Lesson Objectives

1. Explain what is different about first aid principles when help may be delayed.
2. Describe common situations when help is likely to be delayed.
3. List actions to take to be prepared for injury and illness emergencies in remote locations.
4. Describe methods by which EMS can be contacted from isolated areas.
Lesson Objectives continued

5. Explain how to protect a victim until help arrives or how to safely transport a victim if help cannot reach the victim.

6. Describe special care for victims with common injuries and illnesses when help will be delayed.

7. Explain what to do in special wilderness emergencies, such as avalanche or ice rescue, lightning strikes, altitude sickness and scuba diving illness.
First Aid Differences in Remote Locations

- Most first aid based on fact that help will arrive within 10-20 minutes of 9-1-1 call
- Most first aid intended to meet short-term goals
- In remote locations, advanced care may not be available for hours or longer.
  - Be prepared to give additional care and make other decisions about rescue.
Remote Locations

- Plan ahead to prevent emergencies.
- Plan for communication.
- Have additional first aid supplies.
- Know how to care for common injuries and illnesses.
- Be prepared to manage emergencies more likely in remote locations.
- Take a remote location or wilderness first aid course.
Situations When Help May Be Delayed

- Rural areas
- Remote activities, such as hiking, camping, boating
- Natural and other disasters
Rural Areas

• Primary issue: length of time before help arrives
• May be special risks with farm equipment or other specialized activities.
• Injury prevention is especially important.
Hiking, Camping and Boating

• May not be able to call 9-1-1 immediately.
• Rescue vehicles may not be able to reach victim.
• May need to shelter victim from harsh weather.
• May need to send someone for help or evacuate victim.
Natural and Other Disasters

- With widespread damage and injuries, help will be delayed.
General Principles When Help Is Delayed

- Be prepared.
- Plan for emergencies.
- Have right equipment and supplies.
- Be prepared to use leadership skills.
General Principles When Help Is Delayed

continued

• Know how to call for help with alternative means.
• Know how to decide when to send someone for help versus evacuating victim.
• Know how to protect victim until help arrives.
Chapter 23 • Remote Location First Aid

Being Prepared for the Situation

- Do not enter remote locations alone.
- Tell someone where you are going and when you will return.
- Take first aid kit.
- Take more food and water than needed.

- Expect weather emergencies.
- Know where you are.
- Do not use alcohol or drugs.
- Study location.
Trip Planning

- Ensure you are in good physical condition.
- Choose appropriate equipment.
- Plan appropriate menu.
- Learn specifics of area.
- Obtain maps and guidebooks.
- Refresh first aid and CPR skills.
- Plan for communication needs.
Essential Wilderness Equipment

- Topographic map and magnetic compass
- Flashlight (with extra batteries and bulb)
- Extra clothing (including mittens, hat, jacket, and rain gear)
- Sunglasses
- Extra food and water
- Waterproof matches in waterproof container
- Candle/fire starter
- Pocket knife
- First aid kit
- Space blanket or two large heavy-duty trash bags (for shelter)
When Driving Through Isolated Areas

- Emergency flares or bright orange help sign
- Sleeping bag
- Cell phone or CB radio
- Extra engine oil
- Tool kit
- Jumper cables
- Tire chains
- Shovel
- Sand
- De-icer for fuel line
Remote Location First Aid Kit

- First aid book
- Pain and anti-inflammatory medication
- Antihistamine
- Anti-diarrhea tablets
- Ibuprofen
- Safety pins
- Calamine lotion
- Oral decongestant
- Eye drops
- Anti-nausea medication
- Antifungal cream
- Antacid tablets
- Oral rehydration solution
Remote Location First Aid Kit continued

- Moleskin
- Oral hypothermia thermometer
- Oil of cloves
- Temporary dental filling kit
- Throat lozenges
- Sunscreen and lip protection
- Sunburn lotion

- Insect repellent
- Lightweight, flexible splint (such as SAM splint)
- Bulky dressings
- Penlight
- Irrigation syringe
- Water purification tablets
- Sports drinks
Prescription Medications in Remote Location First Aid

- Controversial issue: taking special medications
- Talk with health care provider.
- Medications sometimes prescribed:
  - Cardiac emergency medications
  - Pain medications
  - Antibiotics
  - Treatment for GI infections
  - Allergic reaction medications
Water Disinfection

- Always take more water than needed.
- Remote water can be contaminated.
- Boiling water effectively kills bacteria, viruses, protozoa – best solution.
- Filters can remove bacteria and protozoa.
- Chemical treatments are available that kill bacteria, viruses, some protozoa.
Psychological Issues

- Emergencies more stressful in remote location.
- Decisions involve:
  - How to care for victim
  - Whether to attempt evacuation
  - How to provide shelter
Psychological Issues continued

