The Florida Society for Post-Acute & Long-Term Care Medicine
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Support Surfaces and Offloading

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Resources for You

- CMS State Operations Manual. Transmittal 173, Rev 11-22-17.
- CMS Long-Term Care Facility Resident Assessment Instrument 3.0 User's Manual Version 1.17, October 2019, Section M.
- CMS, Medicare Learning Network (MLN) Fact Sheet. PROVIDER COMPLIANCE TIPS FOR PRESSURE REDUCING SUPPORT SURFACES, January 2019.
- Group 1 Support Surfaces - CMS
- Group 2 Support Surfaces - CMS
- Group 3 Support Surfaces - CMS

Short List of Problems Leading to Facility Acquired Pressure Ulcer/Injuries and Failure to Heal

- Often working with most fragile portion of our population…Post-acute LTC setting 'step down' unit for acute care
- Pressure ulcer/injuries often begin days before manifesting on skin (48-72 hours) – may have started in the previous care setting…declare in LTC facility…now facility acquired
- Difficult to initially differentiate between a Deep Tissue Injury and a Kennedy Terminal Ulcer…How many of the "pressure ulcer/injuries" are probably KTU/Skin failure? Time to death often indicative of KTU.
- Regulations do NOT account for some nuances of tissue injury.

Short List of Problems Leading to Facility Acquired Pressure Ulcer/Injuries and Failure to Heal

- Facility clinical leaders/Staff not up to speed on regulations for pressure ulcer/injury prevention and management (F686 specifically!!!)
- Staffing shortages and staff leaving positions for another building; thinking things will better somewhere else
- Lack of education/training for clinical/support staff
- Out-patient wound care clinics the buildings using to assist with chronic wounds NOT understanding LTC limitation for equipment and supplies

How to Differentiate DTI from KTU?

Deep Tissue Injury

Kennedy Terminal Ulcer/Skin Failure

Deep Tissue Injury Declaring Itself

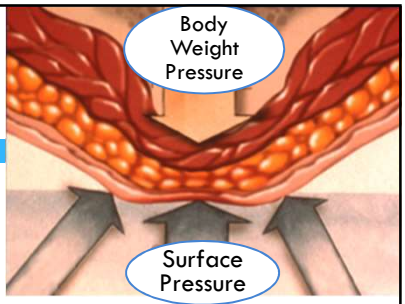
- Non-blanchable purple tissue (purpuric dermatoses) caused as a result of extravasation of red blood cells in dermis or interstitial spaces
- Discoloration process does not occur immediately
- Authors noted lapse of 24–72 hours between pressure event and onset of purple or maroon skin color seen in DTIs
- Most common time frame of 48 hours (Black J., unpublished data).

DTI with purpuric dermatoses

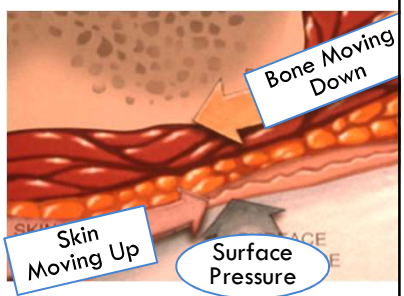
Brindle TC, Creehan S, Black J, Zimmermann D: *The VCU Pressure Ulcer Summit Collaboration to Operationalize Hospital-Acquired Pressure Ulcer Prevention Best Practice Recommendations. J Wound Ostomy Continence Nurs.* 2015;42(4):331-337

Pressure Ulcer/Injury Development

- Muscle tissue has greatest demand for oxygen
- Pressure and shear are major causes of PU/PI causing ischemia and cellular deformation
- Portion of nutrient blood flow to skin comes through muscle
- When muscle severely damaged, skin supplied by local vessels becomes ischemic
- Pressure redistribution devices decrease/deflect pressure and shear



