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# NSWOCC BEST PRACTICE RECOMMENDATIONS FOR SKIN HEALTH AMONG CRITICALLY ILL PATIENTS

With an emphasis on critically ill  
individuals suffering from COVID-19

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# BACKGROUND

The purpose of this paper is to provide healthcare professionals with recommendations for the prevention and management of skin integrity issues frequently found among critically ill patients. Given the current COVID-19 pandemic, it is timely that healthcare professionals are aware of skin issues found among critically ill patients. Common skin issues include: skin tears (STs), moisture associated skin damage (MASD), medical adhesive related skin injury (MARS), pressure injuries (PIs) and device related pressure injuries (DRPI).

The coronavirus pandemic (COVID-19), first reported in China in late 2019, is a viral illness that, in some cases, may be fatal.<sup>1</sup> There have been hundreds of thousands of deaths reported globally, however, it is estimated that 80% of those infected will recover without requiring supportive care.<sup>1,2</sup> While most individuals will have mild to moderate flu like symptoms and will recover without incident, approximately 20% of those infected will develop respiratory issues. Individuals suffering from chronic conditions such as diabetes, cardiovascular disease or chronic obstructive pulmonary disease and the elderly appear to be at higher risk for developing severe respiratory complications from COVID-19.<sup>1</sup> While skin integrity issues are known to impact critically ill patients, COVID-19 has resulted in a dramatic spike in clinically ill patients globally, highlighting the importance of routine skin health practices.

Similar to other viral infections symptoms associated with COVID-19 include: fever, cough, shortness of breath and tiredness. While less common symptoms associated with COVID-19 include: myalgia, nasal congestion, loss of taste and/or smell, abdominal pain, diarrhea and skin rashes.<sup>3</sup>

For some individuals, viral infections may present as exanthem (perfuse rash) often accompanied by systemic symptoms (fever, headache), acute urticaria (sudden onset of hives), crusting blisters (similar to those found with chicken pox), morbilliform rash, livedo reticularis or petechial rash.<sup>4,5</sup>

Children are often asymptomatic however, evidence is emerging suggesting children may present with various skin related issues.<sup>5</sup>

# SKIN TEARS

“Skin tears are ‘traumatic wounds caused by mechanical forces, including removal of adhesives. Severity may vary by depth (not extending through the subcutaneous layer).<sup>6</sup> Classification is based on the severity of “skin flap” loss.<sup>7</sup> A flap in skin tears is defined as a portion of the skin (epidermis/dermis) that is unintentionally separated (partially or fully) from its original place due to shear, friction, and/or blunt force. This concept is not to be confused with tissue that is intentionally detached from its place of origin for therapeutic use — e.g. surgical skin grafting.<sup>8</sup> In individuals with skin frailty, less force is required to cause a traumatic injury, meaning that the risk of skin tears is increased.<sup>7</sup> Skin tears are classified by type.<sup>6</sup>



“Risk Factors for the Development of Skin Tears (ST)<sup>6</sup>

- History of a previous skin tear
- Skin atrophy and other skin changes associated with aging
- Requiring assistance with care
- Peripheral edema
- Medical adhesive use
- Multiple co-morbidities
- History of falls



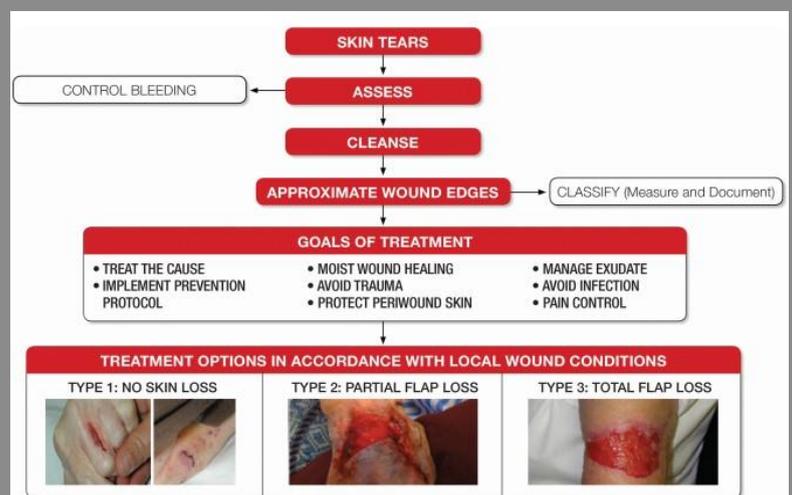
## Prevention and Management of Development of Skin Tears (ST)<sup>6,7</sup>

