Preventing Pressure Ulcers

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“The human and financial costs of wound development and care are substantial and will escalate for the foreseeable future unless evidence-based approaches are enacted at the bedside using systems-oriented strategies.”

—Beitz (p. 244)
Performance Improvement

Identifying Gaps, Barriers, and Solutions in Implementing Pressure Ulcer Prevention Programs

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Despite implementation of evidence-based pressure ulcer (PU) prevention protocols, patients continue to suffer from these injuries. The total number of hospitalizations with a secondary diagnosis of PU in the United States increased by 80% between 1993 and 2006,¹ and in 2009, the incidence of facility-acquired PUs was determined to be 5% on the basis of assessments of more than 92,000 patients.² International surveys conducted during the 2001–2008 period indicated an average prevalence of 7.05% (median, 6.8%).³ The seriousness of the problem is reflected in the decision of the Centers for Medicare & Medicaid Services (CMS) to no longer reimburse hospital-acquired PUs (HAPUs; Stage III and Stage IV), as reasonably preventable, at the higher diagnosis-related group level.⁴

In this article, we describe a unique partnership that has focused on translating evidence-based best practices to the bedside to prevent PUs.

Translating Evidence into Practice for Pressure Ulcer Prevention

Joint Commission Resources (JCR) and Hill-Rom (Batesville, Indiana) created the Nurse Safety Scholar-in-Residence program in 2009 to foster the professional development of expert nurse clinicians to become translators of evidence into practice (Sidebar 1, page 254). The first nurse scholar activity has focused on PU prevention. Four hospitals with established PU programs participated in the PU prevention implementation project.

PU Prevention Implementation Project: Each hospital's team completed an inventory of PU prevention program components and provided copies of accompanying documentation, along with prevalence and incidence data. Site visits to the four participating hospitals were arranged to provide opportunities for more in-depth analysis and support. Following the initial site visit, the project team at each hospital developed action plans for the top three barriers to PU program implementation. A series of conference calls was held between the site visits.

Year 1 Project Results: Pressure Ulcer Program Gaps and Recommendations. The four hospitals shared common gaps in terms of limitations in staff education and training; lack of physician involvement; limited involvement of unlicensed nursing staff; lack of plan for communicating at-risk status; and limited quality improvement evaluations of bedside practices. Detailed recommendations were identified for addressing each of these gaps.

Conclusions: Recommendations for eliminating these gaps have been implemented by the participating teams to drive improvement and to reduce hospital-acquired PU rates. The nurse scholars will continue to study implementation of best practices for PU prevention.
The project was not designed as a research protocol but was established to translate safe patient care from evidence to bedside, with expected results contributing to the knowledge related to minimizing and preventing harm to patients and effecting strategies for sustained improvement.

Review of the Literature on Pressure Ulcer Prevention

GUIDELINES AND PROGRAMS

For the January 2005–January 2010 period, we performed a literature review using MEDLINE, CINAHL, and the Internet, with the following search terms: pressure ulcer programs, pressure ulcer protocols, protocol barriers, pressure ulcer guidelines, pressure ulcer evidence-based practices, and pressure ulcer program gaps. We focused on identifying guidelines and programs for PU prevention.

We found that PU prevention programs have relied on a variety of evidence-based guidelines, beginning with the national guideline for PU prevention in 1992 and followed by guidelines published by the National Pressure Ulcer Advisory Panel (NPUAP), the European Pressure Ulcer Advisory Panel (EPUAP), the Wound, Ostomy and Continence Nurses (WOCN) Society, the Hartford Institute for Geriatric Nursing, and the Consortium for Spinal Cord Medicine, among others. Many organizations, including JCR, the Wound, Ostomy and Continence Nurses (WOCN) Society, the Hartford Institute for Geriatric Nursing, and the Consortium for Spinal Cord Medicine, offer how-to advice and algorithms that support the implementation of PU programs and provide specific protocols. In 2008, a comprehensive guideline synthesized existing guidelines to optimize PU prevention and treatment. In addition, industry partners whose products are used for the prevention and/or treatment of PUs also provide resources.

Are Pressure Ulcers Always Preventable?

Despite the CMS determination that HAPUs (Stage III and Stage IV) are reasonably preventable, there is debate about whether all PUs, like other CMS hospital-acquired conditions, are truly unavoidable. According to CMS, in long term care facilities, “unavoidable” means that the resident developed a PU even though the facility team had evaluated the resident’s clinical condition and PU risk factors; defined and implemented interventions that are consistent with resident needs, goals, and recognized standards of practice; monitored and evaluated the impact of the interventions; and revised the approaches as appropriate.

In 2009 a WOCN white paper concluded that “While many wound care experts agree some pressure ulcers are unavoidable, the accurate identification of these wounds is made after appropriate preventive interventions have failed.” In 2010, a National Pressure Ulcer Advisory Panel (NPUAP) consensus panel agreed to the following:

Unavoidable means that the individual developed a pressure ulcer even though the provider had evaluated the individual’s clinical condition and pressure ulcer risk factors, defined and implemented interventions that are consistent with individual needs, goals and recognized standards of practice, monitored and evaluated the impact of the interventions, and revised the approaches as appropriate.

