Evaluating the Implementation and Outcomes of the Saskatchewan Pressure Ulcer Guidelines in Long-Term Care Facilities

Tracey Timmerman, MSc; Gary Teare, PhD; Erin Walling, MSc; Catherine Delaney, PhD; and Laurie Gander, MSN

The Health Quality Council and the Saskatchewan Association of Health Organizations convened a committee to develop evidence-based best practice guidelines for pressure ulcer prevention and management in the province of Saskatchewan, Canada. The Health Quality Council designed a pilot project to 1) implement these guidelines in long-term care facilities using an evidence-based strategy and 2) evaluate the impact of the guidelines on the incidence and prevalence of residents with pressure ulcers. Seven long-term care facilities in Saskatchewan participated in the project, which ran from November 2004 to September 2005. Data from 753 patients were collected and analyzed. Following guideline implementation, the incidence of residents with pressure ulcers decreased from 6.0% to 0.2% and the prevalence rate decreased from 8.8% to 3.7%. The greater decline in incidence compared to prevalence suggests that process improvements occurred primarily in the prevention of new pressure ulcers. These results suggest that organizational commitment to improving skin and wound care followed by the facilitated implementation of evidence-based guidelines can result in improved clinical outcomes for long-term care residents.

Copies of many of the materials mentioned in this article are available from the authors upon request.

KEYWORDS: pressure ulcer, implementation evaluation, best practices, evidence-based practice

Pressure ulcers represent a burden of illness for patients and residents in a variety of healthcare settings in Canada as well as a considerable cost to the healthcare system. Few studies have measured the prevalence of patients with pressure ulcers in Canada. A literature review by Woodbury and Houghton estimated that the prevalence of pressure ulcers in Canada is 15% for community care, 20% for mixed healthcare settings, 25% in acute care, and 30% in non-acute care (inpatient or institutional) settings.

One strategy for improvement has been to translate best-practice knowledge into evidence-based best
practice guidelines. Although evidence-based pressure ulcer guidelines exist, many healthcare facilities do not use a standardized approach such as a best practice guideline to prevent and treat pressure ulcers. For example, a 2003 survey of complex continuing care facilities in Ontario, Canada found that slightly more than half were using a guideline or protocol for skin and wound care for most or all of their patients. The implementation of evidence-based practice, including specialized guidelines, is an ongoing challenge for the healthcare system.

Several studies have shown that implementing a comprehensive pressure ulcer prevention program based on evidence-based guidelines can have a positive effect on patient outcomes. Lyder et al reported a significant decrease in pressure ulcer incidence in two long-term care facilities from 13.2% to 1.7% and 15.0% to 3.5%, respectively, after the implementation of a pressure ulcer prevention program based on the Agency for Healthcare Research and Quality (AHRQ) guidelines. In a long-term care facility in the southwestern US, the incidence of nosocomial pressure ulcers decreased from 24.2% to 0.9% over 8 months after a comprehensive prevention program was implemented; follow-up measurement at 19 months indicated the improvements were sustained. Another long-term care facility that implemented policies and procedures for pressure ulcer care based on the Agency for Healthcare Policy and Research (AHCPR) guidelines reported a decrease in incidence from 23.2% in the pre-implementation phase to 4.76% in the post-implementation phase; however, in this study the level of improvement was not sustained when incidence was measured again 2 years later. A further study of the implementation of a skin care program based on the AHCPR guidelines in four long-term care, two acute care, and two home care facilities in the US midwest found a decrease in pressure ulcer prevalence from 21% to 2% over the course of implementation.

All these studies used similar approaches to implement pressure ulcer prevention programs — ie, use of evidence-based guidelines to inform practice, use of the Braden Risk Assessment Scale to assess patients for pressure ulcer risk and tailor care plans accordingly, inservice education of staff about the program, and an interdisciplinary approach to pressure ulcer prevention and management.

The Health Quality Council (HQC) is an independent agency based in the province of Saskatchewan, Canada. The Council measures and reports on the quality of care in the province and works with its partners to build a better healthcare system. In 2004, the HQC, in collaboration with the Saskatchewan Association of Health Organizations (SAHO), convened an action committee to improve skin and wound care in the province. The mandate of the committee was to provide direction and support in the development and implementation of a province-wide initiative to improve the quality of skin and wound care in Saskatchewan.

