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The Wilderness ­ Context

In the back country, minimal equipment, no access to advanced medical care, potentially extreme weather, and the possibility that it may be hours or days until advanced medical care arrives all create a situation distinct from the front country where there is easy access to 911 and other emergency services.

There is a significant difference between urban first aid, where advanced medical care is often only a 911 call away and response time is minutes, and wilderness situations where the person may be hours or days from definitive medical care. These protocols define a *wilderness context* as one that occurs more than one hour from *definitive medical care* (typically defined as a hospital emergency room or mobile paramedic emergency unit). The wilderness context implies extended contact time with the patient, as you may be caring for this person’s overall needs for hours to days, environmental hazards (keeping the person warm, dry, etc.), and coping with all of this using limited equipment. Recognizing that failure to treat certain injuries or illnesses can be life threatening or can lead to significantly greater injury, certain treatment procedures have been approved for use in the wilderness context that are not authorized in a typical urban situation, but only by those who have received instruction from an authorized ­ source. In other words, it is not within your scope of practice to perform many of the skills described below unless you are in a wilderness context.

Abdominal Emergencies

**Abdominal Pain:**

*As it is difficult to determine the cause of abdominal pain in the field, evaluation of a patient suffering from abdominal pain is focused on determining whether evacuation is necessary, not on diagnosing the specific problem.*

**Assessment:**

*Be sure to:*

* Get a full SAMPLE history.
* Palpate the four quadrants of the abdomen.
* Evaluate the pain using OPQRST.

**Treatment:**

1. Have patient rest in position of greatest comfort.
2. Allow sipping of clear fluids. However, given the likelihood that an abdominal emergency will require surgery, food and medication should NOT be given.
3. Monitor patient for vital trends and changes in condition.
4. Evacuate if patient presents with any “red flags” for abdominal pain (see “Evacuation Guidelines for Abdominal Pain”, below).

**Evacuation Guidelines for Abdominal Pain (Red Flags):**

* **Pain lasting >12 hours.**
* **Fever.**
* **Signs of shock.**
* **Vomiting.**
* **Diarrhea.**
* **Blood in stool or vomit.**
* **Possible pregnancy.**
* **Pain on palpation or rebound.**
* **Rigid, distended abdomen.**
* **Masses or palpable pulse in the abdomen.**
* **Pain 2˚ to trauma.**
* **Signs of bruising.**

**Abdominal Injuries**

*Serious abdominal injuries, due either to blunt force trauma or penetration of the abdominal cavity, can lead to significant internal bleeding or peritonitis (irritation and infection of the peritoneal cavity due to leakage of intestinal contents).*

**Assessment:**

* Mechanism of injury to the abdomen
* Any of the above red flags.
* Signs of bruising or abrasions to abdomen or lower chest.
* Abdominal pain or tenderness.
* Protruding bowel or fat.
* External bleeding from an abdominal laceration.
* Object penetrating the abdominal wall.

**Treatment:**

1. Have victim rest and allow only sips of water by mouth.
2. Monitor patient’s vitals and record any changes in condition.
3. Evacuate if patient presents any red flags listed under “Evacuation Guidelines for Abdominal Pain.” (see above)
4. If there is an impaled object:
   1. DO NOT remove the object unless evacuation is impossible otherwise.
   2. Stabilize object with a bulky dressing and bandage in place.
   3. Evacuate.
5. If there is protruding bowel:
   1. Cover it and keep it moist, preferably with a sterile cloth.
   2. DO NOT attempt to return the bowel to the abdominal cavity. Call 911 followed by OA command for an urgent evacuation.

Allergic Reactions and Epinephrine

**Assessment**

1. A **localized reaction** is characterized by swelling, redness, itchiness, etc. at the site of exposure only.
2. A **systemic reaction** is characterized by swelling, redness, itchiness, hives, etc. at sites other than the site of exposure.
3. An **anaphylactic reaction** is characterized by any of the symptoms described in (2), in addition to any of the following:
   1. Trouble breathing
   2. Tightness of the throat
   3. Hives, itchiness or inflammation around the throat or chest
   4. Swollen lips
   5. Signs of shock, including rapid, weak pulse and clamminess

**Treatment**

When treating any allergic reaction, do your best to identify the allergen and **remove it from contact with the patient when possible**. For example, remove bee stingers, and wash points of poison ivy contact with camp suds and water.

**Local Reaction**

1. Apply hydrocortisone ointment or Sting-Eze to ease rash symptoms.
2. Continue to monitor the patient as necessary for the next 24 hours.

**Systemic Reaction**

1. Give one cetirizine 10 mg tablet (brand name Zyrtec) to ease the symptoms of a histamine reaction.
2. Use the treatments described for local reactions as necessary and continue to monitor the patient for 24 hours.

**Anaphylaxis**

1. **Epinephrine should be administered at the first sign of an anaphylactic reaction**. (e.g., nonlocal hives with swelling of the lips or any sings or complaints of difficulty breathing,.). Epinephrine should be administered before respiratory failure (the inability to respire sufficiently).
2. The rescuer must wear gloves while administering epinephrine.
3. Never hold an EpiPen with a thumb over the end of the EpiPen.
4. The rescuer should inform the patient that epinephrine is going to be administered. Epinephrine should be administered in the patient’s upper, outer thigh, and the pen should remain engaged for 10 seconds to allow time for the medication to disperse.
5. Immediately after administering epinephrine (or as soon as possible), administer a dose of cetirizine, as a precaution against repeat reactions.
6. Immediately after administering epinephrine, call 911, followed by the OA Command Center. Prepare the group for a walk out evacuation to the nearest road.
7. In the event of an additional reaction, a second or third EpiPen may be administered 15 minutes after the previous dose. Repeat doses should not be administered in the same thigh as the previous dose.

**EpiPens**

1. The group may not hike without two functional EpiPens. If an EpiPen is used during the trip, the entire group must be evacuated to obtain replacements from support before returning to the trail.
2. If the group splits up for any reason, the EpiPens must be split up between subgroups so that no portion of the group is without an EpiPen.
3. As an extra precaution, used EpiPens should be stored in a closed, rigid container such as an extra clear Nalgene during evacuation, and should be treated as a biohazard once passed on to support.
4. Anyone who has had an injection of Epinephrine should be monitored constantly until they receive higher medical care.
5. ANY administration of Epinephrine, intentional or accidental, initiates an evacuation to higher medical care.

### Asthma

*Asthma is a medical condition in which a variety of triggers (e.g. cold air, exercise, pollen) cause the bronchi to constrict, reducing gas exchange in the lungs. Patients will often carry prescribed preventative medications to reduce the likelihood of an attack as well as an emergency metered dose inhaler (MDI). An acute asthma attack must be treated with the emergency inhaler, as the daily preventative inhaler will be ineffective.* ***If a student on your trip has asthma, be sure to talk to the student before the trip, discuss the use of inhalers, and know where the student will carry them in case you need to access them in an emergency***

**Assessment:**

*Asthmatic patients may display the following symptoms:*

* A past medical history of asthma
* Shortness of breath while at rest
* Audible wheezing.
* Use of auxiliary muscles (stomach, back) to aid in breathing.
* Dyspnea (i.e. inability to say more than 1-2 words at a time)
* Standing with hands braced on knees or refusing to lie down
* Changes in mental status (in later stages of a severe attack)

**Treatment:**

1. If the cause of the asthma attack can be identified, remove or reduce the cause.
2. Panic can exacerbate breathing difficulties during an asthma attack or respiratory emergency. Treat with PROP (position, reassurance, oxygen and positive pressure ventilation (PPV)). Encourage the patient to assume the position in which it is easiest to breathe, reassure the patient and try keep him/her calm. Rescue breaths may be used to assist a patient experiencing respiratory failure or arrest secondary to an asthma attack.
3. Assist patient in taking their emergency inhaler as follows:
   1. Shake.
   2. Hold upright. If available, use a spacer or extension tube.
   3. Instruct patient to exhale slowly.
   4. Press down once as patient inhales as deeply and evenly as possible.
   5. After full inhalation, patient should hold breath for 10 seconds if able.
   6. Wait 1 minute before repeating procedure.
4. Give positive pressure ventilations as needed. (PROP)
5. **If patient does not respond to repeated MDI administration and is in sustained respiratory failure:**
   1. **Call Command.**
   2. **Inform patient that you are going to administer epinephrine.**
   3. **Administer EpiPen to outer thigh or upper arm.**
6. Call Command Center and evacuate if epinephrine or PPV were used or if this was the first asthma attack that the person has had.

