Medical Coverage Policy

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Hospital Beds and Pressure Reducing Support Surfaces

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Hyperbaric and Topical Oxygen Therapies
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INSTRUCTIONS FOR USE

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for services that are not accompanied by covered code(s) under the applicable Coverage Policy will be denied as not covered. Coverage Policies relate exclusively to the administration of health benefit plans. Coverage Policies are not recommendations for treatment and should never be used as treatment guidelines. In certain markets, delegated vendor guidelines may be used to support medical necessity and other coverage determinations.

Overview

This Coverage Policy addresses hospital beds, related accessories, and pressure reducing support surfaces.

Coverage Policy

Coverage for hospital beds, related accessories, and pressure reducing support surfaces varies across plans. Refer to the customer's benefit plan document for coverage details.

If coverage for the specific hospital bed, accessory, or pressure reducing support surface requested is available, the following conditions of coverage apply.

Hospital Beds and Accessories

Any of the following hospital beds is considered medically necessary when the associated criteria are met:

- A fixed-height hospital bed (HCPCS codes E0250, E0251, E0290, E0291) when ANY of the following indications are met:
  - The individual has a medical condition that requires positioning of the body in ways that are not feasible in an ordinary bed. (Elevation of the head/upper body less than 30 degrees does not usually require the use of a hospital bed.)
  - In order to alleviate pain, the individual requires positioning of the body in ways not feasible with an ordinary bed.
  - The individual requires the head of the bed to be elevated more than 30 degrees most of the time because of congestive heart failure, chronic pulmonary disease, or problems with aspiration. (Pillows or wedges must have been considered and found impractical for reasons other than convenience.)
  - The individual requires traction equipment which can be attached only to a hospital bed.
- A variable-height bed (HCPCS codes E0255, E0256, E0292, E0293) when criteria are met for a fixed-height bed and the individual requires a bed height other than that of a fixed-height hospital bed to permit transfers to a chair, wheelchair or standing position.
- A semi-electric bed (HCPCS codes E0260, E0261, E0294, E0295) or total electric bed (HCPCS codes E0265, E0266, E0296, E0297) when criteria are met for a fixed-height hospital bed and the individual requires frequent changes in body position, and/or has an immediate need for a change in body position, and is able to operate the controls for adjustment.
- A heavy-duty, extra-wide/bariatric bed (HCPCS codes E0301, E0303), when criteria are met for a fixed-height bed and the individual's weight is more than 350 pounds but less than 600 pounds.
- An extra-heavy-duty bed (HCPCS codes E0302, E0304), when criteria are met for a fixed-height hospital bed and the individual weighs 600 pounds or more.

A pediatric hospital crib/bed (HCPCS codes E0300, E0328, E0329) is considered medically necessary when required by the individual's condition and is an integral part of, or an accessory to, a medically necessary hospital bed.

The following accessories for hospital beds are considered medically necessary when criteria have been met for a hospital bed, and there is documentation to support the medical necessity of the accessory:

- trapeze equipment (HCPCS codes E0910, E0911, E0912, E0940)
- bed cradles (HCPCS code E0280)

The following beds or accessories are considered safety devices and not medically necessary:

- side rails (HCPCS codes E0305, E0310)
- manual or electric safety bed systems (e.g., KayserBetten Secure Sleep Systems, SleepSafe Beds®)
- safety accessories such as enclosures/canopies (HCPCS code E0316) (e.g., Vail® Enclosed Bed Systems, Posey Bed Canopy beds)

The following types of beds are considered not medically necessary and inappropriate for use in the home setting:

- institutional type beds (e.g., HCPCS code E0270)
- kinetic therapy beds
- oscillating beds
- Stryker frame beds
- continuous lateral rotation beds

The following beds and accessories are not primarily medical in nature and/or are specifically excluded under many benefit plans:

- all nonhospital adjustable beds (e.g., Craftmatic® Adjustable Bed, Simmons® Beautyrest® Adjustable Bed, Adjust-A-Sleep Adjustable Bed)
- bed boards (HCPCS codes E0273, E0315)
- bed elevators (e.g., blocks, lifters)
- bed wedges/pillows
- bedrail pads
- bed spectacles
- call switches
- custom bedroom equipment
- mattresses (e.g., inner spring, foam rubber [HCPCS codes E0271, E0272], viscoelastic or memory foam mattresses [e.g., Tempur-Pedic®], adjustable firmness/support mattresses [e.g., Select Comfort])
- overbed tables (HCPCS code E0274), trays, lap boards
- power/manual lounge beds, including electric chair positioning features
- waterbeds

<u>Pressure Reducing Support Surfaces</u>

Pressure reducing support surfaces are considered medically necessary when the following criteria are met:

- **A Group 1 pressure reducing support surface** (HCPCS codes E0181, E0182, E0183, E0184, E0185, E0186, E0187, E0196, E0197, E0198, E0199, and A4640) is considered medically necessary when the individual has prodromal skin changes consistent with the development of a pressure injury **OR** cannot independently make changes in body position significant enough to alleviate pressure **AND** is at risk for developing a pressure injury **AND ANY** of the following criteria is met:
  - fecal or urinary incontinence
  - altered sensory perception
  - compromised circulatory status

- **A Group 2 pressure reducing support surface** (HCPCS codes E0193, E0277, E0371, E0372, and E0373) is considered medically necessary when **ANY** of the following criteria is met:
  - Large or multiple Stage 3 or 4 pressure injuries are present on the trunk or pelvis.
  - A myocutaneous flap or skin graft has been performed within the past 60 days for a pressure injury on the trunk or pelvis **AND** the individual has been on a Group 2 or 3 support surface immediately prior to a recent discharge from a hospital or nursing facility (discharge within the past 30 days). Following myocutaneous flap or skin graft, coverage is usually limited to 60 days from the date of surgery.
  - Multiple Stage 2 pressure injuries are located on the trunk or pelvis and have not improved over the past month despite the use of an appropriate Group 1 support surface **AND** a comprehensive wound treatment program that includes:
    - education of the individual and caregiver on the prevention and/or management of pressure injuries
    - regular assessment by a nurse, physician or other licensed health care practitioner (i.e., usually at least weekly for an individual with a Stage 3 or 4 injury)
    - appropriate turning and positioning
    - appropriate wound care for a Stage 2, 3 or 4 injury
    - appropriate management of moisture/incontinence
    - nutritional assessment and intervention consistent with the overall plan of care

- **A Group 3 pressure reducing support surface** (HCPCS code E0194) is considered medically necessary when **ALL** of the following criteria are met:
  - The individual has a Stage 3 or Stage 4 pressure injury.
  - The individual is bedridden or chair-bound as a result of severely limited mobility.
  - Without an air-fluidized bed, the individual would require institutionalization.
  - The air-fluidized bed is ordered following a comprehensive assessment and evaluation of the individual after at least 30 days indicating that all of the following conservative medical management has been attempted without success:
    - education of the individual and caregiver on the prevention and/or management of pressure injuries
    - assessment by a physician, nurse or other licensed health care practitioner at least weekly
    - appropriate turning and positioning
    - use of a Group 2 support surface, if appropriate
    - appropriate wound care
    - appropriate management of moisture/incontinence
    - nutritional assessment and intervention consistent with the overall plan of care
  - None of the following contraindications to the use of an air-fluidized bed pertain:

- There is severe coexisting pulmonary disease (lack of firm back support makes coughing ineffective, and dry air inhalation thickens pulmonary secretions).
- Treatment is required that utilizes wet soaks or moist dressings that are not protected by an impervious covering, such as plastic wrap or other occlusive material.
- The caregiver is unwilling or unable to provide the type of care required for an individual on an air-fluidized bed.
- The structural support is inadequate to sustain the weight of an air-fluidized system, which generally weighs at least 1600 pounds.
- The existing electrical system cannot adequately support the anticipated increase in energy consumption.

