Newborn Skin

- Functions
- Microbiome
- Skin Barrier
The Uniqueness of Neonatal Skin
Stratum Corneum

Premature
2-3 layers

Full Term: 10-20 layers; 30% thinner than adults for the first year of life

Adult: 10-20 layers

Visscher M. Update on the use of topical agents in neonates. 2009. *Newborn and Infant Reviews*
Touch: the first sense to develop

Diallo A., Newman K., McGrath J. Helping families understand the importance of their infant’s skin. 2010. Newborn & Infant Nursing Reviews.
Skin Care Goals:

- Prevent iatrogenic injury
- Avoid potential toxins from topical agents
- Reduce exposure to sensitizing agents
- Promote normal skin development

Most Common Pediatric Wounds

- Epidermal stripping
- Extravasation injuries
- Surgical wounds (open/incision)
- Incontinence-associated dermatitis
- Chemical and thermal injuries
- Pressure ulcers

Iatrogenic Injury
An injury induced inadvertently by a physician or surgeon or medical treatment or diagnostic procedures.

Merriam-Webster Online Medical Dictionary 2013

Visscher M., Recent advances in diaper dermatitis: etiology and treatment. 2009 *Pediatric Health*.

Baharestani M., Ratliff C., Pressure ulcers in neonates and children: an NPUAP white paper.. 2008 *Advances in Skin & Wound Care*. 
Identified Problems

- Treatment: traditions vs. EBP
- Unreported alterations of skin integrity
- Lacking or absent:
  - Standardized care
  - Protocols
  - Clinical guidelines/algorithms
Our Process for Problem Solving

- Multidisciplinary task forces
  Knowledge & evidence → action
- Product evaluation
- Algorithm, protocol & work place reminders
- Promote EBP → staff development
Guidelines, Best Practices & Resources
Product Evaluation
Pressure Ulcers
Who is at risk for P.U.?
Assess under all devices then:

- Move
- Rotate
- Tilt
- Shift
- Adjust
- Retape
- Cushion
- Change
- Pad
- Replace
- Or turn to relieve the pressure from the device.

Device related pressure ulcer prevention.
Diaper Dermatitis
Who is at risk?
Prevention
Diaper Dermatitis Algorithm

Neonatal & Pediatric Algorithm for Prevention and Treatment of Diaper Dermatitis (Diaper Rash)
safe for neonates

Prevention/Protection
- Change diaper every 3-4 hours and PRN.
- Use disposable diaper with gel absorbent beads.
- Gently cleanse skin with water moistened disposable washcloth or cotton balls, or alcohol-free diaper wipes.
- Apply clear moisture barrier.

Yes

Skin Intact?

No

Treatment

Yeast Rash
- If a Candida rash is suspected:
  - Initiate use of 2% miconazole in moisture barrier ointment.
  - Apply directly to lesions by gently massaging it into the skin. (Will need MD order)
  - Follow Treatment Instructions per assessment.

Mild Dermatitis
- Change diaper Q 2-3 hours and PRN.
- Gently clean soiled skin with water moistened disposable washcloths or cotton balls, pat to clean leaving on all residual diaper ointment. (Avoid friction, rubbing, scrubbing and wiping down to bare bottom.)
- Cover erythematous skin with clear moisture barrier; massage gently into skin to create water-proofing.
- If diaper dermatitis worsens to epidermal erosion proceed to next step.
- Review with family; Patient Teaching sheet PD-3380: How to Prevent and Treat Diaper Dermatitis, PD-3380

Definitions of Dermatitis
- Mild: blotchy erythema, tenderness
- Moderate: intense inflammation, mild erosion, definite discomfort
- Severe: epidermal/dermal erosion, pain, weeping

Yeast (Candida) Rash:
- Diaper dermatitis with satellite lesions

Moderate – Severe Dermatitis
- WOCN Consult (4-4810)
- Change diaper Q 2 hours and PRN
- Gently clean by patting soiled skin with water moistened disposable wash cloths or cotton balls leaving on excess residual cream or paste. (Avoid friction, rubbing, scrubbing and wiping down to bare bottom.)
- Cover eroded skin with moisture barrier paste; gently massage into skin for protection.
- When diaper dermatitis heals use clear moisture barrier for protection.
- Review with family; Patient Teaching sheet PD-3380: How to Prevent and Treat Diaper Dermatitis, PD-3380

General Guidelines
- WOCN consult (referral line: 4-4810)
- Will need physician/LPN order for "antifungal treatment, "mineral oil and topical "Cholestyramine.
- Use "mineral oil and cotton balls if needing to remove skin protect paste or barriers or stock.
- When applying an "antifungal cream, always apply a barrier cream to surrounding skin since it does not have protection property.
- Discontinue using commercial diaper wipes when diaper dermatitis presents.
- Alcohol-free barrier film can be used in patient’s >30 days old as an added barrier prior to application of ointments if bare bottom is free of ointments; use wand/swabs or pads (do not use spray) and allow to air-dry.
- If worsening diaper dermatitis after therapy readjustment(s), notify the WOCN (4-4810) for recommendations.
Peripheral Intravenous (PIV) Therapy
Infiltration Complication

Neonatal Extravasation
Who is at risk for extravasation injury?
Algorithm courtesy of Diamond Children’s at the University of Arizona. Algorithm adapted from: Sawatzky-Dickson and colleagues, Neonatal intravenous extravasation injuries:: evaluation of a wound care protocol. 2006 Neonatal Network
Pediatric Wound Care

- Clean the wound
- Protect the wound & surrounding skin
- Facilitate atraumatic dressing removal and application that do not require frequent changes
- Commonly used products:
  - Silicone dressings and silicone adhesive removers
  - Transparent films and liquid barrier films
  - Hydrogels (sheets and aqueous gel)
  - Hydrocolloid dressings

Promote EBP & Safety Culture

- Nurse, physician & pharmacist inservice
- Unit-skin care teams/champions
- Mini root cause analysis with feedback to staff
Summary

Make it:

*Easy to understand*

*Easy to remember*

*Easy to practice*
References

- Diallo A., Newman K., McGrath J. Helping families understand the importance of their infant’s skin. 2010. Newborn & Infant Nursing Reviews.
- Merriam-Webster Online Medical Dictionary 2013
- Sawatzky-Dickson and colleagues, Neonatal intravenous extravasation injuries: evaluation of a wound care protocol. 2006 Neonatal Network
- Visscher M., Recent advances in diaper dermatitis: etiology and treatment. 2009 Pediatric Health.
- Visscher M. Update on the use of topical agents in neonates. 2009 Newborn and Infant Review