Actionable Patient Safety Solutions™ (APSS™):

Pressure Ulcers

How to use this guide

This APSS provides evidence-based actions and resources for executives, leaders, clinicians, and performance improvement specialists. This document is intended to be used as a guide for healthcare organizations to examine their own workflows, identify practice gaps, and implement improvements. In it, you'll find:

Best Practice Summary: A high level summary of evidence-based, clinical best practices. (page 2)

Executive Summary: Executives should understand the breadth of the problem and its clinical and financial implications. (page 3)

Leadership Checklist: This section is for senior leaders to understand common patient safety problems and their implications related to pressure ulcers. Most preventable medical harm occurs due to system defects rather than individual mistakes. Leaders can use this checklist to assess whether best practices are being followed and whether action is needed in their organization around pressure ulcers prevention. (page 3)

Clinical Workflow: This section includes more specific information about pressure ulcer prevention across the continuum of care. Leaders should include the people doing the work in improving the work. This section outlines what should be happening on the frontline. Clinicians can use this section to inform leaders whether there are gaps and variations in current processes. This is presented as an infographic that can be used for display in a clinical area. (page 4)

Education for Patients and Family Members: This section outlines what frontline healthcare professionals should be teaching patients and family members about pressure ulcer prevention. Clinicians can inform leaders whether there are gaps and variations in the current educational processes. (page 4)

Performance Improvement Plan: If it has been determined that there are gaps in current practice, this section can be used by organizational teams to guide them through an improvement project. (page 5)

What We Know about Pressure Ulcer Prevention: This section provides additional detailed information about pressure ulcers. (page 8)

Resources: This section includes helpful links to free resources from other groups working to improve patient safety. (page 9)

Endnotes: This section includes the conflict of interest statement, workgroup member list, and references. (page 10)

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Patient Safety MOVEMENT

Best Practice Summary

Admission

- ☐ Perform a risk and skin assessment within four hours of admission, including stay in the emergency department prior to admission. Use the organization's standard assessment tool (e.g., Braden scale).
- ☐ Consider including a visual document/photo on each admission record for the total skin assessment.

Routine Care

To prevent pressure ulcers,:

- ☐ Reassess pressure ulcer risk and skin for all patients at least daily (every 24 hours). Use tools to understand severity for different types of skin tones.
- ☐ Keep patient's skin dry, moisturized, and clean.
- ☐ Minimize exposure of skin to moisture from sources such as perspiration, wound drainage, and excrement. If this is not possible, use absorbent underpads and ensure that skin is cleansed at the time of soiling using mild cleansing agents.
- ☐ Have supplies available at the bedside for each at-risk patient if they are incontinent.
- ☐ Ensure proper nutrition and hydration.
- ☐ Adapt a reposition treatment plan individualized for each patient according to risk.
- ☐ Encourage mobility to the extent of which the patient is capable. See Early Mobility Management APSS.
  - ☐ Use lift devices or draw sheets to move patients with limited mobility.
  - ☐ Take caution to avoid dragging or pushing into the patient's skin when moving.
- ☐ Use pillows under heels and bony prominences to redistribute pressure.
- ☐ Involve patients and family members in pressure ulcer prevention. See "Education for Patients and Family Members" section.

If a pressure ulcer develops,:

- ☐ Order a wound consult.
- ☐ Select the appropriate dressing. See page 43 of the NPUAP/EPUAP/PPPIA guidelines for selection instructions.
- ☐ Cleanse the ulcer with a nontoxic solution, such as normal saline, at every dressing change. Cleanse the surrounding area.
- ☐ Classify the pressure ulcer using tools such as the National Pressure Ulcer Staging System (US) or the International NPUAP/EPUAP Pressure Ulcer Classification System.
- ☐ For every dressing change, evaluate the need for a change in treatment.
- ☐ Document all results of the wound assessment, including location, category/stage, size, tissue type, color(s), wound edges, condition of skin around the wound, and odor.
- ☐ Remain vigilant for pressure ulcer-related infection. See page 41 of the NPUAP/EPUAP/PPPIA guidelines for instructions to prevent and treat infection.
- ☐ Consider possible alleviations, including physical therapy, muscle relaxants, pressure redistributing devices, negative pressure wound therapy, debridement, and dressings, such as alginate dressings, hydrocolloid dressings, foams, and/or gels.

