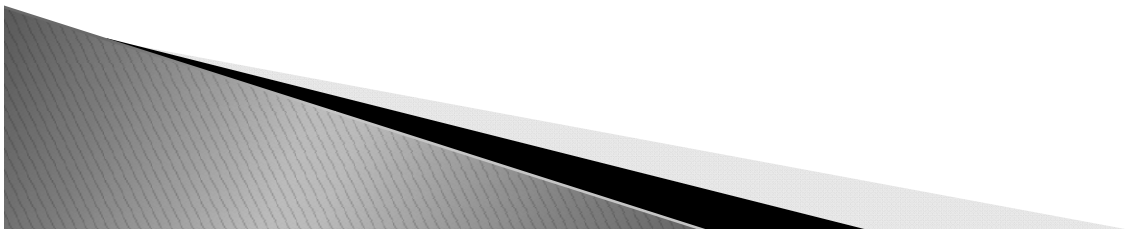


CAMPUS HEALTH – WOUND CARE

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University of Rochester Medical Center
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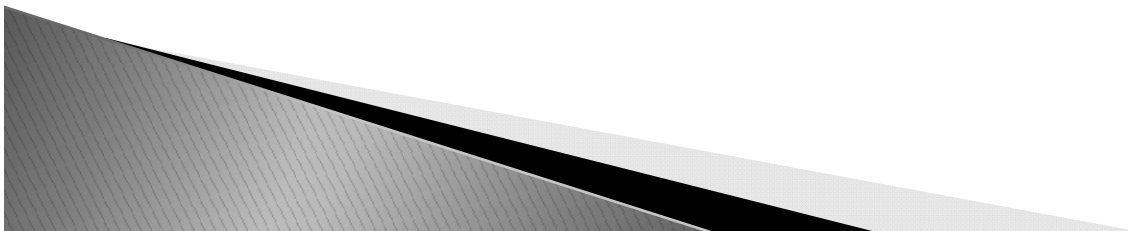
Campus Health – Wound Care

- ▶ This presentation will discuss:
 - Common wound presentations seen in campus health
 - How to do a focused exam and wound care
- ▶ Define and Identify:
 - Simple and complex wounds
 - Simple and advanced evidence-based wound management
 - Common wound complications

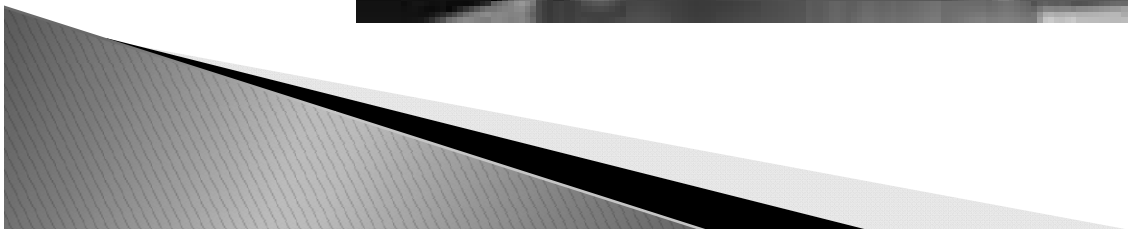


Common Types of Wounds

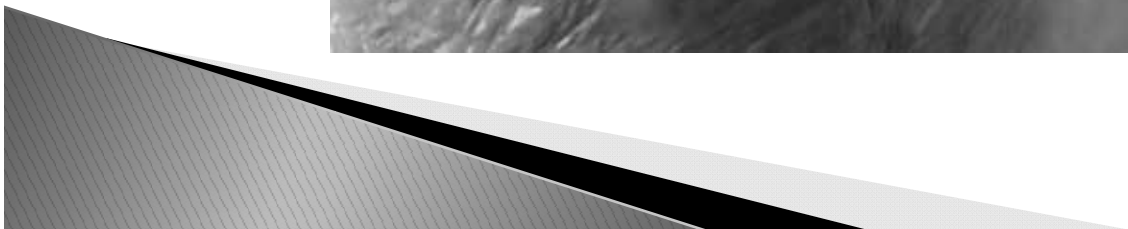
- ▶ Acute: lacerations, deep abrasions, avulsions, puncture, post infectious
- ▶ Post Surgical: closed incisions, open and draining, drains and tubes
- ▶ Chronic: old wounds, wounds due to disease or congenital malformations



