

PREVENTING HOSPITAL ACQUIRED PRESSURE INJURIES (HAPI)



Cynosure Health CHANGE PACKAGE

HOW TO USE THE HAPI CHANGE PACKAGE

DEFINITION AND SCOPE

MEASUREMENT

HOW TO IMPROVE

PRIMARY DRIVERS AND CHANGE IDEAS

**CONDUCT SKIN AND RISK
ASSESSMENTS**

MANAGE MOISTURE

**OPTIMIZE NUTRITION AND
HYDRATION**

**MINIMIZE PRESSURE, SHEAR,
AND FRICTION**

USE DATA FOR IMPROVEMENT

**ENGAGE PATIENTS AND THEIR
CAREGIVERS**

CONCLUSION AND ACTION PLANNING

APPENDICES

REFERENCES

HOW TO USE THIS CHANGE PACKAGE

ABOUT CYNOSURE

Cynosure Health is a nonprofit organization that works with diverse stakeholders to accelerate spread, implementation, and sustainable improvement in healthcare quality. Although our work spans multiple sectors in topics such as collaborative learning and care management, we specialize in working with hospitals, clinicians, health systems, and community-based coalitions on federal and statewide initiatives, regional collaboratives, and local partnerships.

For two decades, the Cynosure team has done pioneering work to improve outcomes, and we're committed to fostering innovative solutions to healthcare's toughest challenges. Nationally, hospital acquired pressure injuries have increased while other hospital acquired conditions have declined. More than 2.5 million US citizens suffer from HAPI each year.

ABOUT THIS CHANGE PACKAGE

Change Packages developed by our team of experts are tools to translate evidence into action, to help health care improvement teams make patient care safer and improve outcomes. In this Change Package, you will find best practices and ideas to test from other high performing health organizations. It was developed with contributions from subject matter experts, literature review, and sharing from health care organizations that have successfully implemented the identified practices. This change package helps to translate the evidence into a menu of strategies, change concepts and specific actionable items that any hospital can implement based on need or for purposes of improving patient quality of life and care.

Cynosure Health Change Packages are organized around a topic-specific Driver Diagram. Driver Diagrams are utilized to identify, organize, and prioritize improvement activities. Each primary driver for improvement in this Change Package has accompanying Ideas to Test for hospitals seeking to improve outcomes.



PART 1: DEFINITION AND SCOPE

Current definition of harm topic: The 2016 National Pressure Injury Advisory Panel (NPIAP) definition for a pressure injury* is “localized damage to the skin and/or 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 results from 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, comorbidities and condition of soft tissue.”

It is important to recognize that wounds are caused by many etiologies: pressure injuries, tear injuries, tape injuries, venous ulcers, arterial ulcers and from moisture-associated skin damage. The purpose of this change package is to spread best practices in the prevention of hospital-acquired pressure injuries. Outcome data should include only pressure related injuries and should exclude the other injury or ulcer sources from moisture, tears, tape burns, etc.

** In April 2016, the NPIAP changed terminology from pressure ulcer to pressure injury and moved from Roman numerals to Arabic numbers for staging.*

MAGNITUDE OF THE PROBLEM

According to data from AHRQ National Scorecard on Hospital-Acquired Conditions, the national Hospital Acquired Pressure Injury (HAPI) rate rose 6% from 21.7 per 1000 discharges in 2014 to 23 per 1000 discharges in 2017, while rates from many other hospital acquired conditions declined.¹ It is estimated each year more than 2.5 million patients in U.S. acute-care facilities suffer from pressure injuries and 60,000 die from their complications. The cost of treating a single full-thickness pressure injury can be as high as \$70,000, and total costs for treatment of pressure injury in the United States is estimated at \$11 billion annually.² As traditional pressure ulcer rates have not improved recently, medical device related pressure injuries (MDRPI) have become more apparent and contribute to more than 30 percent of overall HAPI rates.³

Surgical patients are at heightened risk during preparation, procedure and recovery periods. Surgery is one of the few times when someone not normally at high-risk for pressure injury development is at risk. As our population is aging and surgical procedures increasing, the incidence of operating room-acquired pressure injuries is increasing and requires our attention. Pressure injury incident rates range from 29 percent in cardiac surgeries to 20-55 percent in orthopedic surgeries and 12-36 percent in spine surgeries. The most common locations are heels (14-52 percent), sacrum (22-41 percent) and buttocks (11-47 percent).⁴

PART 2: MEASUREMENT

A key component to making patient care safer in your hospital is to track your progress toward improvement. Collecting these monthly data points at your hospital will guide your quality improvement efforts as part of the Plan-Do-Study-Act (PDSA) process. Tracking your data in this manner will provide valuable information you need to study your data across time, and determine the effect your improvement strategies are having in your hospital at reducing patient harm.

NATIONALLY RECOGNIZED MEASURES: PROCESS AND OUTCOME

Outcome Measures

- Pressure ulcer rate, Stage 3 or greater (AHRQ PSI-03)
- Pressure ulcer prevalence (hospital-acquired), Stage 2 or greater (NQF 0201)

Process Measures (NPIAP 2019)

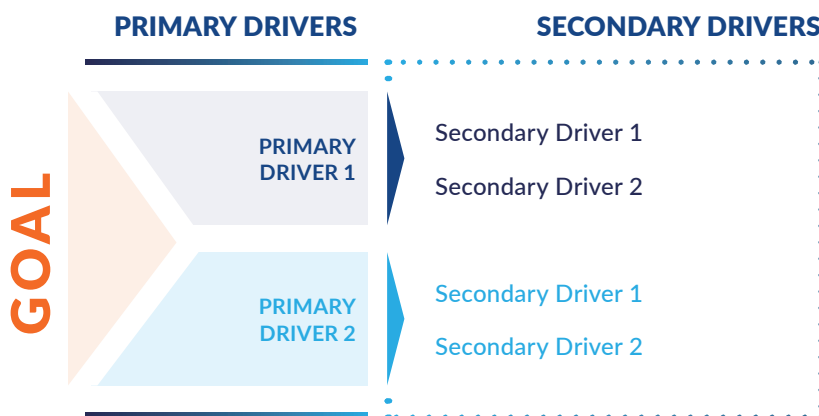
- Every individual is assessed for pressure injury risk as soon as possible after admission/transfer and periodically thereafter and the assessment is documented in the medical record.
- Every individual has received a comprehensive skin assessment as soon as possible after admission/transfer and periodically thereafter as indicated and the assessment is documented in the medical record.
- An individualized risk-based pressure injury prevention plan is documented, implemented and modified in response to change in risk status for every individual with, or risk of pressure injuries.
- Every individual at risk of a pressure injury receives a nutritional screening and when applicable, a comprehensive nutritional assessment is conducted, and a nutrition care plan is documented.
- Every individual with or at risk of pressure injuries (and/ or their informal caregiver) receives information about the prevention and treatment of pressure injuries, self-care skills training and psychosocial support.

PART 3: HOW TO IMPROVE

INVESTIGATE YOUR PROBLEM AND IMPLEMENT BEST PRACTICES

Driver Diagrams

A driver diagram visually demonstrates the causal relationship between change ideas, secondary drivers, primary drivers and your overall aim. A description of each of these components is outlined in the table below. This change package is organized by reviewing the components of the driver diagram to (1) help your care team identify potential change ideas to implement at your facility, and (2) show how this quality improvement tool can be used by your team to tackle new process problems.



AIM: A clearly articulated goal or objective describing the desired outcome. It should be specific, measurable and time-bound.

PRIMARY DRIVER: System components or factors that contribute directly to achieving the aim.

SECONDARY DRIVER: Action, interventions or lower-level components necessary to achieve the primary driver.

CHANGE IDEAS: Specific change ideas which will support or achieve the secondary driver.

Suggested bundles and toolkits

AHRQ Toolkit – [Preventing Pressure Ulcers in Hospitals.](#)

National Pressure Ulcer Advisory Panel. (2019) [Prevention and Treatment of Pressure Ulcers: Quick Reference Guide.](#)

National Pressure Ulcer Advisory Panel. (2019) [Prevention and Treatment of Pressure Ulcers: Clinical Practice Guidelines.](#)

IHI How to Guide Reducing Pressure Ulcers.

Association of Operating Room Nurses (AORN) [Prevention of Perioperative Pressure Ulcers Toolkit.](#)

National Institute and Care Excellence (NICE) (2014) UK. [Pressure Ulcer: Prevention and management.](#)

DRIVERS IN THIS CHANGE PACKAGE

Before jumping into a toolkit or driver diagram for a quick solution, it is important to investigate and understand the factors contributing to pressure injury development in your organization or unit. Pressure injuries are caused by complex environmental and patient factors that need to be understood so targeted solutions can be tested and applied.

Start with an analysis of pressure injury data to uncover the top contributing factors to pressure injury development. Data can be pulled from chart audits, adverse event reports, root cause analysis results and in observations collected in leadership rounding and during prevalence studies

Cynosure Tools: The HAPI Discovery Tool is an audit tool that will help you identify the gaps between what you should be doing and what you are doing. By looking at your HAPI prevention processes of care through the lens of the discovery tool you can quickly identify where to target your improvement efforts.

