Chemical Burns (1 of 4)

- Can occur whenever a toxic substance contacts the body
- Generally caused by strong acids or strong alkalis
- The eyes are particularly vulnerable.

Chemical Burns (2 of 4)

- The severity of the burn is directly related to the:
  - Type of chemical
  - Concentration of the chemical
  - Duration of the exposure
- Wear appropriate chemical-resistant gloves and eye protection.

Chemical Burns (3 of 4)

- Management
  - Remove any chemical from the patient.
  - Always brush dry chemicals off the skin and clothing before flushing with water.
  - Remove the patient's clothing.

Chemical Burns (4 of 4)

- Management (cont'd)
  - For liquid chemicals, immediately begin to flush the burned area with lots of water.
  - Continue flooding the area for 15 to 20 minutes after the patient says the burning pain has stopped.
  - If the patient's eye has been burned, hold the eyelid open while flooding the eye.

Electrical Burns (1 of 5)

- May be the result of contact with high- or low-voltage electricity
- For electricity to flow, there must be a complete circuit between the source and the ground.
  - Any substance that prevents this circuit is called an insulator.
  - Any substance that allows a current to flow is called a conductor.

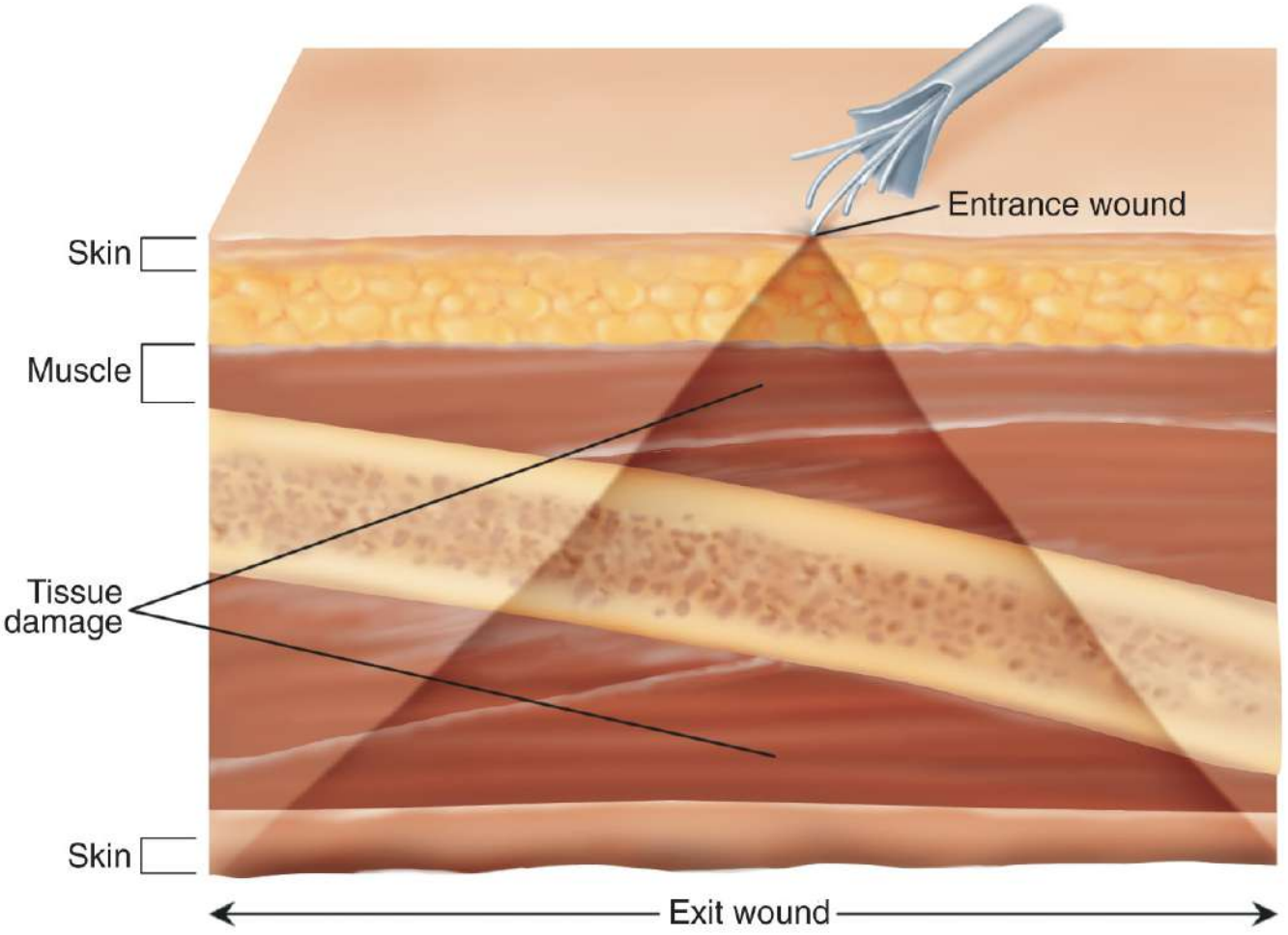
Electrical Burns (2 of 5)

- The human body is a good conductor.
- The type of electric current, magnitude of current, and voltage have effects on the seriousness of the burn.
- Your safety is of particular importance.
  - Never attempt to remove someone from an electrical source unless you are specially trained to do so.