The committee developed an evidence-based best practice guideline for pressure ulcer prevention and management relevant to Saskatchewan healthcare environments. To promote and sponsor the use of best practices in the prevention and management of pressure ulcers, the HQC conducted a pilot project to implement the guideline in several long-term care facilities. The objectives of the project were to 1) pilot test an evidence-based guideline implementation strategy and 2) evaluate the impact on resident outcomes.

**KEY POINTS**
- In order to improve care, the prospective validity and ability of guidelines to improve outcomes must be evaluated.
- The authors of this pilot study evaluated the process and patient outcomes of implementing one evidence-based pressure ulcer prevention and treatment guideline in seven long-term care facilities.
- While a number of sites experienced problems implementing the wound assessment component of the guidelines, limiting the ability to evaluate wound outcomes, all facilities observed a substantial and sustained reduction in both pressure ulcer prevalence and incidence.
- The results of this study, one of the largest conducted to date, confirm that an organizational commitment and evidence-based interventions can reduce the burden of pressure ulcers.
outcomes — namely, the incidence and prevalence of residents with pressure ulcers. The intent was to help facility staff build the knowledge, resources, and practical skills necessary to plan and make changes on their own rather than to impose an externally developed system of process changes. Therefore, the HQC limited its involvement to providing education, tools, and resources to enable project objects to be achieved.

**Methods**

**Guideline development.** Because several Canadian and international agencies recently had published pressure ulcer guidelines, the committee chose to adapt existing best practice guidelines for use in Saskatchewan. Committee members independently appraised three guidelines selected for review using the Appraisal of Guidelines for Research and Evaluation (AGREE) tool. The AGREE tool can be used to assess guideline quality under the following domains: scope and purpose, stakeholder involvement, rigor of development, clarity and presentation, applicability, and editorial independence. Using this framework, the committee reached a consensus to adapt the guidelines developed by the Registered Nurses’ Association of Ontario (RNAO).

**Pilot site selection.** In June 2004, 75 long-term care facilities in Saskatchewan were invited to apply to participate in the pilot project; 14 (19%) sent in applications. Of the 14 applicants, seven were selected based on their expressed desire to change current wound care practices, senior management support for participation, and the absence of an existing wound care protocol. Facility size and location also were considered to ensure that large and small facilities from both urban and rural areas were included. The pilot project started in November 2004 and ended in September 2005; data collection began December 1, 2004 and ended September 30, 2005.

**Implementation strategy.** Facilitating guideline implementation required HQC contribution of human and financial resources. A nurse with clinical expertise in skin and wound care was contracted to provide training and consultation regarding pressure ulcer prevention and management. Over the course of 10 months, she spent an average of more than 27 hours per facility (nearly 200 hours in total) educating, consulting, and mentoring. Her services included coordinating and conducting a train-the-trainer workshop for pilot site staff, demonstrating skin and wound assessment and documentation at each site before guideline implementation, and acting as a clinical consultant for pilot site wound care committees.

In anticipation of the fact that clinical support alone would not be sufficient to ensure the sites were equipped with the necessary tools and resources to plan and implement changes, implementation support also was provided. An HQC Knowledge Exchange Consultant acted as a quality improvement advisor to the pilot sites. In this role, she supported teams as they established wound care committees, developed and carried out communication and education plans, and implemented changes based on the guidelines. This support included monthly telephone conversations with the team coordinator, distributing tools and resources, participating in site visits and conference calls, and facilitating information and resource sharing among sites. In addition, team coordinators contacted her by telephone or email with questions or concerns about the project. She was available approximately 2 days per week for 10 months. An HQC Researcher provided support by auditing clinical data submitted by the sites and providing feedback on how to improve the quality of clinical documentation; this required approximately 1 day per month for 10 months.

The strategies used by the HQC to facilitate implementation of the pressure ulcer guidelines in the pilot sites were based on evidence of effective strategies for implementing guidelines as described by the Cochrane Effective Practice and Organization of Care (EPOC) group (see Table 1).