Discharge:

- ☐ Document risk and skin assessment for the receiving facility.
- ☐ Coordinate supplies for pressure ulcer prevention and treatment for at-risk patients.
- ☐ Spend time with the patient and family members in the days leading up to discharge to ensure all understand the importance of pressure ulcer prevention, daily steps to prevent pressure ulcers, and the patient-specific risk factors. See "Education for Patients and Family Members" section.

Executive Summary

The Problem

Pressure ulcers impact 2.5 million in the US each year and are prevalent in 18.1% of patients in European countries. It has been shown that only 9.7% of patients were at risk for pressure ulcers received adequate preventive care (Vanderwee, Clark, Dealey, Gunningberg, & Defloor, 2007).

The Cost

In the US alone, pressure ulcers cost between $9.1-11.6 billion annually. Per patient, this cost can range from $20,900 to $151,700 per pressure ulcer. It is estimated that hospital-acquired pressure ulcers add $43,180 to hospital stay costs. Still, despite these significant costs, approximately 60,000 patients die as a direct result of pressure ulcers annually (AHRQ, 2014).

The Solution

Many healthcare organizations have successfully reduced injuries from pressure ulcers. This document provides a blueprint that outlines the actionable steps organizations should take to successfully improve pressure ulcer rates and summarizes the available evidence-based practice protocols. This document is revised annually and is always available free of charge on our website.

Leadership Checklist

Use this checklist as a guide to determine whether current evidence-based guidelines are being followed in your organization:

Provide ongoing education.

- ☐ Provide pressure ulcer-specific ongoing education and include pressure ulcer education in other related education (e.g., education around ventilator management, mobility, medical device use, etc).
- ☐ Ensure all tools, images, and educational materials include pressure ulcer presentation across multiple skin tones.
- ☐ Include actionable steps that patients and family members can take to prevent pressure ulcers in patient-facing educational material.

Engage those on the frontline in quality improvement initiatives.

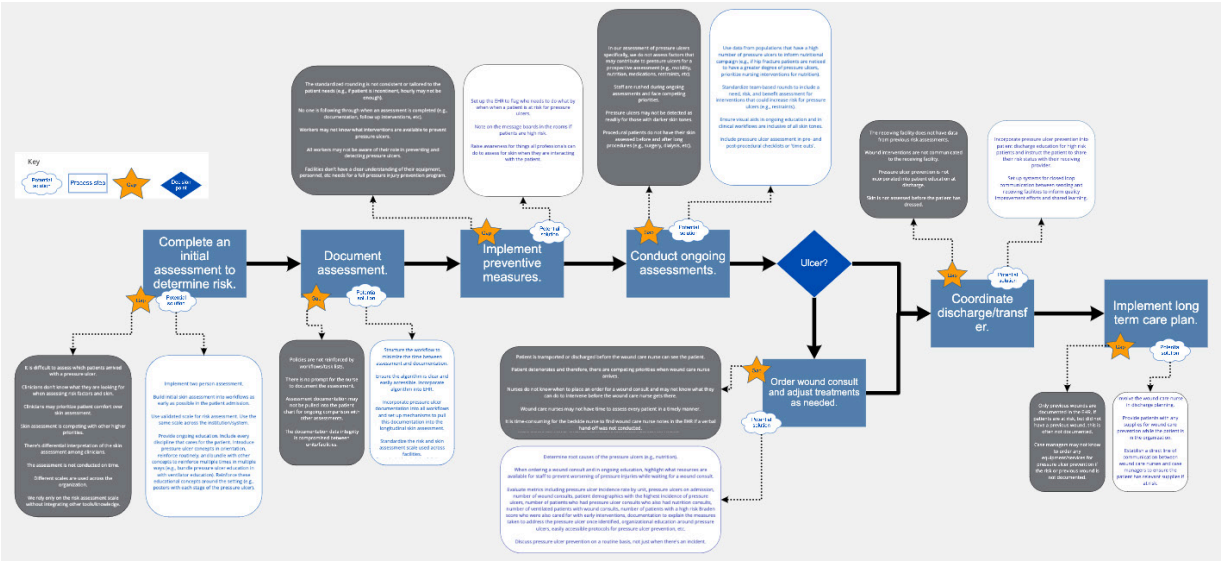
- ☐ Identify a pressure ulcer champion to visibly lead prevention efforts and engage frontline staff.
- ☐ Identify and publicize what all roles can do to prevent pressure ulcers.