Electrical Burns (3 of 5)

- A burn injury appears where the electricity enters and exits the body.
- Two dangers:
  - There may be a large amount of deep tissue injury.
  - The patient may go into cardiac or respiratory arrest from the electric shock.

Electrical Burns (4 of 5)



Electrical Burns (5 of 5)

- Management
  - If indicated, begin CPR on the patient and apply an AED.
  - Be prepared to defibrillate if necessary.
  - Give supplemental oxygen and monitor.
  - Treat soft-tissue injuries with dry, sterile dressings.
  - Provide prompt transport.

Thermal Burns (1 of 3)

- Caused by heat
- Most commonly, they are caused by scalds or an open flame.
  - A flame burn is very often a deep burn.
  - Hot liquids produce scald injuries.
- Coming in contact with hot objects produces a contact burn.

Thermal Burns (2 of 3)

- A steam burn can produce a topical burn.
- A flash burn is produced by an explosion.
  - May briefly expose a person to very intense heat
  - Lightning strikes can cause a flash burn.

Thermal Burns (3 of 3)

- Management
  - Stop the burning source, cool the burned area, and remove all jewelry.
  - Increased exposure time will increase damage to the patient.
  - All patients should have a dry dressing applied to:
    - Maintain body temperature
    - Prevent infection
    - Provide comfort

Inhalation Burns (1 of 4)

- Can occur when burning takes place in enclosed spaces without ventilation
  - Upper airway damage is often associated with the inhalation of superheated gases.
  - Lower airway damage is more often associated with the inhalation of chemicals and particulate matter.

Inhalation Burns (2 of 4)

- You may encounter severe upper airway swelling, requiring intervention immediately.
  - Consider requesting ALS backup.
- The combustion process produces a variety of toxic gases.

Inhalation Burns (3 of 4)

- Carbon monoxide intoxication should be considered whenever a group of people in the same place all report a headache or nausea.
- Management
  - First ensure your own safety and the safety of your coworkers.

Inhalation Burns (4 of 4)

- Management (cont'd)
  - Prehospital treatment for a patient with suspected hydrogen cyanide poisoning includes decontamination and supportive care.
  - Care for any toxic gas exposure includes:
    - Recognition
    - Identification
    - Supportive treatment

Radiation Burns (1 of 4)

- Potential threats include:
  - Incidents related to the use and transportation of radioactive isotopes
  - Intentionally released radioactivity in terrorist attacks
- You must determine if there has been a radiation exposure and then whether ongoing exposure continues to exist.

Radiation Burns (2 of 4)

- Three types of ionizing radiation:
  - Alpha
    - Little penetrating energy, easily stopped by the skin
  - Beta
    - Greater penetrating power, but blocked by simple protective clothing
  - Gamma
    - Very penetrating, easily passes through the body and solid materials

Radiation Burns (3 of 4)

- Most ionizing radiation accidents involve gamma radiation, or x-rays.
- Management
  - Patients with a radioactive source on their body must be initially cared for by a HazMat responder.
  - Irrigate open wounds.
  - Notify the emergency department.

Radiation Burns (4 of 4)

- Management (cont'd)
  - Identify the radioactive source and the length of the patient's exposure to it.
  - Limit your duration of exposure.
  - Increase your distance from the source.
  - Attempt to place shielding between yourself and the sources of gamma radiation.

Patient Assessment of Burns
(1 of 2)

- When you are assessing a burn, it is important for you to classify the victim's burns.
- Classification involves determining the:
  - Source of the burn
  - Depth of the burn
  - Severity

Patient Assessment of Burns
(2 of 2)

- Patient assessment steps
  - Scene size-up
  - Primary assessment
  - History taking
  - Secondary assessment
  - Reassessment

Scene Size-up

- Scene safety
  - Observe the scene for hazards and safety threats.
  - Ensure that the factors that led to the patient's burn injury do not pose a hazard.
- Mechanism of injury/nature of illness
  - Determine the type of burn that has been sustained and the MOI.

Primary Assessment (1 of 5)

- Begin with a rapid scan.
- Form a general impression.
  - Be suspicious of clues that may indicate abuse.
  - Consider the need for manual spinal stabilization.
  - Check for responsiveness using the AVPU scale.

