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Dear Editor,

After reading Development of a Risk Assessment Tool for Intraoperative Pressure Ulcers, (JWOCN, January/February 2005), I was moved to share a few reflections. The Braden Scale was developed to determine who is/is not at risk for pressure ulcers for the purpose of planning preventive strategies. To the degree that prevention is successful, pressure ulcers are prevented. The Braden Scale differs from other methods of risk assessment that enumerate a list of risk factors, in that it takes a conceptual approach, linking conceptually all risk factors that contributed to one conceptual risk. For instance, mobility may be influenced by medical problems such as fractured hip, stroke, Parkinson's disease, or other phenomenon, such as anesthesia-induced unconsciousness. The purpose of conceptual classification is to identify and to rank or grade the level of immobility. Once this is known, interventions can be planned. In total, the Braden Scale never purported to assess risk during the operative period. It was always assumed that during the operative period, all patients are at highest risk. There are other factors that influence the level of risk as well. Kemp showed years ago that support surface and extracorporeal circulation were important factors during the period when the person is most vulnerable. My perception has always been that the length of time the person has bradycardia, has diastolic blood pressure below 60 mmHg, or is on a cooling blank is very important due to reduction in peripheral perfusion. Inability to move exposes the patient to pressure and requires pressure relief. Manufacturers are providing us with better support surfaces to achieve this goal. Decreased perfusion reduces the ability to tolerate the pressure that requires greater pressure relief and other support measures. There are other interventions, such as a careful eye to protection of the skin when exposed to cold, maintaining oxygen saturation and blood pressure. Because these factors are monitored closely by the anesthesiologist, we undoubtedly have fewer pressure ulcers.

The Braden Scale for Predicting Pressure Sore Risk, a copyrighted instrument, was presented in an abridged version in this article. The editors of this journal graciously agreed to print the Braden Scale as originally copyrighted (Figure 1). Barbara Braden and I have a long history of granting permission for any clinical agency to use this tool for patient care, free of charge. There are 4 things we ask in exchange: the wording of the tool must not be changed, the scoring must remain as written, the correct title shall be used and copyright recognition included (Copyright, Barbara Braden and Nancy Bergstrom, 1988. Reprinted with permission. All rights reserved.). The Braden Scale is widely used in the US with more than 450 new letters of permission granted in the second half of 2004, and it is used to some extent on each continent. We maintain the strong standards above because it is very easy for a tool such as this to develop drift. If even one or two facilities would decide to adopt an abridged version, a disservice would be done to the persons who were assessed. The tool has been carefully designed and tested. Abridged formatting tends to add to the subjectivity of the tool and reduce the reliability and validity.

If you want to use the Braden Scale, please contact us at www.bradenscale.com. If you are improving patient care, we will quickly make this tool available to you at no charge. You can download an official version. If you would like to use the tool in your research, we will gladly discuss that with you as well.

When the AHCPR guidelines were written, they were considered in the public domain with the exception of two copyrighted inclusions. This may have created some misunderstandings among users. We are pleased with the great support that you, the WOCNs, have given us over the years, and we aim to help you in any way we can. We thank the editors for printing the entire version and wish the authors of the manuscript well in their work.

Sincerely,

Nancy Bergstrom, PhD, RN, FAAN
Theodore J. and Mary E. Trumble Professor of Aging Research
and
Director, Center on Aging
University of Texas Health Science Center
The authors wish to acknowledge and correct the error made in the citation and presentation of the Braden Scale for Predicting Pressure Sore Risk in our article on risk assessment during the perioperative period. We are sorry for this mistake. It was inadvertent, and we in no way intended to misrepresent or improperly credit this well-recognized and accepted instrument. We would like to thank Dr Bergstrom for bringing the error to our attention and also for her thoughtful comments on pressure ulcer risk associated with surgery. We are in agreement that surgery places patients at highest risk for pressure ulcers and that the Braden Scale is not intended for use during surgery. We have, however, observed that among practitioners there may be some confusion on this. In the article we proposed that Braden Scale assessment of patients during the perioperative period may be useful for documenting and increasing awareness of the general risk status of patients as they enter the intraoperative period. Studies evaluating the use of the Braden Scale as a preoperative measure of risk are limited. We think it reasonable, based on our interpretation of existing data, to consider the use of the scale before surgery. We encourage further testing of the Braden Scale in this setting, as one measure that may help predict risk of pressure ulcer development in patients having surgery. We also agree with Dr Bergstrom that there are many intraoperative factors associated with or suspected of increasing risk for pressure ulcers. Further research that extends our developmental work on preoperative and intraoperative risk is needed to fully understand which factors are the best predictors and can help guide prevention strategies. Because of the complex nature of the problem, prevention of pressure ulcers in the operating room setting requires a multidisciplinary approach.