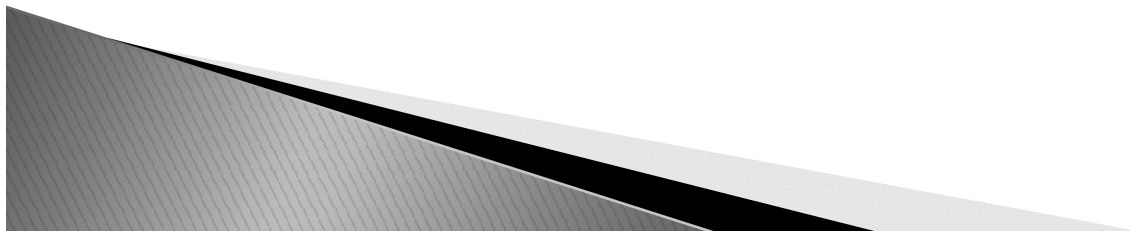
Abrasion



Laceration



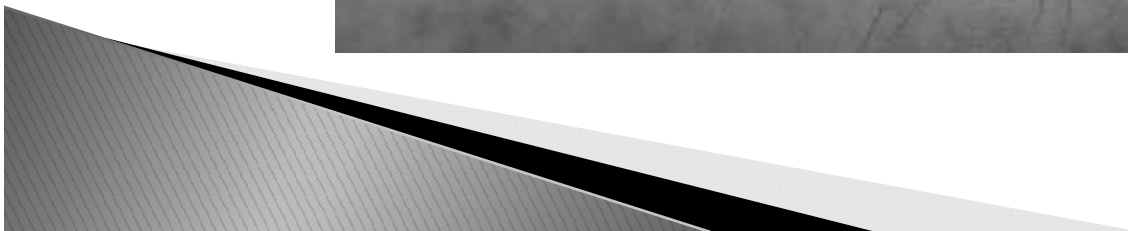
Burn



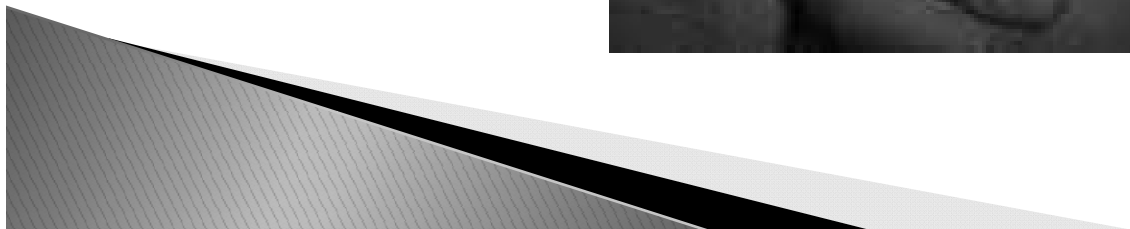
Post Infectious



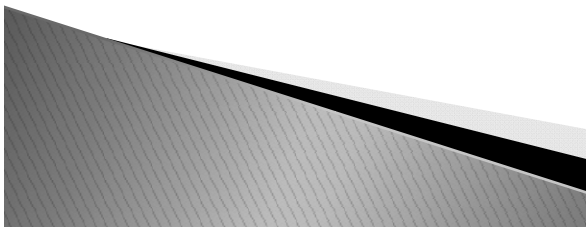
Post surgical



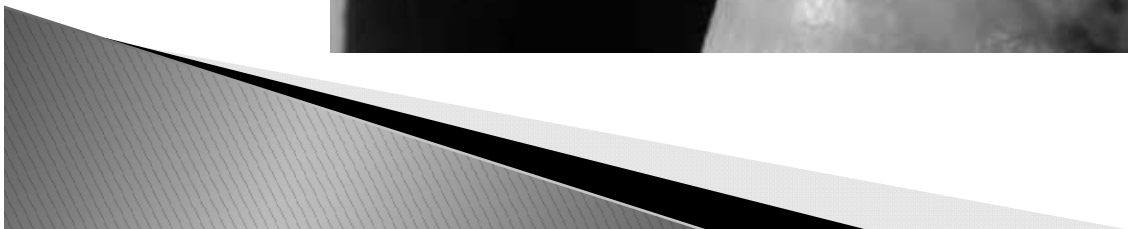
With Surgical Drain



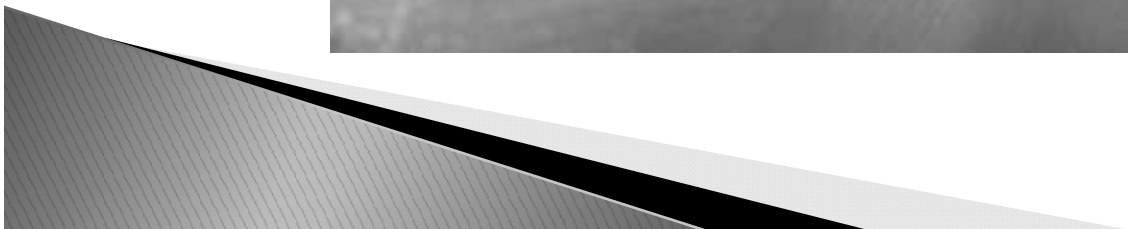
Post Incision and Drainage



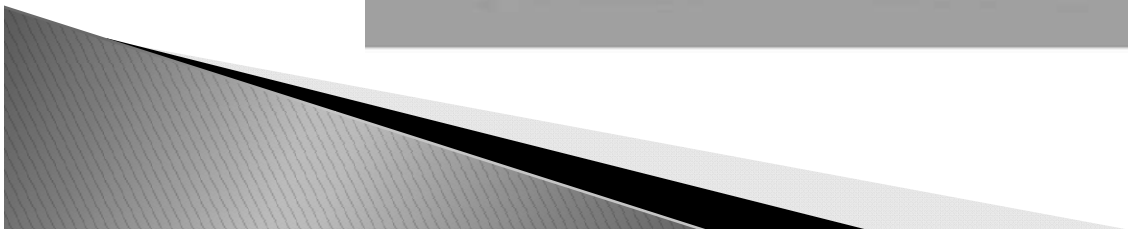
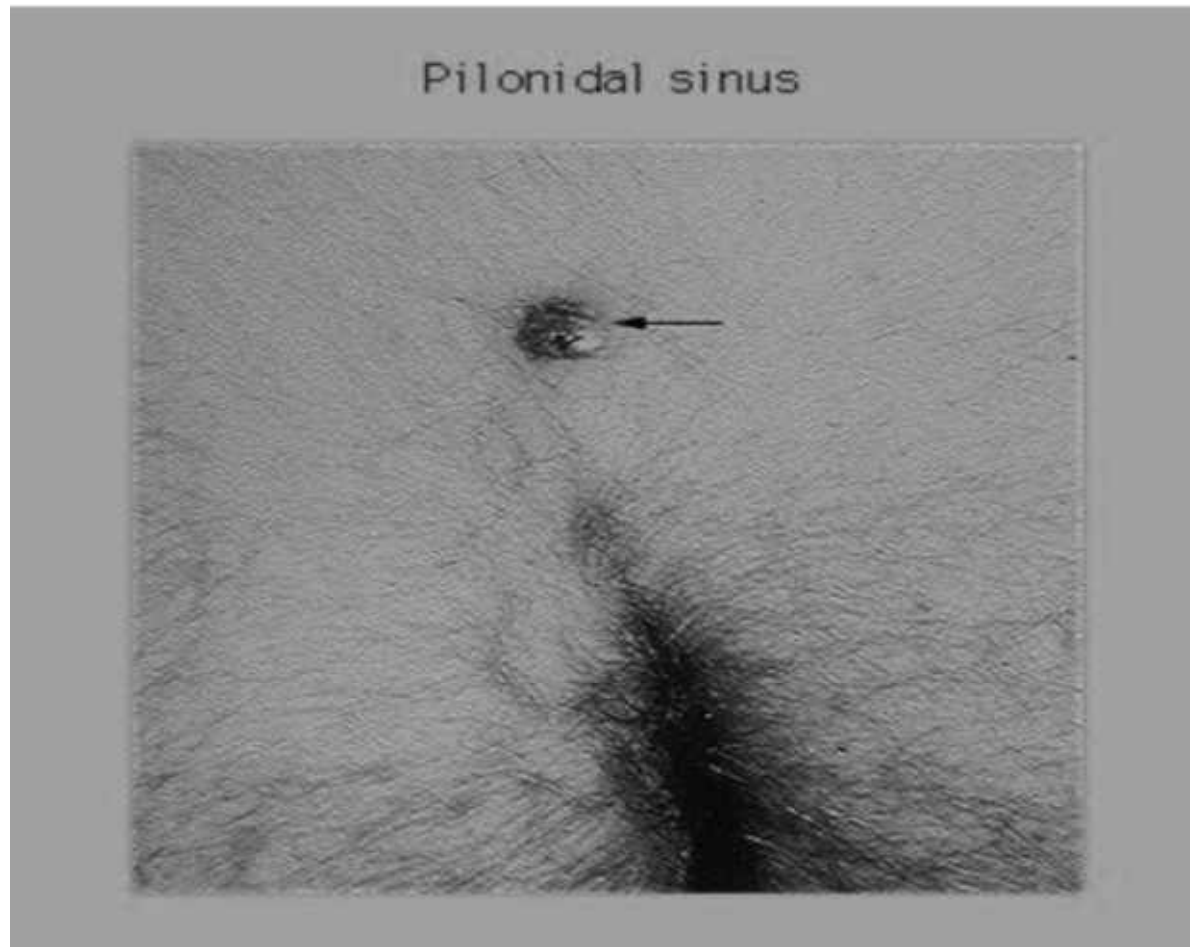
Chronic wounds disease related



Chronic wounds disease related

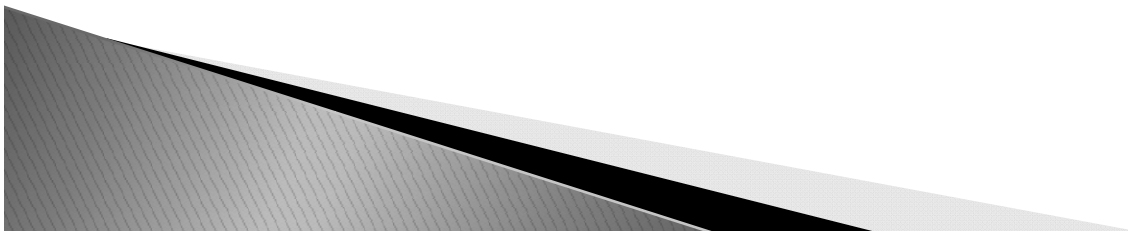


Pilonidal Disease



Wound Exam

- ▶ How to examine a wound and what should you see? (or NOT)
- ▶ Healthy and repairing
- ▶ Not healthy and concerning



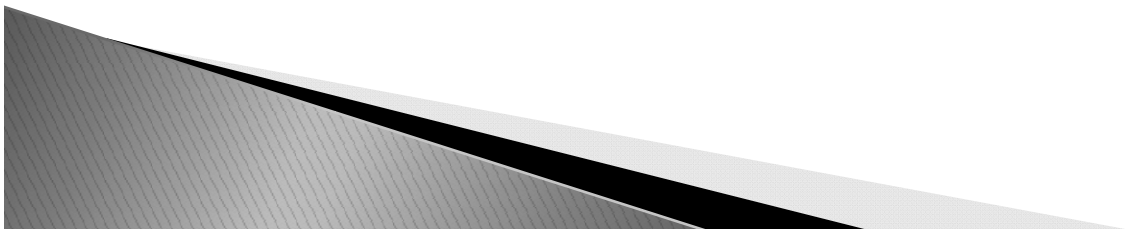
How to examine a wound

- ▶ Cleanse with mild soap and water; if penetrates below skin level and deep irrigate with saline until clear
- ▶ With gloved hands palpate around the wound for pain, induration, fluid, mass or object
- ▶ Observe depth and if any structures are exposed
- ▶ Do not probe the wound if new and acute – unknown
- ▶ Do measure the depth of the wound with sterile qtip when packing with dressings on a established wound



