanchnic blood flow and inhibits release of serotonin, gastrin, vasoactive intestinal peptide.

    b. Indications:
        i. Short bowel syndrome
        ii. GI fistulas
        iii. GI bleeding
        iv. Variceal bleeding
        v. AIDS related diarrhea
        vi. Diarrhea due to chemotherapy

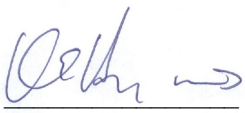
    c. Contraindications:
        i. Known hypersensitivity to acetylcysteine

    d. Precautions:
        i. Use with caution in patients with hepatic disease.

    e. Interactions:
        i. Beta blockers
        ii. Bromocriptine
        iii. Cyclosporine
        iv. Insulin
        v. Oral hypoglycemic agents

    f. Standard dosing for IV infusions:
        i. 25-50 mcg/hr

    g. Indications for discontinuing infusion include but are not limited to:
        i. Infiltration of IV site, may resume infusion through new IV site at same rate.
        ii. Active bleeding
        iii. Mechanical infusion pump failure
        iv. Allergic reaction



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IFT-9

PROTOCOL TITLE: INTERFACILITY INTRAVENOUS PANTOPRAZOLE INFUSIONS

The purpose of this protocol is to authorize paramedics to monitor intravenous pantoprazole infusions during interfacility transport.

Only those ALS ambulance providers approved by the county MPD office will be permitted to provide the service of monitoring pantoprazole infusions during interfacility transports from approved hospital(s) within their service area.

1. Pantoprazole (Protonix) is a proton pump inhibitor that decreases the amount of acid produced in the stomach. Pantoprazole is used to treat erosive esophagitis.

    a. Indications:
        i. Peptic ulcer bleeding
        ii. Erosive esophagitis
        iii. Zollinger-Ellison syndrome
        iv. Stress ulcer prophylaxis

    b. Contraindications:
        i. Known hypersensitivity to pantoprazole or similar medations (lansoprazole, omeprazole, Nexium, prevacid, Prilosec)
        ii. Medications containing rilpivirine (Edurant, Complera, Juluca, Odefsey)

    c. Precautions:
        i. May cause new or worsening symptoms of lupus.
        ii. Osteoporosis
        iii. Hypomagnesemia

    d. Interactions:
        i. There are several medications that are known to interact with pantoprazole including:
            - Aspirin
            - Digoxin
            - Furosemide
            - Gentamicin
            - Hydrochlorothiazide
            - Levothyroxine
            - Lovastatin
            - Simvastatin
            - Warfarin

    e. Standard dosing for IV infusions:
        i. 80mg doses, administered at 8 mg/hr.

    f. Indications for discontinuing infusion include but are not limited to:
        i. Infiltration of IV site, may resume infusion through new IV site at same rate.

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ii. Active bleeding
iii. Mechanical infusion pump failure
iv. Allergic reaction

The purpose of this protocol is to authorize paramedics to monitor intravenous nitroglycerin (NTG) infusions in adult patients during interfacility transport.

Only those ALS Ambulance providers approved by the Adams/Benton/Franklin/Yakima County MPD Office are permitted to provide the service of monitoring nitroglycerin infusions during interfacility transports from approved hospital(s) within their service area.

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IFT-10

PROTOCOL TITLE: INTERFACILITY INTRAVENOUS POTASSIUM INFUSIONS

The purpose of this protocol is to authorize paramedics to monitor intravenous potassium infusions during interfacility transport.

Only those ALS ambulance providers approved by the county MPD office will be permitted to provide the service of monitoring potassium infusions during interfacility transports from approved hospital(s) within their service area.

1. Potassium Infusions:
    a. KCl infusion concentration will not exceed 40 mEq / liter administered at a mechanically controlled rate not to exceed 10 mEq / hour through a peripheral line.

    b. If fluid bolus or IV medications are needed, they should be administered through an alternate IV site. If no other site is available, the KCl infusion shall be discontinued and a new IV solution without KCl shall be used as replacement. DO NOT BOLUS FLUIDS CONTAINING KCl.

2. Monitor patient for adverse effects during transport including:
    a. Cardiovascular: Dysrhythmias, cardiac arrest
    b. Respiratory: depression / arrest
    c. Gastrointestinal: nausea / vomiting, diarrhea, abdominal pain
    d. Neurological: paresthesia of extremities, muscular paralysis, confusion
    e. IV infiltration: monitor IV site as infiltration may cause necrosis. If patient complains of burning or irritation at the insertion site, the IV should be checked for patency and the infusion rate slowed or discontinued.