### • Prevention

- o Protection from Trauma
  - Avoid use of adhesive products on fragile skin. Select tape based on clinical need
  - Create a safe environment, such as clothing or protective devices that cover the extremities; initiate fall precaution protocol to reduce risk of falls and blunt trauma.
  - Provide protection from trauma during routine care, and self-injury (short nails)
  - Ensure proper transfer and lifting techniques to avoid shearing and friction
  - Involve enough trained staff to avoid friction and shear during repositioning
  - Pad bed rails, or other objects that may lead to blunt trauma
  - Do not add new risks for trauma
- o Applying hypoallergenic moisturizer 1-2 times per day depending on type of moisturizer
- o Promote adequate nutrition and hydration
- o Extremes of weight (bariatric or excessively thin) require extra care to prevent skin tears.
- o Minimize bathing

### • Treatment

- o Skin tears are acute wounds that have the potential to be closed by primary intention
- o Traditionally, wounds closed by primary intention are secured with suture or staples
  - Given the fragility of the elderly skin sutures and staples are not a viable option, and other methods are required
- o Lower leg edema is well documented to contribute to delayed wound healing, regardless of the wound etiology.
  - When skin tears occur on the lower limb, the risk and cause of potential peripheral edema should be assessed
- o Choose a dressing that will:
  - Decrease trauma
  - Provide moist wound healing
  - Manage Pain



# MEDICAL ADHESIVE RELATED SKIN INJURY (MARSI)

A medical adhesive related skin injury (MARSI) represents skin damage as the result of exposure to medical adhesive products or devices. It is the occurrence of an alteration in skin integrity in which erythema and/or other skin alterations such as skin tears, erosion, bullae or vesicles persist for 30 minutes or more after removal of an adhesive.<sup>9</sup>

Medical Adhesive related Skin Injury <sup>6,9</sup>		
<b>Mechanical</b>	<b>Skin (epidermal) stripping</b> Removal of one or more layers of the stratum corneum occurring following removal of adhesive tape or dressing; lesions are frequently shallow and irregular in shape and the skin may appear shiny; open lesions may be accompanied by erythema and blister formation.	
	<b>Tension injury or blister</b> Injury (separation of the epidermis from the dermis) caused by shear force as a result of distension of skin under an unyielding adhesive tape or dressing, in appropriate strapping of tape or dressing during application, or when a joint or other area of movement is covered with an unyielding tape.	
	<b>Skin Tear</b> Skin tears are 'traumatic wounds caused by mechanical forces, including removal of adhesives. Severity may vary by depth (not extending through the subcutaneous layer).	
<b>Dermatitis</b>	<b>Irritant Contact Dermatitis</b> Irritant contact dermatitis cutaneous inflammation that is triggered by exposure to an external irritant not to be confused with an allergic dermatitis.	
	<b>Allergic Contact Dermatitis</b> Allergic contact is an immune-mediated inflammatory response. Similar presentation to irritant contact dermatitis	
<b>Other</b>	<b>Maceration</b> Overhydration of the skin under an adhesive product	
	<b>Folliculitis</b> Characterized by inflammation of the hair follicles that may be associated with adhesive use	

