

5 Million Lives Campaign

Preventing Pressure Ulcers: The Goal Is Zero

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This article is the third in the series on the 5 Million Lives Campaign, the Institute for Healthcare Improvement's national initiative that aims to protect patients from five million incidents of medical harm in United States hospitals between December 2006 and December 2008.

Pressure ulcers, although painful, slow to heal, and even contributing to death, are often seen as inevitable in the care of very complex patients. Although pressure ulcers are preventable in most cases and health care facilities have developed prevention programs, the prevalence of pressure ulcers is increasing; an estimated 2.5 million patients are treated for pressure ulcers in acute care facilities in the United States each year.^{1,2} Pressure ulcer incidence rates vary considerably by clinical setting, ranging from 0.4% to 38% in acute care, from 2.2% to 23.9% in long term care, and from 0% to 17% in home care.¹

Pressure ulcers cause considerable harm to patients, hindering functional recovery, frequently causing pain, and often serving as vehicles for the development of serious infections. They have also been associated with an extended length of stay and increased mortality. In fact, an estimated 60,000 patients die each year from complications due to hospital-acquired pressure ulcers. The estimated cost of managing a single full-thickness pressure ulcer is as high as \$70,000, and the total cost for treatment of pressure ulcers in the United States is estimated at \$11 billion per year.²

Because of the persistently high incidence of pressure ulcers in American hospitals, the Institute for Healthcare Improvement (IHI) chose the prevention of pressure ulcers as one of the 12 interventions in its 5 Million Lives Campaign ("Prevent Pressure Ulcers . . . by reliably using science-based guidelines for their prevention"³). The goal for health care facilities to *reduce* pressure ulcers is

Article-at-a-Glance

Background: One of the 12 interventions that the Institute for Healthcare Improvement (IHI) recommends for its 5 Million Lives Campaign is "Prevent Pressure Ulcers . . . by reliably using science-based guidelines for their prevention." Pressure ulcers cause considerable harm to patients, hindering functional recovery, frequently causing pain, and often serving as vehicles for the development of serious infections. Although the goal for health care facilities to reduce pressure ulcers is admirable, the goal for pressure ulcer incidence should be zero.

The Case for Prevention: Pressure ulcer prevention entails two major steps: identifying patients at risk and reliably implementing prevention strategies for all patients identified as at risk. Prevention strategies include six key elements (elements 3–6 address patients at risk): (1) conduct a pressure ulcer admission assessment for all patients, (2) reassess risk for all patients daily, (3) inspect skin daily, (4) manage moisture, (5) optimize nutrition and hydration, and (6) minimize pressure. Facilities may wish to form a multidisciplinary team to develop a pressure ulcer prevention program.

Conclusion: The development of pressure ulcers is a painful, expensive, and unnecessary harm event that is all too prevalent in American hospitals. The prevention of pressure ulcers is a key intervention that is not new, not expensive, and has the potential to save thousands of patients from unnecessary harm.

admirable but not adequate. Is there any acceptable number of pressure ulcers? The goal for pressure ulcer incidence should be zero.

The Case for Prevention

Pressure ulcer prevention (PUP) is not new to health care facilities. For years, health care organizations have tried to prevent pressure ulcers but have lacked reliable strategies as well as a long-term commitment to prioritize and design caregivers' work so that prevention remains a priority. Preventing pressure ulcers entails two major steps: first, identifying patients at risk; and second, reliably implementing prevention strategies for all patients who are identified as being at risk.

Prevention strategies include six key elements. Elements 3–6 address patients at risk.

1. CONDUCT A PRESSURE ULCER ADMISSION ASSESSMENT FOR ALL PATIENTS

Identifying patients who may be at risk for the development of pressure ulcers is essential to implementing reliable strategies to prevent development. On each admission, each patient should be given both a risk assessment (to evaluate risk of developing a pressure ulcer) and a skin assessment (to detect existing pressure ulcers). Staff should consider these two assessments as a single process step: a pressure ulcer admission assessment.

Many patients are at risk for developing a pressure ulcer. The key factors contributing to the development of pressure ulcers include age, immobility, incontinence, inadequate nutrition, sensory deficiency, multiple comorbidities, circulatory abnormalities, and dehydration. The use of a validated risk assessment tool is essential for accurate, prompt identification of at-risk patients and timely implementation of prevention strategies. The risk assessment must include an assessment of several components: mobility, incontinence, sensory deficiency, and nutritional status (including dehydration).

To ensure compliance with the admission assessment and identification of any patient at risk, facilities must create processes that are integrated with the current admission process for all hospitalized patients.