However, the panel recommended that this definition, unlike the CMS restriction to long term care, could be applied to all settings.

Sidebar 1. Nurse Safety Scholar-in-Residence Program

The major objectives of the Nurse Safety Scholar-in-Residence Program are as follows:

1. Foster the professional development of expert nurse clinicians and scholars to become translators of evidence into practice, with emphasis on specific clinical problems that threaten patient safety.
2. Identify best-practice processes and technology associated with providing safe care for specific clinical problems.
3. Establish hospital collaborative projects focused on clinical challenges and adverse events, initially relating to skin care, and later, fall prevention.
4. Develop services, technology, and other products for the dissemination of intramural and extramural clinical improvement activities and best practices (for example, workshops, education programs, publications, academic curricula).
5. Participate in the design and implementation of JCR/Hill-Rom-sponsored multisite, performance improvement projects or “collaboratives” related to the scholar’s clinical expertise and to include the scholar’s health care organization, as appropriate.
6. Identify related research hypotheses and questions for future study.
7. Highlight the collaborative partnership between JCR and Hill-Rom with a focus on improving patient outcomes through excellence in nursing care.

The program is intended to develop the nurse scholar’s ability to translate evidence-based findings to the bedside and to serve as a clinical leader in performance improvement and patient safety activities. Hill-Rom is funding the nurse scholar position and costs associated with project; all plans for the project were arranged through a JCR/Hill-Rom steering committee. The participating hospitals determined their own activities as part of the PU prevention implementation project. For more information, see Joint Commission Resources: Pressure Ulcer Prevention Project: The Nurse Safety Scholar-in-Residence Program. http://www.jcrinc.com/Pressure-Ulcer-Prevention-Project-Home/ (last accessed Apr. 18, 2011).
Each of these three definitions of the avoidability or unavoid-ability of PUs ties the occurrence of PUs to the presence or absence of consistent application of patient-centered plans for prevention within “recognized standards of practice.” If PUs occur, there should be clear evidence (1) that the injuries occurred despite consistent application of all evidence-based prevention strategies, (2) that there is documented evidence that there were issues with patient and/or family adherence to the prevention program which were addressed, or (3) that there is documentation that interventions designed to prevent PUs were contraindicated because of the patient’s clinical condition. Successfully preventing PUs is further complicated by the fact that all risks are not identified by current risk assessment tools, and nurses are not in a position to remove or address all risk factors.18

INITIATIVES

Hospital systems and government agencies have described successful initiatives that prevent PUs by using skin bundles derived from evidence-based guidelines, algorithms that promote consistency with interventions, focused staff education, and frequent administration of prevalence surveys.19–21 The Canadian Association of Wound Care uses a questionnaire that lists components of PU prevention programs, which facilities can use in customizing their own PU programs.22 The Indiana State Department of Health has classified PU initiative components as follows23:

- Organization components—the makeup of team membership, policies and procedures, ongoing quality evaluation processes, the process for educating staff and the utilization of “skin champions,” and the development and systemwide communication of the written care plan
- PU prevention components—the list of tasks associated with PU prevention, such as risk assessment, skin assessment, moisture management, nutrition and hydration optimization and management of pressure
- Care coordination components—including communication forms used with patient transfers between health care settings, the physician discharge report, and establishment of regular meetings to facilitate communication, collegiality, and learning.

PU protocols typically include admission and ongoing skin assessments, identification of patients at risk for PUs using validated tools, and patient-centered written care plans designed to mitigate the patient’s identified risk factors. Ongoing reassessments of skin and risk factors trigger adjustments in the patients’ prevention plans as needed. Interventions for prevention include ensuring patient repositioning within accepted time frames, usually at least every two hours; managing moisture; providing adequate nutrition and hydration; and minimizing friction and shear. Pressure redistribution surfaces and special heel protection devices may also be provided. On the basis of current definitions of avoidable versus unavoidable PUs and in the interest of achieving patient safety goals, health care organizations must provide efficient and consistent implementation of PU prevention programs.

There is general agreement among experts that implementing PU prevention programs on the basis of current guidelines will decrease the rates of HAPUs, but that the improvements may not be sustained. Questions remain about the validity of recommended prevention strategies, which may be effective in certain unique environments or organizations and ineffective in others, resulting in unavoidable PUs.

Pressure Ulcer Prevention Implementation Project

In spring 2009, through personal communication with nurse executives, four hospitals in the United States were invited and agreed to participate, as listed in Table 1 (page 256), in the PU prevention implementation project. Each hospital was a member of a larger health care system and had at least one certified wound ostomy continence nurse (CWOCN) on staff.

PROJECT STRUCTURE

Sites were asked to identify a project team leader and a multidisciplinary team to oversee project activities, with continuing executive sponsorship provided by the chief nursing officer (CNO). It was determined that the project leaders would act as liaisons between the hospitals’ PU prevention program teams (which, in some cases were standing committees), the nurse scholar [I.J.], and the project director [D.M.N.] and would facilitate the process within their own hospital systems. At each site, project team members consisted of nurse managers, staff nurses, nursing assistants (NAs; at some sites, called patient care associates), physical therapists, nutritionists, physicians, risk managers, educators and others. Because this project was a performance improvement rather than a research project, none of the hospitals sought Institutional Review Board approval.