Pressure Force



Shear Force

Pressure Injuries Due To…

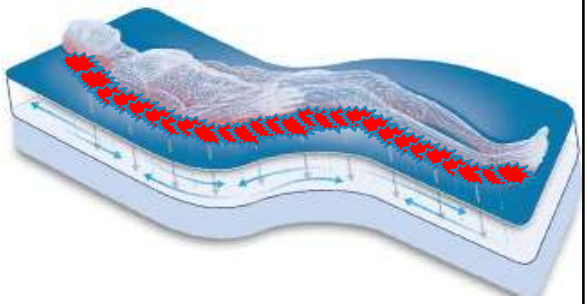
1. **Intensity of pressure**
   - How much pressure is being exerted
2. **Duration of pressure**
   - How long pressure is present
3. **Tissue tolerance**
   - Ability of tissue to manage intensity & duration of pressure /shear forces
   - Many conditions affect tissue tolerance

Tissue Tolerance

- Condition or integrity of skin and supporting structures
- Impacted by: age, chronic injury or disease, nutrition, hydration, microclimate
- Episodes of deep tissue ischemia can occur without cutaneous manifestations; such episodes sensitize the skin; cause reperfusion injury
  - Subsequent episodes of lesser amounts of pressure can then result in skin breakdown
- Muscle and subcutaneous tissue have greater demand for oxygen than the skin, therefore have less tolerance for ischemic episodes

Microclimate Impacts Tissue Tolerance

- Microclimate = temperature and moisture
- I.e. general humidity of skin
- Local tissue temperature and moisture (relative humidity) level at **body/surface interface**



- Humidity and temperature
  - Increase weakens skin, increases skin vulnerability

The Regulations

F686

Support Surfaces and Pressure Redistribution

- *"Pressure redistribution refers to the function or ability to distribute a load over a surface or contact area.*
- *Redistribution results in shifting pressure from one area to another and requires attention to all affected areas.*
- *Pressure redistribution has incorporated the concepts of both pressure reduction and pressure relief."*

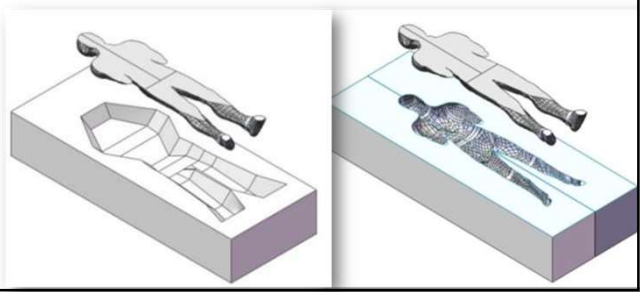
- NOTE: the only method for pressure relief is complete off-loading of the area…e.g. floating heels…everything else is pressure redistribution/reducing.

Mechanism of Action for Pressure Redistribution

- Pressure reducing support surface is designed to prevent or promote healing of pressure ulcers by reducing or eliminating tissue interface pressure.
- Most of these devices reduce interface pressure by **conforming to the contours of the body** so that pressure is distributed over a larger surface area rather than concentrated on a more restricted site.

How Support Surfaces Decrease Tissue Stress

- Immersion and envelopment reduce tissue stress
- Increasing contact area between support surface and individual's body
- Allows for **pressure redistribution**



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Guidance to Surveyors
Static Pressure Redistribution Devices

- *The effectiveness of each product used needs to be evaluated on an ongoing basis. Surveyors should consider the following pressure redistribution issues:*
- ***Static pressure redistribution devices***
  - *(such as a gel mattress) may be indicated when a resident is at risk for PU/PI development or delayed healing.*
  - *A specialized pressure redistribution cushion or surface, for example, might be used to extend the time a resident is sitting in a chair; however, the cushion does not eliminate the necessity for periodic repositioning and skin assessment.*

Static Pressure Redistribution Device

F686

Guidance to Surveyors
Dynamic Pressure Redistribution Devices

- ***Dynamic pressure reduction surfaces*** *may be helpful when:*
  - *Resident cannot assume a variety of positions without bearing weight on a PU/PI;*
  - *Resident completely compresses a static device that has retained its original integrity; or*
  - *PU/PI is not healing as expected, and it is determined that pressure may be contributing to the delay in healing.*

