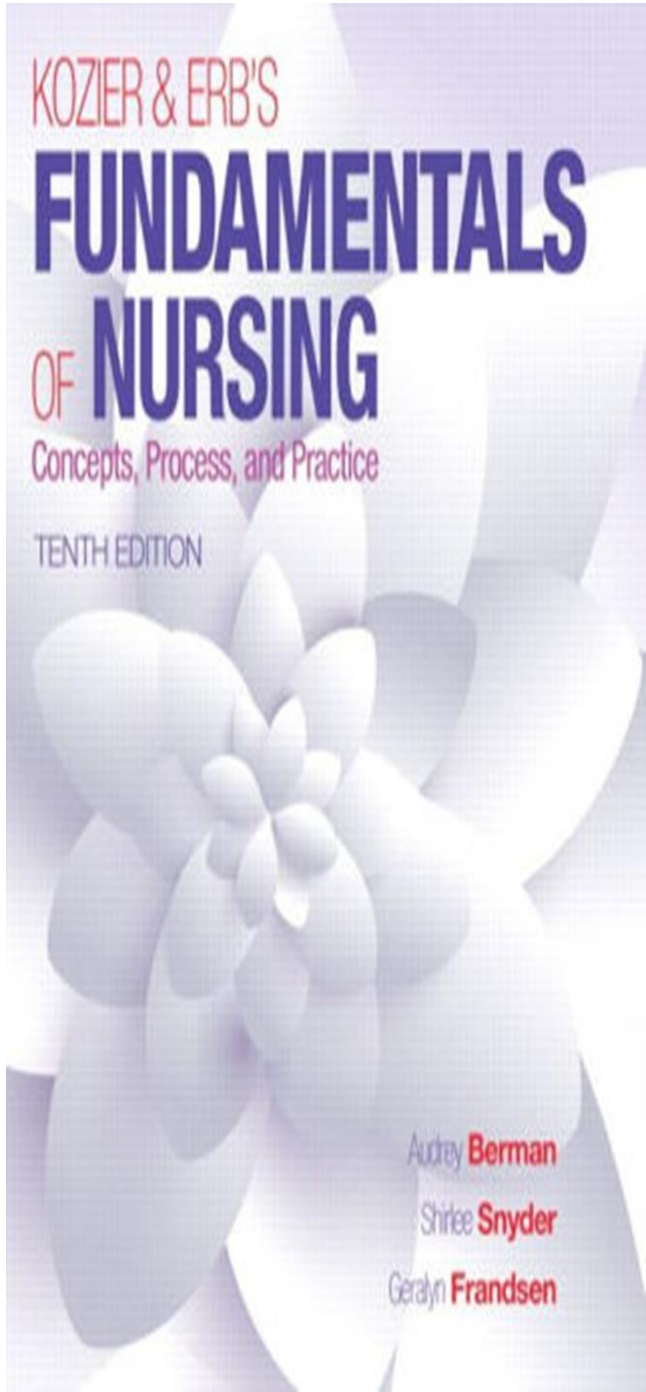
Unit6
Skin Integrity and Wound Care

Types of wounds
Pressure ulcer
Wound healing
Wound assessment



Skin Facts

- Largest organ of the body covers approximately 3000 square inches receives 1/3 circulating blood volume.

- **Skin Layers**

1. Epidermis,
2. Dermis,
3. Subcutaneous fat,
4. Muscle

Care of Wounds

Skin integrity or intact skin

Is presence of normal skin and skin layers uninterrupted by wounds.

A wound

Is a disruption in the normal integrity of the skin and underlying tissues.

Types of Wounds

1. Intentional or Unintentional

a. Intentional are traumas occur during therapy, e.g., operations or vein puncture.

b. Unintentional are accidental, e.g., arm fracture in care accident.

2. Closed or open

a. Closed: tissues are traumatized without a break in skin.

b .Open: skin or mucous membrane surface is broken.

3. According to the Depth

a. Partial thickness: confined to the skin, dermis and epidermis.

b. Full thickness: involving dermis, epidermis, and subcutaneous tissue and possibly muscle and bone.

Types of Wounds

4. According to degree of wound contamination

a. Clean wounds: uninfected , closed wounds, or drained with closed drainage.

b. Clean- contaminated wounds: surgical wounds in which the respiratory, alimentary, genital or urinary tract has been entered. no of infection.

c. Contaminated wounds: open, fresh, accidental, and surgical wounds involving a major break in sterile technique. It shows evidence of inflammation.

d. Dirty of infected wounds: old accidental wounds containing deal tissue and wounds with evidence of a clinical infection, such as purulent drainage.