LAUNCHING THE PROJECT

To launch the project, the nurse scholar and project director held a series of joint conference calls starting in fall 2009 with the hospitals’ project team leaders to explain the objectives of the project; define the roles of the participants, including the role of the nurse scholar and project director as content experts and fa-
cilitators; and to review all the PU prevention program information previously provided to the nurse scholar. Some specific challenges were identified through this process and various gaps in the programs were affirmed.

**PU PREVENTION PROGRAM ASSESSMENT**

On the basis of the literature review, we created a hospital PU prevention program inventory—the Pressure Ulcer Prevention Program Assessment Tool (http://jcrinc.com/PUPP-Hospital-Assessment/)—which consists of elements believed to be essential to a comprehensive and effective strategy for minimizing the risk of PU development. Each participating hospital’s team completed the PU prevention program inventory—which was sent in July 2009—and provided copies of policies, procedures, order sets, protocols, bundles and samples of forms used for documentation. Prevalence data were also collected.

Review of the PU prevention program inventories revealed that each of the four hospitals’ programs was led by an executive-level champion (the chief nursing officer or quality director) and had an established team that defined the objectives of the program, provided support and guidance so that patient care goals could be met, and evaluated the effectiveness of the outcomes of activities.

A CWOCN was available in all four hospitals, three of which identified the CWOCN as the PU prevention project leader. In the remaining hospital, an expert clinical nurse specialist/educator served as the project leader.

The inventory also revealed that at three of the four hospitals, NAs were not included in the PU teams. All four hospitals provided PU education to nurses and NAs during orientation but did not offer follow-up education to NAs.

Patients at risk for PUs and their family members did not routinely receive instruction about the PU prevention program. Every hospital had a written PU protocol and used the Braden Scale for Predicting Pressure Sore Risk, but none of the hospitals routinely included the risk scores or PU prevention care plans in shift-to-shift reports, registered nurse (RN)-to-NA reports, RN-to-physician (MD) communications, or other handoffs between hospital staff (for example, staff nurse to transporters, transporters to imaging staff). All four hospitals reported the availability of unit-based skin champions—usually nurses who had received extra classes in PU prevention and treatment. One facility reported using RN/NA teams as their unit-based skin champions.

Inventory questions about quality evaluations revealed that all of the hospitals were participating in the quarterly National Database of Nursing Quality Indicators® prevalence surveys.

Methods used to ensure that patients are consistently receiving interventions outlined in the PU prevention protocols included retrospective and concurrent chart reviews, review of bedside flow sheets, and hourly rounding forms. One hospital reported that it had conducted a bedside observation of repositioning practices on some of their units to determine adherence to turning schedules. Another concern, but outside the scope of this project, that was revealed in the inventory questionnaire was the problem of inconsistent description of PUs by nurses, physicians, and wound specialists.

**SITE VISITS AND CONFERENCE CALLS**

**Site Visits.** Site visits to the four participating hospitals were arranged to provide opportunities for more in-depth analysis and to ensure ongoing support and focus in the identification and remediation of gaps or barriers that might be interfering with efficient implementation of PU prevention programs. The nurse scholar and project director worked with each hospital’s project managers to develop site-specific visit agendas.

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Description</th>
<th>Project Leader</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beth Israel Medical Center, New York City</td>
<td>1,006-bed tertiary care teaching hospital</td>
<td>Michael Willis, A.P.N., C.W.O.C.N.</td>
</tr>
<tr>
<td>Site 1—Petrie Division, Manhattan</td>
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<tr>
<td>Site 2—Kings Highway Division, Brooklyn, New York</td>
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<tr>
<td>Continuum Health Partners, Inc., New York City</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hahnemann University Hospital, Philadelphia</td>
<td>540-bed tertiary care teaching hospital</td>
<td>Judith DiPerri, M.S.N., R.N., B.C., C.W.O.C.N.</td>
</tr>
<tr>
<td>Tenet Healthcare Corporation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>St. Mary’s Hospital, Richmond, Virginia</td>
<td>391-bed acute care community hospital</td>
<td>Diane Whitworth, R.N., C.W.O.C.N.</td>
</tr>
<tr>
<td>Bon Secours Health System, Inc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>St. Vincent’s Birmingham, Birmingham, Alabama</td>
<td>372-bed acute care community hospital</td>
<td>Terri Murphy, R.N., M.S.N., Medical/Surgical Nurse Specialist</td>
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<tr>
<td>Ascension Health</td>
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</table>

Table 1. Participating Hospitals
In the first year of the project (April 2009–March 2010), the nurse scholar and the project director conducted initial visits (two to three days) and second-round visits (one to two days) between August 2009 and January 2010. The purpose of the site visits were as follows:

1. To review the project’s goals and review the findings from the pre-visit phone calls and inventory (Visit 1)

2. To determine challenges with protocol implementation by receiving input from frontline bedside caregivers (Visit 1)

3. To assist the project team in redesigning its PU prevention program (Visit 1) and to later determine the impact of the changes in the program (Visit 2)

Town hall meetings were conducted during the site visits to elicit input from the frontline bedside caregivers. The town hall participants were also encouraged to offer ideas for improvement that would promote more efficient implementation of prevention protocols. Sample findings from these sessions, which were attended by nursing and other staff members, are listed in Table 2 (above). Nonnursing staff, including transporters; supply or skin care product delivery staff; and ancillary staff, such as those in the radiology, dialysis, and endoscopy departments, expressed interest in participating in PU prevention initiatives.

