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Med-Surg: Concept

Week 9:

ABC assessment prioritization

Primary Survey

Components

Performing on a client

- A primary survey is a rapid assessment of life-threatening conditions. It should take no longer than 60 seconds to perform. The primary survey should be completed systematically so conditions are not missed.
- Standard precautions attire - gloves, gowns, eye protection, face masks, and shoe covers must be worn to prevent contamination with bodily fluids. The ABCDE principle guides the primary survey.

- **A**irway and C-Spine
- **B**reathing
- **C**irculation
- **D**isability
- **E**xposure
- **Airway**
- Inhalation injury (e.g. fire victim)
- Obstruction (partial or complete) from foreign bodies, debris (vomitus), or tongue
- Penetrating wounds &/or blunt trauma to upper airway structures
- **Breathing**
- Anaphylaxis
- Flail chest w/ pulmonary contusion
- Hemothorax
- Pneumothorax (e.g. open, tension)
- **Circulation**
- Direct cardiac injury (e.g. MI, trauma)
- Pericardial tamponade
- Shock (e.g. massive burns, hypovolemia)
- Uncontrolled external hemorrhage
- Hypothermia
- **Disability**
- Head injury
- Stroke

ESI Triage

Assess acuity level

Prioritize patients based on chief complaint and presentation

Opioid overdose

Treatment

- Gastric lavage, whole bowel irrigation, diuresis, hemodialysis
- Naloxone

Hypothermia

Manifestations

- Pale, cool skin
  Flat affect
  Tachycardia
  Tachypnea
  Impaired judgment, progressing to motor incoordination, ataxia, and slurred speech
  Mild (temperature between 90° F [32.0° C] and 95° F [35° C]): severe shivering, slurred speech, amnesia, loss of fine motor coordination, tachycardia, and hypertension (see Comparing the severity of hypothermia)
  Moderate (temperature between 90° F and 82.0° F [28° C]): unresponsiveness, peripheral cyanosis and muscle rigidity, bradycardia, hypotension, hypoventilation, and slowed reflexes
  Severe (temperature less than 82.0° F): dead appearance, no palpable pulse or audible heart sounds, very cold skin, areflexia, and fixed pupils

Frostbite

Nursing Interventions

Management: Restore normal body temperature

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  Rapid rewarming of injured part using water at 40° to 42° C (104° F to 107° F) for 15 to 30 minutes or until evidence of complete thawing

Removal of person from the cold
Removal of any wet or constrictive clothing
Whirlpool treatments
Elevation and protection of extremity after rewarming; splinting
Padding between frostbitten digits to prevent maceration

- Remove constrictive clothing and jewelry.
  Use an electric probe for temperature monitoring, as appropriate.
  Perform rewarming measures; immerse affected body parts in warm water (104° to 108° F [40° to 42° C]) for several minutes; initially warm for 15 to 30 minutes or until evidence of thawing is noted (area is flushed, soft, and pliable); assist with daily hydrotherapy sessions, which usually last 30 to 45 minutes.

Consent

Unresponsive patients

- Consent is required to examine and treat any patient

- Implied Consent
- determined by some act or silence, which raises a presumption consent has been authorized (e.g, patient in accident and in comatose state)
  -
  - If the patient is unconscious upon arrival this should be documented
  - Additional consent for procedures should be obtained when necessary

Heat Stroke

Manifestations

hot dry skin
-hypotension
-tachypnea
-tachycardia
-anxiety
-confusion
-unusual behavior
-seizures
-coma

- Objective → core temperature >105.3, altered mental status, absence of perspiration, & circulatory collapse
- Neurologic symptoms d/t brain sensitivity to thermal injuries → hallucinations, loss of muscle coordination, combativeness

Airway obstruction

Manifestations

- Tachycardia
- Retractions
- Restlessness

RACE acronym for fire
Acetaminophen OD
Manifestations
Treatment
Carbon monoxide poisoning
Manifestations

