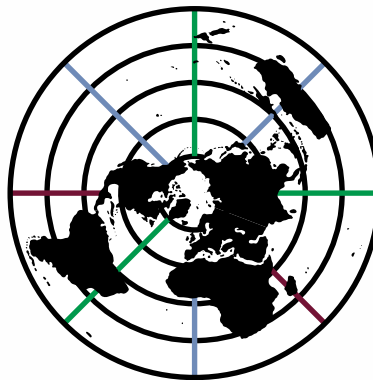


Prevention and Treatment of Pressure Ulcers/Injuries:

Quick Reference Guide Recommendations

The International Guideline

Fourth edition



RECOMMENDATIONS AND GOOD PRACTICE STATEMENTS FOR PREVENTION AND TREATMENT OF PRESSURE ULCERS/INJURIES



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Introduction

The following recommendations and good practice statements are extracted from the full Clinical Practice Guideline (CPG) for convenience of use in clinical practice. The recommendations and good practice statements are not intended for use without reviewing and considering the evidence summaries, implementation considerations and evidence discussion that are included in the full CPG chapters. Full CPG chapters and the guideline methodology are available from <https://internationalguideline.com>

Supporting Evidence:

- **Recommendations** are based on analysis of evidence from Tiers 1 (systematic review with meta-analysis), 2 (systematic review without meta-analysis) and/or 3A (randomized controlled trials) or 3B (comparative clinical trials) evidence.
- **Good Practice Statements** are designed to fill gaps in areas of practice not addressed by Tiers 1, 2, and 3A research. They are often supported by evidence from other study designs and the clinical expertise of the Guideline Governance Group, Panel Groups and stakeholders. **When supported by Tier 3 evidence, Good Practice Statements are comparable to the evidence-based recommendations in the 2019 Guideline that were rated with B1, B2 or C Strength of Evidence.**

Recommendations and Good Practice Statements (GPS): Together, Recommendations and Good Practice Statements provide a comprehensive approach to “what to do” for individuals at risk for pressure injuries.

Implementation Considerations (in the full CPG and on the interactive guideline website) provide additional guidance on “how, when and under what conditions to” implement/or not implement a recommendation or GPS. Implementation considerations also include practical guidance to address the special implementation needs in different care settings and populations.

See Appendix for a more complete explanation of GRADE terminology. Some new evidence just confirmed what we already know. An asterisk is placed by statements that are most likely to change local protocols.

Pressure Injury Risk

PRESSURE INJURY RISK				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
*RISK1 Prevention	It is good practice to conduct a <u>pressure injury risk screening</u> as soon as possible after admission to the care service and periodically thereafter to identify individuals at risk of developing pressure injuries. Rescreening should occur with any significant worsening in the individual's condition	GPS	Clinical expertise	N/A
RISK1.1 Prevention	Screening should quickly and accurately identify individuals who are likely to be at risk.	Clarifier	Clinical Expertise	N/A
RISK1.2 Prevention	At a minimum, screening should include a reliable measure of mobility or activity limitations, presence of medical devices and existing pressure injuries.	Clarifier	Supported by Tier 2,3 evidence	
*RISK2 Prevention	It is good practice to conduct a <u>full pressure injury risk assessment</u> as guided by the screening outcome after admission, periodically and after any worsening in condition. Any individuals screened as “likely at risk” should have a full pressure injury risk assessment	GPS	Supported by Tier 2,3 evidence	N/A
RISK2.1 Prevention	A full pressure injury risk assessment should: • Use a structured approach. • Include a comprehensive skin assessment. • Supplement use of standardized risk assessment tools (‘risk scales’), if used, with assessment of additional risk factors relevant for the population and setting. • Interpret the assessment outcomes using clinical judgment. • Document findings.	Clarifier	Clinical Expertise	N/A
RISK2.2 Prevention	Examples of structured, full pressure injury risk assessments may include: 1. A summary of relevant evidence-based risk factors 2. Quantitative risk assessment tools 3. Qualitative risk assessment tool(s) <i>Note: AI and Machine Learning based risk assessment are under development.</i>	Clarifier	Supported by Tier 2,3 evidence	N/A
*RISK3 Prevention	It is good practice to develop and implement a risk-based prevention plan for individuals identified as being at risk of developing pressure injuries	GPS	Supported by Tier 2,3 evidence	N/A
*Risk3.1	Examples of prevention planning strategies include but are not limited to:	Clarifier	Supported by Tier 2,3 evidence	N/A

PRESSURE INJURY RISK				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
Prevention	Generic care bundles: A collection/ protocol of three or more generic interventions that apply to most at-risk individuals. Risk-based: Interventions or bundles of interventions are explicitly driven by risk assessment tool items, subscales or specific individual risk factors. Clinical algorithms: Clinical algorithms guide clinicians through a series of evidence-based interventions appropriate to the individual's risk profile and health status.			
RISK4 Prevention	It is good practice to use clinical judgment at each step of the risk assessment and prevention planning process.	GPS	Clinical expertise	N/A
RISK5 Prevention	It is good practice to document ongoing risk assessments and prevention plans.	GPS	Clinical expertise	N/A

