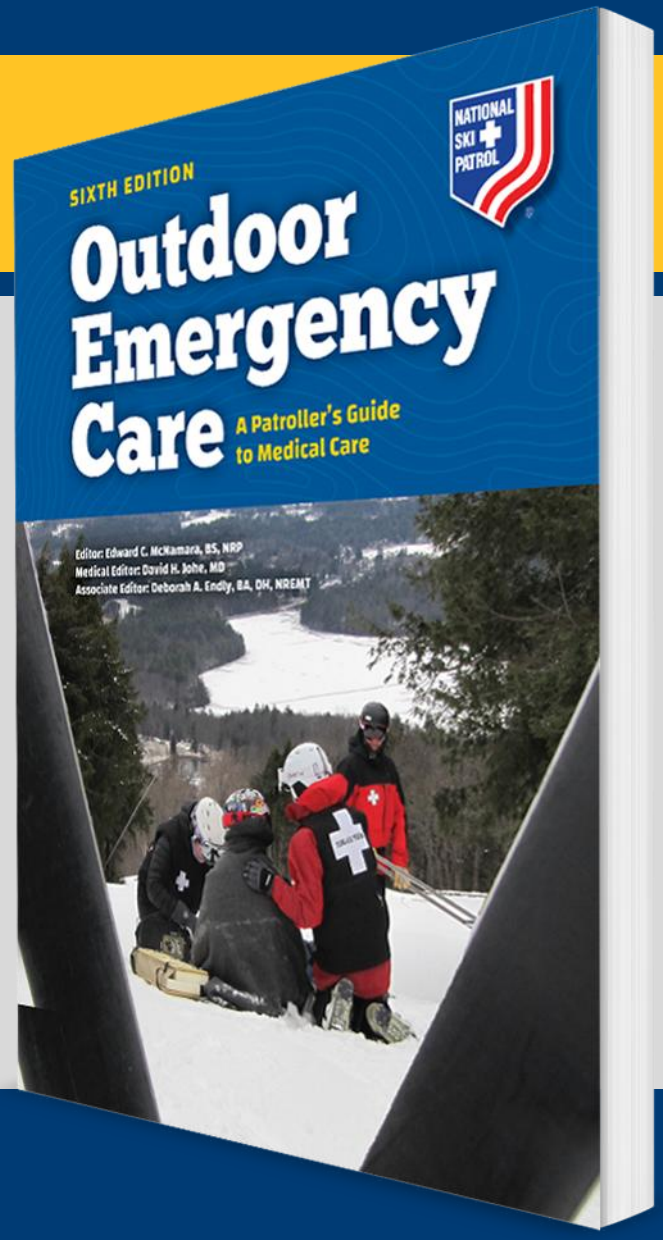
National Ski Patrol



New Skills/Concepts: OEC Cycle B Refresher

Fall 2021 Refresher

Any chance they will convert it to a fully online format due to rising COVID?

It will be IN-PERSON.

- NSP is committed to having an In-Person Skills Based Refresher
- As an organization of medical providers, not practicing in person for 2 full years CANNOT maintain the integrity of our medical care.
- If we are going to provide care in-person, we must train in person.

Cycle B Refresher

- Since our 2020 Cycle A Refresher was converted to a fully online format, the Cycle B Refresher is more robust for Skills.
  - Some skills and concepts are new to the 6th Edition.

- Regardless of edition OEC (or WEC) you took as a candidate, your STANDARD OF TRAINING is the MOST current edition.