### **Risk Factors for the Development of Medical Adhesive Related Skin Injury (MARSI)<sup>9</sup>**

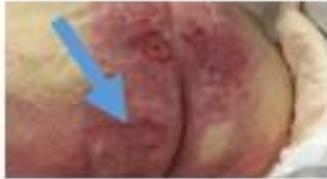
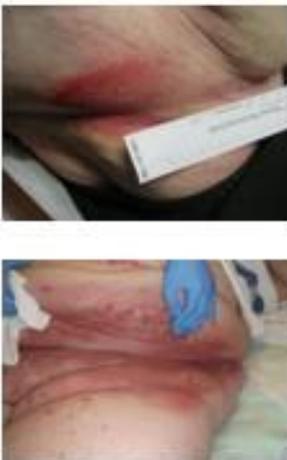
- The use of medical adhesives
- Fragile skin and those at risk for ST development (see above)
- Chronic use of adhesives in same location
- Allergy or sensitivity to adhesive products
- Hair growth in the area where adhesives are applied
- Moisture trapped under an occlusive adhesive
- Improper adhesive application or removal technique

### **Prevention and Treatment of Medical Adhesive Related Skin Injury (MARSI)<sup>6,7,9</sup>**

- Promote and monitor adequate nutrition and hydration.
- Avoid use of adhesive products on fragile skin
- Careful application and removal
- Educate healthcare professionals, individuals and families on the importance of proper use of adhesive in ALL healthcare settings
- Select tape based on clinical need
- Clip/trim hair
- Clean and dry skin prior adhesive application
- Skin barrier films when appropriate
- Allow barrier film to dry prior to application of adhesive
- Avoid use of adhesive promoters
- Avoid using aggressive adhesives in combination with heat enhancing devices
- Whenever possible use the lowest level of adhesives
- Remove tape/adhesive dressing slowly, keeping it horizontal and close to the skin
- Remove in the direction of hair growth
- Support exposed skin at the peel line as adhesive is removed

# MOISTURE ASSOCIATED SKIN DAMAGE (MASD)

Moisture associated skin damage (MASD) results from prolonged exposure of the skin to moisture and subsequent over hydrated or eroded skin. Moisture can be in the form of water, perspiration, urine and/or fecal material, wound exudate, saliva and/or mucous.<sup>10,11</sup> Moisture associated skin damage frequently presents as skin inflammation with or without skin breakdown.<sup>10,11</sup> Although there are a number of types of MASD, this document will focus on Incontinence-associated dermatitis (IAD), Intertriginous dermatitis (intertrigo or ITD), and Periwound (including peritube/drain and peri-fistula) MASD predominantly found among critically ill patients.<sup>10</sup>

<b>Moisture Associated Skin Damage Type</b> <sup>10,11</sup>		
<b>Incontinence-associated dermatitis (IAD)</b>	IAD is a dermatitis related to the skins prolonged exposure to urine or stool (Gray M, 2011)	
<b>Intertriginous dermatitis (intertrigo or ITD)</b>	ITD is an inflammatory condition of skin folds, resulting from moisture, trapped in skin folds (Sibbald, 2013)	
<b>Periwound (including peritube/drain and peri-fistula) MASD</b>	Peri-wound MASD results from prolonged exposure to wound exudate (Colwell, 2011)	

## **Risk Factors for the Development of Moisture Associated Skin Damage (MASD)<sup>10,11</sup>**

- Moisture-Associated Skin Damage (MASD) is caused by prolonged exposure to various sources of moisture and their contents, including:
  - o Urine or stool
  - o Perspiration
  - o Wound exudate
  - o Mucus
  - o Saliva

## **Prevention and Treatment of Moisture Associated Skin Damage (MASD)<sup>10,11</sup>**

- Implement a structured skin care program
- Ensure adequate nutrition, hydration and reduce pressure on skin to support perfusion
- Routinely assess patient's risk for IAD
- Provide toilet substitutes such as bedside commodes and urinals; minimize incontinence with scheduled toileting programs
- Skin Protection and Moisture Management:
  - o Protect denuded skin from further injury with moisture-barrier pastes or a pectin powder followed by a moisture barrier paste/cream to absorb drainage and provide a barrier against irritants
  - o Consider absorptive containment briefs when out of bed and underpads when in bed to minimize moisture and heat trapping
  - o Consider use of devices for intractable incontinence (use a resource for this e.g., a NSWOC)
  - o Use skin care products that cleanse, moisturize and protect
  - o Consider external collection devices (condom catheters, urinary and fecal pouches) before internal management devices
- Re-evaluate treatment plan and make changes if no improvement
- Consider drug therapy to control non-infectious diarrhea
- Treat fungal infections with antifungal powder or cream, bacterial infections with organism-specific antibiotic and allergic dermatitis with topical cortisone and oral antihistamines