Pressure Injury Risk in Specific Populations

PRESSURE INJURY RISK IN SPECIAL POPULATIONS				
RKSP1 Prevention	It is good practice to assess additional risk factors that are unique to special populations and settings.	GPS	Supported by Tier 3 evidence	N/A
RKSP2 Prevention	For individuals in the operating room, it is good practice to consider the impact on surgery-related pressure injury risk of: - time spent immobilized before surgery, - duration of surgery, - American Society of Anesthesiologist (ASA) Physical Status Classification, and - multiple comorbidities (e.g., respiratory disease, cardiovascular disease and diabetes mellitus).	GPS	Supported by Tier 1,2,3 evidence	N/A
*RKSP3 Prevention	For individuals in critical care, it is good practice to consider the impact on pressure injury risk of: - duration of critical care unit stay, - mechanical ventilation, - inadequate oxygenation, - poor perfusion, - shock states, - vasopressor use, type, dose and duration,	GPS	Supported by Tier 1,2,3 evidence	N/A

PRESSURE INJURY RISK IN SPECIAL POPULATIONS				
	- Acute Physiology and Chronic Health Evaluation (APACHE II, III, or IV) Scale, - Simplified Acute Physiology Score (SAPS), and - Sequential Organ Failure Assessment (SOFA) Scale.			
*RKSP4 Prevention	For neonates and children, it is good practice to consider the impact on pressure injury risk of: - skin maturity, - perfusion and oxygenation, - presence of a medical device, malnutrition, - illness severity, - surgery, and - duration of critical care stay.	GPS	Supported by Tier 1,2,3 evidence	N/A
*RKSP4.1 Prevention	Risk factors for pressure injury development may vary by age group in the pediatric population.	Clarifier	Supported by Tier 2,3 evidence	N/A
*RKSP4.2 Prevention	Medical devices are a leading cause of pressure injury in the pediatric population.	Clarifier	Supported by Tier 1,2,3 evidence	N/A
*RKSP4.3 Prevention	Different risk factor profiles are seen in device-related pressure injury versus immobility-related pressure injuries in the pediatric population. <i>See Implementation Considerations for details.</i>	Clarifier	Supported by Tier 3 evidence	N/A
RKSP5 Prevention	For individuals with spinal cord injury, it is good practice to consider the impact on pressure injury risk of: - higher level of spinal cord injury, - more severe American Spinal Injury Association Impairment (ASIA) Scale, - mechanical ventilation, and - lower Functional Independence Measure (FIM) scores.	GPS	Supported by Tier 2,3 evidence	N/A
RKSP6 Prevention	It is good practice to consider factors that decrease perfusion and increase friction and shear to the heel area, including: - peripheral arterial disease, - systemic perfusion issues (e.g., shock states), - use of vasopressors, - diabetes mellitus, and - high potential for friction and shear.	GPS	Supported by Tier 2,3 evidence	N/A
*RKSP7 Prevention	It is good practice to consider the presence of a medical device as a risk factor. Risk factors specific to device related pressure injuries for adults include:	GPS	Supported by Tier 1,2,3 evidence	N/A

PRESSURE INJURY RISK IN SPECIAL POPULATIONS				
	• edema, • greater duration of device use, • greater number of total devices in use, • device design and materials. Risk factors specific to device related pressure injuries for adults in critical care settings include: • vasopressors, • surgery, ventilator use, • prone position ventilation, • higher APACHE II/III Scale score, and • higher score SOFA Scale score. <i>See guideline chapter on device related pressure injuries.</i>			
RKSP7.1 Prevention	Regardless of age or clinical setting, an individual should be considered at risk of a PI as soon as a device has been applied.	Clarifier	Supported by Tier 1,2,3 evidence	N/A
RKSP7.2 Prevention	General categories of risk for DRPI include the (1) design and materials used to make the device, (2) how the device is fitted, secured and monitored, (3) characteristics of the interface between the device and skin (e.g., adhesive, pressure points, heat and moisture), and (4) intrinsic patient tissue tolerance factors.	Clarifier	Supported by Tier 1,2,3 evidence	N/A
RKSP7.3 Prevention	Constellations of risk factors may vary depending on the device.	Clarifier	Supported by Tier 3 evidence	N/A

Skin and Tissue Assessment

SKIN AND TISSUE ASSESSMENT				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
*STA1	It is good practice to include feedback from the individual and carer, and to use a range of assessment techniques to comprehensively assess the skin and soft tissues. Assessment techniques should be appropriate to the individual's skin characteristics and tone, risk profile, clinical condition and care setting and age group and may include: • Comprehensive visual skin assessment with a focus on bony prominences and under medical devices, • Finger/transparent disc press for blanching or non-blanching erythema,	GPS	Supported by 3C evidence and clinical expertise	N/A

SKIN AND TISSUE ASSESSMENT				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
	- Inspection, touch and palpation for changes in skin and tissue temperature (warmer from inflammation or cooler from ischemia), texture and consistency (harder or softer than normal tissue), and presence of scar tissue, - Assessment for localized pain at bony prominences/pressure points and under medical devices, and - Assessment for changes in skin color in comparison to surrounding skin.			
STA2	It is good practice to assess the vascular/perfusion status of the lower limbs, feet and heels when performing a skin and tissue assessment.	GPS	Supported by 3C evidence and clinical expertise	N/A
STA2.1	Poor perfusion from peripheral arterial disease (or other causes) increases the risk of pressure injury; these areas require special attention during skin and tissue assessment.	Clarifier	Supported by 3C evidence and clinical expertise	N/A
STA2.2	Bedside assessment of perfusion status may include skin temperature, presence/absence of peripheral pulses, capillary refill time, changes in skin color or sensation and skin appearance. Thin, shiny skin and loss of leg hair are considered signs of peripheral arterial disease.	Clarifier	Supported by 3C evidence and clinical expertise	N/A
STA5	It is good practice to conduct a comprehensive, head-to-toe skin and tissue assessment for all individuals: - As soon as possible after admission/transfer to the healthcare service, - As a part of every pressure injury risk assessment, - Periodically as indicated by the individual's clinical status and evolving pressure injury risk, - Whenever the individual's clinical condition worsens, - When there is a transition of care (including completion of a surgical or radiological procedure) and - Prior to discharge from the care setting.	GPS	Clinical expertise	N/A
*STA6	It is good practice to inspect the skin over bony prominences/pressure points that are visible during repositioning.	GPS	Clinical expertise	N/A

