ABC assessment prioritization

- Airway, breathing circulation!
- ABCDE principle
    - Airway and C-spine, breathing, circulation, disability, and exposure

Primary Survey

- Components
    - Rapid assessment of life-threatening conditions
    - Should be completed systematically
    - Guide primary survey with ABCDE principle
        - Airway
        - Breathing
        - Circulation
        - Disability
        - exposure
- Performing on a client
    - Should be completed systematically
    - Use standard precautions

ESI (Emergency Severity Index) Triage

- Sorts patients. Triage system identifies and categorizes so the most critical are treated first
- Determine acuity level (1-5)
- prioritize patients based on CC and presentation
- Assess acuity level
    - **Level 1**: requires immediate lifesaving intervention
        - EX: airway, emergency medications, hemodynamic interventions (IV, monitor, EKG or lab DO NOT COUNT); and any of the following clinical conditions: intubation, apneic, pulselessness, severe respiratory distress, SpO2 < 90, acute mental status change, or unresponsive cardiac arrest
            - Unresponsive is defined as a patient that is either:
                - Nonverbal and not following commands (acutely)
                - Required noxious stimulus (P or U or AVPU) scale
    - **Level 2:** high risk situation or confused/lethargic/disoriented or severe pain/distress (>7 on scale and visually unstable) (mental health, 2-year-old with fever and lethargic) CP with cardiac hx
        - High risk situations → a patient you would put in your last bed
        - Severe pain/distress → determined by clinical observation ad/or patient rating of greater than or equal to 7 on 0-10 pain scale
    - **Level 3**: urgent, abdominal pain, how many resources are needed? Many
        - Danger zone vitals: No → 3; Yes → Lvl 2
            - <3m → HR >180; RR >50
            - 3m-3y → HR >160; RR >40
            - 3-8y → HR >140; RR >30
            - >8y → HR > 100; RR >20
    - **Level 4:** less urgent – laceration, how many resources are needed? One
    - **Level 5**: nonurgent – simple rash, how many resources are needed? None
- Resources:
    - Labs (blood, urine)
    - EKG, XR
    - CT, MRI, US, angiography
    - IV fluids (hydration)
    - IV or IM or nebulized medications
    - Specialty consultation
    - Simple procedure ~1 (lac repair, foley catheter)
    - Complex procedure ~2 (conscious sedation)
- NOT resources:

- H & P (including pelvic)
- POC testing
- Saline or heplock
- PO medications, tetanus immunizations, prescription refills
- Phone call to the PCP
- Simple wound care (dressings/recheck)
- Crutches, splints, slings

Opioid overdose

- Treatment
  - Narcan?
  - Oxygen
  - Seizure precautions → suction, padded rails, low bed, etc.

Acetaminophen OD

- Manifestations
  - Phase 1 (w/in 24 hours of ingestion): diaphoresis, malaise, N/V
  - Phase 2 (24-48 hrs of ingestion): RUQ abdominal pain, decreased urinary output, 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 permanent liver damage, LFTs remain high
- Treatment
  - Activated charcoal
  - Acetylcysteine

Hypothermia (Systemic)- TREAT FIRST!

- Manifestations
  - Apathy
  - Poor judgment
  - Ataxia
  - Dysarthria
  - Drowsiness
  - Pulmonary edema
  - Acid-base abnormalities
  - Coagulopathy
  - Eventual coma
  - Shivering may be suppressed at a temperature of less than 32.2 (90F)
  - Heartbeat and blood pressure may be so weak that peripheral pulses become undetectable
  - Cardiac dysrhythmias
  - Hypoxemia
  - Acidosis

Frostbite (Local)

- Nursing Interventions
  - Restore normal body temperature
  - Constrictive clothing and jewelry are removed
  - Wet clothing is removed
  - If lower extremities is involved, the pt cannot ambulate
  - Placed in a 37 to 40C circulating bath for 30 to 40 min span and is repeated until circulation is restored
  - Analgesics for pain
  - Do not massage
  - Elevated extremity

