

# Basic Wound Care for your HCH Clinic

National Health Care for the Homeless Conference  
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# DISCLOSURES:

- None

# SPECIAL THANKS - CONTRIBUTORS

- ◉ Wound Care Education Institute
  - Certification body for all fields
- ◉ Columbia Wound Care Consortium
  - Membership is free
  - Quarterly meetings - CME
  - Semi-annual wound care class
- ◉ PESI
  - Multiple different wound care courses

# ADDITIONAL THANKS!

- ◉ Lyle Urick, RN
- ◉ Amanda Formoso, RN
- ◉ Alecia Deroo, RN
- ◉ Amy Hardy, RN
  
- ◉ Allison Merrill, CMA
- ◉ Tracy Reed, CMA
- ◉ Kerith Hartmann, PA-S

# WHO'S HERE??

- MD/DO's
- DC/ND's
- NP/PA's
- RN's
- MA's
- Others

# OBJECTIVES

- 1) Learn about the most common wounds, basic management, appreciate the impact of wounds on people experiencing homelessness and barriers to healing.
- 2) Understand the principles of wound evaluation and treatment. This will include discussion of common products, sample review and the best application of each type.
- 3) Learn how to tailor wound care plans to challenges frequently faced by those experiencing homelessness, including modifying dressings and dressing change schedules.

# GOLDILOCKS PROCESS:

Too wet, help it dry.

Too dry, moisten it.

Too deep, fill it.

The point is that the goal is to get it...

“just right”

# SECTION 1: WOUND TYPES



# WOUND TYPES, the basics...

## Acute:

Surgical:

I&D

Wound dehiscence

Traumatic:

Abrasions

Burns

Skin tears

Blisters

Lacerations

## Chronic:

Stasis Ulcers (venous/lymphatic)

Diabetic Ulcers

Pressure Injuries

Arterial Insufficiency Ulcers

Moisture Associated Wounds

Classified as superficial, partial thickness or full thickness by tissue depth.

# THICKNESS:

- Based on depth of tissue destruction
  - Superficial
    - Epidermis only
  - Partial thickness
    - Epidermis and partial dermis only
    - “pink and painful”
    - no slough
  - Full thickness
    - Through the dermis and in to the subcutaneous tissue
    - Possibly to muscle, tendon or bone
    - Often develops slough

# VENOUS VS. ARTERIAL ULCERS

## Venous

- ⦿ **Location:**
  - medial lower leg
- ⦿ **Description:**
  - Irregular margins
  - Superficial
  - Ruddy granular tissue
  - Painless-moderate pain
  - Exudative
  - Periwound is weepy or dry and thin
  - Firm edema/woody
  - Lipodermatosclerosis
  - Hemosiderin staining

## Arterial

- ⦿ **Location:**
  - lateral malleolus, between toes, phalangeal heads
- ⦿ **Description:**
  - Even wound margins
  - Pale deep wound bed
  - Pale dry granulation
  - Painful
  - Minimal exudate-dry
  - Thin, shiny dry skin
  - Pallor elevation/dependent rubor
  - Cool
  - Diminished/absent pulses

Patients may also have mixed disease.

# MOISTURE ASSOCIATED SKIN DAMAGE (IAD) VS PRESSURE INJURY

## Incontinence Associated Dermatitis

- ◉ **Etiology:** continued skin exposure to urine and/or feces
- ◉ **Location:** buttocks, perineum upper thighs, skin folds - diffuse area
- ◉ **Color:** red or bright red
- ◉ **Depth:** partial-thickness (limited to epidermis and/or dermis)
- ◉ **Necrosis:** none
- ◉ **Symptoms:** may be painful and cause itching

## Pressure Injury

- ◉ **Etiology:** ischemia from pressure and/or shear forces
- ◉ **Location:** circumscribed and usually over bony prominences or device related
- ◉ **Color:** red to bluish/purple
- ◉ **Depth:** partial or full-thickness deep tissue injury
- ◉ **Necrosis:** slough or eschar
- ◉ **Symptoms:** may be painful

# SKIN TEAR CLASSIFICATION:

## ISTAP Skin Tear Classification

Type 1: No Skin Loss



Linear or Flap Tear which can be repositioned to cover the wound bed

Type 2: Partial Flap Loss



Partial Flap loss which cannot be repositioned to cover the wound bed

Type 3: Total flap loss



Total Flap loss exposing entire wound bed

# VENOUS STASIS ULCER



A patient with venous insufficiency, with an ulcer, has lymphatic damage.  
<http://www.medetec.co.uk/files/medetec-image-databases.html?>

# ARTERIAL ULCER



[https://www.google.com/search?q=arterial+ulcer+lateral+malleolus&noj=1&source=lnms&tbm=isch&sa=X&ved=0ahUKEwi8-\\_jDm5bUAhXnhVQKHRHqD6oQ\\_AUICigB&biw=1280&bih=591#imgrc=uFloCueS11znmM:](https://www.google.com/search?q=arterial+ulcer+lateral+malleolus&noj=1&source=lnms&tbm=isch&sa=X&ved=0ahUKEwi8-_jDm5bUAhXnhVQKHRHqD6oQ_AUICigB&biw=1280&bih=591#imgrc=uFloCueS11znmM:)

# DIABETIC FOOT ULCER



# SKIN TEAR



<https://s-media-cache-ak0.pinimg.com/originals/a0/62/b8/a062b8449970b72d667bf54abe7bb487.jpg>

# ABSCESS POST I&D



Courtesy of Google Images

# BLISTER



[https://www.google.com/search?q=blister&source=lnms&tbm=isch&sa=X&ved=0ahUKEwiWgofzmpnUAhXLilQKHav6BTwQ\\_AUIBi\\_gB&biw=1280&bih=591#imgrc=1y3Ftk5UPeNgLM:](https://www.google.com/search?q=blister&source=lnms&tbm=isch&sa=X&ved=0ahUKEwiWgofzmpnUAhXLilQKHav6BTwQ_AUIBi_gB&biw=1280&bih=591#imgrc=1y3Ftk5UPeNgLM:)

# CALLUS



<https://mcdermottfootcare.com/2014/01/20/why-do-my-calluses-and-corns-keep-coming-back/>