The use of a pressure reducing support surface for any other indication is not covered or reimbursable.

General Background

Hospital Beds and Related Accessories

A hospital bed is one that has manual head and leg elevation adjustment capabilities. Hospital beds can be categorized as follows:

- **Fixed-height** hospital beds allow manual adjustments to head and leg elevation but not to height.
- **Variable-height** hospital beds allow manual adjustments to height, as well as to head and leg elevation.
- **Semi-electric** beds allow manual adjustments to height and electric adjustments to head and leg elevation.
- **Totally electric** beds allow electric adjustment to height, as well as to head and leg elevation.

Bed Types
A **fixed-height hospital bed** (HCPCS codes E0250, E0251, E0290 or E0291) may be appropriate for any of the conditions below:

- The patient has a medical condition that requires positioning of the body in ways that are not possible in an ordinary bed.
  - Elevating the head/upper body less than 30 degrees does not usually require the use of a hospital bed.
- In order to alleviate pain, the patient requires positioning of the body in ways not possible with an ordinary bed.
- The patient requires the head of the bed to be elevated more than 30 degrees most of the time because of congestive heart failure; chronic lung disease; or problems with accidentally inhaling food, liquid, or another foreign object into the lungs (i.e., aspiration).
  - Pillows or wedges to position the patient should be considered first. If they are impractical (for reasons other than inconvenience), then a hospital bed may be appropriate.
- The patient requires traction equipment that can be attached only to a hospital bed.

A **variable-height hospital bed** (HCPCS codes E0255, E0256, E0292, or E0293) may be appropriate when:

- the patient meets one of the conditions listed above for a fixed-height hospital bed, **and**

- the patient requires a bed height (other than that of a fixed-height hospital bed) in order to transfer to a chair, wheelchair or standing position

The ability to adjust bed height may be appropriate for a patient who has any one of the following:

- a medical condition that makes it difficult to walk (e.g., severe arthritis, lower leg injury, or fractured hip)
- cardiac disease in a patient who needs help getting in and out of bed, to avoid the strain that may come from "jumping" up or down onto the bed
- a spinal cord injury, including quadriplegia and paraplegia
- multiple amputated limbs
- disability due to stroke, if the patient is able to transfer from a bed to a wheelchair (with or without help)
- other severely debilitating conditions, if the variable height feature is required to assist the patient to walk

A **semi-electric hospital bed** (HCPCS codes E0260, E0261, E0294, E0295) or **total electric hospital bed** (HCPCS codes E0265, E0266, E0296, E0297) may be appropriate when the patient:

- meets one of the conditions listed above for a fixed-height hospital bed, **and**
- requires frequent changes in body position (and/or has an immediate need for a change in body position), **and**
- is able to operate the controls for adjustment

A **heavy-duty, extra-wide hospital bed** (HCPCS codes E0301 or E0303), (sometimes called a "bariatric bed"), may be appropriate when the patient:

- meets one of the conditions listed above for a fixed-height bed, **and**
- weighs more than 350 pounds but less than 600 pounds

An **extra heavy-duty hospital bed** (HCPCS codes E0302 or E0304), another type of bariatric bed, may be appropriate when the patient:

- meets one of the conditions listed above for a fixed-height hospital bed, **and**
- weighs 600 pounds or more

Pediatric Cribs and Beds

A **pediatric crib** (HCPCS code E0300) is a hospital-grade crib that allows the patient full movement with no traditional restraints. The crib consists of a mesh-like screen that contains the patient and prevents wandering. Typically these cribs are available in different sizes and materials.

A **pediatric hospital bed** includes 360 degree side enclosures with side rails up to 24 inches above the spring and may be manual (HCPCS code E0328) or semi-electric or total electric (HCPCS code E0329). Different parts of the bed can be adjusted to different levels, angles, and configurations. Manual pediatric beds typically include manual cranks to raise or lower the patient in bed. Electric or semi-electric pediatric beds typically allow back and foot adjustment electronically. Some semi-electric beds allow manual height adjustment.

Each type of bed usually includes removable bedside rails. Pediatric cribs/beds with or without enclosure may be appropriate when required by the patient's condition and is an integral part of, or an accessory to, a medically necessary hospital bed.

There are clinical situations where a safety enclosure bed with access from all four sides, **or** a covered/canopy bed may serve a medical purpose. Examples include:

- an older child with seizures to allow a caregiver access from any angle for the child's safety to prevent aspiration and hospital admission

- an older child with autism or behavioral issues who needs to be restrained at night to prevent them from leaving the home or injuring themselves or others

Accessories
A trapeze bar (HCPCS codes E0910, E0911, E0912, or E0940) may be appropriate if the patient requires the device to do any of the following:
- sit up because of a respiratory or other medical condition
- change body position because of a medical condition
- get in and out of bed

Trapeze equipment is not considered medically necessary for use with ordinary beds.

When it is medically necessary for the patient to avoid contact with the bed coverings, a bed cradle (HCPCS code E0280) may be needed. Examples of medical conditions that may require decreased contact with bed coverings are: acute gouty arthritis, diabetic foot ulcers, pressure injuries, and burns.

Side rails (HCPCS codes E0305, E0310) are items intended for the prevention of injury and may or may not be an integral part of a hospital bed. Side rails that are not an integral part of a hospital bed are considered safety devices and are not medically necessary.

Other Bed Types and Accessories
Some institutional-type and specialty beds deliver therapies that are known as "kinetic therapy" and "continuous lateral rotational therapy" which means the bed turns continuously and slowly. These types of beds are used to help drain lung secretions and to relieve pressure. They are often used for patients with spinal cord injuries or impaired respiratory function in an acute care hospital setting.

Lateral rotational therapy beds like The Freedom Bed™ (ProBed Medical Technologies Inc., British Columbia, Canada) have been proposed for facility or home use. The Freedom Bed has a platform made up of three hinged longitudinal sections. The bed rotates so that the outer section of the platform turns up to form a "wing", turning the patient up to 30 degrees; the process then reverses to turn the patient to the other side. The frequency, duration, and degree of rotation may be adjusted by facility staff, a caregiver, or the patient.

Continuous lateral rotation has been proposed for the prevention and management of pressure injuries, but ideal technical parameters (e.g., bed tilt angle, rotation frequency) have yet to be defined (Berlowitz, 2022). Many clinical studies have been conducted to research the clinical benefits of various degrees of rotation, but all of these studies have been conducted in hospitals, and primarily in critical care units (Schieren, et al., 2020; Bein, et al., 2012; Goldhill, et al., 2007; Delaney, et al., 2006). There is a lack of published comparative controlled trials evaluating the safety and efficacy of lateral rotational therapy for use in the home. The use of institutional beds, kinetic therapy beds, Stryker frame beds, oscillating beds or other, similar beds in the home care setting is considered inappropriate.

