BLEEDING & SHOCK/ SOFT TISSUE INJURIES

Objectives

4-1.1 Identify simple facts about controlling bleeding, step-by-step procedures for applying an antishock garment and controlling nasal hemorrhage, and why and when to perform control procedures for bleeding and shock, with at least 80% accuracy

Objectives

- Anatomy Review
- External Bleeding
- Internal Bleeding
- Shock

Objectives

4-1.2 identify basic facts and terms about open/closed soft tissue injuries and common eye injuries, simple facts about removing contact lenses, and why and when to perform step-by-step procedures for evaluation of burns, with at least 80% accuracy

Objectives

- Review of the Skin
- Closed Injuries
- Open Injuries
- Chest Injuries
- Abdominal injuries
- Special Considerations

Objectives

- Burns
- Dressings and Bandaging

Anatomy Review

- Heart
- Arteries
- Capillaries
- Veins
- Blood

Circulatory System Review

- Perfusion
  - Circulation of blood through an organ
  - Perfusion delivers oxygen and other nutrients to the cells of all organs & removes waste

Circulatory System Review

- Hypoperfusion
  - The inadequate circulation of blood through an organ

External Bleeding

- Body Substance Isolation
  - Must be taken to avoid exposure
  - Eye protection
  - Gloves
  - Gown and mask
  - Handwashing

External Bleeding

- Severity
  - Sudden loss of blood is considered life threatening when
    - »Adult loses 1000cc
    - »Child loses 500cc
    - »Infant loses 100-200cc

External Bleeding

- Severity is based on
  - Patient's signs and symptoms
  - General impression of amount of blood loss
- If patient shows signs and symptoms of shock
  - Bleeding is considered serious

External Bleeding

- The natural response to bleeding
  - Blood vessel constriction
  - Clotting
- Uncontrolled bleeding/significant blood loss
  - Leads to shock and possibly death

External Bleeding

Types of bleeding

- Arterial
  - Blood spurts
  - Bright red
  - Most difficult to control

External Bleeding

Types of bleeding

- Venous
  - Blood flows
  - Dark red
  - Can be profuse

External Bleeding

Types of bleeding

- Capillary
  - Blood oozes
  - Dark red
  - Usually clots spontaneously

Emergency Care of External Bleeding

- Body Substance Isolation
- Maintain airway/artificial ventilation
- Bleeding control
  - Concentrated direct pressure
  - Diffuse direct pressure

Emergency Care

- Elevation
- Pressure points
  - Upper extremities
    - »Brachial artery
  - Lower extremities
    - »Femoral artery

Emergency Care

- Additional methods
  - Splints
    - »Reduce movement
  - Pressure splints
    - »Can control severe bleeding
    - »Pneumatic anti-shock garment

Emergency Care

- Tourniquet
  - Last resort
  - Can cause damage to nerves, muscles and blood vessels
  - Notify other personnel about tourniquet
  - Document

Special Areas

- Potential causes
  - Injured skull
  - Facial trauma
  - Digital trauma
  - Sinusitis
  - Hypertension
  - Coagulation disorders

Special Areas

- If bleeding is from trauma
  - Do not attempt to stop the bleeding
  - Collect blood with loose dressing

Special Areas

- Emergency care for epistaxis
  - Put patient in a sitting position leaning forward
  - Apply direct pressure
  - Keep patient calm

Internal Bleeding

- Severity
  - Can result in shock and death if not controlled
  - Injured or damaged organs can lead to extensive bleeding that is concealed

Internal Bleeding

- Painful, swollen, deformed extremities can lead to serious blood loss
- Suspicion and severity should be based
  - Mechanism of Injury
  - Signs and symptoms

Internal Bleeding

- Relationship to mechanism of injury
  - Blunt Trauma
    - »Leading cause of internal injury
    - »Look for evidence

