Skin: Show me how to keep it intact

Carolyn Crumley DNP RN ACNS-BC CWOCN
Saint Luke’s East Hospital – Lee’s Summit, MO
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Learning Objectives

1st Learning Objective: Describe a basic understanding of skin anatomy & physiology in relation to maintaining skin integrity.

2nd Learning Objective: Differentiate the varied components of moisture associated skin damage.

3rd Learning Objective: Discuss treatment of impaired skin integrity around feeding tubes and ostomies.
Skin

Epidermis- avascular, average-0.07- 0.12 mm

Dermis-vascular, Average 1-4 mm
Skin - Functions

- Thermoregulation
- Regulation of cutaneous blood flow
- Insulation
- Immunity
- Immune surveillance- cell mediated immunity
- Sensory perception- touch, pressure, temperature, pain & itch
- Barrier function/protection- protective “acid mantle” (ph 4-6.5)
- Vitamin D synthesis

Mufti, Ayello & Sibbald 2016
Skin Care Products

• pH balanced to maintain the “acid mantle”
• Avoid hot water and overbathing—dehydration of stratum corneum & depletion of normal lipid levels
• Apply moisturizing products immediately after bathing while skin is wet

Mufti, Ayello & Sibbald 2016
Skin Care Products

Emollients
Softening & moisturizing
• Silicone
• Dimethicone
• Lanolin
• Ceramides

Humectants
Actively attract water to skin
• Urea
• Lactic acid
• Glycerin
• Alpha Hydroxy acids

Mufti, Ayello & Sibbald 2016
pH of Common Soaps

- Neutrogena Extra Gentle Cleansing Bar, pH 6-7.5
- Dove Beauty bar, pH 7
- Neutrogena Cleansing Bar for Acne-Prone Skin, pH 8.7-9.2
- Dial soap, pH 9.5
- Camay soap, pH 9.5
- Lux supreme cream bar soap, pH 10
- Zest soap, pH 10.0
- Lifebuoy soap, pH 11-11.25
- Johnson’s baby soap, pH 11.9


http://www.honestforyourskin.co.uk/ph-of-soap/#.--text=Dial%20soap%2C%20pH%209.5,Pears%20soap%2C%20pH%209.8
“Ostomy”

Derived from Latin word ostium – “opening or mouth”

Colostomy

Ileostomy

Gastrostomy

Jejunostomy

Urostomy
Gastrointestinal Tract

Gastrostomy tube
Jejunostomy tube

https://uem.eu/a/249

https://bmcsurg.biomedcentral.com/articles/10.1186/s12893-017-0221-2
Colostomy
Ileostomy
Ostomy pouches

Types of Ostomy Pouches

One-Piece

- Skin barrier
- Pouch
- Clamp/closure

Two-Piece

- Flange

Two-Piece Adhesive

- Adhesive

https://www.ostomy.org/product-supply-information/
Moisture associated skin damage (MASD)

- Incontinence Associated Dermatitis
- Intertriginous Dermatitis
- Periwound Moisture Associated Skin Damage
- Peristomal Moisture Associated Skin Damage
Overhydration of skin
Increased skin permeability
Pathogens enter skin

Thayer, Rozenboom & Baranoski, 2016
Moisture Associated Skin Damage
New ICD-10 Coding for MASD

- L24A0 Irritant contact dermatitis due to friction or contact with body fluids, unspecified
- L24A1 Irritant contact dermatitis due to saliva
- L24A2 Irritant contact dermatitis due to fecal, urinary or dual incontinence
- L24A9 Irritant contact dermatitis due to friction or contact with other specified body fluids
- L2480 Irritant contact dermatitis related to unspecified stoma or fistula
- L2481 Irritant contact dermatitis related to digestive stoma or fistula
- L2482 Irritant contact dermatitis related to respiratory stoma or fistula
- L2483 Irritant contact dermatitis related to fecal or urinary stoma or fistula

Bliss, McNichol, Cartwright, Gray, 2022
Prevention & Treatment of MASD

• Eliminate excessive moisture

• Skin protectants
  • Petrolatum- water in oil base, protect from maceration
  • Zinc based- improved protection from irritants, poor skin hydration
  • Dimethicone- oil in water base, improved hydration of skin
  • Liquid acrylates- semi-permeable protective polymer barrier

Thayer, Rozenboom & Baranoski, 2016
Intertrigo

- Found on skin surfaces in contact with each other – neck creases, breasts, armpits, abdomen, groin, toes
- pH of sweat typically around 6.3
- May progress from mild erythema to severe inflammation with areas of skin erosion and linear fissures
- Typically worse in deepest portion of skin fold
- Secondary fungal infection common
  - Diabetes
  - Antibiotics

Gray, Bliss, McNichol 2022
Intertrigo
Fungal infection/Candidiasis
Prevention & Treatment of fungal infection

• Prevention – maintain skin pH and protect from excessive/trapped moisture

• Treatment
  • Miconazole
  • Nystatin

Topical steroids can reduce inflammation but should be used with caution and only for short-term use.
Folliculitis (Inflammation of hair follicles)

https://psag-consumer.wocn.org/#analyze-result-blue-folliculitis
Prevention & Treatment of folliculitis

• Careful removal of adhesive devices
• Trim hair, rather than shaving
• Cleansing with pH balanced cleanser
• Topical or systemic antibiotics for persistent symptoms
Medical Adhesive Related Skin Injury (MARSI)

Risk factors – age, frequent use of adhesives, steroids, cytotoxic oncology treatments, radiation therapy, edema

Types
- Allergic or irritant contact dermatitis
- Maceration
- Mechanical trauma
- Tension blisters
- Folliculitis

Thayer, Rozenboom & Baranoski, 2016
Prevention & Treatment of MARSI

- Consider non-adhesive options if possible
- Gentle removal of product-adhesive removers as needed
- Appropriate skin preparation
  - Cleansing and allowing skin to dry
  - Clipping hair versus shaving
  - Barrier films
- Consider silicone products versus acrylate adhesives
- Avoid use of tincture of benzoin products unless critical to maintain adhesion of dressing

Thayer, Rozenboom & Baranoski, 2016
Incidence and Predictive Model of MARSI in Cancer Patients Managed with Central Venous Access Devices

• Retrospective study of 1172 patients
• Risk factors – previous MARSI history, use of TPN, other catheter-related complication (thrombosis, CLABSI), history of allergy and PICC
• Incidence rate – 1.7 events per 1000 device days
  • Irritant contact dermatitis – 63.4%
  • Mechanical skin injury – 44.3 %
  • Skin tears – 25.8%

Li, Hao, Han & Zhang, 2023
Resources

WOCN

• Peristomal Skin Assessment Guide for Consumers https://psag-consumer.wocn.org/#home
• Peristomal Skin Assessment Guide for Clinicians https://psag.wocn.org/index.html#home

United Ostomy Association of America

• Eating with an Ostomy https://www.ostomy.org/diet-nutrition/
References