#### Bites

The best treatment for any bite or dirty wound is copious irrigation.

**Snakebites**

There are two families of venomous snakes in the United States: pit vipers (e.g. rattlesnakes, copperheads, and water moccasins) and coral snakes.

***Pit vipers*** *have a flat, triangular head wider than the neck and a heat-sensitive pit located between the eye and the nostril. In the US, the majority of venomous snakebites and nearly all snakebite fatalities are inflicted by pit vipers.*

**Assessment (Pit Vipers):**

*Signs of a pit viper bite include:*

* Severe burning pain at the bite site.
* Two small puncture wounds about 0.25” – 1.5” apart.
* Swelling, starting within 5 minutes and progressing up the extremity in the next hour. Swelling may continue to increase for several hours following the bite.
* Discoloration and formation of blood-filled blisters.
* In severe cases: nausea, vomiting, sweating, weakness, bleeding, and coma.

**Treatment:**

1. Get victim away from snake. DO NOT approach the snake and risk being bitten. DO NOT attempt to capture or kill the snake for identification or touch the head of a seemingly dead snake. Remember that rescuer safety is most important. Do not approach the patient if the snake is still a threat.
2. DO NOT attempt to draw the venom out via oral suction or incision of the skin.
3. Keep victim calm.
4. Call for help and begin evacuation immediately. Antivenin is most effective if given within 4 – 6 hours after the bite.
5. Use a sling or splint to loosely immobilize limb during evacuation. Do not compress the area as this concentrates the venom and can lead to more serious tissue damage.
6. If there is no immediate reaction, start to walk slowly to the trailhead. If no symptoms develop within 6-8 hours, it is likely that the bite was dry (i.e. non-envenomated).

**Spiders**

*Although death from spider bite is rare in North America, there are several species whose venom can cause potentially dangerous complications in humans. The main species of concern are the black widow spider and brown recluse spider. Certain species of scorpion, notably the bark scorpion of the southwestern US, can also be dangerous.*

**Assessment:**

* Black Widow Spider:
  + In some patients, a sharp pinprick sensation with no visible mark.
  + Faint red bite marks appearing later.
  + Muscle stiffness and cramps in the bitten limb and spreading to abdomen and chest.
  + Headache, chills, fever, heavy sweating, dizziness, nausea, vomiting, and severe abdominal pain occurring later.
* Brown Recluse Spider:
  + Early on, a “bulls-eye” bite with a central white core surrounded by red, ringed by a whitish or blue border. Several hours later a blister may appear at the site along with redness and swelling.
  + Mild to severe local pain, which subsides to aching and itchiness.
  + Fever, weakness, vomiting, joint pain, and a rash.

**Treatment:**

1. Check patient’s breathing.
2. Clean the bite or sting site with soap and water.
3. Place an ice pack on the site to relieve pain.
4. Evacuate patient as soon as possible.

**Other Animal Bites**

*The best immediate treatment for any bite wound is copious irrigation.*

*Any open wound caused by contact with the teeth and saliva of an animal or another human. Bites may inflict puncture wounds or lacerations and are considered high-risk wounds because of the high risk for infection. With some species, rabies may also be a concern.*

**Assessment:**

* Any open wound inflicted by contact with teeth of any animal – humans included.
* Contact between an existing wound or abrasion and an animal’s (or human’s) saliva may also be of concern, especially if the animal is potentially rabid.

**Treatment:**

1. Treat all bite wounds according to protocol for high-risk wounds (see Wounds and Bleeding on p. 9).
2. If there is a risk of rabies, wash wound with soap and water or benzalkonium chloride and expedite evacuation.

Blisters

**Assessment**

*Prevention is best. Do blister checks early and often. The goal is prevention!* ***Leaders should do blister checks frequently to prevent participants from allowing blisters to progress to open wounds.***

**Hot Spots**

* Hot spots are pre-blisters created by friction between a patient’s skin and shoes/gear.
* Patient complains of rubbing or burning pain. The area may be red, but is not yet raised or fluid-filled.

**Closed Blister**

* Patient complains of rubbing or burning pain, and the affected area is inflamed, raised and filled with fluid.

**Open Blister**

* Patient complains of rubbing or burning pain.
* The skin in the affected area has torn, allowing fluid to drain from the blister. A patch of dead skin may be visible at the site of the blister.

**Treatment**

**Hot Spots**

1. Apply body glide to minimize friction between the hot spot and shoes/gear.

**OR**

1. Apply moleskin over the affected are. Use tincture of benzoin to hold moleskin in place in areas where moisture and/or motion are likely to cause normal adhesive to fail.

**Closed Blister**

1. ****The goal of treatment is to prevent a closed blister from becoming an open blister.
2. Make a molefoam donut, and position the molefoam so that the blister occupies the donut hole. For small blisters, consider the use of a gel blister bandage., instead.
3. Use tincture of benzoin to hold mole foam in place in areas where moisture and/or motion are likely to cause normal adhesive to fail.
4. Repeat care as necessary, and monitor for ruptures.
5. **If a closed blister is certain to rupture on its own** despite proper treatment, drainage may be appropriate. (e.g., a very swollen blister on the pad of a patient’s toe.) The goal of draining a closed blister is to allow the skin to rupture in a controlled, comparably sterile environment, rather than allowing the blister to pop in a highly infectious environment (e.g., the inside of a dirty hiking boot). To drain a blister, the caregiver must be wearing gloves. Clean the blister and surrounding area with an antiseptic wipe. Sterilize a sharp object such as a needle. Open a small hole in the surface of the blister near the edge of the raised area on the side where gravity will help with drainage. Immediately re-sterilize the blister using an antiseptic wipe once the surface has been broken. Do not squeeze the blister. Cover the area with sterile gauze and antibiotic ointment and allow it to drain. Bandage and treat the area as an open wound (See p. 9 for Wound Care)

**Open Blister**

1. An open blister must be treated as an open wound. See p. 27.

#### Burns

**Assessment:**

*Determine the severity of the burn:*

* **Superficial (1˚):** 
  + Only top layers of skin are affected.
  + Tissue is red and painful.
* **Partial Thickness (2˚):**
  + Deeper layers of skin are damaged.
  + Moderate to severe pain.
  + Blister formation.
* **Full Thickness (3˚)**:
  + Damage to all layers of skin, and possibly to underlying muscle and fat.
  + Tissue is white, black or leathery.
  + Loss of sensation at burn site due to nerve damage. (Keep in mind, however, that 3rd degree burns will likely be surrounded by extremely painful 2nd degree burns).

**Treatment:**

1. Stop the burning immediately by removing the source and cooling with water.
2. Irrigate burn with cool, drinking-quality water.
3. Remove any constricting jewelry or clothing.
4. For 1st degree burns, apply topical analgesic or aloe cream.
5. For 2nd or 3rd degree burns, once heat from burn has dissipated, consider applying a thin layer of antibiotic ointment.
6. Apply a nonstick dressing (Tefla pad).
7. Change the dressing frequently and monitor for signs of infection. At minimum, dressing should be changed once every 24 hours and any time the dressing becomes soiled (for instance, the patient goes swimming or falls in the mud).
8. Have patient drink fluids to avoid dehydration, and be aware of impairment of the thermoregulatory function of the damaged skin.
9. Evacuate patient for any of the following:
   1. Burns covering >10% of body surface.
   2. 2nd degree burns to sensitive areas (e.g. the face and neck, hands, feet, or genitals).
   3. Any 3rd degree burns.
   4. Burns encircling a limb (circumferential burns).
   5. Possible respiratory burns.