# BURNS

- ◉ Superficial
- ◉ Superficial partial thickness
- ◉ Full thickness

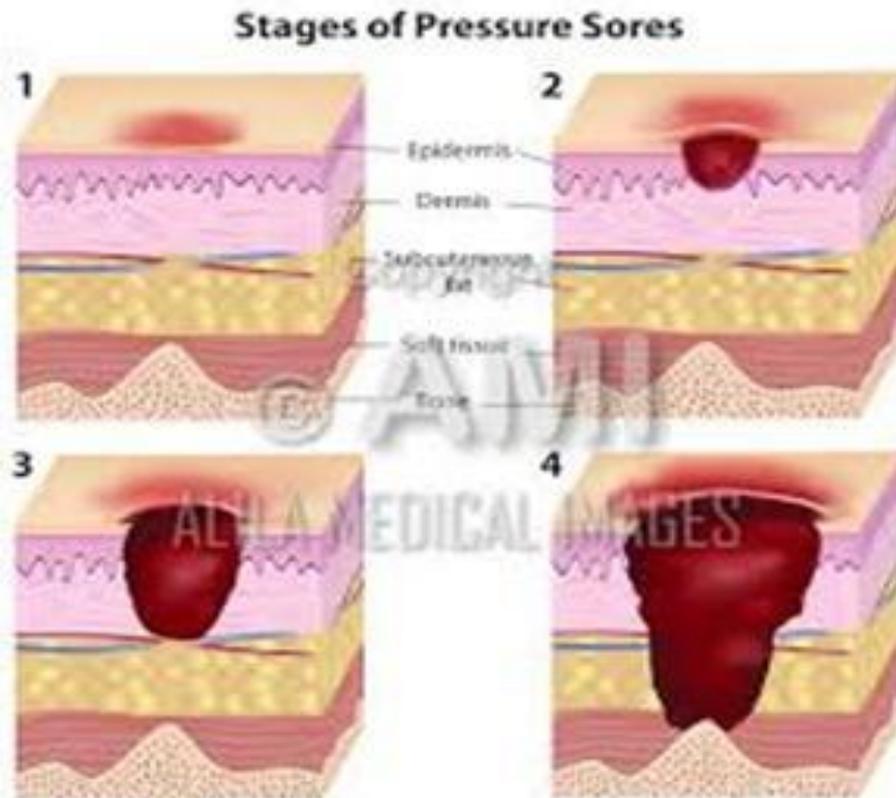


# MOISTURE ASSOCIATED SKIN DAMAGE OR IAD



[https://www.google.com/search?q=incontinence+associated+dermatitis&source=lnms&tbn=isch&sa=X&sqi=2&ved=0ahUKEwiUuYSSisjUAhUUIGMKHYwGCAsQ\\_AUIBigB&biw=940&bih=564#imgrc=YXjlt0c6O\\_bUAM:](https://www.google.com/search?q=incontinence+associated+dermatitis&source=lnms&tbn=isch&sa=X&sqi=2&ved=0ahUKEwiUuYSSisjUAhUUIGMKHYwGCAsQ_AUIBigB&biw=940&bih=564#imgrc=YXjlt0c6O_bUAM:)

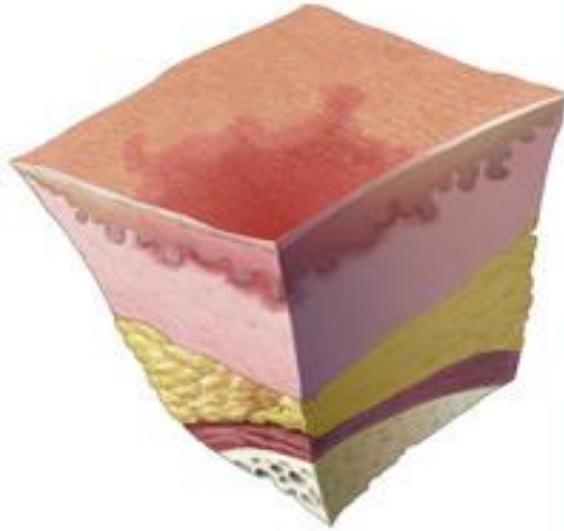
# SKIN LAYERS and pressure injuries



Once staged, it never changes. Even if it reopens. It can also be unstageable.

[https://www.google.com/search?q=pressure+injury&source=lnms&tbm=isch&sa=X&sqi=2&ved=0ahUKEwjv9XLi8jUAhUK3WMKHWOeAh8Q\\_AUIBigB&biw=940&bih=564#imgcr=32LEDusCFArLZM:](https://www.google.com/search?q=pressure+injury&source=lnms&tbm=isch&sa=X&sqi=2&ved=0ahUKEwjv9XLi8jUAhUK3WMKHWOeAh8Q_AUIBigB&biw=940&bih=564#imgcr=32LEDusCFArLZM:)

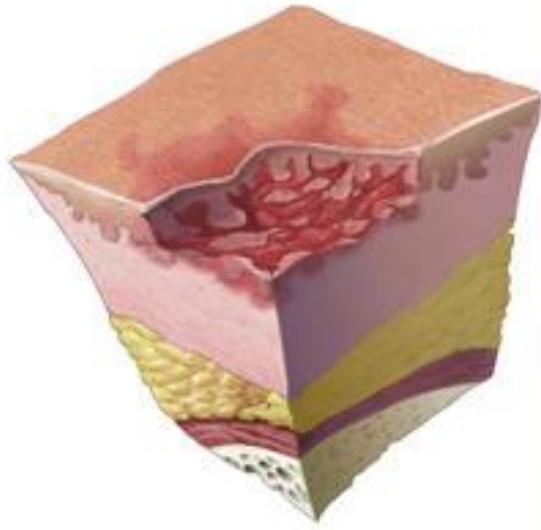
# STAGE 1



Example of non-blanchable redness

<https://www.visualdx.com/public-health/pressure-ulcer>

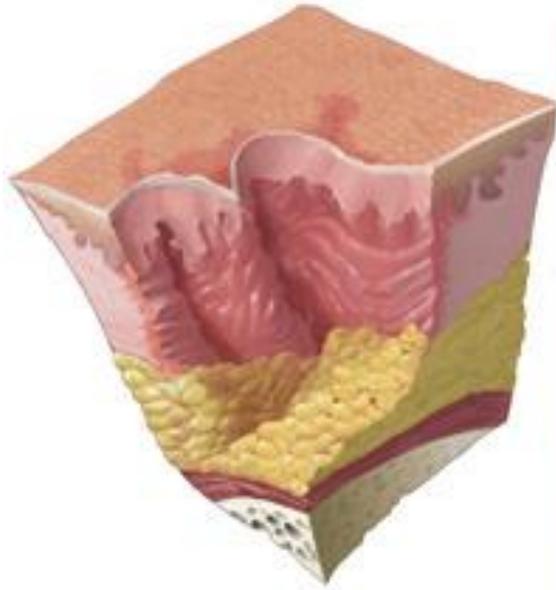
# STAGE 2



Example of nongranular tissue

<https://www.visualdx.com/public-health/pressure-ulcer>

# STAGE 3



Example of granulation tissue

<https://www.visualdx.com/public-health/pressure-ulcer>

# STAGE 4



If bone or tendon is exposed it is vital to keep it moist!