- ☐ Ensure that pressure ulcer prophylaxis and treatment protocols are embedded into clinical workflows, whether electronic or paper.
- ☐ Ensure there are enough staff to effectively manage necessary preventive care.
- ☐ Evaluate the clinical workflow to embed pressure ulcer surveillance into pre-existing processes to optimize efficiency. Bundle pressure ulcer prevention with other related activities.
- ☐ Encourage documentation of both assessment findings and prevention strategies employed.

Standardize processes and measure trends.

- ☐ Set clear, unambiguous aim statements.
- ☐ Standardize risk and skin assessment tools across the system to optimize data integrity.
- ☐ Measure and report pressure ulcer process and outcome metrics monthly. Note trends in areas with low compliance and high pressure ulcer incidence. Routinely reassess outcomes.
- ☐ Debrief on a regular basis to solicit team feedback about barriers to sustained compliance. Adjust the plan quickly and nimbly as needed.
- ☐ Ensure that leaders have a simple process to oversee pressure ulcer improvement work while also considering how it aligns with other initiatives across the organization.

Clinical Workflow



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Education for Patients and Family Members

Involve patient and family members in pressure ulcer prevention by:

- ☐ Providing an overview of the patient's specific risk factors
- ☐ Describing the stages of pressure ulcers
- ☐ Ensuring the patient's board is updated with their pressure ulcer risk information
- ☐ Indicating what to watch out for and when to call for help

- ☐ Asking family members to help maintain the patient's daily nutrition and fluid intake plan and mobility plan
- ☐ Explaining the importance of keeping the patient's skin dry
- ☐ Collaborating on a 'schedule' that the patient should follow daily to prevent pressure ulcers in the hospital and post-discharge
- ☐ Providing supplies for patients and family members to prevent pressure ulcers post-discharge
- ☐ Identifying relevant information that patients and family members should explain to their receiving provider during their next healthcare visits
- ☐ Helping the patients and family members understand their wound care plan and appointments post-discharge as applicable
- ☐ Working to understand any barriers the patient and family members may have in pressure ulcer prophylaxis and discuss strategies to overcome those barriers, taking the patient's individual circumstance into account.

Performance Improvement Plan

Follow this checklist if the leadership team has determined that a performance improvement project is necessary:

☐ **Gather the right project team.** Bee sure to involve the right people on the team. You'll want two teams: an oversight team that is broad in scope, has 10-15 members, and includes the executive sponsor to validate outcomes, remove barriers, and facilitate spread. The actual project team consists of 5-7 representatives who are most impacted by the process. Whether a discipline should be on the advisory team or the project team depends upon the needs of the organization. Patients and family members should be involved in all improvement projects, as there are many ways they can contribute to safer care.

Complete this Lean Improvement Activity:
Conduct a SIPOC analysisto understand the current state and scope of the problem. A SIPOC is a lean improvement tool that helps leaders to carefully consider everyone who may be touched by a process, and therefore, should have input on future process design.

RECOMMENDED PRESSURE ULCER IMPROVEMENT TEAM	
• Emergency department staff	• Occupational therapists
• Quality and safety specialists	• Care coordinators
• Admitting and registration staff	• Social workers
• Physicians	• Nursing assistants
• Nurses	• Dieticians
• Wound care nurses	• Nurse educators
• Physical therapists	• Materials management members

Table 1: Understanding the necessary disciplines for a pressure ulcer improvement team

☐ **Understand what is currently happening and why.** Reviewing objective data and trends is a good place to start to understand the current state, and teams should spend a good amount of time analyzing data (and validating the sources), but the most important action here is to go to the point of care and observe. Even if team members work in the area daily, examining existing processes from every angle is generally an eye-opening experience. The team should ask questions of the frontline during the observations that allow them to understand each step in the process and identify the people, supplies, or other resources needed to improve patient outcomes.

