ADVANCED LIFE SUPPORT PROTOCOLS

for

Skagit County Emergency Medical Services

Version 3.4

Donald L. Slack, M.D.
Skagit County Medical Program Director

Skagit County ALS Protocols

Receipt for ALS Protocols

TO: Donald L. Slack, M.D.
Skagit County Medical Program Director
c/o Skagit County EMS
2911 E. College Way, Suite C
Mount Vernon, WA 98273-8909

SUBJECT: Advanced Life Support Patient Care Protocols (Version 3.4)

The purpose of this memo is to inform you that I have received Version 3.4 of the Advanced Life Support Patient Care Protocols.

I have reviewed these protocols and will abide by their direction.

_____
Signature

_____
Printed Name

_____
Agency

_____
Date

Skagit County ALS Protocols

Introduction

The following protocols are intended to serve as guidelines to Emergency Medical Services (EMS) certified personnel in the management of prehospital patient care. Medical review and control of protocols is mandatory at the State, regional and local levels. The protocols are not intended to be absolute treatment doctrines, but rather guidelines which have sufficient flexibility to meet the complex challenges faced by the EMS provider in the field.

Authorization for EMS personnel to provide prehospital medical care comes directly from the State appointed Medical Program Director. The MPD delegates daily authorization for prehospital patient care and decision making to the Online Medical Control physician on duty in Skagit County's hospital emergency departments.

All EMS personnel are required to use the protocols appropriate to their certification level and to the licensed level of the agency for which they are responding. Paramedics and EMS personnel with additional Intravenous (IV) or Airway certification shall use the Advanced Life Support (ALS) Protocols.

These protocols shall replace and supersede all ALS Protocols in Skagit County.

Revised: **8/1/14**

_____

Donald L. Slack, M.D.
Skagit County EMS Medical Program Director

Skagit County ALS Protocols

Skagit County Advanced Life Support Protocols

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PARAMEDIC GENERAL ORDERS FOR ALL PATIENTS

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Effective 3/4/05
Revised 6/11/14

1. **Primary Survey**: Perform initially on every patient and repeated every 5 - 10 minutes. CHECK RESPONSES:
    a. Airway - is it patent? Identify and correct existing or potential obstruction.
    b. Breathing - rate and quality. Identify and correct existing or potential compromising factors.
    c. Circulation - Pulse. Rate, quality, and location. Control external bleeding (see Bleeding Protocol in BLS Protocols).
    d. Determine Level of Consciousness.

2. **Secondary Survey:** complete as indicated.
    a. Reassure the patient and keep her/him informed about treatment.
    b. Obtain a brief history from the patient, family and bystanders. Check for medical identification.
    c. Perform a head to toe assessment. Obtain and record vital signs to include pulse, blood pressure, respiration, skin color, and pupils.

3. **Field Treatment:** Treat appropriately in order of priority, refer to specific protocol.

4. **Communications:**
    a. Contact medical control as required- for any questions regarding patient care or any medications/interventions requiring medical control approval. Document any contact with online medical control including name of physician, time of contact and any orders received.
    b. **Initial Report** given to receiving hospital before/during transport will be in the following format which will provide detailed patient information from the Paramedic to Online Medical Control to facilitate quality patient care.
        i. Give oral (radio, telephone, etc.) report to the Charge Nurse or Online Medical Control (MD).
            1. Your name.
            2. Unit number. Example: Med 1, Med 2, Med 13, Med 7 etc. (or identify ambulance service).
            3. Patient name, when HIPAA Guidelines allow.
            4. Patient Date of Birth.
            5. Patient age and gender.
            6. Patient's chief complaint or nature of call.
            7. History of patient's illness, medications, allergy, mechanism of injury, etc.
        ii. Report physical findings and injury sustained; to include:
            1. Vital signs.
            2. Level of consciousness.
            3. Patient's general appearance and findings of physical exam.
            4. Patient's degree of pain.
        iii. Report care given and any patient response to the care.
        iv. BE OPEN TO THE MD OR NURSE ASKING QUESTIONS.
        v. Give ETA (Estimated Time of Arrival).

PARAMEDIC GENERAL ORDERS FOR ALL PATIENTS

(Page 2 of 2)

Effective 3/4/05
Revised 6/11/14

(Continued)

During Transport: Advise MD or Nurse of changes in patient's condition.

C. **Follow-Up Report At The Emergency Department:**
When reporting to the Nurse caring for the patient, give:
   a. Summary of Chief complaint or nature of call.
   b. Summary of information that you gave in your Initial Report.
   c. Any important history you obtained en route that has not been given.
   d. Vital signs assessed during transport and after Initial Report.
   e. Patient response to treatment(s) given en route.
   f. Any other information you may have gathered that was not important enough to report earlier.
   g. It is required to leave a completed approved Short Form.
   h. BE OPEN TO THE MD OR NURSE ASKING QUESTIONS.

D. **DO NOT: Diagnose the patient**. Leave that to the MD.
E. Complete your patient care record (PCR) by the end of your shift or within your agency's requirements.
F. **Clean, service and restock vehicle**.

GENERAL POLICIES

ONLINE MEDICAL CONTROL Revised 06/11/2014

Authorization for EMS personnel to provide prehospital medical care is under the licenses and direction of the State appointed County Medical Program Director. The following protocols are guidelines for pre-hospital personnel under the direction of the Skagit County MPD. The MPD delegates routine online medical control to the ED physicians on duty at Skagit County hospitals. MPD retains discretion to provide online and direct medical control. For Anacortes and the surrounding area, the hospitals for online medical control will be Island or Skagit Valley Hospital, for all other areas, online medical control will be at Skagit Valley or United General Hospital. All contact with online medical control should be documented in PCR as above.

BLS first responders may contact enroute ALS units with a brief patient report and to coordinate care.

CONSECUTIVE SHIFT HOURS Revised 12/15/2011

The maximum recommended length of continuous on-duty hours is 48. For units with higher call volume it is strongly encouraged to limit on duty hours to 24.

SUPPLEMENTAL OXYGEN Revised 05/2011

When supplemental oxygen is supplied, adjust oxygen delivery to maintain oxygen saturations at approximately 95%, unless the patient is a known or suspected CO2 retainer, in which case 90% or greater may be appropriate.

TASER GUN Revised 12/2011

ALS responders are authorized to remove TASER darts from patients at the request of law enforcement, with the following provisions:

All patents will be evaluated for medical issues, including medical causes of altered mental status, agitated delirium and fall related injury. Patients who, in the impression of the treating paramedic require transport to the hospital will be transported with a law-enforcement officer present. Patients who are significantly agitated should be sedated in accordance with sedation protocol and transported for physician evaluation.

Darts in the face, breasts or genitalia will not be removed by EMS. These patients should be transported to the hospital for physician evaluation.

Technique for Taser Dart Removal

Insure that the dart(s) are disconnected from the taser device (cut wires)
Firmly grasp the wire or dart an pull straight out briskly. The dart does have a small barb, and a moderate amount of force may be needed.
Swab the site with alcohol and apply a dressing

TURN AROUND POLICY Revised 05/2011

First responders or law enforcement may cancel incoming EMS units if there is no patient on scene or if individuals on scene are without apparent injury or impaired judgment and decline care.

GENERAL POLICIES

PUBLIC AED Revised 05/2011

EMS units may encounter public access or privately owned defibrillators on scene. Unless it will delay delivery of a shock or cause undue disruption of CPR, EMS units should change from a private defibrillator to an EMS defibrillator at the earliest opportunity.

BLOOD BORN PATHOGEN EXPOSURE Revised 05/2011

All personnel who have experienced a blood or body fluid exposure other than splash to intact skin should be evaluated immediately at an emergency department

PERSONNEL SAFETY ALERTS Effective 3/4/05

1. "Life Safety Alert for this address." Dispatchers will alert all responding agencies when the address given has been previously identified as a potential safety issue for the responder. (i.e. booby traps, and other threatening situations.) When you hear this, you are not to approach the scene until law enforcement has cleared the scene. Skagit 9-1-1 Dispatch maintains a listing of such addresses.

2. Status/Security Checks. You may find it necessary to use Status Codes during certain situations to communicate information in a covert manner or to quickly convey your situation. Status Codes are NOT intended to replace plain English requests for services.
    a. "**Status 1**" = Approach with caution as responders on scene are in a potential life threatening situation and their safety is compromised.
    b. "**Status 2**" = Responder needs "immediate assistance". This is a covert request. (i.e. A potential assault or personal safety risk situation is about to occur.)
    c. "**Status 3**" = Responder needs non-emergent "assistance". Typical plain language is to ask for a second unit or assistance from another unit and a reason is stated.
    d. "**Status 4**" = Everything is OK. No further assistance needed. (i.e. Threatening situation has resolved.)

NON-STOCKED PROTOCOL MEDICATIONS Revised 12/2011

The medication protocols may include some medications that are not carried on the EMS units. In this case, these medications will be provided for administration during patient transfers by the transferring hospital.

NON-PROTOCOL MEDICATION Revised 12/2011

Paramedics may be involved in an interfacility transport of a patient who has an IV running and has already been treated with a medicine not included in these protocols. Should the patient have tolerated the medicine and the transferring physician on-scene advises the paramedic to give an additional dose of the same medicine en route, this is acceptable. The physician should briefly review with the paramedic potential adverse reactions and treatment and provide written orders for the medication. These orders should include dose, route and parameters for administration (i.e. med x, 1mg IV q 15 mins for SPB <90 or med x 1mg/min IV drip, (15cc/hr) stop for SBP>120). As shown above, where the medication is an IV drip, the order should include the dosage expressed both in unit of drug (mg, units heparin, etc) per min or hour AND the corresponding IV infusion rate. A signed order written on a prescription blank or hospital order will be acceptable. This signed original should be added to the PCR.

ADVANCE HEALTH CARE DIRECTIVE

Advance Health Care Directive: Revised 05/2011

A. These documents define the health care wishes of the patient:
    a. Durable Power of Attorney (DPA).
    b. Physician Orders for Life Sustaining Treatment (POLST).
    c. EMS No-CPR.
B. These documents are legally valid in the pre-hospital setting.
C. When these documents are presented, initiate appropriate level of resuscitation.
    a. If the directive indicates no CPR or no advanced life support:
        i. No CPR, intubation, or defibrillation shall be performed.
        ii. Comfort measures may still be initiated including oxygen, intravenous therapy, and medications.
D. If the patient is transported, these documents go with the patient to the ED.
E. When doubt or confusion exists:
    a. Attempt to determine document validity by contacting the patient's personal physician or medical control.
    b. Resuscitation efforts may be stopped or modified with the approval of medical control.
F. Patients or family may revoke the directive at any time.

MEDICAL PROFESSIONALS AT THE SCENE

(Page 1 of 2)

Effective 12/2000 or prior
Amended 12/15/11

1. Responsibility of Prehospital Personnel:

A. Once EMS personnel are dispatched to the scene, they assume legal authority for patient management under the direction of the Online Medical Control Physician stationed in the Emergency Department of the assigned hospital.
B. An EMS personnel's primary responsibility is to the patient.
C. This is a service organization. Be considerate of those who offer help. The majority will have the best intentions. Without their help and support, the whole program would falter.
D. Follow the orders of Online Medical Control, unless the patient's private physician is available or you cannot contact Online Medical Control.
E. SITUATION #1 - Patient's private physician present and assumes responsibility for the patient's care:
    a. The Paramedic should defer to the orders of the private physician.
    b. Contact Online Medical Control, document contact.
    c. Responsibility reverts back to Online Medical Control Physician if private physician is no longer available in person or by phone.

NOTE: For purposes of this policy, whenever there is a prior relationship between a physician and patient, orders from that physician, whether by phone or in person, should be followed as if the patient were in the physician's office. Such would apply, for example, in the patient's home or nursing home if the private physician gives phone orders.

F. SITUATION #2 - Bystander physician present: no Online Medical Control available:
    a. The Paramedic should relinquish responsibility for patient management to the bystander physician who has identified himself/herself and demonstrated willingness to assume responsibility.
    b. Request some form of identification, unless the physician is personally known to you. A current license or membership card in a medical specialty society is acceptable.
    c. Defer to the order of the physician on the scene. Request that the physician agree in advance to accompany the patient to the hospital.
    d. The Paramedic should document bystander physician intervention on the prehospital care record, preferably including physician's name and telephone number.

MEDICAL PROFESSIONALS AT THE SCENE

(Page 2 of 2)

Effective 12/2000 or prior
Amended 3/4/05

(Continued)

G. SITUATION #3 - Bystander physician present; Online Medical Control available.

a. The Online Medical Control Physician is ultimately responsible. If disagreement exists between the bystander physician and the Online Medical Control Physician, the paramedic should take orders from the Online Medical Control Physician and place the bystander physician in telephone contact with the Online Medical Control Physician. The Online Medical Control Physician has the option of managing the case entirely, working with the bystander physician, or allowing him/her to assume responsibility
b. The Paramedic should document bystander physician intervention on the prehospital care record, preferably including physician's name and telephone number.
c. The decision of the bystander physician to accompany the patient to the hospital should be made in consultation with the Online Medical Control Physician.

Should situations arise which conflict directly with your standing orders, consult the Online Medical Control Physician for appropriate response. Under such circumstances, it is preferable to have the Online Medical Control Physician speak directly to the physician at the scene.

H. Document the primary physician's orders and acceptance of responsibility on the MIR.

REFUSAL OF CARE

Revised 6/11/14

1. Competent Adults:

A. Competent adults have the right to refuse medical care in most circumstances. **No one can refuse medical care for life threatening conditions for a minor or an incompetent adult.**

B. Attempt to convince the person of the need for medical care including consequences for not seeking care. Solicit assistance from friends and family.

C. Contact Online Medical Control and inform the patient of the physician's recommendation for treatment.

D. Complete the Skagit County EMS Supplemental Report for Patient Non-Transport form on any patient refusing recommended medical care. Document all of the facts on the EMS Medical Incident Report (MIR) form

E. If desired, hand out the Skagit County EMS Patient Aftercare Instruction Guidelines for Transport Refusals.

2. Incapacitated Adults:

A. **Patient Refusals:** A patient refusal occurs when the patient indicates that they do not want to be transported, or receive emergency medical services. As long as the patient has capacity to make decisions regarding medical care, the wishes of the patient will be respected. No one can refuse medical care for a minor or an incapacitated adult for a life-threatening condition. If the EMS provider evaluating the patient feels that refusal of care/transport is associated with risk to the patient, then efforts should be directed at identifying the patients' or surrogates reason for refusing care and addressing them if possible. OLMC may be contacted to assist in evaluating the situation and persuading the patient to accept care/transport. If the medic/EMT is uncertain of the patient's competence or the safety of non-transport, or if the patient is refusing care but is not competent to do so, then OLMC should be contacted. Obviously, if the situation is uncertain, OLMC should be contacted BEFORE the patient is left, or transported against their will. It is not mandatory to contact OLMC before transporting an obviously incompetent patient.

TRANSPORT/NON-TRANSPORT

Effective 12/2000 or prior
Revised 6/9/11

1. Patient Transport:

Destinations will be determined by:

A. County/regional pt care procedures and pt care protocols when applicable (trauma, cardiac, stroke).
B. Patient or physician preference within the usual transport area of the responding unit (units responding to La Conner typically transport to Island or Skagit, Burlington responses are typically transported to Skagit or United General).
C. Pre-existing relationship of the patient to a certain facility (recent discharge from or specific services available). Contact medical control for transports out of county or if any question.
D. If none of the above are applicable OR if the pt airway cannot be managed OR cardiac arrest without return of spontaneous circulation is to be transported to the nearest hospital.

2. POV Transport:

Privately Operated Vehicle (POV):

A. Non-emergent patients requiring medical care, but not requiring ambulance transport may be allowed to travel POV to the hospital of their choice, consistent with refusal of care guidelines.
B. Non-transports other than refusals: After evaluation and treatment, if the patient is to be left at the scene, or if they will be transported POV, contact OLMC BEFORE leaving the patient. Patients treated for hypoglycemia may be left at the scene consistent with hypoglycemia protocol.

Skagit County EMS Supplemental Report for Patient Non-transport *(page 1 of 2)*

EMS Provider to Complete

Date: _____ Time: _____ Responding Medic/EMS Unit: _____
Incident Address: _____
Patient Name: _____ Telephone #: _____
Patient Age: _____ (If < 18 years of age, is guardian at scene: ☐ Yes ☐ No) PCP: _____

Does situation involve: ☐ Chest Pain ☐ S.O.B. ☐ Possible Head Injury ☐ Altered Mental Status ☐ Suspected Intoxication ☐ Diabetes ☐ Motor Vehicle Accident

Patient is alert and oriented to person, place, time, and situation: ☐ Yes ☐ No

Pulse: _____ HR 50 75 100 125 150 175 200

BP: _____ SBP 75 100 125 150 175 200 225

RR: _____ RR 12 16 20 24 28 32 36

☐ Patient refuses to allow vital signs or physical exam
• If Chest Pain or S.O.B.: Pulse Ox: _____ Monitor: Rate: _____ Rhythm: _____
• If altered mental status or diabetes – Chemstrip: #1_____ #2 _____ (if applicable)
• If treatment was administered, have symptoms resolved: ☐ Yes ☐ No

Patient appears to understand clinical situation: ☐ Yes ☐ No
Risks of no transport have been explained to patient: ☐ Yes ☐ No
Patients verbalizes understanding risks of no transport: ☐ Yes ☐ No
Medical Control has been contacted (Always required) ☐ Yes

Reason for No Transport:

☐ Patient refuses transport to hospital by EMS against EMS provider advice.

☐ Patient does not desire transport to hospital via EMS; EMS provider believes alternative treatment/transport plan is acceptable.

☐ Patient does not believe transport by EMS is necessary/indicated; EMS provider agrees.

Patient to Complete

- *I understand that I have not been evaluated by a doctor and that **I may have undetermined injuries or illnesses that could pose a threat to my life, health, and medical condition***
- *I understand that I may, at any time, reconsider this course of action and request transport by an ambulance and go to a hospital to receive an evaluation and medical services*
- *I understand the possible consequences of my decision to not be transported to a hospital by an ambulance. I assume full responsibility for my decision and hereby release the ambulance service, its personnel and staff from all claims resulting from my voluntary refusal of treatment and/or transport.*
- *I also acknowledge that I have received a copy of Skagit County Medic One's Notice of Privacy Practices*

_____ _____
Signature of Patient/Relative Witness Signature (if available)

Relation to Patient if relative: _____ _____
EMS provider signature

Head Injury

1. Mild headache is common after a head injury
2. Contact EMS (Dial 911) immediately for transport to the emergency department if you are unable to waken somebody with a recent head injury
3. Seek medical care immediately if any of the following occur
    a. Confusion or disorientation
    b. Severe headache
    c. Persistent vomiting or stiff neck
    d. Convulsions or seizures
    e. High fever (greater than 102 degrees)
    f. One pupil looks larger than the other (the black part in the middle of the eye)
    g. Double vision
    h. Stumbling or other problems with the use of arms or legs, or areas of skin numbness
    i. Clear or bloody drainage from nose or ears
    j. Slurred or garbled speech
    k. Abnormal behavior

Fever

1. Aspirin should not be used to control fever in children unless directed by your physician
2. For fever control use acetaminophen (Tylenol®) or ibuprofen according to package directions
3. Consult physician for the following:
    a. Fever over 102 degrees
    b. Patient feels unusually ill
    c. Fever persists beyond 48 hours or rises rapidly
    d. Seizure activity (unresponsive and shaking) occurs
    e. Stiff neck
    f. Unusual drowsiness

Neck, Back, Joint, or Muscle Pain

1. Rest as much as possible while the pain lasts
2. Avoid sudden movements or heavy lifting
3. For discomfort use acetaminophen (Tylenol®) or ibuprofen according to package directions
4. Consult a physician for the following:
    a. Pain persists for more than 5 days
    b. Pain, numbness, tingling or loss of strength in an arm or leg occurs
    c. Severe headache
    d. Dizziness, nausea, or vomiting
    e. Fainting spells

Motor Vehicle Accident

1. Always wear a seatbelt
2. It is common to develop increasing soreness and stiffness over the first 24 hours after a motor vehicle accident
3. See the section above on Neck, Back, Joint, or Muscle Pain

Additional Comments/Instructions:

_____
_____
_____
_____
_____
_____
_____
_____

Diabetes

1. Please notify your personal physician of this event
2. Strictly follow your physician's instructions on regulating your blood sugar
3. Check your blood sugar more frequently over the next 24 hours
4. If your blood sugar was low, you need to make sure you eat more today
5. Immediately contact EMS (Dial 911) if you change your mind and wish to be seen in emergency department

Burn and Wound Care

1. Keep the wound cleaned and dressed
2. Keep the area dry for the first 48 hours
3. Change the dressing at least twice a day
4. Observe the area at each dressing change for signs of infection:
    a. Swelling
    b. Excessive redness of the area or red streaks extending from the wound
    c. Increased tenderness or pain in the area
    d. Drainage from the site
    e. Fever

If you suspect that the wound is infected, you should be examined by a physician as soon as possible

Abdominal pain/Nausea/Vomiting

1. Rest until you feel better
2. Monitor your temperature
3. Do NOT take any medication, including pain medications and laxatives, without consulting your physician
4. Drink clear liquids if you are not vomiting
5. Avoid solid foods as long as the pain persists
6. Contact your physician if pain persists longer than 2 – 3 days or becomes severe
7. You should go to the emergency department immediately if:
    a. Your pain increases
    b. You begin to vomit blood or find blood in your bowel movements
    c. You have a fever
    d. You develop chest pain or shortness of breath
    e. Your abdomen appears swollen
    f. You have difficulty urinating or are unable to urinate
    g. You feel dizzy or faint
    h. Existing symptoms worsen or you feel sicker

These are limited and generalized guidelines only. They are not intended as a substitute for the individual care from a physician. In any cases where questions regarding these guidelines arise, you should seek the clarification by and recommendations of your physician.

If problems persist or worsen contact your personal physician, call EMS (Dial 911), or go to the emergency department

AFTER CARE INSTRUCTIONS
For Diabetic Emergencies

Skagit County EMS Responders used a glucose-monitoring device to measure your blood glucose. Prior to treatment, the device measured your capillary blood glucose level at _____mg/dL. This was performed at _____ a.m. / p.m.

YOUR HYPOGLYCEMIC EPISODE WAS TREATED BY THE FOLLOWING METHOD:

☐ No Treatment: The EMS Personnel gave no immediate treatment because: _____
☐ IV Treatment: _____ml 50% Glucose was administered via IV.
☐ Oral Medication: _____GM of oral glucose in a flavored liquid was administered.
☐ Other: _____ (i.e., food, juice, etc.)

Skagit County Medic One generally recommends transport to the emergency department for a physician's evaluation.
However, if you are choosing to stay at home, please do the following:

- **Eat a FULL MEAL NOW.**
- **Contact your own physician before you take your next insulin dose. If you are unable to contact your doctor, reduce your next insulin dose by one-fourth (25%). *Keep trying to contact your physician.***
- **Keep this form and provide it to your doctor at your next appointment.**
- **Check your blood sugar frequently for the next several hours.**
- **Do NOT be alone for at least the next six (6) hours.**
- **Do NOT drive or operate dangerous machinery for at least the next six (6) hours.**
- **If you condition worsens or initial signs and symptoms return, call 9-1-1 immediately!**

After administration of glucose and/or prior to the departure of the **Skagit County EMS Responders**, the glucose-monitoring device measured a capillary blood level at _____ mg/dL. This test was performed at _____ a.m. / p.m.

EMS INITIATED NON-TRANSPORT

Effective 12/15/11

Certain patients develop a pattern of frequent EMS utilization that is unsubstantiated by medical need. In this situation the MPD may direct EMS responders to consider non-transport. When such a patient is subsequently encountered and the on-scene medical evaluation does not identify a significant acute medical problem, the EMS provider may contact medical control to consider denying ambulance transport to the patient.

When it is decided to not transport a viable patient from the scene, the following information must be documented:

1. **Call Identification:**
   A. Patient Name
   B. Age

2. **Patient Assessment:**
   A. Chief Complaint

3. **Vital Signs:**
   A. Oriented to:
      a. Person
      b. Place
      c. Time
      d. Situation

4. **General Assessment:**

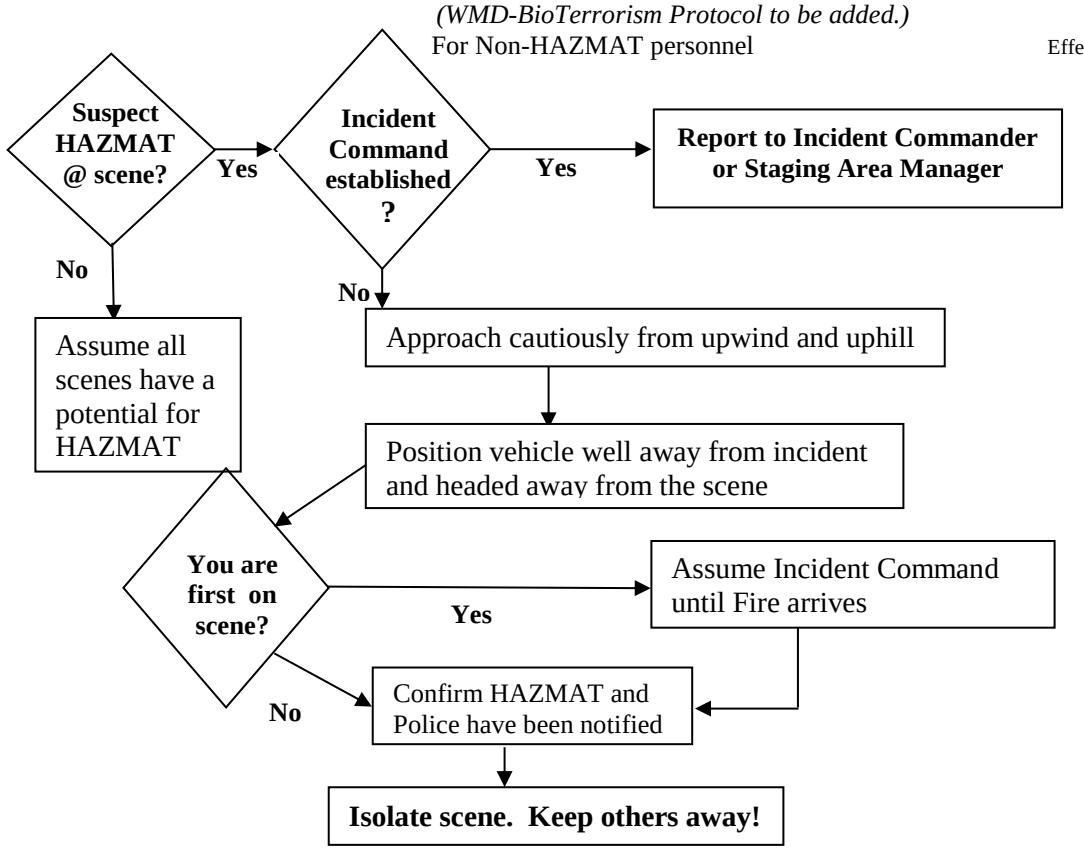
5. **Disposition:**
   A. Patient transported by private vehicle
   B. Released in care or custody of self
   C. Released in care or custody of relative or friend

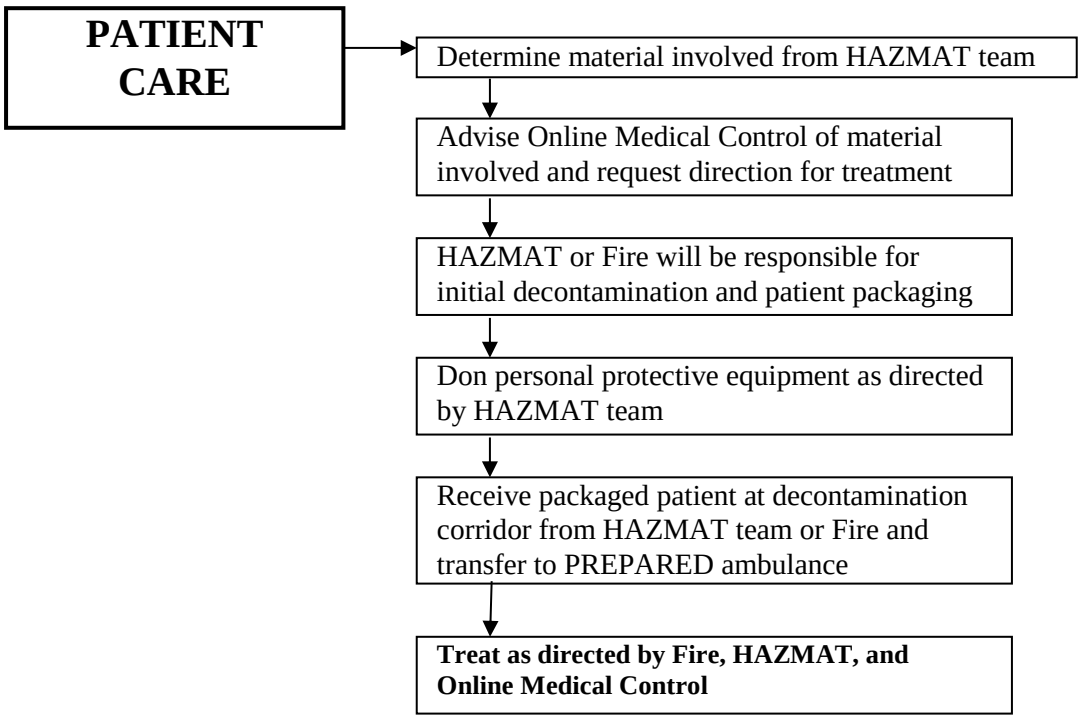
HAZMAT *(Page 1 of 2)*

(WMD-BioTerrorism Protocol to be added.)

For Non-HAZMAT personnel

Effective 12/2003 revised 12/15/11





HAZMAT *(Page 2 of 2)*

For Non-HAZMAT personnel

Effective 12/2003

Ambulance Preparation

Prepare ambulance as directed by HAZMAT or Fire

Remove all non-essential supplies/equipment

Drape interior and floor of vehicle with plastic as directed

Transport

Notify receiving facility: provide all relevant information and ask where they would like you to park

Do NOT enter the ED without specific direction from the ED staff

After transferring the patient to ED staff, return to the ambulance and remain inside. Do not move the vehicle or allow others inside.

