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<th><strong>1</strong></th>
<th><strong>Name of Procedure/Guidelines/Protocol:</strong></th>
<th><strong>Neonatal Skin Care Guideline</strong></th>
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<td><strong>2</strong></td>
<td><strong>Purpose of Procedure/Guidelines/Protocol:</strong></td>
<td>To provide guidance on skin care of the neonate</td>
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<td><strong>3</strong></td>
<td><strong>Replaces:</strong></td>
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<td><strong>4</strong></td>
<td><strong>Applicable to which staff:</strong></td>
<td>Neonatal and SCBU nursing staff</td>
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<td><strong>5</strong></td>
<td><strong>Name &amp; title of author:</strong></td>
<td>Una Toland Lead Nurse Neonatal Services and ANNP team SH&amp;SCT</td>
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<td><strong>Equality Screened by:</strong></td>
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<td><strong>Proposals for dissemination:</strong></td>
<td>Una Toland via team managers to nursing staff</td>
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<td><strong>Proposals for implementation:</strong></td>
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<td><strong>9</strong></td>
<td><strong>Training Implications:</strong></td>
<td>To be included in induction training of all new nursing staff</td>
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<td><strong>10</strong></td>
<td><strong>Date Procedure/Guideline/Protocol submitted to Procedures Committee:</strong></td>
<td>31:03:2013</td>
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Neonatal Skin Care Guideline

Statement:
This guideline will provide neonatal staff with clinical practice recommendations for neonatal skin care based on best available evidence which will:
- optimise neonatal skin integrity through the provision of optimal nursing care
- provide a tool on assessment of the neonates skin condition
- identify neonates who are or may be at risk for alterations in skin integrity
- recognise environmental and treatment related agents that may alter neonatal skin integrity
- implement interventions to promote and protect optimal skin function
- support normal skin development
- minimise the potential for future skin sensitization

Background
The skin is the largest organ of the body and has a variety of functions
- It serves as a barrier against infection and protects internal organs
- Plays a major role in thermoregulation and storage of fat
- Regulates insensible water loss and secretes electrolytes and water
- Provides tactile sensory input

Differences in Neonatal Skin
- The skin of a preterm neonate accounts for 13% of their total body weight
- Premature neonates have a body surface/ weight ratio 5 times greater than that of an adult
- The premature neonatal skin is 40 - 60 % thinner than adult skin
- The neonate <30weeks gestation has only 2-3 layers compared to 10-20 layers of stratum corneum in full term infants

Risks of underdeveloped stratum corneum
- Infection and skin irritation
- Increased insensible water loss
- Increased evaporative water loss
- Toxicity from topically applied substances
- Epidermal stripping
Determine potential causes of skin breakdown

- Adhesive removal
- Burn/thermal damage
- Nappy dermatitis
- Pressure ulcer
- Infection

Factors to consider

### Skin Assessment

- The skin should be assessed head to toe, daily or more frequently as needed and findings documented and acted upon.
- Consider using a valid and reliable assessment tool to provide an objective measurement of skin condition
- Identify risk factors for skin injury based on individual patient assessment.

### Risk factors may include

- Gestational age less than 32 weeks
- Use of monitoring probes and electrodes
- Use of adhesive to secure tubes and catheters
- Use of paralysing agents and vasopressors
- Vascular access devices
- Presence of surgical wounds and stomas
- High frequency ventilation
- Use of endotracheal tubes, NPCPAP, nasogastric / orogastric tubes
- Use of technology that limits position and mobility
- Presence of oedema, caput, cephalohaematoma
- Hypotension, peripheral tissue hypotension
- Use of transcutaneous monitoring

### Bathing

The first bath should be given once the neonate has achieved thermal and cardiorespiratory stability. Use only sterile water for bathing/ top and tailing purposes. Under normal circumstances neonates need not to be bathed more frequently than approximately every other day. For preterm infants less than 32 weeks gestation, gently clean the skin surfaces by using warm sterile water. Avoid rubbing If it is necessary to use a skin cleanser, it should have a neutral ph. (ph 5.5 - 7.0) and be preservative free

Residual vernix does not need to be removed after birth. It can be left in place and allowed to wear off with normal care and handling. The functions and potential benefits of vernix include Protection against infection Decreased skin permeability and trans epidermal water loss (TEWL) Skin cleansing and Moisturisation of the skin surface PH development Wound healing

(Please refer to full procedure for Top and Tailing and Bathing)
**Minimising trans epidermal water loss (TEWL)**

Post natal maturation of the skin occurs by 32 weeks corrected gestational age

- After birth reduce the risk of hypothermia caused by excessive evaporative heat loss by placing the infant in an occlusive polyethylene bag from the shoulders down without drying the baby's body while the infant is under a radiant warmer. Remove the wrapping after the neonate has been stabilised in the delivery room and admitted to the Neonatal Unit.
- Nurse the premature infant in a double walled incubator and monitor temperature continuously.
- Provide humidity at levels of 80%.
- <30 weeks = 80% for 7 days. Reduce by 5% daily until 40%. (provided the infant remains thermally stable) Ideally humidity should stop after 21 days but may continue longer if clinically indicated.
- >30 weeks = 50% for 3 days. Gradually reduce relative humidity by 5% daily to 40% and then discontinue (provided the infant remains thermally stable).
**Nasal Prong CPAP and skin protection**

- Use appropriate sized prongs to make a seal for the transmission of pressure. Do not create a seal from pressure on the nares. Prongs size may need to be reassessed and changed in the first few days.
- Adjust the height and level of the bed in the isolette to maintain the tubing circuit on a direct path from the nares to the NPCPAP driver which will prevent pressure on the nares and will provide an additional benefit of less “rain out” from the tubing thereby reducing the need for suctioning.
- Inspect the skin around the nares at least every 3 hours and gently massage with each inspection.
- Always consult the manufacturer’s instructions for advice on securing the prong.