The team members, the nurse scholar, and the project director, using open-ended questions, spent time on patient units interviewing frontline caregivers—nurses, NAs, technicians, physicians, and other unit staff—regarding the implementation of the PU prevention protocols. They also performed random chart reviews of documentation.

At each hospital, the nurse scholar, the project director, and the team discussed the themes in the town hall meeting and staff interviews, and then participated in brainstorming sessions to create a list of perceived barriers to PU program implementation. As issues were discussed, it became clear that it was important to have input from nonnursing staff on an ongoing basis—that is, through multidisciplinary representation on the team. For example, at one site, a nutritionist noted that the Braden nutrition score alone frequently led to inappropriate requests for nutrition consults and suggested that other data also be considered to better target the need for a consult.

In all but one of the four hospitals, the nurse scholar noted

**Table 2. Town Hall Findings***

<table>
<thead>
<tr>
<th>Hospital 1</th>
<th>Hospital 2</th>
<th>Hospital 3</th>
<th>Hospital 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>RN handoff of Braden information not routinely done</td>
<td>RN handoff of risk status not routinely provided</td>
<td>RN handoff of risk status not routinely provided; currently SBAR system is used</td>
<td>RN handoff of risk status not routinely provided</td>
</tr>
<tr>
<td>PCAs want more PU education; they want to play a more active role</td>
<td>CNAs need more training to take more initiative</td>
<td>CNAs are not included in the PU prevention committee meetings.</td>
<td>PCAs want more information.</td>
</tr>
<tr>
<td>Long hold times in ED for high-risk patients. Providing pressure-redistribution stretcher mattresses in ED for high-risk patients may help.</td>
<td>Patients’ time on stretchers may be extended by delays. ED is planning skin care education and to obtain more consistent access to skin care supplies.</td>
<td>ED/OR and PACU areas are not part of the PU prevention program committee. Uses a company to provide patient mobilization services, including every-two-hour turning for specific patients.</td>
<td>Documentation of repositioning is easy to do. PT recommendation: nurses should more actively mobilize patients without PT.</td>
</tr>
<tr>
<td>Lack of teamwork between nurses and PCAs</td>
<td>Need more information about adherence to turning schedules. Need clarification of role responsibilities for RNs, CNAs, technicians.</td>
<td>Working with a state collaborative to develop and disseminate patient education materials</td>
<td>Shift assignments not always based on acuity.</td>
</tr>
<tr>
<td>Physicians are not aware of PU prevention program.</td>
<td>Physicians are not aware of PU prevention program.</td>
<td>A strong physician champion is involved in planning meetings.</td>
<td>Physicians are not aware of PU prevention program.</td>
</tr>
<tr>
<td>PU prevention supplies are not always readily available on the units. Confusion about which supplies and how to use them.</td>
<td>PU prevention supplies are not always readily available on the units. More education about supplies wanted.</td>
<td>Bedside staff are not using or cannot locate a wound care manual that was designed to educate them about appropriate product selection and usage.</td>
<td>Staff want more support from CWOCN and more education about supplies.</td>
</tr>
</tbody>
</table>

* In Tables 2–5, the hospitals are not identified. RN, registered nurse; SBAR, Situation-Background-Assessment-Recommendation; PCA, patient care associate; PU, pressure ulcer; CNA, certified nursing assistant; ED, emergency department; OR, operating room; PACU, postanesthesia care unit; PT, physical therapy; CWOCN, certified wound, ostomy, and continence nurse.
that physicians were not involved in PU prevention. This observation led to discussions about the physicians’ unavailability and/or nurses’ perception of physicians’ lack of interest. One of the three hospitals planned to conduct a survey of physician knowledge of PU prevention to gain more insight into this issue and to perhaps then target medical staff for an educational program. The first site visits concluded with project teams identifying the top three issues to be addressed at their hospitals.

Following the initial site visit, the project team at each hospital developed action plans for the top three issues. The team broke into subgroups to implement action items. In some cases, action items were geared toward obtaining more supportive evidence in an effort to better define the specific problems. For example, at one hospital, to address a problem with staff compliance with repositioning schedules, a plan was developed to design a method that would allow observation of staff adherence to repositioning at-risk patients at least every two hours. At another facility, it was unclear why staff did not adhere to policies, despite the availability of a wound care manual on every unit that should provide any information that staff needed to successfully implement prevention strategies. Interviews with bedside caregivers indicated that many of them were either not aware of the manual as a resource or were unable to locate it. Other issues were also apparent, including barriers to providing appropriate nutrition within a reasonable time frame and lack of knowledge on how to use skin care products and how to differentiate PUs from other types of skin ulcerations, such as skin tears, incontinence-associated dermatitis, and fungal rashes. At another facility, various staff indicated that there was a delay in the ability of the WOCN to see patients in a timely way because of the high volume of requests. The team decided to redefine the job description to better reflect the current WOCN’s actual duties and responsibilities—after it had surveyed nursing staff and physicians on the issue.