<https://www.visualdx.com/public-health/pressure-ulcer>

# DEEP TISSUE INJURY



<https://www.visualdx.com/public-health/pressure-ulcer>

# UNSTAGEABLE



<https://www.visualdx.com/public-health/pressure-ulcer>

# LIPODERMATOSCLEROSIS

- Changes in the skin of the LE
- Inflammation of the fat layer
- S/sx: pain, change in skin color, swelling, hardening of the skin, tapering of the legs above the ankles



# DESCRIPTORS:

- ◉ Aspects of the wound that need to be in the objective portion of the note.

# EPIBOLE OR ROLLED BORDER



[https://www.google.com/search?q=epibole+images&source=lnms&tbm=isch&sa=X&ved=0ahUKEwi5gcSik8jUAhUT8WMKHe\\_JD3cQ\\_AUIBigB&biw=940&bih=564#imgrc=li7ED9k0nhQUAM](https://www.google.com/search?q=epibole+images&source=lnms&tbm=isch&sa=X&ved=0ahUKEwi5gcSik8jUAhUT8WMKHe_JD3cQ_AUIBigB&biw=940&bih=564#imgrc=li7ED9k0nhQUAM)

:

# UNDERMINING



[https://www.google.com/search?q=epibole+wound+pictures&source=lnms&tbn=isch&sa=X&sqi=2&ved=0ahUKEwjSuayDkcjUAhVP\\_WMKHSxJB-IQ\\_AUIBigB&biw=940&bih=564#imgrc=Izhrzt6n3JxJbM:](https://www.google.com/search?q=epibole+wound+pictures&source=lnms&tbn=isch&sa=X&sqi=2&ved=0ahUKEwjSuayDkcjUAhVP_WMKHSxJB-IQ_AUIBigB&biw=940&bih=564#imgrc=Izhrzt6n3JxJbM:)

# FISTULA OR SINUS TRACT



# TUNNEL



[https://www.google.com/search?q=tunnel+in+a+wound&source=lnms&tbm=isch&sa=X&ved=0ahUKewiKvLOiMjUAhVN52MKHQ0zCwkQ\\_AUIBigB&biw=940&bih=564#imgrc=LaCZdoS0nxSudM:](https://www.google.com/search?q=tunnel+in+a+wound&source=lnms&tbm=isch&sa=X&ved=0ahUKewiKvLOiMjUAhVN52MKHQ0zCwkQ_AUIBigB&biw=940&bih=564#imgrc=LaCZdoS0nxSudM:)

# GRANULATION VS HYPERGRANULATION TISSUE



[https://www.google.com/search?q=granulation+tissue&source=lnms&tbm=isch&sa=X&sqi=2&ved=0ahUKewjkwB09IMjUAhVR9mMKHRVcC10Q\\_AUIBigB&biw=940&bih=564#imgrc=8umvPKxxgKRwAM:](https://www.google.com/search?q=granulation+tissue&source=lnms&tbm=isch&sa=X&sqi=2&ved=0ahUKewjkwB09IMjUAhVR9mMKHRVcC10Q_AUIBigB&biw=940&bih=564#imgrc=8umvPKxxgKRwAM:)

[https://www.google.com/search?q=granulation+tissue&source=lnms&tbm=isch&sa=X&sqi=2&ved=0ahUKewjkwB09IMjUAhVR9mMKHRVcC10Q\\_AUIBigB&biw=940&bih=564#tbm=isch&q=hypergranulation+tissue&imgrc=XJVkQ87b40wUQM:](https://www.google.com/search?q=granulation+tissue&source=lnms&tbm=isch&sa=X&sqi=2&ved=0ahUKewjkwB09IMjUAhVR9mMKHRVcC10Q_AUIBigB&biw=940&bih=564#tbm=isch&q=hypergranulation+tissue&imgrc=XJVkQ87b40wUQM:)

# SLOUGH

- A yellow fibrinous tissue that consists of fibrin, pus, and proteinaceous material.
- Can be found on the surface of a previously clean wound bed.
- Thought to be associated with bacterial activity.

([www.medscom/viewarticlecape./459733\\_5](http://www.medscom/viewarticlecape./459733_5))



[https://www.google.com/search?q=slough+definition+wound&source=lnms&tbm=isch&sa=X&sqi=2&ved=0ahUKEwihooLw3YvUAhXoxlQKHRVTD9EQ\\_AUIBigB&biw=1280&bih=591#imgrc=h1-wK64zsqAq5M:](https://www.google.com/search?q=slough+definition+wound&source=lnms&tbm=isch&sa=X&sqi=2&ved=0ahUKEwihooLw3YvUAhXoxlQKHRVTD9EQ_AUIBigB&biw=1280&bih=591#imgrc=h1-wK64zsqAq5M:)

# MACERATION



[https://www.google.com/search?q=maceration&source=lnms&tbm=isch&sa=X&sqi=2&ved=0ahUKEwjHi6TW\\_pXUAhVozFQKHbSSAqMQ\\_AUIBigB&biw=1280&bih=591#imgrc=IC9OzZByfwyAnM:](https://www.google.com/search?q=maceration&source=lnms&tbm=isch&sa=X&sqi=2&ved=0ahUKEwjHi6TW_pXUAhVozFQKHbSSAqMQ_AUIBigB&biw=1280&bih=591#imgrc=IC9OzZByfwyAnM:)

# WHAT IS THIS?



[https://www.google.com/search?q=stasis+dermatitis&source=lnms&tbm=isch&sa=X&sqi=2&ved=0ahUKEwiv2PyZnqLUAhVR22MKHaOlDucQ\\_AUIBigB&biw=970&bih=520#imgrc=XkeLqLWQYr0DwM:](https://www.google.com/search?q=stasis+dermatitis&source=lnms&tbm=isch&sa=X&sqi=2&ved=0ahUKEwiv2PyZnqLUAhVR22MKHaOlDucQ_AUIBigB&biw=970&bih=520#imgrc=XkeLqLWQYr0DwM:)

BREAK TIME!

Portland OR



CENTRAL CITY  
**CONCERN**

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HOMES HEALTH JOBS

# SECTION 2: HEALING PROCESS



# HEALING STAGES

- Hemostasis
- Inflammatory
- Proliferative - granulation/epithelialization
- Maturation -remodeling

These are overlapping and sometimes simultaneous processes.