Each facility selected a team coordinator who was responsible for leading and coordinating the change effort. The team coordinator was expected to promote the project to other staff members, coordinate project activities, and act as the main contact person. Each facility also established a multidisciplinary wound care committee. At minimum, the committees consisted of the team coordinator, a director of care/clinical leader, a nurse, and a special care aide. Most committees also included a dietician and a
Physical or occupational therapist, and all but one of the committees were able to recruit a physician. The wound care committees developed terms of reference; a plan for communicating with staff, residents, and families about the project; and a plan for educating staff about the guidelines.

The project began with a train-the-trainer education day. Each facility sent several staff members (including nurses, special care aides, and other allied health professionals) to the workshop. The purpose of this session was to provide a select group of facility staff (usually members of the wound care committee) with additional training that would allow them to become local opinion leaders in skin and wound care and use this knowledge to train their peers. The clinical expert supplemented this training during site visits. As part of these visits, staff were shown how to perform skin and wound assessments and use the Braden scale. Site staff also had the opportunity to request clinical consultations and ask questions regarding products and equipment. To further support staff education, several reminder tools were designed and distributed to the sites. These included posters depicting pressure points and proper positioning, Braden scale pocket guides, and pressure ulcer staging pocket guides.

Interactive educational initiatives dealing with pressure ulcer prevention and management, including 30- to 60-minute inservices, were held at each site. These inservices were facilitated by members of the pilot site wound care committee. Prevention sessions were targeted toward special care aides and nurses; management sessions were targeted toward nurses. Several of each type of session were held by each site in an effort to reach staff working different shifts. Each site was provided with two sets of presentation slides — one about prevention and one about management — to use as a starting point in developing inservices.

### TABLE 1
GUIDELINE IMPLEMENTATION STRATEGIES

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Rationale</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team coordinator</td>
<td>Coordination and logistics</td>
<td>Responsible for coordinating and leading change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>effort</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Key contact person</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Responsible for submitting data to HQC</td>
</tr>
<tr>
<td>Local consensus processes</td>
<td>Include staff in planning and implementation of change strategy</td>
<td>Interdisciplinary wound care committees</td>
</tr>
<tr>
<td>Local opinion leaders</td>
<td>Respected clinical peers will have influence on changing coworkers’</td>
<td>Train-the-trainer workshop</td>
</tr>
<tr>
<td></td>
<td>behavior</td>
<td></td>
</tr>
<tr>
<td>Educational outreach visits</td>
<td>Visits to targeted staff by a clinical expert or facilitator to explain</td>
<td>Site visits</td>
</tr>
<tr>
<td></td>
<td>desired change in practice</td>
<td>Telephone consultations</td>
</tr>
<tr>
<td>Interactive education</td>
<td>Interactive and two-way educational methods are more effective than</td>
<td>Train-the-trainer workshop</td>
</tr>
<tr>
<td></td>
<td>didactic methods</td>
<td>Staff in-services</td>
</tr>
<tr>
<td>Reminders</td>
<td>Visual aids are effective at promoting change when combined with audit</td>
<td>Posters and pocket guides</td>
</tr>
<tr>
<td></td>
<td>and feedback or local consensus processes</td>
<td></td>
</tr>
<tr>
<td>Audit and feedback</td>
<td>Summaries of clinical performance used to increase the target group’s</td>
<td>Feedback regarding Braden scores and wound</td>
</tr>
<tr>
<td></td>
<td>awareness of their practice</td>
<td>records</td>
</tr>
</tbody>
</table>
These slide sets highlighted content from the guidelines and were reviewed by the clinical expert.

Several months into the project, a conference call was hosted by the HQC to allow team members to network among sites and discuss project highlights and challenges. To promote the importance of detailed documentation in monitoring treatment and healing, sites received generalized feedback from an audit of the clinical documentation that had been submitted to the HQC. Following the conference call, each team coordinator received specific feedback via email.