GOAL of this Slide Deck:

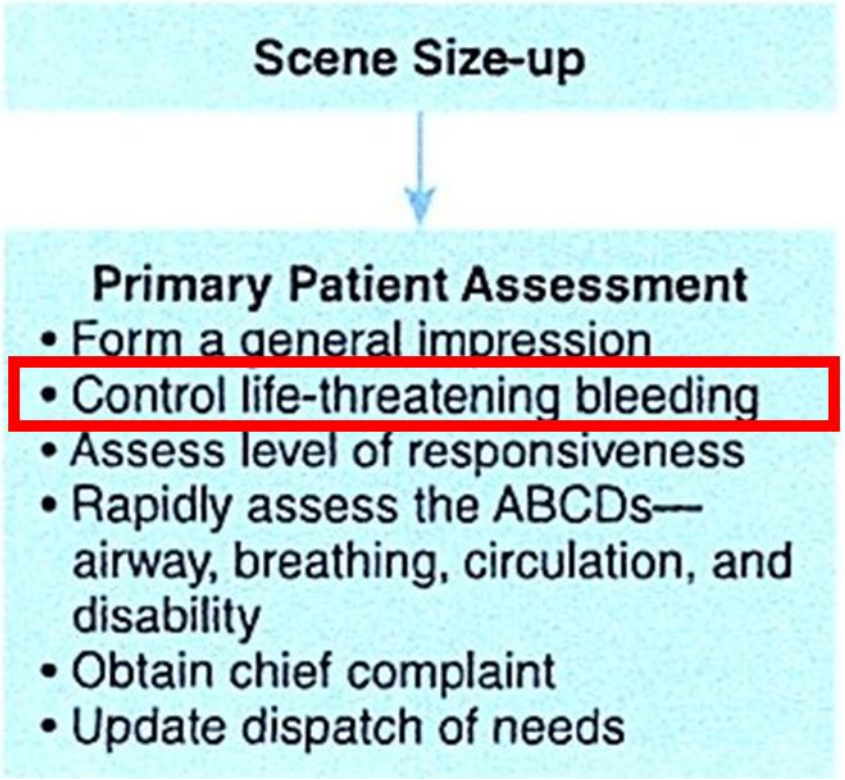
- If you are an *OEC Instructor at Refresher*, you can identify the NEWER concepts to highlight during your station.

- If you are going through your Patrol's Refresher as a *Participant*, you will NOT SLOW DOWN the process.
  - You will know your stuff. Impressive!
  - You will not require remediation.
  - You will finish EARLY!!!

When CABD, rather than ABCD?

When CABD, rather than ABCD?

- As you approach patient, look for and immediately control life-threatening bleeding.
  - This step should occur BEFORE addressing airway or breathing concerns.
    - Blood loss can be very rapid.
    - Can quickly result in shock or even death
    - Death can occur in less than 5 minutes.



What does LIFE-THREATENING bleeding look like?

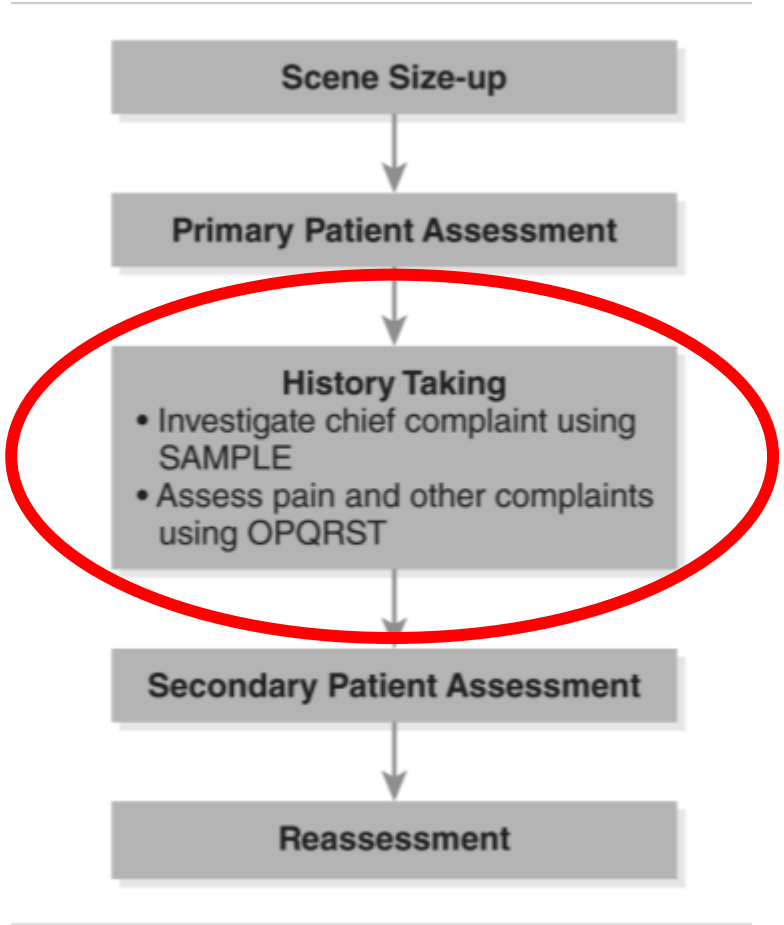
- Blood that is spurting out of the wound
- Blood that won't stop coming out of the wound
- Blood that is pooling on the ground
- Clothing that is soaked with blood
- Bandages that are soaked with blood
- Loss of all or part of an arm or leg
- Serious bleeding in a patient who is now confused or unconscious