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Cardiac Arrest

**Assessment**

1. Check for patient responsiveness. Tap and shout.
2. If the patient is unresponsive, immediately direct a group member to call 911 and then follow up with a call to Command.
3. Check for breathing for no less than 5 and no greater than 10 seconds in an unresponsive patient. Initiate CPR immediately if patient is not breathing spontaneously.
4. Per American Heart Association (AHA) standards for HeartSaver CPR, it is not necessary to check for a pulse.

**Treatment**

1. Initiate CPR immediately. Begin with compressions and follow the 30:2 AHA model for an adult patient. Use a CPR mask/protective barrier.
2. To open the airway, use a head tilt, chin lift. Tilt the head back and place your fingers on the patient’s jaw bone to lift the chin.
3. Initiation of CPR is not required for patients who are obviously dead as a result of clearly lethal injuries.
4. Call 911 if you have not already done so, followed by OA Command Center.

**Discontinuation of CPR**

American Heart Association CPR Standards allow for a rescuer to discontinue CPR in the following 4 circumstances:

1. A party with equal or higher medical care arrives and takes control of patient care.
2. The rescuer is too exhausted to continue.
3. The scene becomes unsafe, or it becomes unsafe for the rescuer to continue.
4. The patient is revived (regains a pulse).

Additionally, in the wilderness context, a fifth circumstance for discontinuation is allowed:

1. After 30 minutes of CPR or if all rescuers are too tired to continue, CPR may be discontinued.

**If possible, consult Command before making the decision to discontinue CPR**.

#### Diabetic Emergencies

**Hypoglycemia**

*Hypoglycemia, also called insulin shock, is a medical condition in which the patient’s blood sugar levels are too low. It can occur as a result of administering too much insulin, exercising more than normal, or not eating enough. Many diabetics who are able to manage their sugar in urban setting have difficulties when in the wilderness. Because the body is very sensitive to lack of blood sugar, a hypoglycemic patient will develop symptoms and deteriorate rapidly.*

**Assessment:**

*Signs of hypoglycemia include:*

* Sudden onset of symptoms.
* Pale, cold clammy skin.
* Rapid pulse.
* Personality changes, such as anger or bad temper.
* Altered mental status – confusion and disorientation eventually deteriorating to V, P, or U on AVPU.
* Staggering, poor coordination, trembling.
* Headache, hunger, dizziness, nervousness, or weakness.

**Hyperglycemia**

*Hyperglycemia is a medical condition in which the patient’s blood sugar levels are too high. It typically occurs when a patient does not receive enough insulin and, although it develops more slowly, can also lead to unresponsiveness.*

**Assessment:**

*Signs of hyperglycemia include:*

* Gradual onset – symptoms may develop over hours to days.
* Flushed, dry, warm skin.
* Extreme thirst.
* Rapid pulse and rapid, deep respirations.
* Frequent urination.
* Vomiting.
* Fruity-smelling breath.
* Altered mental status – confusion and disorientation eventually leading to a drop on AVPU.

**Treatment of Diabetic Emergencies:**

*If your patient is responsive, they will be able to answer important questions regarding their caloric intake and medications and may be able to tell what the problem is. Treat a responsive diabetic patient as follows:*

1. If patient carries a portable glucometer, have them check their blood sugar.
   1. If blood sugar is low, give glucose (in form of a glucose gel or sugary foods).
   2. If blood sugar is high, patient may administer his or her own insulin. However, be aware that the radically different environment and routine may be affecting the patient’s insulin needs.
2. Take a thorough SAMPLE history.
3. If mental status is altered (and blood sugar levels are unclear), give sugar immediately. A small amount of extra sugar can quickly improve a hypoglycemic patient’s condition and will not make a significant difference in a hyperglycemic patient. Sugar can be administered by any of the following methods:
   1. Candy.
   2. A sugary drink, or several spoonfuls of sugar dissolved in water.
   3. If patient is unable to swallow: place glucose gel, honey, or a thick paste made of sugar and water between patient’s cheek and gum.
4. If patient recovers after administration of glucose, have them rest and eat a meal before resuming activity.
5. If patient’s condition does not improve, evacuate. If ketoacidosis is suspected, give victim only water and evacuate.
6. If a patient is vomiting, do not give water.
7. Call Command Center anytime there is altered mental status.

*If patient is unresponsive, treat as follows:*

1. Perform an initial assessment. If patient has any second-triangle problems deal with those before proceeding. Be sure to protect the patient’s airway.
2. Look for a medical identification tag. In the absence of an obvious mechanism of injury, assume the patient may be hypoglycemic if they are known to be diabetic. Otherwise, consider STOPEATS (see p. 21 for Loss of Consciousness).
3. Administer sugar by placing glucose gel or honey between the cheek and the gum. Monitor patient for improvement and any airway compromise.
4. **NEVER administer insulin**. Even if the patient is, in fact, hyperglycemic, an incorrect dose of insulin could be fatal.
5. If the patient regains responsiveness, see above.
6. Evacuate.

#### Fluid Balance

*During exercise, especially in the heat, significant loss of fluids and electrolytes via sweating occurs. Drinking water will function to keep the patient hydrated but will not restore electrolytes, so high fluid intake unaccompanied by consumption of salty foods may create a salt imbalance. This results in a condition called hyponatremia, in which the concentration of sodium in the blood is too low.*

**Assessment:**

*Signs and symptoms of hyponatremia include the following:*

* Headache.
* Lightheadedness, weakness, or fatigue.
* Nausea.
* Heavy sweating.
* Lack of thirst.
* Clear and copious urination.
* History of heavy water intake.
* History of little or no food intake, particularly of salty foods.
* Cramping in the lower extremities.
* Altered mental status or seizures in severe cases.

**Treatment:**

1. Be sure to review patient’s history of fluid and food intake to avoid mistaking hyponatremia for dehydration, as the early presentation may be similar.
2. Limit further loss of electrolytes by having patient rest in the shade.
3. Restore salts by having patient eat salty foods.
4. Do not allow further fluid intake, as this will exacerbate the problem.
5. Evacuate patient immediately for any changes in mental status.

#### Hyperthermia

Hyperthermia, or heat illness, can occur when heat gain, usually due to exercise in hot climates, exceeds heat loss via evaporation of sweat. This can lead to dangerous rises in core temperature.

**Heat Exhaustion**

*Heat exhaustion is caused by water and electrolyte loss from sweating and may develop over the course of hours or days.*

**Assessment:**

* Weakness and inability to continue work or exercise.
* Dizziness and possibly fainting.
* Headache.
* Nausea or vomiting.
* Rapid pulse.
* Thirst and profuse sweating.
* Gooseflesh, chills, and pale skin.

**Treatment:**

1. Have patient rest in the shade and maximize air circulation.
2. Have patient drink plenty of fluids to rehydrate.
   1. Give “Squincher” to restore electrolytes and blood sugar.
3. Have patient remove excess clothing. Wet the skin and fan the patient to increase evaporation. Fan the patient to help them cool off.
4. Evacuate to higher medical care if body temperature is above 102 ˚F.

**Heat Stroke**

*Heat stroke is a serious, life-threatening medical condition in which body temperatures rise to dangerous levels. It can occur in otherwise healthy people, regardless of age, who engage in strenuous physical activity in hot climates or in patients, especially those with chronic illnesses, who are exposed to high temperatures for extended periods of time. Proper prevention should keep a participant from getting to this point.*

**Assessment:**

* Headache.
* Altered mental status, including drowsiness, irritability, and unsteadiness followed by sudden confusion or delirium. Patient may suffer convulsions and become comatose.
* Rapid pulse and low blood pressure.
* Dry or sweat-moistened hot skin.
* Core temperature above 105-106 ˚F.