Manual/electric safety bed systems such as the KayserBetten Secure Sleep Systems (KayserBetten-U.S., Allentown, PA, US) or SleepSafe Beds® (SleepSafe Beds, LLC., Bassett, VA, USA) are considered safety devices and not medically necessary.

Safety enclosure canopies (e.g., Vail enclosures, Posey bed enclosures/canopy systems [HCPCS code E0316]) are a frame or canopy used to prevent a patient from leaving the bed. This item encloses the standard hospital bed with a netting attached to a frame and is designed for patients who would need to be restrained. The intended purpose was to restrain a patient without the need

for leg or wrist restraints. Safety enclosures/canopies are not primarily medical in nature and are considered not medically necessary.

The following accessories are not considered primarily medical in nature, are not primarily used in the treatment of disease or injury, and are considered not medically necessary:

- mattresses (e.g., innerspring, foam rubber)
- power/manual lounge beds
- nonhospital adjustable beds
- overbed tables (HCPCS code E0274), trays, lap boards
- bed rail pads
- bed elevators (e.g., blocks, lifters)
- bed boards (HCPCS codes E0273, E0315)
- bed spectacles
- waterbeds
- bed wedges/pillows
- custom bedroom equipment
- call switches

U.S. Food and Drug Administration (FDA)
There are many hospital and therapeutic beds, pediatric medical cribs, and bed accessories which have been cleared through the FDA 510(k) premarket notification process. Most powered hospital beds are Class II devices, while manual and hydraulic beds are often exempted Class I devices. Examples of cleared devices may be found in the FDA 510(k) premarket notification database, under product codes FMS (pediatric medical crib); LLI (AC-powered adjustable hospital bed); FNJ (manual adjustable hospital bed); and FNK (hydraulic adjustable hospital bed).

The FDA page on Hospital Beds notes that between January 1, 1985 and January 1, 2013, the FDA received 901 incidents of patients caught, trapped, entangled, or strangled in hospital beds. The reports included 531 deaths, 151 nonfatal injuries, and 220 cases where staff needed to intervene to prevent injuries.

The FDA and the Hospital Bed Safety Workgroup released the 'Hospital Bed System Dimensional and Assessment Guidance to Reduce Entrapment' document on March 10, 2006. This guidance provides recommendations for manufacturers of new hospital beds and for facilities with existing beds, to help improve the safety of patients in hospitals, nursing homes, and private homes.

Effective January 2017, the FDA issued a final rule to rename pediatric hospital beds "pediatric medical cribs", and established special controls for these devices. The FDA established a separate classification regulation for medical bassinets as a class II (special controls) device. This rule allows pediatric medical cribs and bassinets to be exempt from premarket notification, and to be used in traditional health care settings. The ruling also allows the use of pediatric medical cribs and bassinets outside of traditional health care settings, when the crib or bassinet has been prescribed by a provider.

Pressure Reducing Support Surfaces

This information on pressure reducing surfaces has been developed through consideration of medical necessity and generally accepted standards of medical practice, as well as review of medical literature and government approval status.

In 2016, the National Pressure Injury Advisory Panel (NPIAP) redefined the definition of what is now called a "pressure injury". Pressure injury replaces the terms "pressure ulcer," "decubitus ulcer," and "bed sores." The NPIAP defines pressure injury as a localized area of damage to the

skin and/or underlying soft tissue over a bony prominence as a result of pressure or pressure in combination with shear. Skin can be intact or have an open ulcer. Treatment is based on the stage and characteristics of the pressure injury. Pressure relief and nutrition are important interventions. Person-specific factors such as immobility, sensory loss, incontinence, reduced perfusion, and compromised nutritional status culminate in tissue damage which have profound effects on the healing process and have a greater influence than what is put on the wound. The cornerstone of therapy involves the use of appropriate wound dressings, pressure-reducing devices, treatment of infection, debridement, and surgical consultation when appropriate (Welesko and Javier, 2023; Wester, 2023).

Initial treatment for pressure injuries is to relieve pressure by positioning the patient frequently and at a fixed interval to relieve pressure over the compromised area. A number of medical devices are designed to relieve pressure. The choice of devices should be based on durability, ease of use, and patient comfort. These devices can be classified as static or dynamic. Static devices include air-, gel-, or water-filled containers that reduce the tissue–surface interface. Dynamic devices use a power source to inflate compartments that support the patient's weight or alternate the pressure on different areas of the body. A static device is recommended when the patient has good bed mobility. A dynamic device is recommended when the patient cannot self-position in bed. A check for bottoming out is generally done for all devices. To check for bottoming out, the hand is inserted palm upward under the patient's sacrum between the device and the bed surface. It is recommended that if no air column is apparent between the patient and the bed surface, the device is ineffective and should be changed. Also, it is suggested that patients who fail to improve, or who have multiple pressure injuries, should be considered for a dynamic-type device, such as a low-air-loss bed or air-fluidized bed (Welesko and Javier, 2023; Wester, 2023).

Staging of Pressure Injuries
When evaluating pressure injuries, a staging system is typically used that measures tissue destruction by classifying wounds according to the tissue layers involved. In 2016, the National Pressure Injury Advisory Panel (NPIAP) renamed the term pressure ulcer with pressure injury and redefined the definition of a pressure ulcer and the stages of pressure injury including the original four stages and updating two stages on deep tissue injury and unstageable pressure injury. In addition to the change in terminology, Arabic numbers replace Roman numerals to identify the stages. Two additional pressure injury definitions: Medical device and Mucosal Membrane Pressure Injury were added.

The updated staging system includes the following definitions:

Pressure Injury: A pressure injury is localized damage to the skin and underlying soft tissue usually over a bony prominence or related to a medical or other device. The injury can present as intact skin or an open ulcer and may be painful. The injury occurs as a result of intense and/or prolonged pressure or pressure in combination with shear. The tolerance of soft tissue for pressure and shear may also be affected by microclimate, nutrition, perfusion, co-morbidities and condition of the soft tissue.

Stage 1 Pressure Injury – Non-blanchable erythema of intact skin: Intact skin with a localized area of non-blanchable erythema, which may appear differently in darkly pigmented skin. Presence of blanchable erythema or changes in sensation, temperature, or firmness may precede visual changes. Color changes do not include purple or maroon discoloration; these may indicate deep tissue pressure injury.

Stage 2 Pressure Injury – Partial-thickness skin loss with exposed dermis: The wound bed is viable, pink or red, moist, and may also present as an intact or ruptured serum-filled blister. Adipose (fat) is not visible and deeper tissues are not visible. Granulation tissue, slough

and eschar are not present. These injuries commonly result from adverse microclimate and shear in the skin over the pelvis and shear in the heel. This stage should not be used to describe moisture associated skin damage (MASD) including incontinence associated dermatitis (IAD), intertriginous dermatitis (ITD), medical adhesive related skin injury (MARSI), or traumatic wounds (skin tears, burns, abrasions).

Stage 3 Pressure Injury – Full-thickness skin loss: Full-thickness loss of skin, in which adipose (fat) is visible in the ulcer, and granulation tissue and epibole (rolled wound edges) are often present. Slough and/or eschar may be visible. The depth of tissue damage varies by anatomical location; areas of significant adiposity can develop deep wounds. Undermining and tunneling may occur. Fascia, muscle, tendon, ligament, cartilage and/or bone are not exposed. If slough or eschar obscures the extent of tissue loss this is an Unstageable Pressure Injury.