At the project midpoint, site visits were conducted to allow HQC team members to meet with every wound care committee. During these visits, teams were presented with an overview of pressure ulcer risk levels in their facility as measured by Braden scores in addition to feedback regarding the quality of clinical documentation submitted to the HQC.

Clinical outcomes. The impact of guideline implementation on resident outcomes was measured monthly by documenting the incidence and prevalence of residents with pressure ulcers. Monthly incidence was defined as the proportion of permanent residents present for any period of time during a given month who acquired at least one new pressure ulcer at any time during the month. Monthly prevalence was defined as the proportion of residents who had at least one new or existing pressure ulcer at any time that month.

Three data collection tools were used at each pilot site. The Braden Risk Assessment Scale\(^1\) is a validated tool that measures an individual's risk of acquiring a pressure ulcer. Braden scale scores can range from 6 to 23; a score of 15 or 16 indicates low risk, 13 or 14 indicates moderate risk, and 12 or less indicates high risk. The guidelines recommend the use of a standardized assessment tool, such as the Braden scale, to create pressure ulcer prevention and management care plans for each resident based on his or her level of risk. To encourage this practice, sites were asked to assess all residents at the beginning of the study, assess new residents at the time of admission, and re-assess residents who experienced a change in health status.

Each site also implemented the use of a wound record, a paper-based tool for monitoring treatment and healing. Each time a wound was discovered or assessed (at minimum, each time a dressing was changed), staff were expected to record ulcer characteristics such as date of observation, stage, and size (length, width and depth), as well as pain, appearance of the wound bed and margins, exudate type and amount, and odor. Data from the wound records were used to determine the incidence and prevalence of residents with pressure ulcers.

The resident population was tracked by means of monthly resident tracking reports containing dates of new admissions, death, discharge, or transfer.

The team coordinator at each site was responsible for retrieving these data from the charts and submitting it to the HQC. To protect confidentiality, all documents were de-identified before submission through the use of a unique numerical identifier. Master lists linking names with unique identifiers were managed and stored by the individual pilot sites.

Data analysis. Data from each of the seven participating sites were examined individually for unusual values or missing information that might impact aggregate results. Then the data were pooled and subsequent analyses were based on aggregated data from all facilities. For each outcome measure, the numerator and denominator were dichotomous variables indicating whether a particular resident would be included or excluded for a particular month. If a resident acquired a new pressure ulcer at any time during a particular month (indicated by the date of the first entry on the wound record), he/she was included in the incidence numerator for that month. Similarly, if a resident had a new or existing pressure ulcer at any time during a particular month (indicated by the first entry on the wound record occurring at any time before or during the month and the last entry occurring at any time during or after that month), he/she was included in the prevalence numerator. The same denominator was used for both outcome measures. If an individual was a resident of a facility at any time during the month, he/she contributed to the denominator for that month. All analyses were
performed using SAS version 9.1 software (SAS Institute, Cary, NC).

Several post hoc descriptive analyses also were performed to explore alternative explanations for the results. Specifically, the authors sought to determine whether three specific biases present in the study affected the results: 1) changes in the pressure ulcer risk profile over time through the selective admission of lower risk patients and selective loss of higher risk patients through death, discharge, and transfer, 2) facility-specific data quality issues exerting undue influence on the results, and 3) the selective loss of residents with pressure ulcers through death. To determine whether changes in the pressure ulcer risk profile of the resident population occurred over time, the frequency distribution of high, moderate, and low risk patients (as measured by the Braden scale) was calculated each month. Facility-specific data issues were also of concern, particularly with respect to three of the seven participating facilities. Staff at one site (Site A) reported they stopped documenting Stage I ulcers on the wound record form at some point between February and March. This change could have resulted in the reporting of fewer pressure ulcers each month, which would artificially decrease the values of the incidence and prevalence indicators. Two sites (Site A and B) accounted for a large portion of the total sample and may have skewed the results to reflect only what happened in those two sites. Also, site C had much higher incidence and prevalence when compared to the other sites and may have overly influenced the aggregate results. To determine whether facility-specific impacts on the aggregated data might explain the changes in incidence and prevalence, a sensitivity analysis was performed by removing data from these three sites, one site at a time, from the analysis and examining the effect on the results. Finally, if a large number of residents was dying each month and if the residents who were dying also had pressure ulcers, this would artificially lower the incidence and prevalence of pressure ulcers. To measure the effect of deaths on the indicators, the number of residents who contributed to the prevalence numerator (ie, had a new or existing pressure ulcer) was counted during the month in which they died.

