

Enhancing Documentation of Pressure Ulcer Prevention Interventions

A Quality Improvement Strategy to Reduce Pressure Ulcers



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Prevention of hospital-acquired pressure ulcers requires the implementation of evidence-based interventions. A quality improvement project was conducted to provide nurses with data on the frequency with which pressure ulcer prevention interventions were performed as measured by documentation. Documentation reports provided feedback to stakeholders, triggering reminders and reeducation. Intervention reports and modifications to the documentation system were effective both in increasing the documentation of pressure ulcer prevention interventions and in decreasing the number of avoidable hospital-acquired pressure ulcers. **Key words:** *documentation, electronic health record, pressure ulcer prevention, pressure ulcers, quality improvement*

MORE THAN 1 million people develop hospital-acquired pressure ulcers (HAPUs) each year.¹ Pressure ulcers (PUs) are associated with estimated health care costs of \$11 billion and 60 000 deaths annually in the United States.^{1,2} Nationally, the rate of HAPUs has been identified as a marker of the quality

of care provided by health care facilities. Pressure ulcers are considered a nurse-sensitive outcome: actions initiated by nurses have an impact on the frequency with which PUs occur.

The Press Ganey National Database of Nursing Quality Indicators[®] (NDNQI) provides a process and infrastructure for collecting and submitting data on HAPUs from participating hospitals. On the basis of the data submitted each quarter, national comparison benchmarks are provided by the NDNQI to participating hospitals. Hospitals aim to outperform the quarterly benchmark for HAPUs. The benchmark provides a comparison to promote improvement in nursing practice. Beginning in fiscal year 2015, HAPUs are included in the Centers for Medicare & Medicaid Services value-based purchasing incentive program where hospitals are paid for high-quality care.³

In 2003, as an effort to improve the safety of hospitalized patients, the Adverse

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Health Events Reporting Law was passed in Minnesota.⁴ The law mandated that when any 1 of the 27 “never events” identified by the National Quality Forum occurred, it had to be reported to the Minnesota Board of Health.⁴ The “never events” were considered serious and usually preventable.⁵ Stage III, stage IV, and unstageable HAPUs were included in this classification.^{5,6} A root-cause analysis and a prevention action plan were also required in Minnesota.⁷ During the root-cause analysis process, the PU is determined to be avoidable or unavoidable.

A PU is defined as avoidable when a patient did not receive a risk assessment, preventive interventions based on individual need, and/or an ongoing evaluation and modification of the plan based on its effectiveness.^{8,9} In contrast, when an HAPU is considered unavoidable, there is evidence that a risk assessment is completed, individualized preventive interventions are implemented, and the care plan is adjusted as needed. Thus, it is critical to have documentation that shows individual patients received the evidence-based interventions specific to their clinical conditions.

Standardization of documentation location and terminology in the electronic health record (EHR) facilitates efficient retrieval of data. The frequency that the evidence-based intervention should occur becomes the denominator, and the frequency that the intervention actually occurred becomes the numerator.¹⁰ These data can be presented in customized reports for nurse leaders on each nursing unit.

LOCAL PROBLEM

In 2011, approximately 40% of the reportable HAPUs at a 1242-bed Midwestern academic medical center comprising 2 acute care hospitals and designated as a level I trauma center were considered avoidable. In addition to general care beds, the hospitals include 158 adult intensive care beds, 193 progressive care beds, and 44 neonatal and pediatric intensive care beds. Registered nurses (RNs) are assigned to each patient and sup-

ported by patient care assistants. When a full-thickness HAPU occurs, a review of documentation of skin and risk assessments and preventive interventions is required. Thorough examination of the reportable HAPUs revealed that the PUs were deemed avoidable in many cases due to incomplete documentation of preventive interventions.

A learning needs assessment was conducted to identify gaps in staff knowledge about PU prevention and management. A 4-hour core curriculum for the assessment, prevention, and treatment of PUs was developed. One hundred percent of hospital-based RNs completed the education between October 2012 and March 2013.