Management: Severe Life-Threatening Bleed

- Notify dispatch IMMEDIATELY to call EMS.
- First cover the wound with a sterile dressing or clean cloth and apply pressure with both gloved hands.
- Apply a pressure bandage once controlled.
  - If not controlled: tourniquet or pack wound with gauze or a clean cloth and apply pressure with both hands.
  - Hemostatic dressings may also be used in treating severe bleeding.

OPQRST as critical as SAMPLE?

OPQRST as critical as SAMPLE?



History taking step now emphasizes assesses pain and symptoms using OPQRST.

OPQRST

Table 7-3 OPQRST

O—Onset: When did the symptoms begin?
P—Provocation and palliation: Does anything make the symptoms better or worse?
Q—Quality: Describe the nature of the symptoms. Is it sharp, dull, or throbbing?
R—Radiation: Determine whether the symptoms move from one area to another location or remain in one spot. "I have pain in my chest that radiates to my jaw."
S—Severity: Describe the severity of the symptoms, using a 0–10 scale, with 0 being no pain and 10 being the worst pain they have ever felt.
T—Time: How long has the patient had the problem?

Oxygen Saturation and Pulse Oximetry

Oxygen Saturation as a Vital

- Assess vital signs in the following order:
  1. Level of responsiveness
  2. Pulse rate
  3. Respiratory rate
  4. Blood pressure
  5. Temperature
- Additionally, oxygen saturation is now considered a vital sign by many.
  - Taken with a pulse oximeter

VITALS: What is NORMAL these days?

Table 7-5 Normal Vital Signs

	Adult	Child (1–8 years)	Infant (Birth–1 year)
Pulse (beats/min)	60–100	70–150	90–180
Respirations (breaths/min)	12–20	15–30	20–60 25-60 in Peds Chp
Systolic blood pressure (mm Hg)	90–140	80–110	50–95
Temperature	36.1–38.0°C (97.0–100.4°F)	36.1–38.0°C	36.1–38.0°C
Pulse Oximetry	94 – 99%	> Or = 94%	> Or = 94%
Mental Status	A in the AVPU scale	A in the AVPU scale	A in the AVPU scale

Pulse Oximeter

- A pulse oximeter is a noninvasive device that evaluates oxygenation at the tissue level.
  - Measures oxygen saturation of hemoglobin in red blood cells
- Probe is clipped onto a finger, toe, or earlobe, measuring the oxygenation of the blood in the capillaries.

© Edward McNamara.

Pulse Oximetry: What is NORMAL?

- The “pulse ox” gives a reading of % O2 saturation, or O2 sat.
  - Normal is 94% to 99%**

  ***When a person is breathing room air normally at sea level*

- Patients with an oxygen saturation less than 94% generally require treatment.
  - At high altitude may normally be slightly less than 94%.
  - Some people with chronic lung disease may have lower <u>normal</u> levels than this.