# HEMOSTASIS

- ◉ Purpose: stop bleeding
  - Initiates the healing cascade
- ◉ Components:
  - platelets, thrombin, cytokines, growth factors

# INFLAMMATORY

- Purpose: remove debris
  - Generally, redness without warmth
- Components:
  - Neutrophils -
    - destroy bacteria
  - Macrophages -
    - Mediate transition to proliferation
    - Secrete growth factors and cytokines
      - Activate cells involved in tissue repair

# PROLIFERATIVE

- Purpose: produce collagen and epithelial tissue
- Components:
  - Granulation - fills wound bed
  - Fibroblasts migration
  - Collagen - tensile strength and structure
    - Haphazard then aligns by cross linking along lines of stress
  - Angiogenesis - capillary sprouts
  - Contraction - margins pull together
  - Epithelialization - cover the wound
    - This starts within a few hours of injury

# MATURATION

- Purpose: Remodel and increase tensile strength
- Components:
  - Collagen reorganizes
  - Decrease in fibroblasts
  - Scar will have 80% the tensile strength of skin
  - First 12 weeks are critical
    - Pay careful attention
    - Contractures may form and easy to break down

# DRAINAGE

- ⦿ Sanguineous
  - Blood or bleeding
- ⦿ Serosanguineous
  - Thin bloody looking or pink
- ⦿ Serous
  - Thin yellow, green, tan or brownish
  - Can form crusting if dry
- ⦿ Purulent
  - Yellow/greenish, thick

Handout with details in packet

# BARRIERS TO HEALING

- Edema
- Oxygenation/circulation
- Diabetes
- Nutrition
- Temperature
- Osteomyelitis
- Moisture
  
- HCH population
  - Compliance
  - Manage/carry supplies
  - Access to clean environment

# BACTERIAL - BIO-BURDEN

- ⊙ Contamination:
  - All wounds have non-replicating bacteria which does not impede healing
- ⊙ Colonization:
  - An increased number of bacteria replicating in wound without host reaction, does not impede healing
- ⊙ Critical colonization:
  - Bacteria is multiplying in wound with local signs of infection (odor, drainage) causing delayed healing
- ⊙ Infection:
  - Defined as  $10^4$  or  $10^5$  organisms per gram of tissue causing a systemic response

When in doubt culture...

# SIGNS OF INFECTION

- ◉ Red, pain, heat, swelling, purulent drainage, drainage odor, discoloration
- ◉ Delayed healing
- ◉ Abnormal odor
- ◉ Friable granulation tissue
- ◉ New edema
- ◉ Induration
- ◉ Increased serous exudate
- ◉ Change in granulation color or hypertrophy
- ◉ Change in wound bed color
- ◉ Increase pain at wound site (check blood flow)

# STALLED WOUNDS

What healing stage isn't moving forward???

Also, think nutrition:

- Prealbumin
- Transferrin

What about barriers to healing?

- Smoking
- Poor blood flow
- Bacterial burden
- Temperature
- Diabetes
- Edema

# BASIC RULE

- ◉ If there is no change/improvement in the wound in two weeks change the plan.

# BUILDING BLOCKS

- Vitamin C
- Vitamin A
- Zinc
- Arginine
- Glutamine
- Fish oil

QUESTIONS??

# BREAK TIME

Willamette River from the West Side



# SECTION 3: MANAGEMENT



REMEMBER GOLDILOCKS...

# MOIST WOUND HEALING

- In 1962, George Winter, PhD
  - Questioned if allowing a wound to dry out was best
  - Multiple small cuts
    - Some were covered
    - Some left open to air
  
- Results:
  - Moist wounds heal faster

# ACID MANTLE

- Skin has a specific pH of 4 to 5.5
  - Sebum and sweat mix
  - Protects skin from elements
  - Inhibits growth of bacteria and fungi
  - Loss of this makes skin prone to damage and infection
- Soaps have different pH which affects integrity
  - Dove pH 10
  - Irish Spring pH 7.5
  - Dial Liquid Soap pH 9.5

# CLEANSING AGENTS: KEY TO GOOD WOUND CARE

- ◉ Good old soap and water- great for hand or arm wounds, patient does much of this themselves
- ◉ No-Rinse Skin and Wound Cleanser and warm water- mild surfactant, gentle on wounds
- ◉ Chloroxylenol 3% impregnated scrub brush- good for feet and legs, mild antibacterial action
- ◉ Chlorhexidine- only occasionally used as it is alcohol based and can damage granulation tissue, best for new acute wounds, soaking an area prior to a procedure, or mixed with water as a foot soak
- ◉ “Prontosan” - wound surfactant. Soak gauze and leave on wound for 10 min, rinse with water, no friction needed
- ◉ Normal Saline- only needed for flushing things with undermining or tracts (abscesses), not appropriate for regular chronic wound cleansing

# MEASUREMENTS

- ◉ Always in centimeters
- ◉ Longest vertical
- ◉ Longest horizontal
- ◉ Deepest point
- ◉ Tunnels vs. undermining vs. fistula

Should be done at least once a week.

# DRESSING TYPES - gauze

- ⦿ Loose open weave
- ⦿ Non-woven
- ⦿ Non-adherent (telfa)\*
- ⦿ Petrolatum
- ⦿ Rolled fluff
- ⦿ Conforming/stretch
- ⦿ ¼” and ½” packing - plain or iodoform

\* tends to be non-absorbent, retraining moisture and promoting maceration.

# DRESSING TYPES - absorbent

- ◉ Calcium alginate fluff or pads
- ◉ Silver impregnated alginates
- ◉ Foam
  - “Allevyn/mepilex” (silicon covering)
  - Hydrophilic
- ◉ Abdominal pads
- ◉ Super absorptive pads (ex. exu-dry)

# DRESSING TYPES - contact layers

- ◉ Transparent film
- ◉ Hydrocolloid
- ◉ Wound closure strips
  
- ◉ Silicon dressings
  - Mepilex
  - Mepitel
  - Profore
  - Adaptic

# DRESSING TYPES - topical agents

## Antimicrobials:

- Mupirocin
- Silver sulfadiazine
- Gentamicin sulfate
- Medihoney
- “Xeroform” gauze
- Cadexomer iodine gel (iodosorb)

## Anesthetic:

- Lidocaine - injection, ointment, cream and viscous

## Moisturizers:

- Hydrogel
- Petrolatum
- Hydrophor/aquaphor

## Anti-itch:

- Triamcinolone Ointment
- Hydrocortisone Ointment
- Miconazole

## Barrier:

- A&D Ointment
- “Calmoseptine”
- Zinc oxide
- No sting barrier film

Barriers can be antifungal as well.