The HAPI Scavenger Hunt (**Appendix I**) takes the user on an environmental scan of multiple departments including inpatient units and the ED and OR to assess the adequacy of the supplies and equipment your staff have to prevent pressure injuries.

After a review of data, go to the bedside to evaluate how care is being delivered in real time. Conduct a pressure injury prevalence study to collect observational data on pressure injury prevalence and care processes to assess your organization's reliability in delivering optimal care. (See **Appendix II: HAPI Prevalence Study Data Collection Tool**)

Review your data and observations to identify which processes of care in which your unit or organization has the greatest opportunity to improve. Identify one or two changes that can positively impact performance. Start with small changes designed by frontline staff to build a culture of achievement. Small successes will build momentum for larger, more difficult change.

There is value in conducting

prevalence studies. Historically, pressure injury reporting via event reporting or documentation alone has led to under-reporting. Prevalence data is collected at a single point in time, assessing every patient on the unit on the day of the study to observe for pressure injuries and to assess process measures and documentation practices. Prevalence studies are typically completed as a team, including two observers and one documenter. At least one nurse making observational assessments should receive special skin assessment and pressure injury staging education. The process of conducting prevalence studies can help skin teams and leaders gain insight into some of the organizational factors that contribute to pressure injury development and point to opportunities to improve. During observations at the bedside, Prevalence studies can help collect data on such measures as:

- adequacy of preventative measures such as turning and positioning
- adequacy and timeliness of assessment
- staff skill in recognizing, staging and documenting pressure injuries, and differentiating moisture associated skin damage (MASD) from pressure ulcers/ injuries

DRIVERS IN THIS CHANGE PACKAGE

GOAL PREVENT HAPU/I



Driver 1 CONDUCT SKIN AND RISK ASSESSMENTS

Pressure Injury Prevention (PIP) begins with an assessment of a patient's risk for pressure injuries. This assessment must be done as soon as possible upon admission and then at least once daily during a patient's stay and at time of transfer and discharge and should include evaluation of the condition of the patient's skin.

SECONDARY DRIVERS IN THIS SECTION

1. **Implement risk assessment tool.**
2. **Assess skin on admission and every shift.**

1. Implement risk assessment tool.

Adequate assessment of a patient's risk with an accurate tool will allow the care team to implement timely prevention strategies for each patient.

Change Ideas

- Use a validated, age-appropriate tool for the skin evaluation and risk assessment. The most widely used is the [Braden Scale](#). Others include the Norton, Gosnell, Knoll and Waterlow Scales.
- Refine the assessments by including these additional risk factors: fragile skin, existing pressure injury, impairment in blood flow to the extremities from cardiovascular disease or vasopressors, diabetes or tobacco use.
- Assess risks as soon as possible upon admission and implement preventive measures.
- Include risk reassessment documented daily or on every shift.
- Analyze data and review cases in which a pressure injury developed within 24 hours of admission to identify trends in inadequate admission skin assessment, or for failure to implement interventions for high-risk patients in a timely manner.
- Plan prevention interventions based upon individual risk factors, not a total risk score. For example, use Braden sub scores to trigger interventions, not a total score. See the **Appendix V: Braden Sub-scale Care Planning Tool**

- Link risk-assessment result to automated referrals to rehabilitation, dietician or wound care specialist.
- Consider patients with a Stage 1 injury to be at risk of progression to Stage 2 or greater and at high risk for additional pressure injuries.
- Use visual cues to identify patients at risk, including those at risk due to a medical device, on the door or on the patient's white board.
- Generate lists of high-risk patients to use for observational rounding.

SUGGESTED PROCESS MEASURES FOR YOUR TEST OF CHANGE

- Percent of patients assessed for pressure injury risk as soon as possible after admission/transfer and periodically thereafter as per hospital policy.

2. Assess and document skin condition on admission and every shift.

For all patients, complete a skin inspection as soon as possible after admission or transfer which should include inspection and palpation over bony prominences.

For all patients, inspect and palpate for:

- Alteration in skin texture, turgor
- Alterations in skin moisture
- Change in temperature compared to surrounding skin (warmer or cooler)
- Consistency, such as boggiess (soft) or induration (hard)
- Edema
- Open areas, blisters, rash, drainage
- Pain or itching (ask the patient about discomfort to changes)
- Color changes
 - Non-blanchable erythema in patients with lightly pigmented skin.
 - Purplish/bluish discoloration in patients with darkly pigmented skin.

Observe skin in good lighting. Any areas of discoloration or redness should be palpated for change in temperature compared to surrounding skin, or feeling of boggiess (soft) or induration (hard). Pay particular

attention to areas over bony prominences. Rely on the patient to identify where they are experiencing any pain or discomfort and thoroughly assess those skin surfaces for color, temperature or consistency changes.

Assess blanching response of any reddened areas. Blanching erythema is an early indicator of the need to redistribute pressure; non-blanching erythema suggests tissue damage has occurred or is imminent; indurated or boggy skin is a sign that deep tissue damage likely occurred. Medical devices can cause pressure damage so close observation around and under medical devices is highly recommended.⁵

Tap into unlicensed assistive personnel (UAPs) or certified nursing assistants (CNAs) in skin inspection and delivering preventative care. CNAs provide 21% of total nurse hours in patient care⁶ and are an underutilized resource. Hospitals that have empowered CNAs and UAPs in PIP have experienced reduction in HAPI. See Case Studies.

CASE STUDY 1

A 176 bed magnet hospital started a monthly Uniquely Yours Luncheon program designed to gather UAPs together to recognize their hard work, learn together and voice concerns. This program led to significant improvement in PIP. Nurse educators discussed the important role UAPs play in noticing subtle changes in skin and led discussions on barriers in implementing skin care strategies. Several months later, additional skin care education was provided, including elevating heels, repositioning, keeping patients clean and dry and optimizing nutrition. Educators then made sure that UAPs had access to prevention tools such as adequate pillows, heel lift boots and non-medicated skin care products.

To sustain momentum, skin report cards were used for UAPs to report skin care concerns to the primary nurse, using carbon copy tools. The UAP fills out the tool and one copy goes to the primary nurse and a copy goes into a box for a monthly prize drawing. The hospital built documentation screens for both nurses and UAPs to document on and task alerts for UAP assigned preventative skin care measures. To hardwire this improvement, nurse educators round on patients with low Braden scores or existing pressure injuries. Read the full article [HERE](#).

CASE STUDY 2

In a 250 bed, suburban hospital, researchers focused on nursing assistants as an underutilized resource and sought to educate and empower nurse assistants in PIP.

Nursing assistants attended an eight hour training day focused on all aspects of skin care including:

- Age specific components of skin injury
- Skin risk factors
- Shear and friction
- Turning and repositioning in bed and chair
- Use of equipment for mobilization and skin care
- Wound stages, prevention and treatment
- Specialty beds
- Difference between surgical, vascular and pressure injuries
- Skin Care Products
- Negative impact of incontinence
- Importance of reporting the first signs of skin abnormalities

In a demonstration skills laboratory, nursing assistants practiced patient positioning, use of specialty beds and offloading pressure points. A nurse educator validated skills at the bedside using a competency skills checklist.

Nursing assistants expressed feelings of pride and dignity when their nursing services were acknowledged, and they desired to meet the challenges of improved patient care. Read the full article [HERE](#).

With Centers for Medicare and Medicaid Services payment provisions that include non-payment for Stage 3 or 4 HAPI, it is crucial for the physician/provider to document the presence of pressure injuries present on admission (POA).⁷ Additionally, the differentiation of moisture versus pressure related skin injuries must be clearly documented. Organizations that fail to document pressure injuries POA or incorrectly classify moisture-associated skin damage as Stage 2 injuries will have inflated pressure injury rates and could face non-payment for treatment of these injuries.