Contact Incident Commander to determine how and where the vehicle should be decontaminated.

EMS Personnel Exposure

If exposed at scene: remove yourself from further contamination and report incident to Safety Officer or HAZMAT and wait for direction

If exposed en route to the hospital: inform ED and await direction.

After decontamination and treatment, receive clearance from HAZMAT Group Supervisor or ED MD AND your supervisor before returning to duty.

Document:

- **Patient Care**
- **Response to Treatment**
- **Hazardous Material**
- **Communication with ED, Medical Control, HAZMAT**
- **Measures Taken to Limit Exposure**
- **Decontamination**

CRIME SCENE PROTECTION & EVIDENCE PRESERVATION
BY NON-POLICE PERSONNEL PROTOCOL

(Page 1 of 4)

Effective 12/2000 or prior

The basic objective of crime scene protection is to preserve physical evidence that may be used to develop investigative leads and to prosecute defendants in court. Physical evidence must be protected from accidental or intentional alteration from the time it is first discovered to its ultimate disposition at the conclusion of an investigation.

Often, emergency medical service personnel are the first to arrive at potential crime scenes. EMS personnel may be unaware that the incident which necessitated the request for medical aid is a result of a criminal act. While emergency aid may be imperative, medical personnel should exercise extreme caution in approaching scenes suspected or known to involve any violent act. Sniper incidents have often resulted in multiple injuries among those trying to rescue the victim. Responding emergency personnel must consider their own safety as well as the methods they will use in aiding victims.

Personnel should consider evidence preservation and crime scene protection while en route to such an emergency. While saving life is paramount, personnel should do all they possibly can to prevent the lost of related evidence.

There are 2 primary types of mistakes which damage crime scenes: Errors of commission and errors of omission.

Errors of commission: occur when citizens, witnesses, officers, or emergency personnel smear fingerprints, step on evidence, add their own fingerprints, rearrange the scene, drop cigarette ashes, and butts at the scene, etc. Any time anyone destroys existing evidence or adds "evidence" (cigarette butts), a serious mistake has damaged the crime scene.

Error of omission: occur when personnel fail to notice the scent of perfume or cigar smoke, fail to listen to persons standing near the scene discussing the crime, or fail to take efforts to protect existing evidence which may otherwise be destroyed.

Most errors in either category are unintentional, but they still complicate the investigation. A brand of cigarettes determined from butts found at the scene may be important, but if they were left by an officer or a paramedic, they are merely a waste of time, money and effort to analyze. Being aware of the problems commonly found at scenes and the needs of the investigating officers should help to prevent some of these difficulties.

APPROACH -- (CRIME/ACCIDENT SCENE)

(Page 2 of 4)

Effective 12/2000 or prior

A. Stop/listen - the suspect(s) may be fleeing the crime or noise may indicate flight via vehicle / foot, etc.
B. Minimize on scene personnel - designate only one paramedic / aid person to check the body (if death is apparent).
C. Route - All emergency personnel should use the same route in and out of the crime scene whenever possible. This will minimize the destruction of evidence, i.e., tire tracks.
D. If weapons are being used and/or violent suspect(s) still on the scene:
    a. Report to a designated staging area or
    b. Establish a staging area and notify your dispatcher of arrival and location. Be sure staging area is out of the line of fire and sight of scene.
    c. Report any suspect activity, especially weaponry seen or heard.
    d. Await instructions from officer.
        i. Officers will bring victim to you.
        ii. Officers will request you approach when scene is under control and deemed safe.
        iii. Officers will coordinate an operation to rescue victim in hazard zone.

PARKING/POSITIONING OF EMERGENCY RESPONSE VEHICLE (E.R.V.)

A. Check with the officer-in-charge to determine where your ERV should be positioned at the crime scene.
B. Be conscious of accident debris, skid/scuff marks from tires, as you approach.
C. Place items of evidentiary value (pill bottle, beverage cans, etc., found in vehicle) in a secure area while treating the victim. Whenever possible leave items where they are; do not touch with hand. If you have to move them, mark the spot.
D. Check with the officer in charge of the scene before hosing/washing vehicle debris from the road or pavement. (Cover if raining, without touching).

When it is apparent that the incident/scene is a crime and further investigation is required, evidence preservation becomes essential.

WHEN THE CRIME SCENE IS INDOORS OR SHELTERED -- EMERGENCY RESPONSE PERSONNEL SHOULD

A. Ensure that items of evidence (spent cartridges, weapons, clothes, etc.) are not stolen or destroyed, moved or inadvertently stepped on.
B. Contain the area and restrict/stop pedestrian traffic.
C. Note body position and only disturb when necessary to give first aid. Mark, if you can.
D. Note position of clothes on the body before disturbing for medical aid and check for any foreign substances that may be on the body.
E. If you move the body, be aware that pertinent evidence is often found underneath a body. Mark its location.
F. Do not use bathroom facilities or sinks.

WHEN CRIME SCENE IS OUTDOORS OR NOT SHELTERED -- EMERGENCY PERSONNEL SHOULD:

(Page 3 of 4)

Effective 12/2000 or prior

A. Restrict vehicle/pedestrian traffic in the area.
B. Call for assistance to control onlookers and bystanders.
C. Seek guidance from the on-scene police officer about travel routes. Inform the officer in charge about any material (coat, sheet, blanket, etc.) used to cover/protect the victim from the elements. Officer may want those items as evidence.

EVIDENCE

A. Chalk or tape the location where evidence/items required moving in order to give aid to the victim.
B. Avoid using the telephone and items in and around the crime scene.
C. Designate a garbage spot for all non-essential or non-evidentiary items.
D. If the victim is deceased, bag hands prior to moving the body if law enforcement personnel are not at the scene (use plastic only).
E. Liquids found near or at the crime scene should not be used for washing/cleaning your hands or equipment.
F. Check with the officer in charge of the crime scene if you had close contact with the victim/deceased (your clothes may contain fibers and trace evidence).
G. If clothing must be cut, do not cut through bullet holes or knife cuts. These are critical pieces of evidence.
H. If a rope must be cut, do not cut it at the knot.
    a. At a hanging, if the possibility of life exists, cut the rope at least 18 inches above the knot and in the bight. The knot is important evidence.
    b. If the rope is over a limb or a beam, do not pull it down. Cut the victim down, if necessary, but do not pull the remaining rope down.
I. Do not move evidence unless necessary. Point the evidence out to the officer where it is found. Obviously a gun on a crowded sidewalk probably should be secured, but use common sense. If the item is not going to be dangerous, stepped on, lost, or stolen where it is, leave it there for the officer.

ASSIGNMENT COMPLETION AND RECORDING

(Page 4 of 4)

Effective 12/2000 or prior

A. Note the number of people under your control at the crime scene and their specific assignments(s).
B. Seek direction from the on-scene police officer when you have questions/doubts about items/evidence at the crime scene.
C. Check with officer in charge of the crime scene prior to leaving. If you have information about the crime, do not leave the scene before giving it to an officer.

Remember that the suspect (perpetrator) always leaves something behind.

Non-police personnel are reminded that these protocols do not preclude their use of judgment and appropriate response determined by the conditions at the incident site.

These guidelines are based on a Tacoma Police Department document and are used with permission.

Law enforcement agencies in Skagit County have reviewed the material and their suggestions have been incorporated in this protocol.

DECEASED PERSONS

Effective 3/4/05 Revised 6/9/11

NON-RESUSCITATION

1. Patients in cardio-respiratory arrest will not be resuscitated if the following are present:
   A. Victims who present with any ONE of the following:
      a. Decapitation
      b. Total incineration
      c. Decomposition
      d. Dependent Lividity
      e. Rigor mortis without vital signs. Rigor mortis is defined as muscle stillness following death, which affects all muscles at the same time, but which is first detectable in the short muscles. Determination of rigor mortis should include immobility of the jaw muscles and the upper extremities.
      f. Apnea in conjunction with separation from the body of either the brain, liver, or heart.
      g. Multiple casualty situations where triage principles preclude CPR from being initiated on every victim.

      OR

   B. If all of the following are present:
      a. Cardio-respiratory arrest documented by:
         i. Absent breath sounds.
         ii. Absent apical and peripheral pulses.
      b. Fixed and dilated pupils.
      c. History of unresponsiveness with a downtime of ≥10 minutes with asystole in 2 leads on cardiac monitor
   C. In all other cases of cardio-respiratory arrest or if there is any doubt about the above criteria, the patient should be immediately resuscitated. Except that no resuscitation should be initiated if the patient has a valid POLST form or valid EMS No-CPR form or bracelet.
   D. All termination of resuscitation must be cleared with Online Medical Control

HELICOPTER TRANSPORT

Revised 7/11/2014

AIR-MEDICAL TRANSPORT FROM FIELD

Airlift Northwest Dispatch 1-800-426-2430

A. Helicopter transport from the field is appropriate for critical patients who have a prolonged ground transport time to an appropriate hospital.
    a. Multisystem trauma patients with a ground transport time to a level III trauma center greater than 30 min
    b. Neurologic/spinal trauma patients (altered level of consciousness or motor deficit after trauma) or critical burns may be flown from the scene to Harborview Medical Center.
        i. For neurologic/spinal/burn patients who are within 20 min by ground (inclusive of packaging time) to a level III trauma center, initial stabilization at the hospital prior to transport may be appropriate.

B. It is appropriate to request airlift to meet the patient at the local trauma facility to expedite transfer to level I care. Notify the receiving facility you are transporting to if this is initiated.

C. In the event of a prolonged response time from Airlift Northwest, (greater than or equal to anticipated ground transport time to Skagit or Island), the patient should be transported by ground to the nearest appropriate hospital. Critical non-trauma patients with prolonged ground transport times may also be appropriate for air transport, in this case, the destination should be the nearest appropriate hospital, this should be determined in discussion with medical control.

D. The goal should be to minimize the time between patient contact and arrival at the hospital, when evaluating this, response time for airlift should be considered.

E. Airlift Northwest encourages the practice of placing them on standby when there is a possibility they will be utilized. Call for ALNW standby (possible need for air transport) likely to result in launch and helicopter moving up to location near call- usually an airport or hospital. This reflects their current practice. Responders reminded that we are encouraged to call if we have good reason to believe we will be needing airlift.

GROUND LEVEL FALL AND LIFT ASSIST

Effective 8/1/14

Applies to age >65 or chronic illness requiring assistance with activities of daily living with ground level fall or call for lift assist

1. Purpose:

A. To define criteria for non-transport and promote public safety

2. Evaluate:

A. Patient mental status-
   a. normal or at baseline as reported by a family member or caregiver
B. Patient environment-
   a. trip hazards, poor lighting, general sanitary condition
C. Vital signs-
   a. including temperature
D. Physical exam as appropriate

3. Document:

A. Document patient assessment, environmental concerns and presence of caregiver.

Transport all patients with mental status changed from baseline, abnormal mental status with no responsible caregiver, abnormal vital signs or physical findings suggesting injury or acute illness

Assist- as appropriate, back into bed, chair, etc. briefly correct or point out unsafe conditions in home

Section B
CARDIAC PROTOCOLS

CARDIAC TRIAGE DESTINATION PROCEDURE

Effective 11/1/11

Assess for Cardiac Triage Inclusion Criteria
Post cardiac arrest with ROSC
-OR-
≥21 years of age with symptoms lasting more than 10 minutes but less than 12 hrs suspected to be caused by coronary artery disease:

- **Chest Discomfort** (pressure, crushing pain, tightness, heaviness, cramping, burning, aching sensation), usually in center of the chest lasting more than a few minutes, or that goes away and comes back.
- **Pain or discomfort in 1 or both arms**, neck, jaw, shoulders or back.
- **Shortness of breath** with or without chest discomfort
- **Epigastric discomfort** such as unexplained indigestion, belching, or pain.
- **Other symptoms** may include diaphoresis, nausea, vomiting, and lightheadedness.

NOTE: Women, diabetics, and geriatric patients may not have chest discomfort or pain. Instead they may have nausea, vomiting, back or jaw pain, fatigue, weakness or generalized complaints.

NO → **Transport to nearest appropriate facility**

YES

Assess Immediate Criteria
-Post cardiac arrest w/ROSC
-Hypotension or pulmonary edema
-EKG positive for STEMI

NO

YES

Assess High Risk Criteria
In addition to triage criteria, pt has **4 or more of the following:**
- Age ≥ 55
-3 or more CAD risk factors:
  - -family history
  - -hypertension
  - -high cholesterol
  - -diabetes
  - -current smoker
-Aspirin use in last 7 days
-≥2 anginal events in last 24hrs, including current episode
-Known CAD
-ST deviation ≥ 0.5

YES

NO

Transport to nearest Level I Cardiac Hospital and alert destination hospital ASAP
Level I Cardiac Hospitals-
Skagit Valley Hospital
Peace Health St. Joseph Medical Center- Bellingham

If EMS personnel still suspect an acute coronary event, contact med control for destination. If not, transport to nearest appropriate facility.

Unstable patients (life-threatening arrhythmias, severe respiratory distress, shock) unresponsive to EMS treatment should be taken to the closest appropriate facility. Asymptomatic patients with previous care at Peace Health St. Joseph Medical Center may be transported there at patient's request.

CARDIAC ARREST

Effective 3/4/05 Revised 7/29/11

1. General Principles in Cardiac Arrest:

A. High-quality CPR with timely defibrillation if indicated is the most effective treatment for cardiac arrest. Minimize interruptions to chest compressions for procedures, rhythm checks or pulse checks.

B. The first priority on arrival at the patient is initiating or continuing chest compressions. Defibrillation should be attempted as soon as practical; there is no requirement for a set interval of CPR prior to defibrillation.

C. Airway management should not be allowed to interrupt CPR or delay defibrillation

D. Personnel performing chest compressions should be rotated regularly- every two minutes if possible

E. All ventilations, whether via BVM, ETT or King Airway should be given at a rate of 10-12 per min without pause or interruption of chest compressions.

F. Each medication bolus should generally be followed by 2 minutes of CPR to assess the effects of that bolus before proceeding to additional medication steps in the protocol.

G. All medications should be given IV or IO, immediate IO access is preferred over repeated attempts at starting an IV.

2. Post-Resuscitation

A. If resuscitation is successful, proceed to the protocol that is appropriate for the patient's condition.

B. Resuscitation may be terminated in the field if the following criteria are met:

   a. The electrical rhythm is asystole or pulseless electrical activity, and has not responded to the protocol treatment for asystole or PEA.
      i. Asystole/PEA must be confirmed in two leads.
   b. The patient is in a non-perfusing rhythm for 30 minutes or more, and ETCO2 is 10 mm/hg or less.
   c. No pulses or heart tones.
   d. No respiratory effort.
   e. Hypothermia is not present.
   f. DNR is presented after resuscitation is initiated effort.

12–Lead EKG

Effective 12/2000 or prior
Revised 7/11/14

1. Criteria for Obtaining an EKG:

A. Patients who present with chest pain or atypical pain which might be cardiac in origin.
B. Patients without chest pain but having other signs and/or symptoms associated with CAD, such as nausea, diaphoresis, sob, hypotension, syncope.
C. Diabetic and/or elderly patients with symptoms or history suspicious for silent ischemia.
D. Patients with resolved chest pain being sent to a treatment facility other than the closest hospital.
E. Cardiac arrest with ROSC

2. Timing of the EKG:

A. The 12–Lead EKG will be obtained as the opportunity permits – at a point when obtaining the 12–Lead does not delay patient care or resuscitative efforts.

3. Disposition of the EKG:

A. The initial and any other requested EKG's will be attached to the patient's ED record. A copy will be attached to the MIR.

4. Technique:

A. Obtaining an EKG requires greater patient access with the possibility of embarrassing exposure. If time and the situation permits consider the use of a blanket or gown to cover the patient.
B. Standard pre-cordial lead placement will be used and limb placement will be on the upper arm between the shoulder and elbow and on the ankles.
C. Notify receiving hospital of STEMI immediately. Other important data such as abnormal rate, rhythm should be noted at the time of patient report to receiving hospital.
D. To prevent misplacement of EKG's and for Quality Assurance purposes, the first and last name of the patient will be included on the EKG tracing.
E. To ensure legibility copies will be obtained by downloading from the receiving units or the defibrillator files.

CARDIOGENIC SHOCK

Effective 3/4/05 Revised 6/11/14

1. Criteria:

Decreased cardiac output related to:

A. Acute Myocardial Infarction (AMI)
B. Pulmonary Edema/CHF
C. Congenital Heart defects
D. Cardiomyopathy

-AND-

E.Evidence of decreased tissue perfusion as indicated by:

a. Systolic BP ≤ 90 mmHg with any one or more of
a. Changes in mental status
b. Changes in skin color (cyanosis, pallor, mottling) AND/OR
c. Heart Rate ≥ 120 beats per minute

2. Primary Survey:

Signs of shock.

3. Secondary Survey:

A. BP of 90 systolic or less.
B. Differential diagnosis may include tension pneumothorax and pericardial tamponade.

4. Treatment:

A. High flow oxygen.
B. IV/IO access. Cautious fluid challenge with NS (250-500cc) unless CHF is present.
C. Cardiac Monitor.
D. Treat any arrhythmias according to protocol/ACLS Guidelines.
E. Rapid transport to Emergency Department.
D. Contact online medical control for persistent shock, consider epinepherine drip with medical control approval

CHEST PAIN

Effective 3/4/05 Revised 12/15/11

1. Criteria:

A. Patient complaining of chest pain, suspicious of ischemia.

2. Primary Survey:

3. Secondary Survey:

A. Medical history to include medication history. Ask specifically about erectile dysfunction medications, which currently include Viagra (sildenafil citrate), Levitra (vardenafil) and Cialis (tadalafil). For Viagra and Levitra, do not administer nitrates within 24 hours of last dose, for Cialis do not administer nitrates within 48 hours

4. Treatment:

A. Cardiac monitor and rhythm strip.
B. Oxygen therapy.
C. IV Normal Saline or saline lock
D. 12 lead EKG as soon as practical
E. If BP> 100 systolic give NTG 0.4mg SL or NTG spray metered dose, q5 minutes if pain persists to total of 3 doses.
F. ASA (Aspirin) 325mg chewable by mouth.
G. Morphine 2mg IV, titrate cautiously
H. Follow arrhythmia protocols as needed.
I. Transport per Cardiac Destination Procedure

CONGESTIVE HEART FAILURE

Effective 3/4/05 Revised 6/11/14

1. **Criteria:**
   Evidence of pulmonary edema and systolic blood pressure greater than 100mmHg.

2. **Primary Survey:**

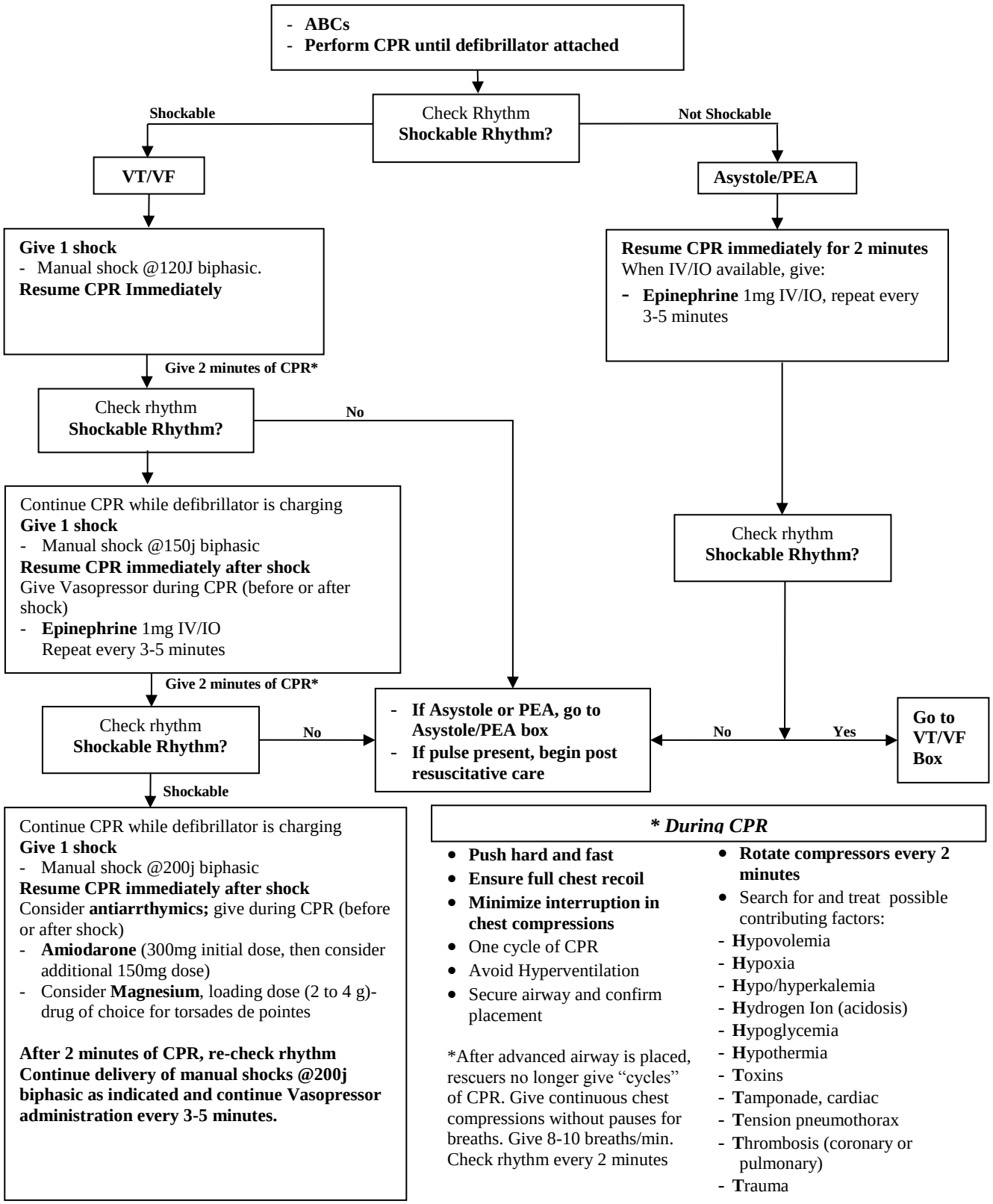
3. **Secondary Survey:**

4. **Treatment:**

A. Oxygen Therapy, high flow. CPAP for significant dyspnea or hypoxemia
B. Cardiac Monitor
C. 12 lead EKG
D. IV Normal Saline TKO or saline lock.
E. Position of comfort: Upright position (45 degree - 90 degrees).
F. Consider the following medications:
    a. NTG 0.4 mg S.L. or metered dose NTG Spray.
    b. Transdermal nitroglycerine if responsive to SL
    c. Consider morphine sulfate for agitation, dyspnea

PULSELESS ARREST ALGORITHM

Revised 7/30/2013



**** During CPR***

- **Push hard and fast**
- **Ensure full chest recoil**
- **Minimize interruption in chest compressions**
- One cycle of CPR
- Avoid Hyperventilation
- Secure airway and confirm placement

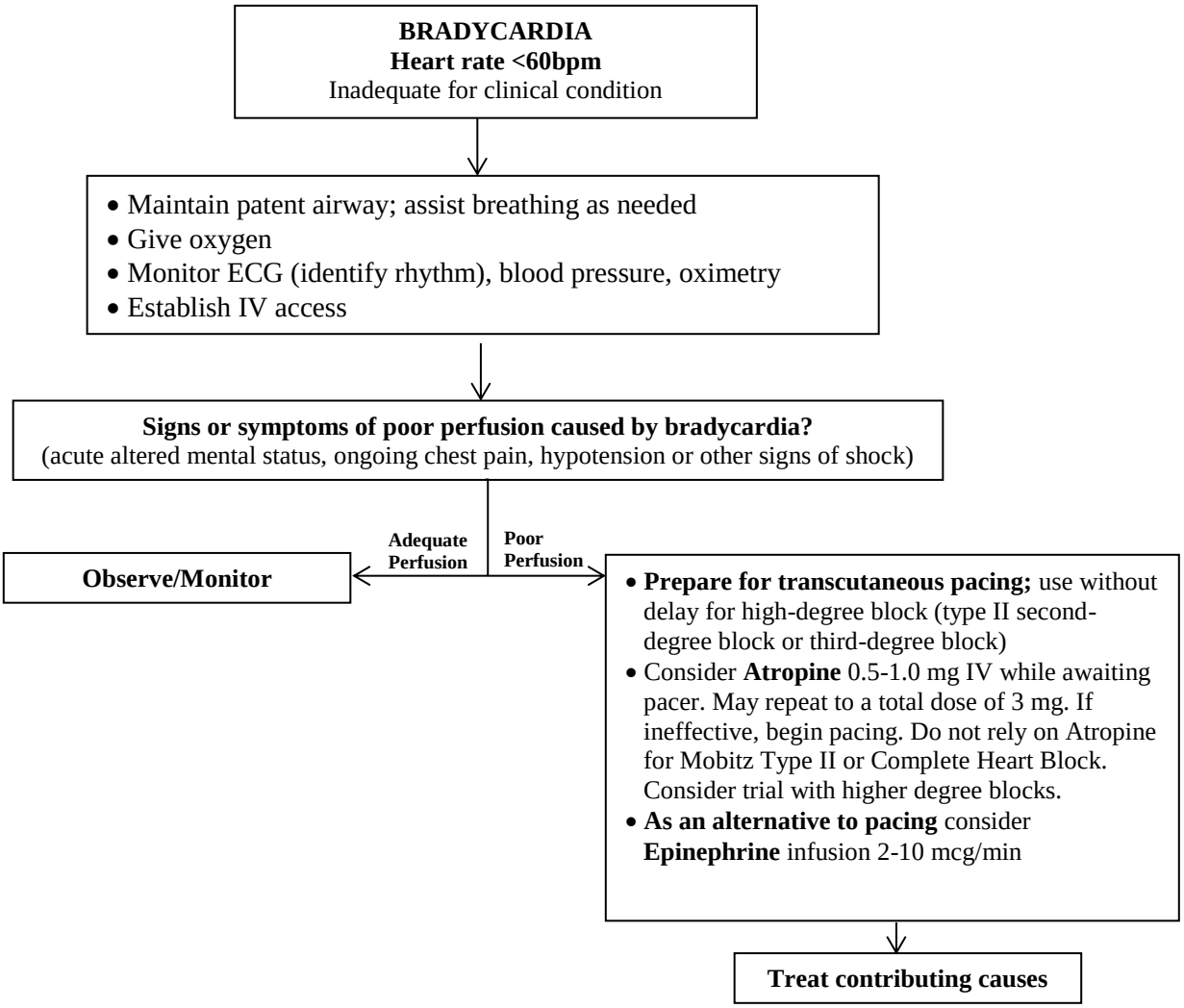
*After advanced airway is placed, rescuers no longer give "cycles" of CPR. Give continuous chest compressions without pauses for breaths. Give 8-10 breaths/min. Check rhythm every 2 minutes

- **Rotate compressors every 2 minutes**
- Search for and treat possible contributing factors:

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

BRADYCARDIA ALGORITHM

Revised 12/15/11



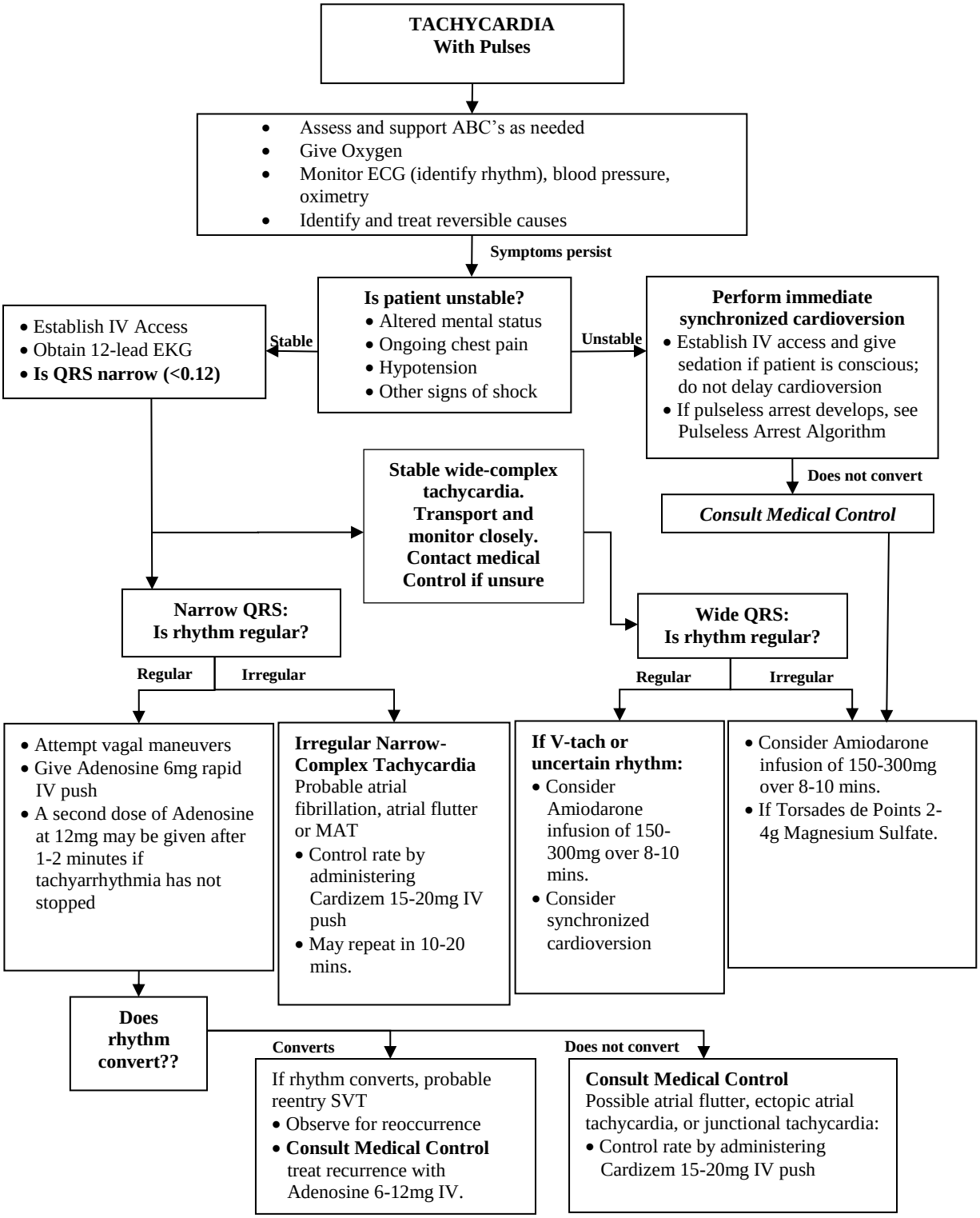
Reminders

- If pulseless arrest develops, go to pulseless arrest algorithm.
- Search for and treat possible contributing factors:

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

TACHYCARDIA ALGORITHM

Revised 6/1/2011



ELECTRICAL CARDIOVERSION ALGORITHM

(Patient is not in cardiac arrest)

Revised 6/1/2011

Tachycardia
With serious signs and symptoms related to the tachycardia

↓

If ventricular rate is > 150 BPM, prepare for **immediate cardioversion**.
May give brief trial of medications based on specific arrhythmias.
Immediate cardioversion is generally not needed for rates <150 BPM.