Create a process map once the workflows are well understood that illustrates each step and the best practice gaps the team has identified (IHI, 2015). Brainstorm with the advisory team to understand why the gaps exist, using whichever root cause analysis tool your organization is accustomed to (IHI, 2019). Review the map with the advisory team and invite the frontline to validate accuracy.

PRESSURE ULCER PROCESSES TO CONSIDER ASSESSING	
• Pressure ulcer assessment upon admission • Pressure ulcer reassessment during routine care • Diet and fluid intake assessment and how this is linked with pressure ulcer assessments in the EHR or other documentation • Documentation of pressure ulcer assessment • Use of pressure redistribution devices	• Measures taken when a patient is at risk for pressure ulcers and when these measures are implemented (e.g., immediately or upon worsening) • Mobility decision making discussions • Discharge planning • Patient and family member education

Table 2: Consider assessing these processes to understand where the barriers contributing to pressure ulcer prevention may be in your organization

☐ **Prioritize the gaps to be addressed and develop an action plan.** Consider the cost effectiveness, time, potential outcomes, and realistic possibilities of each gap identified. Determine which are a priority for the organization to focus on. Be sure that the advisory team supports moving forward with the project plan so they can continue to remove barriers. Design an experiment to be trialed in one small area for a short period of time and create an action plan for implementation.

The action plan should include the following:

- Assess the ability of the culture to change and adopt appropriate strategies
- Revise policies and procedures
- Redesign forms and electronic record pages
- Clarify patient and family education sources and content
- Create a plan for changing documentation forms and systems
- Develop the communication plan
- Design the education plan
- Clarify how and when people will be held accountable

TYPICAL GAPS IDENTIFIED IN PRESSURE ULCER PREVENTION
• It is difficult to assess which patients arrived with a pressure ulcer. • Clinicians may prioritize patient comfort over skin assessment. • Skin assessment is competing with other higher priorities. • There's differential interpretation of the skin assessment among clinicians. • The assessment is not conducted multiple times while the patient is in the hospital. • Different scales are used across the organization.

- Policies are not reinforced by workflows/task lists.
- There's no prompt for the nurse to document the assessment.
- Assessment documentation may not be pulled into the patient chart for ongoing comparison with other assessments.
- The documentation data integrity is compromised between units/facilities.
- The standardized rounding is not consistent or tailored to the patient needs (e.g., if the patient is incontinent, hourly may not be enough).
- Workers may not know what interventions are available to prevent pressure ulcers.
- In our assessment of pressure ulcers specifically, we do not assess factors that may contribute to pressure ulcers for a prospective assessment (e.g., mobility, nutrition, medications, restraints, etc).
- Staff are rushed during ongoing assessment and face competing priorities.
- Pressure ulcers may not be detected as readily for those with darker skin tones.
- Patient is transported or discharged before the wound care nurse can see the patient.
- There is a shortage of wound care nurses.
- The receiving facility does not have data from previous risk assessments.
- Wound interventions are not communicated to the receiving facility.
- Pressure ulcer prevention is not incorporated into patient education at discharge.
- Only previous wounds are documented in the EHR. If the patient is at risk, but did not have a previous wound, this is often not documented.
- Case managers may not know to order any equipment/services for pressure ulcer prevention if the risk or previous wound is not documented.
- Patients and family members interpret mobility status differently than the clinician. Equipment to facilitate early mobility is not readily accessible.
- Clinicians do not acknowledge the patient's fear of falling when working to implement early mobility interventions.
- The responsibility of early mobility management is placed on one discipline.
- It is assumed that the initial mobility assessment is sufficient throughout care despite changes.
- Fall risks are not recognized.
- Mobility processes are not audited or reviewed routinely.
- The family does not know their role in continuing mobility in the home setting.
- Patients do not have help in picking up and transporting durable medical equipment.
- There's no follow up post-hospitalization.
- Lack of accountability
- Clinicians may use different assessment tools.

Table 3: By identifying the gaps in CLABSI prevention compliance, organizations can tailor their project improvement efforts more effectively

☐ **Evaluate outcomes, celebrate wins, and adjust the plan when necessary.** Measure both process and outcome metrics. Outcome metrics include the rates outlined in the leadership checklist. Process metrics will depend upon the workflow you are trying to improve and are generally expressed in terms of compliance with workflow changes. Compare your outcomes against other related metrics your organization is tracking.

