Flowchart for preventing pressure injuries for ventilated children in PICU

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This flow chart summarises nursing actions and is to be used in conjunction with the full evidence-based practice guideline (available from author) and appropriate staff education & training

Background

Pressure injury prevention and skin integrity maintenance are often underestimated in the paediatric population, particularly among critically ill children[1]. Critical care services, provide care and expertise of medical and nursing staff to children with multi-organ failure and life-threatening illness[2]. The integumentary system is not considered a vital organ and therefore is not prioritised[1]. Paediatric Intensive Care Unit (PICU) treatment often requires long periods of immobility and the tissues' inability to tolerate prolonged pressure and intensity are the main causes of pressure injury formation[3].

Patient-related risk factors for the development of pressure injuries in ventilated children include skin immaturity, tissue perfusion and oxygenation, nutrition status, and the severity of the illness, while healthcare-related risk factors include immobility caused by sedatives or paralytics, friction, shears, and pressure from medical devices[3, 4]. Ventilated children are highly susceptible to pressure injuries due to prolonged periods of immobility, their high acuity, and the invasive interventions and therapies they receive[5]. Excellent skin care is part of comprehensive quality nursing.

Purpose of this guideline

- To develop a modified evidence-based practice guideline focusing on the prevention of pressure injuries in ventilated children.
- To maintain skin integrity and promote excellent quality nursing care in the PICU environment.
- To prevent physical scarring from pressure injuries and related psychosocial or financial burdens.

Main nursing care

Assessment

- Assess for risk injury using modified Glamorgan scale[3], see below.
- Assess the skin and pressure sites for signs of erythema, blanching response, localised heat and induration.
- Measure Mid-Upper Arm Circumference or Calf Circumference.

Surface support

- Nurse child on a paediatric designed pressure alternating mattress or foam.
- Elevate heels with a pillow, then place a rolled blanket under the knees.
- Never use water-filled gloves and doughnut rings as they are unable to redistribute pressure.

If no paediatric designed alternating mattress or foam, advocate for provision, and continue with other interventions.

Medical devices

- Ensure the endotracheal tube (ETT) is properly secured with a flexible and stretchable adhesive.
- Ensure that all tubes and lines are properly aligned and away from the child.

Repositioning

- Reposition child every 3 hours using the Turn Team Program.
- Move child from side to side or supine to prone to relieve pressure on pressure areas.
- Re-assess pressure sites for signs of pressure injury formation with each reposition.

The Turn Team Program is pairing up and assigning nurses to help reposition the child 3-4 times per shift.

To prevent friction and shears:

- Lower head of the bed before repositioning.
- Elevate bottom of bed slightly or place a rolled blanket under the thighs.

Supportive nursing care

Moisture control and skin care

- Clean skin with fragrance or perfume-free soap and dry.
- Moisturise skin with shea butter.
- Apply a barrier cream (sudocream) to high risk area (nappy) to create a physical barrier between skin and contaminants that could irritate it.
- Change nappies regularly to prevent prolonged skin exposure to moisture and stool.

Nutrition and hydration

- Measure and monitor Mid-Upper Arm Circumference (MUAC) or Calf Circumference (CC) weekly.
- Administer prescribed multivitamins and zinc to boost immunity.
- Monitor and balance intake and output 12 hourly to prevent fluid overload.

Consult dietician for specialised nutritional intervention. Report abnormal trends in measurements of MUAC or CC.

Family participation

- Involve and guide caregiver in the care of the skin and the repositioning of the child alongside the implementation of the Turn Team Program.

Documentation

- Document all interventions and findings after implementations.

The Royal Children's Hospital adapted modified Glamorgan scale

Pressure risk injury assessment tool		Score	
Mobility	Child cannot be moved without great difficulty or deterioration in the condition/general anaesthetic	20	Select **one** score per section
	Unable to change his/her position without assistance/cannot control body movement	15	Child with a **score >10** requires pressure injury prevention plan
	Some mobility, but reduced for age	10	
	Normal mobility for age	-	
Equipment	Equipment/objects/hard surface pressing or rubbing on skin	15	

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