INTENDED PRACTICE IMPROVEMENT

The aim of this PU prevention quality improvement (QI) project was to standardize and streamline inpatient documentation requirements related to PU assessment, prevention, and treatment to make it easier for nursing staff to document their assessment and interventions. Documentation provided a means to measure whether nurses successfully translated what they had learned in the 2012 required PU education sessions into the everyday care of patients at risk for PUs. Making the data available to nursing leadership and staff was designed to (1) provide transparency and ongoing feedback, (2) promote accountability, and (3) embed evidence-based practices into patient care.

Specifically, the dissemination of monthly computer-generated reports of PU prevention documentation was intended to (1) increase the frequency with which nurses implemented and documented evidence-based PU prevention interventions to greater than 90%, (2) decrease the incidence of HAPUs deemed as avoidable related to lack of documentation, and (3) encourage changes in the EHR to reduce barriers to documentation. The DMAIC approach, which involved **D**efining the problem, **M**easuring performance, **A**nalyzing the processes, **I**mproving processes, and **C**ontrolling the process improvements, was used to guide this QI

project¹¹ (see Supplemental Digital Content, Table, available at: <http://links.lww.com/JNCQ/A249>).

METHODS

Define

As an evidence-based QI project, this was not considered research needing approval by the institutional review board per our facility's policy. This project was implemented in a Midwestern academic Magnet-designated medical facility that has multiple specialty practices including an 85-bed children's hospital; 9 intensive care units; 6 progressive care units; medical units; surgical units; transplant units for heart, lung, bone marrow, liver, and kidney; and a rehabilitation unit. A shared decision-making structure promoted staff involvement through departmental and specialty practice committees. Staff nurse input in practice and documentation issues helped make decisions at the point of care.

A QI project charter was initiated in 2012 by an interprofessional group including a nurse administrator, informatics nurse specialists, certified clinical nurse specialists (CNSs), a nursing quality specialist, a staff RN, and a project manager. At the onset of this project, there were documentation locations to capture the Braden Scale PU risk assessment score, a general skin assessment, and patient activity. However, it was unclear whether bony prominences were inspected consistently with each general skin assessment. The 2014 clinical practice guideline, *Prevention and Treatment of Pressure Ulcers: Quick Reference Guide*, developed by the National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel, and Pan Pacific Pressure Injury Alliance, recommended a complete head-to-toe skin assessment with particular attention to bony prominences with each risk assessment.¹²

Our hospital data showed that HAPUs occurred most frequently over the coccyx, sacrum, and heels. The evidence-based practices targeting these anatomical locations in-

cluded turning and heel elevation. According to the PU clinical guideline, documentation provides evidence that the patient was repositioned.¹² This medical center's documentation system at the time lacked terms such as "turning to the right, left, or supine" that clearly conveyed that turning a patient had resulted in a significant change in position. There was no visible prompt for the documentation of heel elevation because the existing generic PU prevention row required modification by the nurse.

Compression bandages, including elastic short-stretch and long-stretch wraps, were also implicated in the development of HAPUs with particular risk for patients in intensive care units. Prior to the initiation of this QI project, there were no set standards for the technique and frequency of rewrapping compression bandages. Scheduled removal of the compression bandages provided nurses the opportunity to assess the skin. Evidence within PU practice guidelines supported the recommendation that skin in contact with medical devices be assessed for pressure-related problems at a minimum of twice a day.¹²

In March 2012, the QI project team met with the inpatient departmental nursing leadership teams, including nurse administrators, nurse managers, nursing education specialists, and CNSs. The intentions of this joint meeting were to engage key stakeholders by discussing PU data, current initiatives, and nursing Web site resources and to ask nurse leaders from each unit to develop a plan surrounding PU prevention. In June 2013, nursing leadership teams attended a second meeting at which data on reportable PUs, results of quarterly PU surveys in comparison with ND-NQI benchmarks, and the initial turning and pressure point check reports were shared. Each unit-based team was charged with developing an improvement plan. As the practice experts and resources for each nursing unit, the CNSs remained accountable for addressing skin issues and intervention report data with nursing staff and specialty practice committee members.

