

**Skin Injuries in the NICU:
Crunching Numbers and Moving
Forward**
Media Esser NNP-BC, APNP

Background

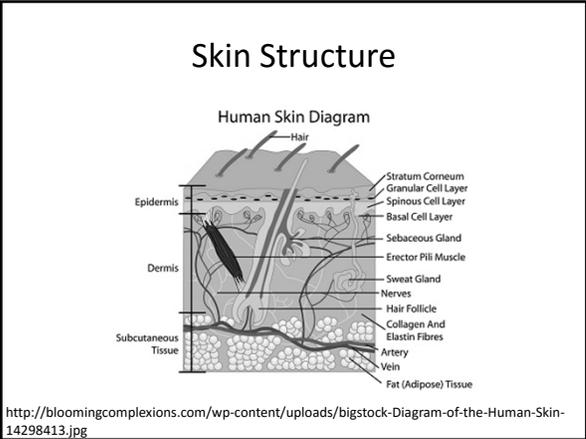
Rates of unintentional skin injury in lower gestational age infants can be as high as 57% as compared to 3% in their term gestational age counterparts.

As many as 4% of patients are discharged from the NICU with significant scarring.

Sardesai, S., Kornacka, M., Walas, W., & Ramanathan, R. (2011). Iatrogenic skin injury in the neonatal intensive care unit. *The Journal of Maternal-Fetal and Neonatal Medicine*, 24(2), 197-203.

Disclosures

I am a consultant for Neotech
I serve on the Kimberly Clark- Huggies Nursing Advisory Council



Objectives

List two reasons why neonatal skin is at high risk for injury

Describe at least two strategies for preventing and managing neonatal skin injuries

Identify the need for quality improvement projects in the realm of neonatal skin

Neonatal Skin

Functions of the skin include: sensation, metabolism, thermoregulation, and protection

Damage can put infants at risk for:

- Infection
- Increased fluid loss
- Scarring
- Increased permeability

Skin Breakdown

Phases of wound development include:
Hemostasis, Inflammatory, Proliferative, and Remodeling

Healing involves three processes:
epithelialization, granulation, and contraction

Moist wound healing promotes:	<u>Cellular viability</u>
	<u>Cellular migration</u>
	<u>Decreased scarring</u>
	<u>Promotes autolysis</u>

Common Types of Injuries

- Device Related
- Diaper Dermatitis
- Skin stripping and tears
- Ecchymosis
- IV Infiltrates
- Pressure Ulcers

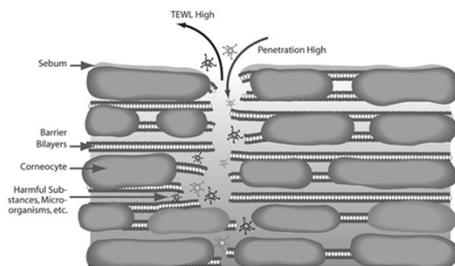
Top-Down Injuries

- More common term for superficial skin injuries
- Common types include:
 - Skin tears
 - Medical adhesive related skin injury (MARS)
 - Tension blisters
 - Skin stripping and tears
 - Moisture associated skin damage (MASD)

Device Related

Occur in correlation with devices used in everyday cares and include the use of:	<u>NG tubes</u>
	<u>ETT tubes, NC, and CPAP devices</u>
	<u>EKG leads</u>
	<u>Temp probes</u>

DISRUPTED SKIN BARRIER
Disrupted Skin Barrier Membranes:
Increased TEWL — increased penetration of external materials



Taken from: <http://dermalsystems.com/science/skin/>

What are we doing about it?

- Prevention and skin protection
- Early intervention with consistent assessments
- Ongoing product evaluation

Diaper Dermatitis

Common and prevalent in NICU patients

Affects 25% of infants

Risks factors include:

- Intestinal surgery
- Maternal Drug Use
- Antibiotic use
- Malabsorption issues

What are we doing about it?

Prevention

Early intervention

Product evaluation

Promote gentler adhesive removal

What are we doing about it?

Education to promote prevention

Consistency in practice and product usage

Policy creation

Product evaluation

Causes

Birth trauma

Lab draws

Procedures

Causes

Device removal

Adhesives

Procedures

Friction

Prevention and Treatment

Difficult to prevent birth trauma

Promote education of more gentle lab draws

Early and continuous assessment

Consider collaboration with WOCN for treatment plan

IV infiltrates/Extravasations

Infiltration rate as high as 57-70%

Extravasation rates as high as 11-23%

Have the potential to cause peripheral tissue injury (extravasation) or compartment syndrome (infiltration)

95% of PIVs are removed due to complications

Beall, V., Hall, B., Mulholland, J.T., & Gephart, S.M. (2013). Neonatal Extravasation: An overview and algorithm for evidence-based treatment. *Newborn & Infant Nursing Reviews*, 13, 189-195.

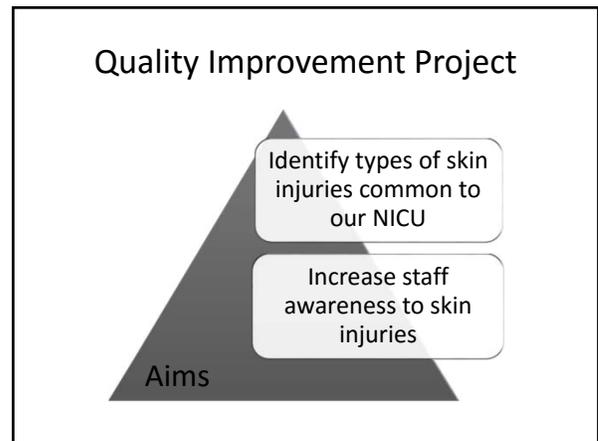
Prevention and Treatment

Regular and Consistent Skin Assessments

Recognize and create resources	Skin care policy
	Wound care policy
	Skin team
	Care bundles
	Risk assessment scales

Prevention and Treatment

Become aware of treatments	Hyaluronidase
	Antidotes
	Wound care
Create protocols or guidelines	Include algorithms
	Promote frequent assessments



Pressure Ulcers

Prevalence rates as high as 23% in NICUs

Potential cost of a single pressure ulcer \$2,000-70,000

Risk factors include:	Sedation
	Hypotension
	Sepsis
	Terminal illness
	HFOV

Setting

Level IV state of the art NICU

69 beds in a Pediatric Hospital with total of 269+ beds

Servicing over 700 NICU patients per year

Methods

Quality Improvement project using chart review of all patients in the NICU

Information collected included:

- Basic demographics (eg. BW, DOB, gestation)
- Types of skin injuries
- Site of injury
- Date of resolution

Findings

Absence of pressure ulcers

Inconsistent descriptions of skin injuries

Most frequent skin injuries were:

- Diaper dermatitis
- Ecchymosis

Measures

Identified and characterized documented skin injuries

Quantified skin injuries in percentages

Next steps

- Development of Skin care protocols
- Hospital wide initiatives
- Hospital wide skin team
- Unit based skin teams
- Skin rounds
- Documentation audits
- Continued QI projects and ongoing data collection

Building Awareness

- Education related to a newly revised skin care policy
- Case presentations related to neonatal skin injury
- Began using an algorithm for diaper dermatitis
- Incorporation of Skin and Wound CNS role
- Visiting Scholar presentation and consultation
- Creation of NICU skin group
- Initiation of weekly skin rounds

Resources

- WCC or WTA Certification
- WOCN partnership
- Product education from product reps
- Use of AWHONN skin care guidelines

Thank you

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