2. REASSESS RISK FOR ALL PATIENTS DAILY

The complexity and acuity of hospitalized patients

necessitate daily reassessment of the potential for and degree of risk of pressure ulcer development. For example, changes in mobility, incontinence, or nutrition may change the patient's risk of developing pressure ulcers. Assessing risk daily provides caregivers the opportunity to adjust prevention strategies according to the patient's changing needs. The degree of risk, as specified in several standardized risk assessments, allows providers to implement targeted strategies for each patient. For example, after several days in the hospital, a patient's nutritional intake may diminish, because of either patient preferences or condition. A daily risk assessment enables caregivers to quickly identify the patient as having a nutritional need and to initiate a consult to the clinical dietician.^{4,5}

Incorporating Risk Assessment in the Design of Work.

Hospitals need to look for opportunities to redesign work and processes to ensure daily reassessment of risk to hospitalized patients. Some processes that hospitals can test and incorporate to ensure completion of a risk assessment are as follows:

■ **Include a visual cue on each admission documentation record for the completion of a total skin assessment and risk assessment.** This may entail incorporating a risk assessment tool in the current admission documentation or adapting documentation tools to prompt daily risk assessment, documentation of findings, and initiation of prevention strategies as needed.

■ **Use one standard risk assessment tool for every point of entry as well as every level of care.** This provides ease in transitioning patients between levels of care and offers the staff a consistent tool to use with each admission or transfer. Facilities may wish to adapt the tool to allow for easy completion, using check boxes and short phrases to ensure completion.

■ **Use multiple methods to visually cue staff as to which patients are at risk.** For example, consider using stickers in the patient's chart or on the patient's door so that all persons who enter will realize that the patient is at risk for developing a pressure ulcer. This allows for quick identification by any staff of patients at risk, both in the patient's room and while the patient is in other departments, and prompt initiation of prevention strategies. Many successful facilities have adopted a motto and logo (for example, "Save Our Skin," "SKIN") to help identify patients at

risk. All levels of staff can then easily identify patients who are at risk for skin breakdown and assist with strategies to prevent skin deterioration.

3. INSPECT SKIN DAILY

Skin integrity may deteriorate in a matter of hours in hospitalized patients. Because risk factors change rapidly in acutely ill patients, daily skin inspection is crucial. Patients identified as being at risk need a daily inspection of all skin surfaces, from head to toe. Special attention should be given to areas at high risk for development of pressure ulcers, such as the sacrum, back, buttocks, heels, and elbows. Ideally, staff should incorporate a skin inspection into their work every time they assess the patient.⁶

The daily inspection of skin may be lost in the day-to-day tasks of the hospital staff. Hospitals can develop tools to prompt daily skin inspection, document findings, and initiate prevention strategies. All staff should be educated to inspect the skin each and every time they assist the patient, for example, moving from the bed to the chair, moving from one area to the other, and while bathing. Whenever a staff member recognizes any change in skin integrity, he or she can initiate appropriate interventions.

4. MANAGE MOISTURE

Wet skin is conducive to the development of rashes, is softer, and tends to break down more easily. Skin should be cleansed at time of soiling and at routine intervals. The process of cleaning the skin should include gentle use of a mild cleansing agent that minimizes irritation and dryness of the skin.⁶

Care should be taken to minimize exposure of the skin to moisture due to incontinence, perspiration, or wound drainage. When these sources of moisture cannot be controlled, use underpads made of materials that absorb moisture and present a quick-drying surface to the skin. Also, use topical agents that act as moisture barriers and that moisturize the skin.^{2,7,8} Managing moisture is not a new issue among caregivers; however, hospitals can put strategies in place to help staff reliably identify when skin becomes wet and provide immediate assistance to the patient.

There are multiple opportunities to incorporate the identification of moisture and intervention to protect the skin from moisture into daily activities, as follows:

- **Include the assessment of wet skin in routine periodic activities such as repositioning, assessing for wet skin, applying barrier agents, offering toileting, and even offering oral fluids (water).** By combining routine activities in a protocol such as a “pressure ulcer prevention protocol,” staff can complete multiple tasks while in the room every two hours and document them all at once.

- **Provide supplies at the bedside of each at-risk patient who is incontinent—in the form of a kit or supplies bundled together and placed at the bedside.** This provides the staff with the supplies that they need (including underpads and premoistened, disposable barrier wipes to cleanse, moisturize, deodorize, and protect patients from perineal dermatitis due to incontinence) to immediately clean, dry, and protect the patient’s skin after each episode of incontinence.