**Treatment:**

1. Remove patient from heat if possible.
2. Immediate, rapid cooling via:
   1. Pouring or spraying water on patient and fanning vigorously.
   2. Immersion in a stream or cold bath.
   3. Place cold packs on neck, abdomen, armpits and groin,
3. Stop cooling only when temperature falls below 102 ˚F or when mental status improves.
4. Monitor patient’s temperature frequently, as it may rise again after cooling.
5. Evacuate.

#### Hypothermia

Hypothermia occurs when heat loss causes core body temperature to drop. Inadequate clothing, exhaustion, injury, poor nutrition, drugs, and alcohol consumption all put people at greater risk for hypothermia. Environmental conditions such as wetness and wind can rapidly chill a patient and put him or her at risk of hypothermia regardless of the season.

**Mild/Moderate Hypothermia**

*Although the clinical definition of mild hypothermia is a core temperature from 90-95 ˚F, it can be difficult to accurately assess core temperature in the field. Since it is easier to keep a patient warm than to warm a patient who is already cold, hypothermia should be identified and treated aggressively as soon as any symptoms of cold challenge begin to appear, regardless of whether the patient’s core temperature has actually dropped to 95˚F.*

**Assessment:**

* Core body temperature 90 ˚F – 95 ˚F.
* Shivering, ranging from mild to uncontrollable.
* Mild to moderate alterations in mental status, including slight confusion, lethargy, and irritable or withdrawn behavior.
* Loss of fine motor skills.
* “Umbles” – grumble, mumble, stumble, fumble.
* Cool, pale, possibly bluish skin due to constriction of blood vessels and reduced peripheral circulation.

**Treatment:**

1. Attempt to minimize cause of cold challenge by removing wet clothing and moving patient to a warmer place or finding shelter from wind or rain.
2. Increase insulation by adding additional layers or placing patient in a sleeping bag. Be sure to provide additional insulation from the ground by placing a sleeping pad underneath the patient.
3. Feed patient and give them hot drinks to increase caloric intake and prevent dehydration.
4. Once the patient has had time to intake food (starting with simple sugars, and progressing to fats and proteins), have the patient exercise or increase movement to increase heat production.
5. Treat any other problems that the patient may have.
6. Consider evacuation.

**Severe Hypothermia**

Clinically, a patient enters severe hypothermia when the core body temperature falls below 90˚F. However, it is unlikely that a low-reading thermometer will be available in the wilderness, so it is more useful to distinguish between mild and severe hypothermia based on the patient’s ability to cooperate with treatment.

**Assessment:**

* Core body temperature below 90 ˚F.
* Severe changes in mental status, leading to decrease in AVPU.
* Patient is no longer shivering.
* Pulse is weak, slow, and irregular. Radial pulse is likely undetectable.
* Slow, possibly unobservable, breathing.
* Skin is cold and pale.

**Treatment:**

1. Handle patient gently.
2. Move patient and rest of group to a sheltered site. Remove wet layers from patient and insulate.
3. Place patient in a hypothermia wrap
4. DO NOT attempt aggressive rewarming.
5. Evacuate patient.

#### Loss of Consciousness / Unresponsive Patient

*Loss of consciousness (LOC) suggests a serious medical or traumatic condition in most patients and therefore must be taken very seriously. A comprehensive medical and trauma assessment along with an understanding of the victim’s medical history can help to understand the cause of the loss of consciousness and determine how best to treat the patient,* ***but in all circumstances, the victim must be evacuated promptly.***

**Assessment**

* Determine if there were any witnesses to the LOC. Was the LOC preceded by a traumatic event, or was the traumatic event caused by a change in mental status?
* Determine if patient has any medical history that may have contributed to the LOC (e.g. diabetes, cardiac history, seizure disorder, stroke).
* Thorough scene assessment to determine presence of environmental factors (e.g. altitude, toxins/allergens, excessive heat or cold, lightning) or whether patient’s position raises the index of suspicion for a traumatic etiology (fall, submersion, etc.). Consider **STOPEATS** for potential causes.
* Take full sets of vital signs every 5 – 10 minutes. Assess pupils and AVPU.
* Rapid trauma exam to determine presence of injuries.

**Treatment**

1. If evidence of head, neck, or spine injury, or possible MOI for spinal injury is present, immobilize patient’s head, neck, and spine. If it is possible to rule out head, neck, or spine injury, maintain patient in the recovery position.
2. Maintain patient’s airway, breathing, and circulation. Support and treat as necessary.
3. Monitor and record patient’s vital signs and any changes in patient’s condition.
4. If cause of loss of consciousness is known, treat the cause per established protocols. Do NOT give any food or liquids to an unresponsive victim.
5. Maintain patient’s body temperature.
6. Call 911 and rapidly EVACUATE patient, maintaining spine stabilization, as indicated.

Musculoskeletal Injuries

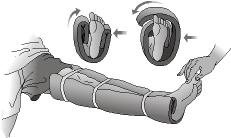
**Assessment**

1. An **unstable injury** is diagnosed by the presence of crepitus, deformity, impaired CSM, protruding bone or the inability to bear weight.
2. A **stable injury** can bear some weight and maintains normal circulation and sensation, though **range of motion (ROM)** may be reduced because of pain.
3. ROM should be assessed in an injured limb by a comparison to the uninjured limb.

**Treatment**

**Stable Injuries**

1. Stable injuries should be treated in the field using rest, ice, compression and elevation (RICE).
2. Stable injuries may be evacuated, though the evacuation is neither necessary nor urgent. When deciding whether or not to evacuate a patient with a stable injury, leaders should consider the following:
   1. Patient input
   2. Severity of injury, and changes in severity over time
   3. Difficulty of hiking terrain and proximity to evacuation points on the next two days’ hiking route

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**Unstable Injuries**

1. **A splint should only be applied to an unstable injury**.
2. Before splinting any injury, check for circulation, sensation and motion (CSM).
3. **If CSM is impaired, and the injury is to a long bone, traction into position (TIP) the affected bone**, and maintain traction while applying the splint. TIP by holding the limb above and below the injury, and pulling the distal portion out from the body. Expect to *A simple knee splint*

apply significant, but not injurious force.

Attempt to TIP the limb up to two times until CSM is restored. Abandon attempts to TIP if one of the following is true:

* 1. Traction is met with exceptional resistance.
  2. Traction causes a dramatic increase in pain.
  3. When treating a joint injury, rather than a long bone injury.
  4. If the patient has an open fracture.

1. **In the event that CSM cannot be restored, an urgent evacuation is necessary**. All reasonable efforts should be made to deliver the patient to definitive care in less than two hours from the time of injury, or the patient will be at risk for permanent damage
2. All splints should exemplify the four Cs of splinting: Comfortable, Compact, Complete, CSM.
3. Splints should immobilize the limb at the joint above and below a long bone injury, or at the bone above and below a joint injury.
4. Rescuers should check CSM immediately before and immediately after application of a splint, and every 20 minutes thereafter. . If CSM decreases after application of the splint, the splint must be adjusted.
5. During the application of a splint, rescuers should repeatedly check whether the patient is still able to move the injured limb. If a splint does not successfully immobilize the limb, loose clothing should be packed into void spaces in the splint to further restrict motion. A sling and/or swath may also be appropriate.
6. **Do not attempt to create a traction splint in any circumstances.**

Dislocations

*A dislocation is a particular kind of unstable musculoskeletal injury in which a joint is forced out of its normal anatomical position, causing deformity, severe pain, and limited range of motion. Commonly affected joints include the shoulder, patella, and fingers.*

**Assessment:**

*Look for the following in a patient with a suspected dislocation injury:*

* Deformity. Compare injured joint to the uninjured one to assess for noticeable deformity.
* Severe pain.
* Limited range of motion.
* Determine if the mechanism of injury is a direct or indirect force. A direct force is applied directly to the joint and is likely to cause greater damage to the joint, whereas an indirect force is a lever force or torque applied at some distance from the joint.
* In a patella dislocation, identify whether the patella is dislocated to the inside or outside.