Types of Wounds

5. According to how they are acquired (cause)

a. Incision: caused by sharp instrument (e.g. knife or scalpel). Open wound; painful, deep or shallow.

b. Contusion: caused by blow from a blunt instrument. Closed wound ,skin bruised because of damaged blood vessels..

c. Abrasion: caused by surface scrape scraped knee from a fall). Open wound involving skin, painful.

d. Puncture: caused by penetration of skin and underlying tissues by a sharp instrument. Open wound

e. Laceration: caused by accidents that cause tissue torn apart (e.g. with machinery). It is open wound; edges are often shoved يشق.

f. Penetrating: caused by penetration of skin and underlying tissues, usually unintentional (e.g metal fragments). It is open wound .

Pressure Ulcers

- Injury to the skin and/or underlying tissue, usually over a bony prominence, as a result of force alone or in combination with movement.
- **Stages of Pressure Ulcer Formation**

Stage I: Non-blanchable erythema of intact skin, it is indicating lesion of skin ulceration.

Stage II: Partial-thickness skin loss involving epidermis, dermis, or both.

The ulcer is superficial and presents clinically as abrasion, blister, or shallow crater

Stage III: full-thickness skin loss involving damage or necrosis of subcutaneous tissue that may extend down to, but not through, underlying fascia. It presents as a deep hollow with or without undermining of adjacent tissue.

Stage IV: Full- thickness skin loss with extensive destruction, tissue necrosis or damage to muscle, bone, or supporting structures, such as a tendon or joint capsule.

Risk Factors of Pressure Ulcers

1. Immobility.
2. Inadequate Nutrition: causes weight loss, muscle atrophy and the loss of subcutaneous tissue
3. Fecal and Urinary Incontinence.
4. Decreased Mental Status.
5. Diminished Sensation.
6. Excessive Body Heat.
7. Advanced Age

Common Pressure Sites

1- Supine position: Back of head (occipital bone) , Scapulae, Elbows (olecranon process), Sacrum, Heels

2- Lateral position: Side of head , Ear, Shoulder Greater trochanter, Ilium, Knee

3- Prone position: Cheek and ear, Shoulder, chest, Genitalia, knees, Toes

Fowler's position: Vertebrae Sacrum, Pelvis ,Heels

Pressure Ulcers Assessment Tools

1) Braden scale for predicting pressure sore risk.

The scale consists of 6 subscales:

1. Sensory perception,
2. Moisture,
3. Activity,
4. Mobility,
5. Nutrition,
6. Friction and shear.

Risk factor	Score/description							
Sensory perception	1. completely limited	2. very limited	3. slightely limited	4. no impairement				
Moisture	1. constantlymoist	2. often moist	3. occasionally moist	4. rarely moist				
Activity	1. bedfast	2. chairfast	3. walks occasionally	4. walks frequently				
Mobility	1. completely immobile	2. very limited	3. slightely limited	4. no limitations				
Nutrition	1. very poor	2. probably inadequate	3. adequate	4. excellent				
Friction and shear	1. problem	2. potential problem	3. no apparent problem					
				Total score				

Source :8

Severe risk ≤9
High risk 10-12
Moderate risk 13-14
Mild risk 15-18

*A total of 23 points is possible.

If scores 16 or below is considered at risk

older person may be at risk with a score of 17 or18.

Pressure Ulcers Assessment Tools

2) Norton's pressure area risk assessment form scale.

It includes the categories of :

1. General physical condition,
2. Mental state,
3. Activity,
4. Mobility,
5. Incontinence,
6. Medications.

A total score is 24.

Factor/score	4	3	2	1
Physical condition	Good	Weak	Ill	Very ill
Mental state	Alert	Apathetic	Confused	Stupour
Activity	Ambulant	Walks with help	Chair bound	Bed-ridden
Mobility	Full	Slightly impaired	Very limited	Immobile
Incontinence	Not	Occasional	Usually urine	Double incontinence

(Norton et al., 1962)

The scores of 15 or 16 is considered at risk.

Pressure Ulcers Managements

1. Preventing Pressure Ulcers
2. Providing nutrition.
3. Maintaining skin hygiene
4. Avoiding skin trauma
5. Providing supportive devices
6. Client teaching.
7. Treating Pressure Ulcers

Wound Healing

Healing: is a quality of living tissue, it is referred to as regeneration (renewal) of tissues.

Types of Wound Healing

1. Primary intention healing.

- It occurs where the tissue surface have been approximated (closed) and there is minimal or no tissue loss.
- Characterized by formation of minimal granulation tissue and scarring. An example is closed surgical incision.

2. Secondary intention healing.

- Wound is extensive, involves considerable tissue loss and edges can't be approximated (closed).
- An example is a pressure ulcer.
- Repair time is longer
- Scarring and Susceptibility to infection is greater

Types of Wound Healing

3. Tertiary intention healing(delayed closure) .

- It is indicated when there is a reason to delay suturing a wound.
- For example, where there is poor circulation in area.
- These wounds are sutured later, after initial stage of deposition of granulation tissue.
- An example is an abdominal wound that is initially left open for drainage but is later closed.

Phases of Wound Healing

1. **Inflammatory phase**.

It is initiated immediately after injury and lasts 3-6 days.

Two major processes occur during this phase:

a. **Hemostasis** Cessation of bleeding results from vasoconstriction of larger blood vessels and formation of blood clots in the area.

b. **Phagocytosis:** macrophages engulf microorganisms and cellular debris, stimulates formation of epithelial buds at end of injured blood vessels.

Phases of Wound Healing

2. Proliferative phase.

- It extends from day 3 or 4 to about day 21-post injury.
- Fibroblasts (connective tissue cells), begin to synthesize collagen and substance called proteoglycan about day 5-post injury.
- Collagen strength the wound, chance that wound will open progressively decreases.

3- Maturation phase.

- Begins about day 21 and can extent 1or 2 years after injury.
- Fibroblasts continue to synthesize collagen.
- Collagen fibers which were initially laid in a haphazard fashion, recognize into a more orderly structure.
- During maturation, wound is remodeled and contracted.
- The scar becomes stronger but repaired area is never as strong as the original tissue.

Complications of Wound Healing

1. **Hemorrhage**.
2. **Infection.**
3. **Dehiscence** is a partial or total rupturing of a sutured wound.
4. **Evisceration** is a protrusion of the internal viscera though an incision.
5. **Abnormal Scars:** Hypertrophic Scars, Keloid Scars

Factors affecting Wound Healing

1- Developmental Considerations. Healthy children and adults heal more quickly than elderly.

2- Nutrition. Clients with wounds require a diet rich in protein, carbohydrates, lipids, vitamin A and C, &minerals, such as iron, zinc, and copper.

3- Life-Style. Regular exercise enhances blood circulation, and blood brings oxygen and nutrients to the wound, which heals quickly. Smoking reduces oxygen carrying capacity of blood, reduce healing process.

4- Medications

5- Contamination and Infection

Dressing Wounds

Dressings are applied for the following purposes:

1. Protect wound from mechanical and additional injury
2. Protect wound from microbial contamination
3. Promote wound healing by providing or maintaining high humidity of the wound
4. Absorb drainage or debride a wound or both
5. Prevent hemorrhage
6. Splint or immobilize wound site and facilitate healing
7. To provide psychologic comfort

Types of Dressing

1- Transparent Wound Barriers

These barriers are applied to wounds including ulcerated or burned skin areas.

2- Hydrocolloid Dressings

Hydrocolloid dressings are used over venous stasis, leg ulcers, and pressure ulcers.

Techniques for Wound Closure

- Suturing
- Tape and adhesive
- Staples

Cleaning Wounds

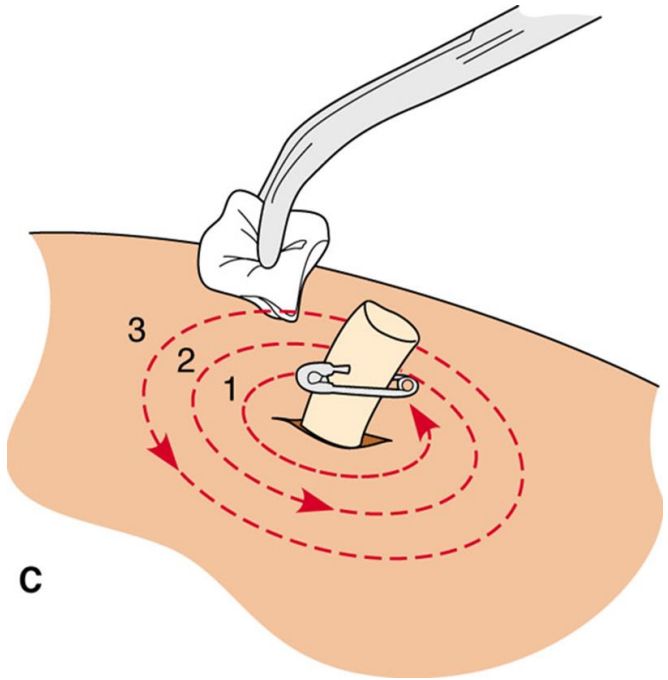
- Involve removal of debris
- Anti microbial solutions such as povidone- iodine (Betadine), 70% alcohol was commonly used.
- A major principle of cleaning wounds is to clean from clean to dirty.