Wound Exam – Documentation

- ▶ Location: ***
- ▶ Size: *** cm long, *** cm wide, and *** cm deep
- ▶ Type:
- ▶ Tunneling or tracking:
- ▶ Undermining:
- ▶ Drainage type and amount:
- ▶ Odor:
- ▶ Tissue Appearance:
- ▶ Periwound Skin:



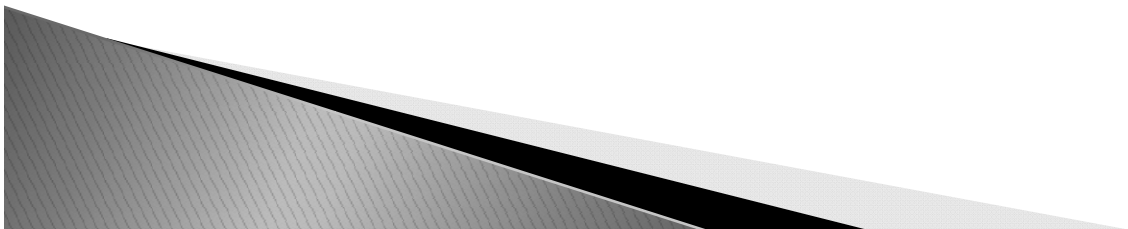
Wound Exam – Documentation

- ▶ Location: right lateral calf
- ▶ Size: 1 cm long, 0.5 cm wide, and 0.5 cm deep
- ▶ Type: puncture wound
- ▶ Tunneling or tracking: no
- ▶ Drainage type and amount: moderate, bloody
- ▶ Odor: none
- ▶ Tissue Appearance: filled with clean pink tissues; no exposed structures
- ▶ Periwound Skin: erythema with moderate induration



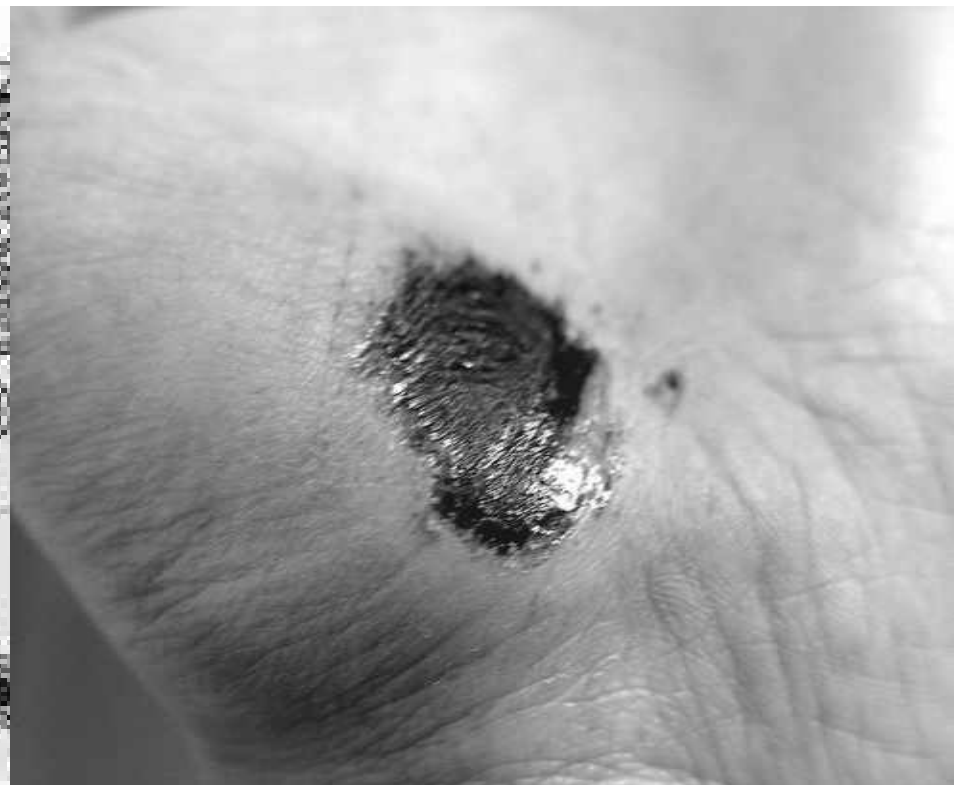
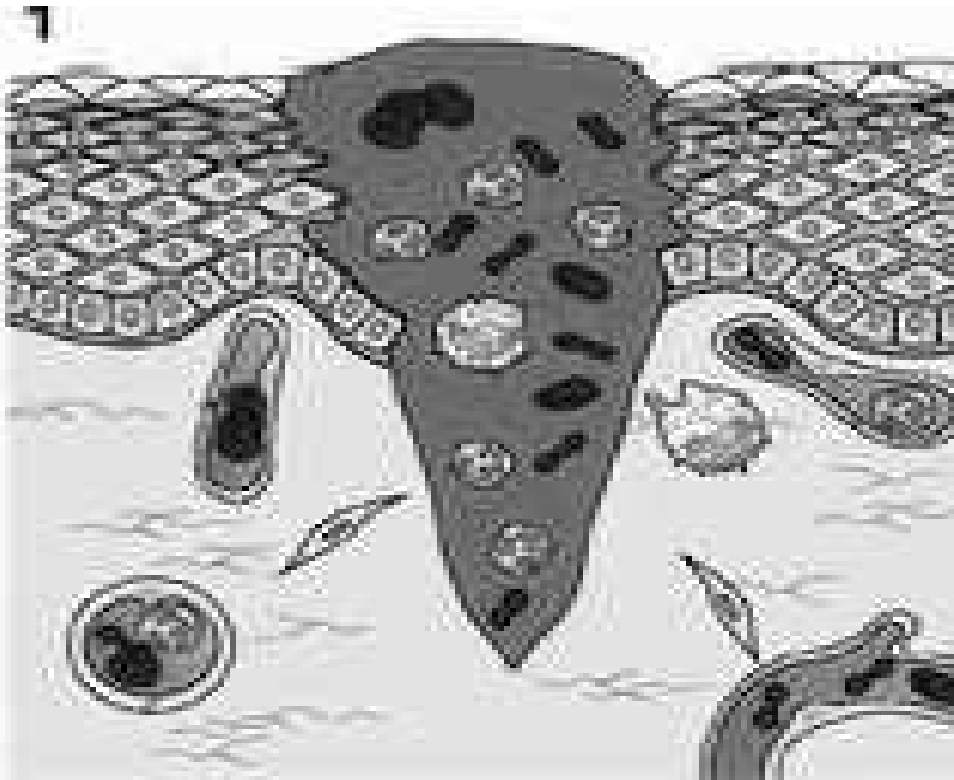
What should I see in a healthy wound?