Dynamic Pressure Redistribution Device

Mattress/Bed Classes per CMS

Bed Surfaces – Group 1,2,3 – Medicare Designation

Group 1
Support surfaces are generally designed to either replace a standard hospital or home mattress or as an overlay placed on top of a standard hospital or home mattress

Group 2
Generally designed to either replace a standard hospital or home mattress or as an overlay placed on top of a standard hospital or home mattress.

Group 3
Complete bed systems, known as air-fluidized beds, which use the circulation of filtered air through silicone beads

Compliance Tips from CMS for Pressure Reduction/Redistribution Beds

CMS Group 1

Prevent Denials-Group 1 (Adapted)

- ☐ Must meet one of the following criteria:

1. Beneficiary **completely** immobile
2. Beneficiary has **limited mobility** (cannot independently make changes in body position significant enough to alleviate pressure: **and at least one of conditions A-D below**
   - A. Impaired nutritional status
   - B. Fecal or urinary incontinence
   - C. Altered sensory perception
   - D. Compromised circulatory status
3. Beneficiary has **any stage pressure ulcer** on trunk or pelvis and at least one of conditions A-D

Example of Group 1
Gel Overlay

- ☐ Conditions for criteria 2 and 3 - **Medical record must document severity of the condition sufficiently** to demonstrate medical necessity

CMS Group 2

Prevent Denials – Group 2 (Adapted)

1. Multiple stage II pressure ulcers located the trunk or pelvis **(described by diagnosis codes)** which have failed to improve over the past month, with a **comprehensive ulcer treatment program,** including **each** of the following:
   - A. Use of an group 1 support surface
   - B. Regular assessment by nurse, physician, other licensed health care practitioner
   - C. Appropriate turning and positioning
   - D. Appropriate wound care
   - E. Appropriate management of moisture/incontinence
   - F. Nutritional assessment and intervention consistent with the overall plan of care
2. Large or multiple stage III or IV pressure ulcer(s) on trunk or pelvis (**described by the diagnosis codes)**
3. Myocutaneous flap or skin graft for a pressure ulcer on trunk or pelvis within past 60 **days (described by diagnosis codes)** and has been on a **group 2 or 3 support surface immediately prior to discharge from a hospital or nursing facility within the past 30 days.**

Example of Group 2
Powered - Low Air Loss (helps manage microclimate (heat & moisture)

CMS Group 3

Group 3 - Air-fluidized Bed

- Minimizes pressure over bony prominences through body "flotation" on fine ceramic beads set in motion by warm, pressurized **air** to **simulate movement of a fluid**. Bed consists of a tank filled with silicone-coated microsphere beads.
- Entire bed – not a mattress overlay
- Rarely used in the LTC setting
- Updated indications from CMS (i.e. beyond flaps and grafts)
- Strict clinical and documentation criteria for payment
- Info from CMS in the resources provided

Prevent Denials – Group 3

- Please see resource provided
- Too comprehensive for this program

Practitioners – Please Help Buildings Keep Beds

- Wound closure – filled with granulation tissue & closed with new epithelial tissue
- Healing for full-thickness wounds (e.g. Stage 3 and 4 PU/PI) – takes up to 2 years
- 60-80% of former tensile strength at 2 years
- ALWAYS at risk for recidivism
- Do you BEST to help the buildings keep the beds after the wound is CLOSED…not healed

Support Surface Selection

Pressure Injury Prevention Interventions Support Surfaces

- Selection of support surface should be based on:
  - Risk level for PU/PI
  - PU/PI stage
  - Level of mobility – scoring of mobility by nurses more accurate with Section GG coding mandates – large component of PDPM
  - Individual's comfort
  - Need for microclimate control
- When pressure injuries fail to heal or deteriorate:
  - Consider switching to a surface that will improve pressure redistribution or microclimate

