

Selected Best Practices and Suggestions for Improvement

PDI 02: Pressure Ulcer

Why focus on pressure ulcers in children?

- Although children are typically more active and less chronically ill than adults, pressure ulcers can be a significant iatrogenic problem for chronically ill infants and children in pediatric health care settings.
- More than 50 percent of pressure ulcers in neonates and children are attributed to equipment and devices.¹
- Pressure ulcer rates are high in children, particularly those with high-risk conditions (e.g., spina bifida, cerebral palsy); studies have found rates ranging from 2.4 to 7.7 per 1,000 pediatric discharges (across all children).²⁻⁴ In subgroups at particular risk of pressure ulcers, such as children with spina bifida, rates can be as high as 43 percent.¹
- Pressure ulcers lead to significantly increased length of stay and cost, with one study finding an increased mean length of stay of 18 days and increased charges of \$85,344 in pediatric patients affected by pressure ulcers. Children with this complication also had higher odds of in-hospital mortality (3.5 times the odds of children without the complication), even after adjusting for numerous other risk factors.³
- Part of this excess cost is likely to be shouldered by hospitals, as the Centers for Medicare & Medicaid Services will not reimburse for stage III and IV pressure ulcers for Medicaid patients unless they are present on admission.⁵

Recommended Practice	Details of Recommended Practice
Skin Assessment at Admission and Daily, With Documentation of Lesions	Complete total skin assessment every 24 hours, with special attention to bony prominences, especially the coccygeal/sacral skin, heels, and skin adjacent to external devices. ⁶ Include in the medical record complete documentation of any pressure ulcer found. ^{1,7-12}
Pressure Ulcer Risk Assessment at Admission and Daily	Evaluate all patients for pressure ulcers and pressure ulcer risk (using Braden Q Scale, Glamorgan Scale, or other tool) upon admission and every 24 hours thereafter, using valid risk assessment, with results documented in the patient's chart. ^{1,7,9-12}
Repositioning of Patients Every 1 to 2 Hours and Promotion of Highest Level of Mobility	Use a turn schedule and appropriate repositioning techniques to turn patients every 1 to 2 hours to decrease the mechanical load for patients. ^{8,10,11}
Daily Rounds Assessment	Include in the daily rounds the following: (1) nutritional assessment to ensure adequate nutrition and hydration and (2) reassessment of the need for special pressure-distributing surfaces. ⁷⁻¹⁰

Best Processes/Systems of Care

Introduction: Essential First Steps

- Engage key nurses; physicians and other providers (including hospitalists); pharmacists; wound, ostomy, and continence nurses; inpatient units; and representatives from quality improvement and information services to develop evidence-based guidelines, care paths, or protocols for the full continuum of care for the prevention of pressure ulcers in children.¹⁰
- The above team:
 - Identifies the purpose, goals, and scope and defines the target population of this guideline.
 - Analyzes problems with guideline compliance, identifies opportunities for improvement, and communicates best practices to frontline nurses.
 - Establishes measures that will tell if changes are leading to improvement.
 - Agrees on the use of a standard risk assessment tool (for example, Braden Q Scale); facilities may adapt the tool to allow for easy completion, using check boxes and short phrases to ensure completion.¹²

Recommended Practice: Skin Assessment at Admission and Daily, With Documentation of Lesions

- Determine organizational policy for the frequency of skin checks (at least once daily).
- Assign responsibility to staff for skin checks and repositioning of patients.
- Give all patients a head-to-toe skin inspection at admission and at least once a day, paying particular attention to bony prominences and skin adjacent to external devices.^{1,6-12}
 - Pay particular attention to the occiput, which is the most common site for pressure ulcer development in small, young children. In older, larger children, the sacral area is most at risk.^{1,12}
 - Include a visual cue on each admission documentation record for the completion of a total skin assessment and risk assessment.^{11,12}
 - Educate professionals on how to undertake a comprehensive skin assessment that includes techniques for identifying blanching response, localized heat, edema, and induration (hardness).^{9,11}
 - Ensure that skin inspection includes assessment for localized heat, edema, or induration (hardness), especially in individuals with darkly pigmented skin.⁸
 - Ask patients and/or caregivers, as appropriate, to identify any areas of discomfort or pain that could be attributed to pressure damage.⁹⁻¹¹
 - Observe the skin for pressure damage caused by medical devices. Pediatric patients on continuous positive airway pressure (CPAP) need particular attention to their nares and nasal septum.^{1,9,10}
- Document results of the skin inspection in the medical record, including skin temperature, skin color, skin texture/turgor, skin integrity, and moisture status.⁷⁻¹¹