Pulse Oximetry: False Readings

- Factors that can cause false readings include:
  - Nail polish
  - Shock
  - Carbon monoxide poisoning
  - A low red blood cell count
  - Device malfunction
  - Cold weather

Pulse Oximetry: False Readings

- Clinical assessment of the patient generally is more reliable than a pulse oximeter.

- If a patient with a pulse oximetry reading of 94% is cyanotic, breathing fast, and looks ill:
  - Trust your own observations and provide oxygen.

Pulse Oximetry for Oxygen Management

Indications for Oxygen Therapy out in the Field

- Oxygen should be administered:
  - Anyone who is short of breath
  - Patients with:
    - Suspected cardiac or respiratory arrest
    - Cardiac-related chest pain
    - Stroke
    - Significant blood loss
    - Shock
    - Decreased level of responsiveness
    - Significant head injury

Be AWARE of Hyperoxia

- Giving too much oxygen for certain medical conditions can cause hyperoxia which is HARMFUL.
  - Especially COPD patients
  - Also some stroke, cardiac or traumatic brain injury.
- Excess oxygen produces changes to the blood chemistry and the CNS response.
  - Alter breathing inappropriately
  - Make the patient worse

Figure 13-3 This person is suffering from severe COPD.

Reproduced with permission from: Pollack, AN (ed): Emergency Care and Transportation of the Sick and Injured, ed. 11. Rosemont, IL, American Academy of Orthopaedic Surgeons, 2017, p. 609.

Pulse Oximetry

- If you have a pulse oximeter and local protocol allows its use, assess patient's blood oxygen concentration.
  - Typically done once back in aid room (inside).
  - Patient's oxygen saturation should be greater than or equal to 94%.
  - At high altitude, the oxygen saturation may normally be slightly less than 94%.

Digitl ® Finger Pulse Oximeter, Smiths Medical, Retrieved from https://m.smiths-medical.com/~/media/M/Smiths-medical_com/Files/Import%20Files/PM195614EN_LR.pdf.