    - Sterile gauze placed in between fingers and toes to prevent maceration
    - Bulky dressing on the extremity
    - Non hemorrhagic blisters are debrided
    - Physical assessment of any injuries such as soft tissue injury
    - Hourly active motion of any affected digits
    - Educate patient to avoid tobacco, alcohol, and caffeine
- Contributing factors: homelessness, age, duration of exposure, environmental temp, pre-existing conditions, drugs that suppress shivering (opioids, anti-emetics), alcohol intoxication
- Cold= vessels constrict, blood cannot readily reach the area

Consent

- Unresponsive patients
    - Implied consent
    - Never withhold treatment
    - 2 providers can do implied consent
    - **Must chart** that the patient is unresponsive!
    - Procedures: CT scan, incision and drainage, conscious sedation to realign bone or joint
    - EMTALA - takes patient to closest facility and they cannot turn you away
        - Right to physical exam and assessment by provider and talk to physician at a hospital for transfer.
        - Facilities can decline transfers, so you transfer elsewhere or keep

Heat Stroke

Manifestations

- Most serious form of heat stress
- Objective: core temperature > 105.3 (measure rectally), altered mental status, absence of perspiration due to be this hot, they do not sweat, and circulatory collapse
- Neurologic symptoms due to brain sensitivity to thermal injuries: hallucinations, loss of muscle coordination, combativeness
- Death directly related to amount of time the patient's body temp remains elevated
    - Goal is to reduce temperature

Airway obstruction

Manifestations

- Stridor
- Cannot cough, speak, breathe
- May clutch the neck between the thumb and fingers
- Choking
- Apprehensive appearance
- Refusing to lie flat
- Labored breathing
- Use of accessory muscles
- Flaring nostrils
- Increasing anxiety, restlessness, and confusion
- Cyanosis and loss of consciousness, hypoxia are late manifestations

RACE acronym for fire

- Rescue, Activate, Contain, Evacuate

Carbon monoxide poisoning

- Manifestations
    - Dyspnea, HA, tachypnea, **confusion,** impaired judgment, cyanosis, respiratory depression

Nursing roles during a disaster

- 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
- Tagging pts

Triage officers during a disaster

- Supervising?
- Tagging pts?

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
- Identifies facility responsibilities and channels of reporting

Disaster Triage

- Assign tag color
    - Black- deceased
    - Red- immediate
    - Yellow- delayed
    - Green- minor
- Prioritize by acuity
- Black- unresponsive pts with penetrating head wounds, high spinal cord injuries, 2nd/3rd degree burns in excess of 60% of body surface area, seizures or vomiting within 24 hours after radiation exposure, profound shock with multiple injuries, agonal respirations; no pulse, no blood pressure, pupils fixed and dilated (is it something you can save in a short amount of time?)
- Immediate- 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
- Delayed- stable abdominal wounds without evidence of significant hemorrhage; soft tissues injuries; maxillofacial wounds without airway compromise; vascular injuries with adequate collateral circulation; genitourinary tract disruption, open fractures
- Minimal- walking wounded, upper extremity fractures, minor burns, sprains, small lacerations without significant bleeding, behavioral disorders or psychological disturbances (should be moved away from the main triage area)

ABC assessment prioritization

- Airway and C-spine
- Breathing
- Circulation
- Disability
- Exposure

Emergency preparedness kits

- Items to include
    - Backpack, 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
    - Plan a meeting place for family members
    - Identify where to go if an evacuation is necessary
    - Determine when & how to turn off water, gas, & electricity at main switches
    - Locate the safe spot in the home for each type of disaster

- Replace stored water supply every 3 months & stored food supply every 6 months

Burns:

- Escharotomy
  - Patient education (What it is/what to expect → found in book)
  - Incision through the eschar relieves pressure from the constricting force of fluid buildup under circumferential burns on the extremity or chest and improves circulation
    - Burnt skin is incised down to the subcutaneous fat and into the healthy skin → should be deep enough to release all restrictive effects from the eschar
  - The patient is often sedated
  - Wound care
    - Nursing interventions
      - One daily shower & dressing change w an evening dressing change in the patient's room
      - Extensive, surgical debridement → OR
      - First wound care is both physically and mentally demanding -- **provide emotional support and begin building trust during this activity**
      - Infection can cause further tissue injury and possible sepsis
        - Likely sourced from pts normal flora
      - Always wear PPE and use sterile gloves
      - **Primary goal** → permanent skin coverage
        - Autograft (patient's own skin)
        - Allograft (cadaver skin)
        - Biosynthetic options are newly available
  - Emergent phase
    - Nursing Interventions
      - Monitor for hyperkalemia and hyponatremia
      - Pt is at greater risk for infection monitor for that
      - begin wound repair w/in 1st 6-12 hrs after injury
      - Care predominantly focuses on airway management, fluid therapy, & wound care
      - Airway management
        - Early endotracheal intubation to reduce the 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
        - Assess for adequacy of fluid resuscitation using clinical parameters:
          - 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
    - Severity determined by:
      - Depth of burns
      - Extent of burns
      - Location of burn
      - Patient risk factors
  - ABC assessment prioritization
    - Unresponsive → CAB
    - Responsive → ABC
  - Rule of Nines
    - Used for initial assessment because it is easy to remember

- Calculate TBSA affected
    - Head: 9% total (4.5% each side)
    - Trunk: 36% total (18% each side)
    - Arm: 9% total (4.5% each side)
    - Groin: 1% total
    - Leg: 18% total (9% each side)
- Prioritize nursing interventions based on TBSA
    - 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 and protection until medical care is available
            - Cooling within 1 minute of injury helps minimize depth of injury
        - Large thermal burns (>10% TBSA)
            - Focus on CAB → circulation, airway, breathing
                - "Circulation is huge w/ burns d/t impediment of perfusion"
- Fluid resuscitation
    - Fluids used, over what timeframes
        - Lactated Ringers (LR)
        - 1st 8-hours: ½ of total fluid
        - 2nd 8-hours: ¼ of total fluid
        - 3rd 8-hours: ¼ of total fluid
    - Calculate using Parkland Baxter formula
        - 4mL/kg/% of TBSA
    - Signs of adequate replacement
        - Urine output → 0.5-1.0mL/kg/hr
            - 75-100mL/hr for electric burns
        - Cardiac parameters → MAP > 65, SBP > 90, HR < 120
            - HR will decrease
            - BP will increase
- Facial burns
    - Priority assessment
    - Rapid initial & ongoing assessment is critical airway compromise & pulmonary edema can develop over the 1st 12-24 hrs
        - May interfere w/ breathing as a result of mechanical obstruction from edema or leathery, devitalized burn tissue (eschar)
        - May also indicate possible smoke or inhalation injury
- Anticipated electrolyte imbalances
    - Major shifts of sodium and potassium
    - Hyperkalemia → d/t injured cells and hemolyzed RBC
    - Hyponatremia → rapid move to interstitial space & remains there until edema formation ends
- Inhalation injury:
    - Treatment
        - Unresponsive → CAB
        - Responsive → ABC
        - Start with 100% humidified O2
            - Watch closely for respiratory distress
        - Begin fluid replacement
        - Intubate before pulmonary edema
        - *patient may have other injuries that take priority over the burn itself*
    - Nursing interventions
        - Rapid initial and ongoing assessment is critical → airway compromise & pulmonary edema can develop over the 1st 12-24 hours
        - Monitor VS, LOC, O2 saturation, and heart rhythm
        - Obtain ABG, carboxyhemoglobin levels, and CXR
        - Monitor and manage pain levels