- ▶ There are *4 basic overlapping phases* of events, influenced by biochemical factors in a wound, that influence normal healing:
 - Hemostasis phase
 - Inflammatory phase
 - Proliferative phase
 - Maturation phase



Hemostasis Phase

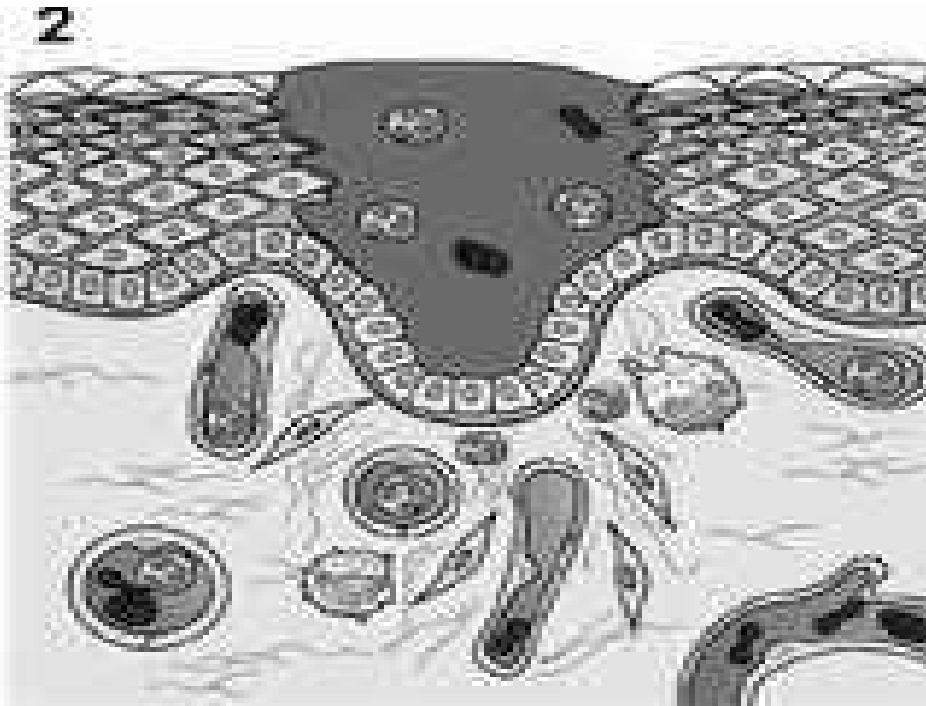
- Bleeding, platelet activation, degranulation, activation of the compliment cascade, blood clotting and hemostasis
 - ↓ Leads to Inflammatory Phase:



Inflammatory Phase

- Cell recruitment through chemotaxis, phagocytosis, and debridement
- Release of cytokines and other bioactive mediators, cell growth and activation, keratinization
- Presents as red, swollen, last 3–7 days

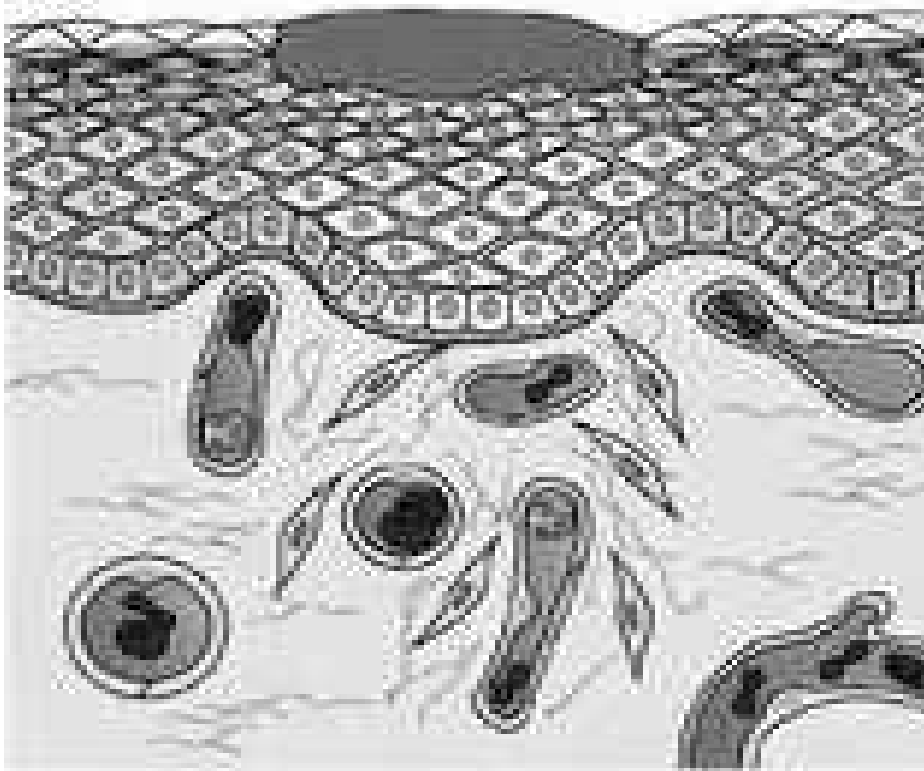
↓ **Leads into the Proliferative Phase**



Proliferative Phase

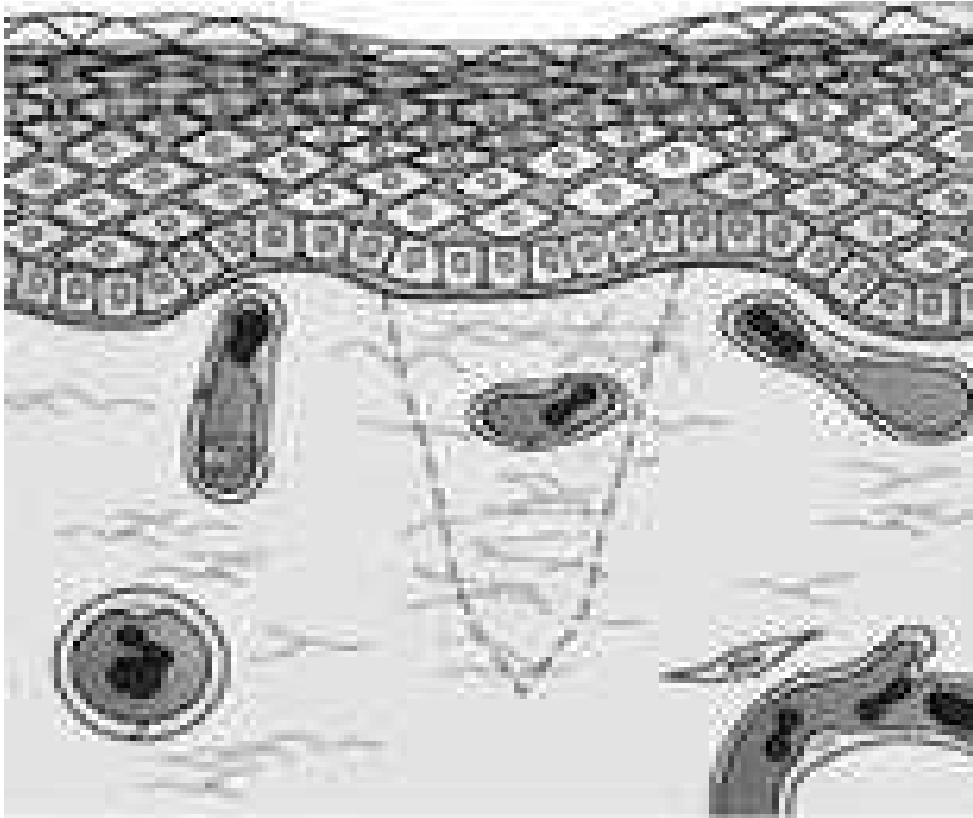
- Neovascularization, collagen deposition
- Growth factors stimulate granulation tissues
- Wound contraction

3a



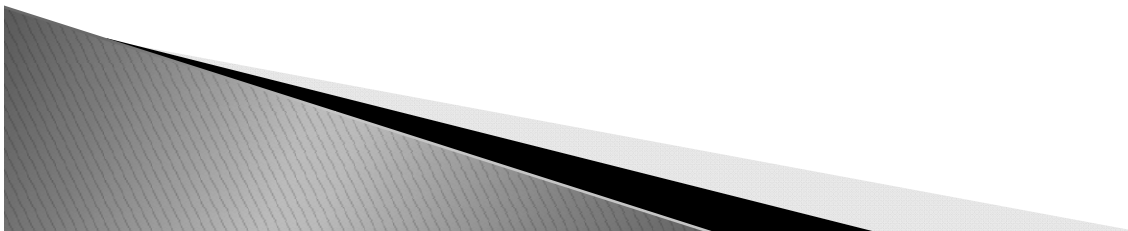
Maturation Phase

- Dissolution of granulation tissue, extra cellular matrix remodeling, new epithelium and wound closure (scar)



What's Not Healthy and Concerning?