Resident inclusion/exclusion criteria. The long-term care population in Saskatchewan consists mainly of frail elderly. A recent study showed the average age of long-term care residents in Saskatchewan was 85 years (standard deviation [SD] 7.84) and only 10% were age 65 to 74 years. Administrative data from fiscal year 2004/2005 (the most recent data available covering the study period) shows that resident turnover is most often due to death or transfer to another long-term care facility; short stays for rehabilitation followed by discharge to home are rare. On average, during that time period, 390 residents were admitted and 394 residents were discharged from Saskatchewan long-term care facilities each month. An average of 61% of discharges were due to death, 35% were due to transfer, and 2% were due to functional improvement or recovery.

All individuals who were permanent residents of the facilities at some time during the study period (December 1, 2004 through September 30, 2005) were included in the study. Residents were excluded from incidence and prevalence calculations once they left the facility through death, transfer, or discharge. Short-stay residents in the facility only for respite care were excluded.

Ethical approvals. The Behavioural Research Ethics Board at the University of Saskatchewan approved the study protocol.

Results

Implementation strategy. The train-the-trainer day was attended by 34 pilot site staff members. Participants received instruction on pressure ulcer prevention and skin care, wound care products, management of pressure ulcers, and discharge care planning. The special care aides who attended were particularly appreciative of the opportunity to participate because they often are not afforded these types of off-site continuing education opportunities.

Site visits by the clinical expert were attended by between four and seven staff members from each facility; in most cases, these were the same staff members who attended the train-the-trainer day. The clinical expert reported that staff used this opportunity to ask many questions regarding products and equipment. It was her impression that before this project and her
involvement, many sites did not have any other resource to obtain answers to their skin and wound care questions.

Four facilities requested that the clinical expert facilitate their first inservice sessions. Again, site staff used the opportunity to ask many questions. Team coordinators reported it was difficult for staff to attend inservices while on shift due to heavy workloads and that they lacked the resources to compensate staff for attending during their time off. As a result, attendance at some sites was lower than anticipated.

At the mid-study site visits, team coordinators reported facing staff resistance to incorporating the wound record form into routine skin and wound care practices in the facility. They speculated that some staff members may have felt overwhelmed by the level of detail on the form and the many variables that needed to be assessed (ie, wound length, width, depth, odor, exudate type and amount, and appearance of the wound bed and edges). Team coordinators suggested that more training may have increased nurses’ confidence in their assessment abilities and decreased resistance to the wound record form.

The goal was to have all wound care committee members contribute to planning and executing all aspects of guideline implementation at the sites. However, most team coordinators reported minimal assistance from their committees in preparing and delivering inservices, collecting and submitting data, and coordinating and facilitating committee meetings. As a result, most of these duties were left to the coordinators who felt overwhelmed and frustrated at the slow pace of change. In hindsight, the coordinators acknowledged that they should have spent more time in early committee meetings working with committee members to establish who would be responsible for which components of the improvement project so members had a clear understanding about their roles and responsibilities.

Clinical outcomes. The seven selected facilities had a total of 591 permanent residential beds; the smallest facility had 34 beds and the largest had 144. The number of residents living in the facilities each month varied from 577 to 593; a total of 753 residents contributed data to the study.
Determining incidence for December 2004 was not possible because it was not always clear whether the wounds reported on wound record forms submitted in December were new or present before the project began. In total, 130 new instances of a resident acquiring a pressure ulcer occurred during the study. The monthly incidence of residents with pressure ulcers decreased throughout the project period from 6.0% in January to 0.2% in September (see Figure 1).

The number of residents with a pressure ulcer each month varied throughout the project, ranging from 64 to 22. Prevalence increased in January and February but fell in March and continued to decrease to 3.2% in September (see Figure 2).