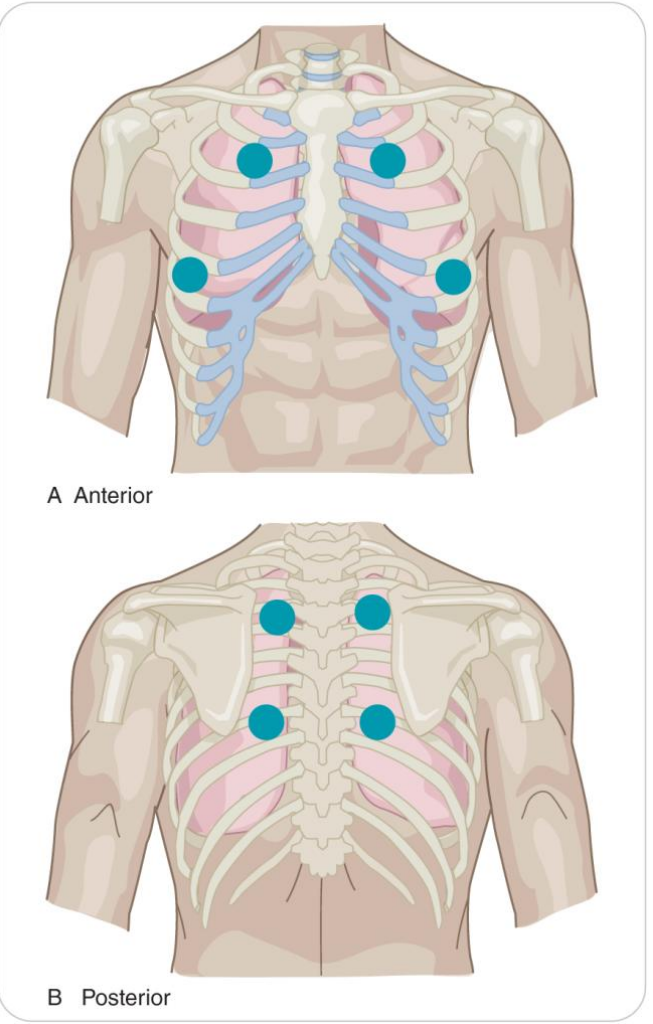
Pulse Oximetry

- After placing a patient on high-flow oxygen (15 LPM), adjust the flow, keeping the patient's oxygen saturation between 94% and 99%.
  - "Start high and titrate low"
  - After each adjustment, wait 1 minute to reassess.
  - Any value below 94% should be given/remain on oxygen.
  - Pulse oximetry is a useful tool for assessing oxygenation trends over time.

Auscultation of Breath Sounds

Auscultation of Breath Sounds: 8 sites (now 4 on back)

- Using the large diaphragm of the stethoscope, listen at each location for approximately 15 seconds.
  - Avoid unnecessary movement or talking.
  - Do not allow the stethoscope tubing to rub against patient's clothing or to bump into anything.
    - Resulting noise can make your assessment more difficult.
- Listen with a stethoscope over the upper and lower chest in both the front and back of patient.



Transportation of a Patient is SHOCK

Transporting a Patient in Shock

- Shock is NO longer a determining factor in the placement of a patient in the toboggan for transport.

- Position patient in toboggan based on:
  - The patient's injuries or illness
  - The care that has been rendered
  - NOT based on shock

- Elevating the legs for shock is no longer recommended.