- Identify and stage all pressure ulcers according to the National Pressure Ulcer Advisory Panel criteria. Also include the following^{1,7,10}:
 - Location
 - Tissue type
 - Shape
 - Size
 - Presence of sinus tracts/tunneling
 - Undermining
 - Exudate amount and type
 - Presence/absence of infection
 - Wound edges

Recommended Practice: Pressure Ulcer Risk Assessment at Admission and Daily

- Determine which pressure ulcer risk assessment will be used as the standard in your organization. Use a risk assessment tool with established validity and reliability, such as the Braden Q Scale or Glamorgan Scale.^{1,7,8,12}
- Include in the pressure ulcer prevention protocol that a risk assessment should be completed at admission, daily, and when the patient's status changes (e.g., moving to a different level of care).^{1,8-11}
- Assign responsibility for conducting a pressure ulcer risk assessment at admission and when the patient's status changes.
- Know the risk factors in the pediatric population for developing pressure ulcers, which include¹²:
 - Significant prematurity.
 - Critical illness.
 - Neurologic impairments (myelomeningocele and spinal cord injury).
 - Nutritional deficits, poor tissue perfusion or oxygenation.
 - Exposure to prolonged pressure from hospital apparatus or tubes.
- Document risk assessment results in the medical record.⁹⁻¹¹

Recommended Practice: Repositioning of Patients Every 1 to 2 Hours and Promotion of Highest Level of Mobility

- Have senior leaders ensure that staff can access the appropriate resources to help increase mobility.
- Educate caregivers to promote the highest possible level of patient mobility.⁷
- Maintain head of bed at the lowest point consistent with patient's medical condition.^{7,10,11}
- Schedule regular turning and repositioning for bedbound and chairbound patients every 1 to 2 hours.^{7,8,10}
 - Frequency of repositioning will be influenced by variables such as the individual's tissue tolerance, his/her level of activity and mobility, his/her general medical condition, overall treatment objectives, and assessments of the individual's skin condition.^{7,9}

- Record repositioning regimens, specifying frequency and position adopted, and include an evaluation of the outcome of the repositioning regimen.⁹

Recommended Practice: Daily Rounds Assessment

- For patients at risk, perform a nutritional assessment at entry to a new health care setting and whenever the patient's status changes.^{1,7,9,10,12}
- For patients at risk, develop a reliable process for consulting a dietitian when nutritional elements could contribute to risk of nutritional deficiencies.^{1,9-11}
 - Ensure fluid balance by providing fluids and supplements as appropriate.^{9,10}
- Give nutritional supplements only to at-risk patients with identified nutritional deficiencies.^{10,13}
- Attempt to redistribute pressure on the skin of a pediatric patient.
 - Consider placing at-risk pediatric patients on a pressure-reducing surface rather than a standard hospital mattress.^{7,8-11}
 - Consider the use of foam overlay to reduce occipital pressures in children. For children over the age of 2, consider also using a gel pillow.¹
- Avoid surfaces designed for adults:
 - Many times, children are placed on support surfaces designed and indicated for adults. Due to few pediatric studies, it is undetermined if this is a current safe practice.^{1,12}
 - Low-air-loss beds designed for adults cannot accommodate infants and small children due to their height and weight.¹
- Triage use of pressure-redistributing beds and mattresses.⁹
- Frequent skin assessments under pediatric-specific devices are important preventive measures. Consider specifically including the following in organizational protocols:
 - Pediatric blood pressure cuffs
 - Transcutaneous oxygen pressure probes
 - Tracheostomy plates
 - Nasal prong and CPAP masks
 - IV dressing/IV caps
 - Arm boards, plaster casts, and traction boots
 - Orthotics
 - Wheelchairs and wheelchair cushions (must be frequently readjusted in growing children)
- Ensure that beds, cribs, and isolettes are inspected so that tubing, leads, toys, and syringe caps are not under or on top of patient's skin. The skin around nasogastric and orogastric tubes, head dressings, and hats should be assessed for pressure damage.⁷
- Ensure a reliable process for redistributing pressure (e.g., use a turn clock as a reminder to staff, implement turn rounds).