Poison	Manifestations	Treatment
Acetaminophen (Tylenol)	• Phase 1 (w/in 24 hrs of ingestion): malaise, diaphoresis, N/V • Phase 2 (24-48 hrs after ingestion): RUQ abd pain, decreased UO, diminished nausea, elevated LFTs • Phase 3 (72-96 hrs after ingestion): N/V, malaise, jaundice, hypoglycemia, enlarged liver, possible coagulopathies including DIC • Phase 4 (7-8 days after ingestion): recovery, resolution of symptoms or	Activated charcoal, N-acetylcysteine (oral form may cause vomiting, IV form can be used)

	permanent liver damage, LFTs remain high	
Acids & Alkalis Acids: toilet bowel cleaners, antitrust compounds Alkalis: drain cleaners, dishwashing detergents, ammonia Aspirin & aspirin containing drugs	Excessive salivation, dysphagia, epigastric pain, pneumonitis, burns of mouth, esophagus, & stomach Tachypnea, tachycardia, hyperthermia, seizures, pulmonary edema, occult bleeding or hemorrhage, metabolic acidosis	Immediate dilution (water, milk), corticosteroids (for alkali), induced vomiting is contraindicated Activated charcoal, gastric lavage, urine alklinization, hemodialysis for severe acute ingestion, intubation & mechanical ventilation, supportive care
Bleaches	Irritation of lips, mouth, & eyes, superficial injury to esophagus, chemical pneumonia & pulmonary edema	Washing of exposed skin & eyes, dilution w/ water & milk, gastric lavage, prevention of vomiting & aspiration
Carbon monoxide	Dyspnea, HA, tachypnea, confusion, impaired judgment, cyanosis, respiratory depression	Removal from source, administration of 100% O2 via NRB, BMV, or intubation and MV, consider hyperbaric O2 therapy

Tricyclic antidepressants (eg. Amitriptyline)	In low doses: anti-cholingeric effects, agitation, hypertension, tachycardia In high doses: CNS depression, dysrhythmias, hypotension, respiratory depression	Multi-dose activated charcoal, gastric lavage, serum alkalinization w/ sodium bicarbonate, intubation & MV, supportive care; never induce vomiting

Week 10:

Nursing roles during a disaster

- Role of the nurse during a disaster varies
- Nurses may be asked to perform duties outside their areas of expertise and may take on responsibilities normally held by physicians or advanced practice nurses
- A nurse may serve as the triage officer
- New settings and atypical roles for nurses arise during a disaster

Triage officers during a disaster

Incident Command System (ICS):

- a federally mandated command structure that coordinates personnel, facilities, equipment, and communication in any emergency situation

HICS

- Hospital Incident Command System (HICS) is a modification of the ICS that is used by both hospitals and law enforcement agencies
- HICS incident commander is the hospital emergency preparedness coordinator who oversees and coordinates all efforts surrounding the event
- HICS identifies facility responsibilities and channels of reporting

Disaster Triage

- **Assign Color**
- **Acuity**

Immediate: Injuries are life threatening but survivable with minimal intervention. Individuals in this group can progress rapidly to expectant if treatment is delayed.	**1**	**Red**	Sucking chest wound, airway obstruction secondary to mechanical cause, shock, hemothorax, tension pneumothorax, asphyxia, unstable chest and abdominal wounds, incomplete amputations, open fractures of long bones, and 2nd/3rd degree burns of 15%–40% total body surface area
Delayed: Injuries are significant and require medical care but can wait hours without threat to life or limb. Individuals in this group receive treatment only after immediate casualties are treated.	2	**Yellow**	Stable abdominal wounds without evidence of significant hemorrhage; soft tissue injuries; maxillofacial wounds without airway compromise; vascular injuries with adequate collateral circulation; genitourinary tract disruption; fractures requiring open reduction, débridement, and external fixation; most eye and central nervous system injuries
Minimal: Injuries are minor, and treatment can be delayed hours to days. Individuals in this group should be moved away from the main triage area.	3	**Green**	Upper extremity fractures, minor burns, sprains, small lacerations without significant bleeding, behavioral disorders or psychological disturbances
Expectant: Injuries are extensive, and chances of survival are unlikely even with definitive care. Persons in this group should be separated from other casualties, but not abandoned. Comfort measures	4	**Black**	Unresponsive patients with penetrating head wounds, high spinal cord injuries, wounds involving multiple anatomic sites and organs, 2nd/3rd degree burns in excess of 60% of body surface area, seizures or

should be provided when possible.			vomiting within 24 hours after radiation exposure, profound shock with multiple injuries, agonal respirations; no pulse, no blood pressure, pupils fixed and dilated