3. General Information on potassium chloride
    a. Potassium is an essential macromineral in human nutrition with a wide range of biochemical and physiological roles. Among other things, it is important in the transmission of nerve impulses, the contraction of cardiac, skeletal and smooth muscle, the production of energy, the synthesis of nucleic acids, the maintenance of intracellular tonicity and the maintenance of normal blood pressure.

    b. Indications for the use potassium chloride
        i. The treatment of potassium depletion in patients with hypokalemia when oral replacement is not feasible.
        ii. Treatment of digitalis intoxication.

    c. Contraindications:
        i. Renal impairment with oliguria or azotemia
        ii. Untreated Addison's Disease
        iii. Hyperadrenalism associated with adrenogenital syndrome
        iv. Extensive tissue breakdown as in severe burns
        v. Adynamia episodica hereditaria
        vi. Hyperkalemia of any etiology

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d. Precautions:
   i. Pregnancy Category C
   ii. Chronic renal disease
   iii. Adrenal insufficiency
   iv. Any other condition which impairs potassium excretion
   v. Potassium should be used with caution in diseases associated with heart block

e. Adverse Effects:
   i. Fever
   ii. Venous thrombosis, infection at injection site
   iii. Extravasation, phlebitis, pain at infection site
   iv. Hypervolemia
   v. Hyperkalemia
   vi. Abdominal Pain
   vii. Nausea / vomiting
   viii. Paresthesias of the extremities
   ix. ECG abnormalities, heart block
   x. Mental confusion
   xi. Hypotension

f. Interactions:
   i. Cardiac arrest can occur with high potassium conditions, such as chronic renal failure, burns, acidosis, dehydration, and potassium sparing diuretic usage such as spironolactone.
   ii. Drug interactions causing elevation of potassium can occur with ACE inhibitors (used to treat high blood pressure) and certain diuretics (aldactone and triamterene)

g. Standard Dosages for Potassium Chloride Infusions:
   i. For serum potassium level >2.5mEq/L
      1. Continuous IV Infusion: 10mEq/hour in a concentration up to 40mEq/L. Max dose of 200mEq/day
   ii. For serum potassium level < 2.0 with electrocardiographic changes and/or muscle paralysis, potassium chloride may be administered at a rate up to 40mEq/hour. (This rate is not approved for EMS personnel).

h. Special Considerations:
   i. Potassium must be diluted prior to administration.
   ii. Administer at a rate not to exceed 10mEq/hour through peripheral line.
   iii. Infusion rate may not exceed 20mEq/hour via central line or MedPort.
   iv. Monitor electrolyte, fluid and acid-base balances

i. Indications for discontinuing infusion include but are not limited to:
   i. Infiltration of IV site, though the paramedic may resume infusion through new IV site at same rate

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ii. Widening QRS
iii. Ventricular dysrhythmias not caused by hypokalemia
iv. Mechanical infusion pump failure
v. Allergic reaction

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PROTOCOL TITLE: DRUG PROFILES CHART

NAME	DOSING	DRUG PROFILE	PROTOCOL
Acetaminophen 	**Adult:** *Pain control:* 650-1000 mg PO x 1. **Peds:** *Febrile Seizure (or) fever >103 degrees:* 20mg/kg Suppository *Pain control:* 15 mg/kg PO	**Indications:** Pain control, Febrile seizure, Fever >103 degrees **Contradictions:** None **SE:** None	M-11 P-13
Adenosine (Adenocard®) Antiarrhythmic 	**Adult:** 6 mg IV, rapidly via proximal IV. Flush with 10mL saline. If no effect in 1-2 minutes, Second dose of 12 mg IV rapidly. May repeat 12 mg bolus. **Peds:** 0.1 mg/kg IV, IO max 6 mg first dose max 12 mg second dose.	**Indications:** PSVT refractory to vagal maneuvers **Contraindications:** 2nd or 3rd degree heart block, sick sinus syndrome, known hypersensitivity **SE:** facial flushing, HA, SOB, dizziness, nausea all self limiting	C-8
Albuterol (Proventil®) Sympathetic agonist B2 selective 	**Adult:** 2.5 mg (0.5ml) diluted in 3 mL 0.9% NaCl via nebulizer mask. **Peds:** 2.5 mg (0.5ml) diluted in 3 mL 0.9% NaCl via nebulizer mask.	**Indications:** Bronchospasm, COPD, Asthma **Contraindications:** Known hypersensitivity **SE:** palpitations, anxiety, dizziness, HTN, arrhythmia chest pain, N/V	M-2 R-1 R-2 R-3
Amidate	See Etomidate	See Etomidate	P-9 P-23

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Amiodarone Antiarrhythmic 	**Adult:** *Pulseless Arrest* : 300 mg IV, IO. May repeat 150 mg IV, IO in 3-5 min. *Wide-Complex Tach. (Stable)*: 150 mg IV over 10-15 min., may repeat 150 mg IV once. *See Drug table for recommendation.* **Peds:** *Refractory V-fib Pulseless V-tach:* 5mg kg IV, IO, bolus may repeat x2 max of 15 mg/kg in 24 hours. *Perfusing arrhythmias supraventricular and ventricular:* 5 mg/kg load IV, IO over 20-60 minutes. may repeat x 2, max dose15 mg/kg in 24 hours. Max single dose 300 mg.	**Indications:** Used in life threatening cardiac arrhythmias such as V-Tach or V-Fib; control of PVC's **Contraindications:** Severe sick sinus syndrome, 2nd and 3rd degree AV block, symptomatic bradycardia, known hypersensitivity **SE:** hypotension, bradycardia	C-6 C-8
Anectine	See Succinycholine	See Succinycholine	P-9 P-10
Aspirin Acetylsalicylic Acid Non-enteric coated Platelet aggregation inhibitor & anti-inflammatory agent 	**Adult:** 324 mg **Peds:** N/A	**Indications:** Chest Pain suggestive of AMI **Contraindications:** Known hypersensitivity, relative contraindication in active ulcer disease, asthma **SE:** Heart burn, wheezing, N/V, prolonged bleeding	C-3

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PROTOCOL TITLE: DRUG PROFILES CHART

