

WHATCOM COUNTY
BLS PROTOCOL
ADDENDUM
&
TRANSPORT GUIDELINES



Receipt of Protocols

TO: Marvin A. Wayne, M.D.
Whatcom County Medical Program Director

SUBJECT: Whatcom County Basic Life Support Protocol Addendum and Guidelines
(2019 Edition)

The purpose of this memo is to inform you that I have received your Basic Life Support Protocol Addendum and Guidelines. I have reviewed these protocols and will abide by their direction.

If signing as a representative of an EMS agency or provider supervisory organization, I attest that responders in my organization will be trained in and adhere to these guidelines.

Once signed, a copy of this document shall be filed with your agency. It shall be available for MPD review as requested.

Signature

Printed Name and Title

Agency

Date

LEAVE BLANK

**WHATCOM COUNTY BLS PROTOCOLS
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Whatcom County Medical Program Director along with the EMS and Trauma Care Council have approved the following as standard for EMS agencies in Whatcom County:

- ResQPOD as the standard Impedance Threshold Device
- ResQPump as the standard Active Compression Decompressions Device
- i-gel as the standard Supraglottic Airway
- LUCAS as the standard Mechanical Compression Device

**Exceptions must be approved by the MPD:

Introduction - BLS Protocol Guidelines

Authorization for EMS personnel to provide pre-hospital medical care comes directly from the State approved Medical Program Director.

The Washington State protocols used with the following addendum serve as the guidelines for EMRs (First Responders) and EMTs working in Whatcom County, and may be used by affiliate EMS organizations operating in Whatcom County by agreement with the MPD. They will permit a standardization of care, and outline the limits of care EMS responders may provide.

These protocols are not absolute treatment doctrines. They are guidelines with the flexibility to meet the complex challenges faced by the EMS provider in the field.

This document is to be considered a set of standing orders or off-line permission to act. At any time the responder is not certain that a patient or situation meets the criteria set forth, responders may contact the incoming Medic Unit or the Medical Control Physician (Star Doc) for guidance to obtain on-line permission to act. In certain unusual situations, procedures not outlined here may be approved or ordered by Medical Control.

Throughout this document, Medical Control refers to a Medic Unit enroute to a call with first responders or to the on-duty Emergency Department Physician.

All EMS personnel are required to use the protocols appropriate to their certification level. EMR certified responders may administer Epi via Auto Injector and Narcan via Intranasal Mucosal Device (MAD) to patients if the responder has the necessary knowledge to do so.

A blood glucose should be obtained on all patients where indicated.

When an incident occurs beyond the normal capacity of our system (MCI) normal procedures may be superseded and BLS providers may be utilized to transport ALS patients.

These protocols shall replace and supersede all prior BLS Protocols in Whatcom County.

GENERAL PROTOCOLS

INITIAL ASSESSMENT:

Primary Survey

1. Airway - identify and correct existing or potential obstruction. Use advanced airway management as indicated.
2. Breathing - rate and quality. Identify and correct existing or potential compromising factors.
3. Circulation – pulse, rate, quality, and location. Control external bleeding.
4. Obtain and record vital signs as indicated by patient condition, including: heart rate, blood pressure (indicate patient's position), respiratory rate, temperature, skin color, GCS (or AVPU system or another indicator of level of consciousness), blood glucose, SpO₂, and ETCO₂.

Secondary Survey

1. Expose the patient and perform a head-to-toe assessment.
2. Obtain a brief history from the patient, family and bystanders. Check for medical alerts and POLST forms.
3. Ask all patients about allergies. Do not administer any medication to which the patient has a reported allergy.
4. Place the patient in a position of comfort.
5. Bring relevant drug containers and notes for transport with patient.
6. Reassure the patient and keep him/her informed about treatment.

Communications

1. Contact medical control for advice regarding treatment plan or when considering an unusual disposition.
2. Advise the ED Charge Nurse early of patient transport for, major stroke or stroke within 4 hours of last known normal, major trauma, multiple consecutive patients, airway issues, or other critical patients.
3. In radio or telephone information to Medical Control or ED Charge Nurse, identify:
 - a. Transporting unit.
 - b. Patient's age, sex, and chief complaint.
 - c. Vital signs, level of consciousness, and physical assessment findings.
 - d. Pertinent history (medications, illnesses, allergies, mechanism of injury, etc.).
 - e. Treatment given and patient's response.
 - f. Patient's full name and birth date.
 - g. Estimated time of arrival (ETA).
4. On arrival, give a verbal report to ED nurse and/or physician.
5. Complete electronic patient care report (ePCR)/EMS Medical Incident Report form (MIR) in a timely manner proximate to the care rendered so that it can be included in ongoing care. The standard ePCR/MIR narrative shall include the following:
 - a. Chief Complaint
 - b. History of the Presenting Illness

- c. Past History
- d. Assessment. Include two sets of vital signs unless complaint is minor and initial vital signs are normal for age and history.
- e. Impression
- f. Plan
- g. Disposition

Responsibility of Pre-hospital Personnel

1. Once EMS personnel are dispatched to a scene, they assume legal authority for patient management under the direction of the medical control physician in the ED.
2. The EMS provider's primary responsibility is to the patient.
3. Treat offers of help from non-EMS providers professionally and respectfully.
 - a. Request and document identification – a current medical license, medical specialty ID card, or hospital ID are acceptable.
 - b. If the physician is present, has appropriate specialization for the patient's complaint, and is willing to assume responsibility for the patient's care, you may defer to the physician's orders, unless they conflict with these protocols.
 - c. To resolve conflicts, contact Medical Control and arrange telephone consultation between the physicians.
 - d. If the physician is not willing to accompany the patient to the hospital, responsibility reverts to the medical control physician.

ALS INDICATORS FOR ALL PATIENTS

Any patient with the following is considered “Sick” and requires an ALS evaluation which may be by off-site contact with BLS provider performing patient care.

Decreased LOC

Airway Problems

Respiratory distress

Respirations greater than 30 per minute

Signs and symptoms of shock which include:

- Poor skin signs (pale, sweaty)
- Sustained tachycardia (persistent heart rate 100-120 or greater per minute depending on clinical setting)
 - *Sustained tachycardia may suggest hypoxia or impending shock*
- Hypotension (systolic BP less than 90 mmHg) unless normal for the patient

Chest pain or discomfort not directly related to musculoskeletal pain

EMT’s Index of Suspicion (IOS) that the patient is sick

Significant Trauma/Mechanism of Injury (MOI)

Multi-system trauma

Fractures at more than one location

MVC—death in same vehicle

MVC—high speed or significant vehicle deformation

Falls greater than two times body height

Thrown greater than 10 - 15 feet

Penetrating injury to the head or “box”

High amount of Pain

Age extremes: (less than 6 or greater than 60) alone is not an ALS trigger but should create a heightened awareness of potential need for ALS evaluation with other symptoms not listed above.

BLS UNITS TRANSPORTING CODE RED:

When patient conditions would benefit from getting to definitive care sooner than later, it is appropriate for BLS to transport Code RED to rendezvous with a Medic Unit or directly to St Joes when there are no ALS Indicators; Stroke with no airway compromise for example.

Code RED transports shall always be performed with due regard to the safety of others and in compliance with the agency’s policies.

Left at Scene and Non-EMS Transport

1. EMS is only required to transport willing patients in need of urgent medical care.
2. Transport by POV or by taxi voucher may be arranged in willing non-emergent patients requiring medical care who can ambulate independently.
3. If medical needs are not thought to be urgent, EMS providers may help a patient secure an appropriate outpatient appointment and transportation.
4. If a patient is requesting EMS transport but EMS providers feel the patient does not have urgent medical needs or require EMS transport, EMS should transport or discuss with medical control.
5. Documentation on any patient left at scene, or transported by means other than EMS, should include a thorough history and examination, to include a full set of vital signs, a clinical impression, a summary of the discussion with the patient, and/or family, and a plan for follow-up. Also, an assessment of the patients capacity to make decisions and care for themselves.
6. Notify the ED Charge Nurse when alternative transport is arranged to the ED.

Refusal of care:

1. Patients may refuse care and transport if they are competent and meet the following criteria:
 - a. Age 18 or older, or an emancipated minor with legal documentation or a marriage license.
 - b. Minors: Law enforcement or a competent adult legal guardian may sign and accept custody of the patient, unless condition is life-threatening.
 - c. Patient has normal mental status, demonstrates rational decision making, and is not impaired by drugs, medications, alcohol, hypoxia or hypoglycemia.
 - d. Patient (or parental guardian for minors) is able to understand and repeat back the risks and potential consequences of refusing care.
 - e. Patient has not made an attempt to and denies wishing to hurt themselves or others.
2. Contact medical control if serious health concerns exist and the patient is not willing to be transported.
3. Medical care cannot be refused for potentially life-threatening conditions for a minor or an incompetent adult.
4. Complete the Refusal of Care/Transport form, including witnesses if possible. Document in the ePCR/MIR the patient's mental status and the specific advice given about the risks of refusing care or transport, alternatives for obtaining care, and when to call 911.

REFUSAL OF CARE AND/OR TRANSPORT

Patient Name: _____

Date: _____ Time: _____ Incident #: _____

_____ REFUSE TREATMENT AND TRANSPORT

_____ ACCEPT TREATMENT BUT REFUSE TRANSPORT

Possible consequences of my refusal may include:

RECEIPT OF NOTICE OF PRIVACY PRACTICES:

I acknowledge that I have received a copy of the (Agency) Notice of Privacy Practices.

I do hereby release the _____ (Agency) _____, its personnel, and its medical advisors from any responsibility whatsoever for any unfavorable and untoward consequences due to my refusal to accept the care/transport offered me. The possible consequences of my refusal to accept care/transport have been explained to me and I fully understand these consequences. I, the patient or legal representative, understand that should Medicare, Medicaid or any other insurance carrier determine any billable services to be not reasonable and necessary or non-covered, I will be held responsible for payment of these charges along with any remaining amount my non-contracted insurance company does not pay. I authorize release of any records necessary to process my insurance claim. Charges that are not covered by Medicare, Medicaid and some other insurance companies include ALS no transport calls (IV and/or drug administration = x).

Signature: _____ Date: _____

Responsible Party (if pt. unable to sign):

Witness (print): _____ sign: _____

Witness (print): _____ sign: _____

_____ Gave copy to patient/responsible party

WRITTEN REPORTS

MEDICAL INCIDENT REPORTS (MIR)

Following all calls with patient contact, whether there is or is not a transport, a medical incident report (MIR) form is to be filled out completely. The EMT/FR in charge of patient care will document their report on ImageTrend. In the case that ImageTrend is not available, documentation may be done on a State of Washington DOH Medical Incident Report or another MPD-approved form. These reports will be reviewed and utilized as necessary for continuing education, quality assurance, and statistical information. The general rule is, **“IF IT ISN’T WRITTEN DOWN, IT WASN’T DONE.”**

The narrative portion of the MIR will be formatted consistent with the S.O.A.P. or similar format:

1. S = SUBJECTIVE: Include information you have received from dispatch, law enforcement, bystanders, family members, and the patient, as well as scene observations. This will include:

- a. Chief complaint
- b. The age and sex of the patient
- c. Events that led to event, mechanism of injury in the case of trauma, symptoms reported and pertinent negatives
- d. Pertinent past medical history, medications, and allergies

2. O = OBJECTIVE: Information that you and/or your team personally see, hear, feel or smell from performing a patient assessment. Vital signs including heart rate, blood pressure, oxygen saturation, and respiratory rate should be documented on every patient, and temperature and blood glucose when pertinent to the symptoms described. The exam otherwise should include findings pertinent to the chief complaint, such as:

Neuro:	GCS, orientation, strength, sensation
HEENT:	Head, Ears, Eyes, Nose and Throat
Spine:	Cervical, Thoracic and Lumbar spine
Chest:	Heart murmurs and regularity, lung sounds
Abdomen:	Tenderness, distension, masses
Pelvis:	Laxity on lateral compression of the iliac wings
Extremities:	Tenderness, deformities, pulses, edema
Skin:	Bruising, bleeding, crepitus, capillary refill, warmth

3. A = ASSESSMENT: What your best impression is as to what is wrong with the patient. When stating/writing your impressions, preface them by **“possible”** or **“rule out”**, unless the injury or illness is obvious, e.g.: fracture.

4. P = PLAN: Include the actual treatments/interventions that were performed and the response to the treatment, any changes in patient condition while in your care, and the disposition (where did you leave them and in what kind of condition). Please document any conversations with Medical Control, including the provider’s name and the time.

REPORTING TIMELINE

Reports should be completed as proximate to the call as possible and should not be delayed except for another call. Patients transported to the ER must have reports written within 6 hours. For other patients, reports should be completed within 12 hours after the call.

SUPPLEMENTAL OXYGEN

Description (follow this protocol wherever consider oxygen is listed)

Supplemental Oxygen has long been recommended in EMS protocols for patients with varying medical illnesses and traumatic conditions. Research now shows that oxygen supplementation in excess of metabolic need can induce the formation of free radicals which contribute to worse clinical outcomes.

Peripheral oxygen saturation - SpO₂ - readings provide an incomplete representation of total tissue oxygen loading once monitored values exceed 95%, therefore titration or elimination of supplemental oxygen beyond this value should be considered in patients who do not demonstrate clinical signs of respiratory distress/failure.

In addition, excessive oxygen in a patient with hypercarbia (e.g. COPD) can contribute to worsening respiratory status and respiratory arrest even below the 95% threshold.

Conditions where cardiac or nervous tissues are threatened (stroke, MI, cardiac arrest) should receive close monitoring of supplemental oxygen and receive only enough to achieve a target SpO₂ of 95%.

Treatment

1. Provide supplemental oxygen as needed for respiratory distress and/or shortness of breath. Follow protocol as appropriate for condition.
2. Monitor patient and SpO₂ and reduce or eliminate supplemental oxygen when able.

Cautions

1. COPD: Patient normal SpO₂ varies, may be 88-92%.
2. Cardiac Arrest: High flow O₂ as indicated prior to ROSC, then titrate to target SpO₂ 95% or less.
3. CO Poisoning: SpO₂ will be falsely elevated. High flow O₂ by NRB.

Apneic Oxygenation

Apneic oxygenation is a physiologic phenomenon in which alveoli will continue to take up oxygen without any diaphragmatic movements or lung movement, provided that a patent air passageway exists between the lungs and the pharynx.

Apneic oxygenation has been used both experimentally and clinically as a strategy to extend the apneic window by providing a pharyngeal oxygen reservoir. This maintains oxygenation for longer and increases apnea time.

Although high-flow oxygen therapy is currently defined as flows greater than 30 liters per min, it is accepted that flows up to 15 liters per min can be delivered using conventional nasal prongs.

Indications

1. Pre-oxygenation before advanced airway placement (i.e. SGA, ET tube)
2. Opiate overdose with bradypnea and SpO₂ < 95%
3. SpO₂ < 95% after NRB mask or BVM ventilation therapies

Contraindications

1. None

Procedure

1. Place NC on patient and run at 15 L/min.
 - a. Can be used in conjunction with NRB mask or BVM mask.
2. Titrate BVM ventilations to a target SpO₂ of 95% as needed.

Additional Notes

1. Apneic oxygenation can reduce BVM ventilations required, consequently reducing gastric distention and vomiting.
2. Research data shows maximal effects of apneic oxygenation if patient is raised at least 20 degrees but should still be used on supine patients if unable to move body position.

SPINAL IMMOBILIZATION

Spine Boards

- Immobilization on a rigid long spine board is known to cause pressure injuries even within relatively short periods.
- Full body vacuum-splint is the preferred immobilization device.
- Rigid long spine boards shall be used primarily as a patient movement device, such as in patient extrication from difficult or dangerous conditions.
- Once removed, patient should be transferred to a vacuum-splint or gurney as time and conditions allow.
- Penetrating trauma spinal immobilization is not indicated unless direct injury to the spinal column is evident or suspected.

C-Collars

- Mounting evidence suggests that cervical collars, like backboards, are causing harm instead of adding benefit.
- Cervical collars lead to increased pressure sores, pain and discomfort.
- Movement protection of the C-Spine can be achieved with the vacuum mattress and soft padding.
- Well fitted blanket or sheet horse collar is preferred with no vacuum mattress on cot.
- C-Collars should be a last resort when other soft methods will not restrict movement.