Although resident turnover occurred, the pressure ulcer risk profile of the study population varied only slightly over the course of the project (see Figure 3). These data suggest that changes in pressure ulcer risk profile are unlikely to provide an alternative explanation for the decreases seen in incidence and prevalence.

The results of the sensitivity analyses show removal of data from sites where data quality was a concern shifted the magnitude of the indicators (the position of the indicators on the y-axis); however, this did not change the trend. The lines all follow the same pattern, increasing author confidence that data from these sites did not exert undue influence on the results (see Figures 4 and 5).

Only three residents contributed to the prevalence numerator (i.e., had a new or existing pressure ulcer) during the month they died (data not shown). This indicates that the decreases in incidence and prevalence were not an artifact of resident turnover during the study.

Discussion

The objectives of the project were to pilot test an evidence-based guideline implementation strategy and to evaluate the impact on resident outcomes — i.e., the incidence and prevalence of residents with

![Figure 1. Monthly incidence of residents with pressure ulcers.](image1)

![Figure 2. Monthly prevalence of residents with pressure ulcers.](image2)

![Figure 3. Braden risk score categories of all residents.](image3)
ETHEZYME™ AND ETHEZYME 830°

Popain-Urea Debriding Ointments

Rx Only

DESCRIPTION: Each gram of Ethezyme™ enzymatic debriding ointment contains Popain, USP, (1.1 x 10^7 USP units of activity) and 100 mg Urea, USP. Each gram of ETHEZYME 830 enzymatic debriding ointment contains Popain, USP, (8.3 x 10^7 USP units of activity) and 100 mg Urea, USP.

Both are in a hydrophilic ointment base composed of purified water, USP, oleate oleyl, USP, emulsifying wax, NF, fragrance, glycerin, USP, lecithin, palmites, NF, methylparaben, USP, polyoxyl 40 stearate, NF, potassium phosphate monobasic, USP, propylparaben, NF and tocophersols, mixed.

ACTIONS/CLINICAL PHARMACOLOGY: Papain, the proteolytic enzyme from the fruit of carica papaya, is a potent digestant of nonviable protein matter, but is harmless to viable tissue. It has the unique advantage of being active over a wide pH range, 3 to 12. Despite its recognized value as a digestive agent, papain is relatively ineffective when used alone as a debriding agent, primarily because it requires the presence of activators to exert its digestive function.

In both Ethezyme™ and ETHEZYME 830 debriding ointments, urea is combined with papain to provide two supplementary chemical actions: 1) to expose by solvent action the activators of papain (sulfhydryl groups) which are always present, but not necessarily accessible, in the nonviable tissue or debris of lesions, and 2) to denature the nonviable protein matter in lesions and thereby render it more susceptible to enzymatic digestion. In pharmacologic studies involving digestion of beef powder, it was shown that the combination of papain and urea produced twice as much digestion as papain alone.

INDICATIONS AND USAGE: Both Ethezyme™ and ETHEZYME 830 debriding ointments are indicated for debridement of necrotic tissue and liquefaction of pus in acute and chronic lesions such as decubitus, varicose and diabetic ulcers, burns, postoperative wounds, pilonidal cyst wounds, carbuncles and miscellaneous traumatic or infected wounds.

CONTRAINdications: Ethezyme™ and ETHEZYME 830 debriding ointments are contraindicated in patients who have shown sensitivity to papain or any other components of this preparation.

PRECAUTIONS: See Dosage and Administration. Not to be used in eyes.

PEDIATRIC USE: Safety and effectiveness in pediatric patients have not been established.

GERIATRIC USE: Clinical studies on this product have not been performed in sufficient numbers of subjects aged 65 and over to determine whether elderly subjects respond differently from younger subjects. In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal, or cardiac function, and of concomitant disease or other drug therapy.

ADVERSE REACTIONS: Ethezyme™ and ETHEZYME 830 debriding ointments are generally well-tolerated and non-irritating. A transient “burning” sensation may be experienced by a small percentage of patients upon applying Ethezyme™ or ETHEZYME 830. Occasionally, the picture exudate from enzymatic digestion may irritate the skin. In such cases, more frequent dressing changes will alleviate discomfort until exudate decreases.