Stage 4 Pressure Injury – Full-thickness skin and tissue loss: Full-thickness skin and tissue loss with exposed or directly palpable fascia, muscle, tendon, ligament, cartilage or bone in the ulcer. Slough and/or eschar may be visible. Epibole (rolled edges), undermining and/or tunneling often occur. Depth varies by anatomical location. If slough or eschar obscures the extent of tissue loss, this is an Unstageable Pressure Injury.

Unstageable Pressure Injury – Obscured full-thickness skin and tissue loss: Full-thickness skin and tissue loss in which the extent of tissue damage within the ulcer cannot be confirmed because it is obscured by slough or eschar. If slough or eschar is removed, a Stage 3 or Stage 4 pressure injury will be revealed. Stable eschar (i.e., dry, adherent, intact without erythema or fluctuance) on the heel or ischemic limb should not be softened or removed.

Deep Tissue Pressure Injury (DPTI) – Persistent non-blanchable deep red, maroon or purple discoloration: Intact or non-intact skin with localized area of persistent non-blanchable deep red, maroon, purple discoloration or epidermal separation revealing a dark wound bed or blood filled blister. Pain and temperature change often precede skin color changes. Discoloration may appear differently in darkly pigmented skin. This injury results from intense and/or prolonged pressure and shear forces at the bone-muscle interface. The wound may evolve rapidly to reveal the actual extent of tissue injury, or may resolve without tissue loss. If necrotic tissue, subcutaneous tissue, granulation tissue, fascia, muscle or other underlying structures are visible, this indicates a full thickness pressure injury (Unstageable, Stage 3 or Stage 4). Do not use DTPI to describe vascular, traumatic, neuropathic, or dermatologic conditions.

Additional pressure injury and equipment definitions include:

Medical Device Related Pressure Injury: This describes an etiology (cause of the injury). Medical device related pressure injuries result from the use of devices designed and applied for diagnostic or therapeutic purposes. The resultant pressure injury generally conforms to the pattern or shape of the device. The injury should be staged using the staging system.

Mucosal Membrane Pressure Injury: Mucosal membrane pressure injury is found on mucous membranes with a history of a medical device in use at the location of the injury. Due to the anatomy of the tissue these injuries cannot be staged.

Support Surfaces
Group 1 Pressure Reducing Support Surfaces: These include HCPCS codes that stand for static overlays and mattress replacements:

- **Pressure Pads for Mattresses:** Code E0185 and codes E0197-E0199, termed "pressure pad for mattress", represent nonpowered pressure reducing mattress overlays. These devices are designed to be placed on top of standard hospital or home mattresses.
  - A gel mattress overlay (E0185) is a gel layer with a height of two or more inches.
  - An air mattress overlay (E0197) is characterized by interconnected air cells that have a cell height of three or more inches and are inflated with an air pump.
  - A water mattress overlay (E0198) is characterized by a filled height of three or more inches.
  - A foam mattress overlay (E0199) possesses the following characteristics:
    - base thickness of two or more inches and either of the following:
      peak height of three or more inches if the overlay is convoluted (e.g., egg crate)
      overall height of at least three inches if the overlay is not convoluted
    - foam of such density and other qualities that it provides adequate pressure reduction
    - durable waterproof cover

- **Nonpowered Pressure Reducing Mattresses**
  - An air, water or gel mattress (E0186, E0187, E0196) has the following characteristics:
    - height of five or more inches of the air, water or gel layer
    - durable, waterproof cover
    - can be placed directly on a hospital bed frame
  - A foam mattress (E0184) has the following characteristics:
    - height of five or more inches
    - foam of such density and other qualities that it provides adequate pressure reduction
    - durable waterproof cover
    - can be directly placed on a hospital bed frame

- **Powered Pressure Reducing Mattress Overlay Systems:** Codes E0181, E0182, and A4640 represent powered pressure reducing mattress overlay systems (alternating pressure or low air loss) that have the following characteristics:
  - An air pump or blower provides both sequential inflation and deflation of air cells, or low interface pressure throughout the overlay.
  - The inflated cell height of the air cells through which air circulates is two and one-half inches or more.
  - The height of the air chambers, proximity of the air chambers to one another, frequency of air cycling (for alternating pressure overlays), and air pressure provide adequate patient lift, reduce pressure and prevent bottoming out.

Group 2 Pressure Reducing Support Surfaces: These include HCPCS codes that are defined as follows:

- **Powered Pressure Reducing Mattress:** Code E0277 stands for a powered pressure reducing mattress (alternating pressure, low air loss, or powered flotation without low air loss) that has the following characteristics:
  - An air pump or blower provides both sequential inflation and deflation of the air cells, or low interface pressure throughout the mattress.
  - The inflated cell height of the air cells though which air circulates is five inches or more.

- The height of the air chambers, proximity of the air chambers to one another, frequency of air cycling (for alternating pressure mattresses), and air pressure provide adequate patient lift, reduce pressure and prevent bottoming out.
- The surface is designed to reduce friction and shear.
- The surface can be placed directly on a hospital bed frame.

- Code E0277 includes lateral rotation, which is a method of pressure management with support surfaces that can be programmed to rotate the patient up to 40° in either direction from flat supine. Lateral rotation (e.g., adjutant therapy, rotation therapy) was developed to attempt to prevent respiratory complications in the intensive care patient, or patient on extended bed-rest. Since its introduction into the market, lateral rotation has been used for the management of skin breakdown. Indications for this method of pressure management include prevention or healing of pressure injuries in patients at high risk due to their inability to change positions. Continuous lateral rotation therapy utilizes mattresses and beds that move the patient in a regular pattern around a longitudinal axis. Examples of continuous lateral rotation mattresses include, but are not limited to:

    - Invacare microAIR Lateral Rotation Mattress (Invacare, Elyria, OH)
    - PressureGuard® APM^2 (Span America, Greenville, SC)

- Code E0193 describes a semi-electric or total electric hospital bed with a fully integrated powered pressure reducing mattress which has all the characteristics defined above.

- **Advanced Nonpowered Pressure Reducing Mattress Overlay:** Code E0371 describes an advanced, nonpowered pressure reducing mattress overlay with the following characteristics:
    - The height and design of individual cells provide significantly more pressure reduction than in a Group 1 overlay and prevent bottoming out.
    - The total height is three inches or more.
    - The surface is designed to reduce friction and shear.
    - There is documented evidence to substantiate that the product is effective in treating conditions described by the coverage criteria for Group 2 support surfaces.

- **Powered Pressure Reducing Mattress Overlay:** Code E0372 describes a powered pressure reducing mattress overlay (low air loss, powered flotation without low air loss, or alternating pressure) with the following characteristics:
    - An air pump or blower provides both sequential inflation and deflation of the air cells, or low interface pressure throughout the overlay. The inflated cell height of the air cells through which air circulates is 3.5 inches or more.
    - The height of the air chambers, proximity of the air chambers to one another, frequency of air cycling (for alternating pressure overlays), and air pressure provide adequate patient lift, reduce pressure and prevent bottoming out.
    - The surface is designed to reduce friction and shear.

- **Advanced Nonpowered Pressure Reducing Mattress:** Code E0373 describes an advanced, manually powered pressure reducing mattress with the following characteristics:
    - The height and design of individual cells provide significantly more pressure reduction than those in a Group 1 mattress and prevent bottoming out.
    - The total height is five inches or more.
    - The surface is designed to reduce friction and shear.
    - There is documented evidence to substantiate that the product is effective in treating conditions described by the coverage criteria for Group 2 support surfaces.
    - The mattress can be placed directly on a hospital bed frame.