- ▶ Infection
- ▶ Dehiscence
- ▶ Bleeding
- ▶ Pain
- ▶ Worsening
- ▶ Non healing



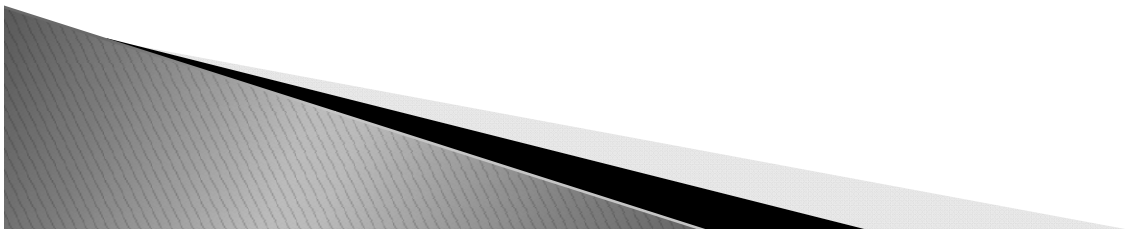
Infection

- Redness
- Heat
- Pain
- Swelling
- Odor
- Temp > 100(F) or 38(C) – may not be present



What is the difference between inflammation and infection?

- ▶ Inflammation is a normal response to injury
- ▶ Inflammation at the site of injury should begin to resolve in 3–5 days with good wound care
- ▶ Inflammation can be caused by organisms that contaminate the wound and grow leading to infection which causes continued or worsening inflammation
- ▶ Other contaminants can be dirt, glass, old retained dressings or suture – really anything foreign



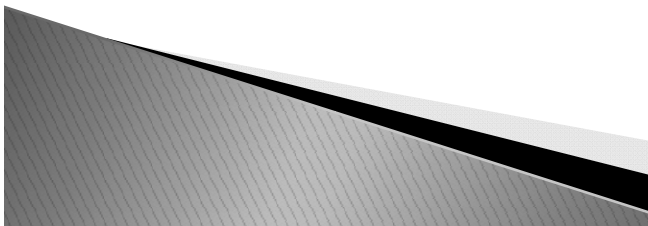
Wound Dehiscence – oops

- ▶ Occurs at a closed surgical incision due to:
 - Infection
 - Injury
 - Edema
 - Collection



Bleeding – it happens

- ▶ Obvious hemorrhage
- ▶ Continuous oozing
- ▶ Hematoma formation



Pain

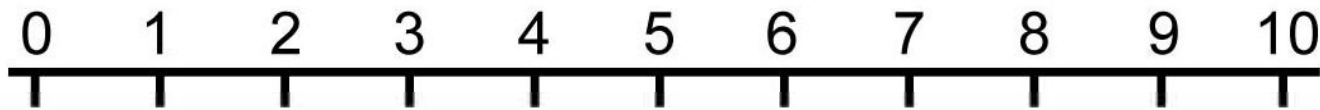








Wound Pain

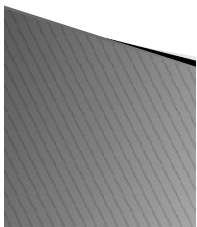
- ▶ Initial injury pain
- ▶ Continued or worsening wound pain

Universal Pain Assessment Tool

This pain assessment tool is intended to help patient care providers assess pain according to individual patient needs. Explain and use 0-10 Scale for patient self-assessment. Use the faces or behavioral observations to interpret expressed pain when patient cannot communicate his/her pain intensity.



	0	1	2	3	4	5	6	7	8	9	10
	NO PAIN	MILD	MODERATE	SEVERE	VERY SEVERE	WORST POSSIBLE					
											
	Alert Smiling	f	f	f	f	f					
	NO PAIN	f	f	f	f	f					
	NADA DE DOLOR	f	f	f	f	f					



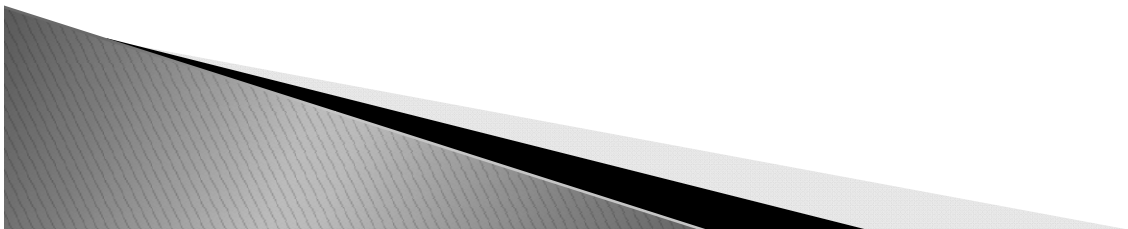
Pain Management

▶ Non medication:

- cool compresses the 1st 24–48 hours then stop
- moisten the dressing with saline or tap water for 5 minutes prior to dressing removal
- elevate the extremity
- Moist wound dressings

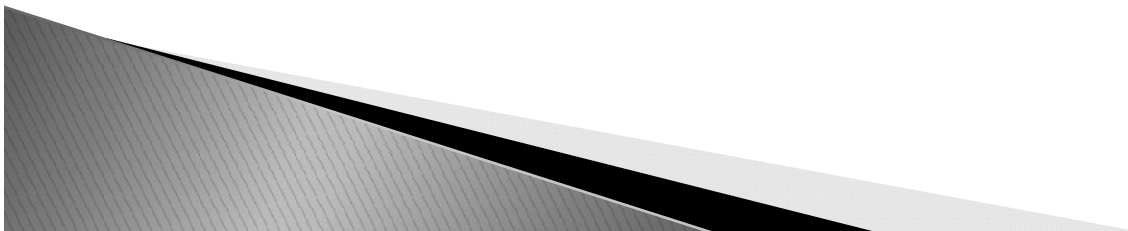
➤ Medication

over the counter pain relief such as acetaminophen per provider/facility



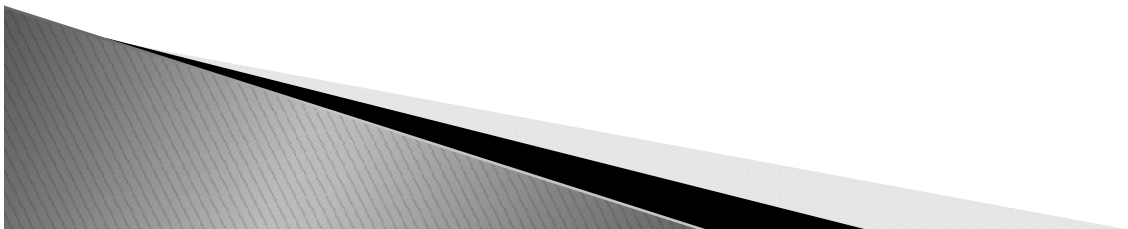
Worsening Wound

- ▶ Secondary to?
 - Infection
 - Poor wound care
 - Underlying disease
 - Wrong diagnosis



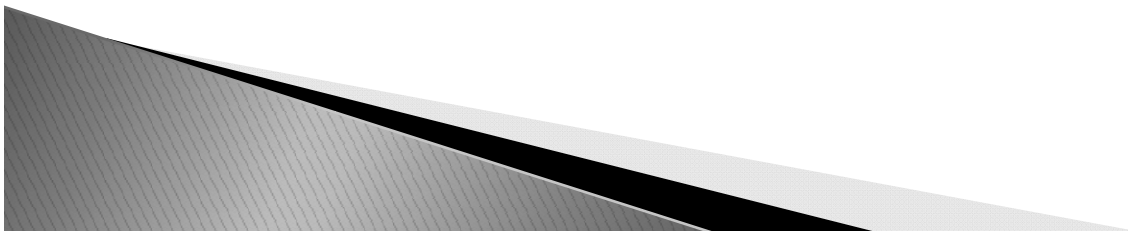
Call to action!