Ativan	See Lorazepam	See Lorazepam	M-9 M-10 M-11 P-16 P-23
Atropine Sulfate Anticholinergic, (parasympatholytic) 	**Adult:** *Symptomatic Bradycardia:* 0.5 – 1 mg IV q 3-5 minutes; up to 3 mg *Organophosphate Poisoning:* 1 – 5 g IV q 5 minutes until vital signs improve. **Peds:** *Symptomatic bradycardia:* 0.02 mg/kg, may double the dose for 2nd IV or IO dose. (Minimum dose: 0.1mg) (Maximum dose: Child 1 mg Adolescent 2 mg) *Organophosphate Poisoning:* *0.05 mg/kg in children* until vital signs improve. Pediatric RSI: If bradycardia occurs following intubation attempt, 0.02 mg/kg (minimum of 0.1mg)	**Indications:** Asystole, PEA hemodynamically significant symptomatic bradycardia Organophosphate Poisoning, GB, VX Nerve Agent exposure, Asthma **Pediatrics:** Symptomatic bradycardia unresponsive to oxygenation ventilation and epinephrine. Efficacy in cardiac arrest is unknown, trial dose may be given. **Contraindications:** None in the emergent setting **SE:** Blurry vision, dilated pupils, dry mouth, tachycardia, drowsiness, and confusion	C-1 M-10 P-9 P-16
Atropine/ 2-PAM (MARK 1 Kit) 2-PAM	**Adult:** *GB, VX Nerve Agent Exposure* See Nerve Agent Protocol 2-PAM dose:	**Indications:** Severe organophosphate poisoning as characterized by muscle twitching, respiratory depression, and paralysis	

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Cholinesterase reactivator 	1-2 g in 250-500 ml 0.9% NaCl infused over 30 minutes. **Peds:** 2-PAM dose 20-40 mg/kg by the same method as above.	**Contraindications:** Poisonings other than organophosphates **SE:** Excitement, manic behavior	
Atrovent	See Ipratropium Bromide	See Ipratropium Bromide	R-1 R-2 R-3
Benadryl	See Diphenhydramine	See Diphenhydramine	M-2
Calcium Gluconate Electrolyte 	**Adult:** 1 – 2 g slow IV, repeated as necessary at 10 min intervals. **Peds:** N/A	**Indications:** Treat cardiac toxicity or hyperkalemia, as an antidote for hypermagnesemia. To treat calcium channel blocker and Beta blocker OD **Contraindications:** Ventricular fibrillation; caution in patients on digoxin, renal or cardiac insufficiency, and immobilized patients. **SE:** CNS:-Tingling CV:-hypotension, bradycardia, dysrhythmias, syncope, cardiac arrest Local Reactions:- tissue irritation, burning, cellulitis, soft tissue calcification, necrosis.	C-7 C-11 M-10
Cardizem	See Diltiazem	See Diltiazem	C-8

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Cyanide Kit  	**Adult:** Kit Contains -amyl nitrate for inhalation; break pearls and have victim inhaled. -sodium nitrite solution for IV use; given immediately on establishing IV -sodium thiosulfate for IV use; use alone for mild exposure Amyl nitrate and Sodium nitrite are for severe exposure. Sodium Thiosulfate is for all exposures. **Peds:** Contact Medical Control if cyanide poisoning is suspected	**Indications:** Cyanide Poisoning; Cyanide binds a key cellular enzyme (cytochrome oxydase) causing cellular asphyxia and thus effects virtually all organs in the body. Signs and Symptoms Unconscious noncyanotic, hypotension and bradycardia. Death may be seconds to minutes. Less severe, HA, dyspnea, confusion or seizure and hypotension. A bitter almond flavor may be described. **Contraindications:** None	
Dextrose 50% Nutrient, carbohydrate 	**Adult:** 25 g IV, IO, may repeat with additional 25 g. **Peds:** 0.5 – 1.0 g/kg up to 25 g. <1 year old dilute to 12.5% concentration 1-8 year old dilute to 25% concentration >8 year old 50% concentration	**Indications:** Coma, unconscious unresponsive unknown etiology, hypoglycemia, insulin shock **Contraindications:** None in the emergent setting **SE/complication:** tissue necrosis and phlebitis at injection site.	M-6 M-11 M-12 M-10
Diltiazem (Cardizem®) Calcium Channel Blocker	**Adult:** 0.25 mg/kg IV slow over 2 min. May repeat in 15 min,@ 0.35 mg/kg slow over 2 min. Drip at 5 - 15 mg/HOUR after	**Indications:** To control rapid ventricular rate in A-Fib & A-Flutter., PSVT **Contraindications:** Hypersensitivity, 2nd or 3rd degree Heart Block, Sick Sinus Syndrome, WPW, cardiogenic shock, V-Tach,	C-8