The four hospitals’ perceived barriers to PU prevention are shown in Table 3 (page 259), and the identified action plans are listed in Table 4 (page 259).

Conference Calls. A series of PU prevention project leader conference calls were held between the site visits. These calls provided an opportunity for all site leaders to interact and share information with each other, yet it was understood that certain solutions might benefit one organization and not another. The questions posed during PU prevention implementation project leader conference calls included the following:

- What are the barriers that prevent patients from being repositioned every two hours?
- Do our physicians know about the PU prevention program and should they take a more active role?
- How is PU prevention education provided? Who should receive this education and how often?
- Are skin care and incontinence supplies and pressure redistribution equipment readily available and is the staff confident about when and how to use them?

YEAR 1 RESULTS: PRESSURE ULCER PREVENTION PROGRAM GAPS AND RECOMMENDATIONS

The four hospitals found common ground as they explored the processes for bringing best practices for PU prevention to patients. They all shared PU prevention program gaps in terms of limitations in staff education and training; lack of physician involvement; limited involvement of unlicensed nursing staff; lack of plan for communicating at-risk status; and limited quality improvement evaluations of bedside practices.

Limitations in Staff Education and Training. Education related to the PU prevention program was limited to nursing personnel. Although nurses and other health care providers should be kept abreast of changes and updates in programs and protocols, in all hospitals patients interact with a wide variety of caregivers who are responsible for transportation, treatments, diagnostic tests, and procedures.

PU prevention education should be ongoing and frequent. Methods can include unit-based 15-minute reviews, flyers, posters, contests, product fairs, all-day seminars, and Web-based programs. One team, which had developed an education binder, planned to develop a team of “train-the-trainer” nurses who would be tasked with unit-based education. Another team reported improvements by using an RN/NA team approach. In this approach, the teams receive an all-day training program focused on team building. In addition to learning about PU prevention strategies, these teams engage in group projects that promote sharing information and ideas. The goal of these teams was to create a culture of safety on their units through peer education and patient advocacy. It was also determined that these skin champions should receive training in how to do 5- to 15-minute unit-based peer training, with a focus on correct use of skin care products, lift equipment, or special beds or other protective devices and other PU prevention strategies.

All four hospitals believed that a broad approach to PU prevention education beyond the nursing department would engage all caregivers and build multidisciplinary awareness and collaboration to prevent PUs. A discussion about PU prevention
initiatives can be added to meeting agendas for physicians, physical therapists, and department heads, and at grand rounds presentations and other forums. At one of the hospitals, education about the PU program was provided to various medical specialists, including pulmonary fellows, surgical residents, medical residents, and hospitalists. These physicians had never heard of the Braden risk score and expressed interest in being kept informed about their patients who are at high risk for PUs.

It is recommended that PU prevention program teams do the following:

- Develop a calendar of educational opportunities to disseminate ongoing PU prevention information to all nursing staff (professional and support staff).
- Use a variety of teaching strategies, including short unit-based education, continuing education credit programs, grand rounds, flyers, screen savers, and contests.
- Provide education about PU prevention to all staff who interact with patients (scope of content may differ depending on staff position and/or department).
- Develop plans to disseminate information about the PU prevention program to all hospital employees who interact with patients.

**Lack of Physician Involvement.** There was limited involvement of physicians on PU prevention teams. Perhaps because PU prevention is often identified as solely a nursing quality issue, medical staff may not routinely focus on the issue. Medical involvement is critical in ensuring that certain interventions, such as nutrition and mobilization, are prescribed appropriately for patients. In addition, a patient’s risk status (low, moderate, or high) for pressure-related injury may have an impact on care decisions. For example, a physician who is aware of a patient’s high-risk status may be more likely to see early mobilization and nutritional support as high-level priorities.
It is recommended that PU prevention program teams do the following:

- Identify a physician champion for PU prevention activities and include a physician as an active member of the PU prevention team.
- Formulate a plan to share information about PU prevention with physician colleagues, patients, and their caregivers.
- Provide medical staff with information explaining the PU prevention program and the importance of their roles in supporting interventions related to nutrition, hydration, and mobilization.
- Report data (for example, National Database of Nursing Quality Indicators) to quality council, medical executive committee, and board meetings.

**Limited Involvement of Unlicensed Nursing Personnel.** NAs, who, as providers of direct patient care, can have valid insights into reasons for delays or nonadherence with protocols, are not routinely included as active members of PU prevention teams.