5. OPTIMIZE NUTRITION AND HYDRATION

Assessment of the patient for possible risk of pressure ulcer development must include a review of nutritional factors and an assessment of hydration. Numerous nutritional factors such as impaired intake, low body weight or unintentional weight loss, and dehydration may contribute to development of pressure ulcers and are included in standard risk assessment tools.^{2,7} Fluid, protein, and caloric intake are important aspects of maintaining adequate general nutrition. Nutritional supplements or support may be needed if dietary intake is insufficient.

Ensuring optimal nutrition and hydration is often a low priority for caregivers who are delivering multiple medical treatments to acutely ill, at-risk patients. However, at-risk patients may benefit from a consult of a clinical dietician to ensure the availability of appropriate snacks, fluids, and even supplements, and often facilities design an “automatic consult” to a clinical dietician based on the risk assessment.

Staff education should emphasize the necessity of ensuring appropriate intake for patients. Staff should make every effort to allow patient preferences when medically appropriate. Some facilities have encouraged staff to offer water to every patient who is scheduled to be turned. The process could include these steps: offer toileting, assess for needs of cleanliness, change wet surfaces, and offer water.

6. MINIMIZE PRESSURE

Relieving pressure, especially over bony prominences, is especially important. Patients with limited mobility are at risk for the development of pressure ulcers. Staff should make every effort to redistribute the pressure on the skin, either by repositioning or by using pressure-relieving surfaces.^{2,6,7}

Two key components have proven especially effective in minimizing pressure:

■ **Turn/reposition patients every two hours.** The aim of turning/repositioning the patient is to reduce or eliminate pressure, thereby maintaining circulation to areas of the body at risk for pressure ulcers. The literature does not suggest how often patients should be turned to prevent ischemia of soft tissue, but two hours in a single position is the maximum duration of time recommended for patients with normal circulatory capacity. Turning patients every two hours is a foundational element in most pressure ulcer prevention protocols. The turning, or repositioning, of the at-risk patient temporarily shifts or relieves the pressure on the susceptible areas, diminishing the risk of pressure ulcer development. Pillows and blankets are simple, readily available supplies that may be used to assist in pressure reduction. When used wisely, they may expand the weight-bearing surface by molding to the body. Use pillows under the calf to elevate the patient's heels off the bed surface.

Successful hospitals have implemented "turn clocks" placed in the room of each patient at risk for pressure ulcer prevention. These turn clocks designate the times and may even note on which side to turn the patient (for example, 12, back; 2, right; 4, left). This is a standard tool, used in every unit, and all staff are aware that when the patient is in the room, he or she should be repositioned.

–Use unit- or hospitalwide cues (for example, setting caregiver beepers to sound every two hours) to remind staff to turn/reposition all at-risk patients at two-hour intervals.

–Many hospitals have developed unit-based "turn teams," which meet every two hours and reposition patients at risk together.

■ **Use pressure-relieving surfaces.** Specialized support surfaces (such as mattresses, beds, and cushions) reduce or even relieve the pressure that the patient's body weight exerts on the skin and subcutaneous tissues. If a patient's

mobility is compromised and this interface pressure is not relieved, the pressure can lead to impaired circulation and ulcer formation. Many studies have examined the benefits demonstrated by pressure-reducing surfaces in the prevention of pressure ulcers. Such surfaces may be either static support or dynamic. Static-support surfaces include mattresses or mattress overlays filled with air, water, gel, foam, or a combination of any of these. Dynamic-support surfaces mechanically vary the pressure beneath the patient, thereby reducing the duration of any applied pressure.^{2,7,9} Many facilities own or choose to rent specialty pressure-redistribution mattresses/overlays that can be used for patients who are deemed at highest risk.

Because surgical patients who are under anesthesia for extended periods often have an increased risk of developing pressure ulcers, all surgical patients (preoperative, intraoperative, postanesthesia) should receive a skin assessment and a risk assessment. Caregivers should then implement prevention strategies, such as ensuring repositioning and placing patients on appropriate redistribution surfaces for all surgical patients who are identified as being at risk.⁹

Strategies to Minimize Pressure. Strategies to minimize pressure are now described.

Getting Started

Facilities may wish to form a multidisciplinary team to develop a pressure ulcer prevention program. Teams offer the value of bringing diverse personnel together, along with their expertise and experience, in an effort to design a pressure ulcer prevention program. In forming the team, every effort should be made to include a staff representative of each discipline that "touches the patient." The team may include nursing (for example, licensed nurses, as well as assistants, technicians), education, performance improvement, dietary, materials management staff, a senior leader, and a patient or family member. The team will be responsible for reviewing current processes, setting aims, and leading the design and implementation of processes on the pilot unit or area that can be spread reliably throughout the facility.