Group 3 Pressure Reducing Support Surfaces are described by a single HCPCS code, defined as follows:

- **Air-Fluidized Bed:** Code E0194 describes an air-fluidized bed, a device with **ALL** of the following characteristics:
  - The bed employs circulation of filtered air through silicone-coated ceramic beads, creating the characteristics of fluid.
  - The bed consists of a tank filled with silicone-coated microsphere beads that resemble grains of sand.
  - The tank is covered with a loose-fitting filter sheet that separates the patient from the beads.
  - Room air is drawn into the base unit, then filtered, heated and pushed into the tank through a diffuser board.
  - The airflow suspends the beads, causing them to take on properties of a fluid.
  - The sheet moves freely above the patient through the fluid. Usually, the patient sinks only 4–6 inches into the beads, and the pressure put on the skin is well below capillary closing pressure.
  - The sheet is permeable to the downward flow of body fluids (e.g., wound drainage, urine, or perspiration). As body fluids come in contact with the beads, the beads clump and drop to the bottom of the tank, where the alkaline environment kills the bacteria. The clumps are removed during routine maintenance.
  - Patient transfers in and out of bed may be difficult and, in most models, the head cannot be elevated.
  - When the airflow is turned off, the beads settle into a mold around the body, creating a support surface that stabilizes the patient for nursing care, wound cleaning and other care needs.

U.S. Food and Drug Administration (FDA)
The FDA has cleared numerous types of support surfaces via the 510(k) premarket notification process. Most support surfaces are classified as Class II or exempted Class I devices. Examples of cleared devices may be found in the FDA 510(k) premarket notification database, under product codes FNM (alternating pressure air flotation mattresses); IKY (nonpowered flotation therapy mattresses); and INX (air-fluidized beds).

Literature Review
Shi et al. (2021e) conducted a meta-analysis to summarize evidence from Cochrane Reviews that assess the effects of beds, overlays and mattresses on reducing the incidence of pressure ulcers and on increasing pressure ulcer healing in any setting and population; to assess the relative effects of different types of beds, overlays and mattresses for reducing the incidence of pressure ulcers and increasing pressure ulcer healing in any setting and population; and to cumulatively rank the different treatment options of beds, overlays and mattresses in order of their effectiveness in pressure ulcer prevention and treatment. The review included six Cochrane Reviews, all at low or unclear risk of bias. Pressure ulcer prevention: four reviews (68 studies/18,174 participants) reported direct evidence for 27 pairwise comparisons between 12 types of support surfaces on the following outcomes: pressure ulcer incidence, time to pressure ulcer incidence, patient comfort response, adverse event rates, health-related quality of life, and cost-effectiveness. There was low-certainty evidence that more people with pressure ulcers may heal completely using reactive air surfaces than using foam surfaces. The authors noted they were uncertain which surfaces have the highest probability of being the most effective (all very low-certainty evidence). Regarding time to complete pressure ulcer healing: this overview included direct evidence for one comparison – people using reactive air surfaces may be more likely to have healed pressure ulcers compared with those using foam surfaces in long-term care settings

(low-certainty evidence). The authors concluded that compared with foam surfaces, reactive air surfaces may reduce pressure ulcer risk and may increase complete ulcer healing; compared with foam surfaces, alternating pressure air surfaces may reduce pressure ulcer risk and are probably more cost-effective in preventing pressure ulcers; compared with foam surfaces, reactive gel surfaces may reduce pressure ulcer risk, particularly for people in operating rooms and long-term care settings. It was noted that there are uncertainties for the relative effectiveness of other support surfaces for preventing and treating pressure ulcers, and their efficacy ranking and more high-quality research is required (e.g., for the comparison of reactive air surfaces with alternating pressure air surfaces). The authors noted future studies should consider time-to-event outcomes and be designed to minimize any risk of bias.

An updated Cochrane review by McInnes et al. (2018) assessed the effectiveness of support services for the treatment of pressure ulcers. A total of 19 trials involving 3241 participants met the inclusion criteria. Most trials were small, with sample sizes ranging from 20 to 1971, and were generally at high or unclear risk of bias. The authors summarized that overall the evidence was of low to very low certainty and was primarily downgraded due to risk of bias and imprecision with some indirectness. Based on the evidence, it wa21s unclear whether any particular type of low- or high-tech support surface is more effective at healing pressure ulcers than standard support surfaces. The authors noted "There is no conclusive evidence about the superiority of any support surface for the treatment of existing pressure ulcers. Methodological issues included variations in outcomes measured, sample sizes and comparison groups. Many studies had small sample sizes and often there was inadequate description of the intervention, standard care and co-interventions. Individual study results were often inadequately reported, with failure to report variance data common, thus hindering the calculation of mean differences. Some studies did not report P values when reporting on differences in outcomes. In addition, the age of some trials (some being 20 years old), means that other technologies may have superseded those investigated. Further and rigorous studies are required to address these concerns and to improve the evidence base before firm conclusions can be drawn about the most effective support surfaces to treat pressure ulcers."

A systematic review (Reddy, et al., 2006) studied various interventions to prevent pressure ulcers and included 59 randomized controlled trials (RCTs). Interventions in the studies were grouped into three categories (i.e., addressing impairments in mobility, nutrition, or skin health). Strategies that addressed impaired mobility included the use of support surfaces, mattress overlays on operating tables, and specialized foam and sheepskin overlays. The authors concluded that "given the current evidence, using support surfaces, repositioning the patient, optimizing nutrition status, and moisturizing sacral skin are appropriate strategies to prevent pressure ulcers. Although a number of RCTs have evaluated preventive strategies for pressure ulcers, many of them had important methodological limitations. There is a need for well-designed RCTs that follow standard criteria for reporting nonpharmacological interventions."

Medicare Coverage Determinations

	Contractor	Determination Name/Number	Revision Effective Date
NCD	National	Air-Fluidized Bed (280.8)	11/1/2000
NCD	National	Durable Medical Equipment Reference List (280.1)	5/16/2023
NCD	National	Hospital Beds (280.7)	Longstanding
LCD	CGS Administrators; Noridian	Hospital Beds And Accessories (L33820)	1/1/2020

	Contractor	Determination Name/Number	Revision Effective Date
	Healthcare Solutions		
LCD	CGS Administrators; Noridian Healthcare Solutions	Pressure Reducing Support Surfaces - Group 1 (L33830)	5/1/2021
LCD	CGS Administrators; Noridian Healthcare Solutions	Pressure Reducing Support Surfaces - Group 2 (L33642)	5/1/2021
LCD	CGS Administrators; Noridian Healthcare Solutions	Pressure Reducing Support Surfaces - Group 3 (L33692)	5/1/2021

Note: Please review the current Medicare Policy for the most up-to-date information.
(NCD = National Coverage Determination; LCD = Local Coverage Determination)

Coding Information

Notes:

1. This list of codes may not be all-inclusive.
2. Deleted codes and codes which are not effective at the time the service is rendered may not be eligible for reimbursement.