• **For intertriginous dermatitis:**

- o Cleanse with pH balanced product (5.5)
- o Gentle cleansing, no scrubbing
- o Soft cloth, not a washcloth
- o Pat dry or blow dry (on cool setting)
- o Prevent skin-on-skin friction
- o Reduce heat and moisture in the folds
- o Textile products are available with/without silver for skin fold management
- o Textiles are designed to manage moisture, odor and inflammation in skin folds and other skin-to-skin contact areas. The textile improves the symptoms associated with intertrigo/intertriginous dermatitis such as:
  - Maceration
  - Inflammation
  - Itching
  - Erythema
  - Satellite Lesions

**Differentiation between incontinence-associated dermatitis (IAD) and pressure injuries stage 1,2 /deep tissue injuries.<sup>10,11</sup>**

	<b>Incontinence-associated dermatitis (IAD)</b>		<b>Pressure injuries</b>		
	<b>Category 1</b>	<b>Category 2</b>	<b>Stage 1</b>	<b>Stage 2</b>	<b>Deep Tissue Injuries</b>
<b>Cause</b>	Exposure to urine or faecal material		Exposure to pressure or pressure combined with shear		
<b>Location</b>	Area in contact with urine and/or faecal material, or skin folds where urine and faecal material can accumulate.		Usually over a bony prominence or an area submitted to external pressure (e.g. medical device)		
<b>Shape</b>	Irregular borders, diffuse		Distinct borders, usually over a bony prominence or under a medical device		
<b>Depth</b>	Intact Skin	Partial thickness skin loss	Intact Skin	Partial thickness skin loss	Unknown, may be intact or partial thickness skin loss, extend of damage not known
<b>Necrosis</b>	Partial thickness skin loss		Partial thickness skin loss		No visual signs of necrosis, may occur at subcutaneous level

# PRESSURE INJURIES (PI)

“A pressure injury is defined as localized damage to the skin and/or underlying tissue, as a result of pressure or pressure in combination with shear. Pressure injuries usually occur over a bony prominence but may also be related to a medical device or object.”<sup>12</sup>

Pressure Injury Stage <sup>12</sup>	Description <sup>12</sup>	
Stage 1	<ul style="list-style-type: none"> <li>• Non-blanchable erythema of intact skin</li> <li>• Unresolved in 30 mins</li> <li>• Will normally be eliminated within 24 hours of removal of pressure</li> </ul>	
Stage 2	<ul style="list-style-type: none"> <li>• Cracked, blistered or broken skin</li> <li>• Partial thickness injury</li> <li>• Minimal drainage</li> <li>• Involves epidermis and/or dermis</li> <li>• Painful</li> <li>• Normally no debris present in wound base as wounds are partial thickness</li> </ul>	
Stage 3	<ul style="list-style-type: none"> <li>• Full thickness skin loss</li> <li>• Damage or necrosis of subcutaneous tissue leading to debris such as slough or eschar</li> <li>• Damage may extend to but not through underlying fascia</li> <li>• Deep wound with drainage</li> <li>• May not be painful</li> <li>• Healing occurs over weeks to months</li> </ul>	
Stage 4	<ul style="list-style-type: none"> <li>• Full Thickness skin loss with extensive destruction</li> <li>• Tissue necrosis or damage extending to muscle, bone and supporting structures</li> <li>• Undermining or sinus tracts</li> <li>• Risk of infection/septicemia/osteomyelitis</li> <li>• Life threatening</li> <li>• Healing takes months</li> </ul>	