↓

Check
- Oxygen saturation
- Suction device
- IV line
- Intubation equipment

↓

Pre-Medicate whenever possible.

↓

Synchronized cardioversion

Atrial fibrillation	100j
Monomorphic VT	100j
SVT	50j
Atrial flutter	50j

- Consider sedation if patient stability permits
- Resynchronize after each cardioversion
- If delays in synchronization occur and clinical conditions are critical, go to immediate unsynchronized shocks.
- Treat polymorphic VT (irregular form and rate) like VF
- Escalate cardioversion joules in stepwise fashion (+50j per attempt), max 200j
- If in doubt about need for cardioversion, contact Medical Control

Section C
MEDICAL PROTOCOLS

ANAPHYLAXIS/SYSTEMIC ALLERGIC REACTION

Revised 12/15/11

1. Primary Survey:

A. Evaluate ABC's
B. Attempt to identify allergen or exposure

2. Secondary Survey:

A. Hypotension
B. Wheezing
C. Respiratory Distress
D. Intraoral or throat swelling
E. Laryngospasm
F. Rash plus nausea, vomiting or diarrhea

3. Treatment:

A. Epinephrine early on in the patient's treatment.
B. Dose: 0.3 mg 1:1,000 IM (**Pediatric:** 0.01 mg/kg to a maximum of 0.3 mg). Repeat initial dose if continued signs of shock and/or respiratory compromise are present after 5 minutes.
C. Severe Allergic Reactions: For patients in full cardiovascular collapse consider Epinephrine 0.3 - 0.5 mg 1:10,000 IV/IO slowly (**Pediatric:** 0.01 mg/kg).
    a. If hypotension persists start IV Infusion 2-10 mcg/ min:
        1. 1 mg Epi 1:1000 in 100mL D5W with 10 gtt/mL adset = 1 gtt/ 10 seconds for mid-range dosing. Titrate to effect.
D. NS IV/IO. If patient is hypotensive:
    a. Adult: 1 liter NS STAT.
    b. Pediatric: 20 ml/kg, repeat up to 60 ml/kg total.
E. Diphenhydramine 25 - 50 mg IV/IO slowly over 2 minutes (preferred) or IM (**Pediatric**: 0.5 to 1.0 mg/kg).
F. Consider nebulized Epinephrine 5 mL of 1:10,000 (0.5 mg) for patients with upper airway obstruction and patients with adverse reactions to ACE inhibitors.
G. Consider Glucagon 1 – 2 mg IV/IO in patients who are not responding to Epinephrine and Diphenhydramine and/or are on Beta Blocker therapy.
H. Consider albuterol for patient with wheezing.

2. Transport:

All patients treated with epinephrine shall be transported to ED as patient may relapse after initially responding to treatment. Cardiac Monitor for all patients who receive epinephrine

CVA/ACUTE ONSET NEURO DEFICIT

Effective 3/4/05 Revised 6/11/14

1. **Primary Survey:**

A. Evaluate ABC's and treat as needed.
B. Identify signs and symptoms of CVA.

2. Secondary Survey:

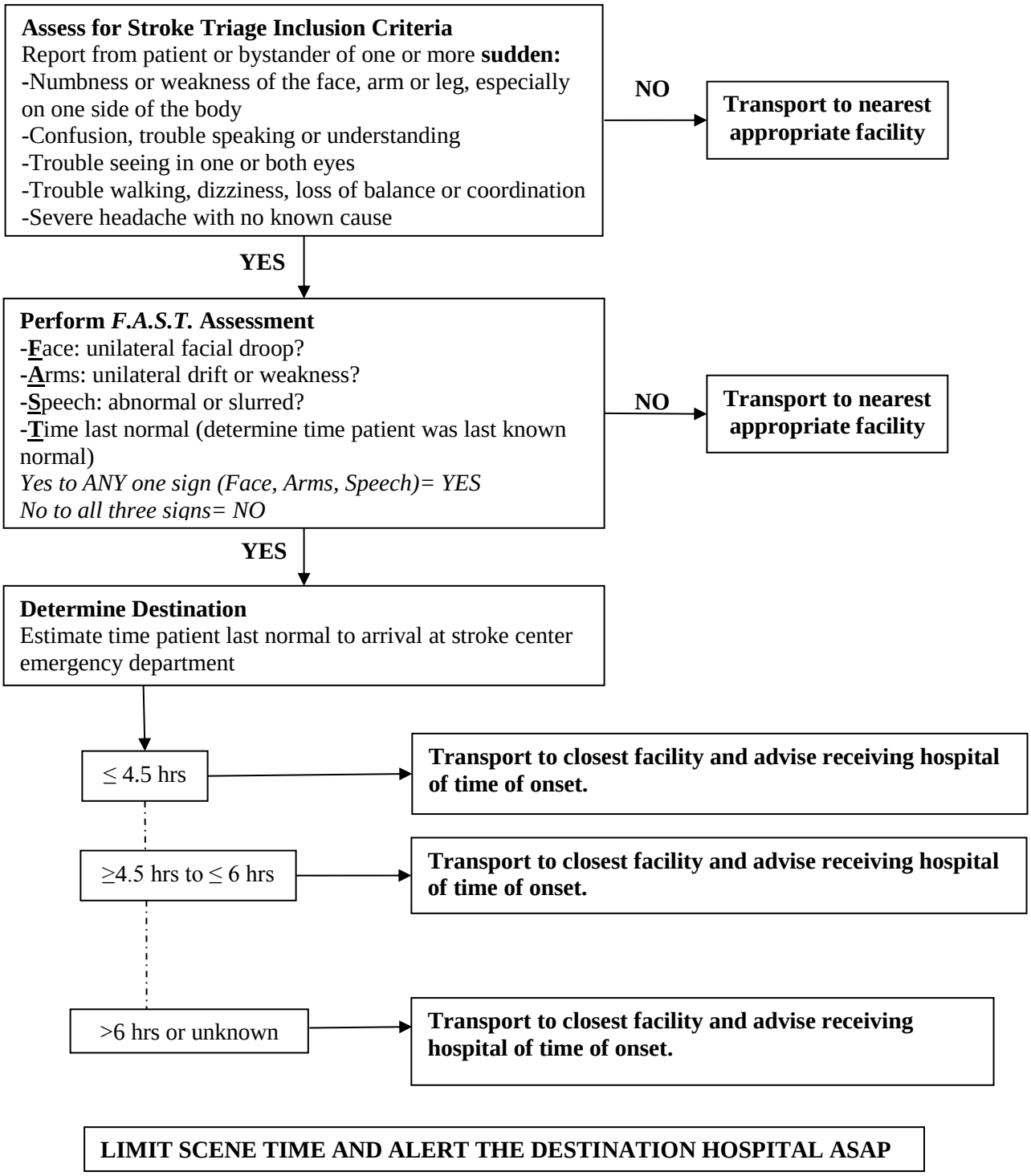
A. FAST exam (face, arm, speech, time of onset)
B. Initiate CODE STROKE for CVA symptoms with onset <4.5hrs prior to pt contact
C. Expedite transport for CODE STROKE
D. Transport CODE STROKE to nearest facility with early notification
E. Closely monitor neurological status and note changes.
F. Consider possible traumatic injury.

3. Treatment:

A. O2 for SpO2 <95%
B. Cardiac Monitor
C. IV access
D. Check Blood glucose, treat hypoglycemia if present.
E. If CODE STROKE evaluate patient for TPA contraindications
    a. SBP >180mmhg
    b. Rapid improvement in neuro deficits
    c. Severe headache or other indications of hemorrhage
    d. Recent surgery or lumbar puncture
    e. Anticoagulation (current use of Warfarin or Dagitraban)
    f. Active bleeding
    g. Recent traumatic injury)

STROKE TRIAGE DESTINATION PROCEDURE

Effective 6/11/14



AGITATION/COMBATIVE PATIENT (Chemical Sedation)

Effective 10/9/03
Revised 3/25/14

1. **Criteria:**
   Patient age >15 with signs of agitation or combativeness that pose a potential or real threat to patient and/or personnel safety. If patient is pediatric (age ≤15) contact Online Medical Control for directions

2. **Primary Survey:**
   Protect airway, ensure adequate ventilation and oxygenation

3. **Secondary Survey:**
   Evaluate for potential causes (e.g., hypoxia, hypoglycemia, hypotension, trauma, toxicologic) and treat as indicated and as per protocols.

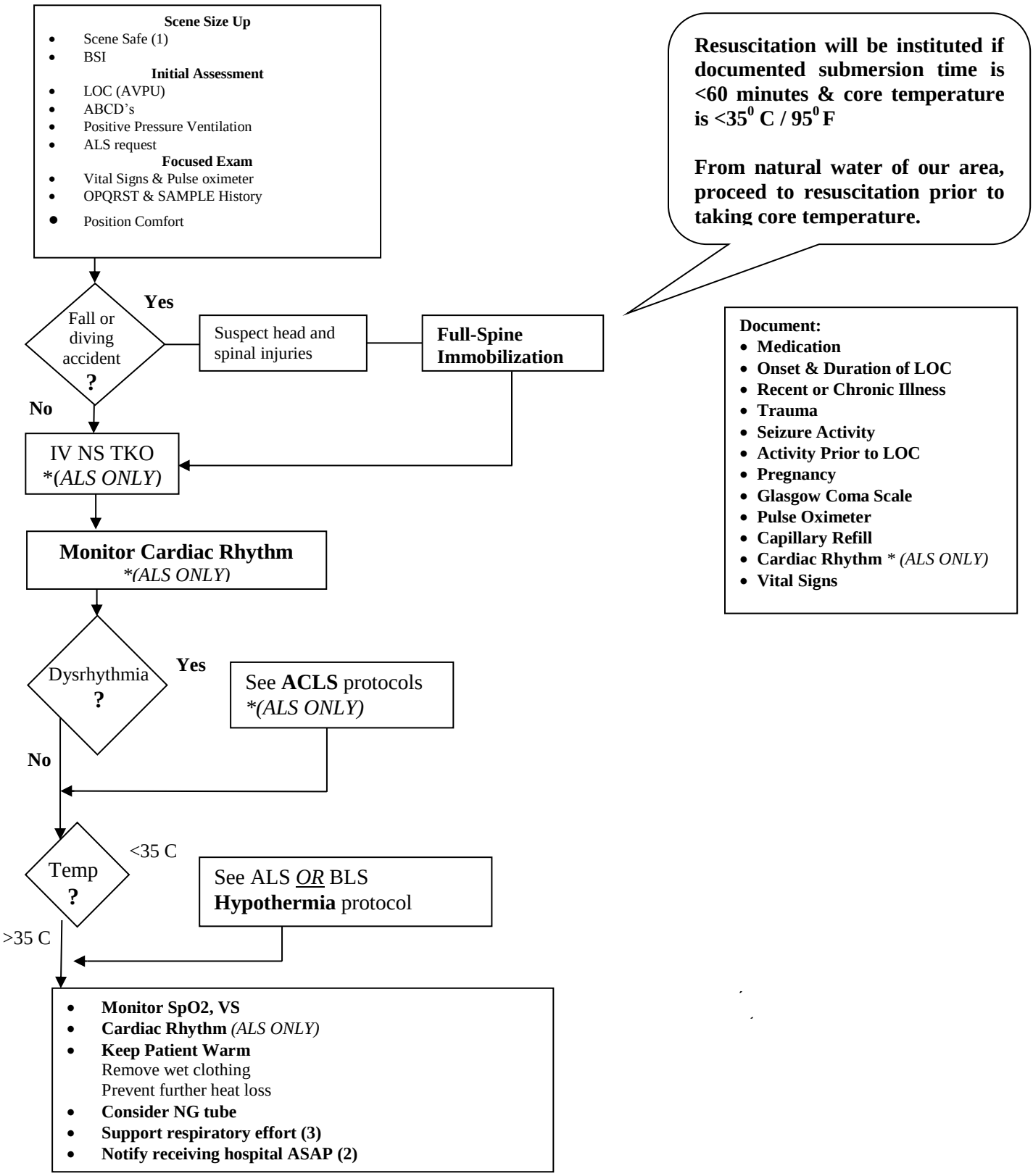
4. **Treatment:**

A. IV Access
B. Check blood glucose.
C. Severe agitation/Agitated delirium- Ketamine 2-4mg/kg IM or 1mg/kg IV; once IV is established add Midazolam 2.5-5mg IV
D. Agitation associated with alcohol withdrawal or drug abuse; Midazolam 2.5-5mg IV
E. Moderate agitation, above not applicable; Midazolam 2.5-5mg IV
F. All above may be repeated Q 5 minutes until pt is sedated
G. Cardiac Monitor
H. NS 500ml-1000ml bolus
I. Transport and contact Online Medical Control as needed.

Additional Information: For agitated delirium consider coordinated response with law enforcement, with the use of TASER to immobilize the patient for initial control.

DROWNING *(Page 1 of 2)*

Effective 12/2000 or prior Amended 12/15/2011



1. To be performed by a trained rescuer with appropriate equipment.
2. All near-drowning victims must be examined by a physician.
3. Observe for Pulmonary Edema.

*(ALS ONLY) : for Paramedics

DROWNING

(Page 2 of 2)

Effective 12/2000 or prior
Amended 3/4/05

(Continued)

*****SPECIAL NOTE******

A. When dealing with COLD WATER drowning patients, be especially aware that pulse may not be palpable despite acceptable core perfusion.
B. If the patient has spontaneous respirations, DO NOT initiate CPR, unless a cardiac arrest rhythm exists on cardiac monitor. Treat with arrest guidelines.
C. Also, as with ALL hypothermic patients, DO NOT abandon CPR measures until all resuscitative measures have been tried and the patient has been rewarmed.

   See ALS *OR* BLS Hypothermia protocol for your certified skill level.

D. HANDLE VERY CAREFULLY – rough handling may initiate Ventricular Fibrillation
E. All near drowning should be transported to Hospital.

EPISTAXIS- UNCONTROLLED

Effective 3/4/05

1. **Primary Survey:**
   A. Attempt to determine if bleeding is anterior or posterior in origin.
   B. Attempt to control the bleeding by applying bilateral pressure just below the nasal bone for at least 5 minutes.

2. **Secondary Survey**

3. **Treatment:**
   A. Oxygen therapy high flow as needed.
   B. IV Normal Saline and blood draw indicated only in case of concerns for potentially unstable patient.
   C. If direct pressure is not successful have patient clear both nostrils by gently blowing his/her nose. Immediately after cleaning the nose of blood clots instill 1 – 2 sprays of Oxymetazoline (Afrin), or other vasoconstrictive nasal spray, into each nostril and re-apply pressure.
   D. Transport.

HEAT EXHAUSTION OR HEAT STROKE

Effective 3/4/05 Revised 5/24/11

1. Criteria:

A. Exposure to environmental heat and/or humidity **AND** hyperpyrexia (elevated temperature)
   OR CNS dysfunction
   OR tachycardia/hypotension unrelated to suspected trauma or hemorrhage
   OR muscle cramps
   OR abdominal cramps
   OR nausea or vomiting.

2. Primary Survey

A. Mental status

3. Secondary Survey

A. Rectal temp if possible

4. Treatment:

A. Remove from warm environment and provide cooling measures. Cool patient compartment of ambulance, place moist sheets on patient. Pack patient with ice if possible.
B. Oxygen Therapy.
C. IV, Normal Saline – Bolus 500-1,000cc or 20cc/kg pediatric only if patient is hypotensive.
D. Cardiac monitor.
E. If seizures occur, refer to seizure protocol.
F. Contact Online Medical Control.
G. Transport.

HYPERTENSIVE CRISIS

Effective 3/4/05 Revised 5/24/11

1. Criteria:

Patient with severe hypertension defined by:

- Systolic pressure greater or equal to 180
- OR diastolic pressure greater or equal to120
- **AND** evidence of Central Nervous System dysfunction and/or headache.

2. Primary Survey

3. Secondary Survey

4. Treatment:

A. IV, Normal Saline TKO.
B. Oxygen therapy.
C. If time permits obtain EKG.
D. Treat chest pain or respiratory distress per protocol

HYPOGLYCEMIA

Effective 3/4/05 Revised 12/15/11

1. Primary Survey:

2. Secondary Survey:

Identify etiology of hypoglycemia (e.g. too much insulin and/or too little caloric intake)

3. Treatment:

A. IV, Normal saline.
B. Check Blood glucose level.
C. If 80 mg/dl or less, give Dextrose 50% IV push. Or oral glucose if pt is able to take.
    a. Pediatric dose: Dextrose 25% or Dextrose 50% at 1cc/kg, diluted 1:1 with saline, if < l year old.
D. If unable to start an IV on an unconscious patient, administer Glucagon 1 mg IM. For the Pediatric patient .03 mg/kg dose.
E. Re-evaluate patient for clinical change and recheck blood glucose level. If patient is alert and able to take oral carbohydrates non-transport may be considered.
F. If patient is not to be transported, encourage more frequent glucose monitoring, combined with increased caloric intake. Insure that the patient is able to take oral carbohydrate. Ongoing care is optimized if a separate individual can be identified to stay with the patient for at least several hours.
G. Provide the patient with a completed 'After Care Instructions for Diabetic Emergencies' form. (See General Protocols: After Care Instructions for Diabetic Emergencies) These forms should be stocked for each ambulance.

HYPOTHERMIA

Effective 3/4/05

Scene Size Up
- Scene Safe
- BSI

Initial Assessment
- LOC (AVPU)
- ABCD's
- Oxygen 15LPM NRB
- Assist ventilations, prn
- ALS request as needed

Focused Exam
- Vital Signs & Pulse Oximetry
- OPQRST & SAMPLE History
- Position of Comfort

- **Remove wet clothing**
- **Prevent heat loss/wind chill**
- **Maintain horizontal position**
- **Avoid rough movement**
- **Monitor rectal temperature if altered mental status patient not shivering**
- **Monitor cardiac rhythm**

Pulse & breathing present?

No

- Start CPR
- Defibrillate VF/VT up to 3 shocks 200j, 300j, 360j
- Intubate
- Ventilate with warm, humid oxygen
- Establish IV
- Infuse warm normal saline

Yes

Core Temp?

34-36 ^{0}c (93.2-96.8 ^{0} F) Mild Hypothermia
- Passive rewarming
- Active external rewarming

30-34 ^{0}c (86 – 93.2 ^{0} F) Moderate Hypothermia
- Passive rewarming
- Active external rewarming of truncal areas only

<30 ^{0}c (86 ^{0} F) Severe Hypothermia
- Passive rewarming and active external rewarming of truncal areas only
- Warm IV fluids
- Consider Airlift. Contact Med Cntrl.

Core Temp?

<30^o C (86 ^{o} F)
- Continue CPR
- Withhold IV meds
- Limit shocks for VF/VT to 3
- Transport ASAP

>30^o C (86 ^{o} F)
- Continue CPR
- Give IV meds prn
- Repeat defibrillation for VF/VT as temp rises
- Transport ASAP

- Warm IV fluids
- Warm, humidified oxygen (if available)

Continue rewarming until:
- Core temp >35 ^{0}c (95 ^{0} F) or
- Return of spontaneous circulation or
- Resuscitative measures are terminated by Online Medical Control

- Notify receiving hospital ASAP
- Monitor Cardiac Rhythm, Core Temp, VS, Pulse oximeter
- Support Respiratory Effort
- Transport ASAP

Document:
- **Signs & Symptoms**
- **Vital Signs, Pulse Oximetry**
- **Cardiac Rhythm**
- **Core Temp**
- **Mechanism of Injury**
- **Treatment**
- **Response to Treatment**

POISONS - INGESTED

Effective 3/4/05 Revised 5/24/11

1. Primary Survey:

2. Secondary Survey:

A. Obtain history of possible agent(s) ingested including time and quantity of ingestion.
B. Locate and secure any bottles.

3. Treatment:

A. Oxygen Therapy.
B. Cardiac Monitor.
C. Consider IV Normal Saline.
D. Narcan 0.2 - 4mg Intranasal or IV, for suspected drug induced depression or coma of unknown etiology. Narcan can be administered nasally through the MAD device.
E. Consider specific antidote if known and available.
F. For Significant ingestion (tricyclic antidepressant, cardiovascular drug) occurring immediately prior to EMS arrival with a transport time >15 mins. Consult Online Medical Control for activated charcoal

RESPIRATORY DISTRESS

(Page 1 of 2)

Effective 3/4/05
Revised 6/11/14

1. Primary Survey:

A. Rule out obstruction.

2. Secondary Survey

A. Note physical of respiratory distress (stridor, drooling, accessory muscle use, etc)
B. Note mental status
C. Room air O2 saturation (unless pt on home O2 or O2 has been started by first responders)
D. Consider 12-lead ECG

3. Treatment:

A. Oxygen Therapy. For COPD goal is O2 sat between 89-93%. If CO2 retention is not a consideration, high-flow O2
B. Consider intubation, CPAP, BVM assist
C. IV NS TKO.
D. Position of comfort.

ACUTE PULMONARY EDEMA *(See Cardiac Protocols* - Congestive Heart Failure)

COPD OR ASTHMA:

A. For dyspnea or respiratory distress with wheezing:
    a. ALBUTEROL (PROVENTIL): Dosage and Administration: Solution for inhalation is administered in a dose of 2.5 - 5 mg (usual adult dose 5 mg). Continuous nebulization may be used if needed. An alternative is by MDI and aerochamber or nebulizer BVM at a dose of four to eight (4-8) puffs every 5 minutes or less.
    b. IPRATROPIUM BROMIDE (ATROVENT) 1 unit dose with initial albuterol nebulizer, may repeat in 20 mins
B. In patients with no breath sounds or not responding to above consider 1:1,000 Epinephrine 0.01 ml/per kg up to 0.3 ml SQ
C. Life threatening exacerbations (silent chest, hypoxia, hypercarbia) not responding to nebulized bronchodialators, MAGNESIUM SULFATE 2g IV infused over 10 minutes

SMOKE INHALATION/CARBON MONOXIDE POISONING -- ENSURE YOUR SAFETY ! ! ! !
Aggressive airway management for signs of airway burns
CO if able; for CO > 10 100% O2 via NRB

A. 100% O_2 via non-rebreather mask if unable to measure CO
B. Observe for increasing respiratory distress.
C. Be alert for Pulmonary edema
D. Consider Albuterol inhalation
E. Consider Cyanide poisoning

RESPIRATORY DISTRESS

(Page 2 of 2)

Effective 3/4/05
Revised 9/19/2013

UPPER AIRWAY OBSTRUCTION:

1. Apparent choking:

A. Heimlich maneuver (chest thrusts if obese or pregnant)
B. If unsuccessful and patient unconscious, direct laryngoscopy with foreign body removal
C. Surgical Cricothyroidotomy

2. Multiple trauma:

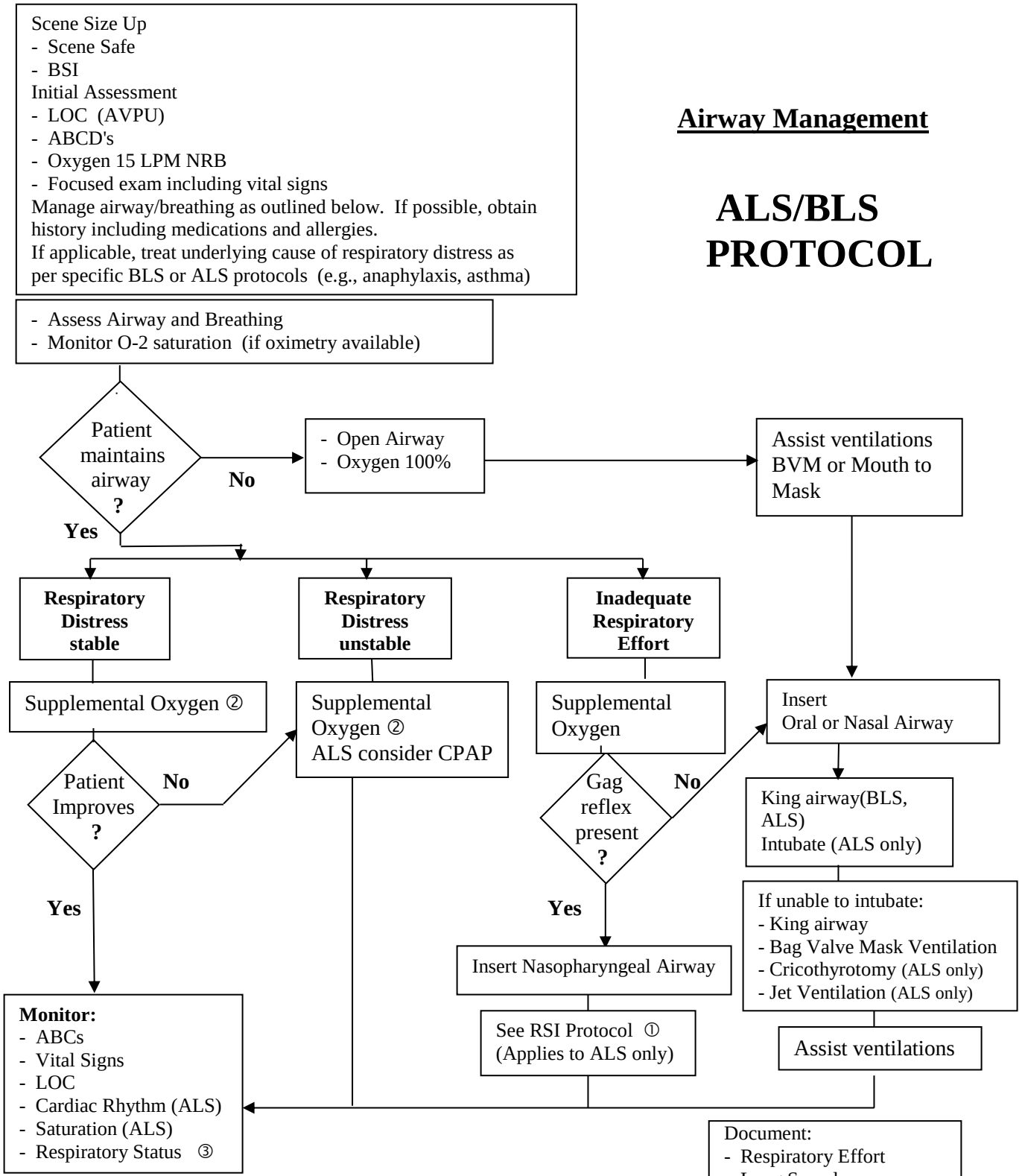
A. One provider manually ensures stability of neck while the paramedic performs maneuvers as follows:
    a. Jaw thrust, chin lift
    b. Direct laryngoscopy with suction and/or foreign body removal.
    c. Intubation if indicated.
    d. Cricothyroidotomy or needle cricothyroidotomy with jet insufflation if unable to intubate.
    e. Needle decompression of tension pneumothorax if indicated

CARDIO/PULMONARY GUIDELINES

Effective 4/15/03 Revised 5/24/11

Airway Management

ALS/BLS PROTOCOL



① See Rapid Sequence Intubation Protocols.
② ALS may determine method of O2 delivery based on patient condition/O2 saturation
③ IF RESPIRATORY EFFORT OR LEVEL OF DISTRESS CHANGES MOVE TO THE APPROPRIATE ASPECT OR ARM OF THIS PROTOCOL.

SCUBA DIVING INJURIES

Revised 6/11/14

Scuba diving injuries may involve drowning, hypothermia, mechanical trauma, myocardial infarction, or dysbarism (air embolus, pneumothorax, bends). The exact situation is notoriously difficult to determine at the scene and all of these need to be considered in the evaluation and treatment per specific protocols.

1. SCUBA INJURY

A. Potentially need rapid evacuation to a hyperbaric chamber. Notify Online Medical Control immediately
B. Maximal oxygen therapy.
C. Intubate as needed
D. NS IV 1L administered within first hour
E. Other specific conditions per protocols (e.g. hypothermia) if indicated
F. Transport pt in supine position
G. If available, companion diver should be brought to ED to give technical information as needed or means of telephone contact with companion diver.

SEIZURE

Effective 3/4/05
Revised 3/25/14

1. Primary Survey

A. Medicate immediately if patient is still seizing

2. Secondary Survey:

A. History
   a. Events prior to seizure
   b. Number and duration of seizures
   c. Postictal state
   d. Medical history- seizures, diabetes, trauma, drug or alcohol use

3. Treatment:

A. For ongoing seizure activity- Midazolam 10mg IM
   a. Pediatric 0.2mg/kg IM
   b. DO NOT delay treatment of active seizure to check glucose unless patient is a known diabetic
B. IV access
C. Blood glucose check.
D. Repeat Midazolam 4-5mg IV or 10mg IM Q5 minutes if still seizing up to 3 doses
E. Anticipate the need to control airway if repeat doses of Midazolam are required
   Contact medical control if patient is still seizing after 3 doses Midazolam

SHOCK

Revised 3/25/14

1. Primary Survey:
   A. Establish and maintain airway.

2. Secondary Survey:
   A. Attempt to identify the type of shock if possible.
   B. Differentiate between cardiac and other types of shock.
   C. If shock suspect, calculate shock index HR/SPB (normal <0.7)

3. Treatment:
   A. Oxygen therapy, high flow as indicated.
   B. IV Normal Saline, multiple sites and large bore, if possible.
   C. Cardiac Monitor, treat dysrhythmias per protocol.
   D. Maintain BP at 80-90 systolic.
   E. Transport patients with cardiogenic shock to level I cardiac center
   F. If not hemorrhagic shock and persistent SBP<90 after fluid bolus, and >10 min transport time; epinephrine drip with medical control approval
   G. Maintain body temperature.
   H. Expedite transfer.
   I. Report abnormal shock inex.