**Treatment:**

*Ability to reduce a dislocation and the technique for doing so depends on the joint injured. Treat as follows:*

Assess CSM distal to the injury.

1. Digits (i.e. fingers)
   1. If the MOI was an indirect force and the affected digit is NOT the thumb, reduction may be attempted. **Do not attempt to reduce a thumb dislocation.**
   2. To reduce, gently traction, increase the angle of deformity slightly, then guide the finger back into neutral position.
   3. STOP if traction is met with significant resistance.
   4. Splint digit to stabilize, following general splinting principles (see above).
   5. Evacuate.
2. Patella
   1. If the MOI was an indirect force and the patella is dislocated to the outside of the knee, reduction may be attempted.
   2. Instruct patient to sit on the ground with his or her knee bent.
   3. As the patient straightens the knee, apply medial pressure to guide the patella back into place.
   4. STOP if you meet significant resistance, or unsuccessful.
   5. Splint or wrap knee to stabilize.
   6. Evacuate.
3. **If ANY other joint is injured OR attempted reduction is unsuccessful, splint in position of comfort according to general splinting principles (see above) and call Command Center to evacuate to higher medical care.**



*Sling and swath to immobilize a shoulder and completely stabilize a splinted lower arm fracture.*

Nausea and Vomiting

*Vomiting is the forceful expulsion of the contents of the stomach through the mouth and nose. Vomiting has a wide range of causes, and for this reason, must be taken very seriously. Some of these causes are relatively benign, such as ingesting too much food or gastroenteritis. However, vomiting is also a symptom of many serious, life-threatening conditions including appendicitis and increasing intracranial pressure and may have complications such as dehydration and aspiration. Nausea is the feeling that precedes vomiting.*

**Assessment**

*Look for any of the following signs accompanying nausea or vomiting:*

* Abdominal pain
* Presence of red or brown material in the stomach (“coffee ground emesis”), suggesting stomach bleeding.
* Diarrhea
* Chills and fever
* Signs of dehydration
* Recent head injury
* Numerous patients with similar complaints of nausea or vomiting
* Recent ingestion of possible toxins (plants, mushrooms, unpurified water)
* Emotional distress

**Treatment**

1. Evacuate the patient if the cause of vomiting is not known and innocuous (i.e. chugging a bottle of hot sauce).
   1. If patient presents with other signs of traumatic brain injury, if blood is present in the vomit, or if patient has signs and symptoms of shock, evacuate rapidly.
   2. If multiple patients are presenting with similar symptoms, evacuate the entire group.
2. During evacuation, give patient small quantities of clear fluids and, if possible, carbohydrates. Rest frequently and avoid exertion.
3. If patient has a decreased level of consciousness (A- or less on AVPU), protect patient’s airway to avoid aspiration and asphyxiation. Transport patient in recumbent position is spine stabilization is not indicated. If necessary, remove vomitus from patient’s mouth and nose.
4. If patient is nauseous but has not vomited, treat as in #2 and consider administering anti-emetic medications (preferably bismuth subsalicylate, but diphenhydramine can be effective for motion sickness, too).
5. Be aware that vomiting without a clear cause can be a symptom of bulimia. If suspected, notify University Health Services upon return to campus.

#### Poison Ivy, Oak, Sumac and Stinging Nettle

*Poison ivy, oak, and sumac are common plants that can cause mild allergic reactions as a result of contact with urushiol oil found on all parts of the plants. Because the allergen is the oil and not the actual plant, it is possible to develop an allergic reaction without ever coming into contact with the actual plant.*

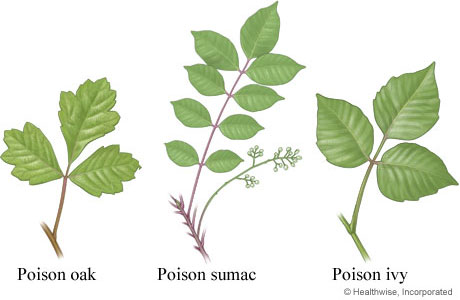
*Stinging nettles are also common plants that protrude spiky nettles from their leaves. Contact with these nettles can cause an allergic reaction similar to poison ivy, oak, and sumac*.

Assessment:

* Skin rash
* Itching, swelling, redness at site of exposure
* Hives
* Raised, inflamed bumps
* See Allergic Reactions on page 169 for more information

Treatment:

* Remove allergen by thoroughly washing with water and physically removing spiky nettle. Be sure to wear gloves.
* Apply hydrocortisone ointment or Sting-Eze to ease rash symptoms
* Continue to monitor as necessary





*Stinging nettles*

#### Spinal Injury

**Mechanisms of Injury for Spinal Damage (*MOI spine)***

MOI spine describes any traumatic injury to an individual’s spine caused by a force great enough to reasonably injure the spinal column. This includes, but is not limited to the following:

* A fall from a height of 10 feet or greater
* A sudden impact equivalent to a 10 foot fall
* High impact/high velocity injuries, including motor vehicle accidents or explosions/blasts
* Direct blunt force injuries near the spine
* Penetrating injuries near the spine
* Presence of other severe traumatic injuries such as pelvic or femoral fracture
* Any traumatic brain injury (TBI). A TBI is diagnosed as a blow to the head resulting in severe, prolonged headache, nausea, ringing in the ears, noticeable personality changes including grogginess, and in more severe cases, loss of consciousness or amnesia.
* An unconscious patient with unknown MOI.

**Treatment-**

*In a patient with an MOI spine, it is possible that the spinal column is damaged, but the spinal cord remains unscathed. By immobilizing the patient’s spine, your treatment goal is to prevent a potential spinal column injury from damaging the spinal cord.*

**If a mechanism of injury for spinal damage exists, assume injury to the spinal column and provide manual c-spine stabilization.**

1. Immediately apply spine stabilization (hands-on stable) with the head in a neutral position, and the body in an in-line position.
2. If and only if the patient is in immediate danger, or if the patient’s position impedes provision of initial care, move the patient using spine stable techniques (see spine stable moves below).
3. Do a full patient exam (vitals, head to toe, SAMPLE) to gather information.

* If no injury is found, continue with a Focused Spinal Assessment (see below) to continue gathering information. Call Command Center who will put you in touch with OA’s physician advisor or a local emergency room doctor. With the information you have gathered, these professionals will decide whether you can remove spine stabilization or whether an assisted, spine-stable evacuation is necessary.
* If injury is found, call Command to begin planning for an evacuation. If there is a threat to life, call 911 first, and then call command.

**Every attempt must be made to maintain spine stabilization if there is an MOI spine. However, airway, breathing, and circulation concerns, when an immediate threat to life, should take precedence over spinal stabilization.**

**Focused Spinal Assessment (FSA)**

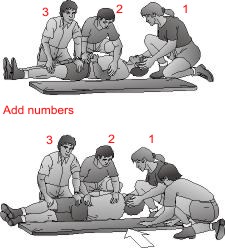
*The FSA should be performed on any patient with an MOI spine after completion of a full physical exam. The assessment is a diagnostic tool that can help OA’s physician advisor or another emergency medical professional decide whether an assisted evacuation is necessary.*

1. Make sure the test is blind. Do not tell your patient that the outcome of the FSA might determine whether you receive authorization to remove spine stabilization. It is important that the results of this assessment are objective.
2. Determine whether your patient is reliable. A reliable patient is sober and alert and oriented to time, place, self and events. (Knows the approximate date and time, who they are, why they are there and what is happening). A reliable patient is not under the influence of alcohol, drugs or pain medication.
3. Determine whether your patient has distracting injuries. A patient with a distracting injury is experiencing enough pain or nerve damage that (s)he will have difficulty reporting the symptoms of spinal damage.
4. Determine whether your patient has full CSM in the distal extremities. In all fingers and toes check for:
   1. Capillary refill less than 2 seconds
   2. The ability to identify by touch which digit the rescuer pinches
   3. Full range of motion (ROM) in all limbs, including the ability to abduct (spread) fingers and toes
   4. Tingling or numbness in any part of the body
5. Perform a physical assessment of the spinal column. Rescuers should perform this step only if the patient has no deficiencies in (1-4).
6. **Call Command**, who will put you in touch with the physician advisor. Only with the permission of the physician advisor or a local on-call emergency room physician may you release a patient from spine stabilization.

