State of Wisconsin

Emergency Medical Responder (EMR) Core Skills

Standards & Procedures of Practical Skills Manual

August 2013

This manual is intended to provide examples of tried and proven techniques of caring for patients with the various injuries or illnesses that emergency medical responder personnel will encounter in the field. It does not provide the only method or technique that may be an acceptable approach in caring for an injury or illness. However, since the certification examinations used within the state are based on the current edition of this document as well as the current edition of the National EMS Educational Standards, the State of Wisconsin Scope of Practice, and is a companion to the emergency medical responder curriculum, it is an advantage to use these skill procedures as the basis for practice. This is a consensus document, endorsed by the EMS Training Centers, the Department of Health Services, the Bureau of Communicable Diseases and Emergency Response - EMS Program, as well as the EMS Physician Advisory Committee.

The Bureau of Communicable Diseases and Emergency Response - EMS Program, Wisconsin's EMS State Medical Director, the EMS Physician Advisory Committee, as well as regional and local physician medical direction are charged with developing and promulgating these minimum standards of care for emergency medical responder personnel.

This manual contains descriptions of those skills included in the scope of practice for the emergency medical responder. The scope of practice for each level of provider and local protocol shall define which of these skills may be used at the local level.

State of Wisconsin – Standards & Procedures of Practical Skills
Emergency Medical Responder – Core Skills

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SECTION 1 – BLOOD PRESSURE MEASUREMENT

TEACHING POINTS

OBJECTIVES:
1. To consistently obtain an accurate blood pressure measurement through the use of auscultory and palpatory methods.

IMPORTANT POINTS:
1. Use appropriate body substance isolation precautions.
2. Correctly size and position the blood pressure cuff.
3. Locate the brachial artery pulse in the antecubital space.
4. Inflate the cuff 30 mm Hg above the point at which the pulse is lost.
5. Deflate cuff proportionate to the rate of the pulse and record the results.

SKILL PROCEDURE:

A. PALPATION METHOD:
1. Position the patient with the arm at heart level.
2. Apply the cuff snugly around the extremity with the lower edge at least one (1) inch above the antecubital space with the cuff's bladder centered over the brachial artery.
3. Palpate the brachial or radial pulse.
4. Inflate the blood pressure cuff to 30 mm Hg above the point at which the pulse disappears.
5. Deflate cuff slowly while noting the reading at which the pulse is felt to return.
6. Record systolic blood pressure as #/P.

Too large a cuff will give a false low reading.
Too small a cuff will give a false high reading.

B. AUSCULTORY METHOD:

1. Position the patient with the arm at heart level.
2. Apply the cuff snugly around the extremity with the lower edge at least one (1) inch above the antecubital space and the cuff's bladder centered over the brachial artery.
3. Insert stethoscope earpieces in ears with earpieces pointing slightly forward: test diaphragm for sound conduction by gently tapping on diaphragm.
4. Palpate or auscultate brachial artery while inflating cuff to 30 mm Hg above the loss of pulse.
5. Deflate cuff slowly with stethoscope diaphragm over brachial artery, noting the systolic and diastolic pressures.

TEACHING POINTS

SECTION 2 – LIFTING AND MOVING PATIENTS

OBJECTIVES:
1. To provide mechanisms of patient movement and transport, which eliminate or minimize the potential for further patient injury.
2. To provide mechanisms of patient movement and transport, which provide the greatest degree of patient and rescuer safety.

IMPORTANT POINTS:
1. Use appropriate body substance isolation precautions.
2. The greatest danger in moving a patient quickly is the potential of aggravating a spine injury.
3. Always pull in the direction of the long axis of the patient's body.
4. Do not pull a patient sideways; avoid bending or twisting the patient's torso.
5. The patient should be supine whenever possible.

I. EMERGENCY MOVES: When using emergency moves it is assumed the patient must be moved to a position of relative safety immediately and no time is available to begin an assessment or provide spinal immobilization.

SKILL PROCEDURE:

A. BLANKET DRAG:
   1. Place patient on blanket.
   2. Drag blanket in direction of long axis of patient's body.
      a. Keep head as close to floor as possible.
      b. Move patient head first whenever possible.

Only three emergency moves are listed here; there are many more acceptable emergency moves.

B. CLOTHES DRAG:
   1. Grasp patient's clothing pulling from the neck or shoulder area.
   2. Drag in direction of the long axis of the patient's body.
      a. Keep patient's head as close to the floor as possible.
      b. Drag in direction of the long axis of the body.

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C. ONE-RESCUER DRAG:
   1. Place hands under the patient's armpits from the back.
   2. Grasp the patient's forearms and drag in the direction of the long axis of the body.

II. URGENT MOVES: Urgent moves are required when the patient must be moved quickly but adequate time is available to perform an initial assessment and provide spinal immobilization precautions.

IMPORTANT POINTS FOR URGENT MOVES:
1. The greatest danger in moving a patient quickly is the potential of aggravating a spine injury.
2. Always pull in the direction of the long axis of the patient's body.
3. Do not pull a patient sideways; avoid bending or twisting the patient's torso.
4. The patient should be supine whenever possible.

SKILL PROCEDURE:

A. RAPID EXTRICATION (Patient sitting in vehicle):
   1. First rescuer brings cervical spine into neutral, in-line position and provides manual stabilization.
   2. Second rescuer applies cervical immobilization device (rigid cervical collar).
   3. Third rescuer positions the foot-end of a long spineboard at the door opening, then moves to opposite side of patient.
   4. Second rescuer supports and stabilizes the patient's torso as the third rescuer frees the patient's legs.
   5. At the direction of the rescuer holding manual C-spine stabilization, the patient is rotated in several short, coordinated moves until the patient's back is in the open doorway and his/her legs are on the seat.
   6. The end of the long spineboard is placed against the patient's buttocks. Additional rescuers support the opposite end of the board as the first and second rescuers lower the patient to the board.
   7. The second and third rescuers slide the patient into the proper position on the board in short coordinated moves while the first rescuer maintains manual C-spine stabilization.
   8. First rescuer maintains manual stabilization as the patient is moved to a place of relative safety.

Manual C-spine stabilization may need to be transferred between rescuers during body rotation because of vehicle obstacles.

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B. HORSE COLLAR EXTRICATION (patient sitting)

IMPORTANT POINTS FOR HORSE COLLAR EXTRICATION (patient sitting) :

1. This is to be used as an emergency extrication of a patient when their condition does not allow the time required to apply full head and torso immobilization with a short extrication device such as fire or other hazardous situation or when only one rescuer is available.

SKILL PROCEDURE:

1. Hold a full size cloth blanket diagonally at opposite corners: Loosely swing like a jump rope to make a bulky, long cravat.
2. Position the blanket for C-spine control and movement.
   a. Place the middle of the blanket behind the patient's neck.
   b. Bring the ends over the shoulders.
   c. Cross the blanket in front of the chest.
   d. Pass the ends under the armpits.
   e. Cross the ends behind the patient's back.
3. Hold the blanket ends close to the armpits.
4. Tilt the patient's upper body to clear the doorframe as needed.
5. Slide the patient off and lower into a sitting position onto the ground or directly on to a long spineboard.
6. Lower the patient to a supine position.

Manual C-spine stabilization may be done if time and personnel allow.

Hold the blanket snuggly against the neck to provide support.

Twisting the ends may provide better stabilization and control of the patient.

III. NON-URGENT MOVES: Non-urgent moves are those moves, which are used when adequate time is available to perform a thorough assessment and provide all appropriate immobilization precautions.

SKILL PROCEDURE:

A. DIRECT GROUND LIFT (no suspected spinal injury):
   1. Two or three rescuers line up on one side of the patient.
   2. Rescuers kneel on one knee (preferably the same knee for all rescuers).
   3. The rescuer at the head places one arm under the patient's neck and shoulders while cradling the patient's head. S/he places the other hand under the patient's lower back.

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4. The second rescuer places one arm under the patient's knees and the other arm just above the patient's buttocks.
5. If a third rescuer is available, s/he should place both arms under the patient's waist and the other rescuers should slide their arms either up to the mid-back or down to the buttocks as appropriate.
6. On signal, the rescuers lift the patient to their knees and roll the patient toward their chests.
7. On signal, the rescuers stand and move the patient to the stretcher.
8. To lower the patient, the steps are reversed.

B. EXTREMITY LIFT (no suspected spinal or extremity injuries – patient supine):
1. Properly position the stretcher beside the patient.
2. One rescuer kneels at the patient's head and one kneels at the patient's side by the knees.
3. The rescuer at the head places one hand under each of the patient's shoulders while the rescuer at the foot grasps the patients wrists and pulls the patient to a sitting position.
4. The rescuer at the head slips his/her hands under the patient's arms and grasps the patient's wrists.
5. The rescuer at the patient's feet places his/her hands under the patient's knees
6. Both rescuers move to a crouching position.
7. Both rescuers stand simultaneously and move with the patient to the stretcher.

C. SUPINE TRANSFER - Direct Carry:
1. Position the stretcher perpendicular to the bed with the head end of the stretcher at the foot of the bed or the foot end of the stretcher at the head of the bed.
2. Both rescuers stand between bed and stretcher, facing patient.
3. First rescuer slides arm under patient's neck and cradles patient's head and shoulders.
4. Second rescuer slides hands under patient's hips and lifts slightly.
5. First rescuer slides other arm under patient's back.
6. Second rescuer places arms under hips and calves.
7. Rescuers slide patient to edge of bed.
8. On signal, patient is lifted and curled toward rescuer's chests.
9. Rescuers rotate and place patient gently on stretcher.

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D. SUPINE TRANSFER – Draw Sheet Method:
   1. Loosen bottom sheet beneath patient.
   2. Position stretcher next to and parallel to bed.
   3. Prepare stretcher and adjust to bed height.
   4. Rescuers then reach across stretcher and grasp sheet firmly at the patient's head, chest, hips and knees.
   5. On signal, slide the patient gently onto stretcher.

If a transfer board is used, it should be placed over the seam formed between the stretcher and bed.

E. STAND AND PIVOT (seated patient)

IMPORTANT POINTS FOR STAND AND PIVOT (seated patient):
1. The patient must be able to bear some weight.
2. One or two rescuers may be used.
3. Position the cot close to the patient with its height about the same as a chair seat.
4. The cot must be stabilized to avoid movement.

SKILL PROCEDURE:
1. While facing the patient, grasp the patient by the waistband or under the armpits.
2. On the rescuer's count, assist the patient to a standing position.
3. Assist the patient in turning (pivoting) so their posterior is toward the cot.
4. Once the patient's legs are touching the cot, lower the patient to a seated position.
5. Position the patient on the cot.

The patient may want to hold onto the rescuer's shoulders. If the patient has footwear that will easily slide on the floor's surface, the rescuer may need to stand toe-to-toe with the patient to prevent slipping.

Secure patient to device at chest, thighs and legs. Secure hands as appropriate.

F. EQUIPMENT MOVES:
   1. Stair Chair- Follow manufacturer's instructions for proper use.
   2. Stretchers – Follow manufacturer's instructions for proper use.

TEACHING POINTS

SECTION 3 – AIRWAY AND RESPIRATORY MANAGEMENT

OBJECTIVES:

1. To create a properly functioning oxygen delivery system, through the assembly of individual components, capable of providing appropriate oxygen concentrations for the purpose of patient resuscitation and inhalation therapy.
2. To provide the proper positioning of an unconscious patient for the purpose of maintaining patency of the patient's airway.
3. To facilitate the patency of a patient's airway through the use of basic and advanced airway adjuncts.
4. To create a properly functioning suction system, through the assembly of individual system components, capable of removing foreign materials, blood, fluids and bodily secretions from the upper airway.
5. To facilitate the removal of foreign body and/or displaced body tissues from the patient's upper airway through appropriate use of the Magill forceps and laryngoscope .
6. To provide adequate resuscitation and/or ventilatory assistance through the use of adjunct airway devices to include: the bag-valve-mask, pocket mask, and flow restricted oxygen powered ventilation device (FROPVD).

IMPORTAINT POINTS:

1. Use appropriate body substance isolation precautions.
2. Always position the patient properly to assure an open airway.
3. Open the airway using the head-tilt/chin lift or jaw thrust maneuvers.
4. Modifications for maintaining the airway may be necessary due to the patient's injuries and/or condition.
5. Confirm a patent airway by observing chest rise and fall, and air exchange.
6. Artificial ventilation should never be delayed if airway adjuncts are not readily available.

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I. OXYGEN ADMINISTRATION/DISCONTINUANCE

IMPORTANT POINTS FOR OXYGEN ADMINISTRATION/DISCONTINUANCE :

1. Use appropriate body substance isolation precautions.
2. Oxygen cylinders must be handled carefully since the contents are under high pressure.
3. Selection of a delivery device will depend on the patient's condition.
4. Regulators reduce the cylinder's pressure to a safe level and regulate the flow of gas in liters per minute.

SKILL PROCEDURE:

A. OXYGEN ADMINISTRATION:
   1. Identify oxygen cylinder by color, correct pin code and 100% USP marking
   2. Remove protective cap or tape.
   3. Quickly open and close cylinder valve to "crack" so as to remove any impurities, which may have accumulated on the mating surfaces between the tank and regulator.
   4. Attach regulator and flowmeter and ensure a leakproof seal.
   5. Turn on cylinder and check pressure gauge to insure adequate pressure.
   6. Attach appropriate delivery device to flowmeter.
   7. Adjust flow control to deliver recommended level.
   8. Fit delivery device to patient.
   9. Check adequacy of flow to patient.

Cylinders should retain a safe residual volume of 500 psi or per local protocol.

B. OXYGEN DISCONTINUANCE:
   1. Remove oxygen delivery device from patient.
   2. Shut off cylinder and bleed regulator.
   3. Return flowmeter control to "off" position.

II. PATIENT POSITIONING (Non-trauma, unresponsive, breathing patient)

IMPORTANT POINTS FOR PATIENT POSITIONING (Non-trauma, unresponsive, breathing patient) :

1. Use appropriate body substance isolation precautions.
2. This position may be useful for maintaining a patent airway and preventing aspiration in

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patients who are unable to properly protect their own airway.
3. Airway, ventilations and vital signs should be monitored continuously.

SKILL PROCEDURE:
A. RECOVERY/LATERAL RECUMBANT POSITION:
1. Roll the patient onto their side while supporting the head and neck.
2. Flex uppermost leg and position knee to support weight.
3. Position lower arm out behind patient or place lower arm and forearm under head for support.
4. Position upper arm alongside patient's face to assist in supporting weight.
5. Ease patient's head back and jut chin to facilitate airway.

III. OROPHARYNGEAL AIRWAY INSERTION (Unresponsive patient with no gag reflex)

IMPORTANT POINTS FOR OROPHARYNGEAL AIRWAY INSERTION (Unresponsive patient with no gag reflex):
1. Use appropriate body substance isolation precautions.
2. Always measure airway.
3. Use jaw thrust without head-tilt for patients with possible cervical spine injury.
4. Tongue depressor or similar device may be used to ease insertion.

SKILL PROCEDURE:
1. Select airway by measuring from the corner of the patient's lips to the bottom of the earlobe or angle of the jaw.
2. Open mouth using cross-finger technique.
3. Insert airway.
a. Adult only – with tip pointing toward roof of mouth, insert airway until point touches soft palette, rotate 180 degrees into position with flange resting against lips or teeth.
b. Adult, child or infant – Using a tongue depressor or similar device. Move the patient's tongue forward and down. Insert airway in anatomical position so as to follow the normal curvature of the oropharynx until the flange rests against the lips or teeth.
4. Check for adequate air exchange.

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IV. NASOPHARYNGEAL AIRWAY INSERTION (Responsive or unresponsive patient)

IMPORTANT POINTS FOR NASOPHARYNGEAL AIRWAY INSERTION (Responsive or unresponsive patient) :

1. Use appropriate body substance isolation precautions.
2. If resistance is felt, remove and try other nare.

SKILL PROCEDURE:

1. Visualize the nares and select a nasopharyngeal airway slightly smaller in diameter than the patient's largest nare.
2. Size the device by measuring from the tip of the patient's nose to the tip of the earlobe or angle of the jaw.
3. Lubricate the distal surface of the airway with water or a water soluble lubricant.
4. Insert the airway into the nare.
   a. If placed in the right nare, insert so as to follow the normal anatomical curvature of the nasopharynx with the bevel toward the septum. Direct it along the floor of the nose and into the oropharynx.
   b .If placed in the left nare, invert the airway so the bevel of the airway follows the septum of the nose. Once the tip of the airway reaches the nasopharynx, rotate the airway 180 degrees to resume alignment with the normal anatomical curvature of the nasopharynx. Continue to insert the airway into the oropharynx.
5.. Check for adequate air exchange.

V. PHARYNGEAL SUCTION

TEACHING POINTS

IMPORTANT POINTS FOR PHARYNGEAL SUCTION :

1. Use appropriate body substance isolation precautions.
2. Always measure flexible catheter.
3. Use cross-finger technique or tongue blade devices to prevent rescuer and/or patient injury.
4. Apply suction after reaching insertion depth.
5. Suction the mouth first, then the nose on infants.

SKILL PROCEDURE:

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A. FLEXIBLE/RIGID TIP:
1. Attach suction tip to suction device.
2. Measure flexible catheter from tip of earlobe to corner of mouth to determine insertion length.
3. Switch on suction unit (or begin pumping) and insure suction is present.
4. Open mouth using cross-finger technique or tongue blade device.
5. Insert suction device to oropharynx with no suction at tip.
6. Suction across oropharynx (maximum of 15 seconds for adult patient).
7. Remove device while maintaining suction.
8. Flush system with water as necessary.
9. Check for adequate air exchange.

Do not lose sight of the distal tip of rigid wands.

For pediatric patients, shorter suction time should be used.

B. BULB SYRINGE (infants):
1. Squeeze air from bulb prior to insertion.
2. Gradually reduce pressure on bulb to provide suction while removing from nose or mouth.
3. Check for adequate air exchange.
4. Repeat as necessary.

IX. BAG-VALVE-MASK VENTILATION

IMPORTANT POINTS FOR BAG-VALVE-MASK VENTILATION:
1. Use appropriate body substance isolation precautions.
2. This technique should be used with supplemental oxygen to deliver high concentrations of oxygen.
3. Inflate only enough to make chest rise visibly.
4. The bag-valve-mask may be used on patients who are not breathing or patients who are breathing but not exchanging adequate amounts of air.
5. This procedure should be performed as a two rescuer technique whenever possible.
6. Appropriate C-spine considerations should be taken when managing patients with potential spinal injuries.

Discuss pediatric pop-off valves.

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SKILL PROCEDURE:

1. Select and insert appropriate airway adjunct.
2. Select adult, pediatric or infant size bag-valve-mask and assemble components.
3. Attach oxygen supply to bag-valve-mask; adjust oxygen supply to recommended level.
4. Seal mask on patient's face while maintaining head-tilt, chin-lift or attach to advanced airway adjunct fitting.
5. Squeeze bag, ventilating patient according to AHA guidelines.
6. Observe chest rise and fall with each ventilation. If no chest rise, reassess equipment, technique and patient.
7. If two rescuers are available, one rescuer uses two hands to maintain the airway and mask seal, while the second rescuer uses two hands to compress the bag to provide ventilations

Do not delay ventilations to attach supplemental oxygen.

Use modified jaw thrust with C-spine stabilization if potential for spinal injury exists.

X. FLOW-RESTRICTED, OXYGEN-POWERED VENTILATION DEVICE (FROPVD)

IMPORTANT POINTS FOR FLOW-RESTRICTED, OXYGEN-POWERED VENTILATION DEVICE (FROPVD) :

1. Use appropriate body substance isolation precautions.
2. Prolonged depression of ventilation button may result in gastric distention.
3. Proper airway positioning minimizes the potential of gastric distention.
4. The FROPVD is not recommended for use with pediatric or chest trauma patients.
5. Must be reduced to deliver no more than 40 LPM of oxygen.
6. May be used by spontaneously breathing patients.
7. Follow local medical protocols governing the use of this device.
8. Appropriate C-spine considerations should be taken when managing patients with potential spinal injuries.

SKILL PROCEDURE:

1. Connect device to oxygen source.
2. Open cylinder and check for leaks.
3. Select and insert appropriate airway adjunct, if indicated.
4. Press ventilation button to clear line and check operation.
5. Seal mask on patient's face while maintaining head-tilt, chin-lift or attach to advanced

Use modified jaw thrust with C-spine

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airway adjunct fitting.	stabilization if potential for spinal injury exists.
6. Depress ventilation button until patient's chest rises.	
7. Release ventilation button and observe patient's exhalation.	
8. Ventilate per AHA guidelines.	

XI. POCKET MASK

IMPORTANT POINTS FOR POCKET MASK:

1. Use appropriate body substance isolation precautions.
2. Oxygen concentrations will be increased by attaching supplemental oxygen.
3. Appropriate C-spine considerations should be taken when managing patients with potential spinal injuries.

SKILL PROCEDURE:

1. Select and insert properly sized oropharyngeal or nasopharyngeal airway, if available	Do not delay ventilations to attach supplemental oxygen.
2. Unfold pocket mask as appropriate and attach one-way valve.	
3. If available, attach oxygen delivery tube to oxygen source and to mask inlet.	
4. Turn on oxygen and adjust liter flow to recommended level.	Use modified jaw thrust with C-spine stabilization if potential for spinal injury exists.
5. While maintaining head-tilt, chin-lift, seal mask on patient's face.	
6. Ventilate patient through one-way valve attached to mask until chest rises.	
7. Allow patient to exhale while maintaining mask seal to face.	
8. Ventilate per AHA guidelines.	Remove one-way valve when attaching pocket mask to bag-valve device.

TEACHING POINTS

SECTION 4 – PATIENT ASSESSMENT

General Information:
The assessment process recognizes that trauma patients and medical patients have different assessment priorities. Patients may be divided into four broad categories: Medical patients who are responsive; Medical patients who are not responsive; Trauma patients with a significant mechanism of injury (MOI); and, Trauma patients without a significant mechanism of injury. Trauma patients are assigned a category based on severity, or potential severity, of their injuries. Medical patients, on the other hand, are assigned based on their ability to participate, or not participate, in the assessment rather than on the severity of their illnesses.

OBJECTIVES:

1. To determine the presence or absence of actual or potential hazards which pose a threat to the health and safety of rescuers, patients or bystanders during rescuer operations and/or during transport.
2. To determine the presence or absence of injury or illness through a systematic assessment process incorporating inspection, auscultation, palpation, and the taking of a patient history.

Safety is paramount throughout the call.

IMPORTANT POINTS:

1. Use appropriate body substance isolation precautions.
2. ALWAYS conduct a scene size-up.
3. If a scene is not safe, and cannot be made safe, do not enter.
4. Always obtain a general impression of the patient and conduct an initial assessment of the patient's mental status, airway, breathing and circulation (including a visual check for life-threatening external bleeding) no matter how stable a patient appears.
5. Patients who are not responsive should include those with an altered mental status and those who are unable to respond reliably or provide a history.
6. Intervene immediately to correct any life-threatening problem.
   Remember: Any airway, breathing, circulation problem or severe external bleeding, which cannot be managed during the initial assessment, mandates urgent transport with continued efforts to manage the problem en route.
7. A patient's condition may deteriorate rapidly. Perform frequent reassessments of the patient's mental status, airway, breathing and circulation.
8. If the patient becomes unstable at any time, immediately repeat the initial assessment.

TEACHING POINTS

SKILL PROCEDURE:

A. SCENE SIZE-UP:
1. Determine the Nature of Illness (NOI) or Mechanism of Injury (MOI).
   a. En route to scene:
      1) Dispatch information.
      2) Other units at scene.
   b. Upon arrival at scene:
      1) Inspect the scene.
      2) Patient, family, witnesses, bystanders, other rescuers.
2. Use appropriate body substance isolation precautions.
3. Determine whether the scene is safe.
   a. Environmental considerations.
   b. Social considerations.
   c. Crime scene considerations.
   d. Unruly or violent persons.
   e. Unstable surfaces.
   f. Other hazards.
   g. If the scene is not safe, make it safe, or do not enter.
4. Determine the number of patients.
5. Determine the need for, and request, additional resources prior to patient contact.

B. INITIAL ASSESSMENT:
1. Form a general impression of the patient as you approach, while telling the patient your first name and explaining that you are an EMR.
   a. Establish approximate age.
   b. Establish gender.
   c. Identify chief complaint.
   d. Assess environment clues.

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e. Identify any obvious life-threatening conditions requiring urgent intervention.
f. Intervene immediately to correct any life-threatening conditions.

2. Assess the patient's mental status and provide C-spine stabilization as appropriate.
   a. Speak to the patient.
   b. **A**lert.
      Responds to **V**erbal stimuli.
      Responds to **P**ainful stimuli.
      Unresponsive.
3. Assess the patient's airway .
   a. Is the patient talking or crying?
      1) Yes: Assess breathing.
      2) No: Open airway.
4. Assess the patient's breathing.
   a. If the patient is not responsive, but breathing is adequate, open and maintain the airway and initiate oxygen therapy.
   b. If the patient is not breathing adequately, open and maintain the airway, initiate oxygen therapy, utilize appropriate adjuncts and/or assist ventilations.
   c. If the patient is not breathing, open and maintain the airway, utilize appropriate adjuncts and ventilate with supplemental oxygen.

Discuss normal rates and adequate breathing for all age ranges.

5. Assess the patient's circulation.
   a. Pulse – present.
      1) Less than one-year-old: Palpate the brachial artery.
      2) More than one-year-old and responsive: Palpate the radial artery.
      3) More than one-year-old and unresponsive; or more than one-year-old with absent radial pulse: Palpate carotid pulse.
   b. If pulse – absent:
      1) Initiate CPR.
      2) Implement AED protocol as appropriate.
   c. Assess and control major external bleeding.
   d. Assess skin color, temperature and condition (Assess capillary refill in patients under six years or age).
   e. Expose the patient, as needed.
   f. Establish a field impression and differential diagnosis.
6. Determine the patient's transport priority, consider ALS back-up.

TEACHING POINTS

C. FOCUSED HISTORY AND PHYSICAL EXAM:

1. Assign the patient to one of the four patient assessment categories to determine which of the following items apply to that patient. The sequence in which these items are performed may depend on circumstances, the number of available EMRs and the presence of life-threatening problems requiring urgent intervention. Remember: The patient's priority is constantly being evaluated and subject to change.
2. Reconsider NOI or MOI as necessary.
3. Obtain a SAMPLE history.
   a. **S**igns and symptoms.
   b. **A**llergies.
      1) Medicines.
      2) Foods.
      3) Environmental.
   c. **M**edications.
      1) Prescriptions.
      2) Over-the-counter.
      3) Alternative medication, herbal supplements.
   d. **P**ertinent/past medical history.
      1) Heart disease.
      2) Diabetes.
      3) Seizures.
      4) Recent hospitalizations.
      5) Recent injuries.
      6) Medical patients: previous similar episodes.
   e. **L**ast oral intake.
   f. **E**vents leading to the injury or illness.

TEACHING POINTS

4. Assess baseline vital signs.
   a. Breathing - rate, rhythm and quality.
   b. Pulse - rate, rhythm and quality.
   c. Blood pressure.
   d. Pupils.
   e. Skin color and condition (Capillary refill under 6 years of age) – if not previously done.
5. Perform an appropriate physical exam.
   a. Physical assessment conducted for a responsive medical patient or a trauma patient with no significant mechanism of injury should be based on the patient's chief complaint.
   b. Rapid trauma assessment or rapid assessment for unresponsive medical.
      1. Check for deformities, contusions, abrasions, penetrations, burns, tenderness, lacerations and swelling (DCAP/BTLS).
      2. While maintaining manual stabilization, apply cervical collar only after neck has been assessed.
      3. Assess for obvious signs of trauma, plus:
         a. Head: Crepitus.
         b. Neck: Jugular vein distention, crepitus.
         c. Chest: Paradoxical motion, crepitus, bilateral breath sounds (mid-axillary, mid-clavicular).
         d. Abdomen: Rigidity, guarding, distention.
         e. Pelvis: Gently compress for pain or crepitus, inspect for incontinence, priapism.
         f. All extremities: Distal circulation, movement and sensation.
      4. Roll patient taking appropriate spinal precautions, and assess posterior.

6. Assess history of present illness (OPQRST).
   a. **O**nset.
   b. **P**rovocation.
   c. **Q**uality.
   d. **R**adiation.
   e. **S**everity.
   f. **T**ime.

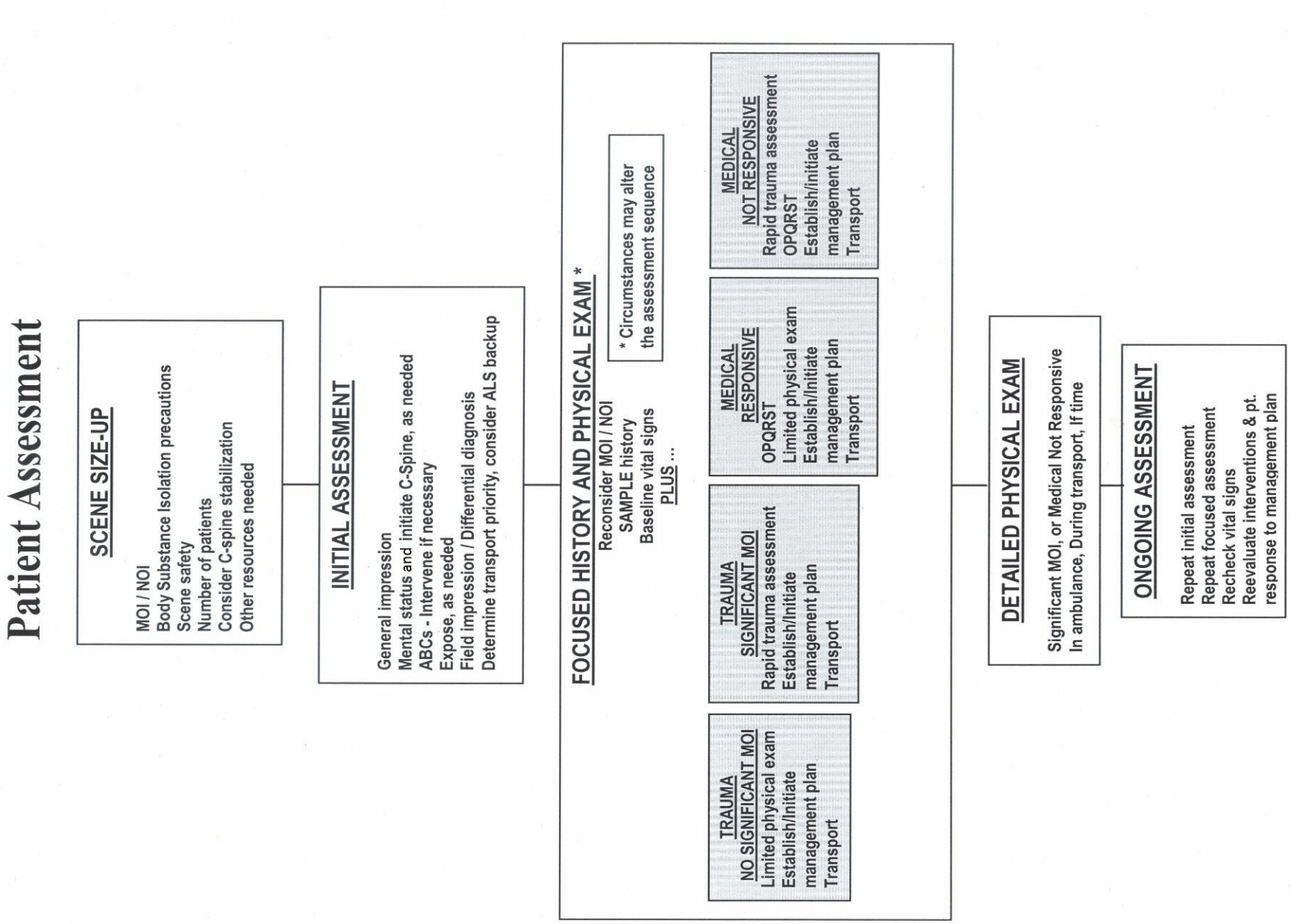
OPQRST may be used for evaluating pain associated with trauma injuries.

7. Establish a management plan and initiate appropriate interventions.
8. Reevaluate transport decision.

TEACHING POINTS

D. DETAILED PHYSICAL ASSESSMENT:
1. Limited to the patient with a significant MOI or medical not responsive.
2. Performed as time permits, in the ambulance, during transport.
3. Repeat rapid trauma assessment with emphasis on:
   a. Ears: Drainage or blood, cerebral spinal fluid.
   b. Eyes: Discoloration, equality, foreign bodies, blood in the anterior chamber.
   c. Nose: Drainage of blood or cerebral spinal fluid.
   d. Mouth: Loose or missing teeth, obstructions, soft tissue injuries.
   e. Careful evaluation for potentially subtle signs on trunk and extremities.

E. ONGOING ASSESSMENT:
1. Repeat initial assessment and reassess vital signs.
   a. At least every five minutes for urgent, unstable or deteriorating patients.
   b. At least every fifteen minutes for non-urgent, stable patients.
   c. Any time the patient's condition is noted to change.
2. Repeat focused assessment regarding patient's chief complaint or injuries.
3. Reevaluate effectiveness of interventions and patient response to treatment.
   a. Adequacy of oxygen delivery, assisted ventilations or artificial ventilations.
   b. Management of soft tissue injuries.
   c. Adequacy of other interventions.


Patient Assessment
SCENE SIZE-UP
MOI / NOI
Body Substance Isolation precautions
Scene safety
Number of patients
Consider C-spine stabilization
Other resources needed
INITIAL ASSESSMENT
General impression
Mental status and initiate C-Spine, as needed
ABCs - Intervene if necessary
Expose, as needed
Field impression / Differential diagnosis
Determine transport priority, consider ALS backup
FOCUSED HISTORY AND PHYSICAL EXAM *
Reconsider MOI / NOI
SAMPLE history
Baseline vital signs
PLUS ...
* Circumstances may alter the assessment sequence
TRAUMA
NO SIGNIFICANT MOI
Limited physical exam
Establish/Initiate management plan
Transport
TRAUMA
SIGNIFICANT MOI
Rapid trauma assessment
Establish/Initiate management plan
Transport
MEDICAL
RESPONSIVE
OPQRST
Limited physical exam
Establish/Initiate management plan
Transport
MEDICAL
NOT RESPONSIVE
Rapid trauma assessment
OPQRST
Establish/initiate management plan
Transport
DETAILED PHYSICAL EXAM
Significant MOI, or Medical Not Responsive
In ambulance, During transport, If time
ONGOING ASSESSMENT
Repeat initial assessment
Repeat focused assessment
Recheck vital signs
Reevaluate interventions & pt. response to management plan

TEACHING POINTS

SECTION 5 – CARDIAC MANAGEMENT

I. CARDIOPULMONARY RESUSCITATION

All Cardiopulmonary Resuscitation procedures shall be performed as directed in the current American Heart Association guidelines.