• Outdoor environment adds stress of weather, temperature extremes, shortage of food or water.
• Members of party may have panic attacks, depression, denial, emotional shock.
• Mental preparedness and leadership skills important to be ready to act effectively.
Mental Preparedness

• Stay confident and remember training.
• Do not deny seriousness of situation, but remain calm.
• Consider all equipment, supplies, resources – improvise if necessary.
• Stay focused on goal.
Mental Preparedness continued

• Help others in group stay calm and act productively.
• Remain positive but realistic.
• Keep the faith – in yourself and your beliefs.
Leadership Skills

- Assess situation and victim’s needs.
- Make plan for first aid and rescue steps.
- Delegate responsibilities to others as needed.
Leadership Skills continued

• Continually reassess situation.
• Change plan as needed.
• Always maintain focus on overall goal:
  • Getting victim to medical care
Calling for Help

- Plan in advance.
- Have appropriate equipment.
- Help can be summoned in most situations.
- Be sure you know where you are before calling for help.
Cell Phones

- Protect from environment, moisture, shocks.
- Pack so it cannot accidentally turn on and discharge battery.
- Save phone for emergency use.
- If no signal, try to get to higher ground, move phone around.
- In expensive GPS units can provide exact longitude and latitude coordinates for rescuers.
Satellite Phones

- Available for communication anywhere in the world
- Can be rented
- Signal strength not usually an issue
Radios

- Handheld CB (citizen’s band) radio may work in some areas.
- FRS (family radio service) transmit less than 3 miles.
- Ham radio may be option.
- VHF radios are used on boats and can reach up to 30 miles.
Rescue Beacons

- Send out emergency signal that is picked up by satellites.
- One-way communication devices:
  - Function only to send signal.
  - Most communicate only device’s position.
Rescue Beacons continued

- Emergency position-indicating radio beacons (EPIRB) are available for boats.
- Personal locator beacon (PLB) can summon help from remote location.
Distress Signals

• Can be used to signal passing aircraft or distant people.

• At night:
  • Build three small campfires in triangle up to 100 ft. apart.
  • Or use three flares or three flashes from flashlight.
Distress Signals continued

• In daytime:
  • Make large campfire.
  • Put green branches or leaves on it to create three puffs of smoke in a row by covering and uncovering campfire.

• In sunlight:
  • Use signal mirror to flash light.
Distress Signals continued

• Make large X in snow or clear ground using material to contrast with ground.
• Raise both arms above head for passing aircraft.
• Fire three shots in row or three whistle blasts.
• Use commercial distress signal (flares, strobes, smoke devices).
Sending Someone for Help

- If victim cannot be transported and it’s impossible to call for help, someone may need to go for help.
- Difficult decision – including who will go
- Person who goes for help must be able to communicate group’s location and lead rescuers back to victim.
Sheltering the Victim

• Protect victim from environment.
• Create emergency shelter, if needed.
• Look for natural shelters.
• Use poncho or tarp to make lean-to or tent.
• Other emergency shelters can be constructed from natural objects.
Sheltering the Victim continued

(a) Poncho tent

(b) Single poncho tent

(c) Lean-tos of poles and branches

(d) Swamp bed

(e) Debris hut

(f) Snow in shelter
Leaving the Victim Alone

- Consider only if:
  - You are alone.
  - You cannot communicate need for help.
  - Unlikely that anyone will pass by location.
- Leave victim alone only if no alternative.
Leaving the Victim Alone continued

- Prepare victim as well as possible before leaving:
  - Shelter, food, water
- Leave written note with victim explaining when you anticipate returning.
- Take note with you about victim in case you are injured.
- With three or more in group – never leave victim alone.
Preparing for Rescue

- Remain in same location until help arrives.
- Help rescuers find you as they approach:
  - Signal with fire or flashlight, smoke, whistle.
Helicopter Rescue

- Stay back from landing zone.
- Protect face and victim from flying debris.
- Do not approach landed helicopter until signaled to do so:
  - Then approach in crouch and never from uphill side.
Helicopter Rescue continued

• Helicopter may lower basket on cable if on water or there is nowhere to land.
Evacuation of a Victim

- Better to wait for help than try to evacuate
- Moving victim may worsen condition and cause more pain.
- Decision depends on:
  - When help is expected
  - Victim’s condition
  - Number of people present
  - Daylight remaining, weather
  - Possibility of giving first aid
Victims Who May Be Evacuated if Help Is Delayed

- Worsening condition (e.g., breathing problem, deteriorating mental status, shock)
- Severe pain
- Inability to walk
- Persistent bleeding
- Severe altitude sickness
- Chest pain
- Infection that is getting worse
- Mental or behavioral disorder puts someone at risk
- Near-drowning
- Severe burns or wounds
- Severe traumatic injury
Evacuation Process