# DRESSING TYPES - *securing*

- ◉ Island dressings/border gauze
- ◉ Tape - Hypafix tends to be gentler on skin
- ◉ Clear adhesive dressing (Tegaderm)
- ◉ Cotton tubular dressing (Stockinette)
- ◉ Tubular elastic dressing (Surgi-last)
- ◉ Self adherent wrap (Coban)
- ◉ Adhesive bandages (Band-aids)
- ◉ Tubular elastic support (Surgi-grip)

# COMPRESSION

just a reminder - ABI's first

ABI Value	Interpretation	Recommendation
Greater than 1.4	Calcification / Vessel Hardening	Refer to vascular specialist
1.0 - 1.4	Normal	None
0.9 - 1.0	Acceptable	
0.8 - 0.9	Some Arterial Disease	Treat risk factors
0.5 - 0.8	Moderate Arterial Disease	Refer to vascular specialist
Less than 0.5	Severe Arterial Disease	Refer to vascular specialist

# ANKLE/BRACHIAL INDEX - ABI

- ⦿ A quantitative measurement of the arterial flow in the lower extremity, utilizing an arterial doppler, divided by the upper extremity, also measured by doppler.
- ⦿ This needs to be done before using compression regardless of whether or not a pulse can be palpated in the foot.

# HOW TO PERFORM AN ANKLE BRACHIAL INDEX

- 1) Ideally, patient should be at rest  
Preferably lying down for 10 minutes
- 2) When possible, get the BP in both arms  
Use the higher of the two numbers
- 3) Measure the DP and PT pressures  
Cuff placed around the ankle  
If the pressure reaches 200 mmHg stop the test.
- 4) Divide the highest brachial BP by the DP of each leg for the ABI.

# COMPRESSION “TYPES”

- Two layer
- Three layer
- Four layer
- Unna boot
- Stockings
- Reusable - examples
  - “Circ-aids”
  - “Juxtalite”

Study

<http://eresearch.qmu.ac.uk/4365/2/eResearch%204365%20pp.pdf>

# THE SHORT COURSE

- ◉ Coban, surgi-grip and Unna boots are ALL methods of compression.
- ◉ Unna boots should only be put on someone who is ambulatory.
- ◉ They need to start at the toes and go to just below the knee.
- ◉ All wraps must be done evenly, overlapping by at least half the width of the wrap.
- ◉ Ensure that there are no wrinkles, bumps, lumps or exposed skin between layers.
- ◉ Moisturize all intact skin underneath any wrap that will be on for more than two days.
- ◉ Wash, dry and moisturize the skin when changing the compression wraps before replacing the wrap.
- ◉ If the pt thinks the wrap is too tight it probably is...

There is a handout with these details in your packet.

# VENOUS STASIS ULCER



- ABI
- Moisture to the wound bed
- Barrier on periwound
- Absorption
- Compression

# ARTERIAL ULCER



- No compression
- Moisture to the wound bed
- Protective dressing
- Protect periwound skin

# ABSCESS



- Remove debris
- Address slough
- Pack loosely or fill the void
- Absorption
- Secure dressing

# BURNS/BLISTERS



- ⦿ Don't pop the blister, if possible
- ⦿ Apply soothing topical agent
- ⦿ Bandage with padding/absorption

# BREAK TIME!

Zion National Park - Utah



Practice with compression wraps and review dressing types.

# SECTION 4: DEBRIDEMENT



# DEBRIDEMENT:

- ⊙ Mechanical - non-selective
  - Wet to dry e.g.
  - Pressurized saline
- ⊙ Autolytic - selective
  - uses the body's own enzymes.
  - better with an occlusive dressing
- ⊙ Enzymatic - selective, slow
  - collagenase, daily
- ⊙ Biological - selective
  - sterile maggots
- ⊙ Sharps - selective/non-selective, fast
  - scalpel, curette, spatula

[http://www.medscape.com/viewarticle/459733\\_6](http://www.medscape.com/viewarticle/459733_6)

# ANESTHETICS

- Generally, not needed for office procedures since we are removing dead tissue.
- Sedation
  - Often used in the ED and, of course, surgery
- Lidocaine
  - Viscous
  - Gel
  - Cream
  - Injectable

# MECHANICAL

## ⊙ Non-selective

- Applying an external force great enough to separate or break adhesive forces
- Can be painful (e.g. wet to dry)

## ⊙ Contraindications

- Epithelialization or granulating wounds

## ⊙ Examples

- Scrubbing, irrigation (4-15 psi), pulse lavage, whirlpool, wet to dry

# AUTOLYTIC

## ◉ Selective

- Painless
- Non-invasive
- Can be slow
- Safe for pts on blood thinners or terminally ill

## ◉ Contraindications

- Infection, extensive necrotic tissue, patients that are immunocompromised

## ◉ Examples

- Hydrocolloid, transparent film - create and retain a very moist environment...

# ENZYMATIC

## ◉ Selective, slow

- Not harmful to healthy tissue
- Dissolves/denatures collagen anchored to wound
- Can be used with other methods but NOT other topical products or silver products
- Ideally, daily and is an rx

## ◉ Contraindications

- None, but can be expensive
- May need to be applied by a licensed provider. Check local rules.

## ◉ Examples

- Collagenase (Santyl) is the only product available

# BIOLOGICAL/BIO-SURGICAL

- ◉ Selective

- MDT - Maggot Debridement Therapy

- ◉ Contraindications

- Allergies to Brewer's Yeast, fly larvae, soy
- Special storage requirements for some

- ◉ Examples

- Sterile or “wild type”

- ◉ Pros:

- works on most wound types, sterile

- ◉ Cons:

- availability, cost
- patient comfort - sometimes this can cause pain and/or the patient can feel them working

# MYIASIS

- ⦿ “Wild” infestation
  - Potentially pathogenic
- ⦿ Preventable with appropriate care
  - Covered at all times
  - Change wet or leaking dressings
  - Clean the wound bed at each dressing change
  - Minimize fly contact