DOSEAGE AND ADMINISTRATION: Apply either Ethezyme™ or ETHEZYME 830 debriding ointment directly to lesion and cover with appropriate dressing. Daily or twice daily changes of dressings are preferred. At each redressing, the lesion should be irrigated with isotonic saline solution, or other mild cleansing solution (except hydrogen peroxide solution, which may inactivate the papain) to remove any accumulation of liquefied necrotic material.

NOTE: Papain may also be inactivated by the salts of heavy metals (lead, silver, mercury, etc.). Contact with medications containing these metals should be avoided.

HOW SUPPLIED: Ethezyme™ Papain-Urea Debriding Ointment NDC 58177-834-02
ETHEZYME 830 Papain-Urea Debriding Ointment NDC 58177-816-02
Both are available on prescription only in 1 oz (30 gram) tubes.

In a sensitivity analysis of the monthly incidence of residents with pressure ulcers. Pilot site results indicate that after the Saskatchewan Pressure Ulcer Guidelines were introduced, a 97% decrease in the incidence of residents with pressure ulcers (from 6.0% to 0.2%) and a 58% decrease in the prevalence of residents with pressure ulcers (from 8.8% to 3.7%) occurred. These results are consistent with those reported by other teams looking at the incidence of pressure ulcers before and after implementing evidence-based pressure ulcer prevention and management programs in long-term care facilities, which showed decreases in incidence ranging from 58% to 96% over the course of 6 to 12 months."
pre/post study of the outcomes of implementing a program based on AHCPR guidelines in long-term, home, and acute care settings, Suntken et al\textsuperscript{12} reported a 79\% decrease in prevalence over 6 months.

Current results provide further evidence that an organizational commitment to improving skin and wound care, followed by the implementation of evidence-based guidelines and a focus on education and prevention, can result in improved outcomes for long-term care residents. Incidence measures the number of new occurrences of pressure ulcers and is sensitive to changes in primary prevention practices, while prevalence measures the total number of pressure ulcers (both new and existing) and is sensitive to changes in both prevention and management. Results reported here show a greater decline in incidence when compared to the decline in prevalence, which suggests that the decline was due to a decrease in the number of new pressure ulcers as a result of improved pressure ulcer prevention.

In contrast to many other guideline implementation initiatives, the HQC used a non-prescriptive approach to promoting change. The goal was to increase the capacity of teams at the pilot sites to implement sustainable changes by providing them with the knowledge, resources, and practical skills to improve pressure ulcer prevention and management. Therefore, the role of the HQC was limited to providing education, tools, and resources; changes to pressure ulcer prevention and management were planned and implemented by the individual teams. In keeping with this approach, facilities that participated in the project were volunteers that responded to a call for pilot project sites. Thus, the motivation for change came from within the facility rather than being imposed on the facility from an external source. In fact, to be selected, prospective pilot facilities had to express a desire to improve wound care practices.

**Limitations**

This project is larger than other previously reported guideline implementation initiatives, with seven long-term care facilities participating and more than 750 residents contributing data to the study. However, these results must be interpreted within the context of the following limitations. A sufficient number of baseline data points to reliably identify the trends and variation in incidence and prevalence before the implementation of the guidelines were lacking. Clinical outcomes data from a comparison group of other facilities that were not implementing the guidelines during the pilot project were not available. In addition, information recorded on the wound record forms did not facilitate determining whether newly admitted residents were admitted with a pressure ulcer. These limitations make it difficult to definitively establish a causal link between the guideline implementation and improvement in clinical outcomes. Nevertheless, some important alternative explanations for the results were eliminated by conducting post hoc analyses. Specifically, results could not be explained by changes in the baseline ulcer risk level of the study population over time (by selective admission of low-risk residents or death of higher-risk residents) or due to undue influence of data from individual pilot sites. The authors conclude that the most reasonable explanation for the findings is that the implementation of an evidence-based clinical practice guideline for pressure ulcer prevention and management resulted in a reduction in the incidence and prevalence of residents with pressure ulcers in participating long-term care facilities.