Routinely review all metrics and trends with both the advisory and project teams and discuss what is going well and what is not. Identify barriers to completion of action

Read this paper from the Institute for Healthcare Improvement to understand how small local steps

plans, and adjust the plan if necessary. Once you have the desired outcomes in the trial area, consider spreading to other areas (IHI, 2006).

It is important to be nimble and move quickly to keep team momentum going, and so that people can see the results of their labor. At the same time, don't move so quickly that you don't consider the larger, organizational ramifications of a change in your plan. Be sure to have a good understanding of the other, similar improvement projects that are taking place so that your efforts are not duplicated or inefficient.

PRESSURE ULCER METRICS TO CONSIDER ASSESSING

Structural measures

- Does the organization provide pressure ulcer-specific ongoing education and is pressure ulcer education included in other related education (e.g., education around ventilator management, mobility, nutrition, etc)?
- Does the system use standardized risk and skin assessment tools?
- Does the organization provide patients and family members with surveys to assess whether the patient and family members received education around pressure ulcers?

Process measures

- The percentage of patients that received a skin assessment within four hours of admission
- The percentage of patients that received a risk assessment within four hours of admission
- The percentage of patients that received a pressure ulcer risk assessment every 24 hours during their hospital stay
- Percentage of patients turned/repositioned every two hours during the hospital stay
- Number of wound consults
- Number of patients with pressure ulcer consults who also had nutrition consults
- Number of ventilated patients with wound consults
- Number of patients with a high risk Braden score who were also cared for with early interventions
- Documentation to explain the measures taken to address the pressure ulcer once identified
- The frequency of pressure ulcer-related data review by performance improvement teams

Outcome measures

- Pressure ulcer incidence rate by unit
- Patient demographics with the highest incidence of pressure ulcers
- Wound recurrence

Table 4: Consider evaluating related metrics to better understand pressure ulcer presence and contributing factors

What We Know About Pressure Ulcers

Pressure ulcers are defined as damage to the skin and underlying tissues caused by pressure, shear, excessive moisture, or friction. Pressure ulcers impact 3-14% of inpatients and up to 70% of older hospitalized adults (Grey et al., 2006). Severe pressure ulcers can cause pain, infection, contribute to longer hospital stays, and compromise the estimated recovery trajectory.

Populations At Risk

There have been more than 100 risk factors identified in the literature, ranging from chronic conditions, to age, to health habits (Lyder et al., 2008). While it is important to acknowledge the risk factors of each individual, pressure ulcer precautions should be embedded in the clinical routine workflow for all patients.

Pressure ulcers are often first identified by sight. It is important to recognize that pressure ulcers may present differently on individuals with various ethnic backgrounds. Do not discount a potential pressure ulcer sighting because it doesn't look exactly as it looked on another patient.

Investigate further if a pressure ulcer is suspected.

Immobility and limited activity are common causes of pressure ulcers, emphasizing the importance of early mobility management for inpatients (See Early Mobility Management APSS). Other risk factors include:

- Acute illness
- Age
- Chronic disease
- Spinal cord injury
- Arthritis
- Sensory impairment
- Certain medications
    - Drug-induced pressure ulcer (DIPU), a newly recognized adverse drug reaction, was detected in four of 148 elderly patients with pressure ulcers being treated with olanzapine, fluvoxamine, valproic acid, clotiazepam, triazolam, rilmazafone, administered to manage the patients' psychological symptoms associated with dementia (Mizokami et al., 2016, Hayashi et al., 2018). The research in this area is fairly nascent but is worth consideration. In summary, any medication which confines a patient to their bed should warrant higher prophylaxis for pressure ulcers.
- Vascular disease
- History of smoking
- Malnutrition/dehydration
- Anemia

Pressure Ulcer Risk Assessment and Classification

Commonly used risk assessment scales include the Branden scale and the Norton scale. The Branden scale is designed for an adult population and consists of six subscales including sensory perception, moisture, activity, mobility nutrition, and friction/shear. The Norton Scale consists of five subscales, including physical condition, mental condition, activity, mobility, and incontinence.