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	bolus to maintain rate control **Peds:** Not FDA Approved	**Caution:** AV Block, CHF, can cause systemic hypotension **SE:** Hypotension (3-4%), dizziness, headache, vomiting (1.5-3%),	
Diphenhydramine (Benadryl®) Antihistamine 	**Adult:** *Allergic reaction:* 25 – 50 mg PO, slow IVP, IO, deep IM *Extra Pyramidal symptoms:* 25 – 50 mg PO, slow IVP, or deep IM **Peds:** *Allergic reaction:* 1 – 2 mg/kg PO, slow IVP, IO, IM	**Indications:** Allergic reactions, Extra pyramidal symptoms **Contraindications:** neonates **SE:** Sedation, confusion,	M-2
Dopamine (Intropin®) Inotrope, sympathomimetic, vasopressor 	**Adult:** *Bradycardia:* 2 – 10 mcg/kg/min **Peds:** Same as adult	**Indications:** Bradycardia refractory to atropine **Contraindications:** Hypovolemic shock in which complete fluid resuscitation has not occurred. **SE:** Ectopic beats, tachycardia, angina, hypotension, headache, dyspnea, N/V.	C-1 M-10
Duoneb (optional) Commercialy prepared mixed solution of 3.0 mg albuterol and 0.5 mg atrovent, yielding 3 ml total fluid volume. 	**Adult:** 3 ml vial of Duoneb placed into a nebulizer. May repeat up to 3 total doses. **Peds:** Same as adult dose.	**Indications:** Bronchospasm associated with COPD, Asthma **Contraindications:** History or known hypersensitivity to atropine or Atrovent	R-1 R-2 R-3

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		SE: Palpitations, tachycardia, arrhythmia, nervousness, HA	
Epinephrine (Adrenalin®) Sympathomimetic	**Adult:** *Allergic reaction:* 0.3 – 0.5 mg 1:1000 IM. *See Epinephrine auto Injector* *Anaphylaxis:* 0.3 – 0.5 mg 1:1000 IM (or) 0.3 – 0.5 mg 1:10,000 IV, IO *Asthma:* 0.3 – 0.5 mg 1:1,000 IM (or) 0.3 – 0.5 mg 1:10,000 IV. *Asthma or anaphylaxis with severe respiratory distress, refractory S&S:* Epi drip 2–15 mcg/min Start at 2 mcg and titrate to effect up to 15 mcg *Cardiac arrest:* 1 mg IV, IO 1: 10,000 q 5 minutes. *Symptomatic Bradycardia* Epi-drip 2 – 10 mcg/min	**Indications:** Allergic reaction Anaphylaxis, Asthma, Cardiac arrest, Bradycardia *Note:* IM route is preferred over SQ. **Contraindications:** Patients with known underlying cardiovascular disease, HTN, pregnancy, tachyarrhythmias **SE:** Palpitations, anxiety, tremors, N/V	C-1 C-6 C-11 M-2 R-1 R-3

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	**Peds:** *Pulseless Arrest and Symptomatic Bradycardia:* 0.01 mg/kg 1:10,000 (0.1 ml/kg) IV, IO q 4 min (or) 0.1 mg/kg (0.1 ml/kg) of 1:1000 ETT. *Allergic reaction:* 0.01 mg/kg 1:1000 IM, SQ (max 0.5 mg) *Anaphylaxis:* 0.01 mg/kg 1:1000 IM, SQ (max 0.5 mg) *Asthma:* *0.01 mg/kg 1:1000 SQ (max 0.5 mg*) *Severe persistent hypotension, severe refractory S&S:* Epi drip 0.1 – 2 mcg/min		
Epinephrine Auto-Injector 	**Adult:** *Allergic Reaction, Anaphylaxis*: 1 auto-injector 0.3 mg. **Peds:** *Allergic reaction; anaphylaxis:* 1 auto-injector 0.15 mg.	**Indications:** severe allergic reaction **Contraindications:** known cardiovascular disease **SE:** Palpitations, anxiety, tremors, N/V	M-2
Etomidate (Amidate)	**Adult:** 0.3 mg/kg IV.	**Indications:** Induction and maintenance of general anesthesia, May be used to decreases ICP	P-9

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Induction agent, non barbiturate hypnotic; lacks analgesic activity. 	**Peds:** Same as adult	and depress cerebral metabolism **Contraindications:** Known hypersensitivity **Cautions:** None if used with paralytic **SE:** None	P-23
Fentanyl Citrate (Sublimaze) Synthetic narcotic 	**Adult:** *Pain Control:* 1 mcg/kg titrated to max of 3 mcg/kg slow IV, IO (or) 2mcg/kg intranasal *AMI chest pain:* 1mcg/kg slow IV, IO titrated to effect (max 3 mcg/kg) RSI: 1 – 3 mcg/kg IV for post-intubation pain control **Peds:** *Pain Control:* 1mcg/kg slow IV, IO	**Indications:** Pain Control, AMI, adjunct to RSI, maintenance of analgesia. **Contraindications:** Known hypersensitivity, shock **SE:** Potentially fatal respiratory depression if not monitored, chest wall rigidity if administered to quickly. May use ideal body weight instead of actual body weight in obese patients	C-3 C-11 T-1 P-9 P-13 P-16
Geodon (Ziprasodone) Antipsychotic 	**Adult:** 10 – 20 mg IM Only. (15 – 30 minute onset time) **Peds:** Not recommended	**Indications:** Antipsychotic, control of agitation **Contraindications:** Known history of QT Prolongation, recent AMI or uncompensated heart failure. **SE:** Somnolence, EPS, tachycardia, orthostatic hypotension **Reconstitution required:**	P-23