Change Ideas

- Establish processes to support a thorough skin assessment upon admission to document present-on-admission accurately. Assign two staff or “four eyes:” to conduct initial skin assessment. Second set of eyes or hands can be an assistive personnel or the inpatient nurse receiving the patient and the ED nurse handing off.
- Conduct real time audits of admission skin documentation to provide immediate feedback to nurses and providers. For example, nurse supervisors can be tasked with visiting each new admit and reviewing skin documentation with the nursing staff.
- Assess skin under medical devices at least every shift. Take an interprofessional approach, involving rehabilitation and respiratory care services.
- Educate staff on how to conduct a comprehensive skin assessment that includes techniques for identifying blanching response, localized heat, edema, induration and the presence of localized pain.
 - Provide annual pressure injury assessment education.
 - Establish a “Phone a friend resource”. Provide access to a skin champion for questions or consultation.
 - Educate staff on the differential diagnosis of pressure versus moisture-related skin damage.
 - Use the “Fruits of Pressure Ulcer/Injury Staging” to teach staff stages using fruit analogies.⁸
- Utilize the NPIAP Pressure Injury Prevention (PIP) Points one page list of evidence based interventions as a teaching tool (**Appendix IV**)
- Educational resources for staff skill building in skin assessment and early detection
 1. [Pressure Injury Prevention](#) – 70 min video with case studies
 2. [AHRQ Comprehensive Skin Assessment Video](#) – 53 minute video
 3. [Skin & Wound Challenges in People of Color](#) – 60 minute video
 4. [NCLEX Review Skin Assessment](#) – 8 minute video
 5. [HAPI Staging Poster](#) – National Pressure Injury Advisory Panel (NPIAP) Poster
 6. [NHS HAPI Education: Skin Assessment and Care](#) – skin assessment educational article from UK
- Educate staff on medical device related pressure injury (MDRI) and the importance of assessing under the device daily and to assess for edema and device tightness with each assessment. [MDPRI Best Practices](#) & [Critical Care MDPRI Prevention](#)
- Include unlicensed assistive personnel (UAPs) in skin inspection responsibilities, emphasizing the importance of reporting early warning signs of pressure or breakdown.
 - Use AHRQ Pressure Ulcer Identification Pocket Pad. See **Appendix IV** as a prototype for a tool for UAPs and family

- caregivers to report concerns. Promote reporting via this method by entering submissions in a drawing to reward frequent reporting.
- Appoint UAP skin champions
 - Provide UAP Pressure Injury Prevention Education on an ongoing basis. See Case Studies for ideas and creative approach for engaging an underutilized resource.
- Engage the patient and family in assessing for early signs of pressure injury formation. Use teach-back to validate patient and family understanding.
- For daily or every shift skin assessment, include a total body skin assessment with two sets of eyes, and the bedside shift handoff.
 - Assess the need for tools or equipment to support the front-line staff success. For example, provide slings or a mirror for visualizing heels of patients with heavy legs, provide portable lighting, or attach lighting to skin care cart.
 - Establish a method to document skin condition using photos to help staff gain confidence in document abnormalities. For guidance on this topic see WOCN photography in Wound Documentation Fact Sheet, 2012.⁹

SUGGESTED PROCESS MEASURES FOR YOUR TEST OF CHANGE

- Percent of patients who received a comprehensive skin assessment as soon as possible after admission/transfer and periodically thereafter as per hospital policy.
- Percent of patients with a medical device with documentation of skin inspection under the device per hospital policy.

Hardwire the Process

Incorporate skin and risk assessments in established processes such as admission assessment and bedside handoffs. If using electronic health records, the risk assessment and/or total body assessment can be required or mandatory fields so staff cannot skip over these sections. Pressure injury risk assessment results can automatically trigger referrals to rehabilitation services, dietician and skin care specialist or team. Appoint a champion, educator, or specialist to round on high-risk patients regularly to assess skin assessment documentation and coach staff in real time.

Driver 2 MANAGE MOISTURE

Moisture-associated skin damage (MASD) is considered a “top down” injury because it originates from superficial cutaneous injuries versus pressure injuries, which result from “bottom up” from internal pressure over bony prominences.

The NPIAP published a [response to NQF Measure 349e](#) that recommends against including 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) in the description of a Stage 2 pressure injury.

- It is important to educate staff to ensure competency in differentiating MASD from HAPI and in documenting the appropriate terminology.
- MASD should not be coded as Stage 2 and should not be included in pressure injury reporting.
- Nonetheless, avoiding inappropriate wetness and optimally moisturizing skin can reduce the risk of developing pressure injuries, and therefore is a crucial aspect of PIP.

SECONDARY DRIVERS IN THIS SECTION

1. Maintain dryness.
2. Use evidence based bathing practices to optimize skin protection.

1. Maintain dryness.

Limit exposure of a patient’s skin to moisture from sources such as incontinence, wound drainage or perspiration. Use under pads that wick away moisture and present a dry surface to the skin. Topical agents are available that provide a barrier to wetness and simultaneously moisturize the skin.¹⁰

Change Ideas

- Use high quality underpads with fiber backing, not plastic, that pull fluid away from the patient's skin.
- Involve front-line staff and patients in evaluating and selecting upgraded underpads.
- Maintain adequate supplies at the bedside: moisture barrier cream, underpads and pre-packaged, no-rinse, pH balanced skin cleansers.
- Manage exudate and perspiration around and under medical devices. Use wicking pads and barrier films around the affected area.
- Develop a skin care cart with supplies for assessment, prevention and treatment of injuries.
- Diapers should only be used to preserve a patient's dignity when he or she is in a chair or walking. They should be removed upon returning to bed.
- Manage incontinence with external catheters. Both male and female external catheters are available.
- Develop protocols for managing patients with deep skin folds: improve airflow, keep clean and dry, use wicking products and encourage loose clothing.¹¹
- When considering support surfaces, choose surfaces with dynamic microclimate (heat and moisture) control. Place patients with any moisture issues, i.e. Braden moisture score of 1 or 2, on a low air loss mattress to maintain dryness.
- Engage family and caregivers in monitoring skin dryness and providing proper hygiene.

SUGGESTED PROCESS MEASURES FOR YOUR TEST OF CHANGE

- The percentage of patients with a moisture issue who are on a loss air loss surface or have a moisture management intervention in place, (e.g. barrier cream, etc.).

2. Use evidence based bathing practices to optimize skin protection.

To maintain optimal skin health and protection, staff must have the right tools and equipment for patient care. There is some evidence that use of tap water, soap and washcloths for patient hygiene may be suboptimal, citing concerns of the potential contamination from wash basins and tap water.^{12,13,14} Alkaline soaps and cleansers can negatively impact the skin pH, encouraging greater colonization of bacteria, and the rough surface of washcloths erodes the skin barrier function.¹⁴

Product selection is key. It is essential hospitals make choices that not only support the evidence, but also are effective, affordable and user friendly from the perspective of the patient and the front-line staff.

Change Ideas

- Use topical agents that hydrate the skin and form a moisture barrier to reduce skin damage.
- Avoid vigorous rubbing of skin that is at risk for injury
- Consider using all-in-one, pH balanced, no rinse cleaning and moisture-barrier cloths.
- Avoid using a thick paste as a cleansing or moisture barrier (staff may have difficulty cleaning the paste when stool is present, and it may injure the skin).
- Keep supplies readily available at the bedside in case the patient is incontinent.
- Set specific timeframes or create reminder systems to offer frequent toileting, oral fluids and reassess for wet skin. Remember the five P's – pain, position, personal belongings, pathway and potty.
- Involve staff, such as nurse's aides in rounding and checking the five P's every hour.
- Engage patients and families in keeping patients' skin clean and dry. Encourage prompt reporting of patient needs to the staff.

SUGGESTED PROCESS MEASURES FOR YOUR TEST OF CHANGE

- Percentage of incontinent patients with moisture barrier cream at the bedside.

Hardwire the Process

Make skin care and PIP is part of the everyday routine of nursing staff to hardwire the process. Identify periodic activities such as hourly rounding, repositioning, assessing for wet skin, applying barrier agents and offering oral fluids and toileting opportunities. Include these activities in nursing protocols for licensed and non-licensed staff to complete and document, as appropriate. Support staff members' attention to meticulous hygiene through recognition in leader rounds on patients and staff. Listen and respond to staff feedback on availability of supplies, tools and support necessary to maintain excellent patient hygiene.

Driver 3 OPTIMIZE HYDRATION AND NUTRITION

Nutrition and hydration status affect skin condition and risks for pressure injury. Patients with nutritional deficiency may be twice as likely to develop skin breakdown.¹⁵ Risk assessment for pressure injury development should include a review of the patient's nutrition and hydration status.

SECONDARY DRIVERS IN THIS SECTION

1. Monitor weight, nutrition and hydration status.

1. Monitor weight, nutrition and hydration status.

Adequate calories, protein, fluid, vitamins and minerals are required by the body to maintain tissue integrity and prevent breakdown. Compromised nutritional status such as unintentional weight loss, undernutrition, protein energy malfunction and dehydration deficits are known risk factors for pressure injury development.¹⁵

Change Ideas

- Generate an automatic registered dietician consult for high-pressure injury risk or nutritionally-compromised patients.
- Correct nutritional deficiencies by increasing protein and calorie intake and A, C, or E vitamin supplements as needed.¹⁵
- Give high-protein/high-calorie supplements or tube feedings in addition to the usual diet if nutritional requirements cannot be met by dietary intake.
- Utilize oral nutritional supplements during med pass to boost intake if not medically contraindicated.
- Communicate patients' hydration and nutrition needs within the team. Include on whiteboard and in handoffs. Provide at-risk patients with a water container of a unique color so staff and families know to encourage hydration.
- Engage the patient and family in achieving nutrition and hydration goals. Give patients food/liquid preferences to enhance appetite, hydration and nutrition. Encourage snacks.
- Assist the patients with menu completion, meal set up and eating to optimize intake.