Elimination of Trendelenburg for Shock

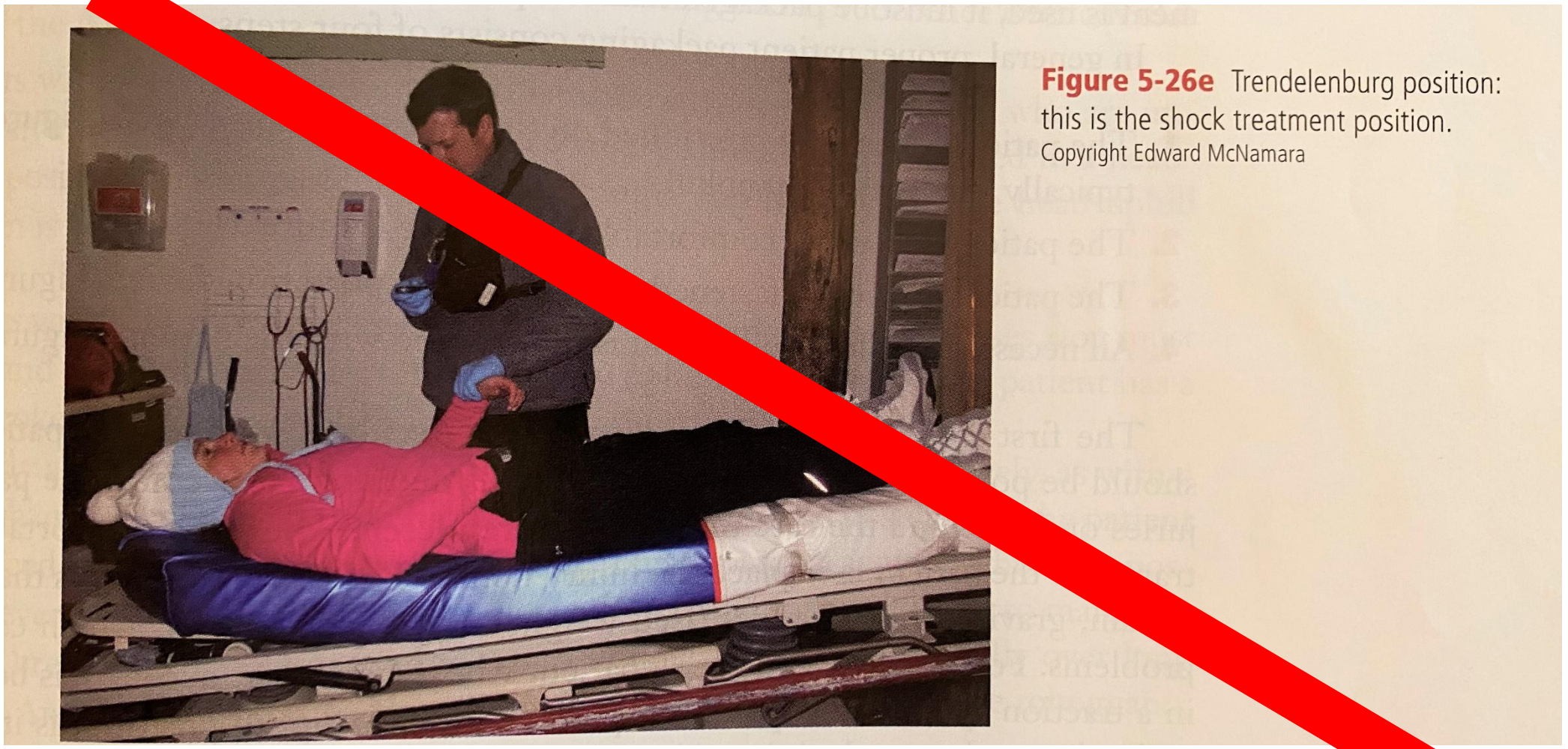


Figure 5-26e Trendelenburg position: this is the shock treatment position.
Copyright Edward McNamara

CV Emergency: Assisting with Aspirin

Management: Aspirin

Aspirin

- Assist a person who is having a myocardial infarction (heart attack) chew and swallow Aspirin as soon as symptoms appear.
  - An adult (325 mg) *OR*
  - Four pediatric (81 mg)
- Most myocardial infarctions are caused by a blood clot in a coronary artery.
  - Clot consists of platelets.
  - Aspirin prevents platelets from sticking together.

Management: Aspirin

To assist a patient in taking aspirin, follow these steps:

1. Confirm that patient is not allergic (to aspirin or wintergreen) and fully responsive (can swallow).
2. Confirm there is no obvious GI bleeding.
   - No vomiting of blood or blood in stool
3. Select the proper dosage of aspirin.
   - One adult buffered aspirin (325 mg per tablet) or four chewable baby aspirins (81 mg)
   - Baby aspirin are preferred and easier for a patient to chew and swallow.
4. Check the expiration date of the aspirin.
5. Instruct patient to chew the aspirin before swallowing it.
6. A sip of water may help get the aspirin into the stomach.

Management: Aspirin

- Document the date, time, and dosage administered.
- Reassess patient frequently, including the vital signs.
- Whenever possible, minimize patient's physical exertion.
  - Exertion increases the oxygen demand on the heart.

CV Emergency: Assisting with Nitroglycerin

Management: Nitroglycerin

Nitroglycerin

- Some patients with angina pectoris may carry their own nitroglycerin.
  - A medication used to relieve chest pain
- This drug may be used only by patient for whom it has been prescribed.
- You may need to assist patient in taking this medicine.
  - If permitted by area, state, or provincial protocols
- Should ALWAYS call for transport and ALS

A

B

A: © Sheila Fitzgerald/Shutterstock;
B: © Tony Savino/Shutterstock.

Management: Nitroglycerin

- Nitroglycerin should be given only to a patient who:
  - Has chest pain
  - Is awake
  - Is responsive
- Contraindications:
  - Expired
  - Not prescribed for that patient
  - Systolic blood pressure is less than 100 mm Hg
  - Three doses of nitroglycerin already for this episode of chest pain
  - Used a medication for erectile dysfunction (e.g., Viagra, Levitra, Cialis) within the past 24 hours
  - Chest pain is due to trauma (is not cardiac in origin)

Management: Nitroglycerin

1. Check systolic blood pressure to ensure it is over 100 mmHg,
2. Check to make sure the medication is prescribed for this patient and that it has not expired.
3. Put on your disposable gloves, and then remove one tablet from the bottle and place the tablet in the patient's hand.
4. Instruct the patient to place the medication under his tongue and to allow it to dissolve completely. Tell the patient not to chew or swallow the tablet. If necessary, assist the patient by putting the medication in place once the patient has lifted his tongue.