Guidelines for Support Surfaces

- Prevention, stages 1 and 2 pressure ulcer/injuries
  - Consider higher-specification foam or similar non-powered pressure-redistribution support surfaces
  - No evidence supports use of powered support surfaces with air-fluidized, low-air-loss, and alternating pressure features for treatment of stages I and II injuries
  - Use clinical judgment in hemodynamically unstable patients or those with multiple pressure ulcer/injuries

Guidelines for Support Surfaces

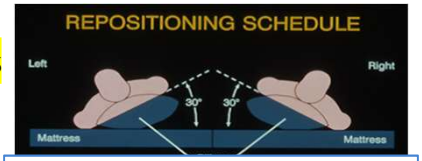
- Stages 3, 4, and unstageable pressure injuries and suspected deep tissue injury
  - Position patient off the area
    - Provide surface matched to needs of the patient, considering pressure redistribution, shear reduction, and microclimate control
  - Insufficient evidence for using one surface over another
  - The surface the wound develops on may not be the best surface for treatment

Other Considerations for PU Positioning/Transfers

- Reduce pressure and friction/shear
  - Lift sheets/devices - ↓ friction
  - HOB < 30 degrees – if medically feasible
  - 30 degree lateral turns

2-person lift with lift sheet/device

HoB 30 degrees or less



Pillow/Bolster 30° **lateral shift**

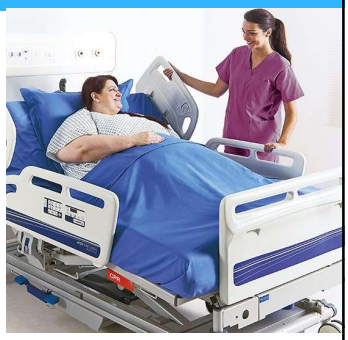
Pressure Ulcer/Injury Prevention
Protective Multilayer Foam Silicone Dressings

- Multilayer foams may deflect shear forces
- Assists with microclimate management
- Foam dressings do **NOT** provide pressure redistribution; nor do they reduce PRESSURE



Surfaces and Beds for Special Needs

- Is the patient obese?
  - Is the patient on a properly sized bed?
  - Is there room to turn and move?
  - Does powered system support weight?
- Is length appropriate?



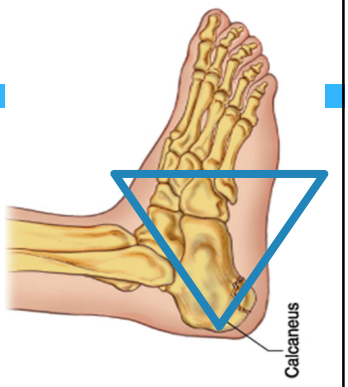
Bariatric Bed

Bed too short

Heel Pressure Injuries

Time Heals All Wounds
-Chaucer

Time Wounds All Heels
-Jim Spahn



- Small tissue surface area and large underlying bony surface
- Number 1 site for PU/PI in the LTC setting; Number 2 in other care settings
- Heels **MUST** be **suspended/floated** to be protected!

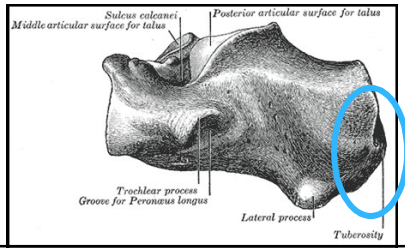
CMS SOM

F686 from State Operations Manual

- Because the heels and elbows have relatively little surface area, it is difficult to redistribute pressure on these two surfaces.
- Therefore, it is important to pay particular attention to reducing the pressure on these areas for the resident at risk in accord with resident's overall goals and condition.
- Pillows used to support the entire lower leg may effectively raise the heel from contact with the bed, but use of the pillows needs to take into account the resident's other conditions.
- The use of donut-type cushions is not recommended by the clinicians.