- Support a pleasant dining experience. Manage odors that may be present from pressure injuries or incontinence.
- Limit nil per os (NPO) status and progress diets to optimize intake.
- Monitor weight, food and fluid intake and laboratory test results.
- Offer water to the patient when rounding for the five P's.
- Provide snack / hydration pass in the afternoons and evenings

SUGGESTED PROCESS MEASURES FOR YOUR TEST OF CHANGE

- Percent of patients at risk of a pressure injury that received a nutritional screening and when applicable, a comprehensive nutritional assessment and a nutrition care plan is documented.

Hardwire the Process

To hardwire hydration and nutrition, make the assessment of patient's nutrition and hydration status routine, with admission assessments as well as with other patient care interventions. If a patient is assessed as high risk for a pressure injury, an automatic registered dietician consult should be generated. Partner with food service department to deploy resources to support increasing intake for the nutritionally- compromised patients with activities such as rounding at mealtimes to assess intake and conducting food preference assessments. Provide regular hydration and snack passes in afternoons and evening.

Driver 4 MINIMIZE PRESSURE, SHEAR AND FRICTION

Minimizing the amount of pressure on bony prominences will help to reduce the possibility of breakdown of the thin overlying skin. By repositioning and using pressure-distribution surfaces, pressure on the skin can be redistributed. This is especially critical for patients with limited mobility, as they are at high risk for developing pressure injuries.

Friction and the stress caused by shearing forces also contribute to pressure injury development. Friction is caused when a patient slides or is dragged across a surface, causing damage to underlying tissue which can contribute to pressure injury formation.

SECONDARY DRIVERS IN THIS SECTION

1. Off-load pressure over bony prominences and under medical devices.
2. Provide adequate support surfaces.
3. Reduce friction and shearing forces.
4. Get UP: Implement early mobility protocols.

1. Off-load pressure over bony prominences and under medical devices.

Turning and repositioning a patient, or their medical device, helps to redistribute pressure on skin surfaces and maintains circulation to tissues in areas at risk for injuries. This includes surgical patients at risk for developing pressure injuries during perioperative care.

Change Ideas

- Reposition patients at least every two hours in bed and every hour while seated. If the patient is capable, encourage weight shifting every 15 minutes while seated.
 - Avoid positioning on bony prominences with existing non-blanchable erythema.
 - Use a 30-degree side-lying position (alternately, right side, back, left side). Use hand to check that sacrum is free of pressure when side lying.
 - Whenever possible, do not position the patient on an existing pressure injury.

- Deploy turn teams that are dedicated to repositioning patients.¹⁶
- Use visual cues at the bedside to remember to turn the patient (e.g., a turning clock or whiteboard reminder).
- Establish 'rules' for which side patients should lie on at certain times (e.g., even hours on right side, odd hours on left side), so adherence can be easily assessed in unit rounds.
- To redistribute pressure, use special beds, mattresses and foam wedges. Use pillows (only for limbs) to redistribute pressure on high-risk areas and to prevent bony prominences from touching each other.
- **Medical Devices:** Pay special attention to protecting skin from pressure caused by medical devices.
 - Take an interdisciplinary approach, partnering with respiratory services to monitor for MDPRI and to pad and reposition respiratory devices. Partner with rehabilitation services to monitor braces and orthotics for MDPRI and to pad and reposition devices.
 - Regularly monitor the tension of medical device securements.
 - Assess the skin under and around the medical device regularly.
 - Avoid multiple layers of dressings that increase pressure
 - Avoid positioning the individual directly onto medical devices.
- Always ensure the depth of an endotracheal tube does not change with tube manipulation.
- Regularly rotate or reposition the device if possible.
- Use a thin prophylactic dressing beneath the medical device. Ensure placement is not over fragile skin.
- Evaluate supplies: Try wider foam securement ties, softer oxygen tubing.
- Assess that equipment fits properly and is resized when edema is present.
- Establish operating room protocols for positioning patients to offload pressure. See the Association of Operating Room Nurses (AORN) [Prevention of Perioperative Pressure Ulcers Toolkit](#).
 - Ensure the heels are free of the surface of the operating table.
 - Position knees in slight flexion when offloading the heels.
 - Pay attention to pressure redistribution prior to and after surgery.
 - Include in handoff any history of healed pressure injury because that skin is vulnerable.
 - If the patient is awake, ask about any complaints of pain that may be due to early pressure injury.
 - Avoid positioning the patient in the operative position, pre- and postoperatively.

SUGGESTED PROCESS MEASURES FOR YOUR TEST OF CHANGE

- Percent of patients with a medical device with pressure injury preventive measures (padding, foam trach ties) in place as observed in rounds.
- Percent of high-risk patients properly positioned observed during rounding.

2. Provide adequate support surfaces.

Support surfaces comprised of a variety of overlays, mattresses and integrated bed systems used to redistribute pressure, reduce shearing forces and control heat and humidity. The use of support surfaces is included in nearly all evidence-based clinical practice guidelines as a component of comprehensive PIP programs and treatment recommendations.¹⁷

Evidence regarding the efficacy of support surfaces in preventing pressure injury includes:¹⁸

- Patients lying on ordinary foam mattresses are more likely to get pressure injuries than those on higher-specification foam mattresses.
- There is insufficient evidence to determine comparative effectiveness of various constant low pressure support surfaces.
- Active support surfaces with an alternating pressure feature are more effective than standard hospital mattresses.
- General recommendations for support surfaces include¹⁷
 - Consider patient characteristics and risk factors, including weight and weight distribution, fall risk, risk for developing pressure injuries, severity and location of existing pressure injuries, patient ability to turn and be repositioned, past support surface used and patient preference.
 - For patients who exceed the weight limit or body dimensions of the current support surface, move the patient to a bariatric support surface.
 - Patients who are candidates for progressive mobility should be on a surface that facilitates getting out of bed.
- Patients undergoing surgery are at risk for an operating room-acquired pressure injury. A perioperative pressure injury is any pressure-related tissue injury that presents (e.g., non-blanchable erythema, purple discoloration or blistering) 48 to 72 hours postoperatively and is associated with the surgical position.¹⁹ Evidence supports the use of a high specification foam mattress on the operating room table for at risk individuals. Patients are eight times more likely to develop a pressure injury on standard mattresses, rather than high-specification mattresses.¹⁹

Change Ideas

- Use a support surface decision-making algorithm (See **Appendix VI** “An Evidence-and Consensus-Based Support Surface Algorithm”).¹⁷
 - A web-based version of the algorithm is available [HERE](#).
- Provide appropriate seating support for patients in a chair.
- Provide systems for clinical staff to access appropriate support surfaces 24/7.
- Consider the use of continuous bedside pressure mapping to assess pressure off-loading with highest risk patients (i.e., ICU patients).²⁰
- Operating room (OR) tables should be covered by high-specification foam mattresses.^{21,22}
- Limit layers of linen and under pads placed over the support surface. Extra layers interfere with the surface’s ability to redistribute weight optimally.
- In the Emergency department:
 - Screen for HAPI risk in triage and place patient on an upgraded surface immediately.
 - Create a PIP “pack” that includes a mattress overlay and protective sacral dressing.
 - Establish clear responsibilities for undressing a high risk for pressure injury patient so that skin evaluation can take place promptly.

SUGGESTED PROCESS MEASURES FOR YOUR TEST OF CHANGE

- Percentage of patients on the right support surface during patient rounding.

3. Reduce friction and shearing forces.

The effect of pressure on underlying structures and tissue is magnified when shear forces are added. Shear forces occur when patients are positioned in such a way that they tend to slide. For example, when the head of the bed is elevated without elevating the feet, a patient will slide down in the bed. Shear forces plus pressure cause stretching and kinking of capillaries and tissue, resulting in more tissue ischemia than would have occurred with pressure alone.

Friction affects only the outermost skin layers by movement of the epidermis against an external surface. Clinically, friction presents as a superficial abrasion or blister. A patient with muscle spasms has an increased risk for friction injury. Shear and friction often go hand-in-hand.

Change Ideas

- Elevate the head of the bed no more than 30 degrees to prevent patients from sliding down in bed, unless contraindicated. Round to monitor this and coach staff in real time.
- Use a foam or hydrocolloid dressing on bony prominences such as sacrum, heels and elbows to decrease friction, especially for patients undergoing procedures, likely to be in the OR for more than three hours, or if the head of bed must be elevated for medical purposes.
- Ensure proper seating alignment to reduce a patient's tendency to slide down in the chair or bed.
- Collaborate with rehabilitative services/ physical therapy to support proper seating and positioning.
- Ensure staff are using a two-person lift with lift sheet or a device to reduce shear when repositioning patients. Teach "lift don't drag".
- Use breathable glide sheets and/or lateral transfer devices to prevent shear and friction.
- Use safe patient handling equipment, portable and ceiling lifts to encourage friction free mobility and movement, to prevent staff and prevent work-related injuries.
- Train transport and operating room staff on safe patient handling to prevent shearing forces during patient transfers from cart to table, cart to bed, etc. The CDC National Institute for Occupational Safety and Health provides free resources to support organizations in providing safe patient mobility.²³

SUGGESTED PROCESS MEASURES FOR YOUR TEST OF CHANGE

- Percent of high-risk patients properly positioned observed during leadership rounds.
- Percent of cart transfers observed in leadership rounds in which preventive measures were taken to prevent friction and shearing forces.