<p><b>Deep Tissue Injury</b></p>	<ul style="list-style-type: none"> <li>• Purple or maroon localized area of discolored intact or broken skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear</li> <li>• The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer or cooler as compared to adjacent tissue</li> <li>• Deep tissue injury may be difficult to detect in individuals with dark skin tones</li> <li>• Evolution may include a thin blister over a dark wound bed</li> <li>• The wound may further evolve and become covered by thin eschar</li> <li>• Evolution may be rapid exposing additional layers of tissue even with optimal treatment</li> </ul>	
<p><b>Unstageable</b></p>	<ul style="list-style-type: none"> <li>• Necrotic ulceration with eschar or yellow fibrinous tissue</li> <li>• Can be wet or dry</li> <li>• Ulcer is staged once necrotic tissue is debrided</li> <li>• Wound will be larger once necrosis has been removed</li> </ul>	

### Device Related Pressure Injury<sup>12</sup>

- Pressure injuries that result from the use of devices designed and applied for diagnostic or therapeutic purposes
- Resultant pressure injuries generally closely conform to the pattern or shape of the device
- Anyone with a medical device is at risk for a medical device related pressure injury



### **Mucosal Membrane Pressure Injury.<sup>12,13</sup>**

- Mucosal membrane pressure injuries are found on mucous membranes with a history of a medical device in use at the location of the injury. Mucosal pressure injuries are not given a stage because of histological differences in type of tissue



### **Pressure Injuries Prevention and Management for Bed and Chair Bound Individuals<sup>12,13</sup>**

It has been well established that individuals who are bed and/or chair (including wheel chair) bound secondary to critical and chronic illness are at a heightened risk for PIs, DRPI, STs, MARSI and MASD.<sup>6, 9,10, 11,12,13</sup> Many individuals afflicted with COVID-19 experience profound weakness resulting in either a need for prolonged time spend in bed and / or chair or worsening of a pre-existing condition.

### **Risk Factors for the Development of Pressure Injuries in Bed and Chair Bound Individuals<sup>12,13</sup>**

- Individuals with sensory deficits, incontinence, requiring assistance with activities of daily living, altered mobility, compromised nutrition and exposure to added pressure and/or shear forces are at a heightened risk for pressure injury development.
- A structured pressure injury risk assessment approach, as per facility policy, should be implemented.

## Prevention and Management of Pressure Injuries in Bed and Chair Bound Individuals<sup>12,13</sup>

- Pressure Reduction and Redistribution
  - o Pressure redistribution (immersing and envelopment) and/or active devices (alternating mattresses and cushions)
  - o Reduce the duration of pressure and shear
  - o Repositioning based on individual needs
  - o Use a soft silicone multi-layered foam dressing over bony prominences prophylactically
- Implement a skin care regimen that includes:
  - o Keeping skin hydrated
  - o Cleansing skin promptly after periods of soiling
  - o Avoid use of alkaline soaps and cleansers
  - o Use barrier product to protect from excessive moisture
  - o Use high absorbency incontinence products when indicated
  - o Consider using textiles with low friction coefficients for individuals at risk for pressure injuries
- Optimize nutritional intake
- Special considerations for heels
  - o Float heels off bed with either pillows placed length wise under calves or with heel offloading devices
  - o Prophylactic multilayer foam dressings as per institutional policy
  - o Monitor heels every shift
  - o Dressing selection as per local wound bed conditions and location of the wound
    - Please note that it is not recommended to debride black eschar when dry and intact without sign of infection when it is found on the heel. Dressings which maintain a moist environment such as foam may promote autolytic debridement. In these instances, offloading equipment or heel elevation should be considered (RNAO, 2016)

## Risk Factors for the Development of Pressure Injuries in Bed and Chair Bound Individuals with Medical Devices<sup>12,13</sup>

- Use of medical devices as part of assessment or care

## Prevention and Management of Pressure Injuries in Bed and Chair Bound Individuals with Medical Devices<sup>12,13</sup>