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		A. Single-dose vial requires reconstitution prior to administration. 1. Using aseptic technique, withdraw 1.2 mL or Sterile Water 2. Add the Sterile Water for Injection to vial of Geodon for injection. 3. Shake vigorously until drug is dissolved to afford a colorless to pale pink solution, approximately 1 minute. 4. Using a new needle and syringes: a. For 10 mg of Geodon, draw up 0.5 mL of this solution b. For 20 mg of Geodon, draw up 1.0 mL of this solution.	
Glucagon (GlucaGen) hormone 	**Adult:** *Hypoglycemia:* 0.5-1 mg or unit (0.5-1 ml) IM. *Beta Blocker or Calcium Channel blocker OD:* 2 mg IV, may repeat Q 2 min up to 10mg PRN hypotension. *Cardiogenic Shock:* 2.0 mg IV **Peds:** *Hypoglycemia, Beta Blocker OD*	**Indications:** Hypoglycemia with altered mental status in a diabetic, Beta blocker or calcium channel blocker overdose with hypotension, Cardiogenic shock with hypotension refractory to fluid bolus, Hypotension/hypovolemia – unknown etiology **Contraindications:** Known hypersensitivity **SE:** Occasional N/V, rash	C-2 M-6 M-7 M-10

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	Calcium Channel Blocker OD: 0.1 mg/kg IV up to 1 mg.		
Ipratropium Bromide (Atrovent) Anticholinergic, bronchodilator 	**Adult:** 2.5ml per nebulizer mask. May repeat prn q 5 min as needed. Duoneb 3ml mixed in nebulizer may be substituted **Peds:** 2.5ml per nebulizer mask. May repeat prn q 5 min. Duoneb 3ml mixed in nebulizer may be substituted	**Indications:** Bronchospasm associated with COPD, Asthma, allergic reaction chronic bronchitis in adults. **Contraindications:** Known hypersensitivity **SE:** Dizziness, HA, nervousness, palpitations	R-1 R-2 R-3
IV Solutions: Normal Saline (0.9% NaCl) Isotonic solution-volume expander  2.5% Dextrose in Water (D5W) Hypotonic dextrose-containing solution 	**Adult:** *Hypotension:* 30 ml/kg may repeat one time. **Peds:** *Hypotension:* 20 ml/kg may repeat one time. **Adult:** variable **Peds:** variable	**Indications:** Hypotension, maintenance of venous access **Contraindications:** none **SE:** Pulmonary edema, fluid overload **Indications:** IVF of choice for dilution of certain IV drugs **Contraindications:** Should not be used for fluid replacement in Hypovolemic states **SE:** rare in therapeutic dosages	ALL

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Ketamine (Ketalar) Dissociative anesthetic 	**Adult:** *Chemical restraint:* 250 mg IM. May repeat x1 after 5 min if needed. *Pain control:* 15 mg IV early in pain therapy in conjunction with other agents.(age ≥16 only) *Pain management in severe trauma meeting P14 criteria*: 1-2 mg/kg IV (or) 250-500 mg IM *RSI Induction:* 1-2 mg/kg IV, IM **Peds:** 1 mg/kg IV (or) 4 mg/kg IM	**Indications:** Chemical restraint, Pain control, RSI Induction **Contraindications:** Increased intracranial pressure, Head trauma, Use caution with known liver disease or sympathomimetic intoxication (methamphetamines, cocaine) **SE:** Sedation, increased salivation Rare: cardiac arrest	M-3 M-10 C-11 P9 P13 P14 P-23
Ketorolac **(Toradol)** NSAID, Analgesic	**Adult:** 15 mg IV (or) 30 mg IM	**Indications:** Pain control **Contraindications:** Renal disease Major trauma Dehydration Active bleeding, IM dose not for treatment of chronic pain.	P13
Levophed	See Norepinephrine	See Norepinephrine	C-2 C-7 M-7 M-10 M-13

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Lidocaine 2% (Xylocaine®) Antiarrhythmic 	**Adult:** *Cardiac arrest VT/VF:* 1-1.5 mg/kg IV, IO; then repeat at 0.5-0.75 mg/kg q 5-10 minutes. Maximum 3 mg/kg. *Stable VT with pulse:* 0.5-0.75 mg/kg IV/IO. repeat at 1-1.5 mg/kg if needed. Use maintenance drip after conversion. *IO Anesthetic:* 20-50 mg in 1-2.5 ml over 1-2 minutes. *Lidocaine Drip:* After conversion to a pulsed rhythm at >60 bpm, start drip @ 1 – 4 mg/min. **Peds:** 1 mg/kg IV	**Indications:** Cardiac arrest VT/VF, Pulsed ventricular tachycardia, Malignant PVC's, Anesthetic for procedures. **Contraindications:** High degree heart blocks, PVC's in conjunction with bradycardia **SE:** Anxiety, drowsiness, dizziness, confusion, N/V, Convulsions widening of QRS	C6 C-8 P-4
Lorazepam **(Ativan)** Anticonvulsant/sedative	**Adult:** *Actively seizing:* 2 - 4 mg IV, IM, IN *Sedation before cardioversion/pacing* 1 – 2 mg IV, IM, IN *Severe anxiety:* 1 – 2 mg IV, IM, IN *Chest pain in sympathomimetic overdose:*	**Indications:** Active seizure, Status epilepticus, Sedation before cardioversion/pacing, Severe anxiety, Chest pain in sympathomimetic OD. **Contraindications:** Hypersensitivity **SE:** Hypotension, bradycardia, decreased LOC	M-9 M-10 M-11 P-16 P-23