II. AUTOMATED EXTERNAL DEFIBRILLATION

All AED procedures shall be performed as directed in current American Heart Association guidelines in concurrence with local protocols (a suggested protocol is available through the Department of Health Services Emergency Medical Services program website).

TEACHING POINTS

SECTION 6 – MANAGEMENT OF SOFT TISSUE INJURIES

OBJECTIVES:

1. To control external bleeding.
2. To prevent further injury and reduce pain.
3. To prevent further wound contamination and reduce the potential of subsequent infection.
4. To secure dressings through the application of appropriate bandaging techniques.

GENERAL INFORMATION:

1. Use appropriate body substance isolation precautions.
2. Expose the wound site to determine the extent of injury.
3. Control bleeding by using the following techniques as needed: direct pressure, pressure dressing, elevation, pressure points, cold application and tourniquet.
4. Use sterile dressings.
5. Cover the entire wound site with the sterile surface of the dressing.
6. Apply bandage snugly, making certain not to cut off circulation distal to injury site.
7. Secure the dressing(s) with roller gauze or cravats applying gentle, even pressure over the wound site.
8. Use the patient's brow ridge, chin and occipital ridge as necessary to provide natural anchoring points for bandaging.
9. If the chin is used, monitor the patient carefully for airway problems. Cut bandage and fold flaps up if bandage interferes with airway or causes patient discomfort.
10. Immobilize the injury site as appropriate.
11. Consider shock and prevent/treat as appropriate: oxygen, patient positioning, maintenance of body temperature.
12. Circulation, motion, and sensation (CMS) should be checked frequently and bandaging adjusted to maintain a pulse if necessary.
13. Always consider the Mechanism of Injury (MOI).
14. Suspect cervical spine injury with significant MOI.

TEACHING POINTS

I. HEAD

IMPORTANT POINTS FOR HEAD:

1. Do not exert point pressure to scalp if underlying fracture is suspected.
2.. Do not pack nose or ear to stop blood or cerebral spinal fluid (CSF) flow.

SKILL PROCEDURE:

A. HEAD (side wound):
   1. Open dressing to preserve sterile surface.
   2. Apply sterile surface to wound site and control bleeding.
   3. Anchor bandage securely under brow and occipital ridges.
   4. Cover dressing completely with bandage.
   5. Exert even pressure over entire wound site with finished bandage.
   6. Leave eyes uncovered; leave ears either completely covered or completely uncovered.

B. HEAD (top wound):
   1. Open dressing to preserve sterile surface.
   2. Apply sterile surface to wound site and control bleeding.
   3. Anchor bandage securely under brow and occipital ridges.
   4. Bring bandage over dressing and under chin and tighten down over dressing.
   5. Cover dressing completely and apply even pressure with bandage over area.
   6. Anchor bandage securely by making additional wraps around head, securing under brow ridge and occipital ridge.
   7. Cut bandage under chin and fold ends up if it interferes with the airway.
   8. Make last few turns around brow, overlapping folded section.

II. EYE

IMPORTANT POINTS FOR EYES:

1. If areas around eye are lacerated but the eyeball is not involved, use direct pressure to control bleeding.
2. If eyeball injury is suspected, close eye and apply loose dressing.
3. If chemical burn is involved, irrigate eye with normal saline continuously.
4. If thermal burns are involved, apply dressing moistened with sterile saline solution.

TEACHING POINTS

5. If light burns are involved, cover eyes with moist, lightproof pads.
6. Cover both eyes when injury occurs as consensual eye movement may cause further injury.
7. Never touch the globe or the penetrating object with your hand.
8. The finished bandage should hold the eye and/or penetrating object in place.
9. Maintain verbal and physical contact with the patient as you explain your actions.
10. Always irrigate from the bridge of the nose outward in order to avoid infecting or contaminating the uninjured eye.

SKILL PROCEDURE:

A. EYE INJURY – Non-penetrating:
   1. Have patient close eyes.
   2. Apply sterile surface of dressing to injury(ies).
   3. Secure bandage around head, anchoring under occipital ridge.
      a. Bandage snugly if eyeball is uninjured.
      b. Bandage loosely if injury to the globe is suspected.
   4. Cover both eyes with finished bandage; do not occlude mouth or nose.
   5. Restrain patient's hands to keep from touching the eye area as needed.

B. EYE INJURY – Penetrating:
   1. Surround injured eye with sterile padding.
   2. If penetrating object, cut hole in end of cup just large enough for object to pass through.
   3. Place cup or cone over eye, resting it on pads, but do not touch the eye.
   4. Secure the cup/cone to head with bandage wrapped around cup and then around head anchoring on occipital ridge.
   5. Wrap bandage to cover uninjured eye, leaving the nose and mouth exposed.
   6. Restrain patient's hands as necessary to prevent patient from touching the bandaged area.

Do not cut a hole in dressings or padding as it may leave small particles of fabric in the eye.

III. NECK

IMPORTANT POINTS FOR NECK:

1. Use an occlusive dressing to prevent air embolus from being sucked into jugular vein.
2. DO NOT use a circumferential bandage around the neck.

TEACHING POINTS

SKILL PROCEDURE:
1. Place dressing over wound.
2. Secure dressing in place by wrapping the bandage over the dressing and over the top of the opposite shoulder, crossing under the axilla and back again to form a figure eight.
3. Unless contraindicated, transport patient on left side in recovery position with head slightly downward.

IV. TORSO

IMPORTANT POINTS FOR TORSO:
1. Chest injuries can be life threatening and must be assessed and treated immediately.
2. Penetrating objects should be left in place unless they interfere with the patient's ability to breathe or maintain an airway.
3. Penetrating objects must be removed if CPR is necessary.
4. All open or penetrating injuries to the chest or abdomen must be sealed with an occlusive dressing.
5. Large penetrating objects should be shortened to facilitate transport or provide stabilization.
6. Control bleeding with direct pressure around organs, never on top of them.
7. Look for multiple entry/exit wounds with any form of penetrating trauma.
8. Use sterile solution soaked dressings on protruding organs.
9. Administer high flow oxygen and assist ventilations as appropriate.
10. Transport patients rapidly to the closest appropriate medical facility.
11. Consider ALS intercept early where available.

SKILL PROCEDURE:

A. OPEN CHEST (SUCKING CHEST):
   1. Immediately apply manual pressure to seal wound after patient forcibly exhales.
   2. Apply and secure an occlusive dressing.
   3. Auscultate for breath sounds.
   4. Closely monitor patient for signs of deterioration.

B. PENETRATING OBJECT:
   1. Stabilize object with hand(s).
   2. If in chest, upper abdomen or neck area, apply occlusive dressing surrounding the base

TEACHING POINTS

of the object.
3. Stack bulky dressings in alternating layers to stabilize object from all sides.
4. Secure dressings with bandage to control bleeding and immobilize the object.
5. Restrain patient's hands as necessary to prevent patient from removing object.
6. Transport rapidly in position of comfort.

C. ABDOMINAL EVISCERATION:
1. Cover exposed or protruding organs with a sterile dressing moistened with sterile saline.
2. Cover with occlusive dressing to prevent moisture loss.
3. Cover with bulky dressings to preserve body warmth.
4. Secure dressings loosely in place.
5. Transport patient in supine or lateral recumbent position with knees flexed.

D. SHOULDER

IMPORTANT POINTS FOR SHOULDER:
1. May be accompanied by fractures or dislocations.
2. Suspect C-spine injury with significant MOI.

SKILL PROCEDURE:
1. Apply sterile dressing to wound and control bleeding with direct pressure.
2. Check CMS distal to injury prior to applying bandages.
3. Position forearm flexed across chest and bring upper arm along line of body.
4. Wrap bandage around body, covering wounded arm and crossing under arm on the uninjured side to secure dressing.
5. Recheck CMS distal to injury.

E. AXILLARY

IMPORTANT POINTS FOR AXILLARY:
1. Dressing of axillary wounds can easily impair circulation. Check CMS often.

SKILL PROCEDURE:
1. Apply sterile surface of dressing to wound and control bleeding with direct pressure.