- Routine Care
  - o Educate staff on correct use of devices and prevention of skin breakdown
  - o Inspect the skin under and around the device at least daily (if not medically contraindicated)
  - o Keep skin clean and dry under medical device.
  - o Choose the correct size of medical device(s) for the individual
  - o Avoid excessive layers that may increase pressure
  - o Rotate or reposition site of medical device if feasible (reposition medical devices at routine intervals)
    - Rotate between O2 mask(s) and prongs
    - Rotate sites of oximetry probes
    - Laterally rotate the site of endotracheal tube placement (without changing the depth of tube placement in the airway)
  - o Remove or Replace device from skin if feasible
    - Avoid placement of device(s) over sites of prior or existing pressure injury OR directly under an individual
    - Avoid positioning patient directly on medical devices
    - Remove a hard-cervical collar as soon as possible and replace with softer collar
    - Remove bedpans as soon as possible
    - Attach tubing away from the skin
- Prophylactic Dressings
  - o Where it is medically contraindicated to adjust or relocate a therapeutic device
    - Consider using a prophylactic dressing as an interface layer between the device and the skin
  - o Prophylactic dressing as an interface layer in high risk areas (e.g., nasal bridge, tracheostomy tube)
  - o Routinely change dressings in contact with medical devices and tubing to absorb moisture from these body areas
- Splint or Support Medical Devices
  - o Splint NG tubes and other tubing to suspend from the skin surface
  - o Support endotracheal tube with a towel under the chin
  - o Support medical device to decrease pressure and shear.
  - o Splint NG tubes and other tubing to suspend from the skin surface
  - o Support ET tube with a towel under the chin
- Be aware of edema under device(s) and potential for skin breakdown
- Dressing selection as per local wound bed conditions and location of the wound

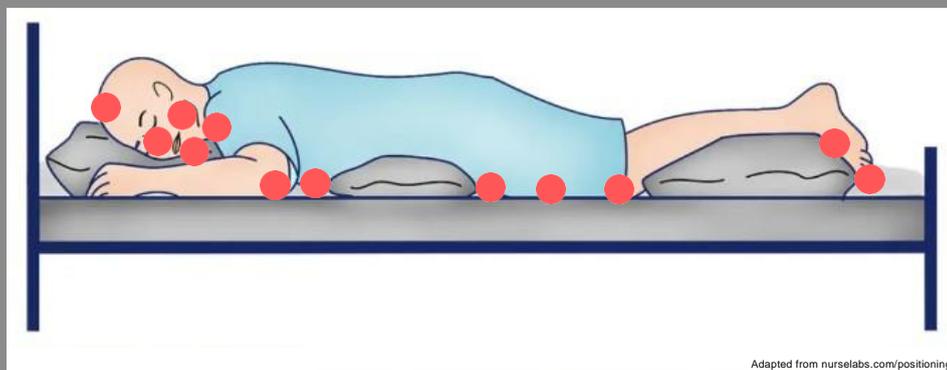
## Pressure Injury Prevention Special Considerations for COVID-19 Patients Requiring Prone Positioning

Current evidence suggests that individuals suffering from acute respiratory distress syndrome (ARDS), including those arising from COVID-19, have a positive response to placement in the prone position. Prone positioning for at least 18 hours per day has been shown to decrease mortality among ARDS patients by increasing end-expiratory lung volume, increasing chest wall elasticity, decreasing alveolar shunt, and improving tidal volume.<sup>14</sup> Unfortunately, prone positioning presents multiple challenges related to skin integrity and wound prevention including a heightened risk for skin injury in the form of PIs, DRPIs, STs, MASD and MARSI.<sup>15</sup> In a 2015 Cochrane review, those patients placed in a prone position have a 37% higher risk for developing a pressure injury.<sup>16</sup> The addition of prone positioning along with ventilation can lead to additional tissue damage and pressure related injuries to the mouth and face and prevention must be considered to reduce the risk of damage occurring.<sup>17</sup>

### Prevention of Pressure Injuries Strategies in Patients Requires Prone Positioning<sup>18,19</sup>

- If a bed specifically designed for proning patients is not available, ensure the patient is on a pressure redistribution surface. Follow manufacturer instructions for all positioning devices.
- Pillows, wedges, and other devices may be required to offload pressure from high risk areas.
- Ensure that a comprehensive skin assessment is completed and documented in the clinical record, consider serial photographs of skin damage, as per institutional policy, prior to proning patients and during repositioning.