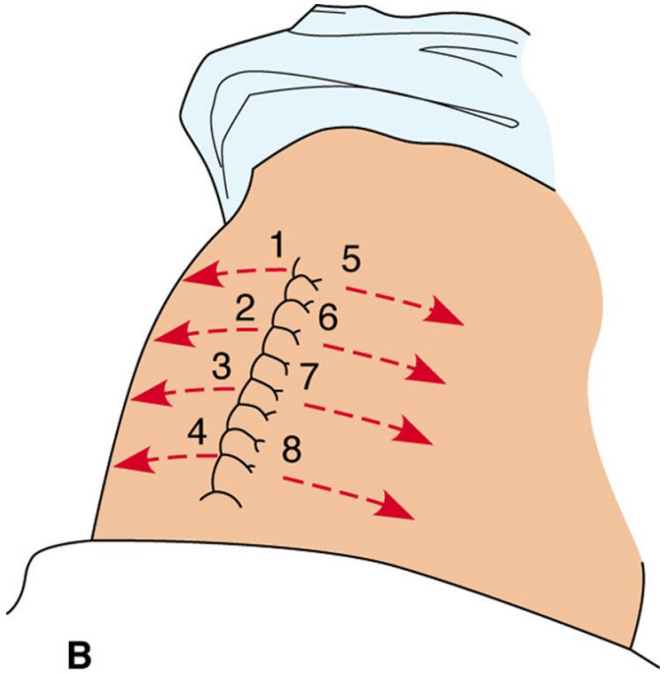
Common Methods in Cleaning Surgical Wounds

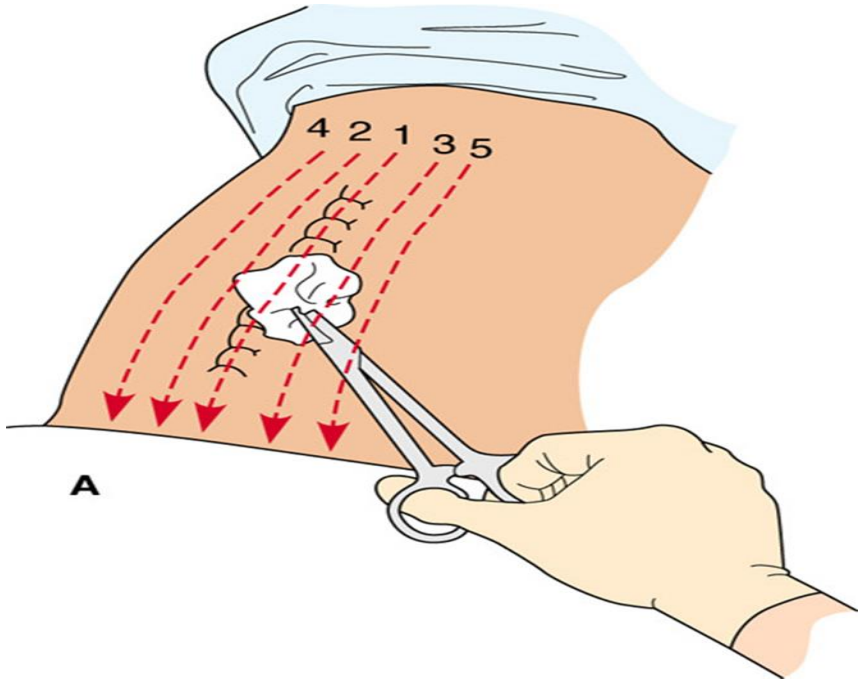
A. Cleaning the wound from top to bottom

B. Cleaning a wound outward from the incision

C. Cleaning around a drain site from inner to outer







Removing Sutures or Staples

- Sutures or metal staples may be used to keep the edges of the wound together until the body can repair the area.
- Then, the sutures or staples must be removed.