It is recommended that PU prevention program teams do the following:

- Include NAs as members of PU prevention teams.
- Ensure that unlicensed nursing personnel are included in PU prevention education plans.
- Actively seek the input and recommendations for improvements from unlicensed nursing personnel.
- Empower unlicensed nursing staff to actively advocate for patients at risk for PUs.

**Lack of Plan for Communicating At-Risk Status.** All PU guideline protocols recommend that each patient receive a risk assessment. Handoff communication of the patient’s risk status should be routine. All four hospitals showed high compliance with documentation of Braden scores on admission and on a daily basis or more frequently thereafter. However, none of the project teams included the patient’s risk status in verbal handoff communication between caregivers, nor was PU risk information included on any of the handoff forms that were collected. The following scenario demonstrates the importance of providing risk status in handoff communications:

Mrs. Jones is admitted to a nursing unit and has a Braden score of 8 (high risk for pressure ulcers). The nurse implements the PU prevention protocol and orders a special mattress. Mrs. Jones is sent to the radiology department for chest x-ray and from there she will be transported to the dialysis unit for a treatment. The following individuals are not aware of the patient’s high-risk status: transporter, radiology technician, radiologist, next transporter, dialysis nurse and next transporter. By the time Mrs. Jones returns to her room, she has been positioned on her back with the head of the bed at 45 degrees for a total of six hours. Her heels have not been elevated off the mattress surface, and she has also been transferred from one surface to another at least four times, creating a risk for trauma related to shear.

Each of the project teams planned different approaches to the handoff challenge. One team already had a standardized handoff form used throughout the system and a “ticket-to-ride” handoff tool used when patients are in the care of transporters. In this case, it seemed an “easy fix” to just add a space for the Braden score. The more difficult task was the planning and implementation of education of staff about the rationale for knowing the patient’s risk status and strategies that would promote prevention. Another team identified a need for structuring handoff processes across the entire hospital system. This created a need for developing a new subcommittee under the guidance of the standards and practice committee. This group would gather all handoff tools currently in use and create a standardized format to be used throughout the hospital.

It is recommended that PU prevention program teams do the following:

- Include information about PU risk status in all handoff communication (written and verbal).
- Educate staff about how they are to use this risk status while caring for the patient.

**Limited Quality Improvement Evaluations of Bedside Practices.** Prevalence surveys and chart reviews are used to evaluate PU prevention programs, which is important for trending PU rates and evaluating documentation. However, retrospective evaluations do not necessarily provide insight into bedside practices. Observational surveys will provide information about actual patient care versus documented care and will lead to opportunities to ensure that best practice interventions are applied.

Results of quality reviews should be transparent. Unit-based reporting of quality assessments will help staff to celebrate successes and plan improvements. When patients develop PUs, a structured root cause analysis (RCA) can provide important information that will lead to process improvements.

It is recommended that PU prevention program teams do the following:

- Conduct observations of bedside practices as part of the quality evaluation of the PU protocol implementation.
- Share unit-based survey results with frontline staff.
- Develop a process for RCA that can be completed with input from frontline caregivers to identify possible system or education problems.
PRESSURE ULCER PROTOCOLS: BARRIERS AND RECOMMENDATIONS

An important component of PU prevention programs is the protocol that provides specific interventions that should be implemented for patients who are at risk for PUs. All four hospitals’ protocols included risk assessment, mobilization (management of tissue loads), nutrition, moisture/incontinence management, and heel protection. In addition, the following barriers to implementation of the PU prevention protocols were identified: risk score accuracy, mobilization (management of treatment loads), and nutrition.

Risk Score Accuracy. The PU risk score must be accurate because it is the trigger for initiating prevention strategies. One hospital team reported problems with accuracy of Braden scores, which was complicated by a recent change in electronic medical record (EMR) documentation. It was noted that nurses had to use an extra screen to read the full explanation of risk categories. Many nurses, unfortunately, did not access this screen when scoring patients, resulting in inaccurate scores. Score accuracy checks, hospitalwide education, posting the risk assessment document on units, and other interventions had to be used to remedy this problem. Discussions with information technology (IT) department managers indicated that a correction of the problem from their perspective (making the entire risk assessment form one page) was not feasible with the current EMR program. This facility team is working with the idea of using the term “talk Braden” to remind nurses that Braden risk scores for patients at risk for PUs should be shared in handoff communication. CWOCNs, nurse managers, and unit-based clinical nurse specialists should routinely ask nurses for the Braden score when assisting with patient assessments to provide opportunities for testing reliability of scores and on-the-spot education where needed.

The following actions are recommended:
- Conduct random reliability testing of Braden scores.
- Offer education and practice sessions in a variety of ways: online training, case studies and scenarios, and spot checks with immediate feedback.
- Encourage staff to share scores and to compare notes regarding risk assessment and interventions (that is, “talk Braden”).
- Collaborate with IT departments to ensure that all necessary documentation tools and scales such as risk assessment scales are easily accessed by nurses. A full description of the risk assessment tool should be available for easy viewing to ensure that scores will be accurate.
- Provide additional staff education in Braden subscale scores and interventions.