Internal Bleeding

- Penetrating trauma
  - Variety of injuries can occur
  - Severe organ damage and profuse bleeding can occur

Internal Bleeding

- Signs and symptoms of internal bleeding
  - Pain, tenderness, swelling or discoloration
  - Bleeding from mouth, rectum, vagina

Internal Bleeding

- Signs and symptoms of internal bleeding
  - Vomiting bright red blood or dark coffee ground colored blood
  - Dark, tarry stools or stools with bright red blood

Internal Bleeding

- Signs and symptoms of internal bleeding
  - Tender, rigid, or distended abdomen
  - Signs and symptoms of hypovolemic shock (hypoperfusion)

Emergency Care

- BSI
- Airway/ventilation
- Administer oxygen
- Bleeding in an extremity
  - Direct pressure and splint
- Immediate transport is critical

Shock

- Definition
- Death can occur
- Peripheral perfusion is reduced
- Trauma patient
  - Develop shock from internal and external sites

Shock

- Signs and symptoms of shock
  - Mental states
  - Peripheral perfusion
  - Vital signs
  - Other signs and symptoms

Shock

- Infants and children
  - Can maintain blood pressure until their blood volume is more than half gone

Shock

- Infants and children
  - By the time blood pressure drops, they are close to death
  - Infant or child in shock has less reserve

Emergency Medical Care

- BSI
- Airway
- Control external bleeding
- Pneumatic anti-shock garment

Emergency Medical Care

- Elevate legs
- Splint
- Prevent heat loss
- Immediate transport

The Soft Tissues

- Major functions of the skin
  - Protection
  - Water balance
  - Temperature regulation
  - Excretion
  - Shock absorption

The Soft Tissues

- Three major layers
  - Epidermis
    - »Dead cells
  - Dermis
    - »Blood vessels and nerves

The Soft Tissues

- Subcutaneous
  - Layers of fat

Closed Injuries

- Contusion
- Hematoma
- Crush injuries

Closed Injuries

- Emergency medical care
  - BSI
  - Airway
  - Treat for shock
  - Splint
  - Transport

Open Injuries

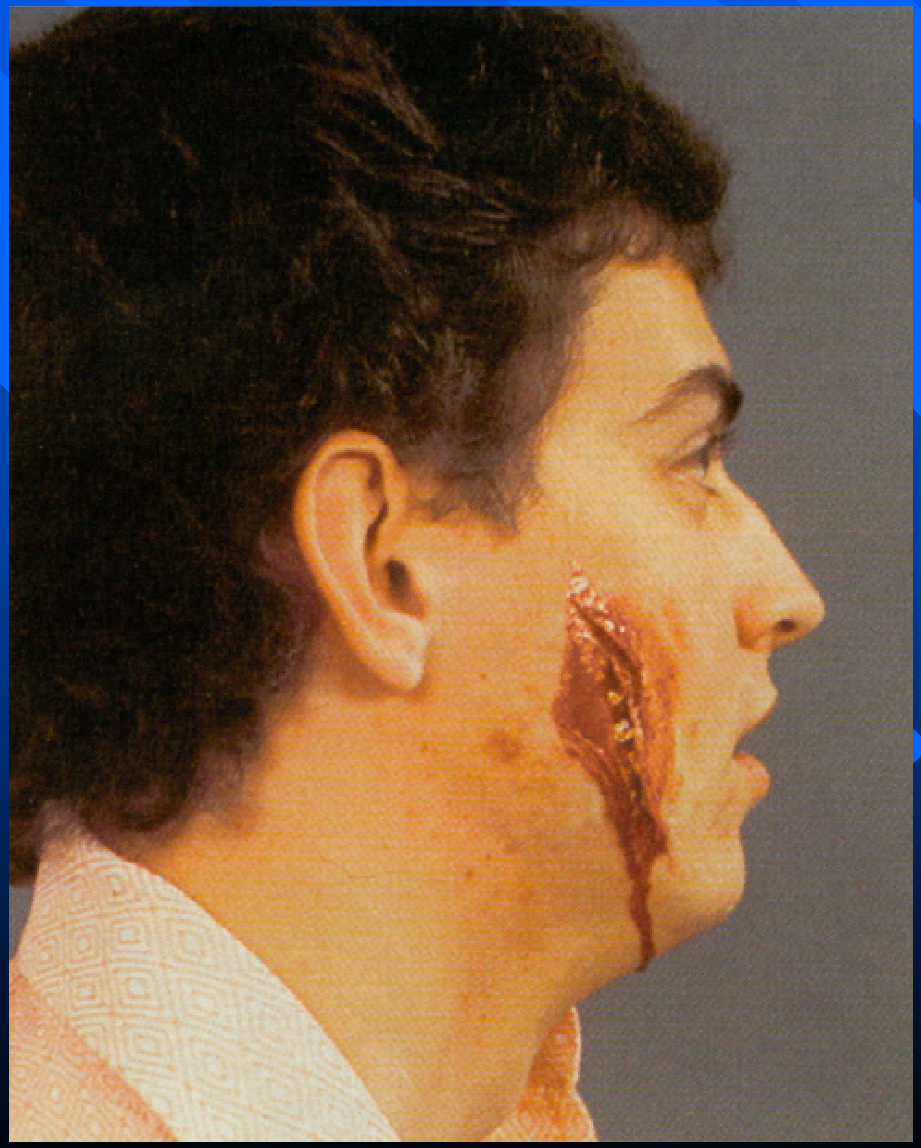
- Abrasions
  - Outermost layer is damaged
  - Painful
  - Little to no oozing of blood