Molly C. Price
JoAnne D. Whitney
Cecil A. King
Leadership
Able, Willing, and Available
Dianne Mackey

As a home health nurse for the past 23 years, the terms able, willing, and available are frequently used to describe a patient's or caregiver's ability to assist the home health staff in implementing the plan of care for that patient. Those who work in the home health setting know that many times a patient or a caregiver is able to assist in his or her own care but for many reasons is not willing and available. Similarly, a patient or caregiver may be willing and available but not able to participate in his or her individual plan of care because of a lack of knowledge, physical limitations, or both.

The same can be said about a person who is interested in becoming a volunteer leader. One needs to be able, willing, and available to get involved and serve the people to whom his or her allegiance lies. For WOC nurses, this means our wound, ostomy, and continence patients. As leaders, we are responsible for influencing the future of our tri-specialty and, ultimately, for advancing nursing as a whole.

After attending my fourth WOCN Strategic Planning Session, I remain impressed with the level of dedication and commitment to the society's mission, values, and goals. From our volunteer leaders, as well as our consumer and industry leaders, many took time from their regular day jobs and clinical practices to participate in the important work of developing a "roadmap" for the society to follow during the next 3-5 years. They are definitely able, willing, and available!

In John Maxwell's book, The 17 Indisputable Laws of Teamwork, he describes a leader as one who is able to get a running start for the team. Leaders are able to see further, anticipate what lies ahead, and, as a result, get the team moving in the right direction in a timely manner, putting them in a position to succeed. Identifying and mentoring team members who exhibit leadership potential increases the chances the team has to continue on the path of success.

Similarly, the WOCN Society's success lies in the ability to identify, recruit, and provide potential leaders with the knowledge and skills needed to lead and thus serve a greater number of its members. This ensures the viability of our organization. With the "baby boomers" set to retire in record numbers during the coming years, it is vital for our society that our younger members get involved, serve on the various committees and task forces, and be mentored in leadership development. I was one of those younger members 14 years ago (my, how time flies!) and recall being asked to serve on a committee. I remember uttering the 4 words we love to hear from our volunteers, "I would be honored." As a current member of the WOCN Board of Directors, I continue to learn not only what it takes to be a successful leader but also how to identify and mentor potential leaders to follow in your footsteps. In Bernie Cullen's presentation "Mentorship: A Blueprint for the Future," she discusses the importance of creating a personal "board of directors." These people are unusually competent, respected in their field, and add value to the organization. They provide the mentee or potential leader with the opportunities and challenges that will enhance the individual's...
career satisfaction and personal fulfillment. It allows encouragement, guidance, and support in areas of interest while handling challenges in a nonthreatening and secure environment.

One of my favorite quotes addressing leadership comes from the industrialist, Andrew Carnegie, “No man will make a great leader who wants to do it all himself or get all the credit for doing it.” A true leader serves the people and their best interests ahead of his or her own. So what defines a true leader? Much of what is published on leadership states that to be a good leader 2 issues need to be addressed: attract people whose talent and potential are greater than your own and develop the people you already have on your team. In his book *Good to Great*, Jim Collins tells us that a Level 5 leader, the best of the best, is often a blend of personal humility and professional will. The Level 5 leader is able to get the right people on the bus, the wrong people off the bus, and the right people in the right seats—and then figure out where to drive it.