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	1 – 2 mg IV, IM, IN rpt Q 5 minutes to max 4mg. **Peds:** *Seizures-Status epilepticus:* 0.1 mg/kg IV, IM, IN (max 4 mg) *Sedation before cardioversion or pacing:* 0.1 mg/kg IV, IM, IN (max 4 mg)		
Magnesium Sulfate anticonvulsant, antiarrhythmic 	**Adult:** *Seizures 2º eclampsia:* 2 – 4 g IV over 30 minutes, diluted in 50-100 ml crystalloid *Torsades des Pointes:* 2 g diluted in 50 – 100 ml crystalloid SIVP over 5 minutes. *Hypomagnesemia, Refractory VF/VT:* 2 g diluted in 50 – 100 ml crystalloid SIVP over 5 minutes *TCA overdose with widening QRS:* 2 g diluted in 50 – 100 ml crystalloid SIVP over 5 minutes **Peds:** Not indicated	**Indications:** Seizures 2º eclampsia, polymorphic V-Tach, Hypomagnesemia, Refractory VF/VT, TCA overdose with widening QRS **Contraindications:** None in the pre-hospital setting if the indications are present **SE:** Hypotension, flushing, depressed cardiac function, chest pain, circulatory collapse, respiratory paralysis	C-8 M-9 M-10

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Metoclopramide **(Reglan)** Antiemetic 	**Adult:** 5-10 mg IV, IM **Peds:** not indicated	**Indications:** Nausea & vomiting, especially in migraine or pregnancy. **Contraindications:** Hypersensitivity, GI bleed. **Precautions:** May cause EPS. EPS may be prevented or treated with diphenhydramine (Benadryl) 25 mg IV. **SE:** Drowsiness	M-1 M-8
Midazolam (Versed) Sedative/anxiolytic 	**Adult:** *Sedation:* 1-5 mg slow IV, IM, IN, up to 5 mg dose maximum *Seizures:* 1-5 mg IV, IM, IN *Induction agent or post intubation management:* 2.5-5 mg slow IV or IM q 2-3 minutes up to 5 mg. **Peds:** *Sedation or induction:* 0.5-1 mg IV over 2-3 minutes. *Seizures:* 0.1 mg/kg IN 0.5mg-5mg IV or IM	**Indications:** Sedation, seizures, status epilepticus, induction agent, post intubation management to promote amnesia **Contraindications:** Caution --Rapid bolus **SE:** Respiratory depression and arrest, pediatrics can lead to hypotension	C-7 M-3 M-10 M-11 P-9 P-14 P-16 P-23
Morphine Sulfate Narcotic Analgesic	**Adult:** *Pain Control:* 2 – 10 mg IV, IO, IM. Opioid naïve patient	**Indications:** Analgesia, Acute pulmonary edema **Contraindications:** Known hypersensitivity, volume depletion	C-3 T-1 P-13

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	4 – 20 mg IV, IO, IM Opioid tolerant patient. AMI: 2 – 4 mg IV, may repeat q 3-5 min until pain relieved or to total 20 mg given **Peds:** *Pain Control:* 0.1 – 0.2 mg/kg IV, IO, IM	**SE:** Respiratory depression	
Naloxone (Narcan®) Narcotic antagonist 	**BLS** 1mg IN, may repeat once with 1mg in opposite nostril after 5 minutes if no improvement in respiratory status. Naloxone may take 5-10 minutes before full effect is seen with IN administration. **ILS** 0.4-2 mg IV, IM, IN may repeat every 2-3 minutes to a maximum of 10 mg. titrate to respiratory effect. **ALS**: above plus Narcan drip: mix 4 mg naloxone in 500 mL 0.9% NaCl. Start drip at 125 ml/hour may titrate to effect. **Peds:** 0.01 mg/kg x1 IV, IO, IN, may repeat with 0.1 mg/kg.	**Indications:** Opiate overdose, coma **Contraindications:** known hypersensitivity **SE:** Vomiting, withdrawals	M-10 M-12

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Nitroglycerine Tablets **Nitroglycerine Paste** **Nitro Spray** antianginal 	**Adult:** *Nitro tabs:* 0.4 mg SL, may repeat in 3-5 minutes (maximum: 3 doses). *Nitro Spray:* Spray for 0.5 – 1.0 sec. @ 5 min, intervals. Nitropaste: 2 inches applied to chest. **Peds:** Not indicated	**Indications:** Angina, Hypertension, CHF with acute pulmonary edema **Contraindications:** Hypotension, children under 12, taken erectile dysfunction medication within 24 hours (Viagra, Cialis) **SE:** *Hypotension, dizziness, HA*	C-3 C-4 IFT-5
Nitrous Oxide (Nitronox) Analgesic, gas 	**Adult:** Give mask to patient and allow self-administering. **Peds:** Give mask to patient and allow self-administering.	**Indications:** Analgesia/sedation **Contraindications:** Intoxicated patient, head injured patient with AMS, COPD **SE:** HA, dizziness, giddiness, N/V	P-13
Norepinephrine (Levophed) Sympathomimetic, Vasopressor  	**Adult:** Initial Dose: 2 – 4 mcg/min Dosing range 1 – 30 mcg/min. **Peds:** Initial: 0.1 mcg/kg/min Max of 2 mcg/kg/min (Contact Medical Control for use & dosing)	**Indications:** Cardiogenic shock, hypotension, low cardiac output, poor perfusion of vital organs. **Contraindications:** MAOI's & hypersensitivity **S/E:** Headache, dizziness, anxiety, cardiac dysrhythmias including bradycardia, dyspnea.	C-2 C-7 M-7 M-10 M-13
Ondansetron (Zofran) Antiemetic agent	**Adult:** 4-8 mg IV, IO, IM, PO	**Indications:** Prevention or cessation of nausea and vomiting. ** Will not prevent motion sickness	M-1 M-8 P-13 P-23