- Monitor urine output
- Establish 2 large bore IV access sites if burn >15% TBSA
- Insert indwelling catheter if burn > 15% of TBSA
- "Always look at the back of the throat and keep overnight for observation"
    - "Monitor for pulmonary edema using breath sounds and oxygen saturation"

- Circumferential burns
    - Nursing interventions
        - Circumferential burns to extremities
            - Can cause circulation problems distal to the burn, with possible nerve damage to the affected extremity
            - Patients may also develop compartment syndrome from direct heat damage to the muscles, swelling, &/or pre-burn vascular problems
        - Assess for airway patency
        - Administer oxygen as prescribed.
        - Obtain vital signs
        - Initiate IV line & begin fluid replacement as prescribed
        - Elevate extremities if no fractures are obvious
        - Keep client warm & place the client on NPO status
        - Tetanus toxoid may be prescribed for prophylaxis
        - Primary goal for a burn injury is to maintain a patent airway, administer IV fluids to prevent hypovolemic shock, & preserve vital organ functioning

Violence in ED

- Often waiting rooms are the sites where feelings of dissatisfaction, fear, and anger are channeled violently
- Safety is first priority

- You are working in the ED with your preceptor, who is a triage nurse. A 24 year-old male arrives and states "I think I have food poisoning. I've been vomiting all night and now I have diarrhea." The patient reports abdominal cramping that he rates as 6/10. He denies fever or chills. Vital signs: T = 97.8, HR = 94, RR = 16, BP = 121/74.
- Assign a triage acuity rating using the ESI - 5
- Resources: fluids, Zofran for nausea, ammonium for diarrhea

- You are the triage nurse in the ED when a 2-month-old is brought in by her parents. Her parents state she has had a fever for 2 days that is unrelieved by oral acetaminophen and she has been very lethargic. You assess the child's VS and find the following: T = 39.0, HR = 175, RR = 49, SpO2 = 99%
- Assign a triage acuity rating using the ESI - 2

Components of primary survey

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

Environmental Emergencies

Heat-Related Emergencies

- Heat cramps: severe cramps in large muscle groups, athletes with inadequate fluid intake
  - Nausea, tachy, pallor, weakness, profuse diaphoresis
- Heat Exhaustion
  - Strenuous activity in hot, humid weather, seen in sedentary individuals
  - Hypo, tachy, elevated body temp, dilated pupils, mild confusion, ashen color, profuse diaphoresis
- Heatstroke

Cold-Related Emergencies

- Frostbite
- Hypothermia

Submersion Injuries

- Submersion Injury
- Drowning

Stings & Bites

- Hymenopteran Stings
- Tick bites
- Animal & human bites

Animal & human bites

- Most significant problems are infection and mechanical destruction of skin, muscle, tendons, blood vessels, & bone
- Wash with soap and water

Dog bites:

- Most victims own the dogs that bite them
- May involve significant tissue damage w/ deaths reported (usually small children)
- Plastic surgery consults for wounds to face

Cat bites:

- Cause deep puncture wounds that can involve tendons & joint capsules
- Cause more infection than dog bites
- *Pasteurella* species most common causative organism

Human bites:

- Carry high risk of infection from oral bacterial flora, most commonly *Staph*, *Strep*, and hepatitis virus
- Frequently result of violence or sexual activity
- Boxer's fracture → fracture of 4^{th} or 5^{th} metacarpal often have concurrent open wounds on knuckles from striking teeth
- Infection rates as high as 50% when victims do not seek medical care w/in 24 hrs of injury

Hymenopteran Stings

- Includes bees, yellow jackets, hornets, wasps, & fire ants
- Can cause mild discomfort or life-threatening anaphylaxis

- Symptoms can be immediate or delayed up to 48 hrs

Tick bites

- Assoc. conditions include Lyme disease, Rocky Mountain spotted fever, & tick paralysis
- Ticks release neurotoxic venom as long as the tick head attaches to the body → therefore safe removal of tick is essential for effective treatment
- 2 weeks to get treatment
- Do not pull out because the head could still be in
- Never sutured closed!!!