It’s been my experience as both a WOCN leader and in my clinical practice that teams/committees get off track because the wrong people are sitting in the wrong seats or the right people are sitting in the wrong seats. Much time is wasted as the teams/committees try to drive the bus before they figure out who is the driver and where they are going. Anyone can steer the bus, but it takes a leader to map out the trip and identify the detours, roadblocks, and even the speed bumps to reach their destination safely and in the time allotted.

Perhaps you are wondering if you too are able, willing, and available to become a leader in your nursing organization. You may want to consider the following in answering this question:

1. Are you able? Think about your areas of expertise and your personal and professional strengths. How can you contribute to the organization now? What roles would help you to develop your leadership potential? One leadership skill is the ability to deal with conflict—as a leader, it is important to realize that you may need to make difficult decisions and these decisions may result in conflict. If you know you are a “conflict avoider,” you could begin to develop your leadership ability by taking classes in conflict resolution or selecting positions in which you could gain practice in effective conflict management.

2. Are you willing? Are you interested in becoming a leader? Are you ready to commit time and effort to your professional organization? Does the thought of taking on an important committee role or leadership position excite you and make you realize that you have a lot to contribute and that you can make a difference?

3. Are you available? Even if you are able and willing, you must consider whether this is a good time for you. As a volunteer and leader, you will need to balance your time between personal and professional responsibilities, and time management and organizational skills will be critical to your success. If you have just begun a challenging job or if this is an intense time for you in terms of family responsibilities, you may have to consider whether you have the time and energy to devote to this role.

If you find yourself saying “yes” to all 3 questions, some of the opportunities that await you include expanding your understanding and knowledge about your organization. You will learn about the roles and responsibilities of becoming a leader in your nursing organization. Networking and the development of support systems will play an integral part in your happiness and success as a leader. Close friends, colleagues, and mentors can provide help and support on your journey toward leadership. Most of all, be passionate, enthusiastic, and committed, and remember to have fun along the way.

In closing, I want to share with you a quote from my favorite TV show, *The West Wing*: “Decisions are made by those who show up.” Are you able, willing, and available to be a leader who helps the WOCN Society set the standard and guide the delivery of care for all wound, ostomy, and continence patients?

### References

Preparing a Grant Proposal—Part 2
Reviewing the Literature

Mikel Gray, Donna Zimmaro Bliss

This Spotlight on Research is the second part of a series on grantsmanship written by members of the Center for Clinical Investigation. The aim of the Spotlight series is to encourage and support the grant activity and research efforts of members of the Wound Ostomy and Continence (WOCN) Society. This Spotlight provides guidelines to help you write the literature review for a grant proposal. The term “literature review” can be generally defined as a synthesis of published information for a given topic. Such a definition is purposely broad because the literature review fulfills a variety of objectives, depending on the author’s goals and the techniques used to generate the review. There are several distinctive types of literature reviews. A systematic review arises from a specific question that is formulated before the review begins. The resulting literature review seeks to be comprehensive (ie, identify and critique all relevant information published in the public domain), but it is limited by the specific parameters of the question. The question, search strategy, and criteria for excluding studies from the review are explicitly defined in the methods section of the review. Review results are expressed in a narrative format and synthesized to determine the strength of evidence that supports or refutes the intervention or assessment under review. A systematic review is not appropriate for a grant proposal.

In an integrative review, the author provides a comprehensive discussion of the existing evidence, opinions, and theoretical knowledge about a topic in a cogent narrative. Research studies, other review papers, and opinion articles by clinical experts may be included, as well as current and historical citations, which provide an in-depth context to the state of the science of the topic under review. An integrative review can be published as a stand-alone article, like a systematic review, or it may be part of another document, such as a doctoral dissertation.

The focus of this article is on what we label a grant proposal review. The main purpose of the proposal review is to provide a foundation or background for the investigation outlined in a research proposal. Hence, this part of a grant proposal is sometimes referred to as the “Background” section. A grant proposal review differs from an integrative review in that it sets the stage for the specific research questions raised in the grant proposal rather than attempting to cover an extensive broad discussion of a topic, and it preferentially includes primary sources (ie, the report of the original research). One of the practical reasons for these differences is that in a grant proposal, the literature review must accommodate the other essential parts of the proposal within the page limits and format stipulated by the funding agency. The grant proposal review differs from a systematic review in that it critiques relevant studies of all research designs, whereas the systematic review typically focuses on randomized controlled trials. Inclusion of the most current studies is essential and demonstrates the investigator’s grasp of recent advances in his or her field.