TEACHING POINTS

2. Check CMS distal to injury prior to applying bandages.
3. Add dressings over the first to achieve bulk as necessary.
4. Bandage around injured armpit and shoulder.
5. Position forearm flexed across chest, hand pointing toward opposite shoulder. Recheck CMS.
6. Wrap bandage around body, over outside surface of arm on injured side and under opposite shoulder.
7. Recheck CMS distal to injury.

F. EXTERNAL GENITALIA

IMPORTANT POINTS FOR EXTERNAL GENITALIA:
1. Preserve the patient's privacy.
2. Expose genitalia only if wound is suspected.

SKILL PROCEDURE:
1. Apply sterile dressing to wound site and control bleeding.
2. Secure the dressing by running a bandage over dressing, between legs and around pelvis.

V. EXTREMITIES

IMPORTANT POINTS FOR EXTREMITIES:
1. Remove patient's jewelry from the affected extremity.
2. Elevate extremity to reduce pain and control bleeding, if circulation is present.
3. Leave digits exposed whenever possible.

SKILL PROCEDURE:

A. HAND:
   1. Check CMS.
   2. Apply sterile surface of dressing to wound and control bleeding.
   3. Place bandage roll or dressing in palm of hand to maintain position of function.
   4. Anchor bandage around wrist.
   5. Wrap hand to prevent release from position of function.
   6. Achieve some restriction of wrist joint movement with bandage.
   7. Place hand in elevated position.

Leave fingertips exposed to check CMS.
Consider use of splint to restrict

TEACHING POINTS

8. Recheck CMS distal to injury. movement.

B. AMPUTATION/AVULSION

IMPORTANT POINTS FOR AMPUTATION/AVULSION:
1. Save all amputated or avulsed parts. Transport with patient whenever possible. Dry or moist dressing per local protocol.
2. Wrap in a sterile dressing.
3. Protect in watertight container.
4. Keep part(s) cool during transport, but do not allow to freeze.

SKILL PROCEDURE:
1. Apply sterile dressing to wound and control bleeding with direct pressure.
2. Wrap bandage around circumference of extremity and pass bandage several times across end of stump to achieve pressure over bleeding area, then secure with several additional circumferential turns.
3. Keep stump elevated, if possible.
4. If partially attached:

a. Fold skin flap back over wound.
b. Secure with sufficient pressure to control bleeding.
c. Keep partial amputation cool.

VI. BURNS

IMPORTANT POINTS FOR BURNS:
1. Make certain the scene is safe to enter.
2. Always take appropriate hazard precautions as well as body substance isolation precautions.
3. Burns involving the hands, feet, face or genitalia should be considered critical burns.
4. Any burns associated with respiratory injuries are critical injuries.
5. Burn patients are especially susceptible to shock (hypoperfusion) and hypothermia.
6. Care must be taken to minimize the potential for infection when dealing with burn patients.
7. Never use any type of ointment, lotion or antiseptic.
8. Avoid breaking blisters.

TEACHING POINTS

SKILL PROCEDURE:

A. THERMAL BURNS:
   1. Stop the burning process as rapidly as possible using water or saline.
   2. Remove jewelry and any easily removable clothing or debris from the affected area.
   3. Continually monitor the airway and breathing for signs of airway impairment or respiratory distress.
   4. Prevent further contamination of the burned area.
   5. Cover the wound with a clean and dry dressing.
   6. Treat for shock.
   7. Transport.

Avoid dressings that may leave fragments in burn injuries.

B. ELECTRICAL BURNS:
   1. Do not attempt to remove a patient from the electrical source unless trained to do so.
   2. Do not touch a patient unless you are certain s/he is no longer in contact with the electrical source .
   3. If appropriate, and after assuring no electrical threat remains, stop the burning process as rapidly as possible using water or saline.
   4. Remove jewelry, and any easily removable clothing, or debris from the affected area.
   5. Continually monitor the airway and breathing for signs of airway impairment or respiratory distress.
   6. Prevent further contamination of the burned area.
   7. Treat any soft tissue injuries or fractures associated with the burn. Look for multiple entry/exit wounds.
   8. Cover any exposed burned area with a dry, sterile dressing.
   9. Treat for shock.
   10. Transport.

TEACHING POINTS

C. CHEMICAL BURN:
   1. Always consider the potential impact of hazardous materials. Patient(s) should not be transported until primary decontamination is completed.
   2. Brush dry powders off prior to flushing.
   3. Remove jewelry and any easily removable clothing or debris from the affected area.
   4. Flush the affected areas with large quantities of water or saline.
   5. Continue flushing the contaminated area(s) during transport.
   6. Do not contaminate uninjured or unaffected areas while flushing.
   7. Continually monitor the airway and breathing for signs of airway impairment or respiratory distress.
   8. Prevent further contamination of the burned area.
   9. Treat any soft tissue injuries associated with the burn.
   10. Treat for shock.
   11. Transport.

Refer to Emergency Response Guidebook or other resources.

TEACHING POINTS

SECTION 7 – PNEUMATIC ANTI-SHOCK GARMENT

OBJECTIVES:
1. To define the indications and contraindications for the use of the pneumatic compression trousers.
2. To define the manner in which the PASG can be used to stabilize suspected pelvic fractures and apply circumferential pressure to suspected intra-abdominal bleeding accompanied by signs of shock.

IMPORTANT POINTS:
1. Use appropriate body substance isolation precautions.
2. PASG may be applied without inflation to any patient having the potential to develop shock. A systolic blood pressure of 90 mm HG or less, associated with signs and symptoms is generally regarded as a prime indicator for inflation. However, protocols vary.
3. Inflate the PASG based on protocol.
4. The only absolute contraindication to inflation is pulmonary edema.
5. There are relative contraindications to inflation of all three compartments.
6. Inflation should be only to a level at which shock symptoms subside. Careful and frequent monitoring of the vital signs after inflation is essential.
7. Do not deflate in the field unless ordered to do so by medical control.

NOTE: Extreme circumstances may arise when the PASG may be deflated in the field, but only under authority of Medical Control. (Field deflation is not a generally accepted practice.)

SKILL PROCEDURE:

A. INFLATION:
1. Assess patient for and record signs/symptoms of shock. If spinal injury is suspected, maintain spinal stabilization.
2. Determine and record the patient's blood pressure.
3. Leave deflated blood pressure cuff in place on patient.
4. Auscultate breath sounds.
5. Remove clothing from patient's abdomen and lower extremities.
6. Assess patient's abdomen, pelvis and lower extremities for wounds or fractures. Record

Check for wet or dry breath sounds.

TEACHING POINTS

findings.
7. Cover any open wounds with sterile dressings and bandage in place.
8. Restore alignment of extremity fractures, if possible.
9. Contact medical control, if required by local protocol, for permission to inflate garment. If medical control contact is not required, proceed according to local protocol.
10. Open and arrange anti-shock garment.
11. Apply anti-shock garment.
    a. Method One:
        1) Lift patient's lower extremities and buttocks, sliding the garment beneath the patient.
        2) If spine injury is suspected, use orthopedic stretcher, log roll or straddle slide to position patient.
    b. Method Two:
        1) Loosely secure all three compartments.
        2) One rescuer puts pants over his/her arms from the foot end and grasps the patient's ankles.
        3) Other rescuers pull garment onto patient like a pair of trousers.
12. Verify that the superior edge of the garment is just inferior to the patient's costal margin.
13. Secure garment – legs then abdomen.
14. Attach inflation pump lines to garment and open all in-line valves.
15. Inflate garment until:
    a. Patient's clinical status improves satisfactorily, or
    b. Velcro fasteners begin to crackle, indicating separation, or
    c. Air escapes from relief valve(s).
16. Close all in-line valves.
17. Leave inflation pump attached to garment during movement and transport.
18. Reassess and record, immediately and at frequent intervals en route to the hospital, the patient's:
    a. Blood pressure.
    b. Pulse rate.
    c. Respiratory status.
    d. Level of consciousness.

Open all in-line valves on garment except if ordered otherwise by medical control or in cases in which protocol indicates that a specific compartment is not to be inflated.

Monitor respiratory status during inflation. Stop inflation if respiratory distress worsens.

TEACHING POINTS

B. PASG DEFLATION PROCEDURE :

NOTE: Extreme circumstances may arise when the PASG may be deflated in the field, but only under authority of Medical Control. (Field deflation is not a generally accepted practice.)

IMPORTANT POINTS FOR PASG DEFLATION PROCEDURE :

1. Deflate the PASG only on the order of a physician who has examined the patient in the emergency department..
2. Deflate only after appropriate resuscitative and stabilization measures have been accomplished
3. Deflate only with direct physician supervision.