Note: Pressure Redistribution Device is NOT Adequate to Prevent Heel PU/PI

- Posterior prominence of heel (calcaneus with calcaneal tuberosity) sustain intense pressure, **<u>even with a pressure redistribution mattress in use</u>** (NPUAP, EPUAP, Pan Pacific Pressure Ulcer Alliance)
- Recommendation: use a heel suspension device even when using a pressure redistribution mattress



Pillows as a Heel Protection Device

- Appropriate for short-term use
- Patient/resident must be able to keep foot on pillow with heel floated
- Place under full length of calves in alert/cooperative individuals
- Still need to flex knees 5-10° when using pillows

Repositioning Existing Heel Pressure Ulcers-Stage 1 or 2

- Relieve pressure under the heel(s) with Stage 1 or 2 pressure ulcers by placing legs on a pillow **to 'float the heels off the bed or by using heel suspension devices.**

Repositioning Existing Heel Pressure Ulcers – Stage 3 or 4

- **Stage 3, 4 and unstageable pressure ulcers**, place the leg in a device that elevates the **heel from the surface of the bed, completely offloading the pressure ulcer. Consider a device that also prevents footdrop.**

NOTE: ***Elevation of the heel on a pillow is usually inadequate for Stage 3 & 4 pressure ulcers***

Heel Offloading Devices

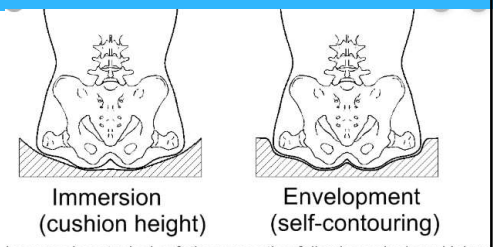
Air-based

Foam-based

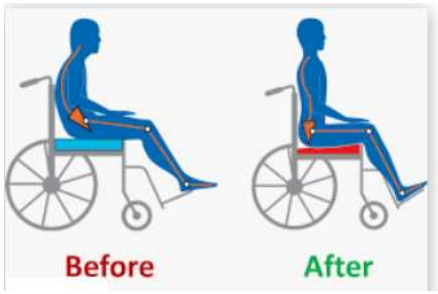
Pillow-based

Chair-Bound Patients/Residents

- Seating surfaces work through immersion/envelopment
- High-risk patients need appropriate surface when seated
- Limit seating to 60 minutes 3X daily with existing injury
- Avoid prolonged, uninterrupted sitting
- Refer to seating specialist – PT/OT
- Reposition frequently
  - If patient can move, recommend every 15-20 minutes; should be individualized
  - Microshifts
  - Otherwise every 60 minutes
- No donuts/ring cushions



Images show typical soft tissue wasting following spinal cord injury



Seating Examples

Summary

- Pressure ulcer/injuries and skin failure/KTUs are a reality and will continue to be so in the post-acute care setting.
- Pressure redistribution and offloading (mattresses, seat cushions, heel lifts) are core component for preventing, closing & healing PU/PI.
- Awareness and understanding of the clinical and regulatory expectations for pressure redistribution for preventing and supporting closure of PU/PI wounds is important for favorable clinical and survey process outcomes.
- Practitioners, clinicians, patients/residents and family need to understand why and how to use pressure redistribution devices. (e.g. device NOT effective when sitting on trash can, in closet, under bed, etc.).

Thank YOU!!!

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References

- Brindle TC, Creehan S, Black J, Zimmermann D: *The VCU Pressure Ulcer Summit Collaboration to Operationalize Hospital-Acquired Pressure Ulcer Prevention Best Practice Recommendations. J Wound Ostomy Continence Nurs.* 2015;42(4):331-337
- National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance. Prevention and Treatment of Pressure Ulcers: Clinical Practice Guideline. Emily Haesler (Ed.). Cambridge Media: Perth, Australia; 2014.
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