ABC assessment prioritization

Emergency preparedness kits

Items to include

- **Include the following supplies**:
- Back pack, personal identification, clean clothing, sturdy footwear; pocket-knife; 3-day supply of water; 3-day supply of non-perishable food; blankets/sleeping bag/pillow; first aid kit; adequate supply of prescription medications; battery operated radio; flashlight & batteries; credit card/cash/traveler's checks; extra set of keys and full tank of gas in the car; cell phone; toiletries; matches in waterproof container

Burns:

First, second, third degree burns

Which layers are involved

Example of each

1st Degree (Superficial)	• **Reddened; blanches with pressure; dry** • **Minimal or no edema** • **Possible blisters**	• **Sunburn** • **Low-intensity flash** • **Superficial scald**	**Epidermis**
2nd Degree (Partial Thickness)	• **Blistered, mottled red base; disrupted epidermis; weeping surface** • **Edema**	• **Scalds** • **Flash flame** • **Contact**	**Epidermis, portion of dermis**
3rd Degree (Full thickness)	• **Dry; pale white, red, brown leathery, or charred** • **Coagulated vessels may be visible** • **Edema**	• **Flame** • **Prolonged exposure to hot liquids** • **Electric current** • **Chemical** • **Contact**	**Epidermis, dermis, and sometimes subcutaneous tissue; may also involve connective tissue, and muscle**
4th Degree (Full thickness that includes fat, fascia, muscle, and/or bone)	• Charred	• Prolonged exposure or high voltage electrical injury	Deep tissue, muscle, and bone

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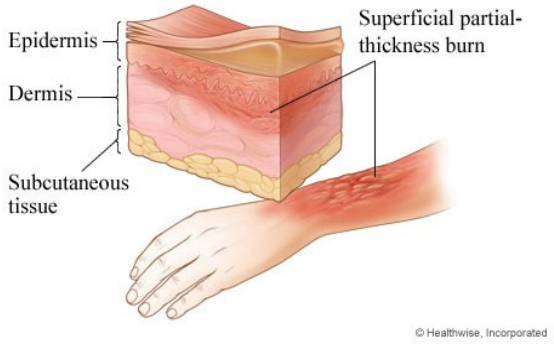
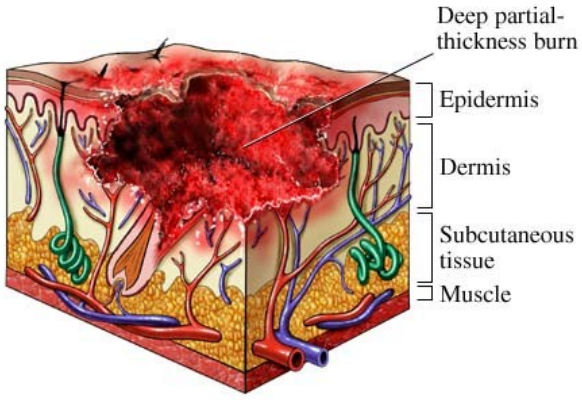
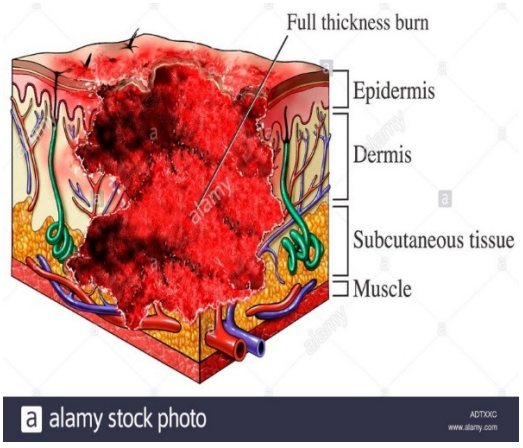
Superficial Partial Thickness Burn(First Degree)