SYNCOPE

Effective 3/4/05

1. Primary Survey

2. Secondary Survey

3. Treatment:

A. IV Normal Saline TKO.
B. 12-Lead EKG, treat arrhythmias as per protocol and contact Online Medical Control.
C. Oxygen therapy.
D. Blood pressure and pulse lying down and sitting up, if possible.
E. Check blood glucose. If glucose less than 80, give 50cc D50.

ALTERED MENTAL STATUS

Effective 3/4/05 Revised 12/15/11

1. Primary Survey:

A. Establish Airway and ventilation as necessary.

2. Secondary Survey

A. Assess for signs of trauma, fever.

3. Treatment:

A. Oxygen therapy.
B. IV: Normal Saline, TKO unless patient is hypotensive.
C. Cardiac monitor, treat dysrhythmias as indicated.
D. Check blood glucose. If glucose less than 80, give 50cc D50/W IV.
E. Consider Narcan 0.2 - 2mg IV or can be administered Intranasal through the MAD device.
F. Support vital signs as needed.
G. Consider possible overdose. Look for empty container or other evidence.

Section D
TRAUMA PROTOCOLS

AMPUTATED PARTS

Effective 3/4/05

1. Primary Survey:

A. Stop bleeding from cut end using direct pressure, if possible. A tourniquet should only be used if no other method is successful.

2. Secondary Survey

3. Treatment:

A. Oxygen therapy.
B. IV Normal Saline, as indicated.
C. Treat patient for shock or other injuries, as appropriate.
D. Principles for preserving the amputated part:
    a. Rinse debris off of amputated part with saline and wrap in a clean moist dressing, towel, etc.
    b. If possible wrap dressing in sealed plastic baggie and then place packaged amputated part with cold pack or in ice water. DO NOT place directly in water or on ice.
E. Notify Online Medical Control of amputation as soon as possible.

BURNS

Effective 3/4/05 Revised 12/15/11

1. Primary Survey:

*** * * DO NOT risk personal safety.**

A. Remove the patient from the source, if possible, and stop the burning process.
B. Airway compromise is likely! Establish and maintain airway.
C. Be alert for smoke inhalation. If history suggestive, 100% FiO2.

2. Secondary Survey:

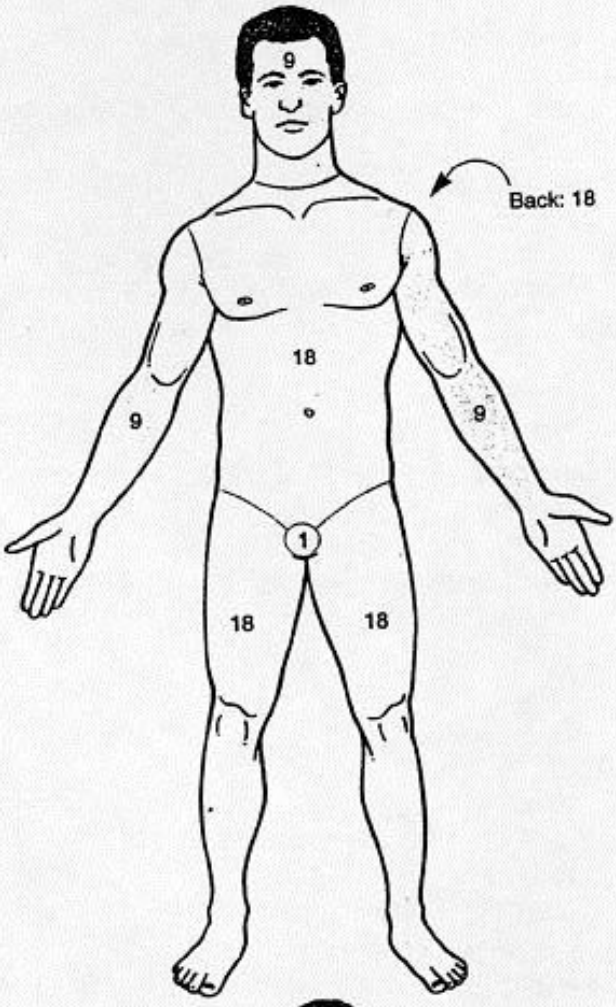
A. Obtain history of burn agent and potential fractures or other trauma. Splint, as needed.

3. Treatment:

A. Oxygen therapy.
B. Remove constrictive clothing or jewelry, especially rings and bracelets.
C. Treat for shock, maintain body temperature.
D. Estimate the size and depth of the burn using the Rule of Nines Burn Chart.
E. For unconscious patients administer 50cc D50 if blood glucose check < 80. See Smoke Inhalation Protocols. (Respiratory Distress).
F. Keep burn area clean, cover with clean sheet or dressing
G. Cool water lavage or soaks.
    a. Apply first to critical areas; face, ears, hands.
    b. Use for pain relief of second degree burns of 10% or less body surface area.
    c. Avoid hypothermia.
H. Establish large bore IV and administer 1L NS en route
I. IV Morphine or Fentanyl as required for pain control.

Trauma Protocols

BURN CHART/RULE OF NINES



ELECTRICAL INJURIES

Effective 3/4/05 Revised 12/15/11

1. Primary Survey:

*** * * DO NOT risk personal safety* * ***

A. Once threat is rendered safe, access patient. If downed live high voltage lines are present, stay well clear of the scene until danger can be removed by the power company.

2. Secondary Survey:

A. Note entrance and exit wounds.
B. Consider traumatic injuries secondary to electrocution
C. Note other injuries.

3. Treatment:

A. Oxygen Therapy.
B. IV: NS - 4cc/kg/hour.
C. Cardiac monitor, treat dysrhythmias and/or pain as appropriate.

EYE INJURIES

Effective 3/4/05

1. Primary Survey

2. Secondary Survey

3. Treatment:

A. Chemicals: Flush with Saline or water for at least 15 – 20 minutes. Continue flushing en route, especially if alkali involved.

B. Foreign body or puncture of globe: Leave in place. Apply cup over eye, no pressure to eye. Patch both eyes. No pressure dressing.

C. Keep patient from rubbing eye. If patient is unconscious, immobilize patient's hands.

D. Contact Lenses:

Generally, you should remove contact lenses if:

i. There has been a chemical burn to the eye.

ii. The patient is unresponsive, is wearing hard contact lenses, and transport time will be lengthy or delayed.

Generally, you should not remove contact lenses if:

iii. The eyeball is injured (other than a chemical burn).

iv. Transport time is short enough to allow emergency department personnel to remove the lens.

If one of the crew wears contact lenses, there may be consideration to have them be the preferred remover of the contact lenses.

Removing Soft Contact Lenses:

Soft contact lenses can cause damage if left in for a long time. They can also gradually dehydrate and shrink, adhering to the cornea and making removal difficult.

Soft lenses are slightly larger than a dime and cover all of the cornea and some of the sclera. One way to remove them is to place several drops of saline on the lens, then lift the lens off the eye by gently pinching the lens between your thumb and index finger.

Removing Hard Contact Lenses:

A. Hard contact lenses are less common than Soft and are about the size of a shirt button, they fit over the cornea. To remove:

a. Separate the eyelids.

b. Position the visible lens over the cornea by manipulating the eyelids.

c. Place your thumbs gently on the top and bottom eyelids, and open the eyelids wide.

d. Gently press the eyelids down and forward to the edges of the lens.

e. Press the lower eyelid slightly harder and move it under the bottom edge of the lens.

f. Moving the eyelids toward each other, slide the lens out between them.

g. You can also use a suction device with saline to remove hard contact lenses.

h. Lenses should be transported in a container with saline.

HEAD INJURIES

Effective 3/4/05 Revised 6/11/14

1. Primary Survey:

A. Establish and maintain an airway with adequate ventilation.
B. Spinal immobilization as indicated

2. Secondary Survey

A. Evaluate for anticoagulant use: medication history, medic alert tag, atrial fibrillation
B. Measure and record composite GCS initially and Q10 minutesif GCS <15

3. Treatment:

A. Oxygen therapy. Goal is to have oxygen > 90%.
B. IV Normal Saline. Goal is to have blood pressure> 90mm/Hg.
C. Isolated Head Trauma: Isolated head trauma patients shall generally be transported to the nearest neurosurgical facility, which includes St. Josephs and Harborview.
D. Non Isolated Head Trauma: Non-isolated head trauma patients will be transported to the nearest appropriate trauma designated facility. See trauma triage tool or consult medical control
E. Intubation for GCS<8, decreasing LOC, inability to protect airway or cooperate with care
F. Capnography goal EtC02 35-40
G. Hyperventilate for signs of herniaton ETC02 30-35
    i. Unresponsive patient:
        1. unilaterally or bilaterally dialated or asymmetric pupils
        2. decerebrate posturing
        3. no motor response to painful stimuli (pt not paralyzed)
        4. bradycardia with hypertension
    ii. Responsive patient:
        1. Best GCS <9 and decrease of GCS by >2 points
        2. Bradycardia with hypertension

SPINE EVALUATION AND IMMOBILIZATION

Effective 3/4/05 Revised 12/15/11

Alert, cooperative patients who are mobile may be assisted to the EMS stretcher and allowed to assume a comfortable supping position, either flat or with up to 30 deg elevation of the head.
Immobilization on a backboard or long vacuum splint should be reserved for patients with altered mental status, intoxication, neurological deficits, or severe spine pain. If a cervical collar is indicated it should be placed as soon as possible, patients seated in a car who are alert and cooperative should be assisted out of the car after a collar has been placed. Long spine boards or KED's may be used as needed for extrication.
When transporting without a backboard, a draw sheet should be placed on the stretcher to facilitate patient transfer.
DO NOT immobilize "for mechanism" evaluate ALL trauma patients carefully and immobilize as indicated by findings
When transferring care at the receiving hospital, be proactive about assisting hospital staff in removal of patient from backboard

See indications algorithm-

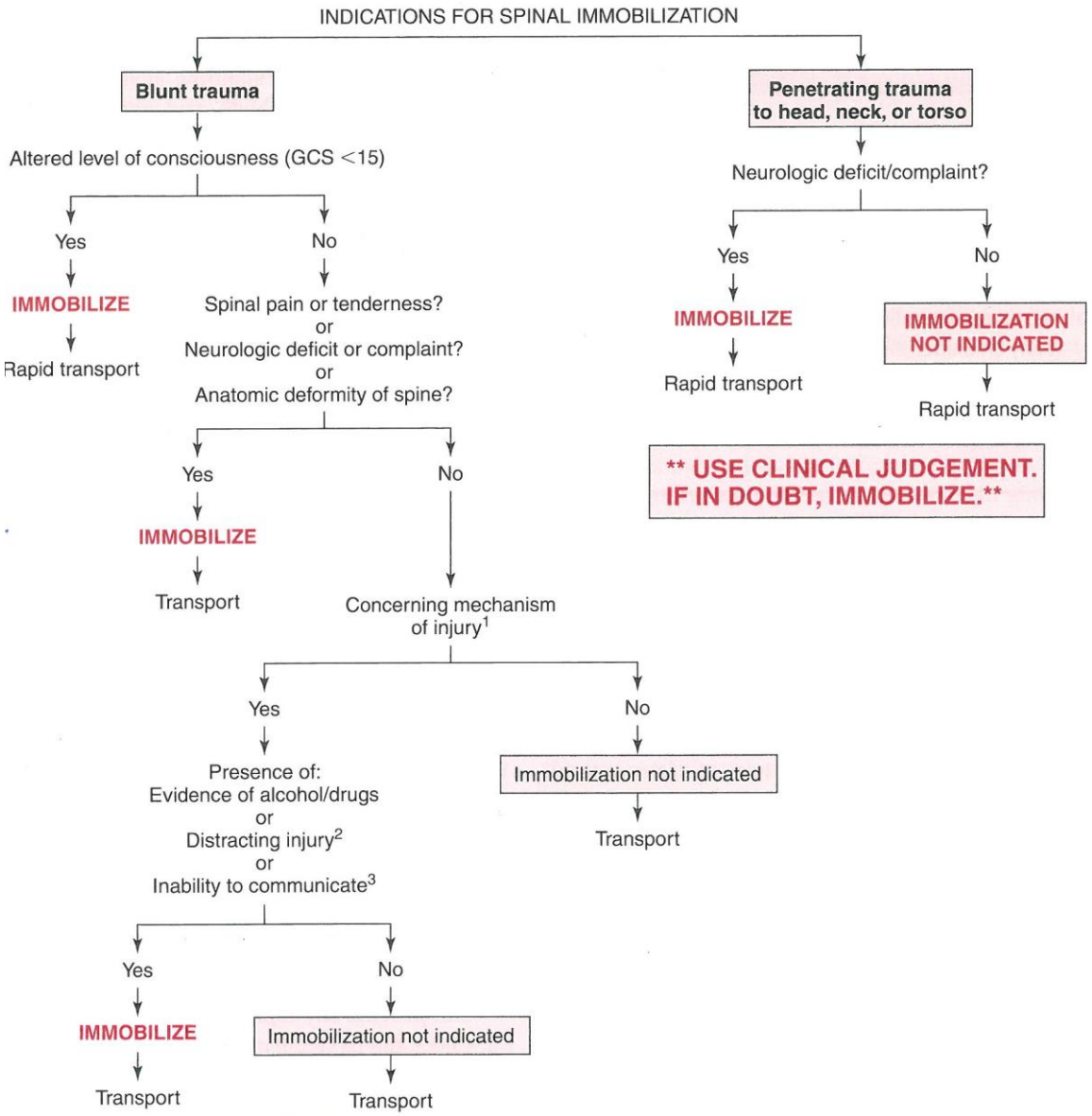
Mild-Moderate midline pain or tenderness with no other findings- **Collar only** if pain/tenderness is limited to cervical spine

Mild-Moderate midline pain or tenderness with other findings- **Collar and whole spine immobilization** (long spine board or vacuum matress)

1. Treatment:

A. See indications algorithm-
   a. Mild-Moderate midline pain or tenderness with no other findings- **Collar only** if pain/tenderness is limited to cervical spine
   b. Mild-Moderate midline pain or tenderness with other findings- **Collar and whole spine immobilization** (long spine board or vacuum matress)
B. Airway, ventilation and hemorrhage control take precedence over spine immobilization
C. Do not delay packaging- use a draw sheet if a patient is packaged without backboard
D. Do not provoke combative patients to struggle
E. Analgesia as appropriate
F. Spine injury with neurological deficits- consider activating Airlift NW

SPINAL ASSESSMENT



1- Concerning mechanisms of injury

- Special consideration should be given when the patient age is <8 or >70 years of age.
-Any mechanism that produced a violent impact to the head, neck, torso or pelvis
- Incidents producing sudden acceleration, deceleration, or lateral bending forces to the neck or torso (moderate to high speed mva, cars vs pedestrian, explosions, etc.)
- Any fall, especially in elderly patients
- Ejection or fall from any motorized or otherwise-powered vehicle (scooters, skateboards, bicycles, motorcycles, motor vehicles, or recreation vehicles)
- Victims of shallow water diving accidents

2- Distracting Injury

- Any injury that may have the potential to impair the patient's ability to appreciate other injuries, (long bone fractures, visceral injuries, large lacerations, degloving injuries, crush injury, large burns, or any other injury causing acute functional impairment)

3- Inability to communicate

- Any patient who for reasons not specified above cannot clearly communicate so as to actively participate in their assessment (speech or hearing impairment, those who only speak a foreign language, small children, etc.)

CHEST/ABDOMEN/ORTHOPEDIC TRAUMA

Effective 3/4/05 Revised 5/30/11

1. Primary Survey:
- A. Establish and maintain airway.
- B. Full spinal stabilization if head or neck injury present, altered LOC, or if mechanism of accident suggests.
- C. Control external bleeding.

2. Secondary Survey

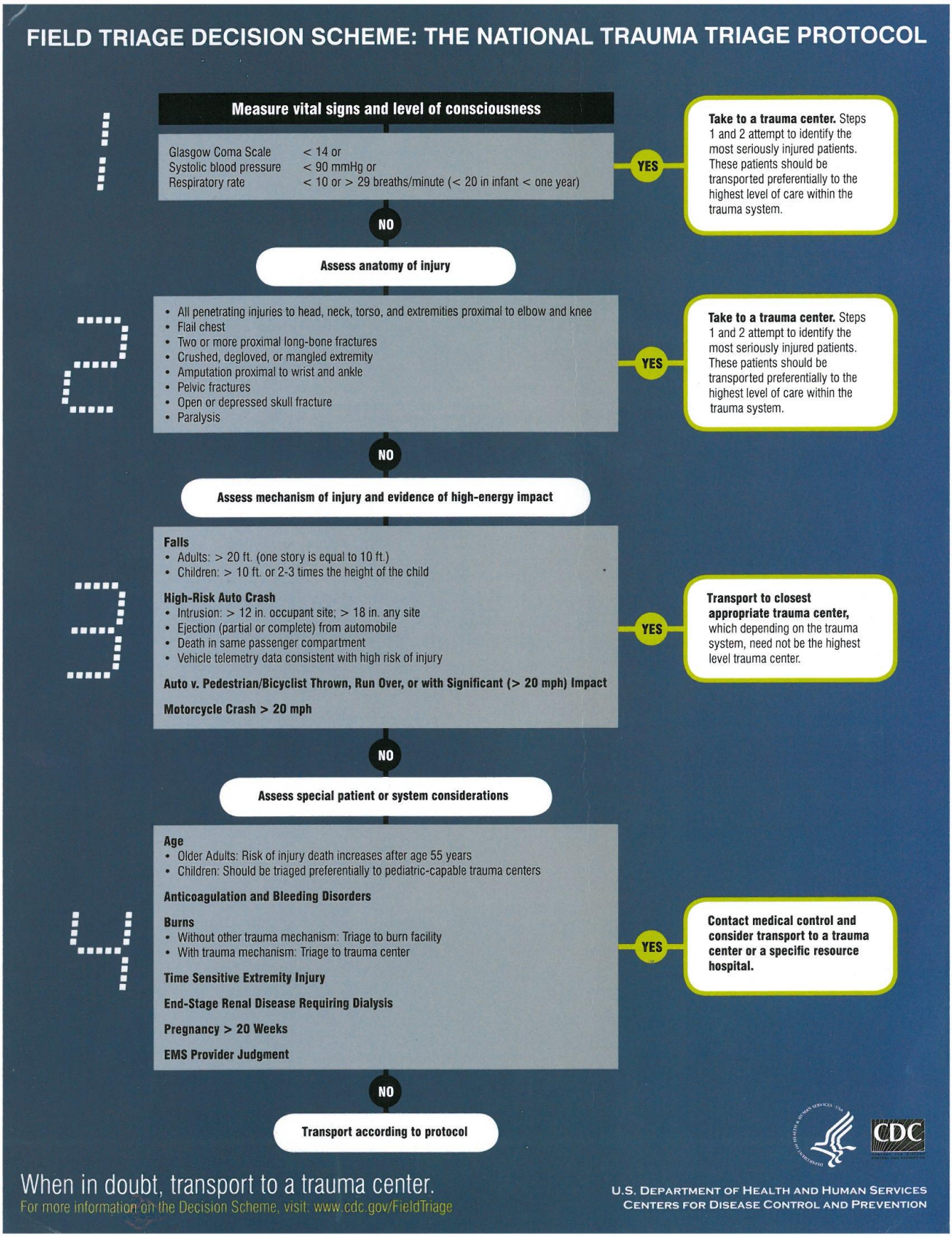
3. Treatment
- A. Oxygen Therapy, high flow, as indicated.
- B. IV Normal Saline, multiple sites and large bore, if possible. Do not delay transport for IV's.
- C. Maintain systolic BP of 80 - 90mm Hg.
- D. Cardiac monitor.
- E. Suspect Pelvic Fracture: ALL blunt trauma patients who have a mechanism or exam consistent with pelvic fracture and all unresponsive blunt trauma patients who are hypotensive or tachycardic should have pelvic wrap applied.
- F. Expedite transport: Limit on scene time < 15 minutes, if possible.
    - a. Notify receiving hospital ASAP

4. Chest Trauma:
- A. Cover sucking chest wounds with Vaseline, gauze, or other sealing dressing. Tape on three sides.
- B. Place the patient in a position of comfort unless contraindicated. Splint unstable rib fractures.
- C. For tension pneumothorax perform needle decompression.
- D. Severe chest trauma may need intubation.

5. Abdominal Trauma:
- A. Evisceration: Dress with saline moistened dressings. Do not replace bowel in abdomen.
- B. Stabilize impaled objects. If the patient is deteriorating, contact Online Medical Control for consideration of object removal.

6. Fractures/Dislocations
- A. Check circulation, sensation, movement distal to the injury before and after splinting.
- B. Generally splint in position found. Severely angulated fractures may be straightened by gentle continuous traction if necessary for immobilization, extrication or if significant neurovascular compromise present, time permitting.
- C. Apply cold packs to sites of swelling.
- D. Use Hare Traction for mid shaft femur fractures, time permitting.

FIELD TRIAGE DECISION SCHEME



APPLICATION OF FIELD TRIAGE DECISION SCHEME

Effective 12/15/11

Use as a tool to identify patients who require trauma activation

Trauma patients are to be transported to the nearest level III trauma center UNLESS they meet criteria for direct air transport to Harborview. (Excerpted below)

Level III trauma centers in ground transport range of Skagit EMS; Island Hospital, Skagit Regional Medical Center, Peace Health St Joseph's Medical Center.

Criteria for helicopter transport of trauma patients from field:
In Skagit County, currently all neuro/spinal patients, burn patients and all multisystem trauma patients flown due to long ground transport times should be transported to the level I trauma facility, Harborview Medical Center

Helicopter transport from the field is appropriate for critical patients who have a prolonged ground transport time to an appropriate hospital.

a. Multisystem trauma patients with a ground transport time to a level III trauma center greater than 30 min
b. Neurologic/spinal trauma patients (altered level of consciousness or motor deficit after trauma) or critical burns may be flown from the scene to Harborview Medical Center.
    i. For neurologic/spinal patients who are within 20 min by ground (inclusive of packaging time) to a level III trauma center, initial stabilization at the hospital prior to transport may be appropriate.

TRIAGE -- Multi-CASUALTY INCIDENT (MCI) PROTOCOL

Effective 3/4/05 Revised 12/15/11

The field triage categorization shall be based upon the use of START Triage system and use the following category definitions:

Black- Patients so critically injured only prolonged or complicated treatment is required, or patients who are dead.

Red - Life threatening conditions which require immediate, but limited, intervention to save life or limb.

Yellow-Stable patients who require basic field emergency care and hospitalization; transport can be delayed 30 minutes to 2 hours.

Green- Ambulatory patients, minor or no treatment required; usually does not require in-patient treatment.

In general, transport of patients from an incident site to hospital care shall be based upon these triage categories.

Patients shall be distributed to hospitals for care to assure prompt and appropriate care. Distribution shall be decided by the field transport officer and Online Medical Control at the closest hospital.

Section E
OBSTETRIC/GYNECOLOGICAL PROTOCOLS

IMMINENT DELIVERY

Effective 3/4/05 Revised 12/15/11

A. Inspect to see if child is crowning. If so, prepare for delivery.
B. Obtain history as indicated to include:
    a. Number of pregnancies, abortions and deliveries.
    b. Months of pregnancy/Due Date.
    c. Expecting multiple birth
    d. Hours of labor.
    e. Time between pains and length of pains.
    f. Crowning or not.
    g. Ruptured membranes. Gushing? What color of fluid?
    h. Determine if mother feels as if she needs to move her bowels.
    i. Maternal Medications. Narcotics, insulin, etc.
    j. Vaginal bleeding.
    k. Last felt fetal movement.
C. Give mother O_2 by mask or nasal cannula
D. Start IV with Normal Saline.
E. If not crowning, transport, obtaining history and vital signs in route (see #B above).
F. If necessary to do delivery, prepare mother using OB pack.
G. Perform normal delivery. If bleeding occurs, run IV as necessary.
H. Provide newborn care as needed.
I. Provide uterine massage to facilitate delivery of placenta and reduce post-partum hemorrhage. Use counter pressure above symphysis pubis. Allow placenta to deliver naturally. Do not forcibly extract.

NORMAL DELIVERY

Effective 11/5/03
Revised 5/30/11

1. Criteria:

Near or Full Term Pregnancy

-and-

Crowning evident during examination of external perineum (Do NOT perform internal exam)

2. Primary Survey

3. Secondary Survey:

A. Note bleeding, prolapsed, or nuchal cord
B. Contact Online Medical Control if patient has abnormal presentation (e.g., Breech or prolapsed cord)

4. Treatment:

A. Ensure Airway patency and administer high flow O2 as indicated
B. Establish and maintain IV Normal Saline. (Note: Do NOT delay delivery for initiation of IV)
C. Allow delivery to proceed naturally, instructing mother to push only during contractions
D. Support infants head as it emerges from the perineum. Clear infant's airway with bulb suction device, suctioning mouth *before* the nares.
E. Turn head gently and facilitate delivery of anterior shoulder with *gentle* downward traction. Then lift upwards to facilitate delivery of posterior shoulder.
F. Keep the infant at or below the level of the placenta to facilitate blood flow.
G. Clamp the umbilical cord with the first clamp to be placed 10 inches from the baby and the second clamp to be placed 2 inches from the first clamp. Cut the cord between the two clamps.
H. Assess and record APGAR Score.
I. Resuscitate infant as indicated per Newborn resuscitation protocols.
J. Dry infant and keep warm.
K. Allow placenta to deliver – do NOT pull on umbilical cord (Do not delay transport for delivery of placenta.)
L. Package delivered placenta for ED personnel.
M. Massage the uterus exteriorly (from the abdomen) to control bleeding once the placenta has been delivered.
N. Volume resuscitate to maintain maternal SBP $\geq$ 90 mmHg as needed
O. Contact Online Medical Control.

OBSTETRIC COMPLICATIONS

Effective 3/4/05 Revised 12/15/11

1. BIRTH COMPLICATIONS

A. Arm or leg presentations, prolapsed cord, significant hemorrhage, decreased fetal heart rate.
   a. Obtain OB history, vital signs, and physical exam as above.
   b. Give O_2 by mask or nasal cannula.

B. Contact base station for instructions but consider:
   a. Placing patient on her side or in knee chest position as appropriate.
   b. If prolapsed cord is present and does not resolve using "a" above, place gloved index and middle fingers into vagina, pushing up child to relieve pressure on cord, separate labia to allow for cord circulation. Check cord for pulses.
   c. Normal Saline and run at rate determined by blood loss and vital signs.

3. BLEEDING DURING PREGNANCY

A. History of pregnancy including past miscarriages. Vital signs and physical exam. Do not do speculum or pelvic exam or put anything in patient's vagina.
B. O_2 by mask or nasal cannula
C. Estimate blood loss. Obtain any tissue passed and save.
D. IV Normal Saline, 1-2 L

4. POSTPARTUM HEMORRHAGE

A. Obtain history, vital signs and do physical exam.
B. O_2 by mask or nasal cannula.
C. External Massage of uterus if not firm.
D. If shock is present, IV Normal Saline, 1-2 L.
E. If shock is not present, IV Normal Saline. Draw blood.
F. <u>Do not</u> pack vagina for hemostasis.

PREECLAMPSIA/ECLAMPSIA

Effective 11/5/03

1. Criteria:

Preeclampsia - Third Trimester pregnancy and/or ≤ 2 weeks post-partum
-AND- Systolic BP ≥ 140 mmHg or Diastolic ≥ 90 mmHg

Ecclampsia - -Preeclampsia with seizure activity

2. Primary Survey

3. Secondary Survey:

A. Other characteristics of Preeclampsia include
B. Generalized Edema
C. Hyperreflexia
D. Proteinuria
E. If possible, monitor Fetal Heart Tones

4. Treatment:

A. Establish and maintain IV Normal Saline TKO
B. If possible, position and transport patient in left lateral position
C. If preeclampsia with Systolic BP ≥160 or Diastolic ≥110 administer 2-4 grams Magnesium IV over 5-10 minutes and consider Magnesium infusion at a rate of 2 grams/hr
D. If eclampsia and patient is actively seizing on assessment, treat as per Seizure protocols and then if possible, administer 4 grams Magnesium IV over 5-10 minutes (See Magnesium Drug Monograph) and initiate Magnesium infusion at a rate of 2 grams/hour as soon as possible. (4 grams in 1000 NS at a rate of 500cc/hr)
E. If eclampsia and patient is not actively seizing (e.g., post-ictal) than administer Magnesium 4 grams IV over 5-10 minutes and initiate Magnesium infusion at a rate of 2 grams/hour as soon as possible. (4 grams in 1000 NS at a rate of 500cc/hr)
F. Administer Dextrose 50% IV if glucose <80 mg/dl
G. Closely monitor respiratory rate, and if possible deep tendon reflexes and Fetal Heart Tones for any signs of depression after administration of Magnesium. Decrease Magnesium infusion rate to 1 gram/ hour if any depression occurs.
H. If seizure activity refractory to Magnesium Therapy follow Seizure Protocols
I. Contact Online Medical Control

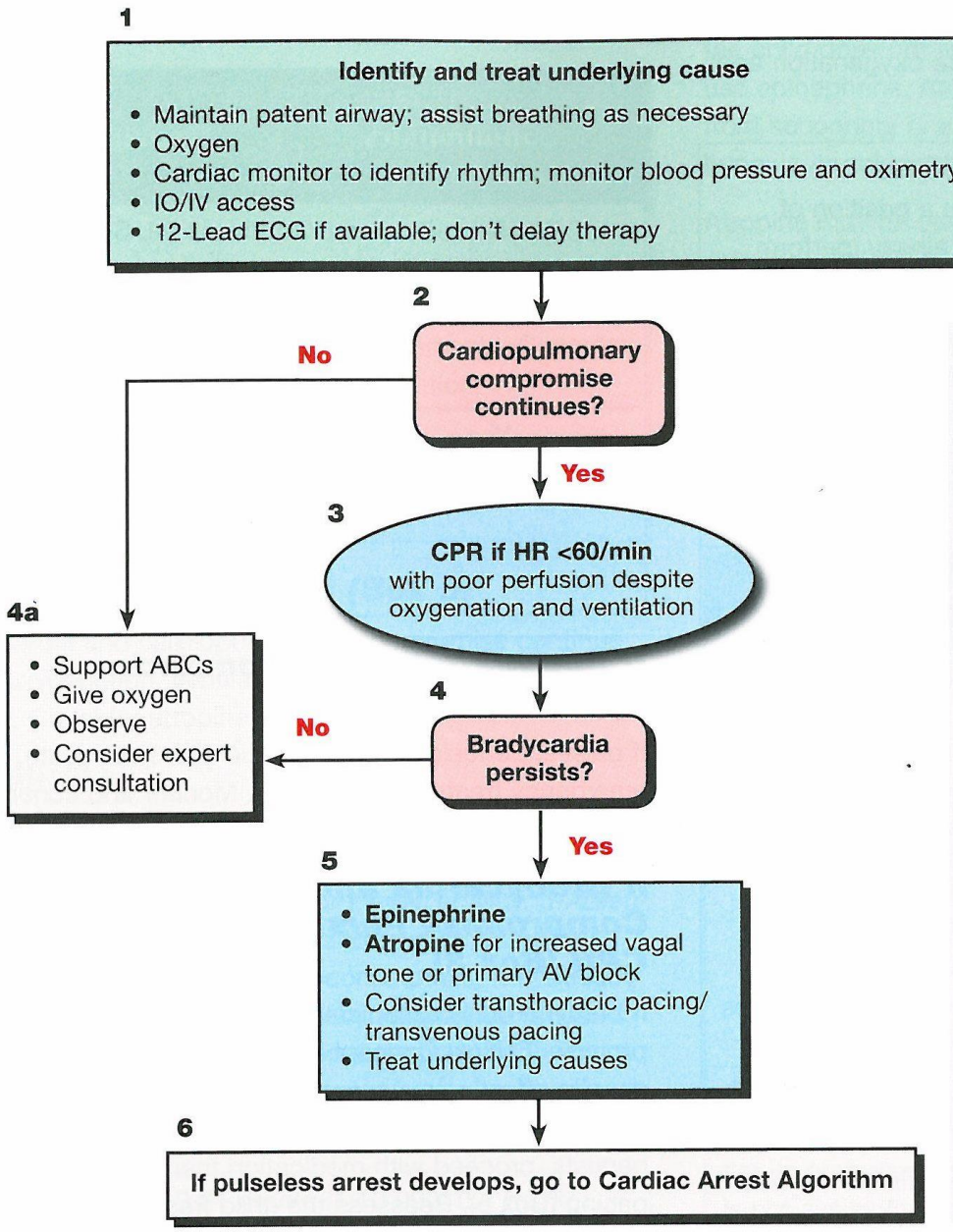
Section F
PEDIATRIC PROTOCOLS

GENERAL PRINCIPLES – EMERGENCY CARE

Revised 12/15/11

1. Follow algorithms for emergency cardiac care
2. Defibrillation energies:
    a. First shock 2 joules/kg
    b. Second shock 4 joules/kg
    c. Subsequent shocks $\geq$ 4 joules/kg up to 10 joules/kg or adult energy
3. Epinephrine 0.01mg/kg (.1ml/kg) of 1:10,000 IV/IO before atropine for bradycardia, unless treating rebound bradycardia secondary to succinylcholine.
4. Cardioversion energy
    a. First shock 0.5-1 joule/kg
    b. Second and subsequent 2 joules/kg
5. ALL medication doses should be checked against known patient weight or estimate based on Broselow tape
6. Any medications listed for IV administration may be given IO at the same dose
7. Resuscitation fluids should be given as measured boluses of 20cc/kg. DO NOT start IV, hang fluids and run "wide open" directly from bag.

PEDIATRIC BRADYCARDIA



Cardiopulmonary Compromise

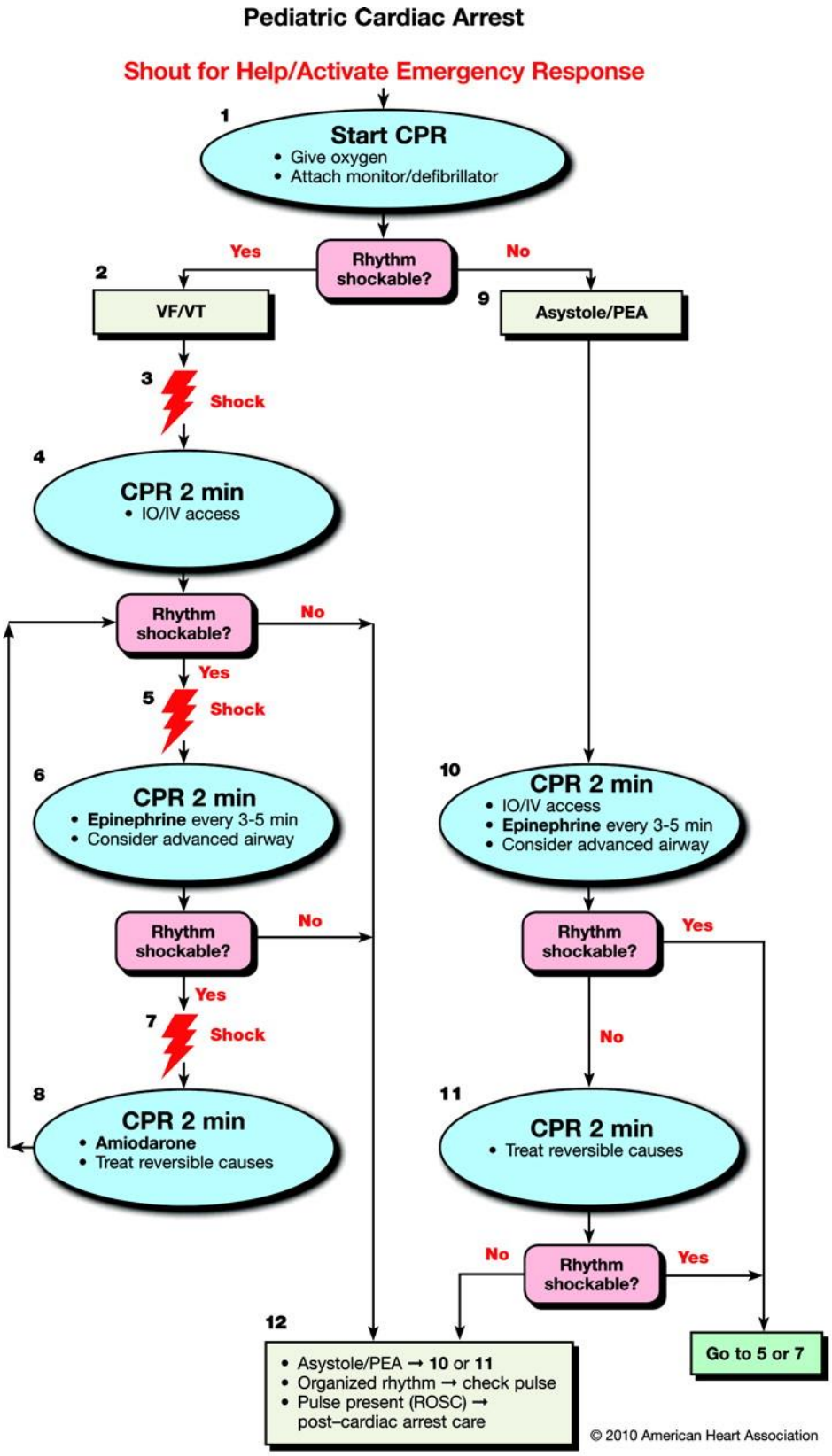
- Hypotension
- Acutely altered mental status
- Signs of shock

Doses/Details

Epinephrine IO/IV Dose:
0.01 mg/kg (0.1 mL/kg of 1:10 000 concentration). Repeat every 3-5 minutes. If IO/IV access not available but endotracheal (ET) tube in place, may give ET dose: 0.1 mg/kg (0.1 mL/kg of 1:1000).

Atropine IO/IV Dose:
0.02 mg/kg. May repeat once. Minimum dose 0.1 mg and maximum single dose 0.5 mg.

PEDIATRIC CARDIAC ARREST



Doses/Details

CPR Quality
- Push hard (≥1/3 of anterior-posterior diameter of chest) and fast (at least 100/min) and allow complete chest recoil
- Minimize interruptions in compressions
- Avoid excessive ventilation
- Rotate compressor every 2 minutes
- If no advanced airway, 15:2 compression-ventilation ratio. If advanced airway, 8-10 breaths per minute with continuous chest compressions

Shock Energy for Defibrillation
First shock 2 J/kg, second shock 4 J/kg, subsequent shocks ≥4 J/kg, maximum 10 J/kg or adult dose.

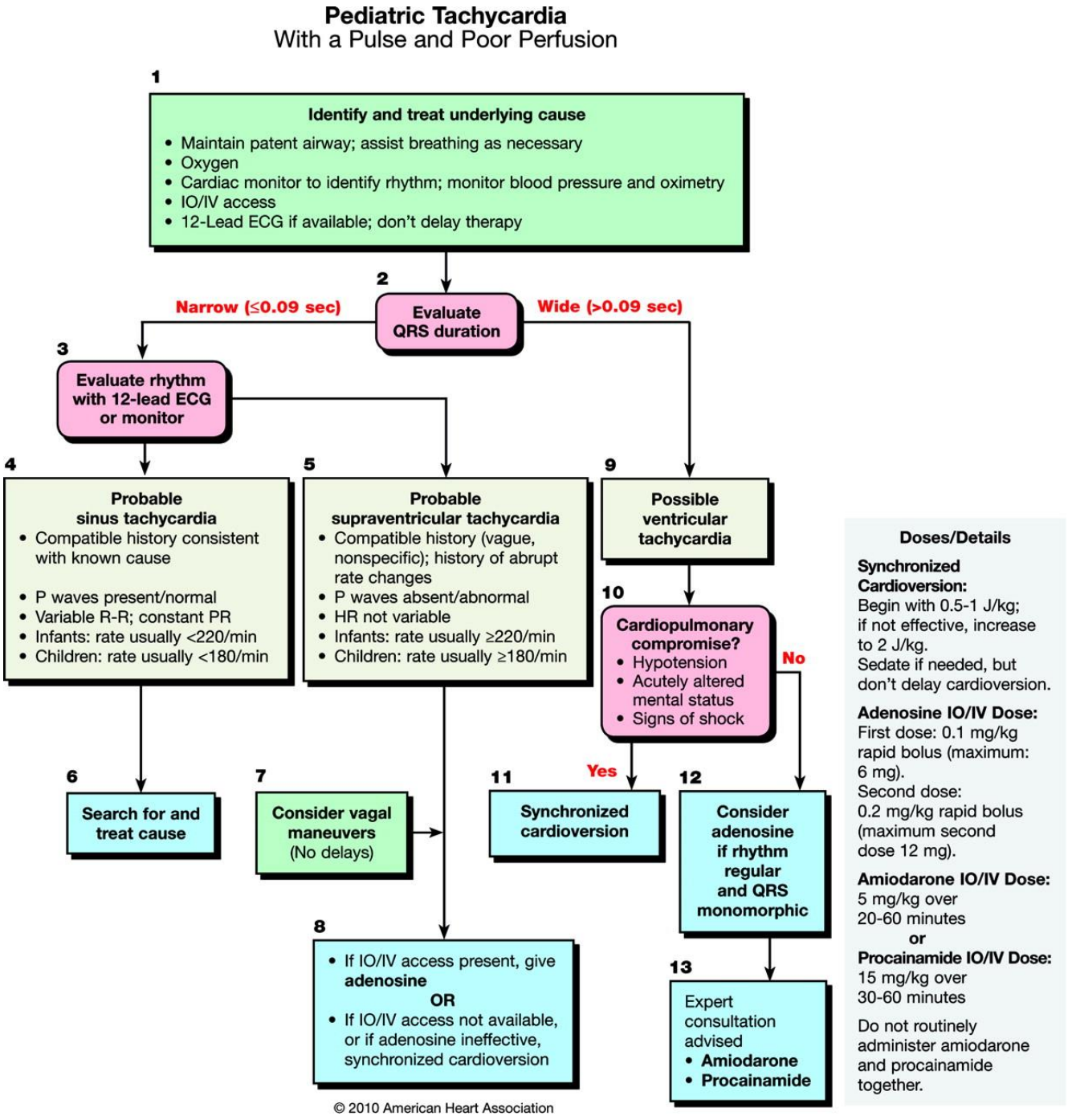
Drug Therapy
- **Epinephrine IO/IV Dose:** 0.01 mg/kg (0.1 mL/kg of 1:10 000 concentration). Repeat every 3-5 minutes. If no IO/IV access, may give endotracheal dose: 0.1 mg/kg (0.1 mL/kg of 1:1000 concentration).
- **Amiodarone IO/IV Dose:** 5 mg/kg bolus during cardiac arrest. May repeat up to 2 times for refractory VF/pulseless VT.

Advanced Airway
- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place give 1 breath every 6-8 seconds (8-10 breaths per minute)

Return of Spontaneous Circulation (ROSC)
- Pulse and blood pressure
- Spontaneous arterial pressure waves with intra-arterial monitoring

Reversible Causes
- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypoglycemia
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

PEDIATRIC TACHYCARDIA



PEDIATRIC RESPIRATORY DISTRESS

(Page 1 of 2)

Effective 3/4/05 Revised 12/15/11

1. Primary Survey:
Establish responsiveness, note if patient is able to move air, determine if upper airway obstruction by foreign body is present. If patient is unresponsive with history of choking move to foreign body airway obstruction (below). Apply high flow Oxygen via face mask or blow by as tolerated by patient. Enlist parent to administer oxygen. Assist ventilation if inadequate ventilation and no foreign body present in airway.

2. Secondary Survey:
Obtain history to include recent illness, previous respiratory or cardiac disease, and history of allergies. Further evaluate airway including; mental status is patient alert, do they appear anxious or distressed? Note stridor, drooling, choking, quality of voice, swelling of tongue, lips. Further evaluate breathing including respiratory rate, nasal flaring, grunting, accessory muscle use or retractions, breath sounds, cyanosis, and oxygen saturation.

Findings of respiratory distress include:
- Alert, irritable, anxious
- Stridor
- Tachypnea (for age)
- Intercostal retractions
- Nasal flaring
- Neck muscle use
- Cyanosis or hypoxia that resolve with administration of O2
- Mild tachycardia
- Inability to maintain sitting position if older than 4 months

Findings of respiratory failure include the above with addition or modification of:
- Sleepy, intermittently combative or agitated
- Retractions at sternal notch
- Marked use of accessory muscles
- Retractions, head bobbing, grunting
- Central cyanosis
- Marked tachycardia
- Poor peripheral circulation
- Decreased muscle tone

Findings of respiratory arrest:
- Unresponsive
- Absent or shallow chest wall movement
- Respiratory rate <10
- Weak or absent pulses
- Bradycardia or asystole
- Limp muscle tone

PEDIATRIC RESPIRATORY DISTRESS

(Page 2 of 2)

Effective 3/4/05 Revised 12/15/11

(Continued)

3. Treatment:

In pediatric patients with respiratory distress it is important to minimize patient anxiety. Keep parent with patient, when possible allow patient to sit on parent's lap and have parent administer blow by oxygen or nebulized treatments. Allow patient to assume position of comfort, but appropriate restraints will be used for transport. Vascular access should not be attempted in the field unless clearly required and should not delay transport. For respiratory failure or distress assist ventilations, consider intubation. If patient can be adequately ventilated by bag-valve mask during transport this may be preferable to intubation if transport is brief.

Foreign Body Airway Obstruction:

- If patient is able to cry, speak or cough, no attempt should be made to remove object, patient should be transported immediately in position of comfort with supplemental O_2. Contact Online Medical Control. If patient is unable to cry or cough, or if unresponsive attempt ventilation by bag valve mask. If unable to ventilate, attempt to reposition airway using head tilt/chin lift and attempt ventilation.
- If still unable to ventilate use back blows and chest thrust (age <1 year) or abdominal thrusts to dislodge object.
- If unsuccessful establish direct view of object (may need to use laryngoscope) and attempt removal with Magill forceps.
- If unsuccessful attempt endotracheal intubation and ventilate patient.
- If unable to intubate perform needle crycothyrotomy and needle jet insufflation. Note that complete upper airway obstruction is considered a contraindication to needle jet insufflation but in this situation insufflation should be attempted as a last resort.
- Initiate transport and contact medical online medical control.

Croup or Epiglottitis:

- Present with barking cough, stridor and respiratory distress
- Keep patient calm, provide supplemental oxygen as above, minimize patient agitation.
- For marked respiratory distress including stridor at rest or signs of respiratory failure; nebulize racemic epinephrine- if <10 kg 0.05cc of solution per kg diluted in 3cc NS, if patient >10kg 0.5cc of solution diluted in 3cc NS.
- For respiratory arrest assist respiration with bag valve mask and 100% O2
- If unable to ventilate attempt intubation with tube 1 size smaller than usual for age
- If unable to intubate, needle cricothyroidotomy and jet insufflation
- Contact online medical control and transport

Bronchospasm:

- Present with wheezing, retractions, a silent chest indicates severe illness
- Initiate supplemental oxygen and nebulized albuterol 2.5mg. May repeat nebulized albuterol Q 10-15 min during transport if respiratory distress persists.
- Consider Ipratropium (Atrovent). Peds >12years500 mcg (one unit dose vial) via HHN. Peds <12 years 250 mcg via HHN
- For respiratory failure or respiratory arrest give epinephrine 1:1000 0.01cc/kg with maximum single dose 0.3cc subcutaneously
- For respiratory arrest assist ventilations with bag valve mask and 100% O2
- For severe respiratory distress or failure IV or IO access is indicated, do not delay transport to obtain vascular access
- If unable to adequately ventilate patient with bag valve mask or prolonged transport is expected intubate
- If unable to ventilate with bag valve mask or intubate, needle cricothyroidotomy and jet insufflation
- Contact online medical control and initiate transport

PEDIATRIC SEIZURE

Effective 3/4/05
Revised 3/25/14

1. Primary Survey:
Evaluate level of consciousness and airway patency, protect patient from injury during seizure activity. Position patient to maintain airway, suction if necessary.

2. Secondary Survey:
Obtain medical history including duration of seizure, frequency of recent seizure activity, history of seizures, medications, drug or alcohol use, history of diabetes, possible exposure to toxins, or head injury. Check temperature, look for signs of trauma, or meningitis (stiff neck, photophobia, petechial rash), check O2 saturation, glucose.

3. Treatment:

A. Treat hypoxia or hypoglycemia as indicated.
B. In child <5 years of age, suspect febrile seizure if fever is present, glucose is normal and seizure was brief <5 min with normal LOC post seizure. For febrile seizure administer Acetaminophen 20mg/kg PO or rectal
C. For ongoing seizures give Midazolam 0.2mg/kg IM; 0.1mg/kg IV or 0.2mg/kg IM Q5 min x 3 doses
D. If Midazolam is given be prepared for respiratory depression- possible need for airway management, assisted ventilation.
E. Transport Immediately.

EMERGENCY MEDICATIONS - PEDIATRIC

Effective 3/4/05 revised 12/15/11

TYPE	DOSE	ADMINISTRATION
1. Acetaminophen (Tylenol)	15-20 mg/kg/dose orally 20 mg/kg/dose rectally	PO, PR
2. Adenocard	0.1 mg/kg, if not effective, use 0.2 mg/kg up to 12 mg.	IV
3. Albuterol (Proventil)	Nebulized albuterol 2.5mg. May repeat nebulized Q 10-15 min.	HHN
4. Atropine Sulfate Injection	0.02 mg/kg; maximum dose 0.5 mg. minimum dose: 0.1 mg	IV, IM
5. Calcium chloride injection 10%	10-20 mg/kg to maximum 500 mg	IV
6. Dextrose 50% Injection (D50W)	Dilute 1;1 with sterile water if age $\leq$ 2 yrs administer 2cc/kg, neonates dilute 1:2 administer 4cc/kg.	IV
7. Diphenhydramine (Benadryl)	1 - 2 mg/kg	IV, IM
8. Epinephrine		
1:1,000	0.1 ml/kg	IM
1:10,000	0.1 ml/kg	IV
9. Fentanyl (Sublimaze)	1.0 mcg/kg	IV, IM, MAD
10. Glucagon	.03 mg/kg up to 1 mg	IV, IM
11. Ipratropium (Atrovent)	>12 years old 500mcg, if < 12 years old 250mcg	HHN
12. Midazolam (Versed)	0.05 up to 0.1 mg/kg slow IV push >2months may repeat dose once in 3-5 minutes or 0.2 mg/kg IM may repeat dose once in 10-15 minutes (max dose 5mg)	IV, IM
13. Morphine Sulphate Injection	0.1 - 0.2 mg/kg	IV, IM
14. Naloxone (Narcan)	0.1 mg/kg up to 2 mg	IV, IM, MAD
15. Racemic Epinephrine	Comes as 2.25% solution. Administered via hand-held nebulizer. For <10 kg: 0.05 cc/kg of solution diluted in 3cc NS For >10 kg: 0.5 cc of solution diluted in 3cc NS	HHN
16. Sodium Bicarbonate	1 – 2 mEq/kg Dilute 1:1 with sterile water or use 4.2% solution in age < 1 yrs.	IV

FEVER (Pediatric Patients)

Effective 12/2000 or prior Revised 6/8/11

FEVER:

If fever associated with seizures, history of prior febrile seizures or fever > 103^{o} then treat with acetaminophen 15-20 mg/kg orally. If unconscious or unable to take orally give rectal suppository 20 mg/kg. For Seizure - See Seizures (Pediatric Protocol).

TRANSPORT OF AN UNINJURED CHILD

Effective 3/4/05

Uninjured children ages 12 and over may be placed in the front passenger seat with usual restraints. Uninjured children ages 11 and under should be transported by law enforcement or an authorized civilian driver whenever possible. If not possible, the following Washington State Child Restraint law guidelines must be followed:

a. Children 1 year old and 20 pounds or less shall be in a rear-facing car seat.
b. Children 1 to 4 years old or between 20 to 40 pounds shall be in a forward-facing car seat with a harness system.
c. Children 4 to 6 years old and up to 60 pounds shall be in a booster seat using the vehicle's restraint system equipped with BOTH a lap and shoulder belt.
d. Children 6 years and older, and weighing more than 60 pounds must use the vehicle's seat belt system.

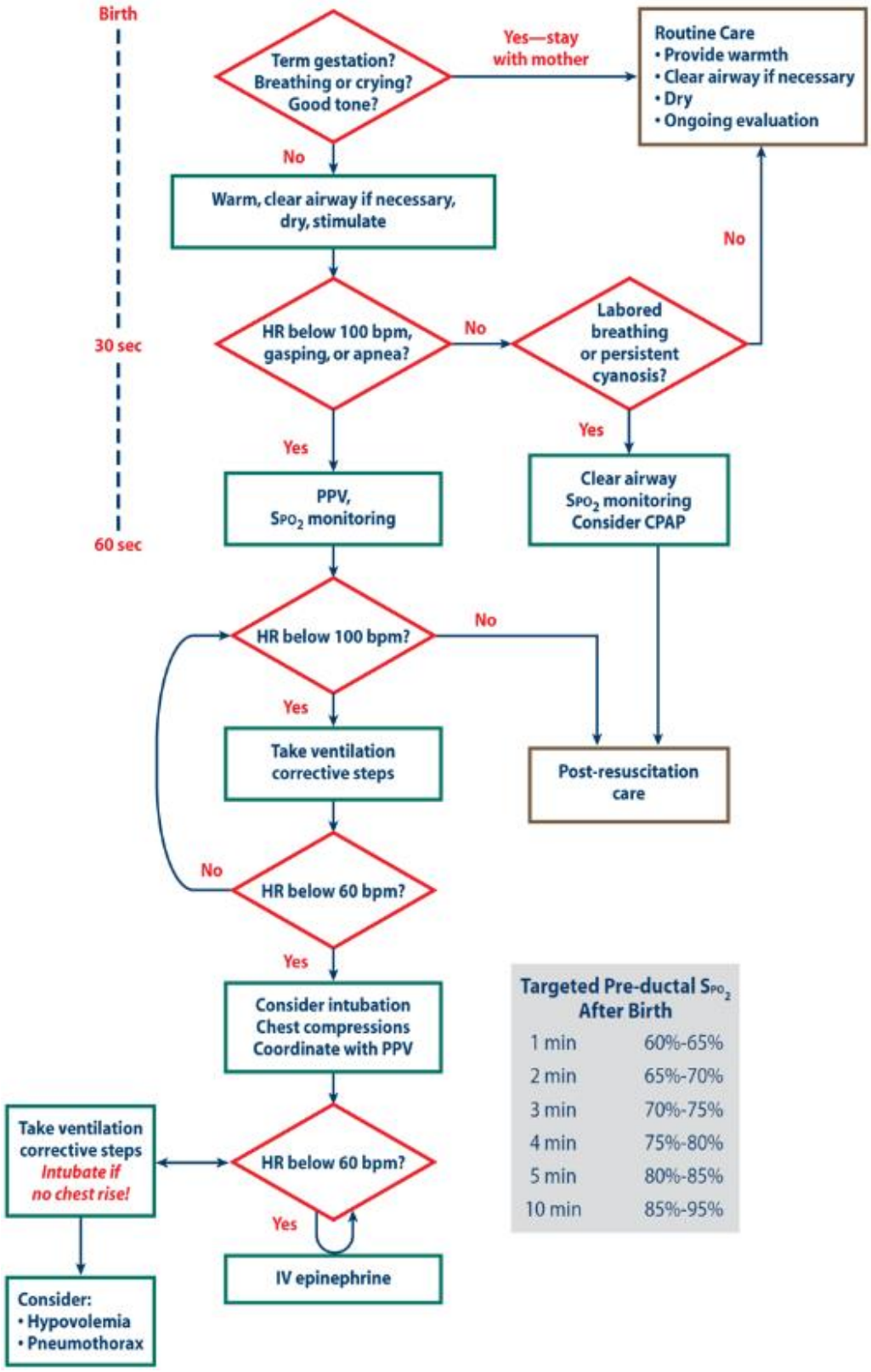
The passenger seat in the driver's compartment may only be used if the vehicle is not equipped with a passenger side airbag, or if the airbag has been deactivated. This is the only seat in the ambulance for which a child safety seat has been designed and properly tested.

Any child examined must have a completed Supplemental Report for Patient Non-Transport if they do not become an active patient.

INITIAL CARE OF THE NEWBORN

(Page 1 of 2)

Revised 12/15/11



INITIAL CARE OF THE NEWBORN

Revised 12/15/11

NOTE: Anatomical and Physiological Concerns

A. Small airways are easily blocked by secretions and airway swelling.
B. Tongue is large relative to small mandible and can block airway in an unresponsive infant or child.
C. Positioning the airway is different in infants and children. Do not hyperextend the neck.
D. Infants are nose breathers, so suctioning a secretion-filled nasopharynx can improve breathing problems in an infant.
E. Risk of hypothermia; keep warm.
F. After initial respiratory efforts, the newly born infant should be able to establish regular respirations sufficient to improve color and maintain a heart rate >100 bpm. Gasping and apnea are signs that indicate the need for assisted ventilation.
G. Central and peripheral pulses in the neck and extremities are often difficult to feel in infants. Listen to precordium with a stethoscope or feel pulsations at the base of the umbilical cord.
H. Central cyanosis is determined by examining the face, trunk, and mucous membranes.
I. Pre-ductal SpO2 measurements are made on the right hand.

APGAR SCORING CHART

Sign	**0**	**1**	**2**
Heart rate	absent	slow (<100 bpm)	(>100 bpm)
Respiratory effort	absent	weak cry, hypoventilation	good, strong cry
Muscle tone	limp	some flexion of extremities	well flexed
Reflex response (foot slap)	no response	grimace	cry and withdrawal of foot
Color	blue, pale	body - pink extremities - blue	completely - pink

ABANDONED NEWBORNS

Effective 3/4/05

1. Introduction:

A. Senate Bill 5236 allows for the relinquishment of newborn children at hospitals or fire stations. The key provisions of this law include:
   a. Protecting the parents' anonymity.
   b. Gathering the medical history of the parents and child.
   c. Providing referral information to the parent about adoption options, counseling, medical and emotional aftercare services, domestic violence, and the legal rights of the transferring parent.
   d. Notifying and releasing the newborn to child protective services (CPS).
   e. SB 5236 defines newborn as less than 3 days old.

2. Procedure:

A. If delivery has not occurred and appears imminent follow Emergency Delivery protocol. Provide appropriate care to mother per protocol.
B. If EMS is presented with a newborn and child in extremis:
   a. Follow Initial Care of the Newborn Protocol.
C. Patient not in immediate need for medical care:
D. Ascertain child's medical history as appropriate.
   a. History of birth including complications, date, time, etc.
   b. Known congenital anomalies.
   c. Paternal/Maternal medical history.
   d. Prenatal care.
   e. Drug use during pregnancy.
   f. Other factors influencing child's health.
E. Transport to hospital per Online Medical Control.
F. Notify staff en route of need for CPS referral.

C. Circumstance:

A. Maintaining parent confidentiality is paramount. Ascertain as much history as appropriate while providing a non-judgmental environment.
B. Provide the following referral information to the parent(s) as time allows (Patient care is the priority).
C. Medical and emotional aftercare (i.e. Chaplaincy, etc.)
D. Child Protective Services.

Section G

EQUIPMENT PROTOCOLS

ET PLACEMENT VERIFICATION AND MONITORING

Effective 12/2000 or prior
Revised 6/11/14

Capnography will be used on all intubations and used for continuous monitoring of patient airway status. Its use and indicator readings will be charted.