Incorporating small tests of change by using the Plan-Do-Study-Act (PDSA)¹⁰ cycle offers facilities a useful framework for testing and implementing new processes. Successful hospitals often choose a pilot unit to begin to incorporate a pressure ulcer prevention program—a unit

with a high prevalence of pressure ulcers and with leaders who wish to design new processes. The team should conduct several PDSA cycles with the support and encouragement from the unit and the pressure ulcer prevention task force.

PDSA cycles that teams might conduct on the pilot unit include the following:

- Development of an admission assessment process, including the adoption of a standardized tool, incorporation into the current documentation system, and design of a process to ensure compliance
- Adaptation of the current clinical documentation process to include a daily assessment of risk. Allow the staff to test several options in design, placement, and completion of the risk assessment. This may be assigned to a specific time of day and placed within the body of the current patient care record. In fact, incorporating the risk assessment into the current structure offers the staff a means to incorporate this risk assessment into their current habits, as opposed to “adding a new form” to the current process.
- Design by the staff of reminders, logos, and visual cues for the identification of patients at risk and the tools that help staff incorporate prevention strategies. These may include pocket cards with prevention strategies specific to the identified risk, stickers placed on patient doors or on charts to help identify which patients are at risk, and tools placed in the room with cues to reposition patients.

The staff on the pilot unit and members of the facility team should hold weekly meetings to discuss tests of change and suggestions for change and improvement in the processes for the next week. This provides opportunities to adjust processes and tools and for the facility team to meet frequently with staff to eliminate barriers and assist with implementation. The weekly meetings should include a review of the compliance with accepted methods and a review of barriers, habits, and possible changes that may need to be made.

When the team has designed and tested new processes on the pilot unit, the hospital needs to spread the new process to other units in a systematic way. The hospital must provide education and introduce new processes on the next unit and then must spend time assisting the staff in incorporating the tested changes into their work. Implementing the changes one unit at a time, or one floor

or department at a time, allows the staff time and support in accepting the improvements and developing habits that incorporate these strategies. In addition, systemically spreading the new process to other units or departments offers the freedom to adjust the new process to specific patient populations and unit environments.

Measurement

Process measures build shared pride in progress. Post and celebrate compliance with individual processes—for example, admission assessment completions. Early in the process of implementation, while new habits are forming on a pilot unit and then with the units as the process spreads, it is important to check and post compliance with new processes weekly—in this case, the rate of completion of a risk assessment on each and every patient. Staff are encouraged to know that leaders value the process and are checking compliance, and this provides opportunities to adjust the process design as it is being rolled out to all areas of the hospital.

Process measures include the following:

- Percent of patients with completed pressure ulcer admission assessment
- Percent of patients reassessed daily using the appropriate risk assessment tool
- Percent of at-risk patients who are identified as being at risk (for example, the presence of the time clock on the door, identification of risk on the patient’s chart)
- Percent of patients identified as at risk because of immobility who are repositioned every two hours

Outcome measures demonstrate the actual patient outcomes after a change has been implemented. *Prevalence* is the percentage of patients with a pressure ulcer at any one point in time, and *incidence* is the rate at which new cases occur in a population during a given period. These outcome measures are time consuming and resource intensive, because each and every patient in the facility must be assessed on a given day, so they are conducted sparingly, often quarterly.

Conclusion

The development of pressure ulcers is a painful, expensive, and unnecessary harm event that is all too prevalent in American hospitals. The prevention of pressure ulcers is a

key intervention that is not new, not expensive, and has the potential to save thousands of patients from unnecessary harm. The 5 Million Lives Campaign and its focus on pressure ulcer prevention provides resources to help hospitals actually achieve a pressure ulcer incidence of zero.¹¹ Reliably implementing these strategies for each and every patient at risk can help eliminate the incidence of pressure ulcers in each facility. **J**

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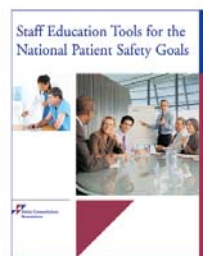
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New Toolkit!

Staff Education Tools for the National Patient Safety Goals

This new toolkit is designed to help patient safety officers and other health care leaders implement and instruct staff about the National Patient Safety Goals across all types of health care organizations. Included in the toolkit are a training binder and CD-ROM with tools for staff on how to comply with the goals. Annual updates will be offered for purchase as a convenient way for organizations to keep the toolkit current without having to purchase entirely new toolkits each year. The toolkit includes:

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