- ▶ If the wound is worsening seek immediate consult with the medical provider or facility
- ▶ Speak with the office nurse or provider and document
- ▶ Educate the patient on instruction for care and document
- ▶ Follow up phone call



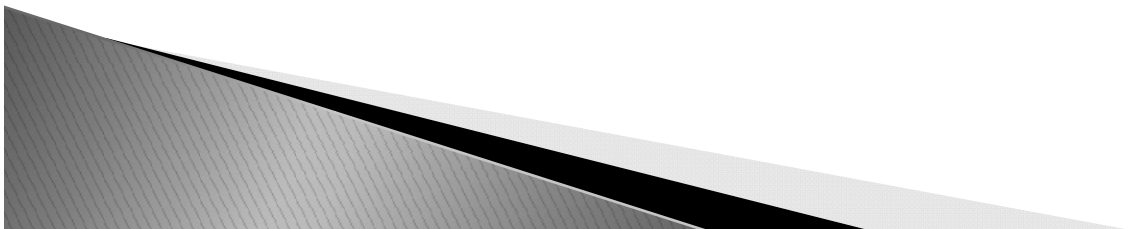
Non Healing Wound

- ▶ Wounds can stall and not heal due to:
 - Poor wound care
 - Chronic infection
 - Altered immune system
 - Misdiagnosis
 - Smoking



Call to action!

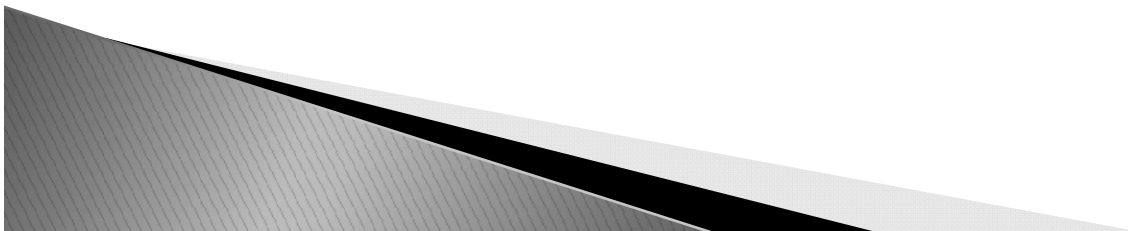
- ▶ Review current wound care instructions and problem solve any discrepancies in understanding with patient
- ▶ Identify any barriers to care: lack of supplies, caregiver, insurance, cost
- ▶ Schedule follow up appointment with medical provider with concerns
- ▶ Counsel in smoking cessation and effects on healing



Wound Healing:

Goals of wound care

- ▶ Reduce bacteria
- ▶ Promote new tissue growth to heal the wound
- ▶ Cover, insulate, protect
- ▶ Reduce pain and provide comfort
- ▶ Cost effective
- ▶ User friendly



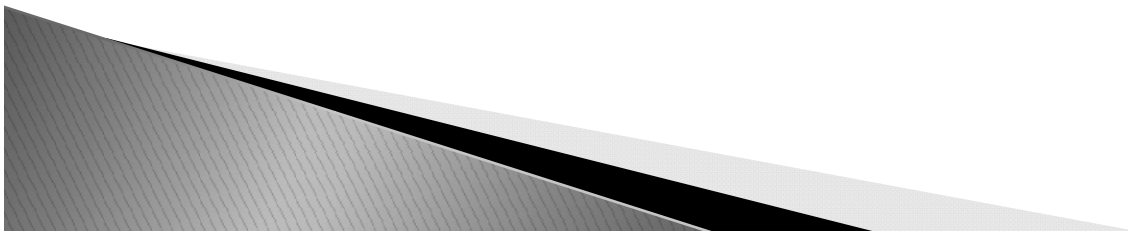
Reduce Bacteria– Cleaning

- ▶ Clean wounds: isotonic saline
- ▶ Dirty wounds: 1 / 4 strength hydrogen peroxide and saline for short time period only
- ▶ Wound cleansers
- ▶ Mild liquid soap and tap water



Promote New Tissue Growth to Heal the Wound

- ▶ Moist wound healing for open wounds
 - Maintain a moist environment to promote formulation and growth of new tissues
- ▶ Dry wound healing for closed wounds
 - Prevent maceration of closed wound edges to reduce weakening of tissues and bacteria growth



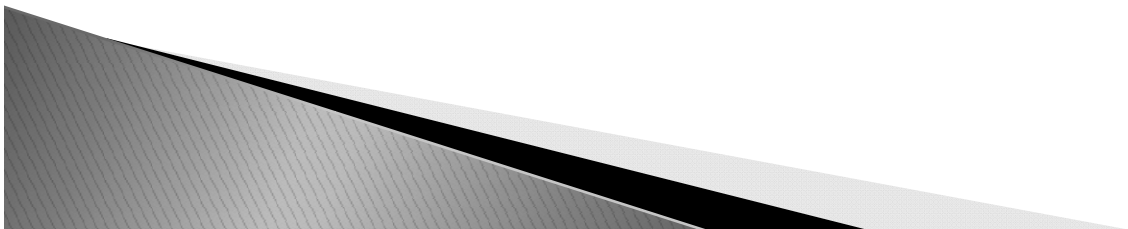
Evidence Based Principles of Moist Wound Healing

- Insufficient moisture, in exposed wound tissues, causes desiccation and cell death
- Excessive drainage inhibits cell growth and breaks down cell matrix components
- Moisture balance in the wound is maintained by appropriate choice of dressings



Moist Wound Healing

- ▶ Pack the open wound with saline moist gauze. Use a roll of gauze if wound is deep to prevent loss of gauze in a wound
- ▶ May use advanced wound dressings that maintain wound moisture and need to be changed less often in minimally to moderately draining clean wounds (hydrocellular, foams)
- ▶ Need to be covered with absorptive dressings

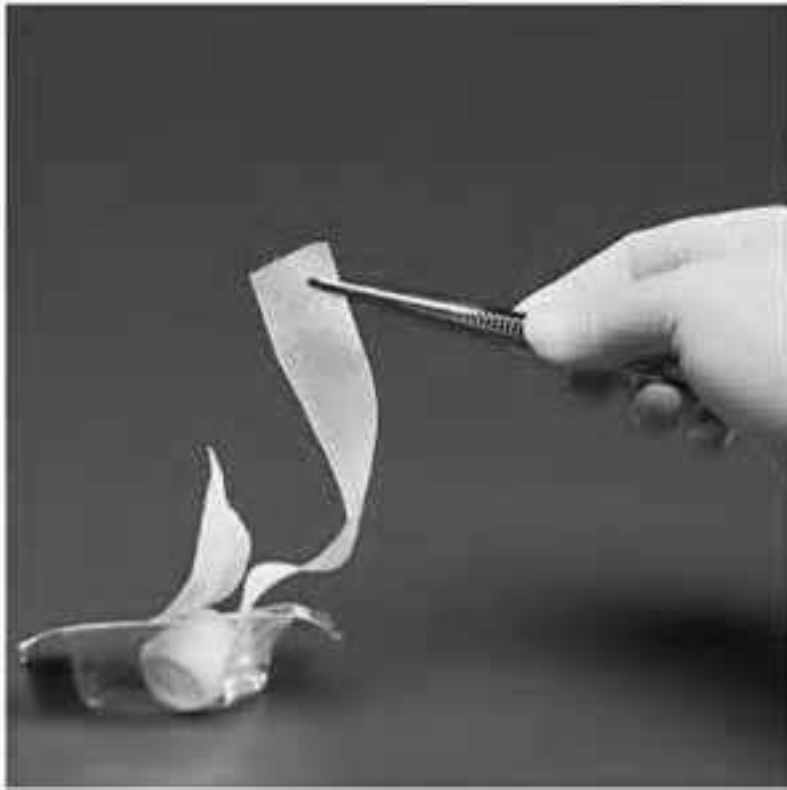


Basic Wound Care – antibiotic ointments

- ▶ For clean, shallow wounds due to infection or minor trauma.
- ▶ Twice daily, Cover with secondary dressings
- ▶ May develop sensitivity or rash with prolonged use



Saline Moist Gauze Packing



Advanced Wound Dressings for Moist Wound Healing

- ▶ Usually superior to gauze dressings
- ▶ Promote faster healing
- ▶ Reduces scarring
- ▶ Usually easy to use and comfortable
- ▶ Expensive – may be covered by insurance
- ▶ Appropriate for difficult to dress wounds and non infected, minimal to moderately draining wounds
- ▶ May not be appropriate for acutely infected or heavily draining wounds



Foams

- Absorbs moderate to heavy exudates
- Insulates to maintain body temperature at wound and increase perfusion
- Promotes formation of granulation tissues
- Adhesive and non-adhesive available
- Apply every 2–3 days