A. Visualizing the ET tube passing through the vocal cords is the "Gold Standard". However, it too may be unreliable and it is "a moment in time" (not continuous). Therefore, except for extenuating circumstances, the following is mandated:
    a. Assess for breath sounds high in axilla, anterior chest and over abdomen.
    b. Use $ETCO_2$ monitor for confirmation and continuous monitoring of tube placement. This must be documented on MIR by narrative and attachment of the capnography printout.
    c. If there is any question on "b" above, use "esophageal detection device" (tube checker) to confirm tube placement in trachea. It should re-inflate, if bulb is used, in 3-5 seconds. If syringe is used, it should flow freely. Litmus paper CO_2 detector is also helpful.
    d. In the perfusing patient, obtain and monitor SAO_2. These should be adequate or improving. Record data on MIR.
    e. Other less reliable indicators of tube placement include: misting in the tube, feeling exhaled air at tube opening or feeling tube pass into larynx while doing Sellick maneuver.

Recommend liberal use of capnography by paramedics for 10-12 cases to become familiar with the use of the equipment.

$ETCO_2$ monitoring is mandatory for intubated patients and recommended for COPD, CHF, Asthma patients, and any patients with respiratory distress.

CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

Revised 06/2011

1. Indications:
Adult (age 16 or over) non-traumatic respiratory distress, generally related to COPD or CHF, asthma or pneumonia.

2. Contraindications: Trauma, suspected pneumothorax, decreased mental status, respiratory arrest or significantly decreased respiratory rate, inability of the patient to tolerate the CPAP mask, craniofacial abnormalities or anatomic features which prevent sealing the mask to the face, GI bleeding or recent gastric surgery. Contact medical control before starting CPAP if SBP<90 or if Pt age <16

3. Procedure:

A. Assemble device and apply, observe for resolution of hypoxemia and air hunger. *Patient should be positioned seated with head up*.
B. Apply cardiac monitor, and monitor ETCO2 with nasal cannula.
C. Follow respiratory and mental status and vital signs closely.
D. Reassure patient prior to application and frequently during transport.
E. If pt does not tolerate mask/CPAP or if pt deteriorates discontinue and manage airway as needed.
F. If mask causes agitation, consider cautious sedation, midazolam 2 mg IV
G. If pt is DNR/DNI, CPAP may be initiated with the understanding that this is a temporary measure and more aggressive airway management will not be pursued unless the pt or pt's representative (preferably HCPOA) changes code status.
H. The CPAP device provides a fixed FI02 of 30%, if hypoxemia persists, add O2 via nasal cannula placed under the CPAP mask.
I. Advise receiving hospital that pt has been started on CPAP.
J. Replacement circuit should be obtained from Respiratory Therapy at the ED, assuming that the current circuit is usable at the hospital.

PULSE OXIMETER

Effective 3/4/05

1. Pulse Oximeter:

A. Recommend use for:
   a. Cardiac arrest
   b. Respiratory distress
   c. Unconscious patients
   d. Upper airway obstruction
   e. Chest pain

B. Use of pulse oximeter and its reading will be documented on the Medical Incident Report (MIR).

C. May produce unreliable data if: anemia, hypothermia, hypotensive, methemoglobinemia.

TOURNIQUET USE

1. Indications:

A tourniquet should be used to control hemorrhagic wounds that have not responded adequately to direct pressure or in situations of significant extremity bleeding with the need for additional interventions (example: significant extremity bleeding with airway compromise. A tourniquet should be used to quickly control bleeding, freeing up Personnel to concentrate on airway issues.)

2. Precautions:

A. Use BSI
B. A tourniquet applied incorrectly can increase blood loss and lead to death.
C. Applying a tourniquet can cause nerve and tissue damage whether applied correctly or not. Proper patient selection is of the utmost importance.
D. Damage is unlikely if the tourniquet is removed within an hour. Low risk to tissue is acceptable over death secondary to hypovolemic shock.
E. Tourniquets should never be covered up by patient clothing or packaging.

3. Technique:

A. Attempt to control hemorrhage with direct pressure or pressure dressing.
B. If unable to control hemorrhage using the above means, apply a tourniquet, using the procedure below, and minding the considerations
C. Select commercially manufactured tourniquet, blood pressure cuff, or improvised "Spanish Windlass" is applied to the extremity just proximal to the wound (do not place over joints)
D. Tighten tourniquet until bleeding stops.
E. The time and date of application ("TK 20:30" indicates that the tourniquet was placed at 8:30 pm) should be written on a piece of tape and secured to the tourniquet or written directly on the patient's skin next to the tourniquet with a permanent marker.
F. The tourniquet should be left uncovered so that the site can be monitored for recurrent hemorrhage.
G. Pain management should be considered unless the patient is in Class III or IV hemorrhagic shock.
H. Keep tourniquet on throughout hospital transport – a correctly applied tourniquet should only be removed by the receiving hospital.
I. Continue to monitor patient vitals and wound
J. Ensure receiving personnel are aware of tourniquet placement

Section H
INVASIVE PROTOCOLS

INTRAOSSEUS INFUSION USING EZ IO

(page 1 of 3)

Effective 11/25/05 Revised 6/8/11

1. Indications:

Patients with need for IV fluids or medications where a peripheral IV cannot be established in 2 attempts or 90 seconds and who exhibit:

A. Altered mental status
B. Respiratory distress or compromise
C. Hemodynamic instability (SBP < 100, HR >120)

IO insertion may be considered prior to peripheral IV attempts for patients in cardiac arrest or hemodynamic instability with altered mental status

2. Contraindications:

A. Fracture of tibia or femur (tibial insertion)
B. Previous knee surgery other than arthroscopy, previous IO insertion on that side within 24 hours
C. Tumor or infection at insertion site, peripheral vascular disease with limb ischemia
D. Inability to locate landmarks or excessive tissue at insertion site

3. Equipment:

A. One (1) EZ-IO Power Driver
B. Appropriate size intraosseous Needle Set based on patient size and weight
    a. EZ-IO 15mm 3-39 kg
    b. EZ-IO 25mm 40 kg and greater
    c. EZ-IO 45mm excessive tissue
C. Sterile saline solution for flush. Note: Consider lidocaine for patients who are alert/responsive to pain
D. EZ-IO connector

4. Procedure:

A. Choose appropriate intraosseous needle set and assemble equipment
B. Palpate site to locate appropriate anatomical landmarks for Needle Set placement
C. Locate appropriate insertion site
    a. EZ-IO 25mm: (commonly for 40 kg and over)
        i. **Proximal Tibia** – Insertion site is approximately 2 cm below the patella and approximately 2 cm (depending on patient anatomy) medial to the tibial tuberosity.
        ii. **Distal Tibia -** Insertion site is located approximately 3 cm proximal to the most prominent aspect of the medial malleolus. Place one finger directly over the medial malleolus; move approximately 2 cm (depending on patient anatomy) proximal and palpate the anterior and posterior borders of the tibia to assure that your insertion site is on the flat center aspect of the bone.
        iii. **Proximal Humerus** – Insertion site is located directly on the most prominent aspect of the greater tubercle. Slide thumb up the anterior shaft of the humerus until you feel the greater tubercle, this is the surgical neck. Approximately 1 cm (depending on patient anatomy) above the surgical neck is the insertion site.

INTRAOSSEUS INFUSION USING EZ IO

(page 2 of 3)

1. *Ensure that the patient's hand is resting on the abdomen and that the elbow is adducted (close to the body).*

b. EZ-IO 45mm: (recommended for the proximal humerus application, patients with excessive tissue over the insertion site or when a black line is not visible after penetration into the tissue)

i. **Proximal Tibia** – Insertion site is approximately 2 cm below the patella and approximately 2 cm (depending on patient anatomy) medial to the tibial tuberosity.

ii. **Distal Tibia -** Insertion site is located approximately 3 cm proximal to the most prominent aspect of the medial malleolus. Place one finger directly over the medial malleolus; move approximately 2 cm (depending on patient anatomy) proximal and palpate the anterior and posterior borders of the tibia to assure that your insertion site is on the flat center aspect of the bone.

iii. **Proximal Humerus** – Insertion site is located directly on the most prominent aspect of the greater tubercle. Slide thumb up the anterior shaft of the humerus until you feel the greater tubercle, this is the surgical neck. Approximately 1 cm (depending on patient anatomy) above the surgical neck is the insertion site.

iv. *Ensure that the patient's hand is resting on the abdomen and that the elbow is adducted (close to the body).*

c. **EZ-IO 15mm:** (commonly for 3-39 kg, consider tissue density over the landmark desired)

i. **Proximal Tibia -** If NO tuberosity is present, the insertion is located approximately 4 cm below the patella and then medial along the flat aspect of the tibia. If the tuberosity IS present, the insertion site is located approximately 2cm medial to the tibial tuberosity along the flat aspect of the tibia. Carefully feel for the "give" or "pop" indicating penetration into the medullary space.

ii. **Distal Tibia -** Place one finger directly over the medial malleolus; move approximately 2 cm (depending on patient anatomy) proximal and palpate the anterior and posterior borders of the tibia to assure that your insertion site is on the flat center aspect of the bone.

iii. **Proximal Humerus -** The insertion is located directly on the most prominent aspect of the greater tubercle. Slide thumb up the anterior shaft of the humerus until you feel the greater tubercle, this is the surgical neck. Approximately 1 cm (depending on patient anatomy) above the surgical neck is the insertion site.

iv. *Ensure that the patient's hand is resting on the abdomen and that the elbow is adducted and positioned at the level of the spine. The proximal humerus may be difficult or impossible to palpate in children less than 5 years of age as the greater tubercle has not yet developed. In these cases the insertion will most likely be a shaft insertion.*

D. Prep site with betadine
E. Connect appropriate Needle Set to driver
F. Stabilize site
G. Remove needle cap

INTRAOSSEUS INFUSION USING EZ IO

(page 3 of 3)

H. Position the driver at the insertion site with the needle set at a 90-degree angle to the bone surface. Gently pierce the skin with the Needle Set until the needle set tip touches the bone.

I. Check to ensure that at least one black line is visible. If no black line is visible, patient may have excessive soft tissue over selected insertion site and needle set may not reach the medullary space. Consider an alternative site for insertion or a longer needle set.

J. Penetrate the bone cortex by squeezing driver's trigger and applying gentle, consistent, steady, downward pressure (allow the driver to do the work)

K. Release the driver's trigger and stop the insertion process when:
   a. On adult patients when accessing the tibia using the 25mm Needle Set or the proximal humerus using the 45mm Needle Set, you may stop by releasing the trigger when the hub is almost flush with the skin.
   b. On pediatric patients when you feel a decrease in resistance indicating the Needle Set has entered the medullary space, release the trigger.

L. Remove EZ-IO Power Driver from Needle Set while stabilizing the catheter hub

M. Remove stylet from catheter by turning counter-clockwise and immediately dispose of stylet in appropriate biohazard sharps container

   *NEVER return used stylet or cartridge to the EZ-IO kit

N. **Syringe bolus:** flush the catheter with 10 ml of normal saline. If the patient is responsive to pain, consider use of 2-10cc 2% lidocaine without preservatives or epinephrine (cardiac lidocaine) for anesthetic effect prior to the 10ml normal saline flush and it may be necessary to administer additional lidocaine following the saline flush.

O. Connect IV using IO connector, secure and dress IO site

P. Assess for potential IO complications

Q. Begin infusion utilizing a pressure delivery system

R. Continue to monitor extremity for complications

S. Place EZ-IO armband on patient, document time and date

T. Notify receiving staff of presence of IO access

BLOOD DRAWING

Revised 12/15/11

Indications:
Any patient determined to require intravenous therapy should have a blood sample drawn while the IV is being inserted whenever possible. Legal blood alcohol samples may be drawn at the request of law enforcement (sites for legal blood alcohol must be prepped using povidone iodine NOT alcohol).

Contraindications:
A. Obtaining a blood sample is deferred in the event of cardiac arrest.
B. Blood alcohol samples at the request of law enforcement will not be provided if patient care is compromised.

Site:
All samples will be drawn from a vein. EMS personnel are not authorized to collect samples from arterial sources.

Equipment:
A. Standard IV access device such as an intracath or needle for vein access.
B. 10-20cc syringe
C. Vacutainer blood transfer device
D. Blood collection tubes utilized should be appropriate for the tests anticipated. Hospital tube specification for tests may vary.

Technique:
A. All venipuncture is performed using the standard universal precautions.
B. After the vein is accessed, the blood is placed in the syringe.
C. Detach the syringe from the needle in the arm attach vacutainer transfer device.
D. Allow the blood to flow freely into the blood tube, do not force it.
E. Label the blood tube with patient's name.

CRICOTHYROIDOTOMY

Revised 3/25/14

Indications:
Inability to intubate the trachea is the primary indication for creating a surgical airway in the following situations:

Edema of the glottis, fracture of the larynx, severe oropharyngeal bleeding obstructing the airway, or severe maxillofacial injuries.

Contraindications:
A. Ability to intubate the trachea or maintain the airway by other means.
B. Surgical cricothyroidotomy is contraindicated in pediatric patients under age 12.

Equipment:
A. Scalpel (#10 Blade)
B. 10cc syringe
C. 6.0 Cuffed Endotracheal Tube
D. Eschmann Stylet
E. Povidone Iodine Skin preparation
F. Appropriate tape to secure the tube
G. 2% Lidocaine with skin needle (time permitting)

Technique:

Needle Cricothyroidotomy (See Transtracheal Jet Ventilation)

Surgical Cricothyroidotomy

A. Place the patient in a supine position with the neck in a neutral position. Position yourself beside the patient with your dominant hand closer to the head. Palpate the thyroid cartilage, and immediately below the cricothyroid membrane. A vertical skin incision and blunt dissection (D) may be required if landmarks are difficult to located.
B. Skin prep with povidone iodine and 2% lidocaine for skin anesthesia, if patient is conscious and situation permits.
C. Stabilize the thyroid cartilage with the non-dominant hand.
D. Make a 1.5-2cm horizontal incision through the skin (anatomy permitting) and cricothyroid membrane
    a. If landmarks are difficult to palpate, make a midline vertical skin incision, then dissect bluntly with index finger to locate cricothyroid membrane.
E. Insert the index finger of non-dominant hand through the incision in the cricothyroid membrane.
F. Insert the Eschmann Stylet into the incision leading with the coude tip, replacing the index finger
G. Advance the stylet down the trachea, feeling for tracheal click and hold up which should occur at approximately 12 cm
H. Insert 6.0 cuffed ET tube or tracheostomy tube into the cricothyroid membrane incision, directing the tube distally until balloon is fully into the trachea.
I. Remove the stylet
J. Inflate the cuff and ventilate the patient, confirm CO2 and chest rise
K. Auscultate the chest for adequate ventilation.
L. Secure the tube for transport

TRANSTRACHEAL JET VENTILATION (TTJV)

(Page 1 of 2)

Effective 5/9/04

Indications:
The main indication is an inability to ventilate or oxygenate a patient by alternative means - such as endotracheal intubation or bag valve mask ventilation.

Note: TTJV is the primary (only) surgical airway of choice in pediatric patients (age ≤12). TTJV may be considered for use in the adult patient (defined here for purposes of TTJV as >12 years of age) as an alternative to crichothyrotomy with the Quick Trach device.

Contraindications:
Complete upper airway obstruction such that exhalation after ventilation with TTJV cannot occur.

Limitations:
TTJV does not provide a cuffed tube in the trachea and therefore does not protect against aspiration. Additionally, suctioning cannot be performed through the percutaneous catheter. For these reasons, TTJV is ultimately considered a temporizing method of rescue ventilation and oxygenation.

Required Equipment:

A. Oxygen tank with special (50 psi) high pressure regulator adapter
B. High Pressure oxygen tubing
C. Pressure regulator to control pressure of delivered oxygen
D. On/Off valve to control ventilation
E. Luer lock pressure tubing to connect to catheter
F. Transtracheal Percutaneous Catheter (13 and 14 gauge Commercial TTJV catheters preferred. However, a standard 13 or 14 gauge peripheral IV catheter can be used - but is much more difficult to secure.)
G. Syringe for aspiration

Technique:

A. Identify landmarks and the cricothyroid membrane. In pediatric patients in whom the cricothyroid membrane is not adequately developed identify the trachea below the level of the thyroid cartilage.
B. Using one hand, immobilize the larynx.
C. Using a 14 gauge catheter for patients ≤ 12 years and a 13 gauge for all others, insert the transtracheal needle/catheter with syringe attached at a roughly 30 degree angle to the skin and the needle directed caudally (towards the feet) until air can be aspirated.
D. Advance the catheter to the hub over the needle and into the trachea.
E. Confirm location by aspiration again. When using a commercial jet ventilation catheter, secure with included strap as well. When using an angiocath, manual stabilization must be maintained at all times.
F. Connect to catheter to jet ventilation device using luer lock.
G. The hub should be manually stabilized for each ventilation with firm, constant pressure that should be applied to maintain the device in place, create a seal, and help minimize any air leak.
H. Place a nasal or oropharyngeal airway to facilitate exhalation and prevent complete upper airway occlusion by the tongue.

TRANSTRACHEAL JET VENTILATION (TTJV)

(Page 2 of 2)

Effective 5/9/04

(Continued)

I. **In a patient aged >12 years** the starting parameters are to set delivery pressure to 50 psi and ventilate at the rate of just under one second ventilation followed by two-three seconds exhalation.
J. Monitor clinical parameters including adequacy of chest wall rise, oximetry, end-tidal CO2 (A sidestream (nasal) end-tidal CO2 monitoring should be attempted) if possible and titrate pressure and inspiration/expiration times as best possible to maintain adequate ventilation and oxygenation.
K. **In the pediatric patient aged 5-12 years**, start by setting the delivery pressure to 30 psi and perform ½-just less than 1 second ventilation to 2-2.5 seconds exhalation. Monitor parameters and titrate pressures and inspiratory/expiratory times as described in step 10
L. **In the pediatric patient aged <5 years**, start by setting the delivery pressure to 20 psi or less and perfume ½ second or less ventilation and allow 1-2 seconds. Again monitor parameters as described in step 10.
M. Continue to manually stabilize the TTJV catheter at the neck at all times

Potential Complications:

A. Subcutaneous emphysema
B. Barotrauma
C. Esophageal perforation
D. Reflex cough with each ventilation (if present, consider administration of 25mg of 2% lidocaine via TTJV catheter)
E. Catheter kinking
F. Aspiration of products such as blood or mucous

EMERGENCY BLOOD TRANSFUSION PROTOCOL FOR AMBULANCE

(Whole Blood and Packed Cells)

(Page 1 of 3)

Revised 12/15/11

Purpose:

To restore the volume, hgb and hct to a normal range by the administration of blood.
To be done during Interfacility transfer on MD orders.

Equipment:

1. Blood Component.
2. Sterile IV Solution (normal saline) to establish IV route. Volume of saline given will be enough to accomplish transfusion unless more is ordered.
3. Sterile Disposable Blood Administration Set Y-Type.
4. IV Intra-cath (18 or larger Ga needle).
5. BP cuff, stethoscope and thermometer.

Procedure:

1. Preparation of Patient:
    a. Check patient history to see if he has had a previous transfusion reaction.
    b. (Patients with history of previous transfusion reaction have 67% chance of reacting again.)
    c. Explain procedure and answer patient's questions.
    d. Take temp & BP and record.
    e. If possible, patient to void prior to procedure. (if there is an agglutination problem, a fresh UA is necessary).

2. Establish IV Pathway:
    a. Close all clamps on the Y Blood Set.
    b. Insert the non-vented piercing pin (white) into the 500 cc Saline Bag.
    c. Open the roller clamp below IV bag.
    d. Squeeze drip chamber to fill with Saline. Fill to cover filter.
    e. Open main clamp and allow fluid to expel air, close main clamp.
    f. Attach set to IV device of at least 18 gauge at the IV hub or use 1 inch 18 gauge needle and insert to lowest port of primary set. Tape the junction. (If extension in use, remove before administering blood. Smaller gauge needle will fracture blood cells and impede transfusion of blood).

EMERGENCY BLOOD TRANSFUSION PROTOCOL FOR AMBULANCE

Effective 12/2000 or prior

(Continued)

PRECAUTIONS:

NEVER precede or follow blood by a solution containing dextrose or calcium. If patient has IV running containing dextrose or calcium, (lactated Ringer's contains calcium) the IV must be stopped and the tubing flushed with normal saline solution before blood may be administered. (Dextrose or calcium may cause agglutination or clotting of red cells).

NEVER administer additives of any kind to blood bag. If meds must be given through the blood IV pathway, turn off blood and flush the tubing with Normal Saline and do same after the medications are given.

3. Starting Transfusion:
    a. Two qualified individuals must check blood bag and charge slip tag at bedside. Must check: Patient name and arm band, hospital number, ABO group, RH type, Social Security Number and blood bank arm band number and if the patient is alert, ask him to state his name.
    b. Gently rotate blood to disperse red cells.
    c. Do not warm blood prior to use. Take from blood bank refrigerator and use immediately. Blood may not be returned to blood bank after 30 minutes and may not be stored in utility refrigerator. (Lab refrigerator is the only hospital refrigerator approved to be correct temperature for blood storage.)

4. Prepare unit for administration with all flow clamps closed. Insert red blood piercing pin into proper opening on blood bag. Open flow clamp to blood. (If clamp to Normal Saline is open, blood will flow into the saline bag.)
5. Fill drip chamber until filter completely covered to prevent damage. (Filter must remain covered to prevent damage to fragile cells.)
6. Open main flow clamp and observe for reaction. Take Vital Signs frequently until blood is completed. (An RN, LPN, or PM shall observe the patient closely during the first 15 minutes as patient symptoms are likely to occur before vital signs changes.)

EMERGENCY BLOOD TRANSFUSION PROTOCOL FOR AMBULANCE

(Page 3 of 3)

Effective 12/2000 or prior

(Continued)

7. In non-urgent situations, average transfusion time is two hours. Slow down the rate for elderly people to about forty (40) drops per minute: MAXIMUM TRANSFUSION TIME IS 4 HOURS.
   (More than 4 hours increases potential chance of infection. RBC's may be diluted with up to 50 cc of Normal Saline to help cells run.) Blood pump may be used to speed transfusion if blood is to run in STAT.)

8. Watch for:
   a. Adverse Reactions:
      i. Sudden pain in chest or back.
      ii. Dyspnea and shock.
      iii. Chills.
      iv. Elevation of temperature and pulse.
      v. Restlessness.
      vi. Headache.
      vii. Nausea or vomiting.
      viii. Urticaria.
      ix. Flushed appearance - neck veins distended.
   a. If patient develops any of these symptoms:
      i. Stop blood immediately; disconnect blood set from main IV line. Flush line with Normal Saline. Maintain patency of IV.
      ii. Contact Online Medical Control for treatment regarding transfusion reaction.
9. Chart:
   a. Chart on Paramedic record: Time started and ended, any reaction.
   b. Record blood products, IV solutions, blood check # on Paramedic record.
   c. Record all vital signs taken during transfusion on flow sheet.
   d. Any reactions and the steps taken as a result.

INTRAVENOUS THERAPY PROTOCOL

(Page 1 of 2)

Effective 8/14/04

Following airway management and patient assessment, the EMT/IV Technician or Paramedic may proceed as follows:

1. A peripheral IV may be established in any patient who upon assessment is thought to have an emergent, or potentially emergent, condition that would require the administration of intravenous fluids and/or medications.
2. Large bore peripheral access is indicated for patients who may require major fluid resuscitation. Two separate IV lines are indicated for patients suspected of being in, or at high risk of developing, hypovolemic shock.
3. To help maximize success rate, IV access may be initiated at the scene. However, if an attempt is not immediately successful in a critical patient, transport should not be delayed for additional attempts.
4. In pediatric patients who are critically ill and for whom a peripheral IV attempt is either unsuccessful or deemed difficult, an EMT-Paramedic or EMT IV/Tech should consider the placement of an intraosseous (I.O.) device. (See separate protocol)
5. An external jugular IV can be attempted by an EMT-Paramedic in life-threatening events where no obvious alternative peripheral site is noted

Notes:

a. In post-mastectomy patients, avoid blood draw, peripheral IV line insertion, and/or blood pressure measurement on the same side as the mastectomy – with the exception of critically ill patients for whom no alternative peripheral sites can be located.
b. A pre-existing central venous access device and/or dialysis shunt may be by utilized by EMT-Paramedics *in the setting of cardiac arrest.* For all other patient situations, contact Online Medical Control to discuss possibility of using such access options.
c. Upper extremity peripheral IV sites are preferable to lower extremity sites.
d. Unless administering fluid bolus, all IV rates should be KVO (or as directed by Online Medical Control).
e. EMT/IV Technicians are limited to the administration of crystalloid fluids (e.g., Normal Saline, Lactated Ringers, D5W, ½ NS, and D5 ½ NS).

INTRAVENOUS THERAPY PROTOCOL

(Page 2 of 2)

Effective 8/14/04

(Continued)

Interfacility Patient Transfer With Pre-Programmed IV Infusion Devices:

1. When transferring patient(s) with pre-programmed IV infusion devices, IV Technicians **WILL NOT** make adjustments to the devices. (i.e.: infusion device with drip rate set by nurse or physician) Note: An infusion may be discontinued entirely in the setting of clinical deterioration.

2. Contact Online Medical Control if any questions or problems are encountered during transport.

Patient(s) that may be transported by an EMT-IV Technician:

		YES	NO
1.	Patients with longstanding epidural pumps containing pain medications (e.g., "Fanny Pak") Note: Such pumps should be discontinued entirely in the setting of clinical deterioration)	Y	-
2.	Patients with Patient Controlled pumps containing pain medications. Note: Oncology patients being transported from the hospital to home or hospice on a narcotic infusion that is to be continued at the home/hospice setting may be transported under the care of an EMT/IV Technician.	-	N
3.	Patients receiving crystalloids.	Y	-
4.	Patients with feeding or nasogastric tube.	Y	-
5.	Patients with pre-dosed IV medication(s) ordered by physician and administered no less than 15-20 min prior to transport.	Y	-
6.	Patients receiving medications through an indwelling central venous line.	-	N

NOTE: Contact Online Medical Control with any question(s) regarding the transport of a patient with an IV in place.

PERICARDIOCENTESIS

Effective 12/2000 or prior

Indications:
Pericardial tamponade in a patient who is in shock and progressively deteriorating, or who is in full arrest.

Diagnosis of Pericardial Tamponade:
The following must be present:

High venous pressure (neck veins).

1. Low or absent BP.
2. Distant heart tones.
    a. Where a BP is obtainable, pulsus paradoxus (drop of systolic BP or more than 10 mm Hg with inspiration) should be observed. Note that cardiogenic shock with CHF can have similar findings as above.

Setting of pericardial tamponade:

1. Acute trauma to the heart.
2. Cardiac rupture from MI.
3. Other medical causes, usually with a less acute presentation: Pericardial metastases, viral pericarditis, uremia(renal failure - chronic), collagen-vascular disease, rheumatic fever, tuberculous pericarditis or bacterial (rare).

Fluid is bloody in 1 & 2, usually serous or serosanguineous in the others. Pericardial tamponade should be considered in all cases of cardiac arrest with electromechanical dissociation, particularly if there is sinus or supraventricular rhythm. In such situations, hypovolemia, profound cardiogenic shock, and tension pneumothorax should be ruled out first.

Technique:

If possible, the patient should be semi-upright, but the procedure may be done supine.

Use the sub xiphoid approach at angle of 30 – 45 degrees to the skin, aiming toward the sternal notch with continuous aspiration until blood or fluid is obtained. A hemostat may be then clamped on the needle at the skin surface to prevent accidental over penetration of the needle. If available, the hub of the needle should be attached via alligator clamp to the "V" lead of an EKG monitor. ST elevation on the monitor indicates the heart has been touched by the needle and the needle should be withdrawn slightly. PVC's should be treated with Lidocaine and the needle withdrawn slightly.

Bloody fluid from the pericardium should not clot, as opposed to blood aspirated from the heart itself.

A removal of only 30 cc of pericardial fluid should bring a dramatic improvement in vital signs in tamponade, although in some settings, fluid can re accumulate rapidly. In acute tamponade, the pericardial sac generally contains about 150 cc of fluid, with larger amounts the more gradual the accumulation of fluid has been.

NEEDLE THORACOSTOMY

Effective 3/4/05

Suspect pneumothorax in a trauma patient with crepitus over the chest wall. Be aware that positive pressure ventilation (i.e., patient being bagged) can rapidly worsen a pneumothorax.

Treat if respiratory distress, BP less than 100 systolic or increasing pulse greater than 100/min. Otherwise: transport rapidly with close observation of vital signs and chest needle ready for use, if needed.

Treatment:
Chest Catheter Over Needle Device (14 gauge needle X 3.25").

Procedure:

1. Identify the second intercostal space mid-clavicular line on the affected side or the third or fourth intercostal space, anterior axillary line, on the affected side.
2. Prepare the skin in the area using appropriate antiseptic solution.
3. Insert the needle over the top of the selected rib, through the skin, subcutaneous tissue and intercostal muscle into the chest cavity.
4. A slight pop and lowered resistance may be felt as the pleura cavity is entered. A hissing escape of air under pressure confirms relief of a tension pneumothorax.
5. Remove the metal stylet.
6. Secure the catheter with tape.

If the patient continues to deteriorate, insert a second chest needle and contact Online Medical Control.

Do not insert bilateral chest needles except under the direction of Online Medical Control.

ADULT RAPID SEQUENCE INTUBATION

Revised 3/25/14

- **ABCs**
- **Pre-Oxygenate 100% Oxygen**
- **Assist Ventilations**
- **Monitor SpO2**

Preparation: secure IV access, suction, bag-valve-device, endotracheal tube ①

Pre-Oxygenate 100% Oxygen

Brady-cardic ? — Yes → **Atropine** 0.5-1 mg IV

No

Increased ICP ? — Yes → **Consider Lidocaine** 1 mg/kg IV

No

Etomidate 0.3mg/kg IVP ② ③

Succinylcholine 1.5-2 mg/kg IV ④ ⑤

Apply Cricoid Pressure

Intubate

Capnography/CO-2 detector

Verify ETT placement. Auscultate breath sounds. Listen over epigastrium. Monitor SpO2 and ETCO2.

IF Continued Paralysis indicated:⑥
Rocuronium (Zemuron) 1.0 mg/kg IV

Continued Sedation: ⑦
Midazolam (Versed) 0.05-0.1 mg/kg IV

Auscultate breath sounds FREQUENTLY

Cardio/Pulmonary Guidelines

Indications for intubation:
- -Respiratory failure
- -Airway protection (e.g., unconsciousness, trauma, anaphylaxis)

Consider intubation if SpO2 < 90% despite therapy.
Respiratory rate < 10 > 29.
Glasgow Coma Scale < 10.