PART I – CONDITIONS

ABDOMINAL COMPLAINTS

ALS Indicators

Signs and symptoms of shock which include:

1. Poor skin signs (pale, sweaty)
2. Sustained tachycardia
3. Hypotension
4. Unstable vital signs
5. Positive postural changes.
6. Evidence of ongoing bleeding
7. Severe unremitting pain unrelieved by position

BLS Indicators

Stable cardiac and respiratory functions

Stable vital signs

BLS Care

Request paramedics if indicated.

Provide supplemental oxygen and/or ventilatory assistance as necessary (see basic protocols, oxygen protocol) Position of comfort.

Prepare to suction patient if vomiting, estimate volume and describe color and consistency of vomit.

Reassure patient.

Monitor vital signs every five minutes.

ALTERED LEVEL OF CONSCIOUSNESS (LOC)

ALS Indicators

Respiratory distress or airway compromise

Signs and symptoms of shock including:

1. Poor skin signs (pale, sweaty)
2. Sustained tachycardia.
3. Hypotension
4. Unstable vital signs
5. Cyanosis
6. Hypoglycemia with decreased LOC

BLS Indicators

Adequate respirations

Transient symptoms including seizure with stable vital signs

Typical seizure pattern for the patient with stable vital signs

BLS Care

Consider oxygen

Protect patient from injury, remove objects from mouth and upper airway, do not restrain patient during seizure, and remove hazardous objects near patient.

Position patient in position of comfort if alert and airway is secure; if not, then use recovery position.

Perform blood glucometry.

Loosen restrictive clothing.

Retain relevant drug containers and notes for transport with patient.

Consider other possible causes for patient's altered level of consciousness:

A lcohol	T rauma/ Tumor
E pilepsy	I nfection
I nsulin	P sychosis
O verdose	S troke
U nderdose/ Uremia	

AMPUTATION

ALS Indicators

Pain management

Signs and symptoms of shock which include:

1. Poor skin signs (pale, sweaty)
2. Sustained tachycardia
3. Hypotension
4. Unstable vital signs
5. Positive postural changes.
6. Evidence of ongoing bleeding
7. Severe unremitting pain unrelieved by position

BLS Indicators

Conscious, alert and oriented.

Stable vital signs.

Single digit amputations.

Bleeding controlled by direct pressure and/or elevation.

BLS Care

Wrap amputated parts in sterile dressings.

Place amputated part in a watertight container and then in a second container.

Place the container on ice or chemical cold pack.

Do not submerge the amputated part in water or place directly on ice.

Rapid transport of the patient and the severed part is critical to the success of re-implantation. If transport of a patient is delayed, consider sending the amputated part ahead to be surgically prepared.

Consider BLS Code Red if bleeding is controlled and there are no other injuries or illness with ALS indicators

Do not use dry ice to cool a severed part.

ANAPHYLAXIS

ALS Indicators

Wheezing, difficulty swallowing, hoarse or changed voice, labored breathing.
Poor skin signs (pale, sweaty).
Sustained tachycardia.
Hypotension.
Hives (urticaria) away from the area of contact.

BLS Indicators

Bite or sting with local reaction
Stable vital signs
No anaphylaxis

BLS Care

Consider oxygen.
Reassure patient.
Remove stinger as needed.
Consider Epinephrine for anaphylaxis. See below.

BLS TRANSPORTS ARE APPROPRIATE FOR STABLE PATIENTS WITH GOOD RESULTS FROM EPI INJECTION AND ADDITIONAL EPI IS AVAILABLE TO GIVE IF NEEDED.



Medication

EPINEPHRINE

Indication for drug administration: Abnormal vital signs, labored breathing, wheezing or absent lung sounds, diffuse hives, inability to speak or throat tightness.

There are no contraindications when used in a life-threatening emergency.

1. When signs/symptoms of anaphylaxis exist, use of the first dose is allowed as a standing order or "off-line" medical direction. The patient's own epi-pen does not count as the first dose.
2. Reassess every 5 minutes including full vital signs. If the patient does not significantly improve within 10 minutes, a second dose can be given with consultation to Med-Control or incoming Medic Unit. Expect BP & HR to increase with Epi absorption.
3. If the BLS unit is unable to contact the Medic Unit or the hospital, and the patient's condition is such that they would greatly benefit from a second dose, administer second dose and document appropriately.

OTHER FORMS OF EPINEPHRINE PRESCRIBED TO PATIENTS:

1. **Ana-Kit:** These have become obsolete in the United States, but some patients may have these. Use BLS Unit carried Epinephrine only.
2. **Twinject® Auto-Injectors:** Some patients have been prescribed these types of auto-injectors which have these features:
 - a) Single pen hold two adult doses of epinephrine
 - b) First dose is delivered as auto injector.
 - c) Second dose is a syringe.

Procedure

Intramuscular Injection

Adult Dose: - 0.30 mg of 1:1,000

- Scrub the skin vigorously with an alcohol wipe
- Allow to air dry (do not touch, blow on, or fan the injection site)
- Break open ampule , or, if using a vial, cleanse vial with alcohol wipe
- Insert the needle into the ampule or vial. Withdraw the appropriate volume of medication. Fill to 0.1 ml more than the desired dose
- Hold the needle upright. Push any air bubbles and extra medication out of the syringe
- Broadly hold the muscle. Do not pinch the skin. Use Deltoid muscle for adult dose. Lateral thigh can also be used.
- Hold the syringe like a dart, Insert the needle with a quick stab at a 90° angle to the skin surface
- Depress the plunger with a slow, steady motion until the syringe is empty and the needle automatically retracts. Discard in Sharps Container.
- Cover the puncture site with an adhesive bandage. Reassess your patient. Take vitals every 5 minutes.
- Prepare for transport by ALS.
- If patient's vitals and signs/symptoms have not improved within 10 minutes call med control or incoming medic unit for permission to give a second equivalent dose.

Pediatrics – 0.15 MG of 1:1,000 The Anterolateral thigh is the best site for infants & Children



ASTHMA

ALS Indicators

- Decreased LOC
- Extreme anxiety and agitation
- Ashen color, cyanosis
- Failure to respond to repeated inhalers
- History of previous intubation
- Respiratory distress—unable to speak normally
- Labored respirations regardless of rate
- Audible wheezing not improved with inhalers

BLS Indicators

- Responds to self-administered metered-dose inhaler (MDI)
- Normal vital signs
- Able to speak normally

BLS Care

- Assist patient with his or her medications.
- Consider oxygen.
- Reassure patient and urge calmness.
- Monitor vital signs every five to ten minutes.



Medication

Metered Dose Inhalers (MDIs)

Patients with chronic respiratory diseases such as asthma and COPD will often have prescriptions for bronchodilator, anticholinergic, and/or steroid inhalers.

1. Responder may locate the inhaler and hand it to the patient. The patient must be conscious and alert.
2. Assist with self-administration of 3-4 inhalations initially, which can be repeated every 15 minutes.
3. Only bronchodilators (albuterol, Xopenex, etc.) will help in asthma/respiratory emergencies.
 - a. If in doubt about MDI contents, contact medical control but do not delay medication administration for a patient in distress.
 - b. In general there is no harm in assisting with an MDI if it is not one of the bronchodilator "rescue medications."

Providers should practice with Aero chambers

BEHAVIORAL

ALS Indicators

Decreased LOC

Abnormal behavior with unstable vitals

Abnormal behavior with serious co-morbidity (e.g., drug or alcohol OD)

BLS Indicators

Abnormal behavior with stable vital signs

BLS Care

Secure safety of personnel and patient.

Provide support, reassurance to patient.

Medical or trauma care if indicated.

Call police if necessary (if patient refuses transport but EMTs feel patient needs further evaluation or for responder safety).

Use restraints when warranted and do not remove if any concern for EMS or patient safety

Transporting handcuffed patients

Monitor patient behavior and physiological changes, do not leave patient alone or unobserved.

Transporting Handcuffed Patients

Law enforcement may ask BLS units to transport a patient whom they have handcuffed or otherwise physically restrained.

Decision to transport should be based on the patient's needs and risk assessment.

Consider whether another means of restraint allow for better treatment and still address safety issues.

Once the decision to transport with handcuffs has been made an officer needs to provide escort. Officer should be in the ambulance with the patient. If that is not possible they may provide escort by following directly behind the ambulance. Do not leave the scene with the patient until officer is also ready to follow.

BLEEDING

Managing bleeding so that it stops completely as quickly as possible is a primary goal of EMS responders.

Airlift Northwest carries blood products and should be a consideration for patients that would benefit from blood transfusion on scene.

Time of ground transport to definitive care must be weighed against time of launch, and arrival at Pt side to ensure best patient care.

Control external bleeding with:

1. **Direct pressure** – using BSI, apply firm pressure by fingertips or full hand directly to the point or area of blood loss for up to 3 minutes. Using a dry dressing is helpful. Consider pressure dressing if available.
2. **Topical coagulant** – see below.
3. Consider use of compression dressing with or without topical coagulant as an option to tourniquet
4. **Tourniquet** – see below.
5. Dress and Bandage wound when bleeding has stopped.

Topical Coagulant

1. Expose wound. Identify actively bleeding tissues. This may require removal of superficial coagulated blood.
2. Apply topical coagulant product. (chitosan based non-thermogenic product such as Celox preferred)
3. Apply firm direct pressure for up to 3 minutes.
4. Ensure bleeding has stopped completely.
5. Dress and Bandage wound. Allow for distal circulation assessment.

Tourniquet

1. Tourniquets are used for uncontrolled/uncontrollable bleeding from wounds to limbs. A commercially produced tourniquet is preferred.
2. Expose the limb completely.
3. Apply the tourniquet above and near the wound. Do not apply above or across joints if possible.
4. Tighten tourniquet until bleeding stops.
5. Write the time of application on the patient's skin, ex: TK 1645
6. Dress, bandage and immobilize affected extremity. Consider topical coagulant to aid bleeding control.
7. **Keep tourniquet exposed.**
8. Expect increased pain from the tourniquet.
9. Initiate rapid transport, notifying ER of tourniquet placement.

10. Consider ALS for Pain management and IV fluids.

Epistaxis (nosebleed)

BLS Care

1. Have the patient sit down and lean forward
2. Pinch and hold nostrils closed for 5-10 minutes
3. Discourage patient from swallowing blood
4. If the patient loses consciousness, place in recovery position



Medication

OXYMETAZOLINE (Afrin)

Rational:

Field care of epistaxis (nosebleeds) is now a BLS dispatch. Judicious use of over the counter medication (Afrin) can alleviate the situation in a timely manner with little risk to patient.

Indications

May 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

- A. Have patient clear nasal passage (blow nose)
- B. Administer dose into desired nostril (Usual dosage is 2 - 3 sharp squeezes)
- C. Apply direct pressure to bridge of the nose

Adverse Effects

Very rare; sinus tachycardia may occur.

Note:

EMR certifications **do not permit** administration of Metered Dose Inhalers (MDIs), Nitroglycerin, Aspirin, Activated Charcoal or Oxymetazoline (Afrin).

DRESSING AND BANDAGING

If a patient's condition and time permits, perform dressing and bandaging as follows:

1. Maintain body substance isolation (BSI) by wearing appropriate personal protective equipment.
2. Control bleeding with direct pressure and dressings as needed. Consider a "wound stop" dressing.
3. If bleeding is not rapidly controlled, consider applying topical coagulant or tourniquet. See Bleeding Control in BLS Protocol Addendum.
4. Secure the dressing with a bandage that is snug but does not impair circulation, unless a tourniquet is required.
5. Large, easily removed debris, such as glass, splinters, or gravel can be removed before bandaging. Secure large, deeply imbedded fragments or projectiles in place with the bandage.
6. If possible, leave patient's fingers or toes exposed.
7. Check circulation by feeling for a distal pulse or checking capillary refill.
8. Elevate or immobilize the injured extremity, if possible.
9. Cover eviscerated abdominal contents with a large multi-trauma dressing soaked with saline. Then apply an occlusive dressing, if available, to retain heat and moisture. Secure as needed.

BURNS

ALS Indicators

Possible airway involvement including singed facial hair, soot in mouth/nose or gravelly/distorted voice

Burns with associated injuries: electrical shock, fracture, or respiratory problems

Partial or Full Thickness burns to face/head

Partial or Full Thickness burns covering greater than 10% of the body

Severe pain (request ALS for pain control)

Consider patient age: less than 6 or over 60 are more likely to be critical.

BLS Indicators

All other burns

BLS Care

Remove clothes and restricting articles such as jewelry.

Brush away dry substances or chemical agents.

Flush wet chemicals with water.

Superficial Burn

- Cool, moist pads ; irrigation with sterile water of < 10% Body Surface Area

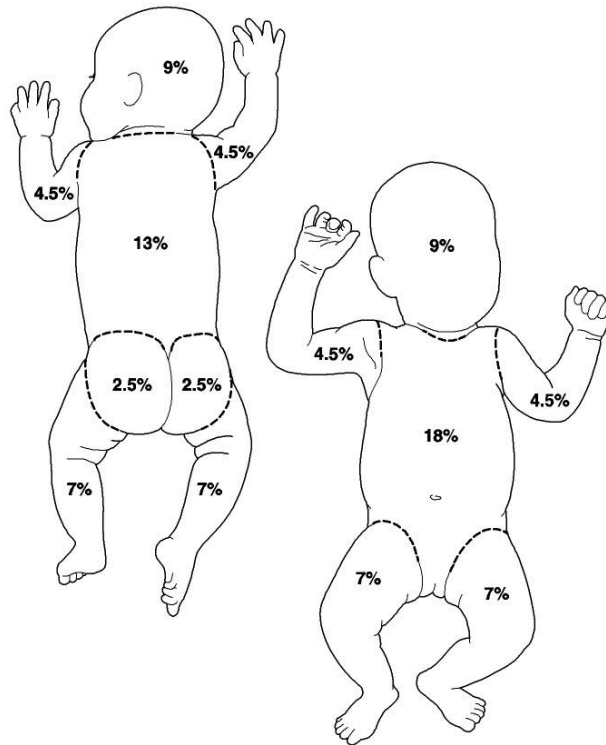
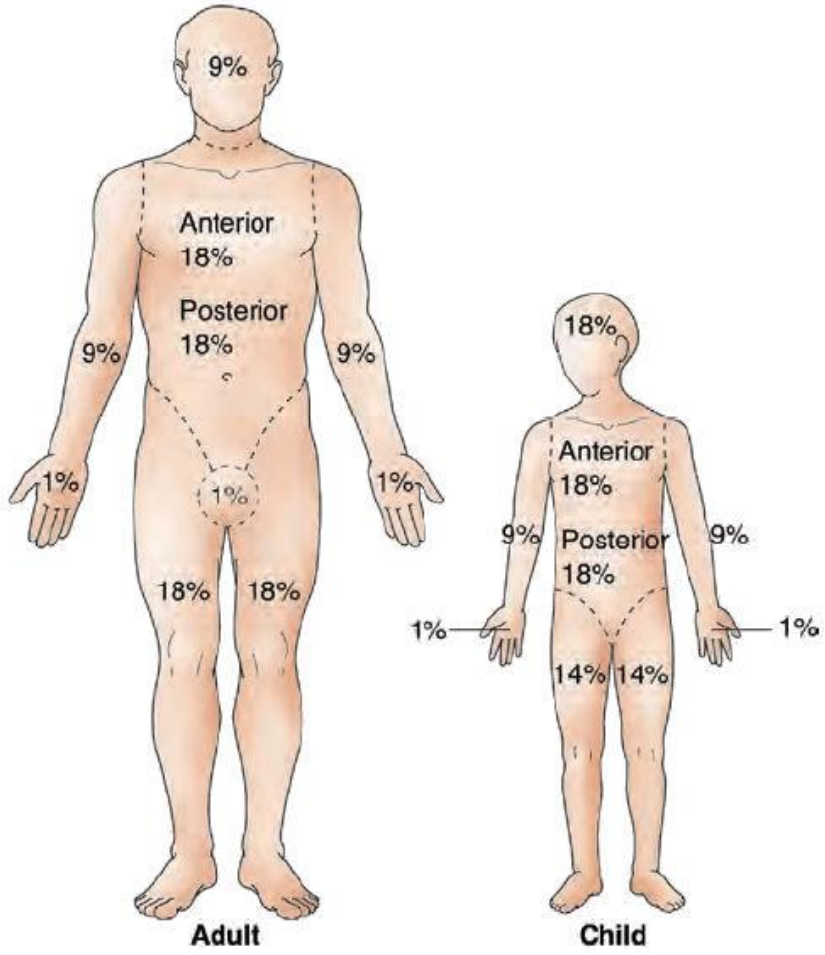
Partial thickness Burn

- Cover with dry dressing or sheets

Be alert to possible airway involvement.