Management: Nitroglycerin

- If patient is still experiencing chest pain:
  - Assist patient in taking two more doses of nitroglycerin.
    - A total of three doses
    - At 5-minute intervals
- This total of three doses includes any taken immediately before your arrival.
- Recheck patient's blood pressure after each dose.
  - If systolic pressure is less than 100 mm Hg, do not give more nitroglycerin.

Management: Nitroglycerin

- After:
  - Reassure patient of commonly occurring symptoms with Nitroglycerin.
    - May have a burning sensation beneath the tongue
    - May get a headache
- Document in your notes the date, time, and dosage at which the drug was administered.
- Reassess frequently and recheck the vital signs at regular intervals.

Management of Soft Tissue Injury: RISE

RISE: The *NEW* RICE

- In 2019, the founder of RICE (Rest, Ice, Compression, and Elevation) recommended a modification known as RISE.

- Ice is still recommended immediately after the injury.
  - Helps by the numbing effect (for PAIN, not SWELLING)
  - Ice the injury for 5 minutes at a time with at least 30 minutes off.
  - Always put a cloth between the ice and the skin so you do not freeze the tissue.

RISE: The *NEW* RICE

- Compression is no longer recommended.
  - Compression dressings, such as an ACE bandage, may cause an unwanted tourniquet effect on an extremity.
  - Can damage skin and soft tissue while decreasing blood flow that starts the healing process
  - SPLINTING is now considered appropriate care.

OEC Skill 19-7: Treating Closed Soft-Tissue Injuries

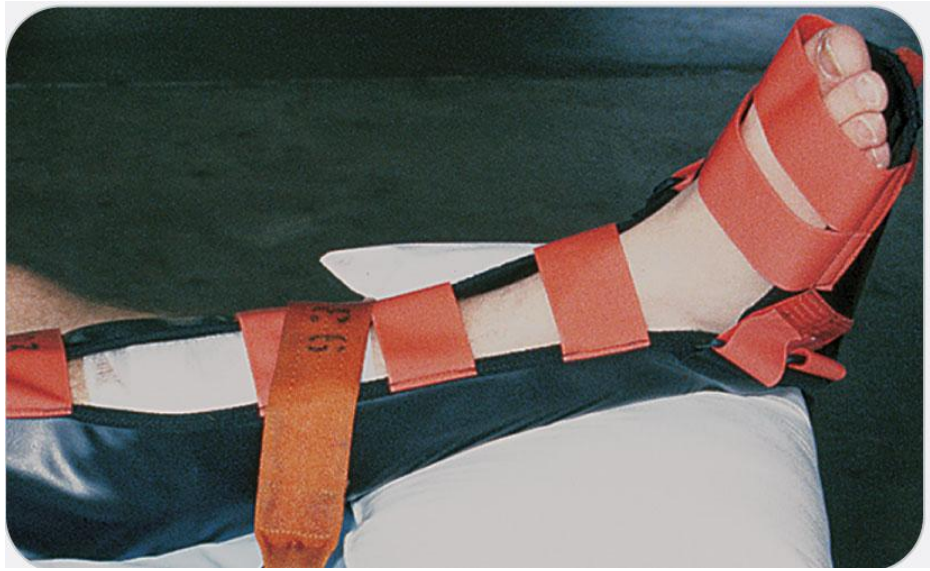
- 1. R—Rest: Cease activity or the use of the affected limb. Inactivity helps to reduce pain.

- 2. I—Ice: Apply cold packs or ice for pain control. Use only for short intervals.

OEC Skill 19-7: Treating Closed Soft-Tissue Injuries

- 3. S—Splint: Immobilize the injured part using either a commercial splint or one fabricated from available materials. Splinting helps decrease pain.

- 4. E—Elevate: Elevate the injured area above heart level to reduce pain.