Mobilization (Management of Tissue Loads). There are several components to this intervention: moving the patient through repositioning (including correct positioning of heels for bedridden patients), progressive mobilization (assisting the patient from bed to chair and toward standing and ambulation), minimizing tissue loads through the use of special mattresses and chair surfaces, and preventing friction and/or shear. Each of the participating hospitals’ protocols listed turning every two hours as a specific intervention for patients at risk for PUs, the use of special mattresses, and the idea of preventing friction and shear using lift sheets and/or various skin products.

Part 1. Adherence to Two-hour Repositioning Schedules. There are many unanswered questions about the appropriateness of two hours as the accepted time frame. Lack of teamwork was cited as an issue at two of the facilities. One of the hospitals, which had outsourced turning of patients to an outside company, had the highest adherence to turning schedules. As an added benefit, usage of a “mobility team” decreased staff injuries. At another facility, which trialed use of music prompts for turning, HAPUs on this particular unit decreased after the adherence with turning schedules increased. One of the facilities used an RN/NA team approach to turning, but had not studied the impact.

The following actions are recommended:
- Observe turning practices to gain specific information about problems with maintaining turning schedules and explore with staff why adherence may be problematic.
- Evaluate whether a two-hour turning schedule is indicated for all patients or whether there should be a plan to individualize patient-specific turning schedules.
- Provide a prompt (for example, music, screen saver, time-keeper) to remind the nursing care team to reposition patients.
- Consider the development of a special team to reposition and mobilize patients.

Part 2. Knowledge Deficits for Use of Equipment and Skin Care Products. Nurses need specific information about available skin care products and equipment (for example, special beds, lifts, slide sheets, slings, heel protectors and heel lifts, ointments, creams, containment devices), including their indications for specific patient care needs and how to use them. The information about equipment should not be limited to nurses. NAs, physical therapists, transporters, and others who move patients from beds to stretchers and chairs should also receive information about indications for special skin care products and equipment to minimize pressure, shear forces, and friction.

The following actions are recommended:
- Create reference lists or algorithms that show products,
patient care indications, how to access the products, and the phone numbers to call for more information.

- Plan biannual competency or product fairs to allow staff to see and work with equipment.
- Use industry partners to provide staff education on the appropriate use of their equipment and products.
- Use skin champions as product experts and provide them with flyers and other information that can be shared with their colleagues on the units.

**Part 3. Problems Gaining Access to Prevention Beds.** Renting specialty beds and mattresses is expensive. In an effort to manage costs, many facilities have instituted a gatekeeper system, which requires staff to gain approval from one or more persons so that rental equipment can be ordered. This system can cause delays in getting much needed equipment because time is spent in obtaining the approval, ordering the equipment, and waiting for a delivery. One of the participating hospitals owns high-level beds and has engineers who maintain the products, thus facilitating access to equipment when needed. At two other hospitals, all beds are equipped with pressure redistribution mattresses that were purchased within the last five years.

High-risk patients at these facilities are placed on high-end rented specialty beds within short time frames (less than four hours). The remaining hospital requires that a bed order be approved by the CWOCN or a physician, which, in some cases, creates delays in getting rented beds to patients.

The following actions are recommended:

- Avoid creating complicated gatekeeper systems that could cause delays in ordering necessary equipment.
- If using a gatekeeper system, include evening and night supervisors in bed selection training so that specialty beds can be ordered at any time.
- Include daily rental costs on any document that is used to describe rental products.
- Use skin champions to distribute flyers that describe and explain the usage of each product; consider a “product of the month” flyer.
- Conduct unit rounds to determine whether appropriate supplies are at each patient's bedside.
- Use industry partners to ensure timely and appropriate use of therapeutic support surfaces.

**Nutrition.** All four hospitals’ PU teams had input from nutritionists. All PU protocols recommended nutrition consults for patients with PUs. There were differences in the timing of nutrition consults for patients who were found to be at risk for PUs (Braden score < 18 at three of the hospitals, and a Braden score < 16 at the remaining hospital).

As stated earlier, the nutritionist at one of the facilities reported that using the Braden nutrition subscale alone led to unnecessary consultations. A discussion about inaccuracies in the nutrition score led to an identification of the need to stress the importance of accurate nutrition scoring and the importance of including information about how to score patients for nutrition using the Braden scale when educating nurses. This is the only Braden subscale that considers usual pattern and not current pattern. It appeared that nurses often score the subscale with the patient’s current nutritional intake in mind.

The team agreed that the Braden score should be one of the indicators used along with a more comprehensive nutrition screen. All facilities allowed nurses to request nutrition consultations as needed on a case-by-case basis.

At another facility, the PU team, with the nutritionist’s input, identified problems in ensuring adequate nutrition for high-risk patients admitted to the hospital and waiting in the emergency department (ED) for beds. The resolution of this problem required a collaborative and multidisciplinary approach that included input from the nutritionist, CWOCN, ED nurse manager, hospitalists, and dietary staff. It should be noted that part of this problem was related to EMR documentation. The ED and hospital admissions EMR documentation at this facility were not integrated—orders written in the EMR for the admitted patient were not visible to the ED staff, and vice versa.