Primary Assessment (2 of 5)

- Airway and breathing
  - Ensure that the patient has a clear and patent airway.
  - Be alert to signs that the patient has inhaled hot gases or vapors:
    - Singed facial hair
    - Soot present in and around the airway

Primary Assessment (3 of 5)

- Airway and breathing (cont'd)
  - Copious secretions and frequent coughing may indicate a respiratory burn.
  - Quickly assess for adequate breathing.
  - Inspect and palpate the chest wall for DCAP-BTLS.

Primary Assessment (4 of 5)

- Circulation
  - Assess the pulse rate and quality.
  - Determine perfusion based on the patient's skin condition, color, temperature, and capillary refill time.
  - Control significant bleeding.
  - Assess for shock.

Primary Assessment (5 of 5)

- Transport decision
  - Consider quickly transporting a patient who has:
    - An airway or breathing problem
    - Significant burn injuries
    - Significant external bleeding
    - Signs and symptoms of internal bleeding
  - Consider a rendezvous with ALS providers.

History Taking (1 of 3)

- Investigate the chief complaint.
  - Be alert for signs and symptoms of other injuries due to the MOI.
  - Typical signs of a burn are:
    - Pain
    - Redness
    - Swelling
    - Blisters
    - Charring

History Taking (2 of 3)

- Investigate the chief complaint (cont'd).
  - Regardless of the type of burn injury, it is important for you to:
    - Stop the burning process.
    - Apply dressings to prevent contamination.
    - Treat the patient for shock.

History Taking (3 of 3)

- SAMPLE history
  - Along with the SAMPLE history, also ask the following questions:
    - Are you having any difficulty breathing?
    - Are you having any difficulty swallowing?
    - Are you having any pain?
  - Check whether the patient has an emergency medical identification device.

Secondary Assessment (1 of 2)

- Physical examinations
  - Perform a full-body scan.
  - Make a rough estimate, using the rule of nines, of the extent of the burned area.
  - Determine the classification of the burn.
  - Determine the severity of the burn.
  - Package the patient for transport.

Secondary Assessment (2 of 2)

- Physical examinations (cont'd)
  - Assessment of the respiratory system involves looking, listening, and feeling.
  - Assess the patient's neurologic system.
  - Assess the musculoskeletal system.
  - Determining an early set of vital signs will help you to know how your patient is tolerating his or her injuries.

Reassessment (1 of 3)

- Repeat the primary assessment and reassess the patient's vital signs.
- Reassess the chief complaint.
- Reevaluate interventions
  - Stop the burning process.
  - Assess and treat breathing.
  - Support circulation.

Reassessment (2 of 3)

- Reassess interventions (cont'd)
  - Provide rapid transport.
  - Oxygen is mandatory for inhalation burns but is also helpful in patients with smaller burns.
  - If the patient has signs of hypoperfusion, treat aggressively for shock and provide rapid transport.

Reassessment (3 of 3)

- Communication and documentation
  - Provide hospital personnel with a description of how the burn occurred.
  - Include the extent of the burns.
    - Amount of body surface area involved
    - Depth of the burn
    - Location of the burn
  - Document if special areas are involved.

Emergency Medical Care for Burns

- Stop the burning process.
- Prevent additional injury.
- Follow the steps in **Skill Drill 24-3**.

Dressing and Bandaging (1 of 2)

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- All wounds require bandaging.
  - Sometimes splints can help control bleeding and provide firm support for dressing.
  - There are many different types of dressings and bandages.

Dressing and Bandaging (2 of 2)

- Dressings and bandages have three functions:
  - To control bleeding
  - To protect the wound from further damage
  - To prevent further contamination and infection

Sterile Dressings (1 of 2)

- Most wounds will be covered by:
  - Universal dressings
  - Conventional 4″ × 4″ and 4″ × 8″ gauze pads
  - Assorted small adhesive-type dressings and soft self-adherent roller dressings
- Universal dressings are ideal for covering large open wounds.

Sterile Dressings (2 of 2)

- Gauze pads are appropriate for smaller wounds.
- Adhesive-type dressings are useful for minor wounds.
- Occlusive dressings prevent air and liquids from entering (or exiting) the wound.

Bandages (1 of 3)

- To keep dressings in place during transport, you can use:
  - Soft roller bandages
  - Rolls of gauze
  - Triangular bandages
  - Adhesive tape
- The self-adherent, soft roller bandages are easiest to use.

Bandages (2 of 3)

- Adhesive tape holds small dressings in place and helps to secure larger dressings.
- Do not use elastic bandages to secure dressings.
  - The bandage may become a tourniquet and cause further damage.

Bandages (3 of 3)

- Splints are useful in stabilizing broken extremities.
  - Can be used with dressings to help control bleeding from soft-tissue injuries
- If a wound continues to bleed despite the use of direct pressure, quickly proceed to the use of a tourniquet.