Measure

The 4 evidence-based PU prevention interventions selected were turning, heel elevation, pressure point inspection, and rewrapping compression bandages to target issues identified within the medical center. Designing reports to monitor the impact of the education involved prioritizing evidence-based practices related to skin assessment and PU preventive interventions and defining the required elements for documentation. The required elements of documentation included identification of patient risk, the frequency with which the interventions were to be performed, and the use of the appropriate words for charting. These elements were necessary both to clarify nursing expectations and to facilitate data retrieval and customized reports. Once defined, existing PU prevention and reassessment guidelines within the organization were updated. Changes were made within the EHR to facilitate documentation of skin assessments of bony prominences and turning positions in a standardized location and language. Education was developed for nursing staff as each documentation revision occurred.

Following standardization of guidelines for evidence-based PU prevention interventions and corresponding updates to the documentation rows, the nursing quality specialist worked with EHR programmers, the CNSs, and the informatics nurse specialist to develop the rules for pulling data from the EHR for the quality reports (Table 1). These monthly reports for each patient care unit were stored

Table 1. Programming Elements for the Pressure Ulcer Prevention Intervention Reports

Inclusion/exclusion criteria
Elements (eg, frequency of intervention)
Source (location in medical record)
Item name (eg, total Braden Scale score)
Item drop-down documentation response options
Acceptable responses
Defined numerator and denominator

in an electronic folder available to each nursing leadership team beginning in May 2013.

Analyze

The programmers, in collaboration with the CNSs and nursing quality specialist, designed data pulls from the EHR to identify the number of times each intervention should have been completed and the frequency with which the documentation of each intervention actually occurred. Data analysis involved the use of descriptive statistics including frequency counts and percentages.

Reports generated from nursing documentation in the EHR were used to measure adherence to evidence-based PU prevention interventions and assessments. Baseline data revealed documentation rates of less than 90% for twice-a-day pressure point assessments, compression bandages, and heel elevation. As a result, these 3 interventions were targeted for improvement. Nursing leadership was able to review the monthly data, identify unit-based trends, and provide one-on-one feedback and reeducation to individual nurses as needed.

Improve

The monthly intervention reports triggered modifications in the documentation system. The changes that occurred in the documentation of the pressure point checks are described to provide examples of how the improvement processes evolved. Modifications in the documentation of heel elevation and compression bandages were managed in a similar manner.

Pressure point checks

In October 2012, a new documentation row for pressure point checks was added to the general skin assessment flow sheet as a prompt for nurses both to assess the 10 most common locations where PUs occur and to provide a consistent location for documentation of that assessment. The standard established by the Department of Nursing’s clinical practice committee was that pressure point checks be assessed and documented on all

patients (excluding neonatal) with the admission assessment and on transfer to another nursing unit. Also, for adult patients with a Braden Scale PU risk assessment score of 19 or above, the 10 pressure points would be assessed and documented once a day. Because of the risk for development of PUs for patients with a Braden Scale score of 18 or less, pressure point assessments and documentation would be completed twice a day. For pediatric patients, the Braden Q risk assessment scores were used. These standards resulted in the development of 3 pressure point check reports: the first for admission, second for daily assessment for all patients, and third for twice-daily assessment for patients meeting at-risk criteria.

Monitoring and evaluating monthly reports revealed an opportunity for improving completion of the second pressure point check of the day for patients deemed at risk for PUs. Initially, feedback was provided to specialty practice committees with little improvement. In November 2014, a clinical decision-support rule was developed to alert the evening nurse of the patient's morning Braden Scale PU risk assessment score. For those patients at risk for PU development based on their daily Braden or Braden Q risk assessment score, the nurse would not be able to exit the skin assessment screen until the second pressure point check of the day had been completed. The rule triggered a reminder to the nurse after 3:00 PM if a second pressure point assessment was not documented for a patient at risk. If by 9:00 PM there was still no documentation on the pressure point row, an inbox message was sent to remind the nurse that the assessment still needed to be completed.

Engaging key stakeholders

To maintain focus on PU prevention activities, each nurse administrator was asked to dialogue with unit leaders monthly to monitor progress toward achieving the predetermined goals. The monthly PU prevention intervention reports were available to nurse managers and CNSs to share results with their nursing staff. Each quarter, the nursing leadership teams also received information on (1) results

of the most recent hospital-wide PU survey, (2) any full-thickness HAPU, and (3) overall nursing departmental compliance for turning, pressure point checks, heel elevation, and compression bandages. The PU prevention work group reviewed these data and developed related skin tips for issues of concern, such as differentiating PUs from incontinence-associated dermatitis, preventing shear, and device-related PUs related to bi-level and continuous positive airway pressure masks, to provide targeted ongoing education to nursing staff.

Each time the need for a documentation change to enhance documentation of prevention interventions was identified, the CNS proponents would develop a proposal in collaboration with the informatics nurse specialist and present it to the Hospital Nursing Clinical Practice Subcommittee. Staff nurses from multiple inpatient units served as members of this subcommittee. Discussion with them was critical to ensure any changes were vetted by nurses at the point of care. Nursing staff provided valuable input into the feasibility and impact of proposed electronic solutions across all specialty practice areas.

Control

Ongoing monitoring of the documentation reports was conducted by the CNS proponents and nursing quality specialist. Results were discussed at the interprofessional PU prevention work group. Unit-based intervention report data were made available online to nursing leadership. A summary of year-to-date HAPUs and a report of nursing departmental data were distributed to key stakeholders quarterly.

RESULTS

Process measures

The results were categorized as process and outcome measures. Beginning in May 2013, the processes of care measured were the documentation of turning, pressure point checks, heel elevation, and rewrapping of compression bandages. Documentation of turning every 2 to 3 hours increased and has

remained consistently above 90%. Pressure point checks on admission improved from 86% to 93%. For those patients not evaluated as at risk for PUs, the frequency with which the documentation of the daily pressure point checks occurred rose from 70% to 99%. Documentation of the twice-a-day pressure point checks for those patients at risk for PUs has increased from 63% to 93% (Table 2). A new row dedicated to and clearly labeled “heel prevention” resulted in an 18% increase in documentation over the last 12 months. Documentation of compression bandages has improved but continues to need further analysis to identify strategies to address challenges to further improvement. Primary challenges to improving documentation of compression bandages include both low number of patients where this intervention is needed and no trigger for a decision-support reminder. These challenges make it difficult for nurses to consistently remember to document the required elements. Documentation of rewrapping compression bandages has improved by 6% over the last 12 months.

Clinical outcome measures

The clinical outcomes measured were avoidable and full-thickness HAPUs. From the

October 2010–October 2011 reporting period to the October 2012–October 2013 reporting period, the reportable full-thickness PUs that were deemed avoidable decreased by 67%. Staff education coincided with this from October 2012 to March 2013.

DISCUSSION

Improvements in the documentation of key evidence-based PU prevention interventions resulted in a decrease in avoidable full-thickness HAPUs. A group of experts in attendance at a conference sponsored by the National Pressure Ulcer Advisory Panel reached consensus that “some [PUs] are unavoidable.”^{13(p313)} According to Edsberg and colleagues,¹³ the development of a PU is a complex event influenced by multiple interrelated risk factors and not all risk factors can be modified. In the event a patient develops a HAPU, documentation of assessments and prevention interventions provides evidence that the patient received the necessary evidence-based care supporting the conclusion that the PU was unavoidable. Crawford and others¹⁴ also incorporated chart audits as a means to measure whether PU prevention interventions were implemented

Table 2. Improving Documentation of Pressure Point Checks

Date	Pressure Point Checks, % Twice a Day	Nursing Department Action Plan
Oct 2012		Pressure point checks row added
May 2013	63	Initial data report shared with nursing leadership
Jul 2013	80	Pressure point screen changed
Aug 2013	80	Discussed how to ensure completion of pressure point checks at specialty practice committees
Dec 2013	84	Shared data on quarterly NDNQI, reportable pressure ulcers, and pressure ulcer intervention documentation
Aug 2014	84	Received approval on the electronic alert
Nov 2014	88	Implemented alert to the evening nurse
Jan 2015	93	Continued to monitor to sustain gains

Abbreviation: NDNQI, National Database of Nursing Quality Indicators.

consistently and reported success in significantly reducing HAPUs across 21 hospitals.

Use of DMAIC methodology by project leaders was successful in focusing efforts on reviewing report data, analyzing impact of changes in the EHR on documentation, and directing additional modifications as necessary. The project implementation strategies of sharing monthly audit data with nurses, standardizing documentation to optimize nursing workflow, and engaging support at the organizational level are consistent with the best practice recommendations established in the *Prevention and Treatment of Pressure Ulcers: Quick Reference Guide*.¹²

Lessons learned

Pressure ulcer prevention interventions and assessments were documented more consistently when required for the majority of patients, as evidenced by the 99% completion rate for daily pressure point checks. The need for more frequent assessments, such as twice-a-day pressure point checks, and certain interventions, such as heel elevation and compression wraps, is determined by specific criteria based on individual patient risk. For example, when a patient has a Braden Scale Sensory Perception subscale score of 2 or less, heel elevation should occur. However, because the rule applies to a small subset of patients, documentation of the intervention becomes less consistent.

Clinical decision-support rules within the EHR trigger alerts or reminders and have been shown to be effective in decreasing missed nursing interventions.^{15,16} In our experience, an improvement in the documentation of twice-a-day pressure point checks occurred when expectations on the frequency of assessments were clarified, reminders were provided within the electronic documentation system, and nursing leadership and staff nurses were involved in improvement efforts.

Compliance with documentation of heel elevation and compression bandages continues to show opportunity for improvement. These interventions are applicable to a low volume of patients, suggesting that a decision-support

system is needed to alert nurses of the individual's risk and the need for the intervention and its documentation. Clinical decision-support rules within the EHR trigger alerts to unit-based CNSs each time a nurse documents a Braden or Braden Q risk assessment score indicating a patient is at risk for developing a PU, when a PU in any location is documented, and when any type of skin alteration is documented as located over a bony prominence. These alerts prompt one-on-one follow-up with nurses at the point of care and reinforce key evidence-based interventions and expectations. An important component of electronic data queries is to validate whether the data query meets the intended criteria. Modifications may be necessary to address criteria and make revisions as practice expectations change.

The documentation flow sheets for the intensive and progressive care units differ from the general care units, which add complexity when designing changes to the EHR. A solution that was effective for general care did not always have the same effect for intensive care. At times, the requirements for frequency of an intervention differed between levels of care. For example, compression wrap removal and skin reassessments were required twice a day for patients in general care units but every 4 hours for intensive care units due to the massive fluid shifts that critically ill patients may experience.

Limitations

The findings from this QI project are influenced by the context and documentation system of the medical center and are not generalizable. The differences in the documentation between the intensive and progressive care units from the general care units added complexity to requested changes. The time needed for a requested documentation change to occur was also dependent on limited information technology resources. The decision to implement a decision-support reminder was carefully weighed in an effort to avoid an excessive amount of alerts to nurses at the point of care.

CONCLUSIONS

The dissemination of monthly computer-generated reports of PU prevention interventions was effective in increasing the frequency with which nurses documented evidence-based PU prevention interventions, decreasing the incidence of full-thickness HAPUs

deemed as avoidable related to lack of documentation, and supporting changes in the EHR to reduce barriers to documentation. This QI project demonstrates that engaging key stakeholders and leveraging technology in the EHR can help improve and sustain the consistency of PU prevention assessment and intervention documentation.

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