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	**Peds:** <1 yr 1 mg IV, IO, IM, PO 1-8 yrs 2 mg IV, IO, IM, PO >8 yrs 4 mg IV, IO, IM, PO	**Contraindications:** Allergy to Zofran **SE:** HA, dizziness, diarrhea	
Procainamide (Procanbid) Antidysrhythmic 	**Adult:** 20mg/min IV/IO infusion until one of the following: -Cardioversion -Hypotension -QRS widens >50% -Total of 17mg/kg Maintenance 1-4 mg/min continuous infusion, (Do not exceed 50 mg/min) **Peds:** 5 mg/kg IV/IO infusion over 5 min, (maximum single dose 100 mg)	**Indications:** Stable VT with pulse **Contraindications:** High degree AV block, myasthenia gravis **Precautions:** Use caution with hypotension, AMI, CHF **SE:** Dizziness, hypotension, AV block, VF, flushing	C-8
Racemic Epinephrine (microNEFRIN) Sympathomimetic, bronchodilator 	**Adult:** 0.25-0.5 ml of 2.25% diluted in 3 ml NaCl, nebulized **Peds:** *Croup/Asthma:* Age <6mo: .25 ml of 2.25% diluted in 3 ml NaCl, nebulized. Age >6mo: .25-0.5 ml of 2.25% diluted in 3 ml NaCl nebulized	**Indications:** Asthma, croup, acute bronchospasm, upper respiratory edema with severe dyspnea **Contraindications:** epiglottitis **SE:** Palpitations, anxiety, HA, tachycardia, rebound airway constriction	R-1 R-3 M-2

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Rocuronium Bromide (Zemuron) Non-depolarizing neuromuscular blocker	**Adult:** *Post Intubation Management:* 0.5 mg/kg IV, IO for long term neuromuscular inhibition. May repeat Q20 min. PRN strong muscular activity threatening ETT integrity *RSI Paralytic:* 1mg/kg IV, IO	**Indications:** Prolonged neuromuscular blockade for intubated patients with prolonged transport times or threatened compromise in tube/line integrity. May be used as a first line paralytic if succinylcholine contraindicated. **Contraindications:** None other than hypersensitivity in emergency setting. **Side Effects:** Apnea, rash	P-9
Sodium Bicarbonate ($NaHC0_3$) Alkalinizer 	**Adult:** *Tricyclic antidepressant OD with QRS > .12sec:* 1 mEq/kg slow IVP *ROSC with hyperkalemia*: 1 mEq/kg slow IVP **Peds:** Same as adult dose	**Indications:** Tricyclic antidepressant overdose, ROSC with hyperkalemia. **Contraindications:** Alkalotic states **SE:** *Alkalosis*	C-7 M-10
Solumedrol (methylprednisolone) Synthetic glucocorticoid corticosteroid 	**Adult:** 125 mg IV **Peds:** 1-2 mg/kg IV	**Indications:** Anaphylaxis, Asthma, COPD **Contraindications:** Systemic fungal infections, TB, Cushing disease. **SE:** None in the emergent setting. Sodium and water retention, CHF, HTN, HA, vertigo, hypokalemia, seizures, N/V, dysrhythmias	M2 R-1 R-2 R-3

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Succinylcholine (Anectine®) depolarizing neuromuscular blocker 	**Adult:** 1 – 2 mg/kg IV/IO (onset: 1 minute/recovery: 4 – 6 minutes). **Peds:** **BVM use is the preferred method of ventilation for children < 8 years old.** Intubation should be attempted only if attempts to ventilate with BVM are ineffective **Dosing, Age 1-8 years:** 1 – 2 mg/kg IV/IO. Consult Broselow tape Do not use paralytics if age < 12 months.	**Indications:** Temporary paralysis to facilitate oral intubation **Contraindications:** Hypersensitivity, penetrating eye injuries, narrow angle glaucoma, providers inexperienced with its use and application **SE:** wheezing, respiratory depression, apnea, aspiration, arrhythmia, bradycardia, sinus arrest, hypertension, hypotension, increased intraocular pressure, increased ICP	P-9 P-10
Thiamine (Betalin®) vitamin 	**Adult:** 100 mg IV or IM preferably prior to IV glucose. **Peds:** 25 mg IV or IM (Rarely indicated)	**Indications:** Thiamine deficiency, mental confusion or coma **Contraindications:** None in the emergent setting **SE:** Rare if any	M-6 M-10 M-12
Toradol	See Ketorolac	See Ketorolac	P-13
Tranexamic Acid **(TXA)** Fibrinolysis Inhibitor	**Adult:** Loading Dose: 1 gram in 100 mL crystalloid IV over 10 min. May piggy-back.	**Indications (all four criteria must be met)** 1. Adult trauma patients equal to or greater than 16 years of age.	M-9 T-3