- Send someone ahead for help.
- 4 or 6 people can carry victim on improvised stretcher or litter.
- Secure victim and support head and neck.
- Monitor victim’s condition, be alert for vomiting.
- Two-person walking assist may be appropriate for short distance.
Bleeding, Wounds and Shock

- Bleeding can become life-threatening if not stopped.
- Contaminated wound can become seriously infected.
- Victim in shock caused by blood loss requires special care.
Bleeding, Wounds and Shock continued

- Control external bleeding as soon as possible:
  - Maintain direct pressure.
  - Potential dangers include injury to underlying nerves and muscles, and complications, such as arrhythmias, shock and death.
  - A tourniquet can be used to stop bleeding from an arm or leg to save the victim's life when medical attention will be delayed.
Applying a Tourniquet
Cleaning Wounds

- After bleeding stopped, clean wound to prevent infection.
- Wash with large amounts of water.
- Apply sterile dressing and bandage.
- For deeper wound, use irrigation syringe.
- For gaping wound, use butterfly bandage strips or pack wound if it will not close.
Shock

• Normally shock victim not given anything to drink
• When help delayed, victim needs fluid:
  • Give water, clear fluid or rehydration fluid in small drinks, frequently but as tolerated.
  • Give only if victim is responsive and can swallow.
Musculoskeletal Injuries

- Splinting often necessary
- May need to improvise a splint.
- In rare cases of extremity fracture or dislocation with no circulation below injury:
  - Try to straighten extremity or reduce dislocation (if trained) unless it will increase bleeding.
  - Never try to straighten if victim may receive medical care within 30 minutes or if there is circulation below site.
Spinal Injuries

• May be difficult to keep spine immobilized – improvise with materials at hand.
• Do not try to evacuate victim.
• Gently place victim in normal anatomic position with head straight and eyes forward.
• Assess for injury carefully.
Ruling Out a Spinal Injury

All of following criteria must be met:

- Victim alert, sober, cooperative
- No neck or back tenderness when you press with fingers along spine
- No other injuries that may distract victim from feeling pain or tenderness of spinal injury
- Normal function in all four limbs
Head Injuries

- Victim with concussion may be able to safely walk out.
- Monitor victim closely – wake and check every 2-3 hours.
- For serious brain injury, call for emergency evacuation.
Abdominal Injury or Illness

- If communication impossible, balance risk of victim’s condition against risk of deterioration.
- Closed or open abdominal wound may progress to shock.
- Abdominal pain may be sign of appendicitis that can rapidly become emergency.
Burns

• Victim who is alert should be given large amounts of water or clear fluids:
  • Give slowly and a little at a time.

• Burn prevention is especially important in outdoor recreational activities.
Diabetic Emergencies

- Diabetic should inform others how to administer medication in emergency.
- Diabetics should carefully monitor blood sugar levels and teach others signs and symptoms.
- If diabetic shock develops, give water and treat for shock.
- Evacuate victim in diabetic crisis as quickly as possible.
Anaphylactic Shock

- Tell others if you have severe allergies.
- Have multiple doses of emergency epinephrine in first aid kit.
- Be sure others know where emergency epinephrine auto-injector is and how to use it.
- Evacuate victim as quickly as possible.
Mild Hypothermia

- Responsive victim with body temperature > 90°F may recover with adequate warming.
- Follow standard guidelines.
- With sufficient rest and warming, victim may be able to walk out.
Severe Hypothermia

- Difficult to fully rewarm in remote location
- Do not try to evacuate on foot.
- Send someone for help immediately.
- Avoid rough handling.
Severe Hypothermia continued

- Prevent further heat loss.
- Warm victim as much as possible:
  - Bodily contact
  - Heating pads
  - Hot water bottles beside neck, armpits, groin
Severe Hypothermia and CPR

- Victim may appear to be dead:
  - Skin cold, blue
  - Signs of breathing appear absent
  - Unresponsive
  - Internal temperature below 85°F
Severe Hypothermia and CPR continued

- Assess victim carefully.
- Victim may be breathing only once every 30 seconds or so.
- Rewarm victim and provide CPR if needed.
- Resuscitation may occur even after significant time in cold water.
Heat Emergencies

- Prevent heat emergencies.
- For heat exhaustion or heat stroke – cool victim as soon as possible.
- If victim alert and not vomiting, give fluid a little at a time.
Heat Emergencies continued

- Victim of heat exhaustion may be able to travel after cooling and resting, but walking out in heat may renew problem.
- Cool heat stroke victim and evacuate if possible.
Snake Bites

- Assume snake is poisonous unless certain otherwise.
- Splint limb to reduce movement.
- Keep area below heart.
- Check fingers and toes for circulation.
- Evacuate victim as soon as possible for antivenin.
CPR

- If victim far from medical care does not revive, you can stop CPR after 30 minutes EXCEPT for victims of:
  - Hypothermia
  - Drowning
  - Lightning strike
Special Wilderness Emergencies