4. Get UP: implement early mobility protocols.

Reduced mobility is a risk factor for the development of pressure injuries. The Get UP campaign, or early progressive mobility is a cross cutting strategy that provides common language and an interdisciplinary approach to mobilize patients to prevent pressure injuries, and other hospital harms. Putting processes into place that assesses a patient's mobility and supports staff in safely mobilizing patients will provide many benefits. Nurse-driven mobility protocols have been demonstrated to be effective in reducing immobility related complications and reducing length of stay.^{24,25}

Change Ideas

- Incorporate assessment of gait, balance, lower extremity muscle strength and functional abilities into initial assessments. The Banner Mobility Assessment Tool (BMAT) for nurses is a popular tool.²⁶
- Use automated triggers in the electronic medical record to notify rehabilitation services of the need for a physical therapy/occupational therapy (PT/OT) evaluation. Use Braden mobility and activity scores of 1 or 2 to trigger rehab evaluation.
- Implement nurse-driven protocols that promote patient progressive mobility.
- Invite PT/OT staff to attend daily rounds with nurses to discuss patient mobility needs.
- Include patients mobility level and mobility goal for the day in inter-disciplinary clinical rounds.
- Document patient mobility level, or how much assistance they need, on the white board.
- Engage patient and family in progressive mobility and ambulation. Recognize “family in training” with special wrist band.
- Place distance markers in the hallway to help patients and staff know how far they have ambulated.

SUGGESTED PROCESS MEASURES FOR YOUR TEST OF CHANGE

- Percent of patients who are mobilized to their highest capacity three times a day.

Hardwire the Process

Hardwiring can be achieved by increasing the presence of rehabilitation staff on the patient care units and by demonstrating leadership support by reallocating resources to support safe patient mobility. Combine safe patient handling and safe mobility teams. Schedule ambulation as a daily patient activity and assign staff responsibility (e.g., certified nurse assistant, physical therapist assistant). Engage a physician champion to advocate for patient mobility. Engage leadership in rounding to assess and observe activities promoting mobility and patient ambulation, as well as the use of whiteboards, to communicate mobility plans. Allocate capital resources for replacement of support surfaces to assure surfaces are not used beyond their functional lifespan.

Driver 5 USE DATA FOR IMPROVEMENT

Analyze trends in data to understand where the greatest opportunity is to improve. Understand the characteristics of patients affected by pressure injuries and track trends by unit regarding the anatomical location of injuries and contributing factors.

Use data collected from prevalence studies, HAPI Process Improvement Discovery Tool audits, root cause analysis review and observational rounds, to identify opportunities and gaps in care delivery.

SECONDARY DRIVERS IN THIS SECTION

1. Analyze data trends by unit.
2. Conduct root cause analysis (RCA) on pressure injuries.

1. Analyze data trends by unit.

Drill down on data collected in prevalence studies, root cause analysis and adverse event reports to identify key patient characteristics and contributing factors by unit so targeted interventions can be applied. Use the Cynosure HAPI Discovery Tool to establish a baseline in actual performance and periodically revisit key process measures that are a focus of your improvement work at the unit level.

Change Ideas

- Engage front-line staff in reviewing data trends and to propose targeted solutions.
 - Discuss recent HAPIs and their cause / contributing factors in unit meetings or huddles
 - Engage non-licensed staff in proposing solutions based on trends and to help test proposed solutions.
- Promote sharing of data and solutions between units and peer hospitals to spread learnings and workable solutions.
- Engage patients and caregivers or patient/ family advisors to provide input in designing data-driven solutions.
- Encourage patients and families to ask questions and share concerns.

2. Conduct root cause analysis (RCA) on pressure injuries.

A thorough review of the timeline of events associated with a serious adverse outcome can provide information for the organization to identify gaps in care that indicate a deviation from the organizations protocols and helps gain insight into opportunities to improve.

Change Ideas

- Engage quality and risk management staff in supporting inclusion of Stage 3, 4 and deep tissue injury (DTI) pressure injuries in the RCA process.
- Engage key leaders and front-line staff from all units and procedural areas the patient visited. Include a patient representative or patient advisor to bring in the voice and perspective of the patient.
- Use the NPIAP Pressure Injury Root Cause Analysis Template.²⁷
- Use the information learned regarding key contributing factors or gaps in practice to design targeted solutions. Engage staff in recommending and testing solutions.

SUGGESTED PROCESS MEASURES FOR YOUR TEST OF CHANGE

- Percent of Stage 3, 4 and DTI pressure ulcer/injuries for which a RCA was completed within three days of the incident being reported.

Hardwire the Process

Hardwire the process for treating Stage 3, 4 and DTI injuries as serious adverse events. Collaborate with the leader responsible for RCAs to include these events in the list of events requiring a RCA. Include key leaders in the RCA meeting and share findings and opportunities through reporting at formal quality committees. Schedule follow-up reporting to quality committees to report on testing and implementation of changes to prevent similar occurrences. Integrate process for recommending, testing and implementing changes into shared governance structure to promote staff engagement.

Driver 6 ENGAGE PATIENTS AND THEIR CAREGIVERS IN PIP

It is well known that patient centered models of care improve adherence to treatment, contributes to improved health outcomes and improves patient safety. PIP is a topic that is ideally suited to patient engagement.

The task of preventative care is not complex, does not include challenging clinicians and involves tasks the patient is familiar with. Furthermore, patients know what a bedsore is and associates their development with long term care placement, making the patient keenly motivated to prevent them.²⁸

SECONDARY DRIVERS IN THIS SECTION

1. Educate patients and caregivers on HAPI risk and prevention interventions and provide self care training.

1. Educate patients and caregivers on HAPI risk and prevention interventions and provide self care training.

In a small single site study, patients on orthopedic and neurology floors were surveyed about their experience with PIP activities. Interviews assessed their knowledge level, their views on the patient's role in prevention and barriers to participation. The results provide clinicians with a glimpse at an opportunity to involve patients more in their care. PIP strategies are simple, do not involve challenging clinicians and include familiar tasks. These conditions make a patient more likely to engage. Moving and repositioning, hydration and basic skin care are neither complex to understand nor difficult to undertake for most patients.²⁸

The strategy themes the participants identified for patient participation in PIP include:

- Keep skin health – skin checks, skin care, injury prevention
- Listen to your body – repositioning when uncomfortable and movement, use of support surfaces and cushions
- Looking after the inside – drink more, eat well
- Ongoing PIP education – face to face and written materials reviewed when the patient is able to implement the strategies

Change Ideas

- Involve the patient and their caregivers in skin checks. Ask the patient where they are experiencing pain or discomfort as an area to target inspection and palpation.
- Use a family involvement menu to give family members choices on what aspects of care they would like to assist with. See **Appendix VII**.
- Use both verbal and written instruction, validating understanding using teach back. Use the tool: [Pressure Ulcer Prevention: A Patient Guide](#). Reinforce by teaching as you provide care.
- Provide education and skill training when the patient or caregiver is able to participate. On admission is too overwhelming.
- Use AHRQ Pressure Ulcer Identification Pocket Pad (**Appendix IV**) as a prototype for a tool for UAPs and family caregivers to report concerns.
- Provide equipment to promote self-care, (e.g., skin inspection mirrors.)
- If your organization is using wound photography, show the patient photos of an areas on their body that are concerning if a mirror is not available.
- Tap into patient family advisors for development of written materials, or to modify or adapt existing materials.

Hardwire the Process

Keep patient involvement in PIP alive by inclusion of PIP in routine clinical and patient safety rounding on patients to assess adoption. Include pressure injury risk or plan on white board so that rounding leaders can reinforce. Generate lists of high-risk patients to target the rounding to narrow scope. Post days since a pressure injury in a public place and share with patients as they are mobilized.

PDSA IN ACTION

TIPS ON HOW TO USE THE MODEL FOR IMPROVEMENT

Choice of Tests and Interventions for HAPI Reduction:

Use data from a variety of sources to identify where your organization has the greatest opportunity to improve care processes in preventing HAPI. Analyze characteristics of the pressure injuries (e.g., patient diagnosis, anatomical location of wounds, clinical contributing factors) as well as data collected in rounds, HAPI Process Improvement Discovery Tools and RCAs to identify trends in gaps in care. Form an interdisciplinary team of individuals, including leaders and front-line staff to determine an area of focus.