Abrasion

Open Injuries

- Laceration
  - Break in skin of varying depth
  - Can be linear or stellate
  - Bleeding may be severe

Laceration



Open Injuries

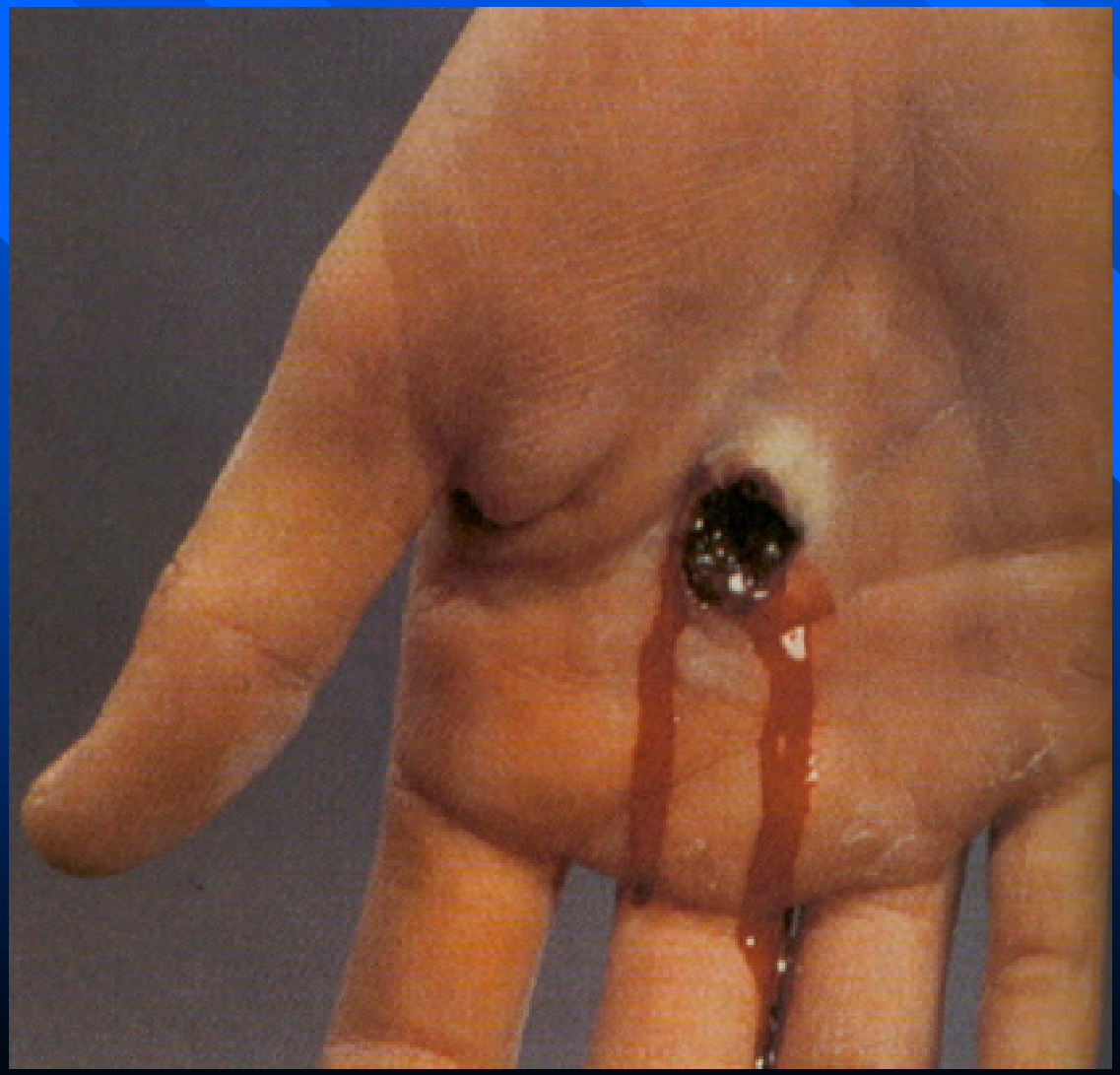
- Avulsion
  - Flaps of skin or tissue are torn loose or completely pulled off