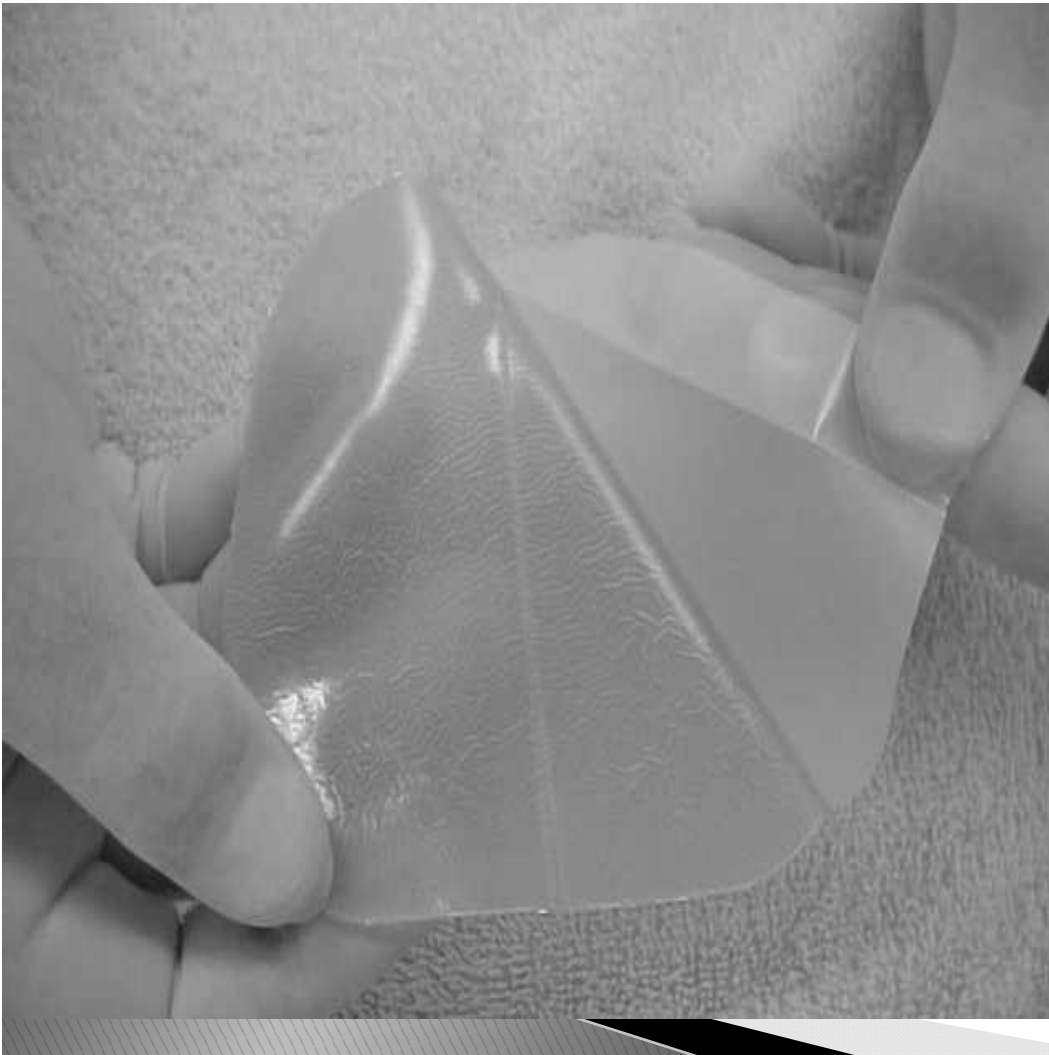


Hydrofiber Dressings



- Absorbs wound drainage and forms a gel, gentle and pain relieving
- Can dissolve and separate in tunneling wounds
- Do not use on dry wounds
- Needs a secondary dressing (foam or ABD pad)

Hydrocolloids



- Increases moisture content of wound, autolytic debrides
- Great barrier to moisture
- Change every 2–5 days, depending on drainage
- Wound drainage will be gummy and mild odor
- Is occlusive and can lead to maceration, do not use on infected wounds

Hydrogels

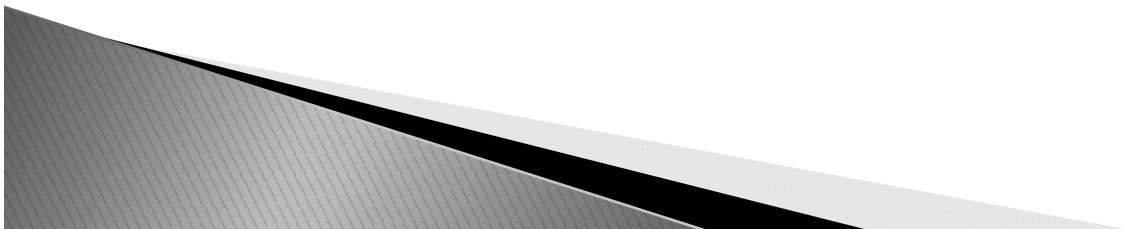


- Add moisture to dry wounds and promotes granulation tissue formation.
- Promotes autolytic debridement
- Do not use on macerated, ischemic, or gangrenous wounds
- Needs a secondary dressing (gauze or foam)

Complex Wound Care

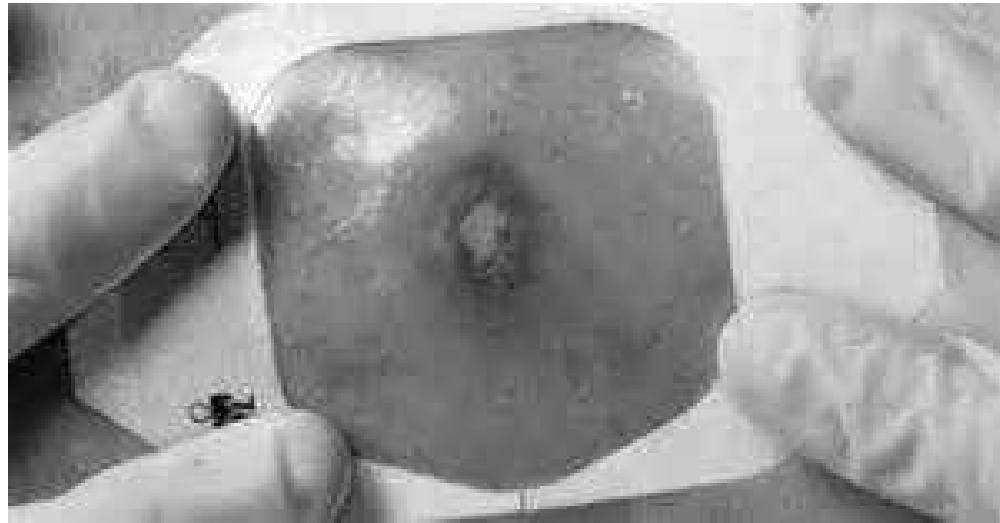
- ▶ Complex packing
- ▶ Wound VAC
- ▶ Complex wraps

Best if managed by the surgeon or wound center
May be able to get home care nurses to visit at the student residence or campus health center



Films

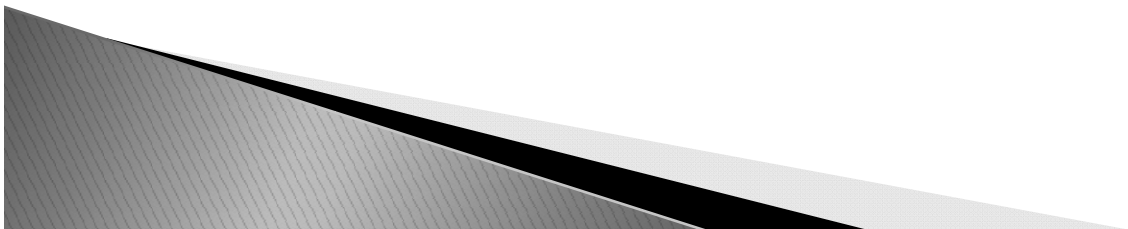
- ▶ Tegaderm – used to cover minor skin tear or injuries with minimal drainage
- ▶ May be used as a gentle adhesive tape in sensitive skin areas