Technologies to Assess Skin and Tissue

TECHNOLOGIES TO ASSESS SKIN AND TISSUE				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
*STA3	We suggest using results from a device that detects and measures focal edema as an adjunct to a visual and tactile skin and tissue assessment in individuals at risk of pressure injuries, where the technology is available and feasible to use.	Conditional recommendation	Very low Supported by Tier 1, 2, 3 evidence	↑
*STA4	It is good practice to assess skin and tissue temperature as a part of a comprehensive assessment. Approaches include: • Skin: tactile assessment of skin temperature or, if available, supplemented with use of a skin temperature probe, or • Skin and underlying tissue: long wave infrared thermography with imaging where the technology is available and feasible to use.	GPS	Supported by Tier 3A, 3B, 3C evidence	N/A

Classification

CLASSIFICATION				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
CL1	It is good practice to differentiate pressure injuries from other types of wounds based on etiology and clinical characteristics.	GPS	Clinical expertise and indirect evidence	N/A
CL2	CL2: It is good practice to use a pressure injury classification system with clearly defined categories/stages to document the level of tissue damage. The classification system should include: • Category/Stage 1 • Category/Stage 2 • Category/Stage 3 • Category/Stage 4 • Unstageable • Suspected Deep Tissue Injury (sDTI)/ Deep Tissue Pressure Injury (DTPI). Mucosal Membrane Pressure Injuries (MMPI) should not be categorized or staged.	GPS	Clinical expertise and indirect evidence	N/A

CLASSIFICATION				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
CL3	It is good practice to verify that there is accuracy and clinical agreement in pressure injury classification amongst the health professionals responsible for classifying an individual's pressure injuries. Providing initial and ongoing education and clinical experience in pressure injury classification is essential for accurate pressure injury classification.	GPS	Supported by Tier 3C evidence	N/A
CL4	It is good practice to consistently use the pressure injury classification system adopted by your healthcare system.	GPS	Clinical expertise	N/A

Preventive Skin Care

PREVENTIVE SKIN CARE				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
SK1 Prevention	It is good practice to evaluate the skin regularly and to implement a structured skin care regimen.	GPS	Clinical expertise	N/A
SK2 Prevention	We suggest using a multilayered soft silicone foam dressing on sacrum and heels for individuals assessed as having a high risk of pressure injuries, where resources permit.	Conditional recommendation	Very low Supported by Tier 1 and 3A evidence	↑
SK3 Prevention	We suggest considering the use of low friction fabrics for individuals at risk of pressure injuries who are unable to reposition independently.	Conditional recommendation	Very low Supported by Tier 1, 3A and 3B evidence	↑
SK3.1 Prevention	Assess the individual's activity and mobility levels regularly and evaluate the safety of low friction fabrics as their degree of level of activity and mobility increase (i.e. increased risk of falls).	Clarifier	Clinical expertise	N/A
SK4 Prevention	We make no recommendation on the routine use of leave-on topical skin products to prevent pressure injuries.	No recommendation	Extremely low confidence in effect estimates. Unclear mechanism of action.	↔

Nutrition in Pressure Injury Prevention and Treatment

NUTRITION IN PRESSURE INJURY PREVENTION AND TREATMENT				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
N1 Prevention	It is good practice to conduct nutrition screening for individuals at risk of a pressure injury.	GPS	Supported by Tier 3 evidence	N/A
N2 Both	It is good practice to conduct a comprehensive nutrition assessment for individuals with a pressure injury and for individuals at risk of a pressure injury who are screened to be at risk of malnutrition. Use the findings to develop an individualized nutrition care plan.	GPS	Supported by Tier 3 evidence	N/A
N3 Both	It is good practice to encourage individuals with or at risk of a pressure injury to consume a balanced diet that includes nutrient dense food and adequate hydration.	GPS	Clinical expertise	N/A
N4 Prevention	We suggest that nutritional supplementation be implemented for individuals at risk of pressure injuries who have been identified as malnourished or at risk of malnutrition when nutritional needs are not met by usual dietary intake.	Conditional recommendation	Very low Supported by Tiers 1, 2, 3A evidence	↑
N5 Prevention	We suggest implementing protein supplementation for individuals at risk of pressure injuries who have been identified as malnourished or at risk of malnutrition.	Conditional recommendation	Very low Supported by Tiers 1, 2, 3A evidence	↑
N6 Prevention	We suggest that carbohydrate-based energy and micronutrient supplementation should be reserved for individuals at risk of pressure injuries and with known malnutrition or micronutrient deficiencies, in addition to supplementation that meets their protein needs.	Conditional recommendation	Very low Supported by Tiers 1, 2, 3A evidence	↑
*N7 Prevention	We recommend against tube feeding for the specific purpose of preventing pressure injuries in individuals with or at risk of malnutrition and at pressure injury risk.	Strong recommendation	Very low Supported by Tiers 1, 2, 3A evidence	↓↓
N7.1 Prevention	This recommendation is not intended for individuals who are receiving tube feeding as a part of their usual clinical care, critically ill individuals, or for pediatric and neonatal populations for whom tube feeding is a requirement.	Clarifier	Supported by Tier 3 evidence and clinical expertise	N/A