#### Areas of Increased Pressure



Adapted from [nurselabs.com/positioning](https://nurselabs.com/positioning)

**Prevention Strategies** <sup>12,18,19</sup>

Areas at Risk	
Face /Head	<ul style="list-style-type: none"><li>• Follow local policies for the prevention of DRPIs related to endotracheal tubes</li><li>• Protect face with liquid skin barrier wipe (do not use spray around eyes and trach-tie)</li><li>• Suggest wrapping endotracheal tube with silicone-based foam at teeth line</li><li>• Suggest using ties for endotracheal tube to avoid undo pressure points on the face secondary to endotracheal tube stabilizing devices. Use Endotracheal tube securement devices with caution when individual is in the prone position</li><li>• Apply cut pieces of silicone-based foam dressing on the forehead, cheeks, corner of lips, chin and under the nose</li><li>• Apply soft silicone foam or silicone transfer foam prophylactic dressings to pressure points on the face and head</li><li>• Offload pressure from the head, <u>face</u> and ears. Consider the density of the foam, height of the cushion, angle of the face and endotracheal tube positioning</li><li>• Consider use of an offloading pressure re-distribution device</li><li>• Shift patients head every 2 hours or as per patients' needs, verify institutional policy on whether airway trained professional is required to be at bedside for positional changes</li><li>• Maintain proper eye care to prevent corneal abrasions, use ophthalmic lubricating ointment as indicated, consider taping eyelids shut horizontally using silicone tape. If silicone tape is not available, consider covering eyes with gauze and placing any tape on a prophylactic dressing</li><li>• Ensure proper oral care to avoid mouth ulcers</li></ul>
Torso	<ul style="list-style-type: none"><li>• Apply soft silicone multi-layered foam prophylactic dressings to pressure points</li><li>• Consider offloading equipment such as gel positioning devices</li><li>• Place EKG leads on the back when proning</li><li>• Empty ostomy pouches and monitor the stoma for signs of trauma related to pressure. Pressure offloading from around the stoma may be required.</li><li>• Secure all medical devices away from the skin, protect surrounding skin with prophylactic dressings</li><li>• Ensure there are no unsecured devices under the torso, create channels for tubes with <u>positioning aids</u></li></ul>
Elbow	<ul style="list-style-type: none"><li>• Apply soft silicone multi-layered foam prophylactic dressings to pressure points</li></ul>
Knees	<ul style="list-style-type: none"><li>• Apply soft silicone multi-layered foam prophylactic dressings to pressure points</li></ul>
Legs	<ul style="list-style-type: none"><li>• Apply soft silicone multi-layered foam prophylactic dressings to pressure points</li></ul>
Dorsal feet	<ul style="list-style-type: none"><li>• Apply soft silicone multi-layered foam prophylactic dressings to pressure points</li><li>• Remove securement devices and align urinary catheter/ fecal management device towards foot of bed</li></ul>
Breasts	<ul style="list-style-type: none"><li>• Offload and protect</li></ul>
Genitalia	<ul style="list-style-type: none"><li>• Offload and protect</li><li>• Protect against urethral erosion from indwelling catheter, remove tension, ensure proper positioning of penis, provide routine catheter care as per local policy</li><li>• Ensure urinary catheter stabilizing devices are removed prior to proning</li></ul>
Medical devices	<ul style="list-style-type: none"><li>• Pay special attention to medical devices, ensure devices are rotated on a regular basis and ensure devices are not causing undo pressure.</li><li>• Choose the correct size of medical device(s) to fit the individual</li><li>• Inspect skin under and around the device every shift</li><li>• Apply silicone foam or transfer dressings under device as required</li><li>• Reposition devices (if feasible)</li><li>• Avoid thick layers of prophylactic dressings under devices as this may increase pressure</li><li>• Avoid placement of devices in areas of previous or existing pressure injuries, or directly under an individual</li></ul>

# FACIAL PROTECTION FOR PRONED PATIENTS

(adapted with permission Imperial College Health NHS Trust)

Pressure ulcers have been reported to the zygomatic (cheek bone) forehead, chin, mandible (jaw) and the commissures (corners of mouth). Prior to proning, consider changing from an endotracheal tube securement device to ties by a competent clinician, while individual is proned. High risk airways should always be managed by an anesthetist or airway trained medical doctor.