Resources for Wound Supplies

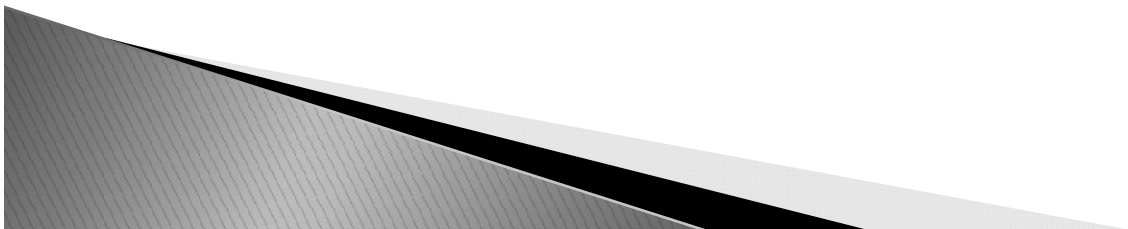
- ▶ Medical supply stores – local or online
 - Need a written prescription or order form signed by licensed provider in order for the insurance to pay.
 - The prescription needs to include the diagnosis and ICD 10 codes with site specific instruction, size and amount of dressings needed per wound with frequency, refill amount
- ▶ Retail drug stores
 - Basic gauzes, wraps and tapes

Always consult with the surgeon who performed any procedure as to wound management



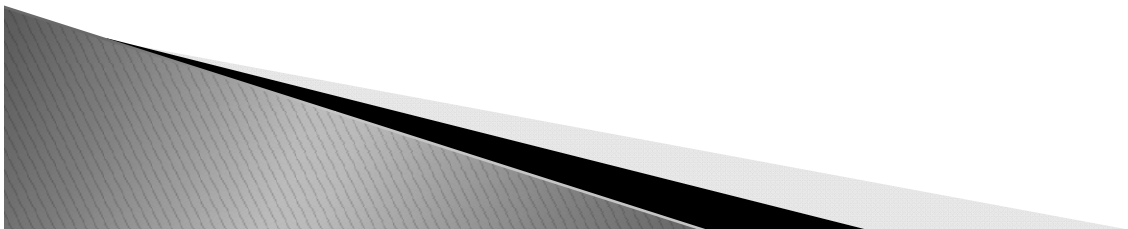
Case Study

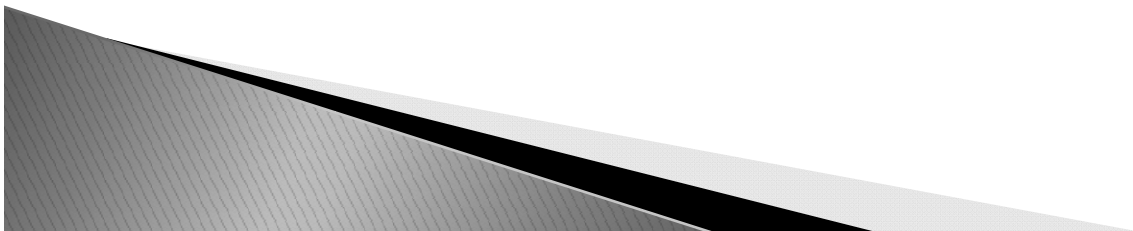
- ▶ Male student presents to campus health clinic needing sutures removed
- ▶ Had surgical excision of both axilla for hidradenitis suppurativa 2 weeks earlier in Saudi Arabia
- ▶ The left axilla suture line does not appear to be healing and has a open pocket
- ▶ Do you remove the stitches?



Case Study

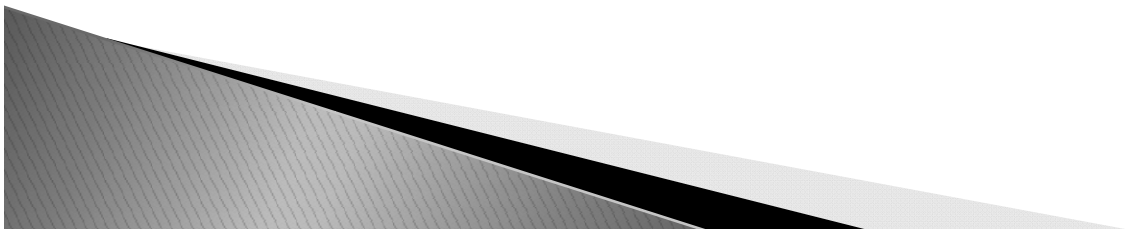
- ▶ Student presents to campus health office with complaints of a wound on his back. He was playing soccer in his dorm room and fell on his back against a metal object
- ▶ He went to the ED and the wound was sutured. The sutures were removed after 9 days and the wound fell open
- ▶ Denies discomfort, no fevers or chills. Has been applying antibiotic ointment and gauze
- ▶ What are the wound care options?

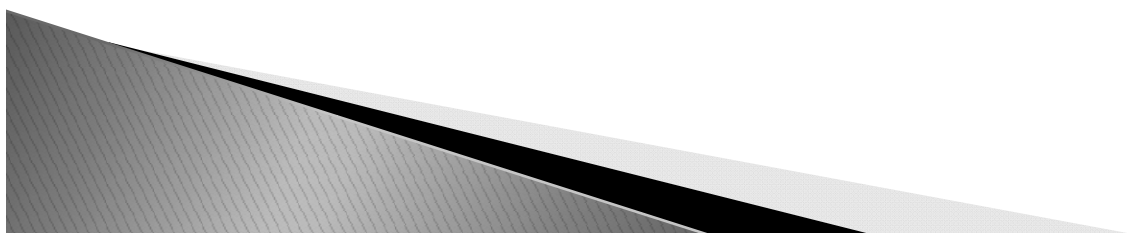




Case Study

- ▶ Student presents to health center with complaints of pain and drainage from his lower back “below the tailbone”
- ▶ On exam there is a tuft of thick black hair at the natal cleft with odorous bloody discharge
- ▶ Palpating the areas you find tenderness and fullness
- ▶ What action should you take?





Burns Briefly

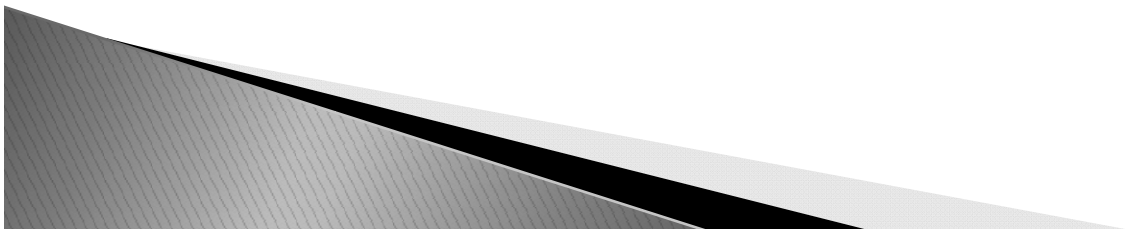
- ▶ *Initial appearance of wound does not allow for accurate assessment of depth and severity.*
- ▶ Call a Burn Center with *all* burn injuries



Burns Briefly

▶ Initial Treatment

- **Stop the Burning Process:** Rinse the burn in cool water, or use a cool compress. Do not use ice.
- **Remove Clothing:** Remove clothing from the burned area. If clothing sticks to the skin, leave it there and cut away the remaining fabric.
- **Remove Jewelry:** Take off rings and jewelry from burned areas that may swell.
- **Cover Burned Area:** Apply a petroleum based ointment (Vaseline, double/triple antibiotic ointment, or A&D ointment), cover with Vaseline impregnated gauze, and a gauze dressing.



Determination of Severity

First Degree

(Partial Thickness)

Superficial, red, often times very painful.

Second Degree

(Partial and Deep Partial Thickness)

Skin may be pink or red, blistered, or swollen. Blistering is not always spontaneous, may take several hours to appear. Very painful.

Third Degree

(Full Thickness)

Pale white, charred or translucent, no pin prick sensation in burned area.