The following is an example of small tests of change designed to solve a problem identified through data analysis:

- Analysis of house wide HAPI data revealed that the majority of pressure injuries are developing in the ICU within the first three days upon admission. Implement an improvement project to improve the timeliness of initial risk assessment and the activation of interventions to address pressure injuries developing early on in the ICU.
- Emergency Department (ED) Focused approach if prolonged length of stay in your ED is evident in the data related to these injuries.
 - Engage ED staff in selecting an appropriate method or tool to determine HAPI risk.
 - Test the tool with one patient, one nurse and one CNA. Does this tool capture those at risk? If yes, work with these staff to improve the process for the next patient. If no, consider different tool or method in cycle two. Try using different criteria. Staff propose emergent admission to ICU and patient on vasopressors for intervention.
 - Test communication processes for activating interventions for high-risk patients that include placing high- risk patients in the emergency room on an upgraded supportive surface and application of a protective soft silicone sacral dressing as soon as possible.
- ICU Focused Approach
 - Assess existing ICU support surfaces and timeliness of obtaining a specialty beds or mattress.
 - Engage ICU staff in brainstorming ideas to speed up the activation of pressure injury prevention strategies upon arrival to the ICU.
 - Test methods to activate a Pressure Injury Prevention Admission Bundle: Soft silicone protective dressing to the sacrum, and activation of a specialty mattress if appropriate within 2 hours of arrival.

COMMON CHALLENGES TO IMPROVEMENT

Changing too much, too fast is not sustainable. Often, organizations or units may apply large scale change to overcome a significant quality issue with the best of intentions. Implementing a comprehensive PIP program as a single implementation and kickoff can quickly provide success in changing behaviors. However, sustaining the behaviors will be a challenge once leadership shifts attention to the next priority and staff practice drifts to adjust to poorly designed workflows. Furthermore, when changing multiple care processes simultaneously, it is difficult to know which interventions were attributed to successful outcomes. Sustainability can be achieved when workflows are designed and tested by staff before they are implemented organization wide. Incremental changes involving staff will create buy in and build quality improvement capacity within the front-line staff, which further builds upon an infrastructure that supports sustainability.

Competing organizational priorities can create challenges in implementing and sustaining change. Pressure injuries may not receive the organizational attention that newer, more publicly visible patient safety topics receive. By including pressure injuries in the quality and risk management RCA process and follow-up reporting processes, organizational support and attention can be shifted. Allocating resources for optimal cleaning and moisture management products, support surfaces and effective lifting devices can be facilitated by determining the current costs of exposure to reimbursement penalties and litigation costs and using that to build a case for investing in pressure injury prevention.

SOLUTIONS

Enlist administrative leadership as sponsors to help remove or mitigate barriers

- An executive sponsor who recognizes the value for the organization and its patients of preventing HAPI can help brainstorm solutions, advocate for the allocation of resources such as funding, staffing and supplies, and encourage process adoption. Executive sponsors can provide a “big picture” perspective on the organizational impact of these initiatives and serve as champions across the organization, removing barriers to implementation.
- Respected nurse and physician leaders and champions can promote the adoption of best practice protocols for PIP. When selecting a unit or area to implement an improvement project, choose the one in which the initiative is supported by a receptive nurse lead and partnering physician. A successful trial will demonstrate the benefits of the new protocols and be more easily disseminated to units across the organization by the nurse and doctor.

- Partner with leaders throughout the organization to improve PIP. Partner with physicians, physical therapy, materials management, dietary, environmental services and engineering to address the full spectrum of strategies that prevent pressure injuries.

Change not only “The Practice,” but also “The Culture”

Integrating PIP into your organization’s commitment to patient safety is essential. Pressure injuries cannot be viewed as a nursing issue that good nursing care alone can solve. While the latter is mostly true, execution of the right evidence-based practices at the right time, is difficult due to the complexity of the environment and the patients. Caregivers must believe that through the implementation of evidence-based practices, HAPI can mostly be prevented and the deterioration of a Stage 1 can be halted. For example, an intensive care unit may have the belief that cardiac and respiratory needs outrank pressure injury prevention. By shifting the goal from “our patients will survive” to “our patients will survive AND be free of harm,” a cultural shift can begin to happen. The organization must provide the focus and attention to support nurses in their role as caregivers with the tools, equipment and efficient work flows necessary to execute best practices. Interdisciplinary team members, clinical and nonclinical are crucial to provide the infrastructure for optimal pressure injury prevention care. This includes:

- dieticians supporting nutrition and hydration
- environmental services monitoring linen layering, under-pad utilization and inspecting supportive surfaces during cleaning
- engineering providing preventive maintenance on beds, carts and lifts
- rehabilitation services overseeing early mobility programs, proper wheelchair seating and monitoring for MDRPI
- respiratory care supporting early mobility with ventilator patients and monitoring medical device related pressure injury (MDRPI)
- quality staff providing support in conducting RCAs and providing pressure injury trended data
- finance department allocating funding and anticipating bed and supportive surface replacement
- executive leadership in elevating the significance of pressure injuries when they occur, promoting transparency in reporting, and supporting engaging patients and families, particularly those who experienced a HAPI in the organization’s improvement efforts
- materials management in supporting the procurement and availability of high-quality skin care and moisture management supplies, and supporting 24/7 rentals of necessary specialty support surfaces

CONCLUSION & ACTION PLANNING

Eliminating HAPI is a complex issue that requires a thoughtful approach in solving. There are many variables that are in play in preventing an injury: patient environment, including available equipment and supplies, patient characteristics, the staff abilities and the care processes established in the organization.

In deciding next steps, start by looking at the data to determine where to start. Select a focus based on the data. Enlist the organization's data expert to turn data into actionable information. Assemble a team that includes staff, licensed and unlicensed to provide input on selecting a focus based upon data. Once the focus is determined, tap into the front-line experts to identify barriers, propose and test solutions, and spread efficient practices. Enlist a physician and nurse champion to support engagement, effective decision making and to act as a role model in leading change. Include a patient or family member who has experienced a pressure injury or a patient/family advisor to be the voice of the patient in action planning and implementation. An executive leader may help remove barriers, allocate resources, provide a channel of communication between the HAPI team and the executive team and the board. Share wins from early changes across the organization. Spread effective work processes to other units.

PART 5: APPENDICES

APPENDIX I: HAPI SUPPLY SCAVENGER HUNT

Do you have the best skin care supplies to prevent skin injuries?
Supply / Equipment Checklist for Materials Management / Leadership
"Scavenger Hunt"



Hospital: _____ State: _____ Position: _____

Support Surfaces: visit each department to inspect their mattresses, gurney pads, etc.

Med Surg: age of surfaces: _____ Type of mattress: _____

ICU: age of surfaces: _____ Type of mattress: _____

ED: age of surfaces: _____ Mat thickness: _____

Type of support surfaces available in ED: _____

OR: age of surfaces: _____ High Density Foam Mat on tables? Y N

Bariatric Support Surfaces or equipment are delivered in a timely manner? Y N

Friction Management (check all that apply)

- Glide sheets
- Lifts and adequate slings on each unit (easily accessible)
- Policies on safe mobilizing (no-lift or minimal lift)
- Multi-layer soft, sacral dressing
- Multi-layer soft, heel dressing

Moisture Management (check all that apply)

- Low air loss mattresses are used for incontinent or patients with moisture
- New female external catheters that attach to suction available
- Male external catheters or penile pouch/wrap available
- Non petroleum barrier cream available
- High quality underpads are used
- Prepared skin cleansing cloths are used (instead of soap and water)

Assessment / Inspection Equipment (check all that apply)

- Mirrors for patients to inspect skin and nurses to inspect heels
- Camera and associated policies for photography

Misc (check all that apply)

- Heel Protectors / Boots / PRAFOs
- Patient chair at each bedside for getting out of bed
- Low air loss chair pads are used
- Whiteboard space for HAPI prevention plan and goals
- Written patient education materials are available

Comments, observations:

Actions to be taken:

Signature: _____ Date: _____



APPENDIX II: HAPI PREVALENCE STUDY DATA COLLECTION TOOL

HOSPITAL ACQUIRED PRESSURE INJURY PREVALENCE STUDY DATA COLLECTION TOOL

Hospital: _____ Unit & Type: _____ Date: _____ Unit census of day of study: _____ # of patients assessed _____ Page ___ / ___

Part 1 - Prevalence data collection	Patient Identifiers		Pt ID	22042											
			Admit date	1/12/16											
			Age	72											
			Gender	m											
	# of hospital acquired pressure ulcers at each stage	Ulcer 1	#1 stage	2											
			#1 location	L Heel											
			# 1 POA?	N											
		Ulcer 2	#2 stage	3											
			#2 location	Sacrum											
			#2 POA?	Y											
Ulcer 3		#3 stage													
		#3 location													
		# 3 POA?													
Comments		See below													
Part 2 – Process Measures	Skin assessed upon admission		y												
	PU RISK assessment upon admit		y												
	Was pt identified to be at risk?		y												
	What was the risk score?		9												
	Interventions (see key)														
	Pt on a pressure redistribution surface		Y												
	Repositioning as prescribed		Y												
	Nutritional support		N												
	Moisture Management		N												