SKILL PROCEDURE:

1. Assure the patient has functioning IV lines.
2. Assess and record the patient's vital signs.
3. Gradually deflate the abdominal section of the garment.

a. Monitor blood pressure carefully.
b. For each 4 - 6 mm Hg drop in the patient's blood pressure, stop deflation and infuse fluids until stabilized at baseline level.
c. If blood pressure continues to drop despite infusion, re-inflate garment and reassess resuscitation.

4. After abdominal deflation, gradually deflate each leg segment while monitoring blood pressure and resuscitating as above.
5. If blood pressure cannot be stabilized during deflation, garment inflation will be maintained into the surgical setting.
6. Following deflation of the garment, blood gases and electrolytes will be assessed and corrected as necessary.

TEACHING POINTS

SECTION 8 – MUSCULOSKELETAL INJURIES

OBJECTIVES:

1. To immobilize suspected fractures and /or dislocations by adequate immobilization of skeletal structure distal and proximal to the injury site.
2. To apply manual stabilization and utilize appropriate splinting techniques.
3. To determine the presence or absence of circulation, movement and sensation distal to the injury site.
4. To restore normal circulation distal to injury sites whenever possible and appropriate, with one attempt to align with gentle traction before splinting.
5. To reduce the potential of further injury to nerves, blood vessels and soft tissue surrounding the injury site.
6. To reduce hemorrhage and pain at the injury site and thereby reduce and/or minimize the potential of injury related shock.

Movement to restore normal circulation will depend upon local protocol.

GENERAL PRINCIPLES:

1. Use appropriate body substance isolation precautions.
2. Control external bleeding, as needed.
3. Prevent further wound contamination and reduce the potential of subsequent infection by covering open wounds with a sterile dressing.
4. Assess circulation, movement and sensation (CMS) prior to and following splint application; loosen splint, if necessary, to regain pulse.
5. Prevent further injury and reduce pain by immobilizing the joint above and below a long bone injury.
6. Prevent further injury and reduce pain by immobilizing the bone above and below a joint injury
7. Remove clothing from affected area prior to splinting.
8. Pad as appropriate to prevent pressure and discomfort to patient.
9. Consider application of cold packs to injury site to reduce swelling.
10. Always consider the Mechanism of Injury (MOI).
11. Suspect cervical spine injury with significant MOI.
12. Consider shock and prevent/treat as appropriate: oxygen, patient positioning, maintenance of body temperature.
13. Use of commercial splints should be in accordance with manufacturer's directions.

TEACHING POINTS

I. THORAX

IMPORTANT POINTS FOR THORAX:

1. Use appropriate body substance isolation precautions.
2. Provide oxygen and assist ventilations as necessary.
3. Monitor patient closely for signs and symptoms of a pneumothorax.
4. Stabilize chest wall injuries at the patient's maximum point of exhalation.
5. In injuries involving the shoulder girdle, it is important to immobilize the entire shoulder girdle.
6. Immobilize in position found, or position where pulse is regained.

SKILL PROCEDURE:

A. RIB INJURIES:
   1. Position forearm of injured side across chest, hand slightly elevated toward opposite shoulder and secure with roller bandage or sling and swathe
   2. If using a sling and swathe, place triangular bandage under and over arm with point at elbow and two ends tied around patient's neck. Knot should be to the side of the neck
   3. Pin or tie end to form cup to support elbow
   4. Transport in sitting or semi-sitting position, if patient's condition allows

Encourage and facilitate deep breathing.

B. FLAIL CHEST:
   1. Immediately apply manual stabilization of the flail segment.
   2. Secure the flail segment with a bulky dressing.
   3. Place patient in the supine position or on injured side while maintaining spinal immobilization as appropriate.
   4. Provide oxygen and assist ventilations as necessary.

If circumferential wrap is used, care should be taken to ensure adequate tidal volume.

C. SHOULDER INJURIES:
   1. Check CMS distal to the injury.
   2. Splint the arm and shoulder in position found, or the position where a distal pulse is regained. Pad void between arm and chest as appropriate.
   3. Wrap wide bandage around injured arm and body to serve as a swathe to pull shoulder back and secure injured arm to body.
   4. Recheck CMS distal to injury.

TEACHING POINTS

D. COLLAR BONE (Clavicle):
   1. Sling and Swathe method.
      a. Check CMS in the extremity on the injured side.
      b. Position the forearm of the injured side across the chest, hand slightly elevated toward opposite shoulder.
      c. Place triangular bandage under and over arm with point at elbow and ends tied around neck.
      d. Pin or tie pointed end to form a cup to support elbow.
      e. Leave fingers exposed to facilitate circulation check.
      f. Wrap wide bandage around injured arm and body as swathe to pull injured shoulder back and secure extremity to body.
      g. Recheck CMS in the extremity on the injured side.
      h. Transport in sitting or semi-sitting position, if patient's condition permits.

      Knot should be placed at side of neck.
   2. Figure of Eight technique:
      a. Check CMS in the extremity on the injured side.
      b. Begin bandage on top of injured shoulder and carry diagonally downward across shoulder blades to opposite armpit.
      c. Continue through and around armpit, over shoulder and down across shoulder blades to armpit on injured side.
      d. Proceed through armpit and up, over shoulder, to starting point.
      e. Repeat procedure for three or more additional turns, overlapping the preceding turn by one-third its width.
      f. Hold shoulders up and back with finished bandage, immobilizing fracture.
      g. Recheck CMS in the extremity on the injured side.
      h. Transport in sitting or semi-sitting position, if patient's condition permits.

E. SHOULDER BLADE (Scapula):
   1. Check CMS in the extremity on the injured side.
   2. Immobilize with sling and swathe as for clavicle fracture.
   3. Recheck CMS in the extremity on the injured side.
   4. Transport in sitting or semi-sitting position, if patient's condition permits.

TEACHING POINTS

II. EXTREMITIES

IMPORTANT POINTS FOR UPPER EXTREMITIES:

1. Use appropriate body substance isolation precautions.
2. Apply and maintain manual stabilization of the extremity until the splinting process is complete.
3. Align severely angulated fractures with gentle traction unless resistance is felt.
4. Do not attempt to replace protruding bone ends into the wound, if present.
5. Injuries involving joints should be immobilized in the position found.
6. Make one attempt to restore circulation distal to an injury site.
7. Avoid applying pressure to the injury site, whenever possible.
8. Remove jewelry from injured extremities, place hands in position of function.
9. Transport patient in sitting or semi-sitting position, as patient's condition permits.

SKILL PROCEDURE:

A. ARM (Humerus):
   1. Check CMS distal to injury site.
   2. Stabilize manually proximal and distal to injury site.
   3. First EMR will straighten any severe angulation with gentle traction above and below the fracture site.
   4. Second EMR will place a rigid splint on the lateral aspect of the arm to maintain alignment and secure in place.
   5. Apply wrist sling and swathe to the injured arm to hold the arm in place, elevating the hand and immobilizing the shoulder.
   6. Recheck CMS distal to injury site.

Slings should support the hand and wrist, but should not encompass the elbow.

B. ELBOW:
   1. Check CMS distal to injury site.
   2. Stabilize manually proximal and distal to injury site.
   3. Immobilize elbow joint, upper arm and forearm with rigid splint.
   4. Secure in place.
   5. Recheck CMS distal to injury site.

Apply a sling and swathe for support and immobilization, as needed.

TEACHING POINTS

C. FOREARM (Radius and Ulna):
   1. Check CMS distal to injury site.
   2. Stabilize manually proximal and distal to injury site.
   3. Place a rigid splint on the entire anterior aspect of the forearm to maintain alignment and secure in place.
   4. Wrap splint and forearm with bandage leaving finger tips exposed.
   5. Apply sling and swathe to keep elbow immobilized and hand pointing slightly upward toward opposite shoulder.
   6. Recheck CMS distal to injury site.

D. WRIST:
   1. Check CMS distal to injury site.
   2. Stabilize manually proximal and distal to injury site.
   3. Immobilize wrist with hand in position of function.
   4. Secure splint and forearm with bandage leaving wrist and finger tips exposed.
   5. Recheck CMS distal to injury site.

Apply a sling and swathe for support and immobilization, as needed.

Capillary refill may be best option for determining circulation for wrist and hand injuries.

E. HAND:
   1. Check CMS distal to injury site.
   2. Stabilize manually proximal and distal to injury site.
   3. Immobilize hand in position of function.
   4. Place a rigid splint on the entire anterior aspect of the forearm to maintain alignment and secure in place, leaving finger tips exposed.
   5. Keep hand elevated.
   6. Recheck CMS distal to injury site.

IMPORTANT POINTS FOR LOWER EXTREMITIES:

1. Use appropriate body substance isolation precautions.
2. Apply and maintain manual stabilization of the extremity until the splinting process is complete.
3. Align severely angulated fractures with gentle traction unless resistance is felt.
4. Do not attempt to replace protruding bone ends into the wound, if present.