Animal & human bites

Poisoning

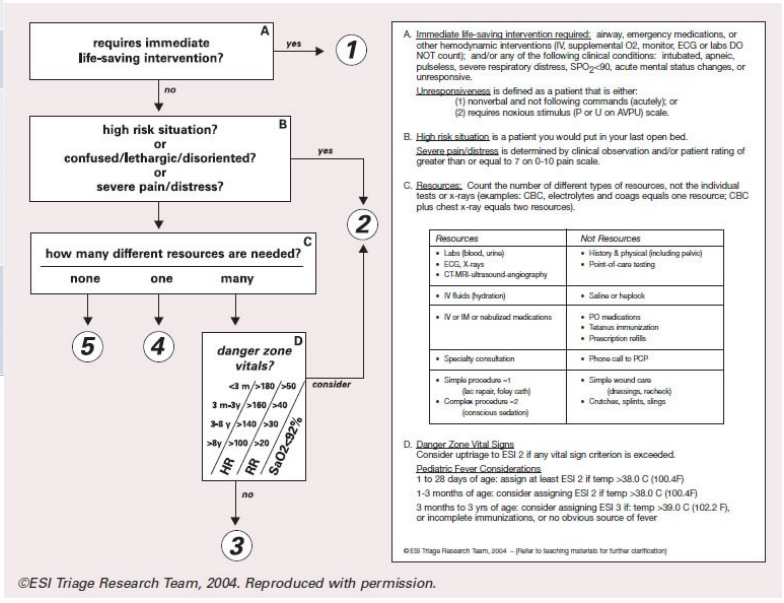
Know Tylenol phases of manifestations
And antidote –acetylcysteine (mucalmyst)!

Carbon monoxide manifestations

- **Remove source and 100% o2**

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 permanent liver damage, LFTs remain high	Activated charcoal, N-acetylcysteine (oral form may cause vomiting, IV form can be used)
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 alkalinization, 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

Definition	ESI-1	ESI-2	ESI-3	ESI-4	ESI-5
Stability of vital functions (ABCs)	Unstable	Threatened	Stable	Stable	Stable
Life threat or organ threat	Obvious	Likely but not always obvious	Unlikely but possible	No	No
How soon patient should be seen by HCP	Immediately	Within 10 min	Up to 1 hr	Could be delayed	Could be delayed
Expected resource intensity	• High resource intensity • Staff at bedside continuously • Often mobilization of team response	• High resource intensity • Multiple, often complex diagnostic studies • Frequent consultation • Continuous monitoring	• Medium to high intensity • Multiple diagnostic studies • Complex procedures	• Low resource intensity • One simple diagnostic study	• Low resource intensity • Examination only
Examples	Cardiac arrest, intubated trauma patient, overdose w/ bradypnea, severe respiratory distress	Chest pain probably resulting from ischemia, multiple trauma unless responsive	Abdominal pain or gynecological disorders unless in severe distress, hip fracture in older patient	Closed extremity trauma, simple laceration, cystitis	Cold symptoms, minor burn, recheck (e.g. wound), prescription refill



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Cardiac emergencies

- Cardiac arrest
- Ventricular fibrillation
- Pulseless ventricular tachycardia
- Ventricular asystole
- PEA

AHA ACLS Protocols

- VF or pulseless VT
    - CPR switch Q2 mins
    - Defibrillate
    - IV access 2 or more
    - Give IV antidysrhythmic medications such as epinephrine or vasopressin
        - 1mg epi every 3-5 mins
    - Consider these meds
        - Amiodarone hydrochloride
        - Lidocaine hydrochloride
        - Magnesium sulfate
- PEA
    - Initiate CPR
    - Establish IV access
    - Give epinephrine 1mg Q#-5 mins
    - Consider reversible causes