#### Spine Stable Moves

**Assessment**

* The patient is fully or partially submerged
* An object has fallen onto the patient
* The patient is at risk of hyper/hypothermia
* The patient is otherwise in immediate danger
* The patient’s spine is in a non-neutral position
* Spine stabilization cannot be maintained without moving the patient
* Assessment and treatment cannot be completed without moving the patient

****

**Treatment**

* **Do not move a patient with MOI spine unless necessary from a safety standpoint**.
* *Always follow general principles of spine stabilization when moving a patient with MOI spine. Move only one body part at a time.*
* *Always control the three major weight centers (head, shoulders and hips).*
* *Always designate a group leader, who is responsible for directing and coordinating all patient moves. The group leader generally stabilizes the patient’s head.*
* *If you encounter resistance or increased pain, STOP. Never force the head into neutral position. A spine stable log roll*

**Moving the patient’s head into neutral position**

1. Spine stabilization should be maintained in neutral position. This is the position the head normally sits in when looking straight ahead, neither bent forward, back or to either side.
2. When moving the patient’s head, visualize the three axes of motion.

(a) Forward and backward (nod your head to move in this axis).

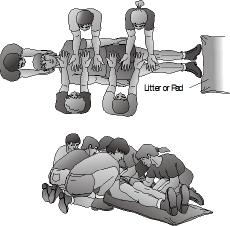
(b) Side to side (try to touch your ear to your shoulder to move in this axis).

(c) Rotational (keeping your eyes level, turn your head to the left and right).

1. Move the patient’s head in ONLY ONE axis at a time until neutral position is reached.
2. If you encounter resistance or increased pain, STOP. Never force the head into neutral position.

**Moving a patient from sitting to lying position**

1. Hands on stable can be maintained on a seated patient, but it may become necessary to lay the patient down if attempting to BEAM the patient for comfort, or in anticipation of loss of consciousness.
2. Explain to the patient that you are going to help them lie down, and ask them to help hold their spine in neutral position.
3. Maintaining hands-on stable, guide the patient’s head to the ground without allowing the head to leave neutral position. The rescuer maintaining hands on stable must carefully consider his or her hand position so that no repositioning is necessary during the move.



**BEAMing a patient** **(Body Elevation and Movement)**

1. BEAMing is the most stable and preferred method of patient movement.
2. BEAMing requires at least 5 rescuers (7 ideally). Each rescuer takes responsibility for one of the patient’s weight centers. One rescuer holds the head. This person is in charge and gives all commands to the group. One rescuer holds the patient at each shoulder. One rescuer holds the patient at each hip. One or two rescuers support the patient’s legs at the ankles. Rescuers standing across from each other should pair off by height (e.g., the person on the right shoulder should be about as tall as *Beaming*

the person on the left shoulder).

1. To BEAM effectively, all rescuers must move the patient in unison so that the spine does not bend in any axis. This requires extremely meticulous communication.
2. The rescuer holding the patient’s head must explain to the group what commands will be used. (e.g., “I am going to count ‘1, 2, 3, lift.’ When I say ‘lift,’ we will lift the patient slowly to a height of about three feet, until I say ‘stop.’” Once the patient has been lifted, “Okay, now we are going to move in x direction until I say stop.” Etc.)
3. When BEAMing, rescuers should begin in a squatting position and lift by straightening their legs, maintaining straight arms and protecting their backs. Rescuers must watch their partner (across the patient), and other team members to make sure that the patient’s spine is maintained at an even height during the whole move.
4. Move the patient as short a distance as possible to a safe, comfortable location.
5. When planning for an assisted evacuation, prepare to wait for as long as several hours before help arives. Consider BEAMing the patient onto a sleeping pad to prevent hypothermia while the patient is immobilized for an extended period of time. Remember, the ground is often cooler than the air, and your patient is not generating much body heat while immobilized.

**Moving a patient when BEAMing is impossible**

1. If beaming is impossible because (1) an object is in the way or (2) not enough rescuers are available the patient can be moved using an axial drag.
2. To perform an axial drag, grip the patient by the armpits and drag the patient in the direction of their spine. The drag should pull the spine in a straight line.
3. The head should be stabilized in neutral position during the drag. A lone rescuer can drag with their hands and stabilize the head with their forearms.

BEAMing is always preferable to an axial drag. If possible, rescuers should switch from an axial drag to BEAMing, once the patient is clear of obstructions.

**Spine Stable Rolls (Many Rescuers)**

1. Use a spine stable roll to move a patient into position to perform the focused spinal assessment, or if the patient is likely to vomit.
2. With at least one rescuer stabilizing the major weight centers (head, shoulders and hips), allow other rescuers to slowly and gently reposition a patient’s limbs.
3. The patient’s legs should be positioned in line with his or her spine. The foot opposite the direction of rolling can be crossed over the foot near the direction of rolling. This will prevent the legs from flopping around during the roll.
4. The patient’s arm in the direction of rolling should be raised next to the head, and the arm on the side opposite the direction of rolling should be crossed towards the opposite hip.
5. One rescuer should stabilize the patient’s head. This rescuer is in charge and must tell the other rescuers what sequence of commands to follow BEFORE commencing the roll. (e.g., “I am going to count ‘1, 2, 3, roll.’ When I say ‘roll,’ we will roll the patient onto his/her side until I say ‘stop.’”
6. One rescuer should be stationed at the shoulders, with one hand atop the patient’s shoulder and one hand at the patient’s waist. Another rescuer should be stationed at the patient’s hip with one hand on the upper thigh and one hand on the rib cage. The adjacent arms of these two rescuers should cross.
7. The patient should be rolled toward the rescuers. The patient’s front should rest against the thighs of the kneeling rescuers while the patient remains in recovery position.

**Spine Stable Rolls (Less than three rescuers)**

These moves should only be performed in situations where the patient’s life is in immediate danger. (e.g.,Patient is found face down and unconscious with face submerged, patient is found face down and unconscious and breathing cannot be adequately assessed, patient is unconscious and face up and is about to vomit, etc.)

1. Follow the general principles of spine stable moves. Do your best to stabilize all three weight centers (head, shoulders and hips) while moving one body part at a time if repositioning is necessary. Act swiftly and deliberately, but try not to panic or rush into errors.
2. To the best of the rescuer’s ability, the patient should be rolled with all three weight centers stabilized. The roll should be performed in one, swift motion so that inertia helps maintain spinal immobilization. Suggested techniques can be found below.

**A face-up patient needs to be rolled into recovery position**

1. If necessary, reposition the patient’s limbs so that the legs are in line with the spine, and the foot opposite the direction of rolling is crossed over the leg near the direction of rolling at the ankle. The arm near the direction of rolling should be raised next to the head, and the arm opposite the direction of rolling should be crossed over the chest.
2. IF TWO RESCUERS ARE PRESENT one rescuer should stabilize the head while the other rescuer kneels next to the patient, grasping the patient at the hips and shoulders and rolling the patient toward him/herself. The rescuer stabilizing the head must coordinate these motions so that the head stays in line with the rest of the body.
3. A single rescuer should kneel next to the patient. Reaching across the patient’s chest, the rescuer should slide one arm under the patient’s far armpit and up towards the patient’s neck until the rescuer’s hand is able to cradle the patient’s head and neck. This stabilizes two of the three major weight centers.
4. The rescuer should use his/her other hand to grasp the patient at the waist, using a belt or the waistband of the patient’s clothing for leverage.
5. Once the rescuer is in control of all three weight centers, the patient should be rolled towards the rescuer using one swift motion.
6. **Vomit-induced asphyxiation is a highly life-threatening condition, even in the hospital setting.** Do not delay rolling an unconscious patient into recovery position if the patient shows signs of vomiting**.**