Hospital Beds and Related Accessories

Fixed Height Beds

Considered Medically Necessary when criteria in the applicable policy statements listed above are met:

HCPCS Codes	Description
E0250	Hospital bed, fixed height, with any type side rails, with mattress
E0251	Hospital bed, fixed height, with any type side rails, without mattress
E0290	Hospital bed, fixed height, without side rails, with mattress
E0291	Hospital bed, fixed height, without side rails, without mattress

Variable Height Beds

Considered Medically Necessary when the individual meets criteria for a fixed height bed and requires a bed height other than that of a fixed-height hospital bed to permit transfers to a chair, wheelchair or standing position:

HCPCS Codes	Description
E0255	Hospital bed, variable height, hi-lo, with any type side rails, with mattress

HCPCS Codes	Description
E0256	Hospital bed, variable height, hi-lo, with any type side rails, without mattress
E0292	Hospital bed, variable height, hi-lo, without side rails, with mattress
E0293	Hospital bed, variable height, hi-lo, without side rails, without mattress

Semi-Electric Beds

Considered Medically Necessary when criteria are met for a fixed-height hospital bed and the individual requires frequent changes in body position, and/or has an immediate need for a change in body position, and is able to operate the controls for adjustment:

HCPCS Codes	Description
E0260	Hospital bed, semi-electric (head and foot adjustment), with any type side rails, with mattress
E0261	Hospital bed, semi-electric (head and foot adjustment), with any type side rails, without mattress
E0294	Hospital bed, semi-electric (head and foot adjustment), without side rails, with mattress
E0295	Hospital bed, semi-electric (head and foot adjustment), without side rails, without mattress

Total Electric Beds

Considered Medically Necessary when criteria are met for a fixed-height hospital bed and the individual requires frequent changes in body position, and/or has an immediate need for a change in body position, and is able to operate the controls for adjustment:

HCPCS Codes	Description
E0265	Hospital bed, total electric (head, foot, and height adjustments), with any type side rails, with mattress
E0266	Hospital bed, total electric (head, foot, and height adjustments), with any type side rails, without mattress
E0296	Hospital bed, total electric (head, foot, and height adjustments), without side rails, with mattress
E0297	Hospital bed, total electric (head, foot, and height adjustments), without side rails, without mattress

Heavy Duty Beds

Considered Medically Necessary when criteria are met for a fixed-height bed and the individual meets the acceptable weight criteria as listed for the requested bed:

HCPCS Codes	Description
E0301	Hospital bed, heavy duty, extra wide, with weight capacity greater than 350 pounds, but less than or equal to 600 pounds, with any type side rails, without mattress

HCPCS Codes	Description
E0302	Hospital bed, extra heavy duty, extra wide, with weight capacity greater than 600 pounds, with any type side rails, without mattress
E0303	Hospital bed, heavy duty, extra wide, with weight capacity greater than 350 pounds, but less than or equal to 600 pounds, with any type side rails, with mattress
E0304	Hospital bed, extra heavy duty, extra wide, with weight capacity greater than 600 pounds, with any type side rails, with mattress

Pediatric Crib/Beds

Considered Medically Necessary when required by the individual's condition and is an integral part of, or an accessory to, a medically necessary hospital bed:

HCPCS Codes	Description
E0300	Pediatric crib, hospital grade, fully enclosed, with or without top enclosure
E0328	Hospital bed, pediatric, manual, 360 degree side enclosures, top of headboard, footboard, and side rails up to 24 inches above the spring, includes mattress
E0329	Hospital bed, pediatric, electric or semi-electric, 360 degree side enclosures, top of headboard, footboard, and side rails up to 24 inches above the spring, includes mattress

Institutional Beds

Considered Not Medically Necessary/Convenience:

HCPCS Codes	Description
E0270	Hospital bed, institutional type includes oscillating, circulating and Stryker frame, with mattress

Accessories

Considered Medically Necessary when criteria have been met for a hospital bed, and there is documentation to support the medical necessity of the requested accessory:

HCPCS Codes	Description
E0280	Bed cradle, any type
E0910	Trapeze bars, A/K/A patient helper, attached to bed, with grab bar
E0911	Trapeze bar, heavy duty, for patient weight capacity greater than 250 pounds, attached to bed, with grab bar
E0912	Trapeze bar, heavy duty, for patient weight capacity greater than 250 pounds, free standing, complete with grab bar
E0940	Trapeze bar, free standing, complete with grab bar

Considered Not Medically Necessary/Safety Device:

HCPCS Codes	Description
E0305	Bedside rails, half length
E0310	Bedside rails, full length
E0316	Safety enclosure frame/canopy for use with hospital bed, any type

Considered Not Medically Necessary/Convenience:

HCPCS Codes	Description
E0271	Mattress, innerspring
E0272	Mattress, foam rubber
E0273	Bed board
E0274	Over-bed table
E0315	Bed accessory: board, table, or support device, any type

Pressure Reducing Support Surfaces

Group 1 Pressure Reducing Support Surface

Considered Medically Necessary when criteria in the applicable policy statements listed above are met:

HCPCS Codes	Description
A4640	Replacement pad for use with medically necessary alternating pressure pad owned by patient
E0181	Powered pressure reducing mattress overlay/pad, alternating, with pump, includes heavy duty
E0182	Pump for alternating pressure pad, for replacement only
E0183	Powered pressure reducing underlay/pad, alternating, with pump, includes heavy duty
E0184	Dry pressure mattress
E0185	Gel or gel-like pressure pad for mattress, standard mattress length and width
E0186	Air pressure mattress
E0187	Water pressure mattress
E0196	Gel pressure mattress
E0197	Air pressure pad for mattress, standard mattress length and width
E0198	Water pressure pad for mattress, standard mattress length and width
E0199	Dry pressure pad for mattress, standard mattress length and width

Group 2 Pressure Reducing Support Surface

Considered Medically Necessary when criteria in the applicable policy statements listed above are met:

HCPCS Codes	Description
E0193	Powered air flotation bed (low air loss therapy)
E0371	Nonpowered advanced pressure reducing overlay for mattress, standard mattress length and width
E0372	Powered air overlay for mattress, standard mattress length and width

HCPCS Codes	Description
E0373	Nonpowered advanced pressure reducing mattress

Considered Medically Necessary when criteria in the applicable policy statements listed above are met and when submitted with one of the following ICD-10 diagnosis codes:

HCPCS Codes	Description
E0277	Powered pressure-reducing air mattress

ICD-10-CM Diagnosis Codes	Description
L89.102	Pressure ulcer of unspecified part of back, stage 2
L89.103	Pressure ulcer of unspecified part of back, stage 3
L89.104	Pressure ulcer of unspecified part of back, stage 4
L89.112	Pressure ulcer of right upper back, stage 2
L89.113	Pressure ulcer of right upper back, stage 3
L89.114	Pressure ulcer of right upper back, stage 4
L89.122	Pressure ulcer of left upper back, stage 2
L89.123	Pressure ulcer of left upper back, stage 3
L89.124	Pressure ulcer of left upper back, stage 4
L89.132	Pressure ulcer of right lower back, stage 2
L89.133	Pressure ulcer of right lower back, stage 3
L89.134	Pressure ulcer of right lower back, stage 4
L89.142	Pressure ulcer of left lower back, stage 2
L89.143	Pressure ulcer of left lower back, stage 3
L89.144	Pressure ulcer of left lower back, stage 4
L89.152	Pressure ulcer of sacral region, stage 2
L89.153	Pressure ulcer of sacral region, stage 3
L89.154	Pressure ulcer of sacral region, stage 4
L89.202	Pressure ulcer of unspecified hip, stage 2
L89.203	Pressure ulcer of unspecified hip, stage 3
L89.204	Pressure ulcer of unspecified hip, stage 4
L89.212	Pressure ulcer of right hip, stage 2
L89.213	Pressure ulcer of right hip, stage 3
L89.214	Pressure ulcer of right hip, stage 4
L89.222	Pressure ulcer of left hip, stage 2
L89.223	Pressure ulcer of left hip, stage 3
L89.224	Pressure ulcer of left hip, stage 4
L89.302	Pressure ulcer of unspecified buttock, stage 2
L89.303	Pressure ulcer of unspecified buttock, stage 3
L89.304	Pressure ulcer of unspecified buttock, stage 4
L89.312	Pressure ulcer of right buttock, stage 2
L89.313	Pressure ulcer of right buttock, stage 3
L89.314	Pressure ulcer of right buttock, stage 4
L89.322	Pressure ulcer of left buttock, stage 2
L89.323	Pressure ulcer of left buttock, stage 3
L89.324	Pressure ulcer of left buttock, stage 4
L89.42	Pressure ulcer of contiguous site of back, buttock and hip, stage 2