Full Thickness Skin Destruction



Escharotomy

Patient education:

- Into the eschar to relieve pressure and promote circulation

Wound care

Nursing interventions

Wound Care:

- Cleansing and gentle debridement (using scissors & forceps) during a regular shower or w/ patient in bed
- Once daily shower & dressing change w/ an evening dressing change in the patient's room are often routine in burn centers
- Extensive, surgical debridement done in OR
- Patients find 1st wound care to be both physically & mentally demanding; provide emotional support & begin to build trust during this activity
- INFECTION can cause further tissue injury & possible sepsis
- Source of infection is likely the patient's own normal flora, mostly from skin, respiratory, & GI systems
- Always wear PPE and use sterile gloves when applying ointments & sterile dressings
- Permanent skin coverage is the primary goal → autograft (patient's own skin) or allograft (cadaver skin) is generally used; newer biosynthetic options are now available
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Emergent phase

Nursing Interventions

- Care predominantly focuses on airway management, fluid therapy, & wound care
- Airway management
- Early endotracheal intubation to reduce need for emergency tracheostomy
- Escharotomy in circumferential burns to neck &/or chest
- If no intubation, 100% humidified O2 & place in high fowler's
- Encourage TCDB (turn, cough, deep breathe)
- Fluid therapy
- Parkland (Baxter) formula
- If electrical burn then require both fluids & mannitol (osmotic diuretic) to increase UO & overcome high levels of myoglobin & hemoglobin in urine
- <u>Assess for adequacy of fluid resuscitation using clinical parameters</u>:

- Urine output → 0.5-1.0mL/kg/hr; 75-100mL/hr for electric burns
- Cardiac parameters → MAP >65, SBP >90, HR <120

Assessing severity of burns

- Depth of burn
- Extent of burn
- Location of burn
- Patient risk factors
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ABC assessment prioritization

Rule of Nine's

- Calculate TBSA affected

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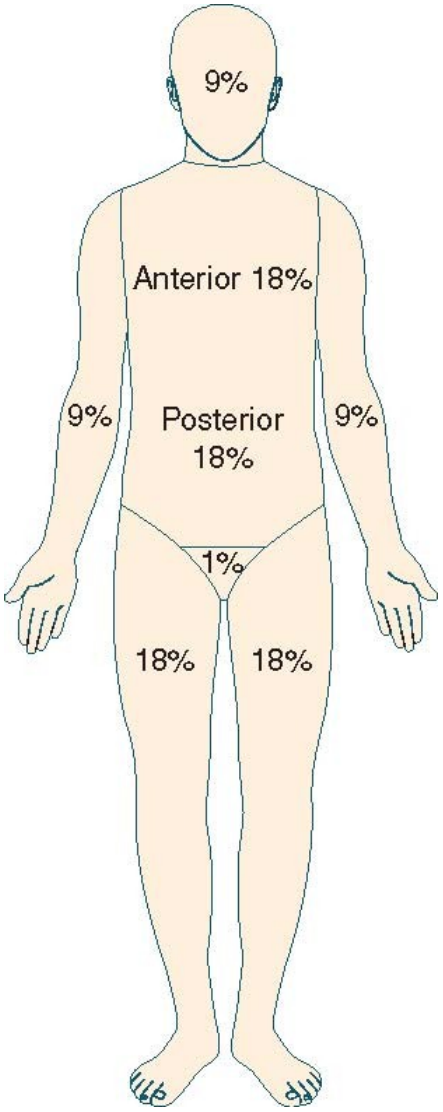

- Prioritize nursing interventions based on TBSA

Fluid resuscitation

- Fluids used, over what timeframes
- Signs of adequate replacement
- Calculate using Parkland Baxter formula

Parkland (Baxter) Formula

4mL/kg x % of TBSA = total fluid requirements for 1st 24 hrs

Use Lactated Ringers

Application:

½ of total in 1st 8 hrs

¼ of total in 2nd 8 hrs

¼ of total in 3rd 8 hrs

Formulas are guidelines. Fluid is given at a rate to produce 0.5-1 mL/kg/hr of urine output. The American Burn Association Consensus Fluid Resuscitation Formula has suggested 2-4mL/kg x % TBSA burned = total fluid requirements for 1st 24 hrs. This strategy avoids over-resuscitation of fluids or “fluid creep”.