Not all recommendations in the Saskatchewan Skin and Wound Guidelines were implemented with equal enthusiasm or success by the seven pilot facilities. Notably, none of the facilities was able to consistently follow the guideline recommendation to do a complete assessment of pressure ulcers (including descriptions of stage, depth, width, and exudate) using the wound record form with each dressing change. Due to inconsistent completion of these wound descriptors in the wound records, changes in ulcer healing time could not be tracked over the course of the pilot study. Subsequent initiatives to expand use of these guidelines will need to ensure that nurses have both the knowledge and confidence to complete the wound record forms according to guideline recommendations as well as sufficient motivation to do so consistently.
Conclusion

Measuring progress is an essential component of any quality improvement initiative. In this case, incidence proved to be a valuable measure of progress because it is sensitive to changes in prevention practices, which are often the focus of improvement initiatives in pressure ulcer care. Facilities implementing pressure ulcer prevention programs should continuously evaluate their improvement efforts by monitoring incidence through use of wound documentation records.

Based on the results presented here and those previously reported in the literature, it is logical to conclude that organizational commitment to improving skin and wound care followed by the facilitated implementation of evidence-based guidelines can result in improved clinical outcomes for long-term care residents.

Long-term care is an area that is particularly underserved for education and training opportunities. These results show that providing staff education, training, and practical improvement tools, even in modest amounts, can result in considerable improvements in clinical outcomes for residents.

Acknowledgment

The authors acknowledge the quality improvement teams and staff at the pilot sites for their initiative in volunteering to participate in the project and their ongoing commitment to improving the quality of care for their residents. In addition, they acknowledge the members of the Saskatchewan Skin and Wound Action Committee for their time and dedication in promoting and supporting quality improvement in skin and wound care in Saskatchewan. They also thank their colleagues at HQC who contributed to this project: Nicole Bilodeau, who provided administrative support; Sheila Ragush, for her support in developing communications materials and strategies; Pam Reilly-Bruce, who provided support in guideline development; and Farzana Karim-Tessem, Helen Oliver, Reagan Osicki, and Jack Wallace for providing data entry and research support. - OWM

References


Attention Students and Instructors!

Don’t let your papers and assignments languish in a filing cabinet. The Ostomy Wound Management Student Award Recognition Program facilitates publication of papers written by residents/students enrolled in/graduating from wound, ostomy, incontinence, and other related educational, training, and certification programs on topics covered by this journal.

Papers of the following types may be submitted:

• **Reports of clinical or preclinical research studies**

• **Case studies/short reports** — case studies or short reports that stimulate the exchange of information and additional research and/or demonstrate the effectiveness of or problems associated with certain interventions

• **Review articles** — review publications should stimulate the exchange of information by summarizing pertinent information on a particular topic, identifying problems or existing gaps in knowledge, and stimulating discussion/future research.

Student authors may request the assistance of a mentor (a member of OWM’s Editorial Board), who will help the student ensure that 1) all information is complete, 2) the writing is clear and concise, and 3) the information is presented in the correct format (AMA style guidelines). For complete manuscript preparation and submission instructions, please see “Instructions for Authors” at www.o-wm.com. In addition to following our instructions, each submission must include a letter from the instructor. The cover letter should contain: 1) acknowledgment of author student/resident status, 2) date of graduation (recent), and 3) instructor approval to include his/her name in the byline of the published manuscript.

To ensure indexing of the published manuscripts (Medline and CINAHL), all student manuscripts will be subject to the regular peer review process. Reviewers will be notified that the manuscript was written by a student.

**Special note: All published manuscripts will be eligible for our 2007 Student Author Recognition Award.** The award will include an invitation to attend the OWM Editorial Board meeting as a Student Delegate during the 2008 Symposium on Advanced Wound Care in San Diego, Calif. The author will receive full-paid registration to the 2008 Symposium, 2 nights’ free stay, and round-trip airfare to the conference from anywhere in the continental US.

For more information, please contact Barbara Zeiger, Editor, at (800) 237-7285, ext. 244, or email bzeiger@hmpcommunications.com.