Educational Recommendation

- Educational programs for the prevention of pressure ulcers should be structured, organized, and comprehensive and should occur upon hire, annually, and when this protocol is added to job responsibilities.
- Programs should be directed to all health care providers in preventing ulcers. Education should also be directed toward patients, families, and patients' caregivers.^{10,11}

Effectiveness of Action Items

- Track compliance with elements of established protocol steps.^{10,11}
- Evaluate effectiveness of new processes, determine gaps, modify processes as needed, and reimplement.¹¹
- Develop a plan of action for staff in noncompliance.
- Provide feedback to all stakeholders (physician and other providers, nursing, and ancillary staff; senior medical staff; and executive leadership) on level of compliance with process.
- Conduct surveillance and determine prevalence of healthcare-associated pressure ulcers to evaluate outcomes of new process.¹¹
- Monitor and evaluate performance regularly to sustain improvements achieved.¹⁰

Additional Resources

Systems/Processes

- Agency for Healthcare Research and Quality. Preventing pressure ulcers in hospitals, a toolkit for improving quality of care
<http://www.ahrq.gov/professionals/systems/long-term-care/resources/pressure-ulcers/pressureulcertoolkit/index.html>
- How-to Guide: Prevent Pressure Ulcers. Cambridge, MA: Institute for Healthcare Improvement; 2014
www.ihc.org
- How-to Guide: Prevent Pressure Ulcers, Pediatric Supplement. Cambridge, MA: Institute for Healthcare Improvement; 2014
www.ihc.org
- AHRQ Health Care Innovations Exchange: Pediatric Skin Care Program Focuses on Proactively Identifying and Providing Preventive Therapy to At-Risk Intensive Care Unit Patients, Leading to Significant Reductions in Pressure Ulcers
<https://innovations.ahrq.gov/profiles/pediatric-skin-care-program-focuses-proactively-identifying-and-providing-preventive>

Policies/Protocols

- Perry D, Borchert K, Burke S, et al. Institute for Clinical Systems Improvement. Pressure Ulcer Prevention and Treatment Protocol. Updated January 2012
<https://www.icsi.org/asset/6t7kxy/>

Tools

- Braden Scale for Predicting Pressure Sore Risk
<http://www.bradenscale.com/images/bradenscale.pdf>

- Pressure Ulcer Scale for Healing (PUSH Tool)
<http://www.npuap.org/resources/educational-and-clinical-resources/push-tool/>
- Pressure Ulcer Training, National Database of Nursing Quality Indicators
<https://members.nursingquality.org/NDNQIPressureUlcerTraining/>
- Pressure Ulcer Prevention Quick Reference Guide, NPUAP and European Pressure Ulcer Advisory Panel
http://www.npuap.org/Final_Quick_Prevention_for_web_2010.pdf
- Pressure Ulcer Stages Revised by NPUAP
<http://www.npuap.org/national-pressure-ulcer-advisory-panel-npuap-announces-a-change-in-terminology-from-pressure-ulcer-to-pressure-injury-and-updates-the-stages-of-pressure-injury/>

Staff Required

- Physicians and other providers (dermatology, family practice, pediatrics, internal medicine)
- Nurses
- Nursing assistants
- Relevant consultants (occupational therapy, physical therapy, enterostomal therapy, wound specialists, etc.)
- Dietitians

Equipment

- Access to equipment (therapeutic surfaces)

Communication

- Systemwide education on protocol
- Education on how to use the risk assessment accurately and reliably; requires staff development and competency testing in most organizations

Authority/Accountability

- Senior leadership mandating protocol for all providers

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