BURN CONSIDERATIONS	
DEPTH	SUPERFICIAL PARTIAL THICKNESS FULL THICKNESS
EXTENT	USE THE RULES OF NINES EX: 18% BSA (BODY SURFACE AREA)
CAUSE	THERMAL ELECTRICAL CHEMICAL LIGHT RADIATION
LOCATION	CRITICAL LOCATIONS: FACE AND UPPER AIRWAY HANDS AND FEET GENITALS OR GROIN REGION BURNS THAT ENCIRCLE BODY PARTS

Rule of Nines



CHEST DISCOMFORT

ALS Indicators

Chest pain or discomfort of suspected myocardial ischemia (angina or MI).

Anginal equivalents, including: syncope, unexplained weakness, non-exertional shortness of breath with risk factors for heart disease.

Altered LOC

Use of nitroglycerin

Unstable vital signs

Signs and symptoms of shock including:

- Poor skin signs (pale, sweaty)
- Sustained tachycardia
- Hypotension
- Discomfort, pain, or unusual sensations between the navel and the jaw if the patient is 35 years old or older **and/or** has a history of heart problems

BLS Indicators

Apparent non-cardiac or minor traumatic chest pain if patient is less than 35 years old and no cardiac history and stable vital signs and no associated symptoms

BLS Care

Request paramedics if indicated.

Provide supplemental oxygen and/or ventilatory assistance as necessary for SOB. Monitor SpO₂ and titrate to 95% (*see oxygen protocol*).

Assist patient with nitroglycerin and/or aspirin if indicated.

Position of comfort.

Reassure patient.

Monitor vital signs every 5 minutes.

Medications

NITROGLYCERIN (NTG)

EMTs may assist patients with nitroglycerine which is prescribed to that patient.

1. Responder may locate the nitro (pill or spray), open the container, and offer it to the patient.
2. If in doubt, consult with medical control before assisting with nitro.

The following conditions must be met before assisting with nitro:

1. Complaint of pain similar to that normally experienced as angina or cardiac pain
2. Blood pressure greater than 100 mmHg systolic
3. Patient takes no more than three doses total (5 minutes apart)
4. Prescription expiration date should not have passed
5. The patient should not have taken sexually enhancing drugs for erectile dysfunction, within 48 hours.

ASPIRIN (ASA)

Indications

1. Chest pain patients, and/or patients with a high probability of acute myocardial infarction.

Note: May be omitted if the patient has taken ≥ 324 mg of aspirin immediately prior to your arrival.

Contraindications

1. Patient is allergic to aspirin or Ibuprofen or other Non-steroidal anti-inflammatory agents.
2. Current or recent gastrointestinal bleeding

Dosage and Administration

1. The dose is 324 mg, preferably in chewable tablet form of (4) 81mg tablets.

Adverse Effects

1. May induce a reactive airway attack or gastrointestinal bleeding in susceptible individuals.

Note:

EMR certifications **do not permit** administration of Metered Dose Inhalers (MDIs), Nitroglycerin, Aspirin, Activated Charcoal or Oxymetazoline (Afrin).

CPR and AED

Whatcom County emergency personnel will be certified in the CPR and AED standards for healthcare/BLS providers, per the American Heart Association, American Red Cross or other nationally recognized organization with substantially equivalent guidelines and approved by the Department of Health, with the following modifications. Adult CPR administered with both the **impedance threshold device (ITD)** and the **active compression decompression device (AC/DC)** will be a Whatcom County Standard per protocol. Exceptions must be approved by the MPD.

Every provider shall demonstrate competency following initial training in ResQCPR, and maintain skills through recommended quarterly training and testing intervals, compliant with current ResQCPR and American Heart Association resuscitation guidelines.

Rationale

The 2015 AHA Guidelines gave the combination of ACD-CPR with an ITD a Class II recommendation, stating that “the combination may be a reasonable alternative in settings with available equipment and properly trained personnel”. The primary study that the AHA considered in its review of the data was the ResQTrial, which compared patients receiving ResQCPR to those receiving manual CPR. In patients who arrested from cardiac etiology, survival at one year with good neurologic function improved by 49% (6% vs 9%; $p=0.03$) in those patients receiving ResQCPR. In patients who arrested from all non-traumatic etiologies, survival at one year with good neurologic function improved by 39% (5.7% vs 7.9%; $p=0.026$) in those patients receiving ResQCPR.

ResQCPR Indications for Use

The ResQCPR System is intended to be used during the performance of cardiopulmonary resuscitation (CPR) to increase survival with favorable neurologic function in patients with non-traumatic cardiac arrest.

(Note: unlike during the ResQTrial, the AC/DC and ITD are permitted for CPR on pregnant women and adult patients in the custody of law enforcement.)

ResQCPR Contraindications

The AC/DC should not be used to perform chest compressions on patients in cardiac arrest due to trauma, in children, or when there is evidence of recent sternotomy (within the past 6 months).

ResQCPR Key Guidelines to Remember

- Place the AED pads on the chest leaving room for ResQ Pump placement. Perform chest compressions using the AC/DC and ITD as soon as adequate responders are available.
- It is *standard practice* in Whatcom County to pre-load the ITD on the BVM inside airway kits, to reduce any delays in deploying this critical CPR tool.
- Manual chest compressions with the ITD will be used for infant and child patients in cardiac arrest who weigh more than 10kg.
- Reinforce good technique through regular training and real-time feedback to ensure optimal patient perfusion and to avoid rescuer fatigue.
- A two-handed BVM seal is essential to regulating intrathoracic pressure, and therefore CPR with the ITD requires a minimum of 2 rescuers. Care should be taken not to over ventilate: no more than 10/min.; about 1 second per breath, with visible chest rise.
- Perform ResQCPR for as long as possible for maximum benefit, before the Mechanical Compression Device device is applied; earlier if AC/DC-CPR with the AC/DC is not available or quality cannot be maintained.

ResQCPR Guideline Recommendations for BLS in Whatcom county

Indication	All adult patients with non-traumatic cardiac arrest
Recognition	Unresponsive; no obvious death or DNR orders No normal breathing No pulse palpated within 10 seconds for all ages
CPR Sequence	C – A – B (circulation – airway – breathing) Document when citizen or phone CPR is conducted PTA
Compression Rate	Continuous Chest Compressions and Active Decompressions at 80/min. with the AC/DC + ITD (Use the metronome and compression/decompression force guide on the pump handle to guide efforts.)
Compression Depth	At least 2 inches
Chest Wall Recoil	Perform active chest recoil by lifting on the AC/DC until the force guide reads -10 kgs; maintaining rate of 80/min. Rotate compressors every 2 minutes.
Compression Interruptions	Minimize interruptions in chest compressions Attempt to limit interruptions to <10 seconds
Open the Airway	Head tilt-chin lift
Timing of Compressions & Ventilations (3 Rescuers)	Continuous Chest Compressions and Active Decompressions at 80/min. with the AC/DC + ITD Use the ITD timing lights (10/min) and ventilate on the upstroke (decompression phase of chest compressions), while using the BVM. <i>(30:2 compression to ventilation ratio – 2 Rescuers)</i>
Ventilations: General consideration	The Impedance Threshold Device (ITD) must be incorporated as soon as possible for mouth-to-mask and BVM ventilations during CPR on all patients > 10kg . Ensure 2-handed, airtight seal when using the ITD on a facemask. Upon placing an advanced airway (SGA or ET), ITD is moved to the tube, and the airway secured in place with tape or a tube holder. Remove the ITD if ROSC achieved.
Ventilations with Advanced Airway	Use the ITD timing lights (10/min) to provide ventilations during continuous chest compressions. Care should be taken not to over ventilate; about 1 second per breath with visible chest rise.
Defibrillation	Attach and use AED as soon as available. Minimize interruptions in chest compressions before and after shock, including delivery of 30 compressions during the charge up period between 'Shock Advised' and energy delivery. Resume CPR beginning with compressions immediately after each shock.
ROSC (Return of Spontaneous Circulation)	Perform pulse check before every AED analysis after the initial 2 minutes of CPR. Remove the ITD if ROSC achieved. Patients with ROSC should be transported with the Mechanical Compression Device plate under the patient (at minimum), in the event of re-arrest.

2015 AHA CPR Guideline Recommendations with Whatcom County Modifications

Component	Adult	Child	Infant
Recognition	Unresponsive (for all ages) No normal breathing No pulse palpated within 10 seconds for all ages (BLS Only)		
CPR Sequence	C – A – B (circulation – airway – breathing) Document when citizen or phone CPR is conducted PTA		
Compression Rate	100-120/min. 80/min. with AC/DC	100-120/min.	100-120/min.
Compression Depth	At least 2 inches	At least 1/3 AP diameter (about 2 inches)	At least 1/3 AP diameter (about 1 ½ inches)
Chest Wall Recoil	Perform active decompression using the AC/DC.	Allow complete chest wall recoil between compressions. BLS rotate compressors every 2 minutes.	
Compression Interruptions	Minimize interruptions in chest compressions Attempt to limit interruptions to <10 seconds		
Open the Airway	Head tilt-chin lift (in suspected trauma: jaw thrust)		
Compression to Ventilation Ratio (until placement of advanced airway)	Continuous ACD-CPR at 80/min. with the AC/DC + ITD	30:2 – Single Rescuer 15:2 – 2 BLS Rescuers <i>(for one-person, 30:2 ratio, take no more than 18 seconds to deliver 30 compressions)</i>	
Ventilations: General considerations	The Impedance Threshold Device (ITD) must be incorporated as soon as possible for mouth-to-mask and BVM ventilations during CPR on all patients > 10kg. Ensure 2-handed, airtight seal when using the ITD on a facemask. Upon placing an advanced airway (SGA or ET), ITD is moved to the tube, and the airway secured in place with tape or a tube holder. Remove the ITD if ROSC achieved.		
Ventilations with Advanced Airway (BLS Only)	1 breath every 6 sec. (equivalent to 10 breaths/min.) If using the ITD, use timing lights to provide ventilations (10/min) during continuous chest compressions. Care should be taken not to over ventilate; about 1 second per breath with visible chest rise.		
Defibrillation	Attach and use AED as soon as available. Minimize interruptions in chest compressions before and after shock, including delivery of 30 compressions during the charge up period between 'Shock Advised' and energy delivery. Resume CPR beginning with compressions immediately after each shock.		
ROSC (Return of Spontaneous Circulation)	Perform pulse check before every AED analysis after the initial 2 minutes of CPR. Patients with ROSC should be transported with Mechanical Compression Device plate under the patient (at a minimum) , in the event of re-arrest.		

GENERAL DEFIBRILLATION PROTOCOL:

Emergency personnel are authorized to deliver electric shocks with an automated external defibrillator (AED) to patients unconscious and pulseless when a shockable rhythm is recognized by the device. This should be done as quickly as possible, with minimum interruptions of CPR.

For a **witnessed or unwitnessed arrest**, CPR should be started immediately while the AED is applied as soon as possible, and CPR continued until just prior to pressing the analyze button. Once the pads are in place and the machine is ready, CPR may be stopped at any time in the cycle to allow the rhythm to be analyzed and if the AED indicates, for a shock to be delivered. If shock is indicated, 30 compressions shall be performed before delivering. At intervals following each 2-minute cycle of CPR, a pulse check is performed, and if no pulse, then AED analysis is selected.

CLINICAL GUIDELINES:

1. Pediatric Considerations: Using the standard adult pads, the AED is configured to shock patients over 20 kg (45 lbs.). Patients less than 20 kg (45lbs) without a pulse can benefit from the defibrillation after airway issues have been resolved. It is preferred and the recommendation of AHA that defibrillation in patients less than 20kg, only the pediatric pads be used. However, if pediatric pads are unavailable and the adult electrode pads will fit in either the traditional anterior (white to right, red to ribs) placement or in an anterior/posterior placement, there is no significant harm in applying the AED and it could potentially be life-saving. This includes patients less than one year of age.
2. Responders shall use an Impedance Threshold Device (ITD) during ventilations with BVM or advanced airways on all patients in non-traumatic cardiac arrest who weigh more than 10kg. A two-handed BVM mask seal is essential to regulating intrathoracic pressure, and therefore requires a minimum of 2 rescuers.
3. No excessive interruptions of CPR: If delays in CPR of 5 seconds or more are encountered (i.e. equipment malfunctions), resume CPR until the problem is resolved. Delays in CPR of more than 5 seconds are permitted only during pulse check or rhythm assessment.
6. Should the patient vomit during the analyze mode: Do not delay the delivery of electrical shocks to respond to the airway. Clear the airway at the first opportunity during the CPR cycle.
7. Blood pressure less than 60: If the patient's systolic blood pressure persists < 60 mm/Hg, after treating for shock, and the patient remains unconscious, continue CPR. Do not stop compressions just because the heart has started to beat. The beat may be inadequate for survival but still give a pulse. Use of CPR in these patients may also be determined by the clinical picture i.e., does the patient appear to have evidence of adequate perfusion?

CPR Documentation:

The ResQ CPR and/or Respiratory Compromise Report must be done for ALL events, including those initiated by the lay public. Reports are available online <https://www.surveymonkey.com/r/F8K8R7T>. Use of SGA shall also be documented and reported via this same online form. These reports are kept and reviewed by the MPD.

ResQCPR with a Bag-Valve Mask

Successful ventilation with a BVM begins with a good seal between the mask and the patient's face and maintaining an open airway. No air can be allowed to leak around the facemask, or the vacuum in the chest which serves to draw blood back to the heart will be destroyed.

To properly place a BVM:

Choose an appropriate size for the patient.

Consider placing an airway adjunct, such as an oropharyngeal (OPA) airway.

Position the mask over the patient's face with the apex of the mask over the bridge of the nose (between the eyebrows). Using both hands, stretch the sides and cuff of the mask laterally, and place the mask over the nose and mouth, settling the base of the mask between the lower lip and the prominence of the chin. With the cuff in contact with the patient's skin, allow the mask to snap into place. Position your hand(s) so that your fingers grasp the lower jaw to maintain a head-tilt, chin-lift. A good facemask seal will make it easier to hold in place with less pressure.

You should feel as if you are pulling the airway toward the facemask, rather than pushing the facemask onto the face.

TWO-HANDED TECHNIQUE (REQUIRED – SEE FIGURE BELOW)

One rescuer kneels with a knee on each side of the patient's head and applies the facemask as described above. **During CPR** with a BVM, a second rescuer (preferably, the rescuer in charge of placing and running the AED) will squeeze the bag by bringing the thumb and long finger together to ventilate. One ventilation for an adult should deliver approximately 500ml of air over 1 second, with visible chest rise. Use the ITD timing lights (10/min) to provide ventilations during continuous chest compressions. Care should be taken not to over ventilate.

Each ventilation should take 1 second and achieve chest rise.



REMOVE THE RESQ POD IF PULSE RETURNS

The ResQ POD is a CPR tool used to improve circulation during chest compressions. It does not assist in ventilations. Remove the pod if pulse returns, but **keep near patient** in case of re-arrest.

RESQCPR WITH AN ADVANCED AIRWAY (SGA OR ET TUBE)

Once the airway is secured with a SGA or ET tube, move the ITD to the tube, and with the timing assist lights, continue chest compressions without interruption for ventilations. Ventilations are performed at the rate of 10/min. The timing assist lights are independent of impedance valve function. If the timing lights fail to operate correctly, continue CPR with the ITD in place and ventilate the patient 10/min.