ICD-10-CM Diagnosis Codes	Description
L89.43	Pressure ulcer of contiguous site of back, buttock and hip, stage 3
L89.44	Pressure ulcer of contiguous site of back, buttock and hip, stage 4

Not Covered or Reimbursable:

ICD-10-CM Diagnosis Codes	Description
	All other codes

Group 3 Pressure Reducing Support Surface

Considered Medically Necessary when criteria in the applicable policy statements listed above are met:

HCPCS Codes	Description
E0194	Air fluidized bed

References

1. Anderson O, Boshier PR, Hanna GB. Interventions designed to prevent healthcare bed-related injuries in patients. Cochrane Database Syst Rev. 2012 Jan 18;1:CD008931.

2. Bein T, Zimmermann M, Schiewe-Langgartner F, Strobel R, Hackner K, Schlitt HJ, Nerlich MN, Zeman F, Graf BM, Gruber M. Continuous lateral rotational therapy and systemic inflammatory response in posttraumatic acute lung injury: results from a prospective randomised study. Injury. 2012 Nov;43(11):1892-7.

3. Berlowitz D. Prevention of pressure-induced skin and soft tissue injury. In: UpToDate, Collins, KA (Ed). Jan 10, 2022. UpToDate, Waltham, MA. Accessed Oct 2, 2023.

4. Centers for Medicare and Medicaid Services (CMS). Local Coverage Determinations (LCDs) alphabetical index. Accessed Dec 7, 2023. Available at URL address: https://www.cms.gov/medicare-coverage-database/reports/local-coverage-final-lcds-alphabetical-report.aspx?lcdStatus=all

5. Centers for Medicare and Medicaid Services (CMS). Local Coverage Determination (LCD) Durable Medical Equipment Reference List (280.1). May 1, 2021. Accessed Dec 7, 2023. Available at URL address: https://www.cms.gov/medicare-coverage-database/view/ncd.aspx?ncdid=190

6. Centers for Medicare and Medicaid Services (CMS). Local Coverage Determination (LCD) Hospital Beds and Accessories (L33820). Jan 1, 2020. Accessed Dec 7, 2023. Available at URL address: https://www.cms.gov/medicare-coverage-database/view/lcd.aspx?lcdid=33820

7. Centers for Medicare and Medicaid Services (CMS). Local Coverage Determination (LCD) Pressure Reducing Support Surfaces - Group 1 (L33830). May 1, 2021. Accessed Oct 2, 2023. Available at URL address: https://www.cms.gov/medicare-coverage-database/view/lcd.aspx?lcdid=33830

8. Centers for Medicare and Medicaid Services (CMS). Local Coverage Determination (LCD) Pressure Reducing Support Surfaces - Group 2 (L33642). May 1, 2021. Accessed Oct 2, 2023. Available at URL address: https://www.cms.gov/medicare-coverage-database/view/lcd.aspx?lcdid=33642

9. Centers for Medicare and Medicaid Services (CMS). Local Coverage Determination (LCD) Pressure Reducing Support Surfaces - Group 3 (L33692). May 1, 2021. Accessed Oct 2, 2023. Available at URL address: https://www.cms.gov/medicare-coverage-database/view/lcd.aspx?lcdid=33692

10. Centers for Medicare and Medicaid Services (CMS). National Coverage Determinations (NCDs) alphabetical index. Accessed Dec 7, 2023. Available at URL address: https://www.cms.gov/medicare-coverage-database/reports/national-coverage-ncd-report.aspx?chapter=all&sortBy=title

11. Centers for Medicare and Medicaid Services (CMS). National Coverage Determination (NCD) Air-Fluidized Bed (280.8). Nov 1, 2000. Accessed Oct 2, 2023. Available at URL address: https://www.cms.gov/medicare-coverage-database/view/ncd.aspx?ncdid=228

12. Centers for Medicare and Medicaid Services (CMS). National Coverage Determination (NCD) Hospital Beds (280.7). Longstanding. Accessed Dec 7, 2023. Available at URL address: https://www.cms.gov/medicare-coverage-database/view/ncd.aspx?ncdid=227

13. Delaney A, Gray H, Laupland KB, Zuege DJ. Kinetic bed therapy to prevent nosocomial pneumonia in mechanically ventilated patients: a systematic review and meta-analysis. Crit Care. 2006;10(3):R70.

14. Edsberg LE, Black JM, Goldberg M, McNichol L, Moore L, Sieggreen M. Revised National Pressure Ulcer Advisory Panel Pressure Injury Staging System: Revised Pressure Injury Staging System. J Wound Ostomy Continence Nurs. 2016 Nov/Dec;43(6):585-597.

15. Goldhill DR, Imhoff M, McLean B, Waldmann C. Rotational bed therapy to prevent and treat respiratory complications: a review and meta-analysis. Am J Crit Care. 2007 Jan;16(1):50-61.

16. Kim SY, Kim HJ, An JW, Lee Y, Shin YS. Effects of alternating pressure air mattresses on pressure injury prevention: A systematic review of randomized controlled trials. Worldviews Evid Based Nurs. 2022 Apr;19(2):94-99.

17. Lampersberger LM, Bauer S, Osmancevic S. Prevalence of falls, incontinence, malnutrition, pain, pressure injury and restraints in home care: A narrative review. Health Soc Care Community. 2022 Nov;30(6):e3656-e3669.

18. McInnes E, Jammali-Blasi A, Bell-Syer SE, Dumville JC, Middleton V, Cullum N. Support surfaces for pressure ulcer prevention. Cochrane Database Syst Rev. 2015 Sep 3;(9): CD001735.

19. McInnes E, Jammali-Blasi A, Bell-Syer SE, Leung V. Support surfaces for treating pressure ulcers. Cochrane Database Syst Rev. 2018 Oct 11;10:CD009490.