Place PASG on long spinal immobilization device before positioning patient.

Do not log roll patient when

TEACHING POINTS

5. Injuries involving joints should be immobilized in the position found. moving to a rigid support device.
6. Make one attempt to restore circulation distal to an injury site.
7. Avoid applying pressure to the injury site, whenever possible.
8. Watch for the development of hypovolemic shock due to internal hemorrhage associated with pelvic, hip and femur fractures.

SKILL PROCEDURE:

A. PELVIC INJURIES:
   1. Check CMS in both lower extremities. PASG may be used as a splinting device as well as an anti-shock device per local protocol.
   2. Immobilize legs by tying knees and ankles together with bandages, padding between thighs and knees, unless this increases patient's pain.
   3. Lift and/or slide the patient as a unit on to a long spinal immobilization device or use orthopedic stretcher. DO NOT log roll patient.
   4. Flex the patient's knees with pillows underneath for comfort, if possible, and secure patient to long spineboard or orthopedic stretcher.
   5. Recheck CMS in both lower extremities.

B. HIP INJURIES:
   1. Check CMS in both lower extremities.
   2. Lift and/or slide the patient as a unit onto a long spinal immobilization device or use an orthopedic stretcher. DO NOT log roll patient.
   3. Support the extremity in the position found using blankets, pillows or similar materials.
   4. Secure the patient to the long spinal immobilization device.
   5. Recheck CMS in both lower extremities.

C. THIGH INJURIES (Femur):
   1. TRACTION SPLINT (Hare style):
      a. First EMR:
         1. Take position at injured extremity out of the way of person applying splint.
         2. Check CMS distal to injury site.
         3. The ankle hitch may be applied at this time.
         4. Grasp and support the calf with one hand. With the other hand, grasp ankle, or ankle hitch strap, in preparation for lifting.
         5. Apply traction sufficient to stabilize the injured thigh until traction can be assumed by splint.

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b. Second EMR:
   1. Adjust the length of the splint by measuring against the length of the uninjured leg and lock securely in place.
   2. Position leg support straps on splint with two proximal to the knee, one distal to the knee and one just proximal to the ankle hitch.
   3. Release traction mechanism and extend traction strap.
   4. Position splint under injured extremity.
   5. Extend or attach heel stand to support splint.
   6. Verify the ischial pad is firmly against the ischial tuberosity.
   7. Firmly secure groin strap using care not to pinch the external genitalia.
   8. If not previously done, apply ankle hitch to patient's ankle so as to maintain foot at right angle to leg when traction is applied.
   9. Attach traction mechanism to ankle hitch.
   10. Tighten traction mechanism until:
      a) First EMR reports mechanical traction equals manual traction.
      b) Patient acknowledges pain relief.
   11. Readjust leg support straps if necessary with two proximal to the knee, one distal to the knee and one proximal to the ankle hitch. — Do not place support strap over fracture site.
   12 .Secure leg support straps.
   13. Recheck CMS distal to injury site.
   14. Secure patient and splint to long spinal immobilization device.

2. TRACTION SPLINT (Sager style):
   a. Check CMS distal to injury site.
   b. Adjust length of splint.
   c. Slide groin strap under injured leg. NOTE: Splint may be applied to either the lateral or medial aspect of the leg.
   d. Secure the groin strap using sufficient padding to insure patient comfort.
   e. Estimate the size of the ankle and fold down the number of pads needed.
   f. Apply the ankle harness snugly around the patient's ankle.
   g. Extend the inner shaft of the splint by holding the shaft lock in the open position and pulling the inner shaft out until the desired amount of traction, per manufacturer's recommendations, is noted on the calibrated wheel.
   g. Apply the longest strap as high up on the thigh as possible.

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h. Apply the second longest strap as low as possible on the thigh.
i. Apply the shortest strap over the ankle harness and lower leg.
j. Apply figure eight strap around both ankles by slipping the strap under the ankles. Cross strap over the heel and secure buckle snugly.
k. Recheck CMS distal to injury site.

3. TRACTION SPLINT (Kendrick Traction Device):

Check manufacturer's instructions.

a. Check CMS distal to injury site.
b. Apply ankle hitch tightly around the leg, slightly above the ankle.
c. Tighten stirrup by pulling the green tabbed strap, until snug under patient's heel.
d. Apply upper thigh system by sliding the pronged portion of buckle under the leg, at the knee, and seesaw upward until positioned in groin area. Secure buckle.
e. Cinch the groin strap until traction pole receptacle is positioned in line with the iliac crest.
f. Extend the traction pole.
g. Place traction pole along the lateral aspect of the injured leg, extending approximately eight (8) inches (one pole section) beyond the bottom of the foot.
h. Insert pole end(s) into traction pole receptacle.
i. Secure yellow elastic strap around knee.
j. Place yellow tab end of blue cinch strap (located on ankle hitch) over the dart end of traction pole.
k. Apply traction by pulling the red tab end of cinch strap until patient comfort improves.
l. Apply upper (red) elastic strap and lower (green) elastic strap around patient's leg and traction pole.
m. Recheck CMS distal to injury site.

D. KNEE INJURIES:
1. Check CMS distal to injury site.
2. Splint the knee in the position found.
3. Immobilize knee joint with rigid splints.
4. Recheck CMS distal to injury site.

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E. LEG INJURIES (Tibia and/or Fibula):
1. Check CMS distal to injury site.
2. Stabilize manually proximal and distal to the injury site.
3. Immobilize with rigid splint(s).
4. Secure in place.
5. Recheck CMS distal to injury site.

When using board splints, apply one medial and one lateral to the leg.
If using one board splint, apply to the posterior aspect of the leg.

F. ANKLE AND FOOT INJURIES:
1. Check CMS distal to injury site.
2. Stabilize manually proximal and distal to injury site.
3. Immobilize with pillow, blanket, or appropriate commercial splinting device, leaving toes exposed.
4. Elevate foot and ankle to reduce edema.
5. Recheck CMS proximal and distal to injury site.

Glossary of Common Abbreviations

ABCs..... **Airway Breathing & Circulation**

AED..... **Automated External Defibrillator or Defibrillation**

AHA..... **American Heart Association**

ALS ..... **Advanced Life Support**

ARC..... **American Red Cross**

ASA..... **Aspirin**

AVPU ..... **Alert, Verbal, Painful, Unresponsive**

BLS ..... **Basic Life Support**

BP ..... **Blood Pressure**

BSA..... **Body Surface Area**

BSI ..... **Body Substance Isolation**

BVM ..... **Bag-valve Mask**

CC ..... **Chief Complaint**

cc ..... **Cubic Centimeter**

CO_2..... **Carbon Dioxide**

C-spine ..... **Cervical Spine**

CID/HID ..... **Cervical Immobilization Device/Head Immobilization Device**

CMS ..... **Circulation, Movement & Sensation**

CNS..... **Central Nervous System**

CPR..... **Cardiopulmonary Resuscitation**

CSF ..... **Cerebral Spinal Fluid**

DCAP/BTLS ..... **Deformities, Contusions, Abrasions, Penetrations, Burns, Tenderness, Lacerations, Swelling**

dL ..... **Deciliter**

EMS..... **Emergency Medical Services**

EMR ..... **Emergency Medical Technician**

ET..... **Endotracheal**

ETC ..... **Esophageal Tracheal Combitube**

IM ..... **Intramuscular**

IV..... **Intravenous**

IVP..... **Intravenous push**

KED..... **Kendrick Extrication Device**

kg ..... **kilogram**

KTD ..... **Kendrick Traction Device**

lbs ..... **Pounds**

LOC..... **Level of Consciousness**

lpm ..... **Liters per Minute**

MAST ..... **Medical (or Military) Anti-Shock Trousers**

mg ..... **Milligram**

mL ..... **Milliliter**

mmHg ..... **Millimeters of Mercury**

MOI..... **Mechanism of Injury**

NOI ..... **Nature of Illness**

NPO..... **Nothing by Mouth**

NTG ..... **Nitroglycerine**

O_2 ..... Oxygen

OB ..... Obstetrics

OPQRST ..... Onset, Provocation, Quality, Radiation, Severity, Time

PASG ..... Pneumatic Anti-Shock Garment

PO ..... By mouth

prn..... as needed, as desired, as necessary

PSI..... Pounds per square inch

pt ..... patient

SAMPLE ..... Signs & Symptoms, Allergies, Medications, Past pertinent medical history, Last oral Intake, Events preceding incident

SC ..... Subcutaneous

SIDS ..... Sudden Infant Death Syndrome

SL ..... Sublingual

SQ ..... Subcutaneous

SOB..... Shortness of Breath

SpO_2..... Saturation percentage of oxygen

S/S..... Signs & Symptoms

USP ..... United States Pharmacopia

VS..... Vital Signs

> ..... Greater than

< ..... Less than

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