**A patient is found face down and needs to be rolled onto his/her back**

1. If necessary, reposition the patient’s limbs so that the legs are in line with the spine, and the foot opposite the direction of rolling is crossed over the leg near the direction of rolling at the ankle.
2. The patient should be rolled away from the rescuer. The rescuer should kneel next to the patient. The patient’s arm near the direction of rolling (across from the rescuer) should be raised next to the head, and the arm closest to the rescuer should lay straight down next to the patient’s side.
3. IF TWO RESCUERS ARE PRESENT, one rescuer should stabilize the head and direct the timing of the patient roll. This rescuer should position his/her hands deliberately so that (s)he will be able to guide the patient’s head through the whole roll without repositioning.
4. The other rescuer should kneel next to the patient, grasping the patient at the shoulders and hips. At the given command, the patient should be rolled away from this rescuer.
5. IF ONE RESCUER IS PRESENT, the rescuer should kneel next to the patient, and slide his/her upper arm under the patient’s armpit, while using his/her lower arm and hand to cradle the patient’s head and neck. Effectively, the rescuer is putting the patient into a “half nelson.”
6. Using his/her other hand, the rescuer should grasp the patient at the hips, using a belt or waistband as a grip if necessary.
7. In one swift motion, the rescuer should roll the patient onto his/her back, away from the rescuer’s kneeling position. The rescuer should cradle the patient’s head during the roll, guiding it so that its rotation is not significantly different from the rotation of the shoulders and hips.
8. If the patient is still in danger once facing up, the rescuer can use an axial drag to move the patient further (see “Moving an patient when BEAMing is impossible” above).

#### Ticks & Lyme Disease

*While most tick bites are harmless, some ticks may carry and transmit diseases, including Lyme disease and Rocky Mountain fever. Because their bites are painless, ticks may remain attached for days without the bitten person becoming aware of it.*

**Treatment:**

1. Perform thorough tick checks daily. Be sure to check under clothing, including under waistbands and bra straps.
2. Watch for signs of local infection OR signs and symptoms of Lyme disease, which include:
   1. Erythema migrans (EM): a distinctive red, expanding “bull’s eye” rash.
   2. Fatigue or weakness.
   3. Fever or chills.
   4. Headaches.
   5. Stiff neck; muscle or joint pain.
   6. In later stages: one-sided paralysis; arthritis; meningitis (swelling of the linings of the brain and spinal cord); nerve or heart damage.
3. If the above symptoms develop in ANY patient, regardless of whether they are aware of having been bitten by a tick, evacuate to medical care.
4. Make any participant aware of the symptoms of Lyme disease as they may not appear until after the trip.

#### Traumatic Brain Injury

*The brain fits snugly within the skull. Therefore, any trauma to the head also risks injury to the brain. A mild traumatic brain injury (TBI) is commonly referred to as a concussion and, for many people, symptoms will resolve shortly. Severe TBIs, however, can be life threatening and require immediate action. Whenever a TBI is suspected, it is extremely important that the victim be thoroughly assessed as soon as possible. In making treatment decisions, the rescuer should err on the side of caution.*

**Call command if any head injury (even mild) is suspected.**

**Assessment**

*Mild closed head injury*

* Brief change in level of responsiveness (A- 🡪 P) but no loss of consciousness.
* Visual disturbances.
* Nausea.
* Dizziness.
* Headache.

*Severe closed head injury*

* Loss of consciousness following traumatic event.
* Sustained decrease in level of responsiveness.
* Amnesia
* Severe headache.
* Vomiting.
* Altered behavior including irritability, confusion, drowsiness, or irrationality.
* Sustained changes in vital signs (decreasing pulse, fast or irregular breathing, pupils dilated, unequal, or unresponsive to light)

*Open skull fracture*

* A depression in or visible cracking of the skull.
* Cerebrospinal fluid or blood leaking from the ears or nose.
* Bruising around the eyes or behind the ears.

**Treatment**

*Mild closed head injury*

1. Monitor the patient for any signs of severe closed head injury or for any changes in signs or symptoms.
2. Allow patient to rest, though wake them every 2 – 3 hours to assess level of responsiveness.
3. If symptoms resolve within 24 hours, proceed as normal. If symptoms do not resolve or signs of impaired balance or senses develop, EVACUATE.

*Severe closed head injury*

1. Immobilize patient’s head, neck, and spine. Cervical spine precautions should be maintained.
2. Manage airway, breathing, and circulation. Treat signs of shock and maintain patient’s body temperature.
3. Monitor patient closely and document any changes in condition.
4. Immediate spine stable EVACUATION.

*Open skull fracture*

1. Cover any wounds and control bleeding with a sterile dressing and direct pressure to the edges of the wound.
2. Stabilize fracture with a bulky or doughnut-shaped dressing.
3. Treat as if patient has a severe closed head injury.

Wound Care

**Assessment**

1. A ***high risk wound*** is diagnosed by any of the following red flags:
   1. A crushing or ragged wound
   2. A wound that is very dirty or contaminated
   3. Any puncture wound or impaled object
   4. A wound caused by an open fracture
   5. Any bite wound
   6. Any wound that exposes bone or muscle tissue
   7. A wound showing signs of systemic infection such as fever and red streaks migrating from the site of infection towards the heart
2. ***Severe bleeding*** is where blood loss is so great that the patient is in immediate, life-threatening danger. This generally includes severe internal bleeding in the core or wounds to the neck, core and proximal limbs that are obviously spurting blood.
3. ***Impaled objects***are any foreign body that penetrates the skin and subcutaneous tissue.
4. All other wounds can be considered ***normal wounds***.

**Treatment**

**Normal Wounds**

1. Stop the bleeding by applying firm, continuous, direct pressure with a clean dressing at the site of the injury. Elevate the injured area if possible. If blood soaks through the first gauze pad, pack fresh gauze on top, so that pressure can be maintained while still monitoring the rate of bleeding.
2. Once the bleeding has stopped (for deep wounds this may take 10+ minutes), clean the area around the wound with an antiseptic swab. Do not put antiseptic directly inside the wound. Irrigate the wound with copious amounts of clean, drinking quality water (preferably under pressure to help remove debris). Use tweezers to remove dirt, debris or lose skin if necessary.
3. Cover the wound with a clean dressing and bandage.
4. At least every 24 hours, remove the bandage, re-clean the wound as described in step 2 and apply a clean dressing. Monitor the wound for signs of infection, including redness, pus and elevated temperature at the site of infection. A systemic infection is always cause for immediate evacuation.
5. A small local infection (size of a large pimple or smaller) need not be evacuated immediately if managed well in the field and checked every 12 hours for signs that the infection is not progressing.
6. Soak small infections in hot, drinking quality, salty water at least 2x per day.

**High Risk Wounds**

1. High risk wounds should be treated according to steps 1-3 above. **All high-risk wounds should be evacuated promptly.**

**Impaled Objects**

1. **Impaled objects, with the exception of splinters, should never be removed without the explicit permission of the program director or advising medical authorities** unless one of the following is true:
   1. Removal is necessary to perform CPR.
   2. Impalement is causing airway obstruction.
2. Attempt to stabilize the object using an improvised splint and begin a hasty evacuation. Call 911, followed by the OA command center immediately.

**Severe Bleeding**

1. Attempt to stop the bleeding for 15 minutes using the techniques described above in step 1 of “normal wounds.”
2. While attempting to stop the bleeding, call 911 and then the program director to plan a rapid assisted evacuation.
3. If bleeding does not stop or slow significantly within 15 minutes, see tourniquet protocol below.