**Ventilation Tubing**

- Adjust the height and level of the bed in the isolette to maintain the ventilation tubing circuit on a direct path from the nares to the ventilator which will prevent pressure on the nares. The infant should be looking down the ET tube.
- Minimise the use of tape to secure the ETT and use small strips if possible.

**Adhesives**

The neonate has increased evaporative losses after adhesive tape removal.

- Minimise the use of tape and always use a thin hydrocolloid dressing base. The dressing provides a moist environment that favours the healing process by aiding autolytic debridement, facilitating the migration of epithelial cells and allowing non traumatic removal of the dressing without damaging newly formed tissue.

**The Hydocolloid dressing used in Neonatal is Duoderm Extra Thin and Mepitie for securing feeding tubes**

- Use smaller pieces of tape if possible
- Deactivate adhesive if used with gauze balls moistened in sterile water and slowly fold adhesive back onto itself while moistening the adhesive skin surface

**Stretchy gauze and other wraps**

Use with caution to prevent constriction of blood flow and deceased tissue perfusion. If in use the wrap should be repositioned at least every 3 hours, e.g. saturation probe and Posey wraps

**Semi-transparent dressings**

Semi-transparent dressings should be used to secure CVADs and peripheral lines. The semi permeable film allows the skin to breathe and allows visibility of catheter sites. Removal of the dressing can however cause epidermal stripping

**The semi-transparent dressing used in Neonatal is Tegraderm IV**

**Electrodes**

Electrodes should have a hydrogel adhesive backing. Avoid placement on the nipple area if possible.

**The electrodes currently in use in Neonatal are NEOTRODE 11**
Skin Nutrition
The infant should have a daily assessment to ensure appropriate protein, fat and calorie intake. Zinc is essential for wound healing and maintenance of skin integrity. Zinc should be added to parenteral nutrition. Essential fatty acid deficiency (EFAD) can result in scaly dermatitis. EFAD can be prevented with daily intravenous intralipid infusions.

Intravenous Infiltration
Intravenous infiltration is the inadvertent leaking/administration of an infusing solution or medication into the surrounding tissue instead of into the intended vascular pathway. To minimise the risk of infiltration:

- Use a plastic covered insertion device
- Avoid putting IV lines in areas difficult to mobilise especially those near areas of flexion, surrounding tendons, nerves or arteries, or near the face and forehead.
- Secure IV devices with transparent adhesive dressing
- To prevent obstruction of venous return, place tape loosely over bony prominences and do not completely encircle the extremity with tape.
- Glucose concentrations limits for peripheral IVs should be guided by local protocol. **In neonatal a solution >12.5% glucose must be administered via a CVAD and not via a peripheral line.**
- Medications should be diluted as much as possible before administration.
- Assess the catheter-skin junction, surrounding tissue and the catheter tip site for swelling, redness, blanching, and signs of pain or leakage at least every hour. In neonatal this information is recorded using the Paediatric Cannula Observation Chart adapted from Smith & Nephew based on Jackson Model, 2003.

Implement one or more of the following treatment options for IV infiltration:

Non pharmacological
Elevate the site of an IV infiltration or the affected extremity
Consider after discussion with the clinical team, making multiple puncture holes over the area of greatest swelling and let the extravasated fluid leak out of the tissue to remove the infiltrate and prevent skin slough.

Pharmacological
Actiform Cool may be used. This is a non-adhesive, high water content hydrogel product. The dressing is a two sided, transparent hydrogel formed around a supporting polyethylene matrix. The gel is permeable to water vapour, gases and small protein molecules, but impermeable to bacteria. The dressing will not adhere to the underlying tissue on removal, provided the dressing has not been allowed to dry out. If this does occur, rehydrate the dressing with saline or sterile water to facilitate removal.
For an extensive infiltration consult the plastic surgeon, tissue viability nurse and dermatologist as soon as possible.
Positioning
Friction occurs when skin moves against support surfaces.
Shear occurs when skin and adjacent bony surface slide across one another.
The use of sheets with cotton surfaces, sheepskins, developmental care positioning aids and water mattress can reduce the risk of skin damage.
The use of a water mattress may help skin integrity by promoting circulation and decreasing pressure areas. The use of soft rolled up blankets or positioning aids can help to optimise the infant’s position and minimise the risk for frictional injury and skin breakdown.
The aim of repositioning on a regular basis is to reduce or eliminate pressure, thereby maintaining circulation to areas of the body at risk for pressure ulcers. Repositioning every 3-4 hours is a fundamental element in pressure ulcer prevention. Frequency is based on clinical condition, identification of risk factors and tolerance of handling.

Nappy Care
Please refer to full guideline for Prevention and management of Nappy Rash Neonatal Nursing Benchmarking Group (NNBG) JUNE 2012

Use of Emollients
Emollients may be used to protect and restore skin integrity. The emollient tube should be single patient use to prevent cross contamination

Tissue Perfusion and Oxygenation
Assess the infant daily to ensure normotensive oxygen saturation, normal haemoglobin and capillary refill <2 seconds.

March 2013

References: