Implementing a Pressure Ulcer Prevention Program and Enhancing the Role of the CWOCN: Impact on Outcomes
- Barbara Hiser, MBA-HA, RNBC; Jana Rochette, RN, BSN, CWOCN; Shawna Philbin, RN, BSN, CWOCN; Nancy Lowerhouse, RN, BSN, CWOCN; Catherine TerBurgh, MED, MSN, FNP; and Catherine Pietsch, BS, MT, CCRA

Hospitals in the US are increasingly concerned with the rising number of hospital-acquired pressure ulcers. To reduce its 2002-2003 average hospital-acquired pressure ulcer prevalence rate of 9.2%, a regional medical center in southeastern US initiated a process improvement and education program. Quarterly pressure ulcer prevalence studies were conducted and the Medical Intensive Care Unit was found to have the highest number of hospital-acquired pressure ulcers among the five units participating in the study. As part of a new Pressure Ulcer Strategic Plan, significant changes were made to the organizational infrastructure and processes, which included implementing the Braden Risk Scale Assessment Tool in place of the Norton Risk Scale, developing a pressure ulcer prevention protocol, creating Pressure Ulcer/Skin Tear Physician orders for nurses, establishing a Skin Resource Team, and providing additional education, training, and other relevant resources. Better appreciation for and enhanced utilization of Certified Wound Ostomy Continence Nurses were encouraged. New support surfaces were purchased. Implementing these changes resulted in a decrease in the quarterly hospital-acquired pressure ulcer prevalence in participating units, including the Medical Intensive Care Unit where rates dropped from a high of 29% to near 0%. Clinicians now approach pressure ulcers as preventable rather than inevitable and view Certified Wound Ostomy Continence Nurses as resources and clinical experts for prevention and treatment. Overall quality of care and financial resource utilization also have substantially improved. KEYWORDS: pressure ulcers, pressure ulcer prevention, pressure ulcer prevalence, CWOCN, process improvement, performance improvement

Studies conducted at healthcare institutions across the US show that pressure ulcers can increase patient length of stay, patient care costs, and patient pain and suffering.1 Annual prevalence studies conducted at Holmes Regional Medical Center, Melbourne, Fla, a 580-bed regional medical facility, found that pressure ulcers were occurring, but due to the infrequency of data collection, trends were difficult to see. Responding to a need to improve documentation and develop best practice standards for patients at risk for developing pressure ulcers, the Wound Care Team at Holmes (comprised of Certified Wound Ostomy Continence Nurses [CWOCN], an Advanced Registered Nurse Practitioner [ARNP], and the department manager) implemented a team approach to performance improvement and developed an education plan for the clinical staff to better prevent and treat pressure ulcers.

Key Points

Literature Review: Prevalence, Incidence, and Cost of Pressure Ulcers

One of the first team activities included a review of the literature for evidence-based treatment and best practices for prevention and treatment of pressure ulcers using the keywords pressure ulcer prevention, protocols, and research. The literature underscores the fact that pressure ulcers are a serious problem in the US and across the globe.2 Overall prevalence of pressure ulcers in the US ranges from 3.5% to 29.5% in acute care and long-term care facilities.3,4 Incidence ranges from 5% to 10% for all hospitalized patients,5,6 from 3% to 9% in acute care facilities, from 2% to 28% in long-term care facilities,4 and up to 40% among patients with spinal cord injuries.7 A report by the Agency for Healthcare Research and Quality noted that of the 1.4 million patient safety incidents in US hospitals reported during 37 million hospital admissions from 2000 to 2002, pressure ulcers were one of the three most common (failure to rescue and postoperative sepsis are...
revealed a variety of attitudes toward and misconceptions about pressure ulcers.13 Results showed that 55% believed pressure ulcer development resulted from the lack of proper nutrition, 38% believed it was a result of poor nursing care, and 7% believed it was caused by incontinence. Nurses were also uncertain about available skin products and how to use them appropriately. Based on this feedback, the Wound Care Team decided that a formal pressure ulcer prevention and treatment program, which featured an education/training component and that could be customized for each patient, would benefit nurses in the care of their patients.

Developing a Strategic Plan

Once the assessment phase was complete, a detailed Pressure Ulcer Strategic Plan was developed, beginning with formal identification of the initiative as the “Year of Pressure Ulcer Prevention.” The plan incorporated education, policy changes, development of evidence-based protocols as published by the National Pressure Ulcer Advisory Panel (NPUAP),1

WOCN Clinical Practice Guidelines,14 the literature review, documentation standards, cost improvement strategies, and attention to national patient safety goals. To promote consistency in identification and education, the following definitions were accepted:

- **Prevalence** — a cross-sectional “snapshot” to count and measure the proportion of a group that has pressure ulcers at a given time; expressed in a percentage of all patients participating in the study

- **Incidence** — the number of patients initially ulcer-free who develop a pressure ulcer within a particular time period while in the institution; expressed as a percentage of the patients in the study at the beginning of the time period

Facility-acquired pressure ulcer — any pressure ulcer that was not documented within 24 hours of admission.

The plan used performance improvement methods that included problem identification, design intervention, and outcome measurement and evaluation; processes subsequently were adjusted accordingly. The pressure ulcer management process involved an interdisciplinary team that comprised the Wound Care Team,
Initiating Quarterly Prevalence Studies

One of the first changes involved conducting pressure ulcer prevalence studies quarterly rather than annually; this change was also consistent with the goal of obtaining Magnet recognition for the institution. Although annual prevalence studies were conducted before 2002, the data were never compared or used as a feedback tool for performance improvement. More frequently obtained data provided the team with the information and feedback needed to help clinicians appreciate the relationship between corrective action and related effects so quicker adjustments were possible if desired outcomes were not achieved.

During the course of a scheduled 24-hour period, prevalence studies were performed by teams of RNs designated by the unit manager. The composition of the teams remained fairly stable so interrater reliability was consistent. Each patient on the five participating hospital units received a full skin assessment. Using data collection tools provided by the National Database of Nursing Quality Indicators (NDNQI) and Hill-Rom, the results of these studies were entered into two databases — IPUP and NDNQI. The prevalence of pressure ulcers in the medical center was compared with the average prevalence rates reported by other similar medical centers and those reported by the NPUAP.1 In addition to quarterly prevalence studies, an annual incidence study was initiated. This study reassessed all patients who remained hospitalized for 7 days following their participation in the preceding prevalence study. The incidence study was initiated in order to identify pressure ulcer development among patients with longer lengths of stay.

Establishing a Risk Assessment-based Treatment Plan

Another important change initiated by the team was the replacement of the Norton Risk Scale with the Braden Risk Assessment Tool. Although both instruments are valid and reliable for determining each patient’s risk of developing a pressure ulcer,15 the Braden Scale places patients in one of four risk categories, ranging from no risk to very high risk. The team took this information a step further in January 2004, developing a Pressure Ulcer Prevention Protocol (PUPP) that aligned appropriate nursing prevention or treatment activities with level of risk according to established protocols and the literature (see Figure 1). This protocol empowered nurses with knowledge and concrete direction applicable to interventions associated with specific cases, allowing the nurses to customize each patient’s plan of care.

Figure 2
Figure 1

In addition, in January 2004, Pressure Ulcer/Skin Tear Physician Orders were created and approved by the hospital’s medical staff (see Figure 2). The WOCNs, within the constraints of organizational pricing contracts, selected the products based on their clinical judgment and expertise. Previously, nurses had to wait for a physician’s order before providing even simple prophylactic interventions. The new approved orders listed interventions and numerous wound and skin products the clinical staff could utilize with only a verbal order to implement them (see Table 1). The orders gave nurses specific resources, directions, and treatment plans, which allowed the team to focus on training staff members and reinforcing positive behaviors. The orders also served as a teaching tool for physicians.

Other structural and process changes instituted throughout 2002 through 2004 included dietary consults and consistent interventions and ongoing, multilevel education for clinical staff members and physicians.

Table 1

Changing the Role of the Certified Wound Ostomy Continence Nurse (CWOCN)

The role of the CWOCN required clarification. In the past, the CWOCN had been perceived by nurses and some physicians as the clinician called to change dressings and deal with problem wounds. The staff perception was that the CWOCN would tell them if they had done something wrong or change incorrectly applied dressings rather than being an expert
resource for basic and complex pressure ulcer prevention as well as a consultant for patients with complicated wounds and ostomies.

After the new PUPP and physicians’ orders were developed and initiated, staff members began to see the results of their efforts of intervening proactively and felt empowered to initiate interventions rapidly. As a result of this positive experience, they began to view the CWOCN as a resource for identifying best practices for patients. Staff nurses became empowered to initiate many patient care activities independently and consult the CWOCNs regarding complex wounds, new or complex ostomies, and selection of specialty support surfaces.

Strengthening Facility Infrastructure and Providing Educational Activities

A large part of the Pressure Ulcer Strategic Plan also involved education, training, and development of infrastructure. For nurses and other clinical staff members, the plan included offering an annual wound conference at the authors’ facility that featured national and international speakers and provided continuing education credits. The orientation program for new staff nurses was revised to focus on prevention and treatment of pressure ulcers. Ostomy supplies were updated and simplified by limiting the number of different products and incorporating use of an easier, “universal” product for new ostomy patients, shortening the learning curve for nursing staff with little experience managing the numerous products that were originally part of unit stock. Skills fairs were conducted six times each year and attended annually by all RNs, LPNs, and CNAs. The Skin Resource Team, composed of staff nurses, dietitians, and rehabilitation specialists, was established to address ongoing needs and support training. Meetings consisted of inservice presentations, case studies, and guest speakers to discuss new concepts. Finally, physicians were educated about the CWOCN’s role, level of clinical expertise, and best-practice wound care interventions, such as eliminating the use of wet-to-dry dressings and cytotoxic agents.

Other resources developed and maintained by the Skin Resource Team included the Skin Tips newsletter, which provides up-to-date information about pressure ulcer prevention and tips about managing other wounds; a resource notebook for each nursing unit, updated periodically, that provides articles about state-of-the-art, evidence-based practice; and a standardized list of skin care products available, including information and guidance on the appropriate use of each of these products.

Support Surface Changes

In addition, support surfaces in use at the time were evaluated and changes were made to further the move toward prevention. The hospital purchased TotalCare SpO2RT® Bed Systems (Hill-Rom®, Batesville, Ind) for the MICU and SICU in August 2003. The beds provided patient rotation and percussion capabilities that were lacking in the previously used beds and a therapeutic support surface. The team also developed a chart that explained the most appropriate use specialty support surfaces (see Table 2 - Following the article).

From 2001 through 2004, numerous changes were made to processes and structure, such as expanding and clarifying policies, modifying computer use to facilitate better documentation, and creating a specialized report so staff can quickly identify at-risk patients.

Table 2

Pressure Ulcer Prevention Outcomes

The new initiative used the quarterly skin prevalence studies, which began in June 2002, to measure success of the implemented changes. Only the September 2004 study was canceled as a result of the Florida hurricanes. After several quarters, trends emerged even though only about 25% of the total changes had been implemented (see Figure 3). Overall, quarterly studies showed hospital APU prevalence was 9.2% (four out of 96 patients, 4%; 12 out of 102 patients, 12%; seven out of 88 patients, 8%; eight out of 92 patients, 9%; 10 out of 80 patients, 13%) before program implementation; these figures fell to an average of 6.6% (9 out of 89 patients, 10%; six out of 102 patients, 6%; five out of 118 patients, 4%; six out of 92 patients, 7%; seven out of 119 patients, 6%) in 2004.

Figure 4
Overall, prevalence had ranged from 6.8% to 16.0% before protocol implementation (before September 2003); after implementation, the rates dropped to between 8% and 14% (see Figures 3 and 4). A slight rise in the overall hospital APU prevalence was noted in some areas in the facility over the second two quarters of 2004. Figure 3

Before plan implementation, the MICU had the highest prevalence of APUs among the units participating in the study. After the pressure ulcer initiative was implemented, quarterly studies showed that APU prevalence in the MICU decreased from an average of 29.6% (one out of nine patients, 11%; two out of seven patients, 29%; two out of 10 patients, 20%; three out of eight patients, 30%; two out of four patients, 50%) to five consistent quarters (ending June 2004) of APU prevalence of 0% (four quarters of 0 out of nine patients and one quarter of 0 out of 10 patients).

To obtain a clear picture of the numerous factors contributing to pressure ulcers, a study was undertaken of pressure ulcer development related to lengthy operating room procedures. The study included 300 patients who had undergone surgical procedures lasting 4 hours or longer. They were followed for three postoperative days to ascertain whether they developed a pressure ulcer. Although the literature points to the fact that pressure ulcers in surgical patients are understudied, the relationship between perioperative events and pressure ulcer development is not well understood, and incidence is reported to range from 4% to 21.5%,1 incidence of such ulcers at Holmes was 0%.

Feedback to Clinical Staff

The team provided clinical staff with consistent and frequent feedback about the results of prevalence studies for their specific units so they could benchmark their results over time. This immediate and ongoing feedback helped engage staff members in the program and allowed them to take credit for the improved clinical outcomes. To reinforce the positive changes, MICU staff members were given a certificate for the “Most Improved Unit”; their pride in this designation was obvious. With this feedback and information about the excellent outcomes, the attitudes among the staff changed from a belief that pressure ulcers are inevitable among seriously ill patients to a belief that most pressure ulcers can be prevented if the appropriate measures are instituted proactively.

Discussion

The MICU pressure ulcer prevalence reduction observed after integrating the specialty bed with excellent clinical care is consistent with previously published research that associates incorporating a new support surface system into patient care with improved outcomes (for example, for pulmonary patients) and economic benefits.16-18 According to national averages of pressure ulcer prevalence, provided by the 2004 International Prevalence Ulcer Survey and reported by Cuttino,10 MICU prevalence is 29.1%; SICU, 21.0%; and general ICU, 23.0%. Holmes’ MICU prevalence of 29% before program implementation was similar to the national average. After protocol implementation, the MICU prevalence of 0% over five quarters was well below the previous and national levels.

Cuttino10 also reports overall acute care prevalence rates to be 15.5% in 2004 and facility APUs to be 7.7%. In 2003, overall prevalence in acute care was at 15.0% and for APUs, 7.0%. (Hill-Rom®. Unpublished data). In this study, the prevalence ranged from 6.8% to 16.0% (June 2002 to June 2003) before protocol change, and from 8% to 14% after program implementation. Hospital APU prevalence on average was 9.2% before program implementation and decreased to an average of 6.6% in 2004. Although a slight increase in overall APU prevalence occurred in some areas in the facility over the second two quarters of 2004, MICU prevalence remained near 0%.

In a 10-year literature review reported by Cuddigan,1 prevalence in acute care facilities ranged from 0.4% to 38%. In a study conducted among 634 patients in 1986, Allman19 estimates that 14% to 20% of all hospitalized patients have pressure ulcers. Hopkins20 reports an initial overall actual prevalence rate of 18% in 1996 (158 patients); a process improvement program yielded subsequent rates
of 10% in 1997 (183 patients) and 9% 1998 (157 patients). In a study of 690 patients over a 4-year period, Granick21 reports overall prevalence rates of 22.6% in 1993 that decreased annually to 13.0%, 9.6%, 8.7% following a wound care team process improvement initiative. These studies, combined with the authors’ experience, indicate that APUs can be reduced even for very ill patients, when adequate, timely, prophylactic care is provided. The CWOCN’s ability to confer the knowledge to perform the right task for the right patient is as crucial as the resources to perform the right level of care.

A brief financial analysis underscores the patient benefits provided by the Holmes’ program. During 2003 through 2004, an average of 1,075 patients was admitted over five quarters to the MICU. During this five-quarter period, with an average prevalence of 29.6%, 317 patients would have had an APU. An average of five quarters’ prevalence rates of 0% protects the 317 patients listed above that may have acquired a pressure ulcer.

Financially, if this new protocol achieved even a 1-day reduction in length of stay in the MICU, the minimum annual cost reduction (based only on the daily cost of care in that unit) would be $317,000. However, greater savings probably have been realized.

Limitations

The limitations of this study surround a multifactorial approach to decreasing pressure ulcer prevalence; therefore, a direct cause-and-effect relationship between each change cannot be proven. This would be similar to other process improvement programs of this magnitude.

Conclusion

Using strategic planning and implementing a continuous performance improvement program have significantly reduced the number of APUs at one regional medical center. The overall quality of patient care and use of financial resources have improved substantially. Staff members’ attitudes reflect their belief that pressure ulcers are not inevitable. The CWOCN is now seen as a resource and a clinical expert.

With the change in role of the CWOCNs and the validation of their clinical expertise, department goals now include an initiative to help manage urinary incontinence, including reduction in the use of inappropriate indwelling urinary catheters. By implementing the same type of team-building process improvement used to reduce pressure ulcers in 2004, a formal movement toward better incontinence management was developed in 2005 and is in the initial stages of implementation.

In order to reach the Healthy People 2010’s stated goal of reducing pressure ulcers by 50%,22 programs like the one instituted at Holmes are necessary. The multidisciplinary, lengthy, educational, resource re-allocating process can yield long-lasting clinical and financial results. Additional studies that document the effects of changing to protocols that reflect evidence-based practices and enhancing utilization of the CWOCN are warranted.

References


Ostomy/Wound Management - ISSN: 0889-5899 - Volume 52 - Issue 2 - February 2006 - Pages: 48 - 59

http://www.owm.com/owm/displayArticle.cfm?articleID=article5244#
<table>
<thead>
<tr>
<th>Surface Type</th>
<th>Criteria (implement specialty surface if three or more criteria are met or based on judgment of PH)</th>
<th>Obtain from</th>
<th>Criteria for Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wound Care Surfaces</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waffle boot</td>
<td>Elderly ulcer, peripheral vascular disease, lower extremity immobility, such as orthopedic conditions, albumin &lt; 2.5</td>
<td>Stores, send home at discharge; send home with patient</td>
<td>At discharge or patient request; send home with patient</td>
</tr>
<tr>
<td>Waffle cushion (used in wheelchairs)</td>
<td>Seating pressure ulcer or leg, lower extremity immobility, such as orthopedic conditions, albumin &lt; 2.5</td>
<td>Send home at discharge</td>
<td>At discharge or patient request; send home with patient</td>
</tr>
<tr>
<td>Waffle cushion (used in wheelchairs)</td>
<td>Patient with chronic ulcer, acral pressure ulcer or wounds; continuous lateral rotation</td>
<td>Stores, send home at discharge</td>
<td>At discharge or patient request; send home with patient</td>
</tr>
<tr>
<td>EHCO® Waffle mattress EHCO Inc., Indianapolis, Ind</td>
<td>Puts the patient in a new position every 2 hours; incontinent patient; albumin &lt; 2.5; limited mobility; need for head elevation &gt; 30 degrees (eg, neck surgery)</td>
<td>Store, send home at discharge</td>
<td>At discharge or patient request; send home with patient</td>
</tr>
<tr>
<td><strong>Bariatric Surfaces</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnu® II Bariatric Patient Care Support, Hill-Rom®; Consider adding a specialty Patient Helper Impece (from CSR)</td>
<td>Bariatric standard mattress and bed replacement</td>
<td>Customer Service Representative (CSR); daily change by CSR</td>
<td>Improvement of skin condition; can be managed on a bariatric air overlay (mattress)</td>
</tr>
<tr>
<td>Magnu® II Bariatric Eclipse Ultra, Hill-Rom®; Consider adding a specialty Patient Helper Impece (from CSR)</td>
<td>Bariatric low-air-loss mattress and bed replacement</td>
<td>CSR; daily change by CSR</td>
<td>Improvement of Staging or general condition; amputation; transferring to chair</td>
</tr>
<tr>
<td>Ritz-Hile® Air Fluidized Therapy, Hill-Rom®</td>
<td>High-air-loss or air-fluidized bed</td>
<td>CSR; daily change by CSR</td>
<td>By physician's order only</td>
</tr>
<tr>
<td><strong>Pulmonary Beds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>“CARE” Dynamic Air Therapy Mattress Replacement, Hill-Rom®</strong></td>
<td>Pulmonary condition, low air-loss mattress</td>
<td>Central Supply Resources; daily change by CSR</td>
<td>Getting out of bed; able to be positioned manually without hemodynamic pulmonary instability or desaturation; improving CSR</td>
</tr>
<tr>
<td><strong>TotalCare SpO2® Bed System, Hill-Rom®</strong></td>
<td>Pulmonary condition, low air-loss mattress</td>
<td>Central Supply Resources; daily change by CSR</td>
<td>Getting out of bed; able to be positioned manually without hemodynamic pulmonary instability or desaturation; improving CSR</td>
</tr>
</tbody>
</table>