NUTRITION IN PRESSURE INJURY PREVENTION AND TREATMENT				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
*N8 Both	It is good practice to make every reasonable effort to maintain and promote oral nutrition. When oral intake is inadequate, providers should not presume that there is an imperative to implement tube feeding; any decision should be preceded by a comprehensive, multidisciplinary assessment of goals of care, benefits, risks and preferences related to the individual.	GPS	Supported by Tier 3 evidence and clinical expertise	N/A
*N9 Treatment	We suggest offering nutritional supplementation with energy, protein and micronutrients for adults with a PI to promote healing.	Conditional recommendation	Low Supported by Tier 1,2,3 evidence	↑
*N10 Treatment	We suggest offering a supplement containing protein, micronutrients, arginine and zinc for adults with a PI to promote healing.	Conditional recommendation	Very Low Supported by Tier 1,2,3 evidence	↑
*N11 Treatment	We make no recommendation on collagen supplementation for adults with a PI to promote healing.	No recommendation	Moderate Small effect size, wide CI, low sample and events.	↔

Repositioning and Mobilization

REPOSITIONING AND MOBILIZATION – PREVENTION AND TREATMENT				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
R1 Both	It is good practice to reposition individuals with or at risk of pressure injuries regardless of the type of pressure redistribution full body support surface being used. The interval between repositioning might be adjusted depending on the pressure redistribution capabilities of the support surface and the individual's response. However, no support surface can entirely replace repositioning.	GPS	Supported by Tier 3 evidence and Clinical expertise	N/A
R2 Both	It is good practice to reposition the individual in such a way that optimal offloading of pressure points and maximum redistribution of pressure are achieved.	GPS	Supported by Tier 3 evidence and Clinical expertise	N/A
R3 Both	It is good practice to use specialized equipment designed to reduce friction and shear when repositioning individuals. If manual handling is necessary, techniques	GPS	Supported by Tier 3 evidence and Clinical expertise	N/A

REPOSITIONING AND MOBILIZATION – PREVENTION AND TREATMENT				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
	that minimize friction and shear should be applied.			
R4 Both	It is good practice to reposition all individuals with or at risk of pressure injuries using an individualized regimen.	GPS	Supported by Tier 3 evidence and Clinical expertise	N/A
R5 Both	It is good practice to determine appropriate and individualized repositioning intervals based on comprehensive assessments of the individual's: • level of activity and mobility, • ability to independently reposition, • skin and tissue tolerance, • clinical condition, • comfort, • sleep patterns, • goals of care, and • the support surface in use.	GPS	Supported by Tier 3 evidence and Clinical expertise	N/A
R6 Prevention	It is good practice to assess for signs of early skin and tissue injury that may mean the individual requires more frequent repositioning or preferential positioning off damaged areas.	GPS	Supported by Tier 3 evidence	N/A
*R7 Prevention	We suggest that either repositioning at two hourly or three hourly intervals could be implemented for most individuals at risk of pressure injuries, if they are also on an appropriate pressure redistribution full body support surface.	Conditional Recommendation	Very low Supported by Tiers 1 and 3A evidence	↑
R7.1 Prevention	Individualize frequency of repositioning based on a clinical assessment, as specified in the good practice statements.	Clarifier	Clinical expertise	N/A
R7.2 Prevention	Critically ill individuals or others with systemic hypoperfusion or shock states may require more frequent, incremental repositioning and supplementation of full body repositioning with assisted small shifts in body position.	Clarifier	Clinical expertise and indirect evidence	N/A
*R7.3 Prevention	Individuals receiving palliative or end of life care should be given the option of repositioning frequency intervals that are best suited to their goals of care and comfort needs, and with full knowledge of pressure injury risk incurred with less frequent repositioning.	Clarifier	Clinical expertise	N/A
*R8	We suggest <u>not</u> routinely extending repositioning intervals to four, five or six	Conditional recommendation	Very low Supported by Tiers 1 and 3A evidence	↑

REPOSITIONING AND MOBILIZATION – PREVENTION AND TREATMENT				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
Prevention	hourly for individuals at risk of pressure injuries.			
R.8.1 Prevention	Progressive extension of repositioning intervals may be appropriate for some individuals based on decreasing pressure injury risk, increased capacity for effective self-repositioning and maintenance of normal skin and tissue status.	Clarifier	Supported by Tier 1 and 3A evidence	N/A
R9 Prevention	It is good practice to initiate frequent, small and incremental shifts (micromovements) in body position for critically ill individuals who are too unstable to maintain a regular repositioning regimen, and to supplement regular repositioning.	GPS	Clinical expertise and Tier 3C evidence	N/A
R10 Prevention	We suggest using 30-degree lateral positioning to prevent pressure injury occurrence in individuals at risk for pressure injuries.	Conditional recommendation	Very low Supported by Tiers 1 and 3A evidence	↑
*R10.1 Prevention	Individualize turning angles to ensure maximum offloading of both the sacrum and the trochanter. 30-degree lateral positioning may not be maintainable or adequately offload the sacrum in individuals with higher body mass index. Modifying to a 40-degree lateral position might be necessary.	Clarifier	Clinical expertise	N/A
*R10.2 Prevention	In pre-adolescent children, a 30-degree turn is equivalent to a full body turn due to their smaller body width.	Clarifier	Clinical expertise	N/A
R11 Prevention	We suggest that the head-of-bed elevation be maintained at 30-degrees or lower to prevent pressure injury occurrence; however, higher head-of-bed elevation may be required in some clinical situations (e.g. individuals at higher risk for aspiration).	Conditional recommendation	Low Supported by Tiers 1 and 3A evidence	↑
R12 Prevention	It is good practice to select a prone position when required by the individual's medical condition, and to cease prone positioning as soon as clinically appropriate.	GPS	Supported by Tier 3 evidence	N/A
R13 Prevention	It is good practice to provide education to the individual and their informal carers on: - the rationale for repositioning, - its significance in preventing pressure injuries, and	GPS	Supported by Tier 3 evidence	N/A