The following actions are recommended:

- Highlight correct nutrition scoring (Braden risk scale) when educating nursing staff (for example, usual not current pattern).
- Include a nutritionist as a member of the PU prevention team.
- Determine an appropriate trigger for nutrition consults for moderate-to-high-risk patients in collaboration with a nutritionist.

**Moisture and Incontinence Management.** Regarding the use of skin care products to manage moisture and incontinence, all four hospitals reported that ensuring timely and appropriate usage of barrier ointments, skin protection wipes, and moisturizers remains a challenge, despite frequent classes and signage on the units and collaboration with suppliers, materials managers, and value analysis committees. Two hospital teams reported that complicated materials management procedures made it difficult to get supplies stocked on patient care units. In some cases, staff may not understand the importance of using certain supplies or may not appreciate the cost implications to the hospital if supplies are overused, as reported by one of the hospitals. At least three of the hospitals reported problems with nurses’ and NA’s...
Hospital Improvement Action

Hospital 1
- Teamwork, collaboration, and use of PU prevention protocol: Implementation of a team-building program for nurses and PCAs.
  - More than 400 staff members have completed training.
  - MD education: CWOCNs have education completed for pulmonary fellows, OB/GYN physicians, surgical residents, ED physicians and hospitalists.
  - Standards and practice committee is revising all handoff forms used within the hospital system.
  - Problem with ED holding: A more efficient and timely nutrition orders and pressure redistribution stretcher mattresses purchased.
  - Standardization of unit-based skin/wound care carts, and addition of PU prevention equipment including positioning wedges and chair cushions.

Hospital 2
- Focused on bedside adherence with protocols and education of staff.
- Inspired the idea of the Q2H turning survey to allow for a real-time bedside evaluation of implementation of best practice recommendation for repositioning patients.
- Identified an MD champion.
- Combined skin care committee with the PU prevention project committee.

Hospital 3
- Braden risk information added to handoff forms.
- ED, OR, PACU participation increasing; previously no plans to identify at-risk patients. We now have a committee reviewing PU prevention in these areas.
- Mobility team interventions will be documented as part of the patient’s medical record.
- Patient education brochures obtained.
- Relaunch of a wound care manual to be available as a resource to bedside staff.

Hospital 4
- Increased participation of PCA group (based on survey results).
- Development of a PU resource manual and plan for unit-based education on contents of manual.
- Improve PT/nurse collaboration.
- New physician champion will help with MD education/collaboration.
- Updated all communication forms to include Braden risk information.
- Increased CWOCN services from one to two full-time employees.

Table 5. Improvement Actions*

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</table>

* PU, pressure ulcer; PCA, primary care associate; MD, physician; CWOCN, certified wound, ostomy, and continence nurse; OB/GYN, obstetrics/gynecology; ED, emergency department; Q2H, every two hours; CNA, certified nursing assistant; OR, operating room; PACU, postanesthesia care unit; SOS, Save Our Skin.

mixing of new formulas by combining different products. Attempting the change from adult diapers to disposable incontinence pads presents challenges, especially in hospitals where diaper usage has been part of the units’ routine activities.

The following actions are recommended:

- Provide ongoing updates about the products that are available to prevent incontinence-associated skin problems (for example, flyers, screen savers, short unit-based education, skin rounds).
- Ensure that necessary products are readily available on the nursing units.

Conclusions

Preventing PUs in hospitalized patients presents a challenge, even when facilities have prevention programs in place. PU prevention program initiatives should be communicated throughout the hospital and its system and should not be limited to nursing departments. A PU prevention program requires a dedicated leader and experts who will maintain the hospital team’s focus and direction. It also requires executive support, transparency of quality data, a dedicated multidisciplinary group, and structured and ongoing education and feedback for all staff involved in patient care. Unit-based champions will support implementation of PU prevention protocols. Each PU prevention protocol intervention should be evaluated using the expertise of bedside staff members who initiate the protocols. Bedside staff are in a position to identify barriers to protocol implementation and can provide insight into appropriate remedies for no adherence to protocols.

Through this project’s work with four hospital teams, we have identified specific gaps in PU prevention programs and protocol use at the bedside. Recommendations for eliminating these gaps have been implemented by the participating teams to drive improvement and to reduce their HAPU rates. These improvement actions are listed in Table 5 (above). Subsequent project activities in Year 2 (April 2010–March 2011) and Year 3 (April 2011–May 2012) have continued to focus on measuring the impact of the changes made in these hospitals by defining and initiating process performance data collection opportunities, as well as promoting the spread of the improvements throughout each
hospital’s health system.

The nurse scholars will continue to study implementation of best practices for PU prevention and will provide guidance to clinicians and bedside caregivers to support efforts to keep patients safe from avoidable PUs. The following initiatives will be explored as this project continues:

1. Developing a critical event analysis to help identify root causes of PUs and status as an avoidable versus unavoidable PU
2. Having data collection strategies incorporate coded HAPUS, incidence-reported HAPUS, CWOCN-reported HAPUS, and quarterly reported NDNQI HAPUS
3. Development of a matrix to identify critical process improvement opportunities.

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References