DRESSING CHANGE/WOUND IRRIGATION

Types of Wounds
- Intentional—during operations, injections
- Unintentional—fall, accident
- Open vs. Closed
  - Clean—uninfected, minimal inflammation, respiratory, alimentary, genital, urinary tracts not entered, often closed wounds
  - Clean—contaminated—surgical wounds where above tracts have been entered—no signs of infection
  - Contaminated wounds—open, fresh, accidental and surgical wounds involving major break in sterile technique or large amount spillage from GI tract—inflammation present
  - Dirty or infected wounds—contains dead tissue with signs of infection (purulent drainage)

See Table 36-1, Pg. 904, Kozier & Erb
Box 36-1, Pg. 904, Kozier & Erb

Pressure Ulcers
- Friction
- Shearing force

Risk Factors
- Immobility—people normally move when experience discomfort due to pressure-paralysis, extreme weakness, pain, etc…
- Inadequate nutrition—weight loss, muscle atrophy, loss of subcutaneous tissue offer less padding, Inadequate protein, carbs, fluids, vitamin C
- Fecal and urinary incontinence—maceration (urine)—epidermis more easily eroded, susceptible to injury—excoriation (feces)—digestive enzymes
- Decreased mental status—don’t recognize pain associated with prolonged pressure
- Diminished sensation—paralysis, stroke, other neurologic disease
- Excessive body heat—increases metabolic rate and cells need for O₂, especially cells of area under pressure
- Advanced age—decreased lean body mass, thinning of epidermis, decreased strength and elasticity of skin, increased dryness, decreased pain perception
- Chronic medical conditions—diabetes, CV disease
- Other—poor lifting, incorrect positioning, repeated injections in same area, hard support surfaces, incorrect application of pressure—relieving devices
Wound Healing

Types:

- **Primary intention (first intention)**—tissue surfaces approximated (closed), minimal or no tissue loss, minimal granulation tissue and scarring, EX: closed surgical incision
- **Secondary intention**—extensive wound, considerable tissue loss, edges could not or should not be approximated—EX: pressure ulcer
  - **Differs from primary**:
    - Repair time longer
    - Scarring greater
    - Susceptibility to infection greater

Review Phases of Wound Healing

Kinds of Wound Drainage

- **Serous**—consists chiefly of serum, looks watery, has few cells, EX: blister from burn
- **Purulent**—thicker, contains pus, varies from blue, green, or yellow, color may depend on causative agent
- **Sanguineous (hemorrhagic)**—contains large amount of RBCs, seen in open wounds
- **Serosanguineous**—clear and blood tinged drainage, seen in surgical incisions
- **Pyosanguineous**—pus and blood, new wound that is infected

Complications of Wound Healing

- **Hemorrhage (massive bleeding)**—cause: dislodged clot, slipped stitch, erosion of blood vessel
- **Internal**—swelling or distension at wound site, sanguineous drainage from surgical drain
- **Hematoma**—localized collection of blood under skin (bruise); risk greatest in 1st 48 hours after surgery; **Emergency**: apply pressure dressing, monitor VS, call physician
- **Infection**
  - Contamination of wound impairs wound healing and can lead to infection
  - Infection causes fever and elevated WBC
  - Contamination can occur at time of injury, during surgery, or post-op
  - Wounds caused by injury most likely to be contaminated at time of injury
  - Surgery involving intestines can result in infection from microorganisms inside intestine
  - Surgical infections become apparent 2-11 days post-op
- **Dehiscence**—partial or total rupturing of sutured wound—usually abdominal wound and included layers below skin
  - **Evisceration**—internal viscera protrudes: higher risk with obesity, poor nutrition, multiple trauma, failure of suturing, excessive coughing, vomiting, and dehydration. Usually occurs 4-5 days post-op before collagen deposited in wound client states “something has given away”. 

Cover area with sterile dressing soaked in normal saline. Place client in bed with knees bent. Notify surgeon immediately.

**Factors Affecting Wound Healing**

- Developmental considerations—healthy children and adults heal quicker than elderly; decrease in chronic illness
- Nutrition—require diet rich in Vitamin C & A, protein, carbs, lipids, zinc, iron, copper. Obese clients heal slower—adipose tissue has minimal blood supply
- Lifestyle
  - Exercise
  - Smoking
- Medications
  - Anti-inflammatory and anti-neoplastic interfere with healing
  - Prolonged use of antibiotics—resist organisms

**Red Yellow Black Code**

Red—protect; Yellow—cleanse; Black—debride

- **Red**—in late regeneration phase of tissue repair, need to protect new tissue
  - Gentle cleansing without pressure
  - Avoid dry gauze or wet-to-dry
  - Apply topical antimicrobial agent
  - Apply gauzed, transparent film, hydrocolloid
  - Change dressing as infrequently as possible
- **Yellow**—characterized by liquid to semi liquid slough often accompanied by purulent drainage
  - Focus on removing nonviable tissue
  - Wet-to-damp dressings
  - Irrigating wound
  - Use absorbent dressings: impregnated nonadherent, hydrogel, other exudates absorbers, possible topical antimicrobial
- **Black**—covered with necrotic tissue or eschar requires debridement so it can heal
  - Sharp—by scalpel or scissors, performed by physician, specially trained nurses, physical therapists, physician’s assistant
  - Mechanical—scrubbing or wet-to-damp dressings
  - Chemical collagenase enzyme agents
  - Autolytic—takes longest, most natural, least damage to other tissue—use dressing to contain wound moisture (transparent)—body’s own enzymes break down necrotic tissue
**Dressings—Purpose**
- Protect from mechanical injury
- Protect from microbial contamination
- Maintain moistness
- Provide thermal insulation
- Absorb drainage or debride
- Prevent hemorrhage
- Splint or immobilize

Types of Dressings: Kozier & Erb pg. 923, Table 36-5

**Cleaning Wounds:**
Kozier & Erb pg. 925, Practice Guidelines

**Surgical Dressings/Wounds**
Assess— Kozier & Erb pg. 967, Practice Guidelines

**Sequential signs of healing:**
- No bleeding, clot binding wound edges
- Inflammation at edges for 1 to 3 days
- Reduction in inflammation when clot diminishes, granulation tissue bridging area, closes in 7-10 days
- Scar formation—collagen synthesis at 4 days—continues for 6 months
- Diminish in scar size

**Drains**
Penrose—inserted through incision but more frequently via stab wound, a few cm from incision
- Permits drainage of excessive serosanguineous fluid and purulent material
- Promotes healing
- Avoid formation of “pockets” which lead to abscess

**Closed Wound Drainage**
- Same purpose as penrose but closed system decrease chance of contamination
- Connected to electric or portable suction
- Usually discontinued at 3-5 days post-op

**Sutures**
- Absorbable—sutures beneath the skin
- Nonabsorbable—silk, cotton, linen, wire, nylon, Dacron: also clips or staples
- Removed 7-10 days post-op
- Retention sutures—much larger, used in addition to skin sutures
- Sometimes left in place longer than skin sutures for added support
- Rubber tubing may cover suture to decrease irritation
- Need physician’s order for removal—some agencies only RNs, only MDs—check policy
- Use sterile technique for removal
- Sometimes only remove alternate sutures—remaining removed following day
- Clean suture line with antimicrobial before beginning
- Apply sterile gloves
- Cut close to skin—never pull portion of suture previously visible beneath surface of skin