REPOSITIONING AND MOBILIZATION – PREVENTION AND TREATMENT				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
	strategies to safely and regularly implement repositioning.			
R14 Prevention	It is good practice to implement repositioning reminder strategies to promote adherence to repositioning regimens.	GPS	Supported by Tier 3A evidence	N/A
R15 Prevention	We suggest that a sensor system that monitors the individual's movement could be used to assist in evaluating repositioning needs for individuals at risk of pressure injuries when resources permit.	Conditional recommendation	Very low Supported by Tiers 1, 3A and 3B evidence	↑
R16 Prevention	We suggest that an early mobilization program be implemented in individuals at risk for pressure injuries based on the individual's activity tolerance.	Conditional recommendation	Very low Supported by Tiers 1, 3A and 3B evidence	↑

Full Body Support Surfaces

FULL BODY SUPPORT SURFACES FOR PREVENTION AND TREATMENT OF PRESSURE INJURIES				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
SS1 Both	It is good practice for organizations to maintain an inventory of, or access to, a range of full body support surfaces appropriate to the clinical context. The inventory should be maintained, stored and used in accordance with manufacturer recommendations.	GPS	Clinical Expertise	N/A
SS2 Both	It is good practice to use a full body support surface or integrated bed system that appropriately accommodates the weight, height, size and body mass distribution of the individual.	GPS	Clinical Expertise	N/A
*SS3 Prevention	We recommend using a pressure redistribution foam (reactive) full body support surface for individuals at risk of pressure injuries.	Strong recommendation	Low Supported by Tiers 1, 2, 3A evidence	↑↑
SS4 Prevention	It is good practice to consider the following factors when selecting or changing the mattress, overlay or integrated bed support surface the individual's: - overall risk of pressure injuries, - response of the skin and tissues,	GPS	Clinical expertise	N/A

FULL BODY SUPPORT SURFACES FOR PREVENTION AND TREATMENT OF PRESSURE INJURIES				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
	- independence, mobility and activity needs, - posture and sleeping position and their effects on pressure redistribution, - need for microclimate management and shear reduction features, and - preferences and care goals.			
Note: Prevention	S5 through S11 recommendations are based on meta-analyses for a series of paired comparisons between two support surfaces for prevention. If changing from pressure redistribution foam, consider alternating pressure air (active) (SS6), air reactive (not including low air loss) (SS5), low air loss with microclimate management (SS11), or air fluidized in special situations (SS10).			
SS5 Prevention	We suggest using either air (reactive) full body support surfaces or pressure redistribution foam (reactive) full body support surfaces for individuals at risk of pressure injuries.	Conditional recommendation	Very low Supported by Tiers 1, 2, 3A evidence	↑
SS6 Prevention	We suggest using either alternating pressure air (active) full body support surfaces or pressure redistribution foam (reactive) full body support surfaces for individuals at risk of pressure injuries.	Conditional recommendation	Low Supported by Tiers 1, 2, 3A evidence	↑
SS7 Prevention	We suggest using either alternating pressure (active) air or air (reactive) full body support surfaces for individuals at risk of pressure injuries.	Conditional recommendation	Very low Supported by Tiers 1, 2, 3A evidence	↑
SS8 Prevention	We suggest a medical grade sheepskin could be used for individuals at risk of pressure injuries where geographically available. If used, consider the potential impact on the full body support surface.	Conditional recommendation	Very low Supported by Tiers 1, 2, 3A evidence	↑
SS8.1 Prevention	A medical grade sheepskin is not recommended when there is a full body support surface with pressure redistribution properties available.	Clarifier	Clinical expertise	N/A
SS8.2 Prevention	Only medical grade sheepskins should be used. Non-medical grade sheepskins do not have the same microclimate management properties and may increase the risk of PIs.	Clarifier	Clinical expertise and testing conditions	N/A
SS8.3 Prevention	Ensure that medical grade sheepskin overlays do not interfere with the pressure redistribution properties of the full body support surface.	Clarifier	Clinical expertise	N/A
SS9	We suggest a fiber support surface <u>is not used</u> to prevent pressure injuries in	Conditional recommendation	Very low	↑