Handout on management in packet

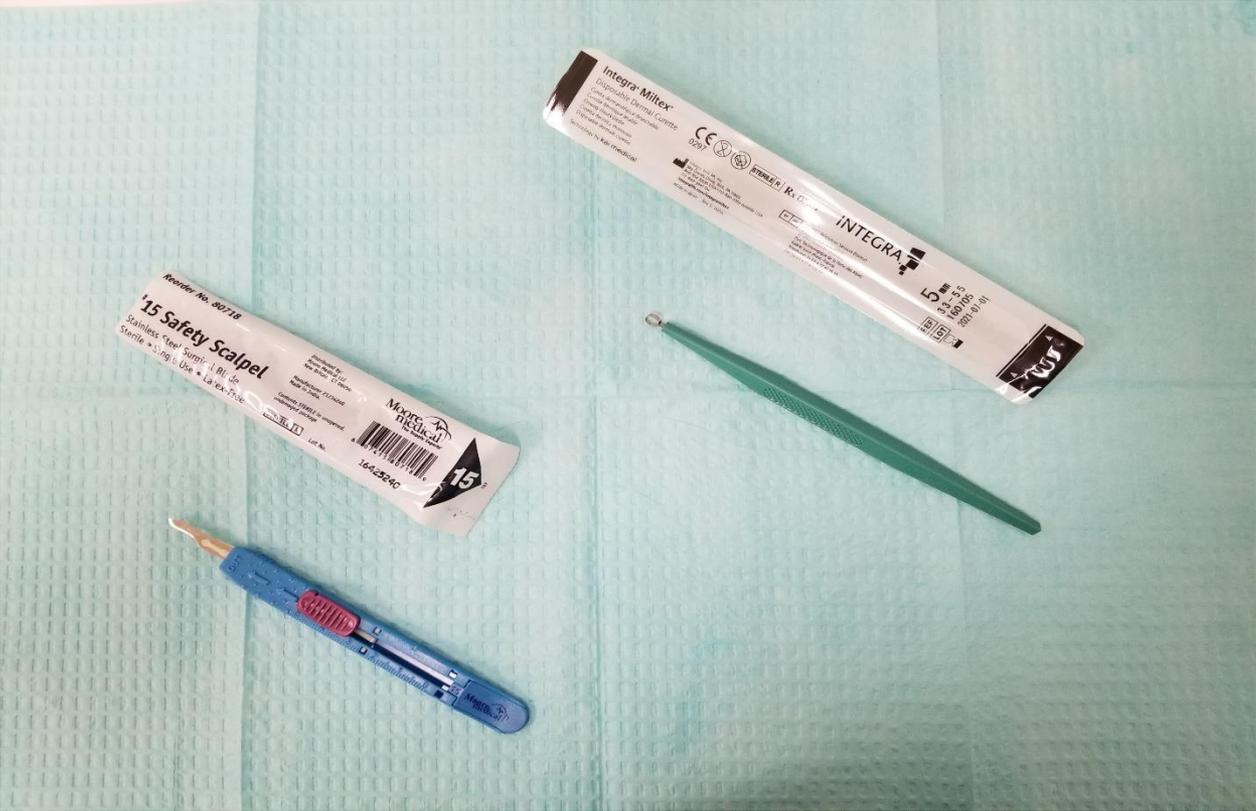
# SHARP

- ◉ **Selective/Non-selective, fastest**
  - Know the scope of practice for your license
- ◉ **Contraindications**
  - Bleeding D/O, ischemia, arterial insufficiency, dry gangrene, malignant wounds, unidentifiable structures, stable eschar
  - Potential scope of practice issues. Varies by state.
- ◉ **Caution**
  - Anticoagulant tx, immunocompromised, smokers, hands/face, pain tolerance
- ◉ **Examples**
  - Scalpel, scissors, curette, forceps, laser

# COMMON INSTRUMENTS



# COMMON INSTRUMENTS CONT.



# SHARP DEBRIDEMENT



4 WEEKS LATER...



# BREAK TIME!

Portland from the Sellwood Bridge



# SECTION 5: DOCUMENTATION

A handout with these examples are in the packet

# CODING

## ⦿ based on:

- Evaluation and management (99213)
  - No debridement or if another condition is addressed
- Debridement (97597, 97598 and 97602)
- Include non-compliance as a part of the note when applicable.

# DOCUMENTING HPI - .wcnew

This is a \_\_\_ year old female who presents to the clinic today for evaluation of a wound.

It is a \_\_\_\_\_. This started about (date preferred) \_\_\_\_\_ wks/mns/yrs. It was caused by \_\_\_\_\_.

Have you ever had this type of a problem before?

If so, when?

Where on your body?

So far, the patient has tried/done \_\_\_\_\_ to treat it.

Is there any pain or itching of wound or skin around wound?

If yes, how would you rate the pain 1-10?

What is the quality of the pain (aching, burning, stinging...)?

When was the last time you had the bandage changed? By whom? (self/clinic)

# DOCUMENTING HPI- .wcnew cont.

Do you have a hx of any of the following?

- ⦿ Cardiovascular Disease:
- ⦿ Respiratory Disease:
- ⦿ GI problems:
- ⦿ GU problems:
- ⦿ Mobility problems:
- ⦿ Diabetes:
- ⦿ Radiation tx/chemotherapy:

Each of these conditions potentially plays a role in wound healing.

# HPI - .wcnew example

This is a 70 year old male who presents to the clinic today for wound care. He has an open wound, R knee, since January 2017. This was caused by an infxn in his knee.

Are there any other/new wounds that need to be addressed? No

If there is anything new, when did it start?

Have you been elevating wound site:

using ice/heat: no

pain medications: no

anti-inflammatory medication: no

any other treatments at home: no

How has the bandage been since the last time we saw you (comfort, odor, drainage)?  
Bandage intact.

Is there any pain or itching of wound or skin around wound? no

If yes, how would you rate the pain 1-10? none

When was the last time you had the bandage changed? By whom? Here in clinic last week.

He is happy with his new home. He has gotten some things that make it more livable. He is pleased with the progress that he has made since he came to RCP.

# HPI - .wcnew example

Do you have a hx of any of the following?

Cardiovascular Disease: no

Respiratory Disease: no

GI problems: no

GU problems: no

Mobility problems: no

Diabetes: no

Radiation tx/chemotherapy: no

# DOCUMENTING, HPI - .wc1

This is a \_\_\_ year old female who presents to the clinic today for wound care. She has a \_\_\_\_\_ that has been present for about \_\_\_\_\_wks/mns/yrs.

Are there any other/new wounds that need to be addressed?

If there is anything new, when did it start?

Have you been elevating wound site:

using ice/heat:

pain medications:

anti-inflammatory medication:

any other treatments at home:

How has the bandage been since the last time we saw you (comfort, odor, drainage)?

Is there any pain or itching of wound or skin around wound?

If yes, how would you rate the pain 1-10?

What is the quality of the pain (aching, burning, stinging...)?

When was the last time you had the bandage changed? By whom?

# HPI - .wc1 example

This is a 33 year old male who presents to the clinic today for wound care. He has an abscess on his RUQ spontaneously ruptured on 7/5/2015. He had an I&D of a second site on 7/6/15.

Are there any other/new wounds that need to be addressed? No

If there is anything new, when did it start?

Have you been elevating wound site: no

using ice/heat: no

pain medications: no

anti-inflammatory medication: no

any other treatments at home: no

How has the bandage been since the last time we saw you (comfort, odor, drainage)? Okay, it stayed in place

Is there any pain or itching of wound or skin around wound? no

If yes, how would you rate the pain 1-10? 0/10

What is the quality of the pain (aching, burning, stinging...)? n/a

When was the last time you had the bandage changed? yesterday By whom? OTC

# VITAL SIGNS

Patient Profile: 33 Years Old Male

Height: 63 inches

Weight: 164.0 pounds

O2 Sat: 98 %

Temp: 97.7 degrees F oral

Pulse (ortho): 84 / minute

Resp: 12 per minute

BP sitting: 120 / 80

# OBJECTIVE - .obj

General: This is a well-appearing male who is in no acute distress. He is pleasant and cooperative during our interaction today. He is well groomed, has a pleasant affect, and makes good eye contact during our discussion.