	Action	Rationale
	<p>Suggest changing Endotracheal tube securement device to endotracheal tube securement to fabric endotracheal tube tape, if in accordance with local policy</p> <p>Use foam endotracheal tube cuff with tapes Cover tapes with pink foam tube</p>	<p>Plastic device may contribute to pressure damage, if Endotracheal tube securement devices are used they should be used with caution and regular skin assessments are required</p> <p>To prevent tapes cutting into skin of lips and neck</p>
	<p>Moisturize and protect skin: Apply moisturizer over face specifically, cheeks, forehead, chin, jaw, to side of mouth (Do not apply to eye / eye lid)</p>	To protect from moisture, friction, and adhesives
	Cut One 15 x 20cm foam transfer dressing as shown.	<p>To cover at-risk areas of face. Soft silicone will grip skin but does not "stick"</p> <p>Foam transfer dressing will wick away moisture and help protect</p>
	Apply longer strips across forehead, across chin (jaw to jaw) and bilaterally from temple to jaw	To protect bony prominence / pressure points
	Apply smaller rectangles to cover zygoma / cheek	To protect bony prominence / pressure points
	<p>Clean and apply eye lubricant and ensure eye lid is closed</p> <p>Gauze may be applied over closed eye lid and gently secured with tape. Ensure tape is not applied directly to the eyelid</p> <p>Gauze should be lifted regularly to check eyelid position and pupil dilation/ response</p>	<p>To prevent trauma to eye</p> <p>To prevent trauma from tape direct to eye lid</p> <p>To allow for patient assessment and ensure eye not exposed</p>
	Apply additional gauze swabs 10 x 10cm under endotracheal tube tape and foam to lip corners / to unbroken skin.	<p>To prevent mucosal pressure injury and absorb saliva</p> <p>This can be changed regularly</p>
<p>All facial dressings/ gauze/ foam must be removed when supine. Remove fabric endotracheal securement ties and change to an endotracheal tube securement device when supine. Refer all facial broken skin to wound care specialist.</p>		

# SKIN INTEGRITY SPECIAL CONSIDERATIONS FOR PATIENTS RECEIVING HIGH DOSE VASOPRESSORS

Vasopressor agents are a powerful class of drugs resulting in vasoconstriction (e.g. norepinephrine). They are frequently administered to critical care patients to increase the mean arterial pressure (MAP) in part by vessel vasoconstriction. As a result, fluid from the extremities shifts to the central area and MAP rises.<sup>20</sup> A secondary, and unwelcome, side effect of this vasoconstriction is skin change to the hands, feet, sacral area, ears and tip of the nose.<sup>21</sup> Skin damage on the sacral and heel areas may present as deep purple in color, resembling pressure injury DTI with or without blistering. Whereas, skin damage to the hands, ears, nose and feet/toes may present as poorly demarcated deep purple to blackened tissue. Degree of tissue damage will be dependent upon the patient's overall condition, co-morbidities, and duration of vasopressor use.<sup>21</sup> It should be remembered that vasopressors are life-saving medications and related / resultant skin injuries may be unavoidable.<sup>21</sup>

## Tips for managing vasopressor skin damage<sup>21</sup>

- Consult with the care team to maximize hydration
- Sepsis can also contribute to coagulation issues and should be ruled out
- Pressure offloading of effected areas when possible, remembering that weight from bedding on toes can cause added pressure and should be offloaded
- Consider application of a heel boot and appropriate pressure redistribution mattress when indicated
- Perform good skin care as per policy
- Protect blistered areas, consider aspiration of blisters if indicated and as per local policy
- Inspect skin and document finding every shift and as needed



# KEY CLINICAL POINTS

COVID-19 is an emerging illness and its full impact on the skin is still unknown and evidence is constantly emerging.

Nurses must be aware of and implement prevention and management plans pertaining to common skin issues found among COVID-19 patients including, skin tears (STs), moisture associated skin damage (MASD), medical adhesive related skin injury (MARS), pressure injuries (PIs) and device related pressure injuries (DRPI).

The need to prone patients presenting with severe COVID-19, provides unique challenges in maintaining skin health and additional care is required to prevent alteration in skin integrity



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