COLD-RELATED CONDITIONS

ALS Indicators

Decreased/altered LOC

Temperature less than 95° F (35°C) oral or tympanic with evidence of exposure

Cessation of shivers in a cold patient

Significant co-morbidities (e.g., elderly, illness, circumstances, trauma, alcohol, or drugs)

Hypotension (systolic BP less than 90 mmHg) without other suspected causes

Cardiac arrest

BLS Indicators

Cold exposure, temperature greater than 95°F (35°C), normal vital signs and no abnormal LOC

Frostbite with temperature greater than 95°F (35°C), normal vital signs and no abnormal LOC

BLS Care (Hypothermia)

Remove patient from the cold environment and protect the patient from further heat loss.

Provide supplemental oxygen and/or ventilatory assistance as necessary. SpO₂ readings may be difficult to obtain and/or unreliable.

Remove wet clothing.

Position of comfort. If decreased LOC, place in recovery position.

Warm the patient.

Warm the aid unit.

Monitor patient's vital signs, use ECG monitor if authorized, repeat temperature measurements.

BLS Care (Hypothermic Cardiac Arrest or Profound Bradycardia)

If no pulse is detected after one minute, begin CPR apply AED.

If AED states "Shock Indicated", follow cardiac arrest protocol.

If breathing, assume there is cerebral perfusion. Therefore, NO CPR.

Note: If patient is in extremely rural/wilderness environment and no pulse is detectable or ECG shows profound bradycardia, do not initiate CPR as the risk of inducing ventricular fibrillation is greater than the risk of hypoperfusion.

If pulse is present, withhold CPR regardless of rate or BP.

These patients are extremely fragile, be very gentle when moving them

BLS Care (Frostbite)

Protect cold-injured part from further injury.

Remove any constricting or wet clothing or shoes and replace with a dry bulky dressing.

Splint the affected extremity and do not let the patient walk on or use it.

Remove constricting jewelry (e.g., rings, watchbands).

Do not rub or massage injured tissue.

Transport to an emergency room.

Do not rewarm frozen tissue unless transport time will exceed two hours and it is certain that the thawed tissue will not refreeze. Obtain medical direction prior to initiating rewarming. Rewarming should be done with 100°F - 104°F (37.8 – 40° C) water.

Do not use dry heat; it heats unevenly and may burn frozen tissue. Stop rewarming when the tissue turns red-purple and becomes pliable.

CONGESTIVE HEART FAILURE

Congestive heart failure (CHF) can range from the very mild to very severe (pulmonary edema). Usually patients with congestive heart failure call EMS for worsening shortness of breath and/or worsening fatigue.

ALS Indicators

Audible crackles, or crackles clearly heard by auscultation on both sides

Decreased lung sounds in both bases

Decreased LOC

Signs and symptoms of shock which include:

- Poor skin signs (pale, sweaty)
- Sustained tachycardia
- Hypotension
- Extreme anxiety and agitation
- Unable to lie flat
- Ashen color, cyanosis

Respiratory distress—unable to speak normally

Respirations greater than 30 per minute

Labored respirations regardless of rate

BLS Indicators

Normal vital signs without respiratory distress

Able to speak normally

BLS Care

Consider oxygen

Ventilatory support as indicated

Position patient upright with legs dangling (dependent) unless hypotensive.

If hypotensive, place patient in supine position otherwise consider elevating head and torso 25-30 degrees

Reassure patient.

Monitor vital signs every 5 to 10 minutes depending on patient's condition.

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DIABETIC

ALS Indicators

- Altered LOC
- Absent or depressed gag reflex, as indicated by inability to swallow
- Patient unable to protect airway
- Unstable vital signs
- Rapid respiration
- Signs and symptoms of shock which include:
 - Poor skin signs (pale, sweaty)
 - Sustained tachycardia
 - Hypotension
- Failure to respond to oral glucose
- Suspected diabetic ketoacidosis
- Seizures with unstable blood glucose
- Blood glucose < 70 and unable to safely eat or drink
- Blood glucose > 300 with decreased LOC or unstable vital signs

BLS Indicators

- Normal or mild reduction in LOC
- Gag reflex intact, as indicated by swallowing
- Patient can protect airway
- Normal vital signs
- Hypoglycemia relieved by oral intake with blood glucose >80
- Hyperglycemia with normal vital signs

BLS Care

- Request paramedics if indicated.
- Perform blood glucometry.
- Provide supplemental oxygen and/or ventilatory assistance as necessary.
- If hypoglycemic and patient is able to swallow, position upright and give food or juice.
- If hypoglycemic and patient is unable to swallow, position on side, give oxygen, ventilation and await paramedics.
- Maintain normal body temperature.
- Monitor vital signs and recheck glucose
- All patients taking diabetic oral medications must be transported due to the medications prolonged actions. If Pt refuses transport, consult star doc.

Special Considerations for Diabetic Patients

1. If patient is able to swallow, administer oral glucose or substance high in simple sugar; i.e., honey, orange juice with 2-3 tsp. of sugar
2. Be prepared for patient to vomit.
3. Provide supplemental oxygen and/or ventilatory support assistance as necessary, if not done during initial patient assessment
4. Patients with hypoglycemia who have responded to oral glucose administration may be left on scene.
 - a) Must have a repeat glucose level of 80 mg/dl or higher with appropriate behavior and care plan. Patient preferably left in care of another competent adult.
 - b) For patients on oral diabetes medications, they must be transported as the medications may cause continued drop in blood sugar.

GLUCOMETRY

Indications for Use:

1. Altered LOC.
2. Suspected diabetic-related problem.
3. Signs and symptoms of stroke.
4. Suspicion of drug or alcohol intoxication.
5. Provider suspicion that the blood sugar level may assist patient care.

Use and application

Perform the testing procedure as outlined in the instructions for your specific device. All reading should be recorded on the incident response form.

Perform blood glucose evaluation **after the ABCs and initial assessment** have been completed.

PROPER BLOOD GLUCOSE PROCEDURE

- 1. Clean area with alcohol wipe**
- 2. Allow to dry completely**
- 3. Use lancet**
- 4. Wipe first blood drop with dry gauze**
- 5. Take sample**

DROWNING

ALS Indicators

- Any underwater rescue
- Altered LOC
- Respiratory distress
- Labored breathing
- Hypotension
- Temperature less than 35°C (95°F)
- Significant co-morbidity (e.g., injury, intoxication)
- Cardiac or respiratory arrest

BLS Indicators

Water-related accident including aspiration of water, injury in diving or swimming, with normal CNS function and vital signs.

BLS Care

- Request paramedics if indicated.
- Remove the victim from the water. **Do not become a victim.**
- Neutral in-line cervical stabilization during removal from water with a backboard if spine injury is suspected or patient is unresponsive.
- If there is no suspected spinal injury, consider recovery position.
- Provide supplemental oxygen and/or ventilatory assistance as necessary.
- Prepare suction, expect vomiting.
- Follow resuscitation protocols if cardiac or pulmonary arrest.
- Warm aid unit.
- Monitor vital signs.

All immersion incidents should be transported to the hospital for further evaluation.

Care for Scuba Diving Accidents

- Request paramedics.
- High flow oxygen by NRM and/or BVM as necessary.
- Position patient flat (supine) or on side if airway compromise.
- Full neurological and orientation exam for baseline.
- Call Divers Alert Network (1-800-446-2671) if unsure of symptoms or for further treatment guidance www.diversalertnetwork.org.

EYE INJURIES

ALS Indicators

- Major mechanism of injury
- Penetrating injuries to eye
- Chemical burns

BLS Indicators

- Minor mechanism of injury
- Eyelid laceration with intact vision
- Ultraviolet burns

BLS Care

- Request paramedics if indicated.
- Stabilize an impaled object in place and bandage both eyes.
- Flush chemical burns to the eyes for 15 minutes with normal saline or water if saline is not available.
- Ultraviolet burns to the eyes: treat with cool compresses over closed eyes.
- Apply dry dressing to closed lacerated lid. Bandage both eyes.

GYNECOLOGIC

ALS Indicators

- Decreased/altered LOC
- Hypotension
- Moderate to severe hypertension (140 mmHg systolic or greater) in a pregnant woman
- Seizures
- Severe unremitting pelvic pain
- Excessive vaginal bleeding (> 2 menstrual pads)
- Possible ectopic pregnancy
- Abdominal pain with possible pregnancy

BLS Indicators

- Limited vaginal bleeding with stable vitals and no significant postural changes.
- Pelvic pain or discomfort with stable vitals and no significant postural changes.

BLS Care

- Request paramedics if indicated.
- Reassurance and emotional support.
- Monitor vital signs.
- Direct pressure over lacerations.
- Provide supplemental oxygen as needed.
- Allow patient to choose position of comfort.

HEAD TRAUMA

ALS Indicators

- Compromised airway.
- Abnormal respiratory patterns.
- Major mechanism of injury.
- Glasgow Coma Scale of 12 or less.
- Unstable vital signs.
- Paresis (partial or complete paralysis) and/or paresthesia (abnormal sensation, e.g., tingling).
- Evidence of injury to brain or spinal cord.
- Significant alcohol or drug use.
- Decreasing GCS

BLS Indicators

- Minor mechanism of injury.
- Intact airway, stable vital signs.
- No significant drug or alcohol use.
- Normal LOC.
- Pts on Blood thinners must be transported, consult star doc if pt refuses

BLS Care

- Request paramedics if indicated.
- Ensure a patent airway.
- Consider oxygen
- Ventilatory assistance as necessary.
- Provide neutral, in-line cervical stabilization with proper sized cervical collar, as indicated, and padding.
- Use only vacuum mattress, if available, to secure patient. (See immobilization protocol)
- If able elevate head and torso (can do so with mattress) 25-30 degrees
- Bandage as necessary.
- Monitor vital signs and neurologic status.

GLASGOW COMA SCALE

CATEGORY	CRITERIA	
EYE OPENING	Opens eyes spontaneously	4
	Opens eye to loud command	3
	Opens eyes to pinch	2
	Does not open eyes	1
BEST MOTOR RESPONSE	Follows simple commands	6
	Pulls tester's hand away	5
	Withdraws from pinch	4
	Decorticate posturing	3
	Decerebrate posturing	2
	No response to pinch	1
VERBAL RESPONSE	Oriented time, place, person	5
	Confused, disoriented	4
	Talks, makes no sense	3
	Unintelligible sounds	2
	No verbal sounds	1

HEAT-RELATED EMERGENCIES

ALS Indicators

- Decreased/altered LOC
- Hot dry skin in the presence of elevated temperature
- Sustained tachycardia
- Hypotension (systolic blood pressure less than 90 mmHg)
- Positive postural changes

BLS Indicators

- Heat-related cramps

BLS Care

- Request paramedics if indicated.
- Remove patient from the hot environment and place patient in a cool environment (back of air-conditioned aid unit with air conditioner running on high).
- Consider oxygen
- Ventilatory support as needed
- Loosen or remove clothing.
- Apply cool packs to cheeks, soles and palms. New guidelines suggest best cooling in these locations. If maintaining the placement is difficult, neck, groin and armpits can be used as an alternative.
- Keep skin wet by applying cool water with sponge or wet towels.
- Fan aggressively.
- If patient is responsive and not nauseated, have patient drink water or fluid replacement such as Gatorade.
- If the patient is vomiting, place in recovery position.
- Monitor patient's vital signs and temperature (oral or tympanic).
- Avoid shivering

OBSTETRIC

ALS Indicators

Imminent birth

Abnormal blood pressure (less than 90 mmHg systolic or greater than 140 mmHg systolic)

Complications with this pregnancy such as:

- Placenta Previa
- Abruptio placenta
- Gestational diabetes
- Diabetes

Excessive vaginal bleeding

Suspected ectopic pregnancy

Any abdominal trauma to mother during third trimester

Trauma with significant MOI to mother during third trimester

Known or anticipate delivery of twins or more

Breech or limb presentation

Prolapsed cord

Shoulder dystocia

Uncontrolled postpartum hemorrhage

Seizures

Dispatch to birthing center/midwife

BLS Indicators

Early pregnancy, pain or bleeding with stable vital signs.

Childbirth has occurred and there are no complications and mother and baby stable.

BLS Care

Request paramedics unless clearly not necessary.

Reassurance and emotional support.

Monitor vital signs.

Provide supplemental oxygen and/or ventilatory assistance as necessary.

Nothing by mouth.

Allow patient to choose position of comfort.

Supine hypotension may occur if patient is flat on back. Place patient onto left side to relieve pressure on the vena cava and place pillow between knees for comfort.

Special Considerations

History to include:

- Gravidity (number of pregnancies).
- Parity (number of deliveries).
 - Natural & C Sections
- Months of pregnancy.
- Prenatal care
- High-risk pregnancy.
- Possibility of multiple births.
- Hours of labor.
- Time between pains and length of pains.
- Crowning.
- Ruptured membranes – stained amniotic fluid.
- Determine if mother feels as if she needs to "push".

Imminent Delivery Instructions

Prepare delivery area (out of public view).

Position mother in semi-reclining position.

Provide supplemental oxygen and/or ventilatory assistance as necessary.

Encourage mother to breathe deeply between contractions and push with contractions

Prepare OB equipment and don sterile gloves, gowns, and eye protection.

As baby crowns, support head with gentle pressure to avoid explosive birth.

If membrane is still intact, rupture with your fingers to allow amniotic fluid to leak out.

If cord is around the baby's neck, gently slip it over the head.

If the cord is too tight to slip over the head, apply umbilical cord clamps and cut.

As soon as baby's head emerges, suction the mouth then nose with bulb syringe.

Allow the mother to push and support the head as it rotates.

Caution: *Babies are slippery as they exit the birth canal; be careful and alert.*

After delivery, place two clamps on the cord two inches apart and six inches away from the baby. Cut the cord between the clamps.

Suction baby again.

Dry and inspect the cord for bleeding.

Wrap baby in warm blanket.

Place baby on its side to facilitate drainage.

Inform the mother of the baby's gender.

Note the time of birth, APGAR score of baby and gender.

Post Delivery Instructions

Observe perineum for bleeding.

Normally there should be a small to moderate amount of bloody material that will ooze from the vagina.

Withhold oxygen unless child requires resuscitation.

Do not pull on the umbilical cord.

The placenta should be delivered spontaneously within 20 minutes.

If delivered, wrap the placenta in the bag supplied in the OB Kit and send with the mother and baby to the hospital.

Massage the uterus with moderate firmness on the lower abdomen to stimulate uterine contraction.

Monitor vital signs of both mother and infant.

Maintain body temperature of both patients.

Consider BLS transport of mother and baby to hospital, if no ALS indicators

APGAR SCORING Score at 1 and 5 minutes after birth.				
Clinical Sign		0 points	1 point	2 points
A	Appearance	Blue, pale	Body pink, extremities blue	Completely pink
P	Pulse	Absent	Less than 100 /minute	More than 100/minute
G	Grimace	No response	Grimaces to stimulation	Cries
A	Activity	Limp	Some flexion of extremities	Active motion
R	Respiratory Effort	Absent	Slow, irregular	Strong cry or respirations

OVERDOSE

OPIOID INDUCED RESPIRATORY COMPROMISE

Indication: Adult respiratory compromise (**RR < 6**) or apnea secondary to suspected opioid overdose (prescribed or illegal)

ALS Indicators

Continued decreased LOC
Continued respiratory compromise
Adverse reactions associated with withdrawal (see below)
Patient refusal of care (decision to be made by ALS only)

BLS Care

Assess ABC secondary to suspected opioid overdose
For pulseless patients, begin CPR
For inadequate breathing with pulse present (prescrial airway and begin slow bag-valve mask (BVM) ventilation with 100% oxygen
Consider Naloxone (see below)
BLS transports are appropriate for stable patients with good results from Naloxone administration and additional Naloxone is available to give if needed.
Prepare patient for transport and ALS care as appropriate

Medications

Naloxone (Narcan®)

Rationale: to decrease disability and death associated with opiate-induced respiratory depression/ respiratory arrest

Indications: for use on patients suspected of **opiate** overdose

Contraindications: there are no contraindications when used in a life-threatening emergency

Cautions: Only goal of Narcan is to make patient "breath" NOT wake-up. Wake may mean withdrawal. . Again "breath only" is the goal. Patients may experience withdrawal symptoms and may respond with violence or seizure; common reactions include tachycardia, high blood pressure, nausea and vomiting

Dosage and Administration

1. Load syringe with 2 mg (2 ml) of naloxone and attach nasal atomizer
2. Place atomizer within the nostril
3. Briskly compress syringe to administer 1 ml of atomized spray.
4. Remove and repeat in other nostril, so all 2 ml (2 mg) of medication are administered
5. Continue ventilating patient as needed
6. If no arousal occurs after 5-10 minutes, proceed down Altered LOC protocol (p. 10), including glucose check, and activate or alert transporting ALS unit.
7. There is no maximum dose for naloxone.