Part 1 PRESSURE INJURY STAGING KEY: 1, 2, 3, 4, U = Unstageable, DTI = Deep Tissue Injury. Stage 2 or greater plus U and DTI are reportable

Part 2 Key: Y=yes N= no NR= no risk NA= Admit w/in 24 hours, not necessary for pt DC = Documented contraindicated R= refused

Pt ID	Additional comments

Team members completing this tool: _____

APPENDIX III: BRADEN SCALE FOR PREDICTING PRESSURE INJURY RISK

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BRADEN SCALE FOR PREDICTING PRESSURE SORE RISK

Patient's Name _____		Evaluator's Name _____		Date of Assessment _____					
SENSORY PERCEPTION ability to respond meaningfully to pressure-related discomfort	1. Completely Limited Unresponsive (does not moan, flinch, or grasp) to painful stimuli, due to diminished level of consciousness or sedation. OR limited ability to feel pain over most of body	2. Very Limited Responds only to painful stimuli. Cannot communicate discomfort except by moaning or restlessness OR has a sensory impairment which limits the ability to feel pain or discomfort over ½ of body.	3. Slightly Limited Responds to verbal commands, but cannot always communicate discomfort or the need to be turned. OR has some sensory impairment which limits ability to feel pain or discomfort in 1 or 2 extremities.	4. No Impairment Responds to verbal commands. Has no sensory deficit which would limit ability to feel or voice pain or discomfort..					
MOISTURE degree to which skin is exposed to moisture	1. Constantly Moist Skin is kept moist almost constantly by perspiration, urine, etc. Dampness is detected every time patient is moved or turned.	2. Very Moist Skin is often, but not always moist. Linen must be changed at least once a shift.	3. Occasionally Moist: Skin is occasionally moist, requiring an extra linen change approximately once a day.	4. Rarely Moist Skin is usually dry, linen only requires changing at routine intervals.					
ACTIVITY degree of physical activity	1. Bedfast Confined to bed.	2. Chairfast Ability to walk severely limited or non-existent. Cannot bear own weight and/or must be assisted into chair or wheelchair.	3. Walks Occasionally Walks occasionally during day, but for very short distances, with or without assistance. Spends majority of each shift in bed or chair	4. Walks Frequently Walks outside room at least twice a day and inside room at least once every two hours during waking hours					
MOBILITY ability to change and control body position	1. Completely Immobile Does not make even slight changes in body or extremity position without assistance	2. Very Limited Makes occasional slight changes in body or extremity position but unable to make frequent or significant changes independently.	3. Slightly Limited Makes frequent though slight changes in body or extremity position independently.	4. No Limitation Makes major and frequent changes in position without assistance.					
NUTRITION usual food intake pattern	1. Very Poor Never eats a complete meal. Rarely eats more than ¼ of any food offered. Eats 2 servings or less of protein (meat or dairy products) per day. Takes fluids poorly. Does not take a liquid dietary supplement OR is NPO and/or maintained on clear liquids or IVs for more than 5 days.	2. Probably Inadequate Rarely eats a complete meal and generally eats only about ½ of any food offered. Protein intake includes only 3 servings of meat or dairy products per day. Occasionally will take a dietary supplement. OR receives less than optimum amount of liquid diet or tube feeding	3. Adequate Eats over half of most meals. Eats a total of 4 servings of protein (meat, dairy products) per day. Occasionally will refuse a meal, but will usually take a supplement when offered OR is on a tube feeding or TPN regimen which probably meets most of nutritional needs	4. Excellent Eats most of every meal. Never refuses a meal. Usually eats a total of 4 or more servings of meat and dairy products. Occasionally eats between meals. Does not require supplementation.					
FRICTION & SHEAR	1. Problem Requires moderate to maximum assistance in moving. Complete lifting without sliding against sheets is impossible. Frequently slides down in bed or chair, requiring frequent repositioning with maximum assistance. Spasticity, contractures or agitation leads to almost constant friction	2. Potential Problem Moves feebly or requires minimum assistance. During a move skin probably slides to some extent against sheets, chair, restraints or other devices. Maintains relatively good position in chair or bed most of the time but occasionally slides down.	3. No Apparent Problem Moves in bed and in chair independently and has sufficient muscle strength to lift up completely during move. Maintains good position in bed or chair.						
					Total Score				

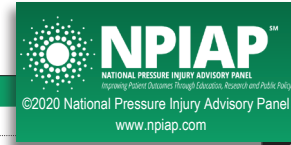
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Total Score

APPENDIX IV: PRESSURE INJURY PREVENTION POINTS

Reference: [Link](#).

Pressure Injury Prevention Points



RISK ASSESSMENT	
1	Consider bedfast and chairfast individuals to be at risk for development of pressure injury.
2	Use a structured risk assessment, such as the Braden Scale, to identify individuals at risk for pressure injury as soon as possible (but within 8 hours after admission).
3	Refine the assessment by including these additional risk factors: <ul style="list-style-type: none"> A. Fragile skin B. Existing pressure injury of any stage, including those ulcers that have healed or are closed C. Impairments in blood flow to the extremities from vascular disease, diabetes or tobacco use D. Pain in areas of the body exposed to pressure
4	Repeat the risk assessment at regular intervals and with any change in condition. Base the frequency of regular assessments on acuity levels: <ul style="list-style-type: none"> A. Acute care Every shift B. Long term care . . . Weekly for 4 weeks, then quarterly C. Home care At every nurse visit
5	Develop a plan of care based on the areas of risk, rather than on the total risk assessment score. For example, if the risk stems from immobility, address turning, repositioning, and the support surface. If the risk is from malnutrition, address those problems.
SKIN CARE	
1	Inspect all of the skin upon admission as soon as possible (but within 8 hours).
2	Inspect the skin at least daily for signs of pressure injury, especially nonblanchable erythema.
3	Assess pressure points, such as the sacrum, coccyx, buttocks, heels, ischium, trochanters, elbows and beneath medical devices.
4	When inspecting darkly pigmented skin, look for changes in skin tone, skin temperature and tissue consistency compared to adjacent skin. Moistening the skin assists in identifying changes in color.
5	Cleanse the skin promptly after episodes of incontinence.
6	Use skin cleansers that are pH balanced for the skin.
7	Use skin moisturizers daily on dry skin.
8	Avoid positioning an individual on an area of erythema or pressure injury.
NUTRITION	
1	Consider hospitalized individuals to be at risk for under nutrition and malnutrition from their illness or being NPO for diagnostic testing.
2	Use a valid and reliable screening tool to determine risk of malnutrition, such as the Mini Nutritional Assessment.
3	Refer all individuals at risk for pressure injury from malnutrition to a registered dietitian/nutritionist.
4	Assist the individual at mealtimes to increase oral intake.
5	Encourage all individuals at risk for pressure injury to consume adequate fluids and a balanced diet.
6	Assess weight changes over time.
7	Assess the adequacy of oral, enteral and parenteral intake.
8	Provide nutritional supplements between meals and with oral medications, unless contraindicated.
REPOSITIONING AND MOBILIZATION	
1	Turn and reposition all individuals at risk for pressure injury, unless contraindicated due to medical condition or medical treatments.
2	Choose a frequency for turning based on the support surface in use, the tolerance of skin for pressure and the individual's preferences.
3	Consider lengthening the turning schedule during the night to allow for uninterrupted sleep.
4	Turn the individual into a 30-degree side lying position, and use your hand to determine if the sacrum is off the bed
5	Avoid positioning the individual on body areas with pressure injury.
6	Ensure that the heels are free from the bed.
7	Consider the level of immobility, exposure to shear, skin moisture, perfusion, body size and weight of the individual when choosing a support surface.
8	Continue to reposition an individual when placed on any support surface.
9	Use a breathable incontinence pad when using microclimate management surfaces.
10	Use a pressure redistributing chair cushion for individuals sitting in chairs or wheelchairs.
11	Reposition weak or immobile individuals in chairs hourly.
12	If the individual cannot be moved or is positioned with the head of the bed elevated over 30°, place a polyurethane foam dressing on the sacrum.
13	Use heel offloading devices or polyurethane foam dressings on individuals at high-risk for heel ulcers
14	Place thin foam or breathable dressings under medical devices.
EDUCATION	
1	Teach the individual and family about risk for pressure injury
2	Engage individual and family in risk reduction interventions

APPENDIX V: PRESSURE ULCER IDENTIFICATION POCKET PAD (AHRQ TOOL 3C)