Avulsion

Open Injuries

- Penetration/ puncture
  - Caused by sharp pointed object
  - Bleeding can be severe
  - Exit wound may be present

Penetration/Puncture



Open Injuries

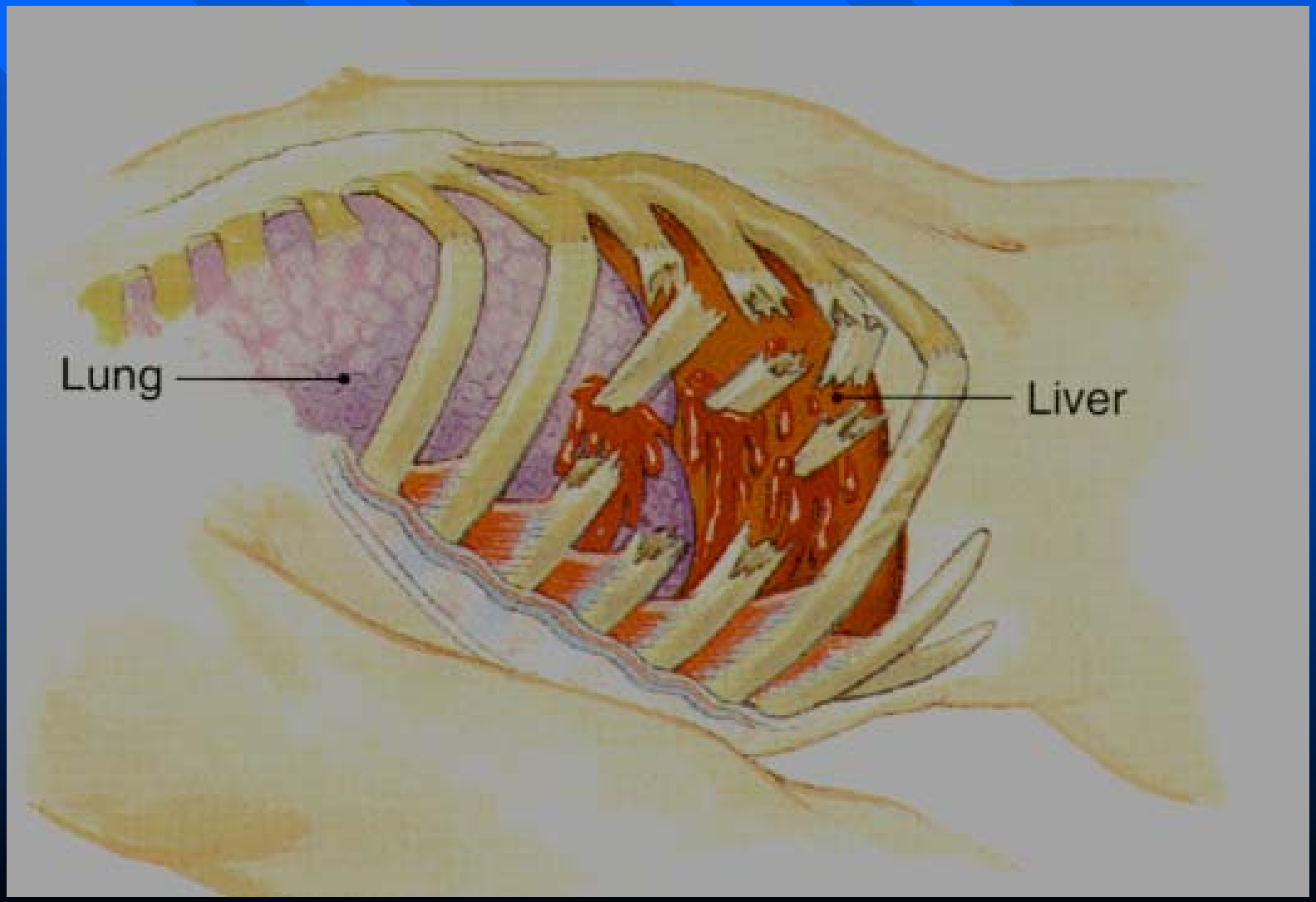
- Amputation
  - Massive bleeding may be present or bleeding may be limited

Amputation

Open Injuries

- Crush injuries
  - Damage to soft tissue and internal organs
  - Internal bleeding may be severe

Crush Injuries



Open Injuries

- Emergency medical care
  - BSI
    - »Gloves
    - »Gown
    - »Eye protection
  - Airway