Note 1:

Intranasal naloxone takes 3-5 minutes to begin working, and may not completely reverse the decreased level of consciousness associated with opioid overdose. Patients often just begin breathing; do not always expect full arousal. The goal is to improve breathing, but EMS should support ventilations until breathing is adequate.

Note 2:

EMR certifications do not permit administration of Metered Dose Inhalers (MDIs), Nitroglycerin, Aspirin, Activated Charcoal or Oxymetazoline (Afrin).

Poison control 800-709-0911 800-222-1222

**Medications****Activated Charcoal****Indications**

1. Known or suspected toxic ingestions - Only if given within 1 hour of ingestion.

Contraindications

1. Decreased level of consciousness.
2. Strong acids, alkalis, or heavy metals.

Cautions

1. Charcoal administration may cause vomiting.
2. Caution with tricyclic (anti depressant) overdoses - vomiting/aspiration can be expected. Only administer charcoal if tricyclic ingestion is less than 15 minutes prior to EMS arrival.

Dosage and Administration

1. Adults: 30 - 100 g; 1 - 2 g/kg may be used as a rough guideline.
2. The initial dose (or one-half the initial dose in children) should be repeated as soon as possible.
3. Pediatric: 15 - 30 g.

Adverse Effects

1. Vomiting.
2. Aspiration.

Note:

EMR certifications do not permit administration of Metered Dose Inhalers (MDIs), Nitroglycerin, Aspirin , Activated Charcoal or Oxymetazoline (Afrin).

Nitrous Oxide

Pharmacologic Effects

1. A blended mixture of 50% nitrous oxide and 50% oxygen.
2. When inhaled, it has potent analgesic effects treating most varieties of pain. However, these effects dissipate within 2 - 5 minutes after cessation of administration.
3. The high concentration of oxygen delivered along with the nitrous oxide decreases hypoxia.

Metabolized

1. Excreted by the lungs within 2 - 5 minutes.

Indications

1. Chest pain secondary to suspected MI. Consider using if hypotensive or allergic to Dilaudid.
2. Trauma patients with fractures, burns, etc.
3. Kidney stones.
4. Any other patient in pain not presenting with a contraindication.

Contraindications

1. Patient is not alert and oriented.
2. Traumatic chest injuries due to possible pneumothorax.
3. Serious facial injuries where a good seal cannot be obtained.
4. COPD because of high oxygen concentration and nitrogen washout resulting in collapse of alveoli.

Cautions

1. None

Dosage and Administration

1. Patient must be able to self-administer NO until the patient drops the regulator or the pain is significantly relieved.
2. Be sure the tank remains upright during use due to the possibility of liquid nitrous escaping.
3. Pediatric dose is self-administered.

Adverse Effects

1. Nausea/vomiting.
2. Bizarre behavior.
3. Numbness of the lips and/or ringing in the ears.

ORTHOPEDIC

ALS Indicators

- Decreased/altered LOC
- Signs or symptoms of shock
- Excessive uncontrolled bleeding
- Pelvic fracture, bilateral femur fracture, or multi-system injury/fractures
- Femur fracture with excessive swelling
- Open fractures except for hands and feet
- High index of suspicion based on mechanism of injury
- Severe pain (Contact paramedics if patient needs pain control)

BLS Indicators

- Single extremity fracture with stable vital signs
- Single joint injury with stable vital signs and intact distal CMS

BLS Care

- Request paramedics if indicated.
- Protect cervical spine if indicated.
- Reassure and maintain normal body temperature.
- Apply direct pressure and sterile dressing over major bleeding.
- Provide supplemental oxygen and/or ventilatory assistance as necessary.
- Nothing by mouth.
- Gently support injured part.
- Allow patient to choose position of comfort.
- Check and record distal circulation, motor, and sensory (nerve function) before and after splinting.
- Immobilize and splint if indicated.
- Apply cold/ice pack to injured part (for closed tissue injury only).
- Elevate fractured limb.
- Prepare patient for transport in position of comfort or with spinal immobilization if indicated.
- Monitor patient's vital signs every 5 to 10 minutes.

Realignment of Long Bone Fractures

Attempt to realign (open or closed) long bones that are angulated in the middle 1/3 then splint. If resistance to movement is encountered or pain is too severe, discontinue realignment efforts and immobilize in place.

Long-bone fractures which occur in the proximal or distal 1/3, that may or may not involve a joint, may be realigned if compromise of distal circulation or nerve function is detected and transport is prolonged.

Realignment may sometimes be necessary to facilitate packaging for transport.

Check and document CMS before and after splinting and/or realignment.

Pelvic Fractures (see Splinting)

Multiple Extremity Fractures

Consider full body vacuum splint immobilization.

**** Rapid packaging and transport of the unstable patient or patient with multiple fractures takes priority over definitive splinting at the scene.***

PEDIATRIC FEVER AND INFECTION

ALS Indicators

Decreased LOC

Respiratory distress

Seizure

First time seizure

Recurrent seizure

Prolonged, depressed LOC

Atypical Fever/Infection

- Signs/symptoms of meningitis: stiff neck, legs contracted, red blotchy skin, petechiae, high fever

BLS Indicators

Febrile seizure (generalized tonic/clonic- see below) with history of previous febrile seizures and recent illness

BLS Care

Use **Pediatric Assessment Triangle**.

Request paramedics if indicated.

Provide supplemental oxygen and/or ventilatory assistance as necessary.

Monitor vital signs.

Place patient in a position of comfort.

For seizures, place child on side to protect airway.

May assist caregiver with medication to reduce temperature (e.g. Tylenol (acetaminophen), or Motrin (ibuprofen) as indicated by package.

Aspirin is contraindicated for children

If febrile, attempt to reduce patient's temperature by removing clothes and applying cool towels.

Cover loosely with one layer. Do not allow to chill.

Special Instructions for Febrile Seizures

Patient with a history of a previous febrile seizure, who is now neurologically intact with stable vital signs, and a competent caregiver requests home care, may be left at home with a suggestion to follow-up with a physician.

First time febrile seizures should be evaluated in an emergency department

Febrile seizures are always generalized tonic/clonic in nature. Any focal seizure is not a febrile seizure until proven otherwise

RESPIRATORY

ALS Indicators

- Decreased LOC.
- Extreme anxiety and agitation.
- Tripod position.
- Respiratory distress—unable to speak normally.
- Respirations greater than 30 per minute.
- Ashen color, cyanosis.
- Failure to respond to usual treatments.
- Labored respirations regardless of rate when found with other indicators.
- Audible wheezing or crackles (rales).
- Use of Epinephrine.
- Sustained tachycardia with other signs/symptoms of respiratory distress.

BLS Indicators

- Respiratory complaints due to common causes such as a cold, flu, bronchitis.
- Respiratory complaints of a chronic but stable nature.
- Respiratory complaints with normal vital signs and adequate oxygenation with treatment.
- Patent airway

BLS Care

- Obtain oximetry reading with respiratory rate.
- Consider oxygen
- Provide ventilatory assistance as indicated.
- Assist patient with his or her medications.
- Administer Epinephrine if indicated for anaphylaxis.
- Monitor vital signs every 5 to 10 minutes depending on patient's condition.



Medication

Metered Dose Inhalers (MDI's)

Patients with chronic respiratory diseases such as asthma and COPD will often have prescriptions for bronchodilator, anticholinergic, and/or steroid inhalers.

1. Responder may locate the inhaler and hand it to the patient. The patient must be conscious and alert.

2. Assist with self-administration of 3-4 inhalations initially, which can be repeated every 15 minutes.
3. Only bronchodilators (albuterol, Xopenex, etc.) will help in asthma/ respiratory emergencies.
 - a. If in doubt about MDI contents, contact medical control but do not delay medication administration for a patient in distress.
 - b. In general there is no harm in assisting with an MDI if it is not one of the bronchodilator "rescue medications."

SEIZURES

ALS Indicators

First time seizure

Multiple seizures in same day

Single seizure longer than five (5) minutes or more than 15 minutes postictal with no improvement in LOC

Pt < 6 months old with suspected febrile seizure

Seizure due to:

1. Hypoglycemia
2. Hypoxia
3. Trauma, especially head trauma
4. Drugs or alcohol
5. Pregnancy
6. Seizure with severe headache

BLS Indicators

History of seizure and seizure is similar to prior episodes and patient is awake

Pt between 6 months and 3 years with "only 1 seizure of short duration suspected to be febrile" may go POV.

BLS Care

Generally seizures that last more than 5 minutes require paramedic care.

After patient awakens, perform exam to determine if any injuries occurred or if any neurologic abnormalities exist.

During seizure, position the patient on his/her side.

During and after seizure, provide oxygen.

Obtain blood glucose.

SOFT TISSUE INJURIES

ALS Indicators

Significant head injury

Signs and symptoms of shock which include:

- Poor skin signs (pale, sweaty)
- Sustained tachycardia.
- Hypotension.

Soft tissue injuries that might compromise the airway.

Excessive or uncontrolled bleeding.

Altered LOC.

High index of suspicion based on mechanism of injury for chest, pelvis or head injuries.

BLS Indicators

Conscious, alert and oriented.

Stable vital signs.

Soft tissue injuries limited to the superficial layer of the skin (epidermis and dermis).

Single digit amputations.

Soft tissue injuries, with bleeding controlled by direct pressure and/or elevation.

BLS Care for OPEN Soft Tissue Injuries

Request ALS if indicated.

Consider oxygen.

Ventilation assistance as indicated.

Maintain an open airway.

Ensure adequate breathing.

Control bleeding.

Maintain normal body temperature.

Monitor vital signs every 5 minutes.

Spine protection, if indicated.

Special Instructions for OPEN Soft Tissue Injuries

Control bleeding with direct pressure on the area.

Consider topical coagulant

Use tourniquet for severe, uncontrolled extremity bleeding.

Removal of Foreign Objects

Easily removed debris, such as glass, splinters, or gravel can be removed before bandaging.

Large, imbedded fragments or projectiles should be secured in place by the bandage.

Decontamination

Remove wet chemicals (e.g., acid) by repeated flushing with water.

Remove dry substances by first brushing the area and then by flushing with water.

Burns

Easily removed debris should be taken off the burned area, then cover the area with dry, sterile dressings.

BLS Care for CLOSED Soft Tissue Injuries

Type	Treatment
Contusion Ecchymosis Hematoma Edema	Reassure patient. Immobilize/splint if indicated. Ice or cold pack. Elevate.
Sprain/Strain	Reassure patient. Gently support the site. Note and record distal circulation, motor and nerve function before and after splinting. Apply ice pack to sprain/strain area. Splint and immobilize injured limb. Elevate injured limb. Arrange for transport to appropriate care.
Dislocation	Reassure patient. Gently support limb. Note and record distal circulation, motor, and nerve function before and after splinting. Apply ice pack to area. Splint and immobilize.

SPINAL ASSESSMENT AND IMMOBILIZATION

Mechanism of injury (MOI) refers to transfer of energy through the body with the potential to cause injury to the spine or other structures.

1. NO MOI indicates a force transfer that is unlikely to damage the spinal column, such as an isolated hand laceration or mild blunt trauma to the limbs. **Do not immobilize.**
2. Common Positive MOI's include, but are not limited to falls, physical violence, blunt trauma, MVA's etc.
3. High Risk MOI's are events that transfer large amounts of energy to the spine, and include (but are not limited to) long falls, vehicle ejection, direct trauma to the spine and direct compression of the spine.

Mechanism of Injury is only a guide to the next steps in evaluation. It does not determine if immobilization is required nor by what means.

The presence of a POSITIVE or UNCERTAIN MOI should be decided during the scene size up.

A positive or uncertain MOI should *increase the suspicion* that a spine injury might exist. If this is the case, protect the spine from unnecessary movement (hand stabilize) until injury can be ruled out, or if not ruled out. If not ruled out, the patient is mechanically immobilized.

After life threats are addressed in the *Primary Assessment*, and patient's chief complaints are assessed in the *Secondary Assessment*, The *Spinal assessment* can begin.

In order to assess a spine injury in the field, three skill sets must be completed. These are:

1. Clear Mental Status (Reliability)
2. Clear Physical exam
3. Clear of new symptoms

Field Assessment algorithm

Clear Mental Status (Reliability)

Is this patient calm, alert, cooperative, sober, GCS 15?

Can I communicate with the patient? ***In short, you should be able to have a conversation with the patient, and the patient should be able to accurately respond to your questions and exam.***

Some common causes for patients to be unreliable are:

- Altered LOC with or without intoxication
- Acute stress reaction.
- Language barrier.
- Distracting injuries.

If patient is reliable, continue spinal assessment. If patient is NOT reliable, immobilize as appropriate, based on the Field Assessment algorithm

Clear Physical Exam (Spine)

1. This section of the algorithm refers to palpation of the spinal column, not lateral muscular pain.
2. Spine tenderness is produced with palpation. The exam needs to be done with fingers on skin or light clothing, and include palpation of all spinal vertebrae.

Motor Sensory Exam (Limbs)

1. The motor sensory exam must show bilaterally equal and normal motor and sensory nerve function.
2. **Sensation:** Check for both light touch and sharp sensation on all limbs.
3. **Movement:** Wrist flexion and extension against resistance. Dorsal and plantar flexion of the feet against resistance. (If injuries preclude the above exams, *acceptable alternatives are flexion and extension of the great toes against resistance, and spreading of the second and forth digits of the hands against resistance*). *Hand squeeze can also be used as an addition to flexion and extension to assess strength.*

Spine Pain with Movement

1. Direct the patient to move the head slowly through a full range of motion. The patient must be told to stop any movement at the first sign of pain. If no pain, repeat the same movements against resistance.

Clear of New Symptoms

1. No complaint of *new* neck or back pain.
2. No complaint of *new* numbness or weakness.

If no new symptoms are reported, no spine pain or tenderness after movement with and without resistance, then the patient does not require spinal immobilization. If deficits are found in any of the three skill sets, the spine cannot be cleared of injury, and further protection (immobilization) is indicated. The two types of movement protection (immobilization) are:

Low risk - Gurney with straps and movement protection of the C-Spine, as indicated.

High Risk- Vacuum mattress.

The choice of low or high is determined by your exam findings;

Low Risk Patient = reliable + spine pain and/or tenderness but no neuro motor deficits

No language barriers.

High Risk patient = Unreliable and /or neuro motor deficits

(Spine pain and/or tenderness may also be present)

Elderly and /or Frail.

High Risk MOI

Spine Boards vs Vacuum Splint

- Providers shall make efforts to reduce secondary patient injuries as a result of spinal immobilization. Immobilization on a rigid long spine board is known to cause pressure injuries even within relatively short periods.
- Full body vacuum-splint is the preferred immobilization device.
- Rigid long spine boards shall be used primarily as a patient movement device, such as in patient extrication from difficult or dangerous conditions.
- Once removed, patient should be transferred to a vacuum-splint or gurney as time and conditions allow.
- In penetrating trauma, spinal immobilization is not indicated, unless direct injury to the spinal column is evident or suspected.

C-Collars vs Soft Padding

- Mounting evidence suggests that cervical collars, like backboards, are causing harm instead of adding benefit.
- Cervical collars lead to increased pressure sores, pain and discomfort.
- Movement protection of the C-Spine can be achieved with the vacuum mattress and soft padding.
- Well fitted blanket or sheet horse collar is preferred with no vacuum mattress on cot.
- C-Collars should be a last resort when other soft methods will not restrict movement.

Suspected cervical injury with non-alignment

1. Perform one attempt to realign neck to the neutral, in-line position unless new pain, or other worsening symptoms or resistance encountered.
2. If unable to realign then secure in the original position

Helmet and Pad Removal

Helmets and pads should be removed prior to stabilizing with vacuum splint

- Work with local schools prior to seasons

Spine Injury Field Assessment and Treatment

1) Clear Mental Status:

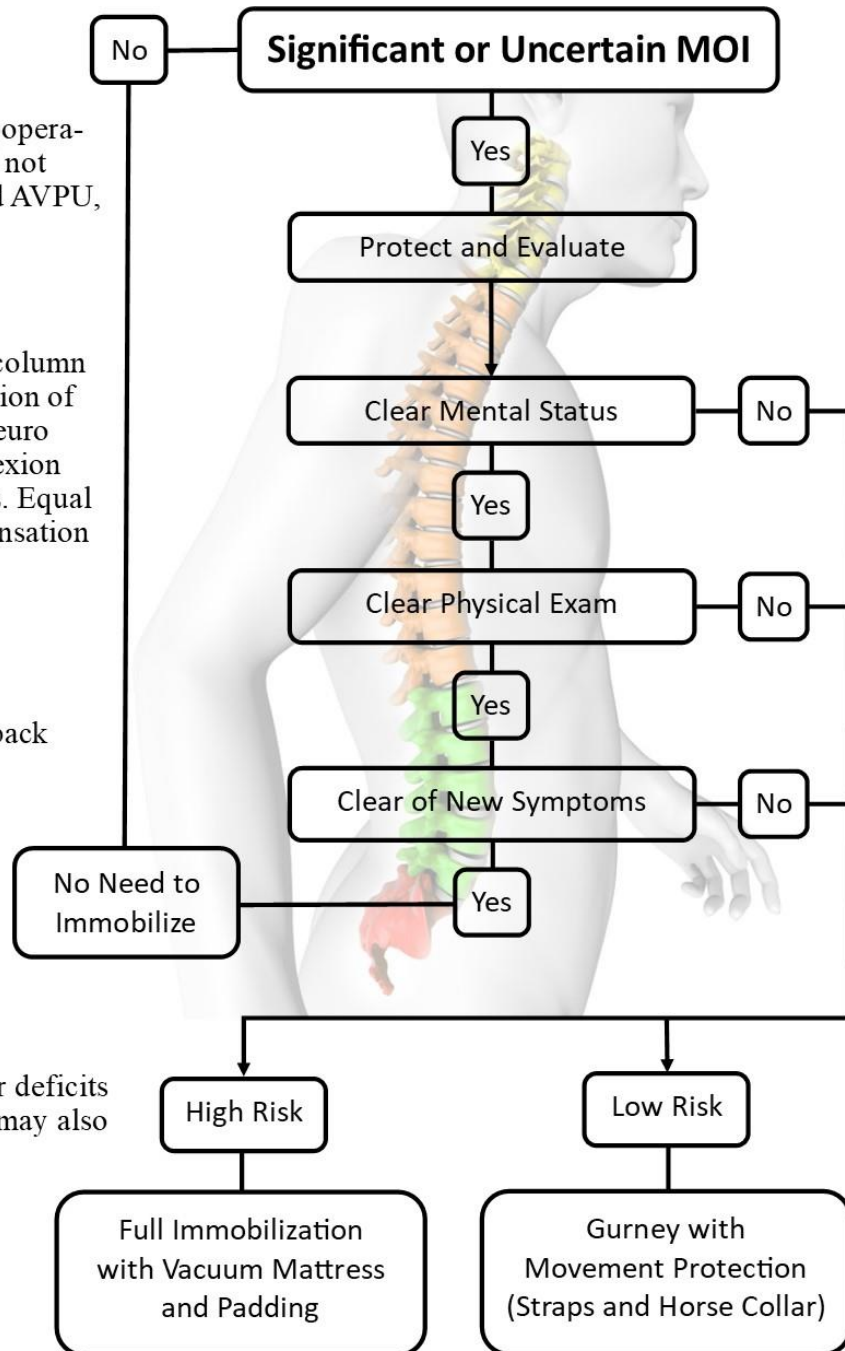
Pt should be reliable; Calm, cooperative, sober and alert. Pt should not display SSx of ASR, decreased AVPU, or severely distracting injury.

2) Clear Physical Exam:

Pt should have normal spinal column exam: no tenderness on palpation of all spinal vertebrae. Normal neuro motor exam: equal strength flexion and extension in all four limbs. Equal differentiation of sharp/soft sensation in all four limbs. No radicular sensations.

3) Clear of New Symptoms:

No complaint of new neck or back pain. No complaint of new numbness or weakness.

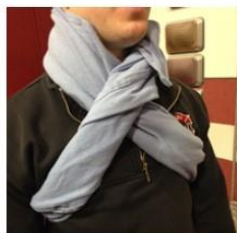


High Risk:

Unreliable and /or neuro motor deficits (Spine pain and/or tenderness may also be present)
Elderly and /or Frail.
High Risk MOI

Low Risk:

Reliable
Spine pain and/or tenderness but no neuro motor deficits
No language barriers.



STROKE

ALS Indicators

Unconsciousness
Severe hypertension (blood pressure greater than 200mmHg systolic or 110 mmHg diastolic)

Hypotension and severe bradycardia
Seizures without history
Severe headache/vomiting
Uncontrolled airway and respiratory problems
Progression of stroke symptoms

BLS Indicators

Stroke signs with onset greater than 4.5 hours or unknown
Airway Secure

BLS Care

Reassure patient. Patient may be fully alert but nonverbal
Determine time onset of stroke if possible
Position patient in upright position Open and manage airway
Deliver oxygen (SPO2 < 95%) and/or ventilator assistance as necessary
Maintain normal body temperature
Protect paralyzed limbs from injury
Monitor vital signs
Perform **FAST** assessment
Obtain blood glucose

STROKE PLAN

1. Stroke signs with onset <4.5 hours with no ALS indicators = Air or BLS Code Red
2. Stroke signs with onset >4.5 hours with no ALS indicators = BLS Code Yellow
3. Apply hospital stroke program “plan”
4. Notify medical control as soon as possible and attempt to precisely document the time of onset of symptoms “time when last seen normal.”

Coordinate with ALS as needed for either rendezvous or direct transport to hospital

BLS code RED is appropriate if there are no ALS indicators

STROKE ALERT

Date: ___/___/___ Time At Patient Side: _____ (24 hr) EMS Unit: _____ BLS ALS Age: ___ M F
 Pt Name: _____ Time HOSPITAL Called: _____ (24 hr) Stroke Level: 1 2
 Event Witness Name: _____ Cell: () _____ Home: () _____
 Closest Relative: _____ Cell: () _____ Home: () _____

Level 1 (Code RED) Last Seen Normal ≤ 4.5 hrs
POTENTIAL for tPA

Level 2 Last Seen Normal > 4.5 hrs.
POTENTIAL for INTERVENTION

F.A.S.T. Exam (Cincinnati Pre-hospital Stroke Scale)¹ Check box if any are **ABNORMAL** & check **GLUCOSE**.

Face: Have patient smile while showing teeth. **ABNORMAL:** Facial **droop** or asymmetry. **DROOP**

Arm: Have patient closes eyes and holds arms out with palms up for 10 seconds.
ABNORMAL: One arm **drifts** down or is unable to raise as high. **DRIFT**

Speech: Patient repeats, "You can't teach an old dog new tricks" (or similar familiar phrase).
ABNORMAL: Words are **slurred**, inappropriate, unintelligible, or there is no speech. **SLURR**

Time "Last Seen Normal" (or baseline): _____ (24 hr) Date: ___/___/___.

IMPORTANT: With any **ABNORMAL** sign, check **GLUCOSE** prior to activating Stroke Alert.

Glucose: _____ mg/dL (Treat if less than 50 and **reassess** prior to activating Stroke Alert)

STROKE IS A MEDICAL EMERGENCY. LIMIT ON SCENE TIME TO 15 MINUTES

Complete the following fields if time permits (preferably *en route*).

"Time is Brain!"

Upon **ARRIVAL**, report all known or *suspected* conditions to Emergency Department personnel.

tPA Candidate Screen - Possible tPA exclusions.

- Known bleeding disorder Active internal bleeding Brain cancer, tumor, or AVM (malformation)
 Seizure at onset History of brain hemorrhage Anticoagulant use (Coumadin, Lovenox, Pradaxa, Xeralto, Eliquis, etc)

Medical History

- Hypertension A-Fib/Flutter High Cholesterol Diabetes CAD or MI Obesity PVD
 Smoker Heart Failure Prior Stroke or TIA Residual Stroke Deficit Dementia

Stroke Mimics

- HyperGlycemia** (>400 mg/dL) **Seizure history** (or conversion disorder) **Migraine history** (esp. complex migraines) **Brain tumor** **Sepsis** (recent or suspected infection?)

1. Interpretation: If any 1 of these 3 signs is abnormal, the probability of a stroke is 72%. Modified from Kothari RU, Pancioli A, Liu T, Brott T, Broderick J. Cincinnati Prehospital Stroke Scale: reproducibility and validity. Ann Emerg Med. 1999;33:373-378. With permission from Elsevier.

The Stroke Alert Form is a communication and job aide. It is not part of the patient record, but aides with communication to the neurologist who may not be present when EMS arrives.

PART II – PROCEDURES AND POLICIES

ADMINISTRATION OF MEDICATIONS

ASSISTING WITH ADMINISTRATION OF PRESCRIBED MEDICATION

Initiate assessment and treatment of the patient as indicated by the signs and symptoms.

EMTs may assist with:

1. Nitroglycerine
2. Epinephrine
3. Metered Dose Inhalers (MDIs) for asthma or related respiratory diseases

Special Considerations

1. Medication has been prescribed by a physician for the patient.
2. Medication inside the container is the one indicated on the prescription label.
3. Medication has not passed the expiration date on the prescription label.
4. Determine the last time the patient self-administered the medication and the number of doses taken.
5. If in doubt, contact medical control.
6. Administer the medication as directed.
7. Document the administration of the medication by recording the drug, dose, method, time and name of physician ordering the assistance with medication
8. After five (5) minutes, reassess and document the patient's vital signs and any changes.

AIR AMBULANCE

General Information:

Airlift Northwest is the air ambulance company serving Whatcom County and has helicopters based at St. Joseph Hospital (Bellingham), Arlington, as well as Seattle. When requesting a helicopter, the closest, available ship will be sent.

It is advisable to request information on which ship is being dispatched and an estimated time of arrival (ETA).

Dispatch protocol for Use of Helicopters within Whatcom County

The dispatch of a helicopter should be considered with any “Category I” patient for whom ALS care is greater than 30 minutes away.

In addition Airlift should be considered in multiple ALS Crew Response (MCI) situations even when within the 30 minute space. Some of the potential “close uses” would include MCI situations exhausting available ground ALS units, severe burn patients that might benefit from direct “Burn Center” transport, or other severe trauma patients that may benefit from direct transport to a “Level 1 Trauma Care center.

- **Category I patients include:**

- Multi-system trauma patient with blood pressure less than 90
- Head Injury with decreased level of consciousness
- Trauma with airway compromise, failing VS, or significant mechanism of injury
- Uncontrolled bleeding
- Spinal Cord injury with neurological impairment
- Amputation with potential for re-implantation
- Acute Chest Pain with possible MI
- Resuscitated Cardiac/Respiratory Arrest
- Decreased Level of consciousness or new onset CVA symptoms
- Moderate to severe hypothermia or near drowning
- Patients >60 with acute abdominal pain and blood pressure <90
- Complications of Pregnancy
- Unstable vital signs
- Burns 20%, 10% for age <10 and age >50
- Pediatric Trauma
- Pediatric Respiratory Emergencies

- Pts that would benefit from blood transfusion on scene

Procedure:

The normal procedure for dispatching Airlift should be to:

1. Consult with responding ALS ground ambulance about patient condition and need to fly,
2. Contact Prospect (or have medic unit do so) and request Airlift to be dispatched. In unusual situations Airlift Northwest can be dispatched by calling 1-800-426-2430 (Airlift dispatch) and requesting dispatch directly.

Requestor will be asked to provide one or two of the following:

Patient Weight
Landing Zone GPS Coordinates,
Ground Contact (Unit Radio Identification)
Map Coordinates,
Totem map page and cross streets or landmarks

- Radio Frequency (Fire 1,2,3, etc.)

It is recommended that the Landing Zone use a separate frequency than that used in patient care.

- Be prepared to provide the following information:

- Brief Patient Report

- Destination Facility.

- Normally, St. Joseph Hospital in Bellingham will be the facility for Whatcom County transports. On rare occasions such as critical pediatric trauma, a patient may benefit from transport directly to another facility. Consult Medical Control.

- Notify Medical Control as soon as possible with a patient report.

AIRWAY MANAGEMENT

OROPHARYNGEAL AIRWAY (OPA)

An oropharyngeal airway rests in the patient's oropharynx, lifting the tongue away from the back of the throat preventing it from occluding the airway. The OP airway is used only on unconscious patients and generally those without respirations.

*** Do not use this device if a patient gags when inserted. Use of an airway on a patient with a gag reflex may cause retching, vomiting, or spasm of the vocal cords.**

To size an oropharyngeal airway:

Choose correct size by measuring from the corner of the mouth to the ear lobe or from the chin to the angle of the jaw.

In infants and children, insert the airway tip down or sideways along with a tongue blade. Rotate down when you are halfway in the mouth or approaching the curve on the tongue.

*** An oropharyngeal airway (OPA) is always indicated for unconscious patients without gag reflex**

SUCTIONING

The Yankauer suction tip is preferred for most suctioning. If the holes on the Yankauer get plugged repeatedly, remove the tip and use larger bore tubing.

To suction with a Yankauer tip:

Measure the same as for an oropharyngeal airway—approximately from the corner of the mouth to the ear lobe.

Do not suction while inserting; suction only after the Yankauer (or similar device) is in place and as you withdraw.

Suction for no more than 15 seconds at a time.

In rare cases, copious vomiting that threatens the airway may require a longer period of suctioning.

Hyper-oxygenate the patient well before and after suctioning.

I-GEL SUPRAGLOTIC AIRWAY

Indications

1. Cardiac and/or respiratory arrest.
2. Unconscious patient without a gag reflex.

Contraindications

1. Responsive patient with intact gag reflex.
2. Caustic ingestions.
3. Upper-airway obstructions due to foreign bodies or pathology.
4. Children/adults less than 30 kg (65 lbs.).

Cautions

1. If unable to confirm correct placement by lung sounds, chest rise and positive trending pulse oximetry, remove and resume ventilating with BVM and OPA.
2. Limit placement attempts to three.
3. If patient develops a gag or begins breathing, suction and remove i-gel.

Weight-based sizes

1. Small adult: Size **3** (yellow), 30-60 kg (65-130 lbs)
2. Medium adult: Size **4** (green), 50-90 kg (110-200 lbs)
3. Large adult: Size **5** (orange), 90+ kg (200+ lbs)

I-GEL TUTORIAL

https://www.youtube.com/watch?annotation_id=annotation_903037127&feature=iv&src_vid=ao-Sb_OulE8&v=ae1Yr0fbz98

CRIME SCENE ACTIVITIES

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.

A. 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.

1. While emergency aid may be imperative, medical personnel should exercise extreme caution in approaching scenes suspected or known to involve any violent act.
2. Sniper incidents have often resulted in multiple injuries among those trying to rescue the victim.
3. Responding emergency personnel must consider their own safety as well as the methods they will use in aiding victims.

B. 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 loss of related evidence.

II. Errors of commission and errors of omission. 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, EMR, or EMT 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. Descriptions of the two primary types of mistakes, which damage crime scenes are;

A. 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.

B. Errors 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.

Crime Scene Do's and Don'ts:

A. Do:

1. Ensure that items of evidence (spent cartridges, weapons, clothes, etc.) are not stolen or destroyed, moved or inadvertently stepped on.
2. Designate a garbage spot for all non-essential or non-evidentiary items.
3. Contain the crime scene area and restrict/stop pedestrian/vehicle traffic (limit the number of EMS personnel to what is needed).
4. Note position of clothes on the body before disturbing for medical aid and check for any foreign substances that may be on the body.
5. If you move the body, be aware that pertinent evidence is often found underneath a body. Mark its location.
6. Call for assistance as needed to control onlookers and bystanders.
7. Seek guidance from the on-scene police officer.
8. 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.
9. 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).

B. Don't:

1. Do not move the body unless necessary to give aid, then note and/or mark the body's position.
2. Do not move evidence unless necessary. Point the evidence out to the officer where it is found, or mark (chalk, tape, etc.) the location where the evidence/items that required moving were. 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.
3. Do not use bathroom facilities or sinks.
4. Avoid using the telephone and items in and around the crime scene.
5. If clothing must be cut, do not cut through bullet holes or knife cuts. These are critical pieces of evidence.
6. If patient is deceased or dies during your resuscitation, do not remove SGA or any other invasive equipment. Mark all sites that caregivers broke the victim's skin (epi-pen, glucose checks, etc.).
7. Hangings or other crimes involving ropes:
 - If a rope must be cut, do not cut it at the knot.
 - 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.
 - 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.

END OF LIFE ISSUES

EMTs have the responsibility to determine a patient's resuscitation wishes, and honor them if possible.

Resuscitation efforts shall be withheld or stopped if:

1. Signs of prolonged downtime: Lividity, rigor mortis.
2. Injuries obviously incompatible with life: Decapitation, immolation, etc.
3. Cardiac arrest due to trauma:
 - a. Begin CPR.
 - b. Attach an AED as soon as possible.
 - c. If no shock advised and a medical cause for the arrest is not suspected, stop CPR.
4. Do Not Resuscitate (DNR) order. This directive may be in the POLST (Physician Orders For Life-Sustaining Treatment) format.
 - a. DNR/POLST must include patient and physician signatures.
 - b. Family may revoke the orders.
 - c. If the order is unclear or disagreement among family, begin CPR.
5. "Compelling reasons" to withhold resuscitation can be invoked when DNR or other written order is not available, but the situation suggests that the resuscitation effort will be futile, inappropriate, or inhumane. A resuscitation effort may be withheld when the following two conditions are BOTH met:
 - a) End stage of a terminal illness.
 - b) Request from the family that no resuscitation effort be attempted.

If a DNR directive, POLST or compelling medical reasons efforts should be withheld become available during resuscitation, the resuscitation should be stopped.

Documentation is important. On the Incident Report Form, describe the patient's medical history, the presence of a DNR directive (if any), and verbal requests to withhold resuscitation efforts.

"Do not attempt resuscitation" does not mean "do not care." A dying patient for whom no resuscitation effort is indicated can still be provided with supportive care, which may include the following:

Clear the airway (including stoma) of secretions with suction device.

Provide oxygen using a cannula or non-rebreather.

Control any bleeding.

Provide emotional support to patient and family.

Contact hospice if involved.

When in doubt, initiate resuscitation then contact Medical Control.

**PROBABLE DEAD ON ARRIVAL
(D.O.A.)**

This protocol should be used in conjunction with the Washington State Department of Health “EMS- No CPR Guidelines” and the Washington State Department of Health/Washington State Medical Association, “Physician Orders for Life-Sustaining Treatment (POLST)”.

Purpose:

To provide Basic Life Support providers with guidelines to aid in identifying the D.O.A. patient, as well as possible scene management concerns.

Application: D.O.A. patients are divided into two general categories:

- A. Obvious death, i.e. non-recent death and/or severe injuries obviously incompatible with life such as,
 - 1. Patient is cold and stiff while in a warm environment.
 - 2. Decomposition.
 - 3. Rigor Mortis (A stiffening of the body after death).
 - 4. Lividity (A discoloration in the dependent portion of a deceased’s body, described as dark bluish or blackish in color).
 - 5. Decapitation or severe head trauma with large parts of the skull and brain missing.
 - 6. Incineration.
 - 7. Evisceration of the heart, brain, or liver.
 - 8. Underwater submersion for 2 or more hours (consider extending 2 hour time if water temperature near freezing).
- B. Expected deaths (refer to WA. State EMS No-CPR & POLST guidelines).
 - 1. Terminal illness.
 - 2. Do not resuscitate orders (DNR or POLST Orders).

Procedure: When dispatched to a possible D.O.A. personnel should respond to the scene and:

- A. Confirm that the patient is pulseless, apneic, has no signs of life, and meets at least one of the above criteria.

If patient has any signs of life or does not meet the above criteria initiate appropriate resuscitative or care measures and ALS response.

- B. Provide supportive care for family, and/or bystanders as needed to possibly include, but not limited to support officer response.
- C. Make appropriate contacts to facilitate deceased patient disposition, i.e.,

1. Non Hospice patient outside of a health care facility

In Whatcom county the Law Enforcement agency with jurisdiction at the scene works as the coroners agent and is the appropriate agency to make contact with and release the scene and deceased patient to.

2. Patient under hospice care

Hospice is an organization dedicated to relieving pain and suffering of the terminally ill patient. Generally EMS is not activated when a patient under the care of hospice dies. If you do find yourself at the scene of a deceased patient that was under hospice care, hospice should be contacted and will usually respond to the scene to assist. The phone number is 733-5877 and first contact should be with the nurse on call. If no contact is made within 20 minutes then recall and ask for the administrator on call. If both of these fail to get a response then the above law enforcement agency may be contacted to assist.

3. Patient in a health care facility, including adult home health care facilities

Deaths of terminally ill patients at a health care facility are generally considered an attended death and usually do not require a law enforcement response. However the facilities ability to handle these situations varies greatly. Sometimes contact with the on call, or chief administrator, can facilitate an acceptable solution. If no acceptable plan can be arrived at, or patient was not terminally ill, or the death seems suspicious in any way then the above mentioned law enforcement agency should be contacted.

Other considerations: For EMS responders the scene of a death can have feelings of failure, inadequacy, and guilt associated with them. The switch from aggressive patient care to that of a sometimes-reluctant “Grief Counselor” can be difficult to make. Failure to recognize the need to “change gears” or recognize the emotions associated with death and dying can have long lasting psychological effects on families of the deceased as well as the responders.

Consider:

- A. Once a patient is deemed dead, you gain a new set of patients, the family.
- B. What is the right way to grieve? (Don't be judgmental about how different cultures and families express grief).

PELVIC SLING

Unrestrained movement of fractured pelvic bones following significant trauma can cause internal hemorrhage of 2-3 liters of blood, and death. Similar to c-spine injuries, pelvic fractures require **stabilization before transport**. Any motion between the torso and legs can cause severe shifting of the fractured pelvis, potentially dislodging any clotting already in place. Immobilization of these fractures should be accomplished by use of a Pelvic Sling.

PASG or tied sheet techniques can stabilize a broken pelvis, but there is no way to know when the pressure is right for pelvic stabilization.

The Pelvic Sling was designed to apply the ideal amount of force to bring the pelvic ring back into alignment. The Pelvic Sling uses circumferential pressure to squeeze the pelvis uniformly. The Sling's major advantage is that its buckle has a definite stop with a positive click at exactly the optimal calculated pressure.

The Pelvic Sling should be applied to *any* patient with high speed or other significant trauma suspicious for pelvic injury. **Mechanism of injury alone may indicate use of the Sling.**

Indications for Use

A. Patients with a history of high energy, multi-system trauma i.e., motor vehicle accidents, pedestrian accidents, crush injuries, falls.

Contraindications for Use of Standard size

Patients hip circumference less than 32 inches or greater than 50 inches.

1. Review use instructions on the package.
2. Clothing should be removed before placing the Sling. (It is designed to stay in place until the patient goes to surgery).
3. Three sizes are available to fit Hip Circumference of :
 - Large: 36 – 60 inch circumference
 - Standard: 32 – 50 inch circumference
 - Small: 27 – 47 inch circumference

Cautions

- The Sling wraps the hips and buttocks, not the waist. Try to make sure the buckle is centered over the alignment of the pubic symphysis.
- The Sling is a single-use, disposable item.
- Once the Sling is in place don't remove it.

SICK/NOT SICK

The SICK/NOT SICK approach to rapid patient assessment has become a mainstay in determining the physiologic status of a patient in Whatcom County. Whether it is medical or trauma, adult or pediatric, SICK/NOT SICK is the tool of choice for rapid patient assessment.

This revised edition of the Patient Care Protocols incorporates the SICK/NOT SICK approach which leads to the early recognition of critical (Sick) and non-critical (Not Sick) patients and, ultimately, rapid and appropriate patient care.

The clinical indicators used in the adult SICK/NOT SICK approach provide clarity and offer clear and CONCISE indicators for determining a patient's physiologic stability. Often, these indicators are observable from across the room without even touching the patient.

Additional considerations that need to be incorporated into your SICK/NOT SICK decision- process include: mechanism of injury (MOI), nature of illness (NOI) and index of suspicion (IOS). These will help you in determining SICK/NOT SICK and may alone determine into which category the patient is placed.

Adult SICK/NOT SICK Clinical Indicators:

- Chief complaint and MOI/NOI/IOS
- Respirations - work of breathing and respiratory rate
- Pulse – too fast or too slow
- Mental status
- Skin signs (color, moisture, temperature)
- Body position/obvious trauma

Example: Your crew is dispatched to a 52-year-old male, 15 foot fall from the roof. You find him being attended by his wife. He is conscious. He is breathing with distress @ 32 breaths per minute. Skin is pale and a radial pulse is present @ 116 bpm. He has an open chest wound, left side being covered by his hand.

- Chief complaint: lethargy, MOI—15' fall from roof
- Respiration: 32/minute
- Pulse: 116/minute (radial)
- Mental status: lethargic
- Skin signs: pale
- Body position: found supine

This patient is considered Sick (unstable/critical) by MOI, mental status, skin signs and respirations.

The pediatric SICK/NOT SICK approach uses three key indicators of physiologic status collectively called the “pediatric assessment triangle.” The triangle allows the EMS provider to make rapid and accurate decisions on the status of a pediatric patient based on readily apparent signs.

First, determine the chief complaint and consider MOI, NOI, and IOS

Then assess the elements of the Pediatric Assessment Triangle:

- Appearance
- Work of Breathing
- Circulation to the Skin

Example: You and your partner are seeing a 4-year-old male with an obvious distal forearm fracture resulting from a fall from a swing onto a rubber mat. He is conscious and crying, without respiratory distress. His skin signs are pink, warm and dry. Chief complaint: arm pain, MOI, fall with obvious forearm fracture (IOS - low)

- Appearance: conscious alert and crying
- Work of breathing: without complaint
- Circulation to skin: warm and dry, normal color

This patient is injured but considered Not Sick (stable/not critical) according to the pediatric assessment triangle.

SPLINTING

Appropriate splinting can reduce or minimize dislocation, motion, hemorrhage, swelling, and pain.

GENERAL PRINCIPLES

The following general principles apply to splinting:

Remove or cut away clothing.

Dress and bandage significant wounds using a sterile dressing.

Check CMS distal to injury before and after splinting.

Immobilize joints above and below injured bones.

For joint injuries, leave in place and immobilize the bone above and below the joint

It may be necessary on a mid-shaft (center 1/3) fracture to realign angulated injuries.

Pad splints well.

Elevate extremity after splinting, if possible.

Monitor CMS after splinting.

GUIDELINES FOR SPECIFIC INJURIES

Realignment of Long Bone Fractures

Attempt to realign (open or closed) long bones that are angulated in the middle 1/3 then splint. If resistance to movement is encountered or pain is too severe, discontinue realignment efforts and immobilize in place.

Long-bone fractures which occur in the proximal or distal 1/3, that may or may not involve a joint, may be realigned if compromise of distal circulation or nerve function is detected and transport is prolonged.

Realignment may sometimes be necessary to facilitate packaging for transport.

Check and document CMS before and after splinting and/or realignment.

Dislocations/Sprains

Splint dislocations or other joint injuries in the position found. Exception: Loss of a distal pulse and neurological function and definitive care is delayed. In that case, attempt to straighten into anatomical position until the pulse returns, excessive pain is felt, or resistance is encountered. Support with blanket, pillow, or well-padded splint. Elevate the limb. Pack the injured area in ice or use an ice pack.

TRACTION SPLINTING

Although other traction devices are used, Whatcom County's preferred traction device is the Kendrick Traction Device.

A lower extremity traction splint stabilizes fractures of the femur. This reduces motion, hemorrhage, swelling, and pain. Traction splints are indicated in midshaft femoral fractures without involvement of the hip joint, knee, or lower leg.

Guidelines for Applying a Traction Splint

Two EMTs are needed to apply a traction splint.

Remove or cut away clothing.

Dress and bandage significant wounds using a sterile dressing.

Manually immobilize the injured extremity prior to dressing/bandaging.

Do not apply manual traction. Check distal CMS before and after manipulation.

Determine SICK/NOTSICK

Control Bleeding

- Size splint to uninjured leg
- Have one EMT stabilize the leg while the other applies the traction device.
- Apply splint
 1. Groin strap
 2. Ankle hitch
 3. Knee strap
 4. Extend
 5. Thigh and calf straps
- Reassess CMS and vital signs

ECD (TASER) DART REMOVAL AND CARE

You may encounter a patient that has been subdued by law enforcement by the use of an Electronic Control Device (ECD, e.g.: TASER®), or stun gun. The ECD works by firing two darts that are attached by wires. They can hit a suspect from 15 feet or more. The ECD delivers up to 50,000 volts of electricity that renders the victim incapacitated. The discharge lasts 5 seconds or less and the patient can be controlled by the officer who delivered the charge. The electrical delivery is not harmful to the heart rhythm, to pacemakers or to breathing function.

The ECD only enters the skin to about a few millimeters in depth. The EMT can safely remove the dart from the skin. There are parts of the body however, that if hit, the dart should be left in place. Those are the eye, face, neck, groin or breast. If a dart has been discharged to these areas, the dart should be left in place and the patient transported to the emergency room for dart removal.

Remember scene safety. There is a reason the ECD was used! Your safety and that of your co-workers is important. Potential violence is a possibility. Just because a ECD was used on the patient does not mean that the patient needs transport. If no other injuries are present and the patient had no need for further medical evaluation, the patient may be left with law enforcement.

DART REMOVAL AND CARE

ALS Indicators

Compromise in ABCs

BLS Indicators

TASER dart imbedded in skin

BLS Care

1. Assure the scene is safe
2. Wear PPE including gloves and eye protection – consider mask and gown if blood is present.
3. Remove ECD cartridge from gun or cut wires *before removing darts*
 - **Darts are a sharps hazard** – treat as contaminated needle
 - Dispose of darts in sharps container or ECD cartridge
4. Police must be in custody of patient
5. Restrain if needed

Removal Procedure

1. Grasp firmly with one hand and pull to remove, one dart at a time
2. Reassess patient
3. Consider medical or behavioral problems as the original cause of violent behavior
 - Drug/alcohol intoxication
 - Behavioral problems
 - Trauma, etc.
4. Bandage wounds as appropriate
5. Document situation and patient contact thoroughly

DO NOT REMOVE darts if:

- Patient is not under control
- Eye, face, neck, breast or groin are involved – patient must be transported to hospital for dart removal in this case

Patient Disposition

1. Release to law enforcement if indicated
2. Transport with law enforcement support if:
 - Eye, face, neck, breast or groin are involved
 - ALS indicated
 - Law enforcement officer requires medical evaluation. Police protocol may require transport. This may be by PD or ambulance.
3. Follow Patient Care Guidelines regarding restraint of aggressive or violent patients.

Burn Hazard

When an ECD is used in the presence of pepper spray propellant, there is a burn hazard. Electrical arcing from imperfect (but effective) dart contact can ignite the propellant. The resulting combustion may not be visible, but can lead to complaints of heat and burning. If a patient complains of heat or burning, evaluate for possible minor burns.

TEETH

Place avulsed/dislodged tooth/teeth in milk or patient saliva and transport with the patient.