## Tourniquets

1. **If SEVERE bleeding does not cease after 15 minutes of well-aimed direct pressure, and the injury is to a limb, consider applying a tourniquet. The application of a tourniquet is likely to cause loss of the patient’s limb below the site of application and should only be employed as a last-resort, life-saving technique.**
2. A tourniquet may not be applied before obtaining permission from OA Command Center.
3. A tourniquet should be constructed of a non-elastic bandaging material (e.g., a triangle bandage). The bandaging material should be folded into a strip no less than one inch in width.
4. If possible, a metal rod, which will not snap, should be used as the turning mechanism (e.g., a carbineer, spoon, etc.).
5. The tourniquet should be applied proximal to the site of injury, two inches above the site.
6. Following the application of a tourniquet, write the exact time of application on a piece of medical tape, and adhere the tape to the patient’s forehead.
7. Never remove a tourniquet in the field.
8. If you have not already done so, call 911 and follow up with the OA Command Center immediately to plan a hasty, assisted evacuation. Every effort should be made to deliver the patient to definitive care in less than two hours.

### **Eating Concerns**

The below information on eating disorders is not an Outdoor Action medical protocol. It is included for your reference because you may have participants you may be concerned about. Please see the resources section on page \_\_\_\_ for information about campus resources to support both you as a concerned peer and the person with a potential eating concern.

Anorexia Nervosa

Anorexia is an eating disorder where the individual becomes preoccupied with an unhealthy pursuit of weight loss that eventually leads to distortion in body image. No matter how thin they may become, anorexics continue to believe they need to lose weight. To accomplish this desire, they starve themselves, maintain rigorous exercise regimes, and sometimes purge by vomiting, laxatives, or diuretics. Even when weight loss endangers a sufferer’s health she may not understand she has a problem that must be solved.

Most anorexics desire a sense of control, especially if they experience changes in their lives over which they have no power. Changes that can trigger anorexia may include divorce of one’s parents, receiving unexpectedly low grades, rejection in a peer relationship, having a sports injury, and entering a new school. The causes underlying each case of anorexia can vary widely, but certain patterns have emerged. It’s probably safe to say there is never one single cause – anorexia is the result of a combination of many factors including personality traits, genetic disorders, previous eating disorders, low self esteem/lack of identity, rigid or overprotective families, media, and involvement in a sport where thinness is seen as an advantage.

**Signs and Symptoms of Anorexia**

**Behavioral:**

Starvation and restriction of food

Obsession with food, calories, recipes (cooking for others, but not eating anything themselves)

Obsessive exercise

Purging by vomiting, or using diet pills, laxatives, or diuretics

Eating junk food, particularly candy, and drinking a lot of coffee or tea, and/or smoking

Unusual eating habits (e.g. picking at food, spreading it around the plate, cutting food into tiny pieces)

Excuses to avoid eating (e.g. “I already ate,” “I’m not feeling well”)

Hiding food they claimed to have eaten

Suddenly becoming vegan or vegetarian to avoid certain foods

Social withdrawal

Wearing baggy clothes to hide weight loss and keep warm

**Physical:**

Weight loss

Fatigue, muscle weakness

Always being cold

Irregular menstruation or amenorrhea (loss of period)

Fainting spells, dizziness

Headaches

Pale complexion

**Emotional:**

Persistent concern with body image; complaining of being fat, even when thin

Depression, irritability, mood swings

Perfectionist attitude

**Signs of Anorexia You May See While Camping**

Low body weight

Constant movement (fidgeting)

Denial of Hunger

Avoids high calorie/fat foods such as peanut butter, cheese, GORP, Parkay, desserts

Constantly talk about weight/body size

Gets cold easily

Fine hair growth all over body

**Bulimia**

Bulimia involves binge eating followed by purging or fasting. Someone who is bulimic eats an abnormally large amount of food in a short period of time and then fasts or purges using laxatives, diuretics, or self-induced vomiting because he or she feels overwhelmed with guilt and shame. Another method bulimics use to cope with such emotion is excessive exercise. Through purging, fasting, and exercise, bulimics hope to regain a sense of control they lacked while bingeing, but unfortunately they end up suffering such hunger that their cravings for food will take hold once again, making binge eating more likely. In contrast to anorexics, bulimics tend to be around average weight and realize they have a problem. The most dangerous health risk posed by bulimia is cardiac arrest or heart attack due to an electrolyte imbalance of the mineral potassium. Individuals who abuse laxatives will find they can no longer have natural bowel movements, resulting in constipation.

Like other eating disorders, bulimia is a symptom of psychological problems. In order to effectively treat the disorder, one must address the underlying emotional causes.

Who Is at Risk for Developing Bulimia?

It is impossible to pin down an exact description of an individual likely to develop bulimia, but certain events and personality traits are common among bulimic patients. Sufferers often have problems with anxiety, depression, and impulse control. Because bulimics have difficulty trusting people, they have few or no satisfying relationships, and lacking proper coping mechanisms, they do not handle stress gracefully.

**Signs and Symptoms of Bulimia**

**Behavioral:**

Binge eating

Secretive eating

Going to the bathroom after meals

Vomiting

Laxative, diet pill, or diuretic abuse

Intense exercise regimen

Fasting

**Physical:**

Red, puffy face and watery eyes (from vomiting)

Weight fluctuations (usually between 10 and 15 lbs.)

Swollen glands

Fatigue, muscle weakness

Tooth decay

Irregular heartbeats

Chronic sore throat

**Emotional:**

Mood swings

Depression

Low self-esteem

Persistent concern with body image

Feelings of guilt and shame

**Signs of Bulimia You May See While Camping**

Bulimics will normally binge and purge in private, so it is difficult to guess what this person’s behavior may be on an Outdoor Action trip, but here are some likely possibilities

Eats inconsistent amounts—may eat a lot at one meal and then hardly anything the next couple meals to compensate

Possible moodiness because of not being able to keep up the usual binge/purge routine

May constantly talk about body size

Unable to recognize hunger

Calluses or scarring on hands (from inducing vomiting)

**Medical Complications of Eating Disorders**

**General:**

Fatigue

Dizziness, fainting spells, seizures

Headaches

Dehydration

Loss of bone mass, osteoporosis

Insomnia

Anemia, malnutrition.

Disruption of body’s fluid/mineral balance.

Weakened immune system

**Appearance:**

Skin problems – dry, blotchy skin with unhealthy gray or yellow cast

Hair loss

Edema (fluid retention)

Lanugo (fine, downy hair)

**Respiratory System:**

Shortness of breath

**Circulatory system:**

Irregular heartbeats, chest pains

Cold hands and feet

Low blood pressure

Cardiac arrest and death

**Digestive system:**

Bloating

Constipation and diarrhea

Stomach pain and bloating

Chronic sore throat

Ruptured esophagus

Erosion of teeth enamel

Decreased metabolic rate

Kidney and liver damage

Development of peptic ulcers and pancreatitis

**Reproductive System:**

Amenorrhea, infertility

**Helping a Frosh with an Eating Disorder**

It is very unlikely that a frosh will have such a severe problem that it will put them in physical danger on the trip. As there is not very much privacy on Outdoor Action trips, it will probably be easier to confront a frosh you are worried about once back on campus. Confronting someone who you think may have an eating disorder is never easy and there is no one “right” thing to say, but here are some things that might be helpful:

* Approach the person alone. It may be more comfortable to talk to the person with someone else, but it will cause him/her to feel teamed up against.
* Pick a time when both of you will have enough time to finish the conversation and when both of you are calm.
* The conversation does not have to take place all at one time. If you or the person you are confronting becomes upset, it’s okay to end the conversation and try again later.
* Be honest and direct. Tell the person what you have observed that makes you feel concerned. Focus on your concerns about the person’s health—not their physical appearance.

**Remember that if your frosh does have an eating disorder, she probably had it for a long time before you met her and it will probably be a long, slow recovery process. It is very likely that the person you are confronting will deny having a problem. You can’t force anybody to get better. What you can do is let the person know that you are concerned and that you are there for them if they ever do want to talk.**

**Contact an ECPE or counselor at McCosh for additional advice and support. Everybody gets 10 free hours of counseling--you can use these hours to discuss how to best help a friend or frosh you are worried about. Additionally, the counselors can help you determine how serious the situation is.**