Emergency Care

- Expose the wound
- Control bleeding
- Prevent further contamination

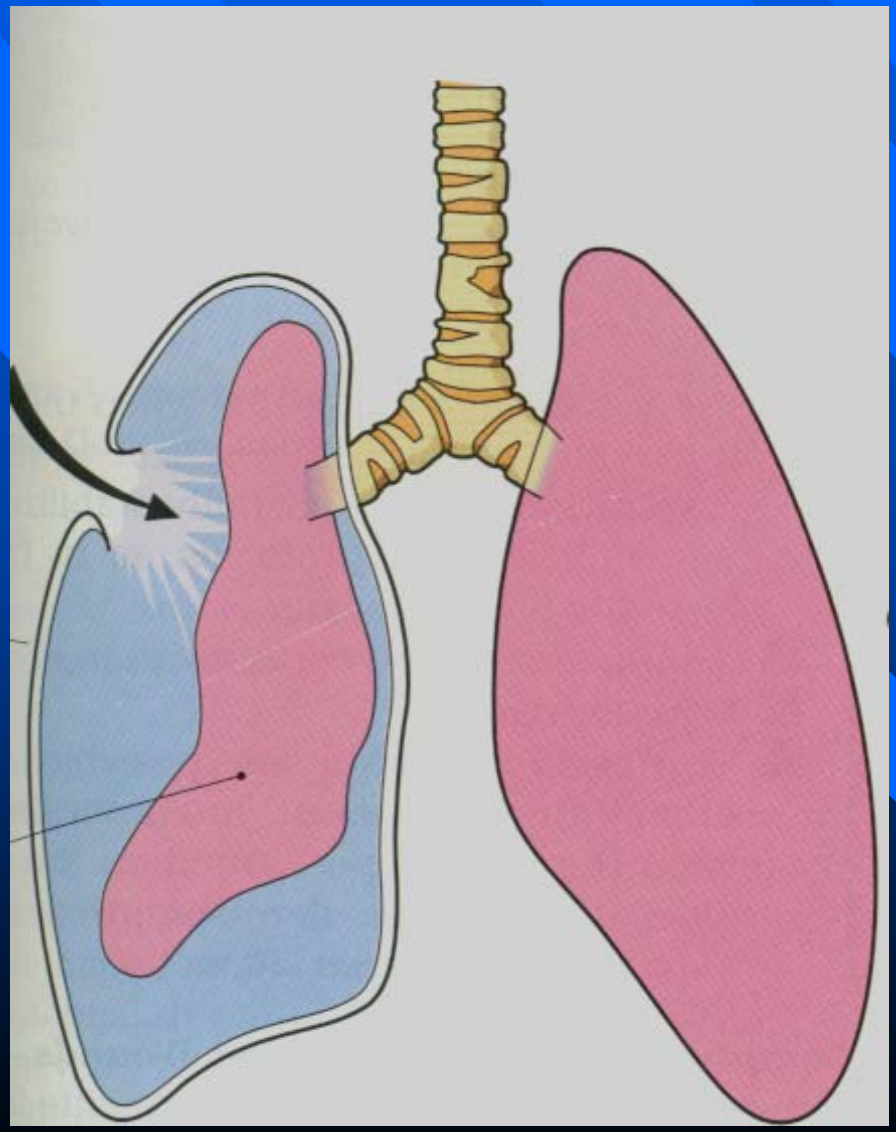
Emergency Care

- Apply dry sterile dressing
- Keep patient calm and quiet
- Treat for shock

Chest Injuries

- Puncture wounds
  - Occurs when any object tears or punctures the chest wall
  - May have an exit wound
  - Always consider puncture wounds to the chest life-threatening

Chest Injuries



Chest Injuries

- Signs and symptoms of puncture wounds
  - Severe chest wound
  - Sucking sound heard when patient inhales
  - Hemoptysis

Chest Injuries

Chest Injuries

- Impaled objects
  - Leave all objects in place
  - Stabilize with bulky dressing
  - Make sure nothing touches object during transport

Closed Abdomen Injuries

- Usually due to blunt trauma
- Internal bleeding may be severe if organs and major vessels are ruptured or lacerated
- Pain may be intense if hollow organs are ruptured

Open Abdominal Injuries

- Penetrating wounds may injure more than structures under the wound
- Projectiles can cause adjacent damage

Open Abdominal Injuries

Eviscerations

- A wound so large that organs protrude through the wound opening

Emergency Care for all Abdominal Injuries

- Airway
- Position of comfort
- Be alert for shock

Emergency Care for all Abdominal Injuries

- NPO
- Vital signs
- Transport

Emergency Medical Care - Eviscerations

- Don’t replace organs
- Apply sterile moist dressing
- Create an occlusive dressing

Emergency Medical Care - Eviscerations

- Apply thick pad or clean towel
- Flex patient's hips and knees, if uninjured

Emergency Medical Care - Eviscerations

Special Considerations

- Impaled Objects
  - Do not remove, unless
    - »Through the cheek
    - »Interferes with chest compressions
    - »Interferes with transport

Special Considerations

- Impaled Objects
  - Manually secure object
    - »Expose the wound area
    - »Control bleeding
    - »Bulky dressing to stabilize object