HEENT: Eyes: Extraocular muscles are grossly intact. Sclera is anicteric and noninjected.

Lungs: Respirations are even and unlabored.

# OBJECTIVE - .obj example

General: This is a well-appearing elderly male who is in no acute distress. He is pleasant and cooperative during our interaction today. He is adequately groomed, has a pleasant affect, and makes good eye contact during our discussion.

HEENT: Eyes: Extraocular muscles are grossly intact.

Sclera is anicteric and noninjected. Lungs:

Respirations are even and unlabored. Skin: warm and dry. There is a small open wound with some slough in the wound bed on the R knee. The surrounding skin is red and irritated appearing.

There is small undermining on the proximal half of the wound with a rolled border and a small skin tear on the lateral side of the wound.

# DEBRIDEMENT - .d

Debridement: After PARQ, and verification of allergies, the area was covered with \_\_\_% of Lidocaine \_\_\_ and gauze. Using forceps some of the slough was removed from the wound beds. Only a portion of the slough could be debrided. This will likely need to be repeated at his/her next visit. Approximately \_\_\_ sq. cm of tissues was/were debrided. The pt tolerated the procedure well.

## DEBRIDEMENT - example

Debridement: After PAR-Q, using a 0.3 cm curette some of the slough and crust was removed from the wound bed, periwound skin and the area of undermining. The undermined area and periwound was scraped with a 0.3 cm curette. Much of this was debrided. The margins were scored using a #15 blade. There was some bleeding as desired. This may need to be repeated at his next visit. Approximately 1 sq cm of tissue was debrided. The patient tolerated the procedure well.

# WOUND SPECIFICS - .wcrn

Location:

Surgical/nonsurgical:

Color:

Size (L x W, in cms):

Incisions(approximated edges, dehiscence ,evisceration):

Undermining:

Induration:

Tissue edema proximal to wound/pitting:

Granulation:

Drainage type:

Drainage color:

Drainage amount:

Drainage consistency:

Drainage odor:

# .wcrn - example

Location: Left Upper Abdominal Region

Surgical/nonsurgical: nonsurgical

Color: red and yellow

Size: 1) 2.0 x 2.4 x 0.6 cm; 2) 2.2 x 2.3 x 0.6 cm

Incisions: open, as expected

Undermining: 1) present, 0.5 to 1.0 cm from 2:00 to 4:00, deepest at 3:00; 2) present and extensive, 0.5 to 5.0 cm from 12:00 to 6:00, deepest at 3:00.

Induration: present, redness is 10.1 x 8.2 cm around both wounds

Tissue edema proximal to wound/pitting: none

Granulation: robust, with slough, 70/30%

Drainage type: serosanguineous

Drainage color: red

Drainage amount: large

Drainage consistency: thin

Drainage odor: none

# WOUND SPECIFICS - .wcrn, cont.

Wound cleaned with:

Wound dressed with:

Visit frequency:

- .1 - once a week
- .2 - twice a week
- .3 - three times a week

F/u for:

On date:

- For the A/P
  - .w - wound care as above

# EXAM - .wcrn example

Wound cleaned with:

- Surfactant soaked gauze
- Wound cavities irrigated with 20 mL of saline solution

Wound dressed with:

- Filled each site with 1 - 3x3 Silvercel dressings folded as needed
- Covered the entire area with Hydrophilic Foam Dressing
- Secured with 6x6 border gauze and reinforced with Hypafix tape

Visit frequency: three times a week

F/u for: Dressing Change

On date: 2/10/2017 with Clinic MA

# DETAILS ON CODING - DEBRIDEMENT

- ◉ 97597 Debridement (e.g., high pressure waterjet with/without suction, sharp selective debridement with scissors, scalpel and forceps), open wound (e.g., fibrin, devitalized epidermis and/or dermis, exudate, debris, biofilm), including topical application(s), wound assessment, use of a whirlpool, when performed and instruction(s) for ongoing care, per session, total wound(s) surface area; first 20 sq. cm or less.
- ◉ 97598 each additional 20 sq. cm, or part thereof (List separately in addition to code for primary procedure)
- ◉ 97602 Removal of devitalized tissue from wound(s), non-selective debridement, without anesthesia (e.g., wet-to-moist dressings, enzymatic, abrasion, larval therapy), including topical application(s), wound assessment, and instruction(s) for ongoing care, per session

# SECTION 6: COORDINATED CARE



# OCCUPATIONAL THERAPY:

- Functional Abilities
- Adaptation/adaptive tools
- Compression
  - Measure, fit, teach, adapt

# PHYSICAL THERAPY:

- Gait
- Balance
- Strength
- Adjust devices (e.g. supports causing pressure)
- Therapeutic modalities
  - i.e. US, E-stim, diathermy

# PODIATRY:

- Foot care
  - Nails, calluses, nail debridement, etc.
- Surgery
- Orthotics
- Shoe adjustments/special shoes
- Manage diabetic foot ulcers
- Manage osteomyelitis

# NUTRITION/DIETICIAN:

## ○ Nutritional assessment

- Calorie in-take
- Nutrient deficiencies
- Comorbid conditions
- Follow up

## ○ Medical nutrition therapy

- Nutrition treatment plan
- Patient centered (social situation)
  - Work with budget, cultural preferences, barriers
- Possibly increase calories b/c of increased metabolism

# GENERAL SURGERY/BURN CENTER:

- ◉ Extensive debridement
- ◉ Skin grafting
- ◉ Hyperbaric treatment

# VASCULAR SURGERY:

- ◉ Refer if ABI is  $<0.8$
- ◉ Stent placement
- ◉ Revascularization surgery/by pass
- ◉ Amputations