- Ice rescue
- Snow emergencies
- Desert survival
- Lightning strikes
- Wildfires
- Altitude sickness
- Scuba diving incidents
Ice Rescue

- Go onto ice only as last resort.
- Lie flat with arms and legs spread to distribute weight.
- Push tree limb or object ahead of you.
- Others should hold your legs, if possible.
Avalanches

- Avoid areas prone to avalanches.
- Use avalanche transceivers (beacons).
- An avalanche airbag pack can help.
- Chances of survival diminish with time.
- Call for help if someone is buried.
- Begin searching immediately.
- Start where victim last seen and work down slope.
- Use ski poles or branches to probe snow.
Snow Blindness

- Burn is caused by intense sunlight reflected from snow.
- Prevent it with UV eye protection.
- Eyes first are sensitive, headache may develop, eventually vision lost.
- Bandage eyes to prevent further exposure.
- Cold compresses may relieve pain.
- Victim recovers usually within 12-18 hours.
Desert Survival

• Preparation and training essential
• Daily intake of water can increase up to 3-5 gallons/person.
• Desert survival training includes finding and purifying water.
Lightning Strikes

- About $\frac{1}{3}$ of victims die.
- Immediate CPR is critical.
- Continue CPR past 30 minutes.
Altitude Sickness

- Risk at over 8,000-10,000 feet
- Impossible to predict who is susceptible
- Maintain good hydration at higher elevation as body fluid is lost more rapidly.
Altitude Sickness continued

• Acute mountain sickness (AMS) most common:
  • Causes headache, dizziness, fatigue, shortness of breath, nausea, lack of appetite, general malaise
  • Medication available to treat mild or moderate symptoms

• Severe AMS causes shortness of breath at rest, decreasing mental status, inability to walk:
  • Descent to lower altitude only cure for severe symptoms.
Emergency Altitude Sickness

• High altitude pulmonary edema:
  • Shortness of breath
  • Tightness in chest
  • Significant fatigue and weakness
  • Persistent, productive cough
  • Confusion
  • Irrational behavior
Emergency Altitude Sickness continued

- High altitude cerebral edema
  - Headache
  - Loss of coordination
  - Memory loss
  - Possible hallucinations
  - Psychotic confusion
  - Coma
Emergency Altitude Sickness continued

- Any victim with signs and symptoms must be evacuated immediately:
  - Down mountainside
  - To medical facility
SCUBA Diving

• Call 9-1-1 for any diver experiencing:
  • Breathing difficulty
  • Pain in joints or extremities
  • Feelings of tingling, numbness
  • Paralysis
  • Significant fatigue and generalized weakness
  • Convulsions, coma, unresponsiveness

• Decompression treatment may be needed.
CHAPTER 23

Learning Checkpoint
Chapter – Opening Scenario

You are on a hike with several friends and family members. About 5 miles along the trail you stopped for lunch beside a river, where a friend’s daughter is climbing on rocks at the water’s edge. Her foot slips on a mossy patch and she falls and strikes her head on a rock.

Immediately an adult in the party helps her away from the water. Her head did not go under water, but she has a welt on her forehead and she seems groggy and mildly confused. A few minutes later she seems better, although she has a slight headache.

You allow her to rest, but now you face the decision whether it is safe for her to hike back out. Unfortunately you have no means to call for help, and the terrain is too steep and rough to consider carrying her out.

What should you do?
CHAPTER 23

Critical Thinking Challenge Questions
Scenario 1

You are 1 of a group of 5 backpackers hiking high in the mountains in October when you experience a snow squall. The group, believing the snow will not accumulate much, has decided to push on, and starts a single-file ascent up a steep, narrow stretch of trail.

The woman at the end of the line loses her footing in the snow and slides over the edge of a rocky embankment. She tumbles and slides down to a flat ledge.
Scenario 1 continued

When you reach her, she is responsive but groggy. She has minor bleeding in several places and a large gash across her forehead.

As you begin your assessment, what condition should you be watching for?
You assess her head injury and check for a spinal injury. She has very diminished sensation in her hands and feet and cannot squeeze your hand with hers.

What are your first priorities for her care?
Scenario 1 continued

Because you have established that she has a likely spinal injury, you know she needs emergency care. You are about 10 miles from the trailhead where your vehicles are parked. Although you have a cell phone, it does not have a signal in this remote area.

With 4 of you to help, should you try to carry her back down the trail on an improvised stretcher?
After a quick discussion, your group decides that 2 will go for help, and 2 will stay with the victim.

What are the priorities of each group?

What planning should be done before the 2 leave to go for help?
Scenario 1 continued

The 2 hikers have left to summon help.

What are the priorities for the 2 hikers remaining with the victim?

What else can they do to improve their chances for timely rescue?
CHAPTER 23

Discussion and Questions