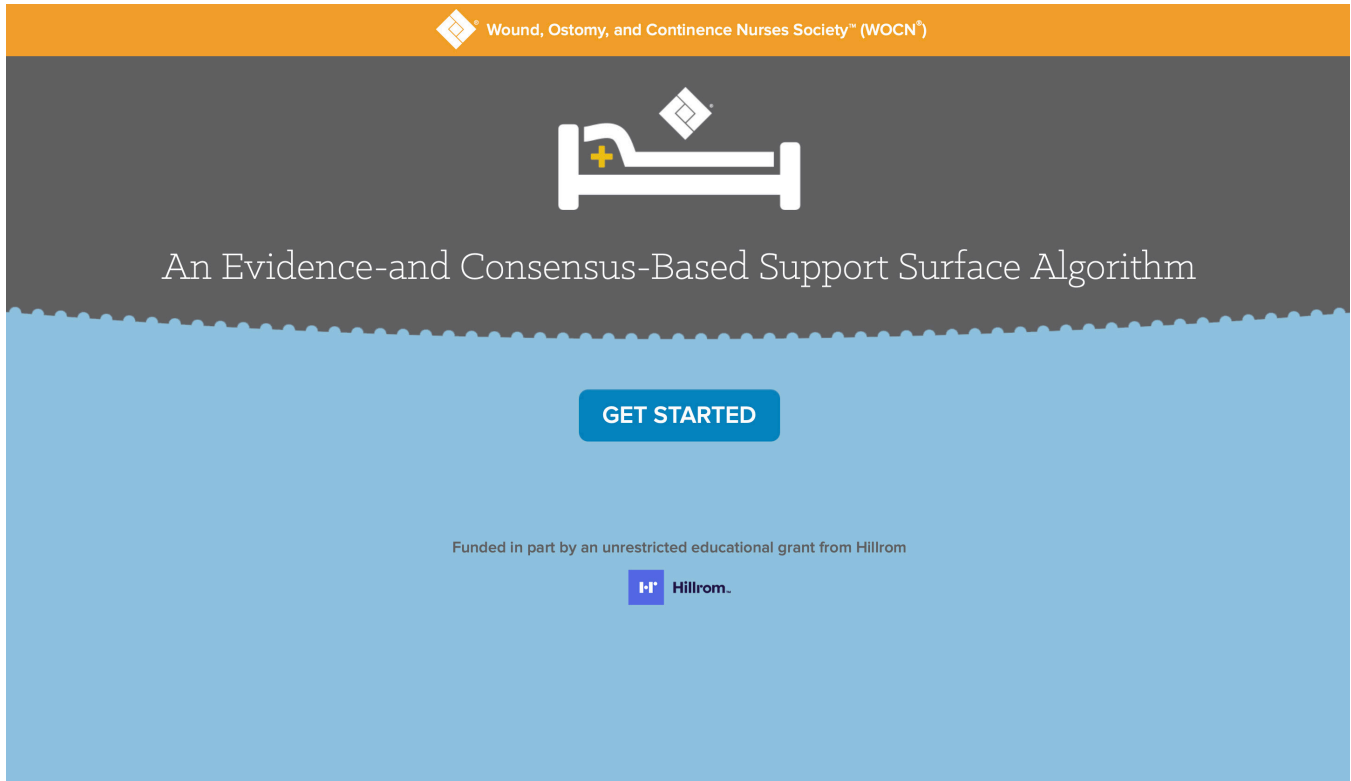
Reference: [Link](#).

APPENDIX VI: BRADEN SUB-SCALE CARE PLANNING TOOL

Sensory Perception	Completely limited *Skin assessment and inspection q shift. Pay attention to heels *Elevate heels and use protectors *Consider specialty mattress or bed *Use pillows between knees and boney prominences to avoid direct contact.	Very limited *Skin assessment and inspection q shift. Pay attention to heels *Elevate heels and use protectors *Consider specialty mattress or bed.	Slightly limited *Skin assessment and inspection q shift. Pay attention to heels *Elevate heels and use protectors	No limitation *Encourage patient to report pain over boney prominences. *Check heels daily.
Moisture	Constantly Moist *Skin assessment and inspection q shift. *Use moisture barrier ointments (Protective skin barriers) *Moisturize dry unbroken skin. *Avoid hot water. Use mild soap and soft cloths or package cleanser wipes. *Check incontinence pads frequently (q2-3h) and change as needed *Apply condom catheter if appropriate. *If stool incontinence consider bowel training and toileting after meals or Rectal tubes if appropriate *Consider low air loss bed	Moist *Use moisture barrier ointments (Protective barriers) *Moisturize dry unbroken skin. *Avoid hot water. Use mild soap and soft cloths or package cleanser wipes. *Check incontinence pads frequently (q2-3h) *Avoid use of diapers but if necessary check frequently (q2-3h)and change as needed *If stool incontinence consider bowel training and toileting after meals *Consider low air loss bed	Occasionally Moist *Use moisture barrier ointments (Protective skin barriers) *Moisturize dry unbroken skin. *Avoid hot water. Use mild soap and soft cloths or package cleanser wipes. *Check incontinence pads frequently *Avoid use of diapers but if necessary check frequently (q2-3h) and change as needed *Encourage patient to report any other moisture problem (such as under breasts.) *If stool incontinence consider bowel training and toileting after meals	Rarely Moist *Encourage patient to use lotion to prevent skin cracks. *Encourage patient to report any moisture problem (such as under breasts.)
Activity	Bedfast *Skin assessment and inspection q shift. *Position prone if appropriate or elevate HOB no more than 30 degrees *Position with pillows to elevate pressure points off of the bed. *Consider specialty bed *Elevate heels off bed and/or heel protectors *Consider physical therapy consult for conditioning and W/C assessment *Turn/reposition q 1-2 hours. *Post turning schedule. *Teach or do frequent small shifts of body weight	Chairfast *Consider specialty chair pad *Consider postural alignment, weight distribution, balance, stability, and pressure relief when positioning individuals in chair or wheelchair. *Instruct patient to reposition q 15 minutes when in chair. *Stand every hour *Pad boney prominences with foam wedges, rolled blankets or towels. *Consider physical therapy consult for conditioning and W/C assessment	Walks Occasionally *Provide structured mobility plan. *Consider chair cushion *Consider physical therapy consult	Walks Frequently *Encourage ambulating outside the room at least bid. *Check skin daily *Monitor balance and endurance
Mobility	Completely Immobile *Skin assessment and inspection q shift. *Turn/reposition q 1-2 hours. *Post turning schedule. *Teach or do frequent small shifts of body weight. *Elevate heels *Consider specialty bed	Very Limited *Skin assessment and inspection q shift. *Turn/reposition 1-2 hours. *Post turning schedule. *Teach or do frequent small shifts of body weigh *Elevate heels *Consider specialty bed	Slightly Limited *Check skin daily *Turn/reposition frequently *Teach frequent small shifts of body weigh *PT consult for strengthening/conditioning *Gait belt for assistance.	No Limitations *Check skin daily *Encourage ambulating outside the room at least bid. *No interventions required.
Nutrition	Very Poor *Nutrition Consult *Skin assessment and inspection q shift. *Offer Nutrition Supplements and water *Encourage family to bring favorite foods *Monitor Nutritional Intake *If NPO for > 24 hours, discuss plan with MD *Record dietary intake and I & O if appropriate	Probably Inadequate *Nutrition Consult *Offer Nutrition Supplements and water *Encourage family to bring favorite foods *Monitor Nutritional Intake *Small frequent meals *If NPO for > 24 hours, discuss plan with MD *Record dietary intake and I & O if appropriate	Adequate *Monitor nutritional intake *If NPO for > 24 hours, discuss plan with MD *Record dietary intake and I&O if appropriate	Excellent *Out of bed for all meals. *Provide food choices. *Offer Nutrition Supplements If NPO for > 24 hours, discuss plan with MD *Record dietary intake
Friction & Shear	Problem *Skin assessment and inspection q shift. *Minimum of 2 people + draw sheet to pull patient up in bed. *Keep bed linens clean, dry, and wrinkle-free. *Apply or elbow/heel protectors to intact skin over elbows and heels. *Elevate head of bed 30 degree or less	Potential Problem *Keep bed linens clean, dry, and wrinkle-free. *Avoid massaging pressure points. *Apply transparent dressing or elbow/heel protectors to intact skin over elbows and heels.	No apparent problem *Keep bed linens clean, dry, and wrinkle-free.	

APPENDIX VII: AN EVIDENCE-AND CONSENSUS-BASED SUPPORT SURFACE ALGORITHM

Reference: [Link](#).



The screenshot shows a website header with the Wound, Ostomy, and Continence Nurses Society (WOCN) logo and name. Below the header is a dark grey section with a white icon of a bed with a yellow plus sign. The text "An Evidence-and Consensus-Based Support Surface Algorithm" is centered in this section. A blue button labeled "GET STARTED" is positioned below the text. At the bottom of the screenshot, it states "Funded in part by an unrestricted educational grant from Hillrom" with the Hillrom logo.

APPENDIX VIII: FAMILY INVOLVEMENT MENU

Reference: [Link](#).

Family Involvement Menu



Implementation strategies

- What might your team put on the menu?

Developed by Rhonda Wyskiel, R.N., Johns Hopkins Armstrong Institute

AHRQ Safety Program for Mechanically Ventilated Patients

Patient/Family Involvement 8



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