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	Receiving facility must be made aware that TXA was initiated in the field. *Post-partum hemorrhage* (Contact Medical control)	2. Traumatic injury less than 3 hours old. 3. **Hemorrhagic Shock** due to trauma: systolic BP 90mmHg or less: and/or sustained heart rate more than 110 bpm 4. Patient has received 500 ml of crystalloids & other hemorrhagic control measures have been initiated, i.e. direct pressure, etc. **Contraindications**: Patient less than 16 yrs of age Trauma injury more than 3 hours old **Precautions**: 1. Not yet approved for intraosseous (IO) administration 2. TXA should not delay volume resuscitation for appropriate trauma patients 3. Not to be administered through the same line being used for blood products. 4. Once reconstituted, it should be administered within 24 hours. **NOTE**: Use caution if known history of thrombotic disorder (DVT or pulmonary embolus)	
Vasopressin Pressor	**Adult:** IV, IO doses for cardiac arrest: 40 U IV push x 1, may replace the first or	**Indications:** May be used as an alternative pressor to epinephrine in the treatment of adult shock-	C-6

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	second dose of Epinephrine. Insufficient evidence to recommend the endotracheal route. **Peds:** Not indicated	refractory VF (Class IIb), Asystole and PEA. **Contraindications:** None in the emergent setting	
Versed	See Midazolam	See Midazolam	C-7 M-3 M-10 M-11 P-9 P-14 P-16 P-23
Zofran	See Ondansetron	See Ondansetron	M-1 M-8 P-13 P-23

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DRUG	Concentration	Admin. Set	Rate	Dose
Lidocaine-Premixed	4mg/ml	60 gtt secondary	30 gtts/min	2 mg/min
			45 gtts/min	3 mg/min
			60 gtts/min	4 mg/min
Amiodarone **(10 minute bolus)**	*Inject 150 mg Amiodarone in 50 ml of D5W or NaCl*			
	3mg/ml	10 gtt secondary	50 gtts/min	150 mg/10 min
	Alternative Method: *Inject 150 mg Amiodarone into 100 ml of D5W or NaCl*			
	1.5 mg/ml	10 gtt secondary	100 gtts/min	150 mg/10 min
Dopamine-Premixed	1600 mcg/ml	60 gtt secondary	See table below	Renal dose: 2-5 mcg/kg/min
	(400 mg total)			Ionotropic dose: 5-10mcg/kg/min
				Pressor dose: >10 mcg/kg/min
Epinephrine	*Inject 2 mg epi into 500 ml NaCl*			
	4 mcg/ml	60 gtt secondary	See chart below	Adult: 2-10 mcg/min
				Pediatric 0.1-2 mcg/min
Narcan	*Inject 4 mg Narcan into 500 ml NaCl*			
	8 mcg/ml	60 gtt secondary	125 ml/hr (125 drops/min)	1 mg/hr
Diltiazem {Cardizem} **(Maintenance Infusion)**	*100 mg Diltiazem into 100 ml NaCl or D5W*			
	1 mg/ml	60 gtt secondary	5-15 gtts/min	5-15 mg/hr

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Dopamine weight based dosing chart:

mcg/kg/min	Patient weight in kg											
Desired Dose	2.5	5	10	20	30	40	50	60	70	80	90	100
2 mcg	*	*	*	1.5	2	3	4	5	6	7	8	9
5 mcg	*	1	2	4	6	8	9	11	13	15	17	19
10 mcg	1	2	4	8	11	15	19	23	26	30	34	38
15 mcg	1.4	3	6	11	17	23	28	34	39	45	51	56
20 mcg	2	4	8	15	23	30	38	45	53	60	68	75
micro drops per minute or ml/hr												

Epinephrine infusion table:

DOSE mcg/min	ADULT	ADULT	PEDIATRIC
	Mix 1 mg epinephrine in 500 ml NaCl 2mcg/ml concentration	Mix 2 mg epinephrine 500 ml NaCl 4 mcg/ml concentration	Mix 2 mg epinephrine 500 ml NaCl 4 mcg/ml concentration
0.1	**3 gtt/min**	**N/A**	**1.5 gtt/min**
0.25	**7.5 gtt/min**	**N/A**	**3.75 gtt/min**
0.5	**15 gtt/min**	**N/A**	**7.5 gtt/min**
1	**30 gtt/min**	**N/A**	**15 gtt/min**
2	**60 gtt/min**	**30 gtt/min**	**30 gtt/min**
3	**90 gtt/min**	**45 gtt/min**	**N/A**
4	**120 gtt/min**	**60 gtt/min**	**N/A**
5	**N/A**	**75 gtt/min**	**N/A**
6	**N/A**	**90 gtt/min**	**N/A**
7	**N/A**	**105 gtt/min**	**N/A**
8	**N/A**	**120 gtt/min**	**N/A**
9	**N/A**	**135 gtt/min**	**N/A**
10	**N/A**	**150 gtt/min**	**N/A**

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Levophed infusion table:

Desired Dose	2mg/250ml	4mg/250ml
# mcg/min	gtts/min	gtts/min
2	16	8
4	30	15
6	44	22
8	60	30
10	76	38
12	90	45
14	105	53
16	120	60
18	135	68
20	150	75
22	165	83
24	180	90
26	195	98
28	210	105
30	225	113

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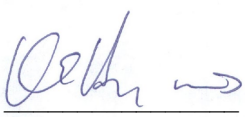

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