Document:
- **Respiratory Status**
- **Lung Sounds**
- **O2 Saturation and ETCO2**
- **Skin Color**
- **Level of Consciousness**
- **Response to Treatment**
- **Verify ETT Placement**
- **ETT Size**
- **ETT Length (tip to lip)**

IF UNABLE TO INTUBATE, CONSIDER:
- **Bag Valve Mask Ventilation**
- **King Airway**
- **Cricothyrotomy**
- **Transtracheal Jet Ventilation**

1 **ETT:** Have on hand, one size smaller and one size larger.
2 Sedating dose, Note: Midazolam (Versed) 2-5mg IVP may be used instead of Etomidate (See Next Note)
3 Hypotension is a relative contraindication for the use of Midazolam (Versed).
4 Obtain history regarding allergies if possible. Do not administer if familial history of **Malignant Hyperthermia** is noted.
5 **The onset of Succinylcholine is 30-60 seconds, duration is 8-10 minutes. In cases where Succinylcholine is contraindicated, you may use Rocuronium 1.0mg/kg IV push. Note that the onset of action of Rocuronium is 2-3 minutes, longer than Succinylcholine, and that the duration is approximately 20-60 minutes.**
6 **Rocuronium obliterates the ability to obtain an neurologic exam** for ~20-60 minutes. Use only if necessary. **Also, keep the patient warm.** Paralyzed patients lose their natural ability to generate heat.
7 Consider **pain control** measures (Morphine/Fentanyl IV) if the patient was experiencing pain.

PEDIATRIC RAPID SEQUENCE INTUBATION

Revised 3/25/14

- **ABCs**
- **Pre-Oxygenate 100% Oxygen**
- **Assist Ventilations**
- **Monitor SpO2**

Preparation: secure IV access, suction, bag-valve-device, endotracheal tube ①

Pre-Oxygenate 100% Oxygen

Atropine 0.02 mg/kg IV (minimum dose 0.1mg IV)

Increased ICP ?

Yes → **Consider Lidocaine** 1 mg/kg IV

No

Etomidate 0.3mg/kg IVP ② ③

Succinylcholine 2 mg/kg IVP ④ ⑤

Apply Cricoid Pressure

Intubate

Capnography / CO-2 detector

Verify ETT placement. Auscultate breath sounds. Listen over epigastrium. Monitor SpO2 and ETCO2.

IF Continued Paralysis indicated:⑥
Rocuronium (Zemuron) 1.0 mg/kg IV

Continued Sedation: ⑦
Midazolam (Versed) 0.05 – 0.1mg/kg IV

Auscultate breath sounds FREQUENTLY

Cardio/Pulmonary Guidelines

Indications for intubation:
- -Respiratory failure
- -Airway protection (e.g., unconsciousness, trauma, anaphylaxis)

Consider intubation if
SpO2 < 90% despite therapy.
Respiratory rate < 10 > 29.
Glasgow Coma Scale < 10.

Document:
- **Respiratory Status**
- **Lung Sounds**
- **O2 Saturation and ETCO2**
- **Skin Color**
- **Level of Consciousness**
- **Response to Treatment**
- **Verify ETT Placement**
- **ETT Size**
- **ETT Length (tip to lip)**

IF UNABLE TO INTUBATE, CONSIDER:
- **-Bag Valve Mask Ventilation**
- **-Transtracheal Jet Ventilation**
- **-Cricothyrotomy (Only if age >12)**
- **-King Airway (Only if > 4 feet tall)** ***see BLS protocol***

1 **ETT:** Have on hand, one size smaller and one size larger.
2 Sedating dose. NOTE: Midazolam (Versed) 0.05-0.1mg/kg IV may be used instead of Etomidate (See next note)
3 Hypotension is a relative contraindication for Midazolam (Versed).
4 Obtain history regarding allergies if possible. Do not administer if familial history of **Malignant Hyperthermia** is noted.
5 **The onset of Succinylcholine is 30-60 seconds, duration is 8-10 minutes. In cases where Succinylcholine is contraindicated, you may use Rocuronium 1.0mg/kg IV push. Note that the onset of action of Rocuronium is 2-3 minutes, longer than Succinylcholine, and that the duration is approximately 20-60 minutes.**
6 **Rocuronium obliterates the ability to obtain an neurologic exam** for ~20-60 minutes. Use only if necessary. **Also, keep the patient warm.** Paralyzed patients loose their natural ability to generate heat.
7 Consider **pain control** measures (Morphine/Fentanyl IV) if the patient was experiencing pain.

ESCHMANN STYLET

Effective 3/3/06

Indications:
Difficult intubation or anticipated difficult intubaition. Examples include trauma patients requiring c-spine precautions, laryngeal edema, obesity, anterior position of larynx.

Contraindications:
Patients requiring use of ETT smaller than 6.5mm (generally pediatrics)

Technique:
Requires laryngoscopist (operator) and assistant. Generally follows usual method of orotracheal intubation with some modification. When being passed blindly, the stylet while soft and unlikely to case trauma should not be forced.

1. Load ETT onto proximal (straight end) of Eschmann stylet.
2. Perform laryngoscopy and introduce distal (j-tip) end of the stylet into the glottic opening. J-tip should be directed anteriorly. If the cords are visible, advance stylet through cords under direct vision. If unable to see cords, pass stylet posterior to the epiglottis and anterior to arytenoid cartilages.
3. Tracheal placement of stylet is indicated by palpable clicking of stylet as the tip passes over tracheal rings, or by "hold-up" as stylet tip reaches a mainstem bronchus. Esophageal placement indicated by no click and no hold-up.
4. When tracheal placement is indicated, operator maintains laryngoscopy and holds stylet in position. If stylet tip is in a mainstem bronchus (hold-up) tip of stylet should be withdrawn 1-2 cm and this position held.
5. Assistant then advances ETT along stationary stylet, holding the proximal tip of the stylet as it is exposed.
6. Operator or assistant then advances ETT along stationary stylet past larynx, blindly or under visualization, with continued laryngoscopy to appropriate position.
7. IF ANY DIFFICULTY IN PASSING ETT IS ENCOUNTERED, ROTATE ETT 90 DEGREES COUNTER-CLOCKWISE TO ORIENT BEVEL OF TUBE POSTERIORLY. The stylet may be allowed to rotate with the ETT but should not be allowed to move up or down the trachea.
8. Stylet is then withdrawn and tube position confirmed in usual manner.

KING AIRWAY (LT-D and LTS-D)

Indications:
Patient is apneic and without a gag reflex and 3 attempts at endotracheal intubation including use of eschmann stylet have been unsuccessful or
Pts body habitus or clinical considerations make attempts at intubation inadvisable

Contraindications:
The King LT is contraindicated and should not be used in the following situations:

1. An intact gag reflex
2. Under four (4') feet tall
3. Cases of known or suspected caustic poisoning
4. Known esophageal disease, or esophageal trauma

IV. Procedure:

1. Select appropriate size tube
    a. King LT size # 5 connector color **PURPLE** Patient is over six (6') feet tall or,
    b. King LT size # 4 connector color **RED** Patient is five (5') to six (6') feet tall or,
    c. King LT size # 3 connector color **YELLOW** Patient is four (4') to five (5') feet tall.
    d. King LT size #2.5 connector **ORANGE** Patient is 41-51 inches tall
    e. King LT size #2 connector **GREEN** Patient is 35-41 inches tall
2. Place the head in a neutral or "sniffing" position (unless cervical spine trauma suspected)
3. Hold the King LT at the connector with dominate hand, hold mouth open an apply chin lift. With the King LT rotated laterally 45-90 degrees such that the blue orientation line is touching the corner of the mouth, introduce tip into the mouth and advance behind the base of the tongue. As the tube passes behind the tongue, rotate tube back to midline (blue orientation line faces chin). Without exerting excessive force, advance tube until connector is aligned with teeth or gums.
4. Inflate cuffs per manufacturer's recommendations and adjust cuff volumes as needed to achieve and maintain seal.
5. Attach a bag-valve-mask to the colored tube and begin ventilations pulling up slightly to seat the cuff. Using a stethoscope, listen for breath sounds in both lateral lung fields to confirm placement.
6. Secure Airway in place. Periodically check for appropriate placement of the King Airway and adequate ventilations.

General items:

1. For patients in cardiopulmonary arrest, chest compressions and early defibrillation takes precedence over the placement of the King LT Airway.
2. When facial trauma has resulted in sharp, broken teeth or dentures remove dentures and exercise extreme caution when passing the King LT Airway into the mouth to prevent the cuff from tearing.
3. Removal of the King LT Airway
4. If the patient regains consciousness or begins to fight the tube, restrain if necessary, and immediately remove the King LT Airway as follows:
    a. Turn the patient on to their side.
    b. Deflate cuffs.
    c. Gently remove the King LT Airway.
    d. Be prepared, for the patient may vomit; suction as necessary.
5. Assure the patient's respirations are adequate; assist as necessary giving supplemental oxygen per protocols.

Section I
MEDICATION PROTOCOLS

ABCIXIMAB (REO PRO) - DRIP

Effective 12/2000 or prior
Amended 3/4/05

Indications:

1. Chest pain consistent with myocardial infarction.
2. Acute CVA, pulmonary embolism.

Contraindications:

1. History of stroke or TIA,
2. Known bleeding disorder
3. Active internal bleeding in past two weeks
4. Terminal illness
5. Jaundice
6. Hepatitis
7. Kidney failure.

Procedure:

1. Reo Pro is not to be initiated by Paramedics during field response.
2. Paramedic responsibility for Reo Pro will be limited to maintaining Reo Pro infusions during inter-hospital transfer, at dosages that have been ordered by physicians prior to initiating the transfer.
3. Reo Pro infusions in the ambulance will be administered using an IVAC or similar infusion controller.

Precautions:

1. Bleeding can occur within 30 minutes or hours after infusion. Initial measures include direct pressure to venipuncture sites. Evidence of bleeding is reported to the receiving agency.
2. Chest pain or reperfusion arrhythmias, including accelerated idioventricular rhythms, sinus bradycardia, and second/third degree blocks, may occur following infusion. If persistent, arrhythmias are treated in the usual fashion.
3. Hypotension may occur and may be treated with judicious fluid administration and placing the patient in Trendeleburg position if there is no pulmonary congestion.

ACETAMINOPHEN (TYLENOL)

Effective 12/2000 or prior

Pharmacologic Effects:
An analgesic and anti-pyretic.

Metabolism:
The onset of therapeutic effect with oral dosing is 30 minutes and the duration is 4 hours. Peak serum concentrations occur within 40-60 minutes with oral dosing. Extensive hepatic metabolism is followed by 1-4% excreted unchanged in the urine and 2.6% in the bile.

Indications:
An effective analgesic and anti-pyretic for the treatment of fever and minor, non-inflammatory conditions.

Contraindications:
Prior allergic reactions.

Cautions:
None.

Dosage and Administration:
Oral dosing is 325-1000 mg every 4 hours to a maximum of 4 gm per day (*Pediatric oral dose: 15-20 mg/kg every 4 hours orally or 20 mg/kg rectally*).

Adverse Effects:
Rare.

ACTIVATED CHARCOAL (ACTIDOSE-AQUA)

Effective 12/2000 or prior Revised 5/30/11

Pharmacologic Effects:
GI adsorbent.

Metabolism:
Not absorbed from the GI tract.

Indications:
Significant ingestion (tricyclic antidepressant, cardiovascular drug) occurring immediately prior to EMS arrival with a transport time >15 mins.

Contraindications:
Depressed level of consciousness, strong acids or alkalis, (caustics) heavy metals, which are not adsorbed by Charcoal.

Cautions:
May cause vomiting, which may be hazardous in caustic ingestions or in cases of volatile hydrocarbon ingestion. Aspiration of Activated Charcoal and gastric contents causes significant pneumonitis. Presence of charcoal in pharynx may obscure landmarks for intubation.

Dosage and Administration:
1. CONTACT MEDICAL CONTROL PRIOR TO ADMINISTRATION.
    a. The optimum dose in adults is 30-100 gm; 1-2 gm/kg may be used as a rough guideline.
    b. The optimum *Pediatric dose is 15-30 gm*.
2. A minimal dilution of 240 ml of water per 20-30 gm is recommended.

Adverse Effects:
Vomiting and aspiration.

ADENOSINE (ADENOCARD INJECTION)

Effective 12/2000 or prior

Pharmacologic Effects:

1. A nucleoside with antiarrhythmic activity.
2. It works both at the A-V node and in aberrant conduction pathways such as found in Wolff-Parkinson-White syndrome or LGL phenomena.
3. While it may be used to treat all patients with supra-ventricular tachyarrhythmias it works best in paroxysmal atrial tachycardia.
4. It has limited use in atrial fibrillation and atrial flutter.

Metabolism:

Clinical effects occur rapidly and are very brief, owing to its rapid uptake by cellular elements of the blood and tissue with its metabolism to Inosine. The usual plasma half-life is less than 12 seconds following an IV dose.

Indications:

IV Adenosine is highly effective in terminating episodes of acute paroxysmal supraventricular tachycardia.

Contraindications:

None.

Cautions:

Use cautiously, if at all, in wide complex rhythms suspected to be of supra-ventricular origin.

Dosage and Administration:

1. Should be given in increasing doses by IV bolus injection rapidly.
2. It should be given over 1-2 seconds directly into a vein or into the most proximal site of an IV catheter or infusion line.
3. The initial dose in adults should be 6 mg.
4. A second and third dose of 12 mg can be given after a 1-2 minute interval if the tachyarrhythmia has not stopped.
5. Single doses exceeding 12 mg are not recommended
6. (*Pediatric dose: 0.1-0.2 mg/kg*).
7. It may be repeated as in the adult dosage pattern.
8. All infusion of Adenosine should be given rapidly and followed by a saline flush since the drug degrades quickly.
9. The rapid degradation of the drug is one of its significant features since any adverse effects will be short lived.

Adverse Effects:

1. The primary adverse effects are flushing and dyspnea, each of which are of a short duration.
2. Warn patients of this possibility and assure them that it will be of brief duration.
3. Occasional hemodynamic disturbances may occur and very rarely bradyasystole may also occur.
4. These are of short duration owing to the very brief half-life of the drug.

ALBUTEROL (PROVENTIL)

Effective 12/2000 or prior

Pharmacologic Effects:
Selective beta-2 agonist primarily used to treat bronchial asthma and reversible bronchospasm.

Metabolism:
1. Peak bronchodilation occurs within 1-2 hours and continues for 3-4 hours after administration.
2. Seventy-two percent of an inhaled dose is absorbed.
3. The elimination half-life is 3-4 hours.
4. Hepatic metabolism to inactive metabolites occurs, with 28% of the drug appearing unchanged in the urine.

Indications:
Effective bronchodilator for the treatment of asthma and reversible bronchospasm.

Contraindications:
None.

Cautions:
Tachycardia, this may be disease related. May be ineffective in patients on Beta-blockers.

Dosage and Administration:
1. Solution for inhalation is administered in a dose of 2.5-5 mg (usual adult dose 5 mg).
2. Continuous nebulization may be used, if needed.
3. An alternative is by MDI and aerochamber or nebulizer BVM at a dose of four to eight (4-8) puffs every 5 minutes or less.

Adverse Effects:
1. Tachycardia
2. Premature ventricular contractions
3. Palpitations
4. Tremor
5. Agitation
6. Nervousness
7. Headache
8. Dizziness
9. Insomnia
10. Hyperglycemia
11. Nausea
12. Vomiting

AMIODARONE

Pharmacologic Effects:

1. Class III anti-arrhythmic agent with properties of all four anti-arrhythmic classes:
    a. Inhibits inactivated Na channels (Class I).
    b. Possesses anti-adrenergic actions (Class II).
    c. Increases action potential duration via blockade of slow potassium channels (Class III).
    d. Has calcium channel blockade similar to calcium channel blockers (Class IV).

Metabolized:
By the liver 100%.

Indications/Dosage:

1. Adult VF or Unstable VT refractory to defibrillation: 300 mg IV push, may repeat 150 mg IV if dysrhythmia persists or recurs
2. Ventricular dysrythmia- or wide complex tachycardia: perfusing: 150mg slow IV push, hold if hypotension or bradycardia are observed. In general stable, patients with stable perfusing dysrhythmia should be transported rapidly with appropriate notification or the receiving emergency department.

Administration: Comes in 150mg/3cc vials or preloaded syringes.

1. May administer undiluted for cardiac arrest, always flush with at least 10cc Saline
2. For slow IV push, dilute in 50 or 100 cc of D5W or normal saline and run in over 10 minutes.

Adverse Reactions:
Hypotension, bradycardia, QT prolongation, torsades des pointes

Contraindications:
Allergy to amiodarone, or iodine,

ASPIRIN

Effective 12/2000 or prior

Pharmacologic Effects:
1. Acts as an antipyretic, anti-inflammatory agent and inhibitor of prostaglandin production.
2. A secondary effect is reduction of platelet adherence and clot formation.

Metabolism:
Aspirin is primarily metabolized in the liver by converting enzymes. It is also partially metabolized by the blood.

Indications:
Use in patients with chest pain and a high probability of acute myocardial infarction. Its role is to reduce platelet aggregation and clot formation.

Contraindications:
1. Hypersensitivity to Aspirin
2. Patients already taking aspirin and have taken dose that day
3. Those on anticoagulants, such as Coumadin

Cautions:
Patients with asthma or other forms of reactive airway disease.

Dosage and Administration:
To reduce clot formation and platelet adherence dose is 1-2 81 mg tablets, preferably chewable variety. However, one 325 mg tablet (or 4 tablets of 81 mg) is appropriate for EKG Positive acute MI.

Adverse Effects:
May induce a reactive airway attack in susceptible individuals.

ATROPINE SULFATE INJECTION

Revised 5/30/2011

Pharmacologic Effects

1. Cardiac

    A. Increases firing rate of SA (sinoatrial) node & cardiac tissue conduction velocity by decreasing parasympathetic/vagal stimulation, resulting in an increased pulse rate.

2. Non-Cardiac

    A. Central nervous system stimulation.

    B. Dilation of pupils and cycloplegia (paralysis of the ocular muscle associated with focus).

    C. Decreases all body secretions.

    D. Decrease in bladder tone resulting in urinary retention.

Metabolized:

By the liver.

Indications:

1. Slow cardiac rhythms resulting in hypotension, chest pain, decreased mentation, and/or ventricular irritability (ventricular escape beats).

    A. Sinus bradycardia (symptomatic).

    B. Junctional or ventricular escape rhythms.

    C. Second or third degree heart block.

    D. Sinus pause or arrest.

2. Organophosphate poisoning (insecticides, herbicides, nerve gas).

3. Pre-treatment prior to Succinylcholine administration in patients:

    A. Less than eight years of age.

    B. Receiving a second dose of Succinylcholine.

Contraindications:

1. Atrial fibrillation - unless life threatening slow A-fib.

2. Atrial flutter.

Cautions:

Patients with glaucoma (increased pressure in eyes).

CALCIUM CHLORIDE INJECTION

Effective 12/2000 or prior
Amended 3/4/05

Pharmacologic Effects:

1. Involved in regulation of cell membrane permeability to sodium and potassium.
2. Important in activation of enzyme systems.
3. Plays a role in excitation contraction coupling (increases force of myocardial contraction and muscle contraction).

Metabolism:

1. Deposited in bone.
2. Excreted by kidney.

Indications:

1. Hyperkalemia (very high serum potassium).
2. Hypocalcemia (low serum calcium) with tetany.
3. Slow post-arrest rhythm with inadequate cardiac output not responding to the usual therapeutic agents (very rare use).
4. Cardiac arrest in patients on high dose calcium channel blockers (potential use).
5. Overdose of calcium channel blockers with profound bradycardia.
6. Reverses effects of Magnesium Sulphate, i.e. respiratory depression with newborn babies.
7. Hydrogen Fluoride exposure. Contact Online Medical Control.

Contraindications:

1. Hypercalcemia.
2. Digitalis toxicity (may result in asystole).

Use with Caution:

1. Extravasation causes tissue sloughing.
2. Do not mix with Sodium Bicarbonate in running IV.

Dosage and Administration:

1. 500 mg-1 gm (10% 5-10 ml IV). 100-200 mg (1-2 ml) IV
2. Pediatric dose: 20 mg/kg IV.

Adverse Effects:

1. Hypotension.
2. Bradycardia.

DEXTROSE 50% INJECTION (D50W)

Effective 3/4/05

Pharmacologic Effects:
1. Provides calories required for metabolic needs.
2. Supplies body water.
3. Spares body proteins.

Metabolism:
Broken down by most tissues to pyruvate which, with adequate oxygen, enters the Krebs Cycle and is converted into carbon dioxide, hydrogen, and water.

Indications:
Suspected hypoglycemia. NOTE: Whenever possible, draw sample for blood glucose estimation prior to the administration of dextrose.

Contraindications:
None.

Cautions:
None.

Dosage and Administration:
1. IV push of up to 50 ml of 50% Dextrose (25 gm, 50 ml). Push slowly with IV drip running to avoid thrombophlebitis.
2. Use sterile water for dilution.
3. May be repeated x 1 if response is inadequate.
4. Dilute 50% solution 1:1 for children, give 2cc/kg; neonates dilute 1:2 give 4cc/kg

Adverse Effects:
None.

DILTIAZEM (CARDIZEM)

Effective 12/2000 or prior

Pharmacologic Effects:
1. Is a calcium ion influx inhibitor (slow channel blocker or calcium channel antagonist).
2. Slows A-V nodal conduction time and prolongs A-V nodal refactoriness.

Metabolism:
1. Primarily hepatic metabolism.
2. Plasma half-life elimination is 3-4 hours.

Indications:
Rapid supraventricular dysrhythmias with rapid ventricular response.

Contraindications:
1. Drug hypersensitivity/allergy.
2. Sick sinus syndrome.
3. 2^{nd} or 3^{rd} degree heart block..
4. Severe hypotensive/cardiogenic shock.
5. IV simultaneous use with beta blockers.
6. Ventricular tachycardia.
7. Atrial fib/flutter associated with WPW syndrome (short pr syndrome).
8. Newborns.

Cautions:
1. CHF.
2. Hypotension.

Dosage and Administration:
1. Adult 0.25 mg/kg (15-20mg) IV over 2 minutes.
2. Check with Online Medical Control for subsequent doses.

Adverse Effects to Observe for:
1. Cardiac dysrhythmias/ventricular slowing.
2. Hypotension.

DIPHENHYDRAMINE (BENADRYL)

Effective 12/2000 or prior

Pharmacologic Effects:

1. Antihistamine, sedative effect, anticholinergic.
    a. When released into the circulation following an allergic reaction, histamine acts on two different receptors. The first type called H_1, causes bronchoconstriction and contraction of the gut. The second type of receptor, called H_2, causes peripheral vasodilatation.
    b. Antihistamines are administered after epinephrine in the treatment of anaphylaxis. Epinephrine causes immediate bronchodilation by activating B_2 adrenergic receptors, while Diphenhydramine inhibits further histamine release.

Metabolism:

Excreted by the liver and kidneys.

Indications:

1. Anaphylaxis.
2. Allergic reactions.
3. Severe dystonic reactions due to phenothiazines, or similar drugs.

Contraindications:

Management of lower respiratory diseases (such as asthma).

Cautions:

Nursing mothers.

Dosage and Administration:

1. Supplied in ampoules and pre-filled syringes containing 50 mg/ml.
    a. Standard adult dose is 25-50 mg slow IV push (over 2 minutes) or by deep IM injection
    b. Pediatric dose: 1-2 mg/kg slow IV push or deep IM injection

Adverse Effects:

1. Blurred vision
2. Hypotension
3. Headache
4. Palpitations
5. Tachycardia
6. Sedation
7. Drowsiness
8. Disturbed coordination

EPINEPHRINE HYDROCHLORIDE INJECTION (ADRENALIN)

(Page 1 of 2)

Effective 12/2000 or prior Revised 5/30/11

Pharmacologic Effects:

1. Alpha and beta adrenergic effects:
    a. Increases force of myocardial contraction.
    b. Increases pulse rate and systolic blood pressure.
    c. Increases conduction velocity through the A-V node.
    d. Increases irritability of ventricles.
    e. Dilates bronchi.

Metabolized:

In the liver and many other tissues.

Indications:

1. Cardiac arrest (i.e. Asystole, PEA, VF, and pulseless VT).
2. Cardiogenic shock.
3. Neurogenic shock.
4. Severe bradycardia in pediatric and neonate patients.
5. Anaphylaxis
6. Severe asthma.
7. Severe upper respiratory infection (croup / epiglottitis).

Contraindications:

1. Severe cardiac disease (except in life-threatening conditions).
2. Hemorrhagic or hypovolemic shock.
3. Dysrhythmias.

Cautions:

1. Do not mix with Sodium Bicarbonate or similar alkaline solutions, or inactivation of Epinephrine will result.
2. Hypertension.
3. Elderly patients.
4. Heart disease.

EPINEPHRINE HYDROCHLORIDE INJECTION (ADRENALIN)

Continued (Page 2 of 2)

Dosage and Administration:

1. Cardiac Arrest - Asystole, PEA, VF and Pulseless VT:
    a. Adult initial dose of 1 mg 1:10,000 IV/IO, then every 3-5 minutes.
    b. **Pediatric**: 0.01 mg/kg, repeated as above.
2. Severe bradycardia in pediatric patients: 0.01 mg/kg 1:10,000 IV/IO push, repeated every 3 – 5 minutes. Contact medical control prior
3. Anaphylaxis:
    a. Adult 0.3 cc 1:1,000 IM.
    b. **Pediatric:** 0.01 mg/kg.
    c. Repeat initial dose if continued signs of shock and/or respiratory compromise persist
    d. Severe patients may be given 0.3 - 0.5 mg (3 - 5 ml) of 1:10,000 solution IV/IO slowly. **Pediatric:** 0.01 mg/kg.
    e. Severe anaphylaxis following IV bolus: Epinephrine drip. See #5 below.
4. Severe Asthma
    a. Adult 0.3cc 1:1,000 IM
    b. **Pediatric**: 0.01 mg/kg to a maximum of 0.3 mg.
5. IV drip for Cardiogenic and Neurogenic shock, bradycardia (pacing preferred), persistent severe anaphylactic shock: Infusion 2-10 mcg/ min: 1 mg Epi 1:1000 in 100mL D5W with 10 gtt/mL adset = 1 gtt/ 10 seconds for mid-range dosing. Titrate to effect.
6. Upper airway swelling secondary to epiglottitis or croup: nebulize 0.5 mg (5ml) 1:10,000 solution.

Adverse Effects:

1. Hypertension.
2. Supraventricular tachycardia.
3. Anxiety/agitation
4. Ventricular Dysrhythmias:
    a. Ventricular premature contractions.
    b. Ventricular tachycardia.
    c. Ventricular fibrillation.

ETOMIDATE (AMIDATE)

Effective 4/15/03

Pharmacologic Effects:

1. It is a carboxylayted imidazole derivative used as a sedative-hypnotic agent for rapid sedation of a patient undergoing intubation.
2. It provides rapid, complete, and reproducible sedation at a standard dose without the adverse cardiovascular effects often seen with other sedative agents.
3. The duration of the sedation is approximately 5-10 minutes.

Metabolism:
Liver

Indications:
Indicated as an adjunct in rapid sequence intubation

Contraindications:
None in the setting of rapid sequence intubation

Cautions:

1. Causes rapid and deep sedation within 15-30 seconds of administration.
2. Should only be used in the process of rapid sequence intubation once personnel and equipment are ready for appropriate airway and ventilatory management.

Dosage and Administration:
The dose is 0.3mg/kg IV injection. A dose of 20mg is adequate for most adults. Administer succinylcholine immediately following the administration of etomidate.

Adverse Effects:

1. Causes mild local burning and venous irritation on administration
2. Myoclonus (muscular contractions)
3. Rapid and deep sedation
4. If used without concomitant paralytics nausea and vomiting can occur
5. In the setting of *continuous infusions* of etomidate in the ICU setting, adrenal suppression has been reported.

Notes:
The duration of etomidate is about 5-10 minutes. Continued sedation after the intubation procedure is often indicated and is best provided with a longer acting sedative such as midazolam. This can be administered after the procedure of intubation is complete.

FENTANYL (SUBLIMAZE)

(Page 1 of 2)

Effective 5/7/04

Pharmacologic Effects:
A full opiate agonist that is similar in action to morphine, but much more potent (requiring much smaller doses). It has an extremely rapid onset (<30 seconds) and a much shorter clinical duration (20-40 minutes) than other opiates, including morphine. Additionally, Fentanyl produces much less histamine release than other opiates, and even with large doses hypotension is extremely rare.
The combination of rapid onset, short duration, and stabile hemodynamic profile make Fentanyl an excellent option for critically ill (e.g., trauma) patients and for those patient in whom there is a concern about masking components of the physical exam (e.g., abdominal pain).

Metabolism:
By the liver and kidneys.

Indications:
1. Control of moderate to severe pain in
    a. multi-system trauma patients
    b. critically ill patients with potential or existent hypotension
    c. patients with abdominal pain requiring narcotics (short duration allows pain control but helps preserve the physical exam for the physician)
    d. patient with adverse reactions (but not anaphylaxis) to other opiates such as morphine (fentanyl causes less nausea, vomiting, and itching (pruritis) compared to morphine)
    e. transcutaneous pacing

Contraindications:
1. Hypersensitivity
2. Not to be used in a neonate/infant <1 month of age due to association with bradycardia
3. Not to be used in patients with abdominal pain or severe closed head injury without approval of Online Medical Control

Cautions/Adverse Effects:
1. May cause respiratory depression and close monitoring is required. Like all narcotics, the respiratory depressive effects are synergistic (markedly worsened) with co-administration or use of benzodiazepines (e.g. Midazolam).
2. Rarely associated with nausea, vomiting, pruritis
3. Fentanyl has no intrinsic anxiolytic or amnestic properties
4. Extremely rarely associated with a "chest wall syndrome" involving chest wall rigidity
   that occasionally can require supportive ventilation and/or pharmacologic paralysis but is often reversible with naloxone. This extremely rare condition has only been associated with extremely large and rapid bolus (>5 mcg/kg) administration.
5. The effects of Fentanyl are reversible with naloxone.
6. Fentanyl tends to have more of a sedative effect in children than found with an equipotent dose in adults

FENTANYL (SUBLIMAZE)

Effective 5/7/04

(Continued)

Dosage and Administration:

Like other narcotics/opiates, Fentanyl is best used via small doses that are titrated to adequate effect (analgesia). Due to its pharmacological properties of rapid onset, titration of this agent is a usually straightforward and simple process.