Pelvic Injury: Assessment and Management

Assessing a Pelvis

- Integrity of pelvis:
  - Palms on iliac crests and apply GENTLE but firm pressure inward (medial).
  - Bone crepitus, increased pain, or tenderness suggest potential pelvic fracture.
  - Palpate pubic bone GENTLY.
    - Patient's hand flat on pubic bone and gently push on patient's hand.
- Observe for ominous signs of shock (Hypovolemic Shock)
  - Rising Pulse Rate
  - Falling Systolic Blood Pressure
  - Decreasing LOR

Assessing a Hip

- Gently push medially (inward) on hip, feeling for tenderness and bone stability.
- Examine each leg individually.
  - Using two hands, start near the groin and gently but firmly palpate down the femur to the knee.
  - Note any deformity.
- Observe both legs for displacement:
  - Affected leg will be shortened and depending on injury may be rotated.
- Pain associated with a fractured hip can be extreme and located in the groin and/or inner thigh (sometimes referred to the knee).

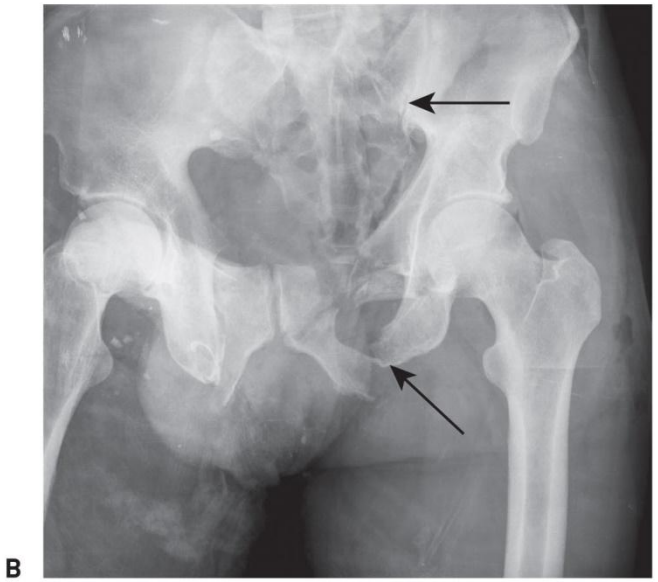
Management: Pelvis Fractures

- First apply a pelvic binder for a fractured pelvis, which will slow down the internal bleeding.
  - Move any patient with a possible pelvic fracture as little as possible.
  - More movement means more internal bleeding.
- Commercial binders are better than a “homemade” sheet binder, but if only a sheet is available, use a sheet.
  - Studies published in 2019 show the commercial SAM pelvic binder may be superior.

Lifting or Sliding the Patient: Pelvic Fracture

Special Case: Pelvic Fractures

- Do NOT log roll unless absolutely necessary.
- Using a BEAN lift is the preferred method.
- Pelvic fractures are unstable, and the blood clotted around each fracture site can become disturbed by logrolling.
  - Increased internal bleeding and possibly shock



Application of a Sheet Binder

- Dig out the snow/material under the pelvis and slide the sheet binder under the patient.
  - If needed, perform a bridge lift to place the patient on top of the sheet.
  - Avoid log rolling unless absolutely necessary.
- Place the sheet roughly 1 to 2 inches below the iliac crests.
- Draw the two ends of the sheet together over the symphysis pubis, compressing the hips together.
- Tie the sheet ends together snugly.

Lifting or Sliding the Patient: Pelvic Fracture

- After the application of a pelvic binder, gently use the BEAN lift.
  - If not enough manpower for a lift, considered including sliding the patient onto the board lengthwise.
- Be highly suspicious of spinal column injury:
  - Spinal Motion Restriction with a cervical collar is suggested.
    - Very painful, possibly distracting injury.
  - Protect the spine by keeping it straight as you minimally lift, and be gentle with the pelvis.
- All patients with pelvic injuries should be transported to a hospital.
  - Highly vascular nature of the pelvis
  - Potential life-threatening bleeding