Special Considerations

- Amputations
  - Wrap amputated part in sterile dressing
  - Place in plastic bag
  - Transport with patient

Special Considerations

- Amputations
  - Do not complete partial amputations
  - Immobilize to prevent further injury

Special Considerations

- Large open neck wound
  - May cause air embolism
  - Cover with occlusive dressing
  - Compress carotid artery only if necessary to control bleeding

Burns

- Classified according to depth
  - –Superficial-only the epidermis
    - »Reddened skin
    - »Pain at the site

Burns

- Partial thickness
  - Intense pain
  - White to red skin that is mottled
  - Blisters

Burns

- Full thickness
  - Dry leathery skin
  - Loss of sensation
  - Little to no pain
  - Hard to the touch

Full Thickness Burns

Burn Severity

- Depth or degree of the burn
  - Superficial
  - Partial thickness
  - Full thickness

Burn Severity

- Percentage of body area burned
  - Rule of nines
    - »Adult
    - »Infant

Burn Severity

- Location of the burn
  - Face and upper airway
  - Hands
  - Feet
  - Genitalia

Burn Severity

- Pre-existing medical conditions
- Age of the patient

Severity Categories

- Critical
  - Full thickness burns involving hands, feet, face, genitalia
  - Burns with respiratory injury
  - Full thickness burns covering greater than 10% BSA

Critical Burns

- Partial thickness burns covering more than 30% BSA
- Burns complicated by painful, deformed extremity
- Moderate burns in children and elderly
- Burns encompassing a body part

Severity Categories

- Moderate
  - Full thickness burns 2-10% BSA
  - Partial thickness burns 15 – 30% BSA
  - Superficial burns greater than 50% BSA

Severity Categories

- Minor
  - Full thickness burns less than 2% BSA
  - Partial thickness burns less than 15% BSA

Emergency Care

- Stop burning process
- Remove smoldering clothing/rings
- BSI
- Monitor airway
- Prevent further contamination

Emergency Care

- Cover
- Do not break blisters
- Transport
- Know local protocols for transport to burn center

Infant and Child Considerations

- Greater surface area
- Greater fluid loss
- Higher risk for shock
- Consider possibility of child abuse

Chemical Burns

- Emergency care
  - BSI
  - Brush dry powders off prior to flushing
  - Flush with large amounts of water

Chemical Burns

- Do not contaminate uninjured areas when flushing

Contact Lenses

- Shine penlight in eyes to detect lenses
- Only remove in cases of chemical burns to the eyes
- Ensure hospital knows

Electrical Burns

Electrical Burns

- Scene safety #1
- Medical care
  - –Oxygen
  - –Monitor patient closely
  - –Treat soft tissue injuries

Dressing and Bandaging

- Function
  - Stop bleeding
  - Prevent further damage
  - Prevent future contamination

Dressing and Bandaging

- Dressings
  - –Universals,4x4, adhesive-type, occlusive

Dressing and Bandaging

- Bandages
  - Hold dressings in place
  - Types-self-adherent bandages,gauze rolls,triangular, adhesive tape, air splints

Objectives

4-1.1 Identify simple facts about controlling bleeding, step-by-step procedures for applying an antishock garment and controlling nasal hemorrhage, and why and when to perform control procedures for bleeding and shock, with at least 80% accuracy

Objectives

- Anatomy Review
- External Bleeding
- Internal Bleeding
- Shock

Objectives

4-1.2 identify basic facts and terms about open/closed soft tissue injuries and common eye injuries, simple facts about removing contact lenses, and why and when to perform step-by-step procedures for evaluation of burns, with at least 80% accuracy

Objectives

- Review of the Skin
- Closed Injuries
- Open Injuries
- Chest Injuries
- Abdominal injuries
- Special Considerations

Objectives

- Burns
- Dressings and Bandaging