FULL BODY SUPPORT SURFACES FOR PREVENTION AND TREATMENT OF PRESSURE INJURIES				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
Prevention	individuals at risk in settings where a pressure redistribution foam (reactive) full body support surface is available.		Supported by Tiers 1, 2, 3A evidence	
SS10 Prevention	We suggest an air fluidized full body support surface <u>is not routinely used</u> to prevent pressure injuries in individuals at risk.	Conditional recommendation	Very low Supported by Tiers 1, 2, 3A evidence	↑
SS10.1 Prevention	An air fluidized full body support surface might be considered for individuals at very high pressure injury risk (e.g., those who are immobilized with extensive burns) or who have previously experienced a full thickness pressure injury on a different full body support surface.	Clarifier	Clinical expertise	N/A
SS10.2 Treatment	Air fluidized full body support surfaces might be used for individuals with existing full thickness pressure injuries or following surgical reconstruction with flaps/grafts.	Clarifier	Supported by Tier 3B evidence	N/A
SS11 Prevention	We suggest a low air loss (reactive) full body support surface could be used for individuals at risk of pressure injuries, especially when moisture and heat at the skin-surface interface are contributing factors.	Conditional recommendation	Very low Supported by Tiers 1, 2, 3A evidence	↑
SS12 Treatment	It is good practice to re-evaluate the full body support surface for an individual who has experienced an immobility-related pressure injury. At a minimum, an individual with a pressure injury requires a pressure redistribution foam (reactive) support surface.	GPS	Clinical expertise	N/A
*SS13 Treatment	We suggest using either pressure redistribution foam (reactive) full body support surfaces or alternating pressure air (active) full body support surfaces for individuals with Category/Stage II–IV pressure injuries and unstageable pressure injuries.	Conditional recommendation	Very low Supported by Tiers 1, 3A evidence	↑
SS14 Treatment	We suggest using either pressure redistribution foam (reactive) full body support surfaces or water filled (reactive) full body support surfaces for individuals with Category/Stage II–IV and unstageable pressure injuries.	Conditional recommendation	Very low Supported by Tier 3A evidence	↑
*SS15 Treatment	We suggest using low air loss full body support surfaces for individuals with	Conditional recommendation	Very low Supported by Tier 3A evidence	↑

FULL BODY SUPPORT SURFACES FOR PREVENTION AND TREATMENT OF PRESSURE INJURIES				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
	Category/Stage II–IV and unstageable pressure injuries.			
*SS16 Treatment	We suggest using air fluidized full body support surfaces for individuals with Category/Stage II–IV pressure injuries, unstageable pressure injuries and suspected deep tissue pressure injuries.	Conditional recommendation	Very low Supported by Tier 3A, 3C evidence	↑
SS17 Both	It is good practice to use a full body support surface with pressure redistribution features for medical procedures and for an individual with or at risk of pressure injuries in transit.	GPS	Supported by Tier 3C evidence	N/A
SS18 Prevention	It is good practice to transfer the individual off a spinal hard board/backboard as soon as medically feasible after admission, in consultation with a qualified health professional.	GPS	Supported by Tier 3C evidence	N/A

Pressure Injuries in Seated Individuals

PRESSURE INJURIES IN SEATED INDIVIDUALS – PREVENTION AND TREATMENT				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
S1 Prevention	It is good practice to consider the following factors when selecting a chair or wheelchair that meets the individual's needs for pressure redistribution and shear reduction: - the individual's overall risk of pressure injuries, - independence, mobility and activity needs, - body size, shape and weight distribution, - posture, deformity and asymmetry and its effect on pressure distribution, - need for enhanced features (e.g. dynamic weight shifting), - the individual's preferences and care goals.	GPS	Supported by Tier 3 evidence	N/A

PRESSURE INJURIES IN SEATED INDIVIDUALS – PREVENTION AND TREATMENT				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
S2 Prevention	We recommend using a seating support surface with pressure redistribution properties for individuals at risk of pressure injuries when in a seated position.	Strong recommendation	Moderate Supported by Tiers 1 and 3A evidence	↑↑
*S3 Both	We suggest that duration of sitting out of bed should be limited as much as possible for individuals with or at risk of pressure injuries who cannot reposition themselves while seated.	Conditional Recommendation	Very Low Supported by Tier 1 and 3A evidence	↑
S3.1 Both	Use an appropriate seating support surface in all settings.	Clarifier	Supported by Tier 3 evidence	N/A
S3.2 Both	Adapt this recommendation to the individual's setting, ability to reposition and tissue tolerance.	Clarifier	Supported by indirect evidence & clinical expertise	N/A
S3.2.1 Both	Acute care: During the initial phases of recovery from debilitating injury or following surgical repair of a pressure injury (i.e., flap surgery) duration of sitting may be more limited.	Clarifier	Supported by indirect evidence & clinical expertise	N/A
S3.2.2 Both	Rehabilitation: Sitting times can gradually increase as tissue tolerance and ability to self-reposition improve.	Clarifier	Supported by indirect evidence & clinical expertise	N/A
S3.2.3 Both	Community: Long term wheelchair users should individualize seating times balancing tissue tolerance to seating, ability to reposition while seated, lifestyle choices and quality of life.	Clarifier	Supported by indirect evidence & clinical expertise	N/A
S4 Both	It is good practice to frequently reposition individuals with or at risk of pressure injuries who are seated out of bed. Teach and encourage independent chair/wheelchair users to reposition as often as possible by performing pressure redistribution maneuvers and weight shifts that redistribute pressure as much as possible.	GPS	Supported by indirect evidence & clinical expertise	N/A
S5 Both	It is good practice to position seated individuals in such a way that reduces pressure, shear and friction. This includes: - selecting a chair or wheelchair that provides support and maintains stability, - selecting a reclined seated position in which the individual's legs are elevated and supported so the heels are free from the support surface or, if reclining is not appropriate or possible, ensuring that the individual's feet are well-supported, and/or	GPS	Supported by indirect evidence & clinical expertise	N/A

PRESSURE INJURIES IN SEATED INDIVIDUALS – PREVENTION AND TREATMENT

No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
	using dynamic weight shifting (tilt and recline).			