Example:

For a 70-kg patient w/ 50% TBSA burn:

4mL x 70 kg x 50 = 14,000mL in 24 hrs

7000mL (1/2) given in 1st 8 hrs

3500mL (1/4) given in the 2nd 8 hrs

3500mL (1/4) given in the 3rd 8 hrs

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Facial burns

Priority assessment

Anticipated electrolyte imbalances

Electrolytes:

Major electrolyte shifts of Na+ & K+

Potassium shift develops d/t injured cells & hemolyzed RBCs release potassium into circulation → hyperkalemia

Sodium rapidly moves to interstitial spaces & remains there until edema formation ends → hyponatremia

Inhalation injury:

Treatment

Watching closely for signs of respiratory distress

If CO poisoning is suspected → treated w/ 100% humidified O2

REMEMBER, THE BURN PATIENT MAY ALSO HAVE SUSTAINED OTHER INJURIES THAT COULD TAKE PRIORITY OVER THE BURN ITSELF!

Nursing interventions

Focus on CAB → circulation (C), airway (A), breathing (B)

Rapid initial & ongoing assessment is critical → airway compromise & pulmonary edema can develop over the 1st 12-24 hrs

Initial:

- If unresponsive, assess circulation, airway, & breathing
- If responsive, monitor airway, breathing, & circulation
- Stabilize cervical spine
- Assess for concurrent thermal burn
- Provide 100% humidified O2

- Anticipate ET intubation & MV w/ significant inhalation injury
- Monitor VS, LOC, O2sat, & heart rhythm
- Remove non-adherent clothing, jewelry, glasses, or contact lenses (if face was exposed)
- Establish IV access w/ 2 large bore IV catheters if burn >15% TBSA
- Begin fluid replacement
- Insert indwelling urinary catheter if burn >15% TBSA
- Elevated burned limb(s) above heart to decrease edema
- Obtain ABG, carboxyhemoglobin levels, & CXR
- Give IV analgesia & assess effectiveness frequently
- Identify & treat other associated injuries (e.g. fractures, pneumothorax, head injury)
- Cover concurrent burned areas w/ dry dressings or clean sheet
- Anticipate need for fiberoptic bronchoscopy or intubation

Ongoing Monitoring:

- Monitor airway, breathing, & circulation
- Monitor VS, O2sat, heart rhythm, & LOC
- Monitor pain level

Monitor urine output

Circumferential burns

Nursing interventions

Active ROM- recovery phase-major joints

Focus on CAB → circulation (C), airway (A), breathing (B)

- At scene of injury → priority is to remove person from source of burn and stop the burning process
- Small thermal burns (<10% TBSA)
    - Cover w/ clean, cool, tap water-dampened towel for patient comfort & protection until medical care is available
    - Cooling w/in 1 minute of injury helps minimize depth of injury
- Large (>10%) or electrical or inhalation burn
    - Focus on CAB → circulation (C), airway (A), breathing (B)
- To prevent hypothermia, cool large burns for no more than 10 min
- <u>Do not immerse burned body part in cool water because it may cause extensive heat loss</u>

- Never cover a burn w/ ice → may cause hypothermia & vasoconstriction of blood vessels, thus further reducing blood flow to injury
- Wrap pt in dry, clean sheet or blanket to prevent further contamination of the wound and to provide warmth

Rapid initial & ongoing assessment is critical → airway compromise & pulmonary edema can develop over the 1st 12-24 hrs

Medication calculation