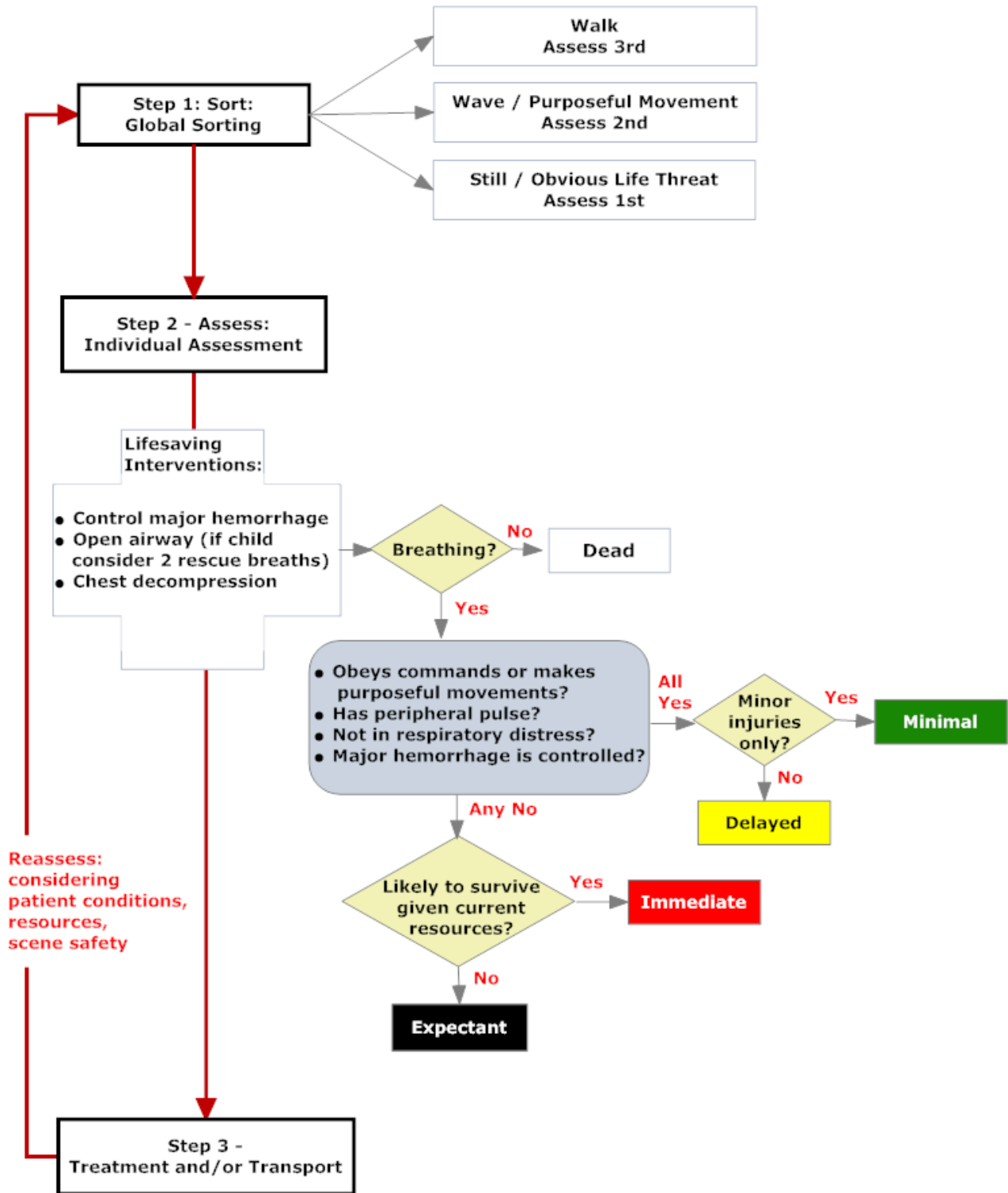
FIELD TRIAGE

All MCI patients shall be initially triaged using the SALT system. Primary triage needs to be completed as soon as possible so that a more reliable number of patients and their categories of severity can be established. Patient severity is identified using the following categories:

Immediate (Red)	Critically injured patients / life threatening
Expectant (Grey)	Injuries likely to be incompatible with life given currently available resources
Delayed (Yellow)	Seriously injured patients / can delay up to one hour
Minimal (Green)	Walking wounded patients / can delay up to three hours
Deceased (Black)	Deceased and/or mortally injured patients / no care initiated

SALT Triage is the product of a CDC Sponsored working group to propose a standardized triage method. The guideline, entitled SALT (sort, assess, life-saving interventions, treatment and/or transport) triage, was developed based on the best available science and consensus opinion. It incorporates aspects from all of the existing triage systems to create a single overarching guide for unifying the mass casualty triage process across the United States.

- **Step 1 (Sort)** – The initial responder enters the triage area, identifies himself or herself and directs all those who can walk to gather and remain in a safe place. This step identifies those patients who presently have sufficient respiratory, circulatory, mental, and motor function to walk. Most of these patients will eventually be tagged Green, but not until later when they are triaged separately. Patients that remain should be asked to follow a command (wave) to be observed for purposeful movement. The patients that do not move and ones with obvious life-threatening conditions are the first ones to assess.
- **Step 2 (Assess)** – Individual assessment should begin with limited rapid lifesaving interventions
 - Control major hemorrhage with tourniquets or direct pressure provided by other patients or devices
 - Open airway through position or basic adjuncts (no advanced airways) If patient is a child, consider 2 rescue breaths.



Refer to the Whatcom County Operations Manual for more detailed information on SALT

VIOLENT INCIDENTS

Response to violent incidents requires multi agency coordination for the safety of all responders.
Refer to the Whatcom County Operations Manual.

Part III -- Educational Reference

PATIENT RESTRAINT

Occasionally, a patient exhibits behavior that is dangerous to the patient, the public or to the responders. For the safety of the patient, we may need to use a device to restrain them. When doing so, it is important that the reason we are using restraints is to protect our patient and ourselves. When the patient is restrained, we must be extra careful to monitor the patient who now is unable to protect his or her airway. Once restraints have been applied, they should not be taken off until the patient is at the ER. There are two factors that determine whether or not a device is considered a restraint. If the reason for using the restraint is to prevent movement and done without the consent of the patient, then it is considered a restraint.

PROCESS OF RESTRAINT

REMEMBER: Safety and the prevention of injuries are the major concerns in the process of restraint application. Always try to maximize the patient's self-control BEFORE deciding to apply the restraints.

Self-control - Encourage the patient to exercise all the self-control he or she possesses. A statement such as "I know you don't want to hurt yourself or anyone else. I want you to try to stay in control. I know you can do it" is an example of calling, with encouragement, for self-control.

Offer to help - Anxiety can interfere with concentration and an offer of assistance should reduce anxiety. A statement such as "*I want to assure you that we will help you. We will not let you hurt yourself or someone else*" is an example of an offer to help. Sometimes using a statement like "*Can we apply these soft safety bracelets so that you and our people will be safer?*" *Soft safety bracelet* sounds much nicer than "restraints". Giving them a choice may help give them a feeling of control and thus encourage them to cooperate. .

Be ready and able to overpower patient. Never attempt physical restraint without the resources needed to safely overpower a patient. **(ONE RESPONDER PER LIMB AND HEAD)**

Physical restraint - This is the time when most injuries tend to occur, but the EMT can greatly reduce the potential for injury by eliminating the opportunity for the patient to prepare for battle. Early and swift movements reduce injuries to a patient and EMS providers. Plan the actions so that each provider involved clearly understands his or her role. Typically, one person is assigned to each limb. One provider should communicate with the patient continuously. Once a decision is made to restrain, act quickly. Use only the force necessary for restraint. It may be helpful to have the police present during restraint but do not delay necessary action. EMTs should be aware of their own personal safety. A patient may become violent.

TYPES OF RESTRAINTS

The kinds of restraints used in the prehospital environment vary tremendously. Handcuff and cable ties should only be applied and removed by law enforcement personnel.

Use commercially available soft restraints or improvise soft restraint such as a towel and one-inch tape (Figure 6). Secure the restraint to another extremity or stretcher (Figure 7).



Figure 6



Figure 7

After the restraints are applied to legs and arms, a patient should be placed in a supine position with legs secured to a backboard or stretcher. One arm secured high above the head and the other low at the patient's side and both secured to the backboard or stretcher. Additional restraint should be placed across the lower part of the chest, the hips, and upper thighs.

Once a patient is restrained, he or she should be carefully monitored to avoid airway obstruction. An NRM with 6 liters/min of oxygen flow may be applied to protect the EMS personnel from spit.

DOCUMENTATION

It is important to document the behavior that made restraints necessary as well as the restraint technique used. The documentation must reflect continual concern for the patient's safety and well-being as well as descriptions of the patient's ongoing mental status and behavior.

Do not remove restraints until directed by the hospital emergency department personnel.

IMPEDANCE THRESHOLD DEVICE (RESQ POD)

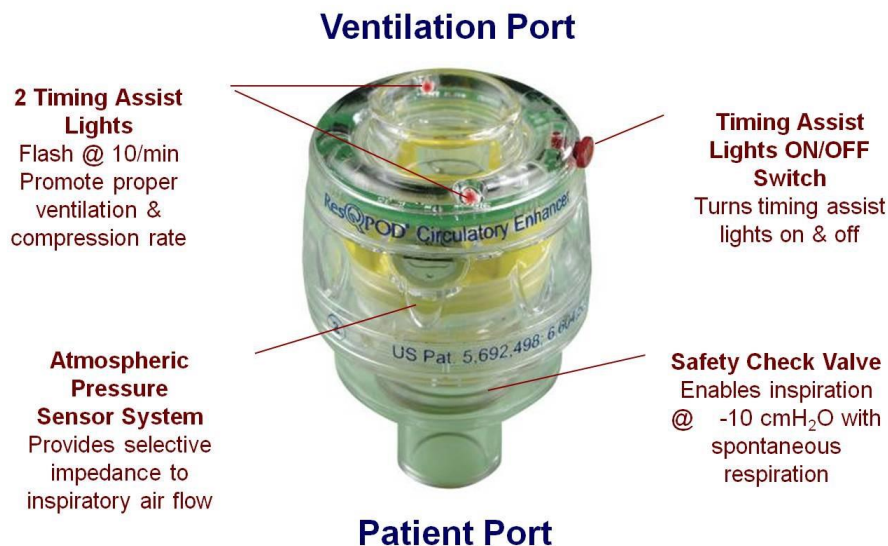
Over the past several years, Whatcom county EMS has recorded a statistically significant increase in successful resuscitations from cardiac arrest. The improved outcome for our patients could be due to

- participation in CPR research,
- more frequent CPR training,
- better quality CPR,
- CPR with the ResQ POD, or
- All of these reasons!

We have observed EMS rescuers performing outstanding CPR, and we want to continue to monitor and encourage those practices that improve patient outcome, including

- performing high quality chest compressions & limiting pauses in chest compressions to perform other interventions,
- managing the airway (e.g. good facemask seal, correct rate and volume of rescue breaths),
- using the AED appropriately, and
- improved teamwork

The ResQ POD is designed to enhance circulation, by improving blood return to the heart during chest compressions. For this reason, the ResQ POD is included in the standard of care in Whatcom County, and should be used **immediately** on the BVM with a two-handed tight facemask seal, as soon as efforts to resuscitate a patient in cardiac arrest are begun. It is *standard practice* in Whatcom County to store the ResQ POD pre-loaded on the BVM in airway kits, to reduce any delays in deploying this critical CPR tool.



Mechanism: Air is allowed to leave the patient's chest during chest compressions, but the valve prevents air from entering the lungs as the chest recoils between chest compressions. The timing assist lights are turned on *only* after a secure airway is in place (SGA or ET tube), when compressions are performed continuously. Ventilations during CPR with a secure airway should occur at a rate of 8-10/min, or after every 10 compressions (at a compression rate of at least 100/min). The timing lights flash 10/min.

One of the most important factors in overall patient outcome is the quality of CPR. The AHA ACLS guidelines state that "high-quality CPR is more effective than any ACLS drug. The science tells us that our focus should be on BLS skills to maintain perfusion."

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Mechanisms of the ResQ POD as a CPR Tool



Chest recoil begins creation of the vacuum

+



Sustains vacuum that is created

=

Enhance the negative pressure in the chest during the decompression phase of CPR in order to return more blood to the heart.

This small but important vacuum (negative pressure) developed in the chest during chest recoil with the ResQ POD in place...

- draws blood back into the chest and heart,
- increases coronary artery blood flow,
- decreases intracranial pressure and increases blood flow to the brain during CPR

The more blood that is returned to the heart (preload), the more that is pushed forward (cardiac output) with your next chest compression.

RESQ POD WITH A BAG-VALVE MASK

Successful ventilation with a BVM begins with a good seal between the mask and the patient's face and maintaining an open airway. No air can be allowed to leak around the facemask, or the vacuum in the chest which serves to draw blood back to the heart will be destroyed.

To properly place a BVM:

Choose an appropriate size for the patient.

Consider placing an airway adjunct, such as an oropharyngeal (OPA) airway.

Position the mask over the patient's face with the apex of the mask over the bridge of the nose (between the eyebrows). Using both hands, stretch the sides and cuff of the mask laterally, and place the mask over the nose and mouth, settling the base of the mask between the lower lip and the prominence of the chin. With the cuff in contact with the patient's skin, allow the mask to snap into place. Position your hand(s) so that your fingers grasp the lower jaw to maintain a head-tilt, chin-lift. A good facemask seal will make it easier to hold in place with less pressure. **You should feel as if you are pulling the airway toward the facemask, rather than pushing the facemask onto the face.**

TWO-HANDED TECHNIQUE (REQUIRED – SEE FIGURES BELOW)

One rescuer kneels with a knee on each side of the patient's head and applies the facemask as described above. **During CPR** with a BMV (30:2 compression to ventilation ratio), following each set of 30 compressions, a second rescuer (often, the rescuer performing chest compressions) will squeeze the bag two times, bringing the thumb and long finger together to ventilate. One ventilation for an adult should deliver approximately 500ml of air over 1 second.

Each ventilation should take 1 second and achieve chest rise.



Photo credit: ACSI

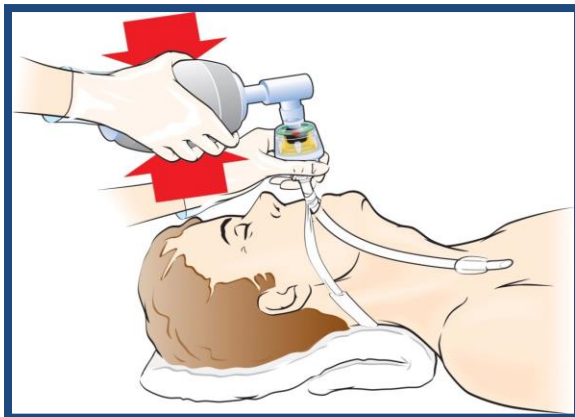
REMOVE THE RESQ POD IF PULSE RETURNS

The ResQ POD is a CPR tool used to improve circulation during chest compressions. It does not assist in ventilations. Remove the pod if pulse returns, but keep near patient in case of

CPR WITH A SECURE AIRWAY (SGA OR ET TUBE)

Once the airway is secured with a SGA or ET tube, move the ResQ POD to the tube, turn on the timing assist lights, and continue chest compressions without interruption for ventilations.

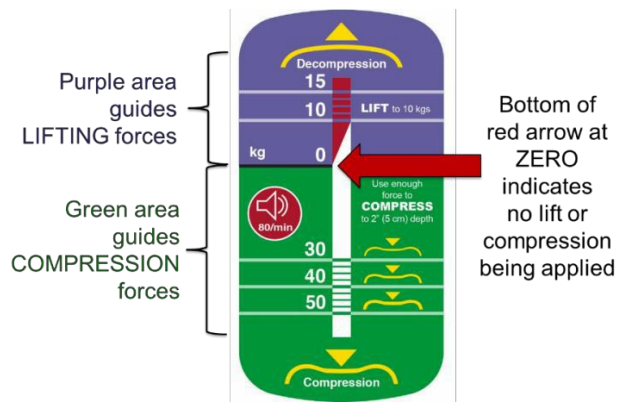
Ventilations are performed at the rate of 8-10/min. The timing assist lights are independent of inspiratory impedance function. If the timing lights fail to operate correctly, continue CPR with the ResQ POD in place and ventilate the patient 10/min. With chest compressions performed at the recommended rate of at least 100/min, you may count compressions and provide one ventilation every 10 compressions.



PRACTICE YOUR CPR SKILLS FREQUENTLY

Good CPR takes training **AND** practice. Practice with the ResQ POD on both the facemask and secure airways. Research in skills training for healthcare providers demonstrates that **students continue to show improvement in both knowledge and skills after 4 training sessions**

AC/DC



Considerations:

- Call for additional manpower early
- Rotate compressors often (at least 2 min)
- Use pads for elevation
- Monitor quality of compressions/decompressions
- If quality cannot be maintained go back to hands on (no pump) compressions
- Suction cup will migrate, monitor location