There are typically four stages of pressure ulcer classification, based on clinical presentation. See the National Pressure Ulcer Staging System or Stages of Pressure Ulcers for more details.

Resources

For Pressure Ulcer Improvement:

- NHS: Pressure Ulcer Grading Chart
- National Pressure Ulcer Staging System
- The American Geriatrics Society: Under Pressure: Financial Effect of the Hospital-Acquired Conditions Initiative
- The American Journal of Surgery: High Cost of Stage IV Pressure Ulcers
- International Journal of Nursing Studies: The Cost of Prevention and Treatment of Pressure Ulcers : A Systematic Review
- NICE: Pressure Ulcers

- The New England Journal of Medicine: Pressure Ulcers Among the Elderly
- Preventing Pressure Ulcers: A Systematic Review
- Journal of Clinical Nursing: Incidence of Pressure Ulcers Due to Surgery
- Nutrition in Clinical Practice: Nutrition Management of Pressure Ulcers
- Joint Commission National Patient Safety Goals
- National Quality Forum Pressure Ulcer Framework
- IHI: What You Need to Know About Pressure Ulcers: Patient and Family Member Fact Sheet
- NPUAP/EPUAP/PPPIA: Prevention and Treatment of Pressure Ulcers: Quick Reference Guide
- What you need to know about pressure ulcers fact sheet for patients and family members

For General Improvement:

- CMS: Hospital Improvement Innovation Networks
- IHI: A Framework for the Spread of Innovation
- The Joint Commission: Leaders Facilitating Change Workshop
- IHI: Quality Improvement Essentials Toolkit
- SIPOC Example and Template for Download
- SIPOC Description and Example

Endnotes

Conflicts of Interest Disclosure

The Patient Safety Movement Foundation partners with as many stakeholders as possible to focus on how to address patient safety challenges. The recommendations in the APSS are developed by workgroups that may include patient safety experts, healthcare technology professionals, hospital leaders, patient advocates, and medical technology industry volunteers. Workgroup members are required to disclose any potential conflicts of interest.

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References

Agency for Healthcare Research and Quality (AHRQ). (2014). Are we ready for this change?. Retrieved from https://www.ahrq.gov/patient-safety/settings/hospital/resource/pressureulcer/tool/pu1.html

Hayashi, Y., Shibata, H., Judo, T., Nishida, S., Ishikawa, R., Moriya, C., Suzuki, A., Kimura, A., Inuzuka, T. (2018). Drug-induced Pressure Ulcers in a Middle-aged Patient with Early-stage Parkinson's Disease. *Internal Medicine*, 57(10): 1483-1486.

Institute for Healthcare Improvement. (2011). *How-to Guide: Prevent Pressure Ulcers*. Retrieved from http://www.ihi.org/resources/Pages/Tools/HowtoGuidePreventPressureUlcers.aspx

Lyder, C.H., Ayelio, E.A. (2008). Chapter 12: Pressure Ulcers: A Patient Safety Issue. *Agency for Healthcare Research and Quality*. https://www.ncbi.nlm.nih.gov/books/NBK2650/

Mizokami, F., Takashi, Y., Hasegawa, K., Hattori, H., Nishihara, K., Endo, H., Furuta, K., Isogai, Z. (2016). Pressure ulcers induced by drug administration: A new concept and report of four cases in elderly patients. *J Dermatol*. 43(4): 436-8. doi: 10.1111/1346-8138.13093.

Russo, A.C., Elixhauser, A. (2003). Hospitalizations Related to Pressure Sores. *Agency for Healthcare Research and Quality*.

Thomas, D.R., Goode, P.S., Tarquine, P.H., Allman, R.M. (1996). Hospital-acquired pressure ulcers and risk of death. *J Am Geriatri Soc*. doi: 10.1111/j.1532-5415.1996.tb04067.x.

Vanderwee, K., Clark, M., Dealey, C., Gunningberg, L., & Defloor, T. (2007). Pressure ulcer prevalence in Europe: a pilot study. *Journal of evaluation in clinical practice*, 13(2), 227–235. https://doi.org/10.1111/j.1365-2753.2006.00684.x