1. *Adults*: 1-2 **micrograms (mcg)**/kg slow IV push (over ~1 minute) is the maximum titratable dose which can be repeated up to every 5 minutes to desired effect. However the recommended standard adult titrating dose is 50 mcg. [Concentration/Dosage note: 100 micrograms = 0.1 milligrams]
2. *Pediatrics*: Contraindicated in neonates/infants <1 month of age due to bradycardia,
   Otherwise 1 **microgram (mcg)**/kg slow IV push (over ~1 minute) is the maximum titratable dose which can be repeated up to every 5 minutes. Alternate: 1 **microgram (mcg)**/kg MAD X 1.

GLUCAGON

Effective 12/2000 or prior

Pharmacologic Effects:

1. A protein secreted by the alpha cells of the pancreas. When released it causes a breakdown of stored glycogen to glucose. It also inhibits the synthesis of glycogen from glucose. Both actions tend to cause an increase in circulating blood glucose. In hypoglycemia the administration of Glucagon increases blood glucose levels. The drug of choice in the management of insulin induced hypoglycemia is still 50% Dextrose in water. While a return to consciousness is seen almost immediately following the administration of Glucose, a return to consciousness following the administration of Glucagon usually takes from five (5) to twenty (20) minutes. Glucagon is only effective if there are sufficient stores of glycogen in the liver.

2. Glucagon exerts a positive inotropic action on the heart and decreases renal vascular resistance.

3. It may be indicated in certain cardiac failure or arrest patients who are on high dose beta blocking agents, as some studies have shown Glucagon has a positive effect on the force and rate of contraction in the presence of these agents.

Metabolism:
By the liver.

Indications:

1. Hypoglycemia.
2. Cardiac arrest in patients with beta blocker overdose (possibly useful).
3. Beta blocker overdose with profound bradycardia.

Contraindications:
Hypersensitivity to Glucagon.

Cautions:
Is only effective if there are sufficient stores of glycogen within the liver. In an emergency situation, IV glucose is the agent of choice. Glucagon should be administered with caution to patients with a history of cardiovascular or renal disease. Draw and check blood glucose level prior to administration.

Dosage and Administration:

1. Must be reconstituted before administration. It is supplied in rubber-stoppered vials containing one unit of powder and one milliliter of diluting solution.
2. A standard initial dose is 0.5-1.5 units IV, IM, or SC. Rarely used in pediatric patients below 1 year of age because hypoglycemia may be due to depletion of hepatic glycogen stores (*Pediatric dose: 0.03 mg/kg*).

Adverse Effects:
May cause nausea and vomiting, rare in emergency situations.

GLUCOSE GEL

Effective 12/2000 or prior

Pharmacologic Effects:
Provides calories for metabolic needs.

Metabolism:
Broken down by most tissues to pyruvate which with adequate oxygen enters the Krebs cycle and is converted to carbon dioxide, hydrogen and water.

Indications:
1. Suspected hypoglycemia.

Note: Whenever possible, draw blood sample for glucose determination prior to administration of glucose.

Contraindications:
None.

Cautions:
1. Patient needs to have intact swallowing capacity.

Dosage and Administration:
Apply gel to buccal (cheek) mucosa.

Adverse Effects to Observe for:
1. Aspiration.
2. Choking.

HEPARIN - DRIP

Effective 12/2000 or prior

Indications:
Prevention and/or treatment of all types of thrombosis and emboli. Adjunct for coronary thrombosis. Treatment of disseminated intravascular coagulation.

Contraindications:
1. Active bleeding
2. Blood dyscrasias
3. History of bleeding
4. Hypersensitivity of heparin
5. Inadequate laboratory facilities
6. Liver disease with hypothrombinemia
7. Recent neurosurgical procedures
8. Subacute bacterial endocarditis.

Procedure:
1. Heparin is not to be initiated by Paramedics during field response. Paramedic responsibility for heparin will be limited to maintaining heparin infusions during inter-hospital transfer, at dosages that have been ordered by physicians prior to initiating the transfer.
2. All heparin infusions in the ambulance will be administered using an IVAC or similar infusion controller.
3. Extra care will be taken not to jostle or otherwise physically traumatize a patient who has a heparin infusion running.

Complications:
1. Bleeding of any type.
2. Decreasing level of consciousness or focal neurological signs may indicate intracranial bleeding.
3. Allergic reactions can occur.
4. Any suspicion of complications should be reported immediately to Online Medical Control, and upon arrival to receiving medical personnel. Serious complications necessitate stopping the infusion.

INTEGRILIN (EPTIFIBATIDE)

Effective 05/30/2011

Indications:

1. Mechanism of action inhibits platelet function (glycoprotein IIb/IIIa inhibitor).
2. Acute coronary syndrome/acute MI. Integrilin will not be initiated during a field response but will be administered on physician orders during transfers of STEMI or other ACS patients.

Adverse Reactions:

1. Bleeding, including at IV site
2. Hypotension

Contraindications:

1. Active GI, CNS or other hemorrhage
2. Stroke within 30 days or history of hemorrhagic stroke
3. Recent major surgery
4. Dialysis or renal failure

Onset/Duration:

Onset of action within 1 hour, duration up to 4 hours after discontinuation.

Dosage/Administration:

1. Initial bolus of 180 mcg/kg followed by IV infusion at 2 mcg/kg/min with a second IV bolus of 180 micrograms/kg given 10 min after initial bolus.
2. Do not shake vial, do not administer if particles or discoloration are present in vial.
3. Boluses should be drawn from vial and administered over 2 mins.
4. Infusion should be via pump and rate should be set/ infusion started prior to transfer of care.
5. EMS may administer second IV bolus if this expedites transport.

IPRATROPIUM (ATROVENT)

Effective 12/15/2011

Pharmacologic Effects:
Anticholinergic bronchodialator

Metabolism:
Onset of action within 15 minutes, peak effect 1-2 hours, duration 2-5 hours.

Indications:
1. Acute exacerbation of asthma or COPD

Adverse Reactions:
1. Chest Pain
2. Palpitations
3. Back Pain

Contraindications:
1. Known hypersensitivity to ipratropium

Cautions/Adverse Effects:
1. May increase weakness in myasthenia gravis

Onset/Duration:
Onset of action within 1 hour, duration up to 4 hours after discontinuation.

Dosage/Administration:
1. Adult and peds over 12 years of age 500 mcg (one unit dose vial) via HHN
    a. Peds under 12 and under give 250mcg via HHN
2. Dose may be repeated in 20 minutes
3. Atrovent should be given in combination with albuterol, may be mixed in same nebulizer or given as duoneb (pre mixed unit dose vials).

KETAMINE HYDROCHLORIDE INJECTION (KETALAR)

Effective 4/1/13

Pharmacologic Effects

1. Ketamine is a Class III Phencyclidine (PCP) derivative that is rapid acting in producing a "dissociative" anesthesia in which the patient's consciousness is detached from basal nervous system functions.
2. Minimal cardiac depression occasionally reported with rapid-high doses. May transiently (within 30-60 seconds) increase heart rate and blood pressure by central sympathetic stimulation. Return to normal values begins almost immediately, and is complete witin 15 minutes.
3. Ketamine is a bronchodilator and has minimal to no respiratory depression with respiratory stimulation frequently seen.

Metabolism

1. The liver microsomal enzyme system metabolizes Ketamine

Indications

1. Non-narcotic pain management. Use lower dose range.
2. Behavioral emergencies, including excited delirium. Use upper dose range.
3. Pre-anesthetic for rapid sequence indication.
4. Pre-anesthetic for critical asthma patients needing aggressive bronchodilation and possible intubation.

Contraindications

1. Angina
2. Pregnancy
3. CHF
4. Symptomatic Hyperthyroidism

Cautions/Adverse Effects

1. Hypertension
2. Tachycardia
3. Aneurism
4. Psychotic Disorders

Dosage and Administration

1. IV 0.5-2 mg/kg over 1 minute (half-life 5-10 minutes)
   IM 2-4 mg/kg (half-life 12-25 minutes)
2. Pediatric: IV/IO 0.5-2.0 mg/kg over 1 minute IM 1-2.5mg/kg
3. Repeat as needed at half dose after 10-15 minutes. Contact medical control for further doses.

Adverse Effects

1. An emergent reaction may occur near end of medications half-life, when patient is awakening, that may require Versed of 1-5mg IV/IO to calm patient.

LIDOCAINE HYDROCHLORIDE INJECTION (XYLOCAINE)

Effective 12/2000 or prior

Pharmacologic Effects:

1. Suppresses ventricular dysrhythmias.
2. Minimal effect on AV conduction, blood pressure, or cardiac output (at usual doses).
3. Local anesthetic.

Metabolism:

1. By the liver: 90%.
2. Excreted unchanged: 10%.

Indications/Dosage

1. Pre-treatment of head injured patients receiving Succinylcholine 1mg/kg OPTIONAL (may help reduce transient rise in ICP).
2. Anti- arrhythmic- with medical control approval patients allergic to or failed to respond to amiodarone ; 1-1.5 mg/kg IV may repeat Q 5 minutes maximum 300mg
3. Local anesthesia following IO insertion 50-75 mg (5-7.5 cc cardiac lidocaine) followed by 10cc NS flush.
    a. **PEDS 0.5 mg/kg**

Contraindications:

1. Known hypersensitivity.
2. Adams-Strokes syndrome.
3. Second degree heart block type II.
4. Third degree heart block.
5. PVC's with sinus Bradycardia.

Cautions:

1. Liver disease.
2. Congestive heart failure.
3. Hypovolemia.
4. Shock.
5. First and second degree heart block type I.

Adverse Effects: (all unlikely at protocol dosage)

1. Central nervous system
    a. Muscle twitching.
    b. Drowsiness.
    c. Stupor.
    d. Change or slurring of speech.
    e. Convulsions.
2. Respiratory:
    a. Difficulty in breathing.
    b. Respiratory arrest.
3. Cardiac:
    a. Hypotension.
    b. Heart block.
    c. Bradycardia (rare).

MAGNESIUM SULFATE

Effective 12/2000 or prior

Pharmacologic Effects:
An element essential for the activity of many enzymes and for normal function of the nervous and cardiovascular systems.

Metabolism:
50% of the element is deposited in bone, 45% exists as an intracellular cation, and 5% is in the extracellular fluid. One-third of plasma magnesium is bound to plasma proteins. A high percentage of magnesium is re-absorbed in the proximal tubule with only 3-5% of the filtered ion being excreted in the urine.

Indications:
1. Eclampsia (including eclamptic seizures).
2. Cardiac dysrhythmias:
    a. Torsade de Point (drug of choice)
    b. Ventricular fibrillation.
    c. Ventricular tachycardia.
    d. Digoxin toxicity.
3. Known or suspected hypomagnesemia.
4. Tricyclic overdose. This should only be used after Sodium Bicarbonate has been given in adequate dose.

Contraindications:
1. Renal disease.
2. Heart block.

Cautions:
None.

Dosage and Administration:
1. Eclampsia: 2-4 gm IV or IM. May repeat to 10 gm total.
2. Cardiac dysrhythmias: 2-4 gm IV.

Note: Reduce the dose in patients with known renal impairment.

Adverse Effects:
1. (Rare) Hypermagnesemia resulting in muscle weakness,
2. EKG changes, hypotension and confusion may occur with magnesium administration, especially in patients with renal impairment.
3. Nausea and diarrhea may also occur.
4. Large doses may lead to respiratory depression, cardiac arrest and CNS depression.

MIDAZOLAM (VERSED)

(Page 1 of 2)

Effective 4/15/03
Revised 3/25/14

Pharmacologic Effects:

1. Short-acting benzodiazepine which functions by modulation of the GABA receptor.
2. Provides amnestic, anxiolytic, sedative, hypnotic, and anticonvulsant effects.

Metabolism:

In the liver and excreted in the urine. The elimination half-life is 2-5 hours. Typically produces sedation lasting roughly 30-60 minutes in standard doses.

Indications:

1. Sedation and amnesia for the patient undergoing rapid sequence intubation
2. Maintenance of sedation and amnesia for the intubated patient
3. Sedation for the severely agitated patient
4. Anticonvulsant
5. Anxiolysis (relief from anxiety)

Contraindications:

1. Patients sensitive or allergic to Benzodiazepines.
2. Hypotension

Cautions:

1. Causes respiratory depression and sedation, be prepared to manage the airway
2. Causes hypotension
3. Has wide dosing variability among patients of all ages (meaning a given dose produces different effects in different patients). This applies to time of onset of effects as well as level and nature of effects.

Dosage and Administration:

1. Pediatric Rapid Sequence Intubation: 0.05 – 0.1 mg/kg IV
    a. Continued Sedation: 0.05-0.1 mg/kg IV every 30-60 minutes
2. Adult Rapid Sequence Intubation: 2 to 5 mg IVP
    a. Continued Sedation: 0.05-0.1 mg/kg IV every 30-60 minutes (maximum 10mg single dose)
3. Adult Seizures: 10mg IM; 5mg IV or 10mg IM Q5 min x 3 doses
4. Pediatric Seizures: 0.2mg/kg IM; 0.1mg/kg IV or 0.2mg/kg IM Q5 min x 3 doses
5. Adult sedation, chemical restraint/combative patient: 2.5-5mg IM initial dose or 0.1mg/kg IV initial dose (Maximum 5mg single dose). May be followed by titrated doses 1-2mg IV every 3-5 minutes.
6. Sedation via MAD: 0.3 mg/kg to a maximum dose of 5mg

MIDAZOLAM (VERSED)

(Page 2 of 2)

Effective 4/15/03
Revised 3/25/14

(Continued)

Adverse Effects:

Respiratory depression, apnea, hypotension, injection site pain (only if excessive), and phlebitis.

Notes:

1. Midazolam is an excellent agent for sedation and amnesia. However, for the procedure of intubation, the onset of effects are much slower and much more variable compared with an agent such as etomidate. Additionally, at effective doses midazolam can and does cause hypotension. For these reasons, etomidate (where available) is the preferred agent for the procedure of intubation itself.
2. Online Medical Control may approve Midazolam for anxiolysis in certain cases. They will provide/approve the dose to be used in a given situation.
3. Be aware that the use of midazolam in young children can often result in paradoxical agitation instead of sedation. This can also occur in the adult but is much less common.

MORPHINE SULFATE INJECTION

Effective 12/2000 or prior

Pharmacologic Effects:
1. Potent analgesic.
2. Decreases rate of AV conduction (vagotonic).
3. Peripheral vasodilation and venous pooling of blood.
4. Sedation and euphoria.

Metabolism:
By the liver.

Indications:
1. Severe pain (i.e.: myocardial infarction, trauma).
2. Adjunct in treating pulmonary edema.
3. Hypertensive crisis.

Contraindications:
1. Known hypersensitivity.
2. Acute abdominal conditions.
3. Monoamine oxidase inhibitors (MAO).
4. Head trauma (relative).
5. Depressed state of consciousness.

Cautions:
1. Respiratory depression (i.e.: associated with asthma and COPD).
2. Elderly patients.
3. Hypotension.

Dosage and Administration:
1. Inject 2-10 mg IV, infused slowly (usually 1-3 mg increments).
2. May be given IM or SC, although absorption is unpredictable in vasoconstricted, hypotensive patients and administration by these routes is not recommended.

Adverse Effects:
1. Drowsiness.
2. Lethargy.
3. Nausea.
4. Respiratory depression.
5. Bradycardia or heart block.
6. Hypotension.

NOTE: Inadvertent overdose can be reversed with naloxone 0.5-4 mg IV, IM or by MAD.
Metabolism is slower than naloxone. Repeated doses (titrated) of naloxone may be indicated.

NALOXONE HYDROCHLORIDE INJECTION (NARCAN)

Effective 12/2000 or prior

Pharmacologic Effects:
Narcotic antagonist.

Metabolism:
By the liver.

Indications:
1. Respiratory depression secondary to narcotics or related drugs:
2. Suspected acute opiate overdose with significant respiratory depression

Contraindications:
Known hypersensitivity.

Cautions:
1. Induces acute withdrawal patients known to be physically dependent on narcotics.
2. May cause agitation, vomiting and diarrhea.

Dosage and Administration:
1. 0.5-2.0 mg (2 mg/amp) IV, IM, SC, ET, SL, or MAD. Dose may be repeated every 2-3 minutes until a response is noted.
2. If no response is noted after three (3) doses, the condition is probably not due to an opiate or other related drug.
3. Naxolone may wear off prior to narcotic being metabolized. Repeat doses may be indicated.
4. Dose should be titrated to effect on overdose patients, as they may become combative if administered too rapidly.

Adverse Effects:
1. Withdrawal symptoms:
    a. Sweating, gooseflesh, tremor.
    b. Nausea, vomiting.
    c. Dilation of pupils, tearing of eyes.
    d. Agitation, belligerence.

NITROGLYCERIN - DRIP

Effective 12/2000 or prior

Indications:
Control of pain of cardiac origin.

Contraindications:
Hypotension.

Procedure:
1. IV Nitroglycerin (NG) is not to be initiated by Paramedics during field response.
2. Paramedic responsibility for NG will be limited to maintaining NG infusions during inter-hospital transfer, at dosages that have been ordered by physicians prior to initiating the transfer and the patient has shown reasonable stability to NG drip rate.
3. All NG infusions in the ambulance will be administered using an IVAC or similar infusion controller.
4. Monitoring of BP is important to recognize changes of BP.

Complications:
1. Hypotension can occur with NG drip therapy.
2. If hypotension occurs:
    a. Decrease rate of infusion and contact Online Medical Control.
    b. For significant decrease of BP - turn off drip and contact Online Medical Control

NITROGLYCERIN PASTE/
NITROGLYCERIN TABLETS (SUBLINGUAL)/
NITROGLYCERIN SPRAY (PRE-METERED DOSE)

Effective 12/2000 or prior
Amended 3/4/05

Pharmacologic Effects:

1. Dilates veins and arteries in peripheral circulation resulting in:
    a. Reduced resistance to blood flow.
    b. Decreased blood pressure.
    c. Decreased work load on heart.
    d. Cumulative effect is relief of angina pectoris.
2. Dilates coronary arteries.
3. Dilates blood vessels in smooth muscle (i.e.: gastrointestinal tract, gall bladder, bile ducts, uterus).
4. Improves cardiac output in patient with congestive heart failure.

Metabolism:

By the liver.

Indications:

1. Angina pectoris / chest pain.
2. Severe hypertension.
3. Congestive heart failure.

Contraindications:

1. Known hypersensitivity.
2. Hypotension (blood pressure less than 100 systolic).
3. Patients who have used erectile dysfunction medications; Viagra (sildenafil citrate), Levitra (vardenafil) and Cialis (tadalafil). Can cause profound, irreversible hypotension. For Viagra and Levitra, do not administer nitrates within 24 hours of last dose, for Cialis do not administer nitrates within 48 hours. Contact online medical control if any uncertainty.

Cautions:

1. Cerebral hemorrhage or CVA- avoid precipitous drop in blood pressure
2. Right ventricular or inferior MI

Dosage and Administration:

1. Administer 0.4 mg (gr. 1/150) SL (1 tablet) or 1 spray dose.
2. May be given once every 3-5 minutes x 3
3. Nitroglycerin Paste: 1/2 – 1 inch applied to upper chest with approval of Online Medical Control. Consider for use in chest pain when the patient has responded to spray or tablets **AND** transport time is significant

Adverse Effects:

1. Hypotension
2. Headache.
3. Skin flushing.

ONDANSETRON INJECTION (ZOFRAN)

Pharmacologic Effects:
1. Anti-emetic.
2. CNS blocking agent of serotonin receptors in the brain stem.

Metabolized:
1. Metabolized in the liver.
2. Onset in 3 - 10 minutes following IV/IO injection (longer IM). Full effect may not be apparent for 20 minutes; duration of action is 2 - 4 hours (dose dependent).

Indications:
Nausea and/or vomiting.
**NOTE*: Safe to use with pregnant or lactating patients.

Contraindications:
Known hypersensitivity or adverse reaction

Dosage and Administration:
1. Adult Dose: Oral: 4-8mg ODT x1
2. IV 4-8 mg IV/IO (slow push), titrated up as necessary; IM. Do not exceed 16 mg without contacting medical control.
3. **Pediatric:** 2-4 mg or 0.05 - 0.1 mg/kg IV/IO (slow); IM

Adverse Effects:
1. Rare side effects may include:
    a. Blurred vision.
    b. Dizziness.
    c. Fatigue.
    d. Headache.

OXYMETAZOLINE (AFRIN)

Effective 12/2000 or prior

Pharmacologic Effects:
An alpha-adrenergic agonist used as a nasal decongestant.

Metabolism:
Metabolized through the same mechanism as are the other catecholamines and alpha agonists.

Indications:
1. It is an effective nasal decongestant that can be used prior to nasotracheal intubation or the placement of a nasogastric tube.
2. May also be used to assist in controlling epistaxis in conjunction with direct nasal pressure.

Contraindications:
Known hypersensitivity to the medication.

Cautions:
Use with caution in patients with a history of significant cardiovascular disease. This is rarely a problem in short term use.

Dosage and Administration:
It is supplied in a plastic squeeze bottle. Usual dosage is 2-3 sharp squeezes in the desired nostril.

Adverse Effects:
Very rare; sinus tachycardia may occur.

PROMETAHZINE (PHENERGRAN)

Effective 4/16/14

Pharmacologic Effects:

1. Phenothiazine antiemetic, antagonist of central and peripheral histamine H1 receptors.
2. Anticholinergic; sedating

Metabolism:

Hepatic with half-life of 7-14 hours

Indications:

Nausea and vomiting second line agent, may be agent of choice for severe vomiting with agitation or dizziness..

Contraindications:

1. Children under the age of 2.
2. Known hypersensitivity to promethazine or adverse reaction to phenothiazide.

Cautions:

1. Arterial, subcutaneous administration or tissue extravasation may cause severe tissue damage
2. Sedation
3. Anticholinergic effects; dry mouth, urinary retention, blurred vision
4. Extrapyramidal sypmptoms; dystonia, akathesia
5. Neuroleptic malignant syndrome

Dosage and Administration:

1. Adult: 25 or 12.5mg IM or 12.5-6.25mg IV.
    a. IM dosing is preferred route.
    b. If given IV give via large bore IV, dilute solution and have fluids running.
    c. INTRA ARTERIAL ADMINISTRATION MAY RESULT IN SEVERE TISSUE DAMAGE.
    d. Use lower doses in elderly
2. Pediatric: Age >2 only;0.25- 0.5mg/kg IM up to 25mg

RACEMIC EPINEPHERINE

Effective 3/4/05

Pharmacologic Effects:
1. Alpha and beta adrenergic.
2. Reverses airway edema.

Metabolism:
Momoamine oxidase and catechol-o-methyltransferase in tissue and liver

Indications:
Croup in pediatric patients with stridor at rest, respiratory distress.

Contraindications:
Known sensitivity/allergy to epinephrine.

Cautions:
Caution if cardiac disease, hypertension, hyperthyroid (all unlikely in pediatric patient)

Dosage and Administration:
1. Comes as 2.25% solution.
2. Administered via hand-held nebulizer
    a. For patient <10 kg 0.05 cc/kg of solution diluted in 3cc NS
    b. If patient > 10 kg 0.5cc of solution diluted in 3cc NS.

Adverse Effects:
1. Tachycardia
2. Hypertension
3. Possible return of stridor within 1-3 hours (rebound)
4. Anxiety
5. Tremor
6. Possible paradoxical bronchospasm.

ROCURONIUM BROMIDE INJECTION (ZEMURON)

Effective 2/10/2014

Pharmacologic Effects:

1. Non-depolarizing neuromuscular blocking agent. Rocuronium competes with acetylcholine for receptor sites at the motor end plate causing muscular paralysis.
   **NOTE*: Rocuronium has no effect on patient's level of consciousness or pain sensation

Metabolized:

1. In the liver and excreted by the kidneys.
2. Onset of action in 60-90 seconds depending on dose and age of patient; onset is typically slower in elderly patients and faster in pediatric patients.
3. Muscular paralysis typically lasts between 20 to 60 minutes depending upon dose and patient.

Indications:

1. Use to facilitate prolonged paralysis after a successful rapid sequence intubation or routine intubation.
2. Used as an alternative to Succinylcholine when the use of Succinylcholine is contraindicated.

Contraindications:

1. None

Cautions:

1. Significant liver disease.
2. Pulmonary hypertension-may increase pulmonary vascular resistance.
3. Valvular heart disease- may increase pulmonary vascular resistance and worsen symptoms of right heart failure.

Dosage and administration:

1. 1.0 mg/kg IV/IO
   IM 2-4 mg/kg (half-life 12-25 minutes)
2. **Pediatric:** 1.0 mg/kg IV/IO
3. Use appropriate induction agent and maintain appropriate sedation during paralysis.

Adverse effects:

1. Hypertension and tachycardia.
2. Hypotension.
3. Histamine release with possible signs of asthma/bronchoconstriction.
4. Dysrhythmias.
5. Nausea, vomiting, hiccups.

SODIUM BICARBONATE INJECTION

Effective 12/2000 or prior
Revised 3/25/14

Pharmacologic Effects:
1. Alkalinizing agent.
2. Increases potassium influx into cells.

Metabolism:
1. Bicarbonate is excreted in the urine and by the lungs as CO_2.
2. Na is excreted in the urine.

Indications:
1. Metabolic acidosis resulting from:
    a. Cardiac arrest due to known or suspected hyperkalemia or drug overdose from tricyclic antidepressants. If used, patient should be hyperventilated to blow off excess CO_2.
    b. Hyperkalemia.
    c. Tricyclic antidepressant overdose.

Contraindications:
1. Metabolic alkalosis.
2. Hypokalemia.
3. Hypocalcemia.

Cautions:
1. Congestive heart failure.
2. Hypertension.
3. Do not mix with:
    a. Calcium chloride
    b. Epinephrine (Adrenaline)

Dosage and Administration:
1. CARDIAC - Initially 1 mEq/kg IV
    a. then 0.5 mEq/kg every 10-15 minutes until circulation is restored.
2. In tricyclic overdose give approximately 1.5 mEq/kg over 5 minutes then 1 amp in 250-500 ml D5W or Lactated Ringers over 30 minutes (*Pediatric dose: 1-2 mEq/kg*).

Adverse Effects:
1. Signs of congestive heart failure:
    a. Shortness of breath.
    b. Rales.

SUCCINYLCHOLINE (ANECTINE, QUELICIN)

(Page 1 of 2)

Effective 4/15/03
Amended 3/4/05

Pharmacologic Effects:

1. A short-acting motor nerve depolarizing, skeletal muscle relaxant. Like acetylcholine, it combines with cholinergic receptors in the motor nerves to cause depolarization. Neuromuscular transmission is thus inhibited and remains so for 8-10 minutes.
2. Following IV injection, complete paralysis is obtained within one minute. Effects then start to fade and a return to normal is seen within ten minutes.
3. Muscle relaxation begins in the eyelids and jaw. It then progresses to the limbs, the abdomen and finally the diaphragm and intercostal muscles. It has no effect on the patient's level of consciousness.

Metabolism:

Excreted by the kidneys (10%) and is hydrolyzed by plasma pseudocholinesterase (90%).

Indications:

To achieve rapid, temporary paralysis in order to facilitate endotracheal intubation.

Contraindications:

1. History of hypersensitivity to the drug or a history of malignant hyperthermia.
2. Neuromuscular disease such as muscular dystrophy, amyotrophic lateral sclerosis and/or any denervation syndrome (e.g. stroke).
3. Patients with major burns or crush injuries who are 4 or more days post injury.
4. Suspected hyperkalemia (elevated potassium)
5. Patients for whom paralysis is unnecessary (e.g., cardiac arrest)
6. Patients for whom orotracheal intubation and/or successful ventilation by bag valve mask is predicted to be impossible

Cautions:

1. Below age 8, patients should always be pre-treated with Atropine 0.02 mg/kg IV with a minimum dose of 0.10 mg IV to prevent reflex bradycardia.
2. Consider Pre-treatment of patients with head injuries or suspected increased intracranial pressure with Lidocaine 1 mg/kg IV to prevent increased intracranial pressure during laryngoscopy.

SUCCINYLCHOLINE (ANECTINE, QUELICIN)

(Page 2 of 2)

Effective 4/15/03
Amended 3/4/05

(Continued)

3. Succinylcholine provides paralysis without sedation. A sedative agent such as etomidate or midazolam should be used simultaneously.
4. Any adult patient requiring a second dose of Succinylcholine should be pre-treated with Atropine 0.5-1 mg IV in adults, or the appropriate pediatric dose. The purpose of this pre-treatment is to prevent the paradoxical bradycardia which may occur with Succinylcholine.
5. Succinylcholine will cause fasciculations (muscle twitching) as paralysis develops.
6. Paralysis is rapid after administration. The medication should be delivered only once personnel and equipment are prepared to manage the airway and ventilation for the patient.
7. Use the Sellick Maneuver (Cricoid pressure) to avoid gastric insufflation during any ventilation prior to the endotracheal tube being securely placed.
8. In the young pediatric population, neuromuscular disorders that ordinarily would provide a contraindication to the use of succinylcholine may not yet have been identified. Monitor cardiac rhythm for signs of hyperkalemia following its use.
9. Succinylcholine is thought to increase intraocular pressure

Dosage and Administration:

1. The dosage is 1.5-2.0 mg/kg, usual adult dose 100-200 mg IV (*Pediatric dose: the 2mg/kg dose is preferred*).
2. The preferred route is IV. However, it can be administered IM in extreme situations. If given IM, a 4mg/kg dose should be used. The onset of paralysis will be slower with the IM route.

Adverse Effects:

1. Hyperkalemia– In most patients succinylcholine causes a mild, transient potassium elevation of no clinical consequence. However, in the setting of neuromuscular disorders, burns/crush injuries more than 4 days old, or suspected pre-existing hyperkalemia the resulting hyperkalemia can potentially be severe and life threatening.
2. Prolonged paralysis
3. Fasciculations
4. Loss of ventilatory effort and airway tone