Preventing Heel Pressure Injuries**PREVENTING HEEL PRESSURE INJURIES**

No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
H1 Prevention	It is good practice to elevate the heels of individuals at risk of pressure injuries, so the heels are not in contact with the support surface.	GPS	Supported by Tier 3 evidence	N/A
*H2 Prevention	We suggest using a heel offloading device that is appropriate to the individual's mobility and activity level.	Conditional recommendation	Very low Supported by Tiers 1 and 3A evidence	↑
H3 Prevention	It is good practice to elevate the heels of individuals at risk of pressure injuries using standard pillows or cushions with sufficient height to ensure the heels are not in contact with the support surface, if a heel offloading device is not available or is inappropriate for the individual's activity and mobility level.	GPS	Supported by indirect evidence & clinical expertise	N/A
H4 Prevention	We suggest that a preventive dressing could be used as an adjunct to heel elevation and regular repositioning for preventing heel pressure injuries, where resources permit.	Conditional recommendation	Low Supported by Tiers 1, 2, 3A evidence	↑
H5 Prevention	We suggest that if a preventive dressing is used for the heels, a soft silicone adhesive multilayered foam dressing should be selected.	Conditional recommendation	Very Low Supported by Tiers 1, 2, 3A evidence	↑
H6 Prevention	We make no recommendation on whether a leave-on topical product should be used to prevent heel pressure injuries.	No recommendation	Extremely low confidence in effect estimates. Unclear mechanism of action.	N/A

Device Related Pressure Injuries

DEVICE RELATE PRESSURE INJURY				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
*DRPI1 Prevention	It is good practice to select a medical device with consideration to its: - design and construction material, - correct sizing/shape for the individual, and - ability to be correctly applied and secured.	GPS	Supported by indirect evidence & clinical expertise	N/A
*DRPI2 Prevention	It is good practice to regularly assess for signs of early skin, tissue and mucus membrane injury by checking underneath and around medical devices and their securements.	GPS	Supported by indirect evidence & clinical expertise	N/A
*DRPI3 Prevention	It is good practice to reduce and/or redistribute pressure at the skin-device interface by: - removing the medical device as soon as medically feasible, - regularly repositioning the medical device, its securements and/or the individual, - physically supporting the medical device in order to minimize pressure and shear, and/or - alternating the type of device in use when possible.	GPS	Supported by indirect evidence & clinical expertise	N/A
*DRPI4 Prevention	We suggest using an endotracheal tube fixation device to secure an endotracheal tube.	Conditional recommendation	Very Low Supported by Tiers 1 and 3B evidence	↑
DRPI4.1 Prevention	Do not use an endotracheal tube fixation device when the individual is in the prone position.	Clarifier	Supported by Tier 3C evidence and clinical expertise	N/A
DRPI4.2 Prevention	The evidence was specific to adult individuals.	Clarifier	Clinical expertise	N/A
DRPI5 Prevention	It is good practice to manage moisture at the skin-device interface.	GPS	Supported by Tier 3C evidence	N/A
*DRPI6 Prevention	We recommend using a preventive dressing underneath medical devices when the preventive dressing will not	Strong Recommendation	Very Low Supported by Tiers 1 and 3A evidence	↑↑

DEVICE RELATE PRESSURE INJURY				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
	interfere with the position or functionality of the medical device.			

Supporting Wound Healing

Supporting Wound Healing				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
WC1 Treatment	It is good practice to: - Assess the individual, including risk factors for poor healing and any underlying causes of the pressure injury, - Assess the existing pressure injury prevention planning and implementation, especially in relation to pressure redistribution and nutrition, - Assess the wound bed and edge, periwound and surrounding skin and soft tissue, - Select a uniform, consistent method for measuring pressure injury size and surface area, - Assess for signs and symptoms of wound infection, - Set goals of care with the individual and their carer, - Develop a management plan to address modifiable factors that impact healing, and - Regularly reassess the individual and the pressure injury and then adjust management accordingly. See WC5 for additional information on frequency of reassessment.	GPS	Supported by Tier 3C evidence, evidence-based guidelines and clinical expertise	N/A
WC1.1 Treatment	The above practice should be implemented within frameworks and practices outlined in clinical guidelines for management of hard-to-heal/chronic wounds, using valid and reliable wound assessment tools and clinical judgement.	Clarifier	Clinical expertise	N/A

Supporting Wound Healing				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
WC2 Treatment	It is good practice to: • Address wound-related and procedural pain, • Cleanse the surrounding skin, • Therapeutically cleanse the wound bed and wound edge and periwound, • Implement wound debridement when consistent with the condition of the pressure injury and the goals of the individual, • Manage wound infection as required, • Re-establish the ideal wound edge as needed, • Select wound dressings to promote an optimal wound healing environment based on the condition(s) of the wound (e.g., balance moisture, control infection and inflammation, control odor, support autolytic debridement, redistribute heat and pressure, and relieve pain) and • Consider advanced interventions to promote tissue repair.	GPS	Supported by Tier 3C evidence, evidence-based guidelines and clinical expertise	N/A
WC2.1 Treatment	The above practice should be implemented within frameworks and practice outlined in clinical guidelines for management of hard-to-heal/chronic wounds.	Clarifier	Clinical expertise	N/A
WC3 Treatment	We suggest using negative pressure wound therapy to promote healing for Category/Stage 3 and 4 pressure injuries.	Conditional recommendation	Very low Supported by Tier 1, 2, 3A evidence	↑
WC4 Treatment	We suggest using electrical stimulation therapy as an adjunct to standard wound care to promote healing for Category/Stage 2 to 4 pressure injuries, and unstageable pressure injuries.	Conditional recommendation	Moderate Supported by Tier 1, 2, 3A evidence	↑
WC5 Treatment	It is good practice to: • Observe/inspect the physical characteristics of the PI and surrounding skin at each wound dressing change. ○ Follow-up with a more comprehensive wound assessment if signs of deterioration are observed during a wound dressing change (e.g., noticeable larger size, more exudate, more necrotic tissue or increased pain).	GPS	Supported by Tier 3C evidence, evidence-based guidelines and clinical expertise	N/A