20. Melland HI, Langemo D, Hanson D, Olson B, Hunter S. Clinical evaluation of an automated turning bed. Orthop Nurs. 1999 Jul-Aug;18(4):65-70

21. National Institute for Health and Care Excellence. Pressure ulcers: prevention and management. Clinical guideline [CG179]. Nov 2018. Accessed Oct 3, 2023. Available at URL address: https://www.nice.org.uk/guidance/cg179

22. National Pressure Injury Advisory Panel (NPIAP). Pressure Injury Stages. Apr 2016. Accessed Oct 3, 2023. Available at URL address: https://npiap.com/page/PressureInjuryStages

23. Nawaz H, Abbas A, Sarfraz A, Slade MD, Calvocoressi L, Wild DM, et al. A randomized clinical trial to compare the use of safety net enclosures with standard restraints in agitated hospitalized patients. J Hosp Med. 2007 Nov;2(6):385-93.

24. Nixon J, Smith IL, Brown S, McGinnis E, Vargas-Palacios A, Nelson EA, et al. Pressure Relieving Support Surfaces for Pressure Ulcer Prevention (PRESSURE 2): Clinical and Health Economic Results of a Randomised Controlled Trial. EClinicalMedicine. 2019 Sep 3;14:42-52.

25. Nixon J, Cranny G, Iglesias C, Nelson EA, Hawkins K, Phillips A, et al. Randomised, controlled trial of alternating pressure mattresses compared with alternating pressure overlays for the prevention of pressure ulcers: PRESSURE (pressure relieving support surfaces) trial. BMJ. 2006 Jun 17;332(7555):1413.

26. Ochs RF, Horn SD, van Rijswijk L, Pietsch C, Smout RJ. Comparison of air-fluidized therapy with other support surfaces used to treat pressure ulcers in nursing home residents. Ostomy Wound Manage. 2005 Feb;51(2):38-68.

27. Oozageer Gunowa N, Hutchinson M, Brooke J, Jackson D. Pressure injuries in people with darker skin tones: A literature review. J Clin Nurs. 2018 Sep;27(17-18):3266-3275.

28. Posey. Posey Enclosure Bed. ©2023. Accessed Oct 3, 2023. Available at URL address: https://www.tidiproducts.com/product-listing/posey-enclosure-bed

29. ProBed Medical Technologies, Inc. The Freedom Bed. ©2023. Accessed Oct 3, 2023. Available at URL address: https://www.pro-bed.com

30. Reddy M, Gill SS, Rochon PA. Preventing pressure ulcers: a systematic review. JAMA. 2006 Aug 23;296(8):974-84.

31. Schieren M, Wappler F, Klodt D, Sakka SG, Lefering R, Jäcker V, Defosse J. Continuous lateral rotational therapy in thoracic trauma--A matched pair analysis. Injury. 2020 Jan;51(1):51-58

32. Shi C, Dumville JC, Cullum N, Rhodes S, Jammali-Blasi A, Ramsden V, McInnes E. Beds, overlays and mattresses for treating pressure ulcers. Cochrane Database Syst Rev. 2021a May 10;5(5):CD013624.

33. Shi C, Dumville JC, Cullum N, Rhodes S, Jammali-Blasi A, McInnes E. Alternating pressure (active) air surfaces for preventing pressure ulcers. Cochrane Database Syst Rev. 2021b May 10;5(5):CD013620.

34. Shi C, Dumville JC, Cullum N, Rhodes S, Leung V, McInnes E. Reactive air surfaces for preventing pressure ulcers. Cochrane Database Syst Rev. 2021c May 7;5(5):CD013622.

35. Shi C, Dumville JC, Cullum N, Rhodes S, McInnes E. Alternative reactive support surfaces (non-foam and non-air-filled) for preventing pressure ulcers. Cochrane Database Syst Rev. 2021d May 6;5(5):CD013623.

36. Shi C, Dumville JC, Cullum N, Rhodes S, McInnes E, Goh EL, Norman G. Beds, overlays and mattresses for preventing and treating pressure ulcers: an overview of Cochrane Reviews and network meta-analysis. Cochrane Database Syst Rev. 2021e Aug 16;8(8):CD013761.

37. Shi C, Dumville JC, Cullum N, Rhodes S, McInnes E. Foam surfaces for preventing pressure ulcers. Cochrane Database Syst Rev. 2021f May 6;5(5):CD013621.

38. Shi C, Dumville JC, Cullum N. Support surfaces for pressure ulcer prevention: A network meta-analysis. PLoS One. 2018 Feb 23;13(2):e0192707.

39. U.S. Food and Drug Administration (FDA). Center for Devices and Radiological Health (CDRH). 510(k) premarket notification database. Accessed Oct 3, 2023. Available at URL address: https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfpmn/pmn.cfm

40. U.S. Food and Drug Administration (FDA). Center for Devices and Radiological Health (CDRH). Class 2 Device Recall. CUB Pediatric Crib. May 12, 2021. Accessed Oct 3, 2023. Available at URL address: https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfres/res.cfm?id=188122

41. U.S. Food and Drug Administration (FDA). Center for Devices and Radiological Health (CDRH). Class 1 Device Recall. Vail 500 Enclosed Bed System. Vail 1000 Enclosed Bed System. Jun 30, 2005. Accessed Oct 3, 2023. Available at URL address: https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfres/res.cfm?id=39027

42. U.S. Food and Drug Administration (FDA). Medical devices. Information on Pediatric Medical Cribs and Medical Bassinets Used in Homes, Child Care Settings and Traditional Health Care Facilities. Dec 4, 2017. Accessed Oct 3, 2023. Available at URL address: https://www.fda.gov/medical-devices/products-and-medical-procedures/information-pediatric-medical-cribs-and-medical-bassinets-used-homes-child-care-settings-and

43. U.S. Food and Drug Administration (FDA). Medical devices. Hospital Beds. Aug 23, 2018. Accessed Oct 3, 2023. Available at URL address: https://www.fda.gov/medical-devices/general-hospital-devices-and-supplies/hospital-beds

44. Welesko MB, Javier NM. Pressure Injury. In: Ferri FF. Ferri's Clinical Advisor 2023. Philadelphia, PA: Elsevier, Inc.; 2023. 1260.e2-1260.e9.

45. Wester RM. Pressure Injury. In: Kellerman RD, Rakel DP, Heidelbaugh JJ, Lee EM. Conn’s Current Therapy 2023. Philadelphia, PA: Elsevier, Inc.; 2023. 1113-1115.

46. Woodhouse M, Worsley PR, Voegeli D, Schoonhoven L, Bader DL. The physiological response of soft tissue to periodic repositioning as a strategy for pressure ulcer prevention. Clin Biomech (Bristol, Avon). 2015 Feb;30(2):166-74

47. Wound, Ostomy, and Continence Nurses Society (WOCN). An Evidence-and Consensus-Based Support Surface Algorithm. Accessed Oct 3, 2023. Available at URL address: https://algorithm.wocn.org/

48. Xu H, Li X, Shi Y, An L, Taylor D, Christman M, Morse J, Merryweather A. Hospital bed height influences biomechanics during bed egress: A comparative controlled study of patients with Parkinson disease. J Biomech. 2021 Jan 22;115:110116.

49. Yap TL, Horn SD, Sharkey PD, Zheng T, Bergstrom N, Colon-Emeric C, Sabol VK, Alderden J, Yap W, Kennerly SM. Effect of Varying Repositioning Frequency on Pressure Injury Prevention in Nursing Home Residents: TEAM-UP Trial Results. Adv Skin Wound Care. 2022 Jun 1;35(6):315-325.

Revision Details

Type of Revision	Summary of Changes	Date
Annual review	• Title changed from "Pressure Reducing Surfaces" to "Hospital Beds and Pressure Reducing Support Surfaces."	11/12/2023