# LYMPHEDEMA THERAPY:

- ◉ Manual drainage
- ◉ Assist with compression

# SECTION 7: CASE REVIEW

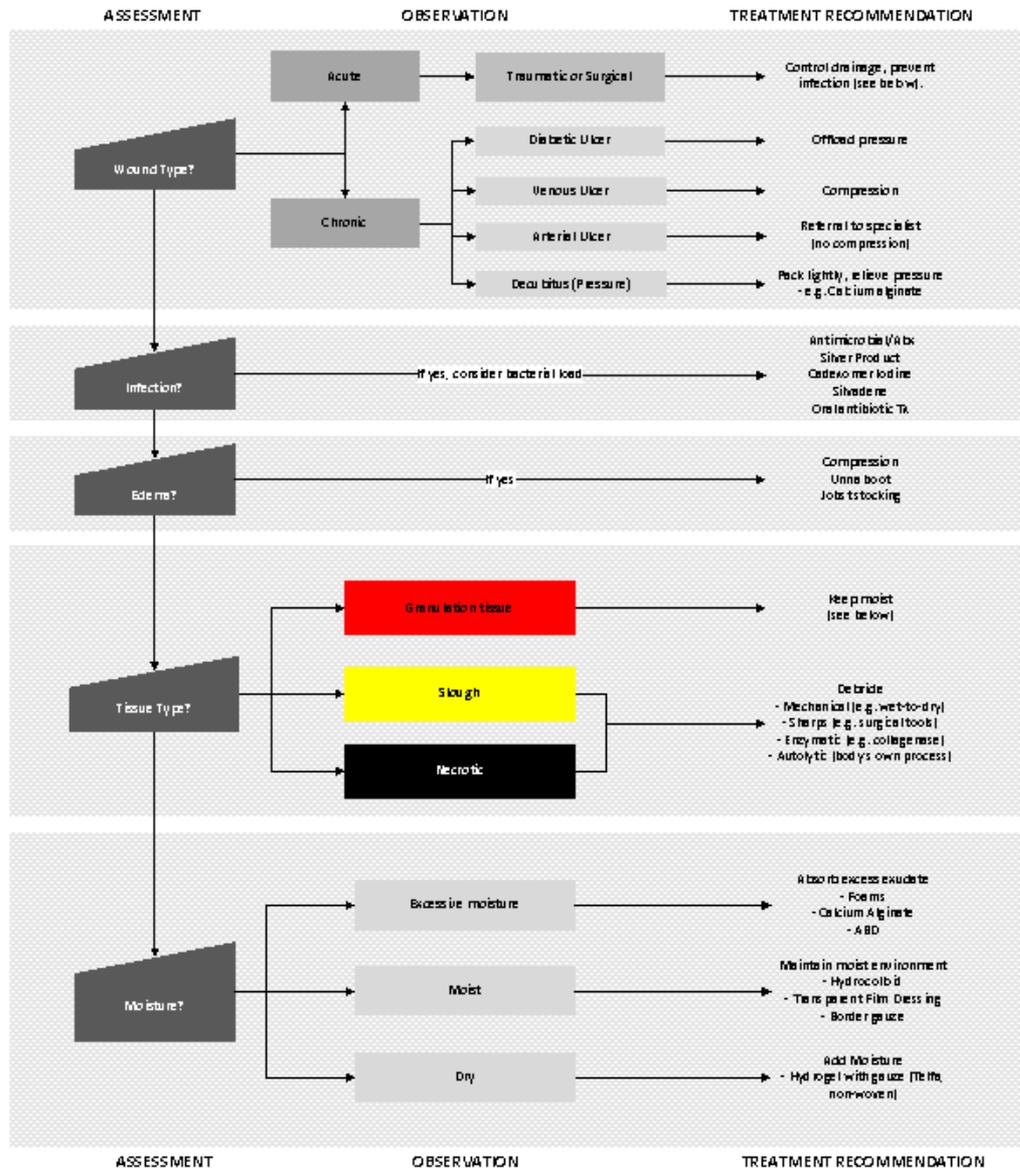


# DECISION TREE

- Very helpful
- Created by Lyle, Amanda and Amy
- Keep in exam rooms for reference if desired.

# OTC Wound Care Decision Tree Draft

last updated 1/8/13



# Dressing Types

Gauzes	Absorbent	Contact Layers	Topical Agents	Secure
<ul style="list-style-type: none"> <li>Loose open weave (sterile/non-sterile)</li> <li>Non-woven (sterile/non-sterile)</li> <li>Non-adherent (telfa)</li> <li>Petrolatum/ Xeroform</li> <li>Rolled fluff (kerlix)</li> <li>Conforming/ stretch</li> <li>¼” and ½” packing - plain or iodoform</li> </ul>	<ul style="list-style-type: none"> <li>Calcium alginate fluff/pads</li> <li>Silver alginate (Silver-cel)</li> <li>Foam, e.g. Allevyn/ Mepilex</li> <li>Hydrophilic</li> <li>Abdominal pads</li> <li>Exu-dry pads</li> </ul>	<ul style="list-style-type: none"> <li>Transparent film</li> <li>Hydrocolloid</li> <li>Wound closure strips</li> <li>Silicon dressings, e.g. Mepitel-one</li> <li>Adaptic</li> </ul>	<ul style="list-style-type: none"> <li>Antimicrobials:               <ul style="list-style-type: none"> <li>Mupirocin</li> <li>Silver sulfadiazine</li> <li>Gentamicin</li> <li>Medihoney</li> <li>Xeroform gauze</li> <li>Cadexomer iodine</li> </ul> </li> <li>Anesthetic:               <ul style="list-style-type: none"> <li>Lidocaine - injection, ointment, cream and viscous</li> </ul> </li> <li>Moisturizers/ barriers:               <ul style="list-style-type: none"> <li>Hydrogel</li> <li>A&amp;D Ointment</li> <li>Calmospetine</li> <li>Zinc oxide</li> <li>Hydrophor/aquaphor</li> <li>Petrolatum</li> </ul> </li> <li>Anti-itch:               <ul style="list-style-type: none"> <li>Triamcinolone Ointment</li> <li>Hydrocortisone</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Island dressings</li> <li>Hypafix Tape</li> <li>Tegaderm</li> <li>Stockinette</li> <li>Surgi-last</li> <li>Coban</li> <li>Adhesive bandages</li> <li>Surgi-grip</li> <li>Micropore</li> <li>Paper tape</li> </ul>

QUESTIONS??

# CONTACT INFORMATION

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  - Central City Concern - Old Town Clinic
  - [pat.buckley@ccconcern.org](mailto:pat.buckley@ccconcern.org)
  - 971-271-6090



"Everlasting impact with compassion and kindness is called love."

# REFERENCES - NUTRITION

- ◉ Role of Arginine and Omega-3 Fatty Acids in Wound Healing and Infection. Alexander JW, Supp DM.
- ◉ Propionyl-L-Carnitine Enhances Wound Healing and Counteracts Microvascular Endothelial Cell Dysfunction. Scioli MG, Lo Giudice P, Bielli A, Tarallo V, De Rosa A, De Falco S, Orlandi A.
- ◉ Treatment of pressure ulcers in patients with declining renal function using arginine, glutamine and  $\beta$ -hydroxy- $\beta$ -methylbutyrate. Ogura Y, Yuki N, Sukegane A, Nishi T, Miyake Y, Sato H, Miyamoto C, Mihara C.
- ◉ Comparison of the effect of topical versus systemic L-arginine on wound healing in acute incisional diabetic rat model. Zandifar A, Seifabadi S, Zandifar E, Beheshti SS, Aslani A, Javanmard SH.

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