Supporting Wound Healing				
No.	Recommendation or Good Practice Statement	Category	Certainty of Evidence	Strength of Recommendation
	○ Use the last documented wound assessment as a baseline. • Assess the pressure injury initially and reassess at least weekly using a consistent technique. • Monitor pressure injury healing progress using a tool designed for this purpose.			
WC6 Treatment	It is good practice to obtain a surgical consultation for an individual with a pressure injury that: • Has advancing cellulitis or is a suspected source of sepsis, • Has undermining, tunnelling, sinus tracts and/or extensive necrotic tissue not easily removed by conservative debridement, and/or • Is Category/Stage 3 or 4 and not closing with standard wound management within a defined period of time.	GPS	Supported by Tier evidence-based guidelines and clinical expertise	N/A

INTERPRETATION OF GRADE¹ GUIDELINE STATEMENTS

Guidance regarding “what to do” fall under one of four categories:

1. **Strong recommendation (We recommend...):** The guideline panel is confident that the desirable effects of an intervention outweigh its undesirable effects (strong recommendation for an intervention) or that the undesirable effects of an intervention outweigh its desirable effects (strong recommendation against an intervention). Note: Strong recommendations are not necessarily high-priority recommendations. A strong recommendation implies that most or all individuals will be best served by the recommended course of action. Requires Tier 1, 2, or 3A evidence.
2. **Conditional recommendation (We suggest...):** The guideline panel identifies some uncertainty concerning values and preferences or their variability among patients. The recommendation is a judgement that a majority of well-informed people would make, but a substantial minority would not. Requires Tier 1, 2, or 3A evidence.
3. **No recommendation (We make no recommendation on...):** Trade-offs between risk and benefit are unclear or there is a lack of agreement among voting participants. The advantages and disadvantages are equivalent, and/or the target population has not been identified, and/or there is insufficient evidence on which to formulate a strength of recommendation.
4. **Good Practice Statement (It is good practice to...):** After developing recommendations based on Tier 1, 2 and 3A evidence (i.e. meta-analysis, systematic reviews and RCTs), there are often remaining gaps between evidence and practice that leave important clinical questions unanswered. Good practice statement are designed to fill those gaps and are often supported by Tier 3B and 3C evidence.

Note: Both recommendations and good practice statements are interventions that the guideline panel approves for clinical practice, believing that these interventions will result in more good than harm for individuals with or at risk for pressure injuries.

Implementation consideration (how to do it):

Implementation considerations provide guidance on how a recommendation or Good Practice Statement should be implemented, for example describing how, when, where, who or how often to implement a recommended practice, or core principles to consider. The implementation considerations are based on comparative and observational studies, and the practical experience and knowledge of the Expert Panel Groups. To the extent possible, they also provide guidance for implementation considerations unique to special populations.

Levels of Evidence:

Tier 1: Meta-analysis providing an effect estimate

Tier 2: Systematic reviews reporting risk of bias assessments

Tier 3: Primary Research:

- 3A: Randomized controlled trial,
- 3B: Prospective controlled clinical trial.
- 3C: Controlled before-after study, interrupted time series with at least 3 data points pre and post intervention, repeated measures with at least 3 data points pre and post intervention, other studies designs that include groups defined by interventions that provide an effect size estimate (e.g., cohort studies).

Certainty of Evidence:

The certainty of evidence refers to the confidence that effect estimates fall within a specific range or above/below a particular threshold of interest. The GRADE system rates the certainty in an outcome across the available body of evidence, rather than per individual study. Certainty of evidence is downgraded for risk of bias, imprecision,

¹ Grading of Recommendations Assessment Development and Evaluation

inconsistency, indirectness and publication bias; and upgraded for large magnitude of effect, dose-response gradient and opposite residual confounding. There are four levels of certainty of evidence:

- **High certainty:** High confidence that the true value of the estimate is on one side of a threshold or within a specific range.
- **Moderate certainty:** Moderate confidence that the true value may deviate slightly from the target of the certainty rating.
- **Low certainty:** Low confidence that the true value may likely fall in a different range than the target.
- **Very-low certainty:** Very low confidence that the true value may significantly deviate from the target of the certainty rating.

Strength of Recommendation:

The strength of a recommendation reflects the extent to which the guideline panel is confident that desirable effects outweigh undesirable effects. This decision is made after considering and balancing all the criteria within the evidence to decision framework and is not based solely on certainty of evidence. The following factors are carefully balanced: certainty of evidence, strength of anticipated desirable and undesirable effects, balance of desirable and undesirable effects, resources required, incremental cost to net benefit, impact on health inequities, acceptability to stakeholders, and feasibility to implement. After balancing all factors, an intervention could potentially have a high certainty of evidence yet receive only a conditional recommendation because of a high rate of undesirable effects, high costs, and/or difficult implementation.

Types of Recommendations	Strength of Recommendation	Interpretation
Strong recommendation for intervention	↑↑	Indicates a judgement that most well informed people would make.
Strong recommendation against intervention	↓↓	
Conditional recommendation for intervention	↑	Indicates a judgement that most well informed people would make but a substantial majority would not.
Conditional recommendation against intervention	↓	
No recommendation	↔	Trade-offs between risk and benefit are unclear or there is a lack of agreement.