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Corresponding author: Mikel Gray, PhD, CUNP, CCCN, FAAN, Department of Urology, University of Virginia, Hospital Drive/Old Medical School, Charlottesville, VA 22908.
The literature review of a grant proposal offers the investigator the opportunity to support the need and significance of their proposed research. The savvy writer of a grant proposal review will logically lead the reader to arrive at the following 2 conclusions: (1) although some knowledge about the topic has been demonstrated by published research studies included in the review, there are gaps and unanswered questions that the researcher will elucidate by completing the proposed study, and (2) the outcome of the proposed study will contribute new knowledge to advance WOC nursing science and strengthen the effectiveness of WOC clinical practice.

Other purposes of the literature review are to assist the investigator in identifying or structuring an appropriate theoretical framework and developing the methods of the proposal. For example, the middle range Theory of Unpleasant Symptoms3 may be appropriate to guide an intervention study aimed at reducing pain from a diabetic foot ulcer. A theoretical framework assists in identifying variables that are critical to the research topic and the relationships among the variables. For example, when considering all the possible factors that might affect a patient’s adjustment to an ostomy, Deeny’s Need Theory4 may be useful to select and organize factors that could be tested in a study. The literature review should support the appropriateness of the research design selected; for experimental designs, support for hypotheses should also be evident. By reviewing the literature, the investigator can learn about procedures and instruments that can be used to measure variables of interest and that have been successfully tried by others. The novice investigator can avoid the pitfalls encountered by others, while capitalizing on methods that have proven productive in generating new and clinically relevant insights into their area of interest.

### Getting Started—The Search for Articles

To write the literature review for a grant proposal, an investigator must first identify articles relevant to his or her study. The modern library has evolved from a warehouse of bound volumes of paper articles to an increasingly accessible and sophisticated repository of electronic citation databases and full-text manuscripts that can be downloaded to a desktop printer and printed with a standard printer. There are 3 large electronic databases that contain citations pertinent to WOC nursing: CINAHL (Cumulative Index Nursing & Allied Health Literature), MEDLINE, and PubMed (Table 1). The CINAHL database contains more than 500,000 articles from nursing and allied health journals from 1982 to the present day. Almost all the major nursing journals are indexed in CINAHL, including the Journal of Wound, Ostomy and Continence Nursing. MEDLINE contains articles from more than 4,600 healthcare journals, including most major nursing journals. The principal database indexes journals from 1966 to the present day, but a separate database, called OLDMEDLINE, is available that indexes articles from 1951-1965. PubMed provides access to biomedical and science citations via the Entrez text-based search system. CINAHL and MEDLINE are available via paid subscription, such as that provided by OVID, or from a library. PubMed can be accessed free via the Internet, without a subscription.

Articles in CINAHL, MEDLINE, and PubMed can be searched by topic, author, or journal. In CINAHL and MEDLINE, search parameters can be refined and narrowed using special combination functions, termed Boolean functions. These functions use the words, “and,” “or,” and “not.” PubMed lacks Boolean functions, but it is updated frequently and provides an excellent resource

### TABLE 1. Electronic Databases*

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<th>Database</th>
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<th>Strengths</th>
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<td>MEDLINE</td>
<td><a href="http://www.nlm.nih.gov">www.nlm.nih.gov</a></td>
<td>Contains references and abstracts from more than 4,600 healthcare journals from 1966 to present. Combines nursing and medical journals in a single, large, and readily searchable electronic database.</td>
</tr>
<tr>
<td>CINAHL</td>
<td><a href="http://www.cinahl.com">www.cinahl.com</a></td>
<td>Contains more than 500,000 records from nursing and 17 allied health disciplines from 1982 to present. Indexes some nursing journals pertinent to WOC practice not available in the MEDLINE or PubMed databases.</td>
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for searching recently published literature. Although PubMed is not tied in with the full-text features available through many university or hospital library services, the LinkOut feature provides access to full-text articles at journal Web sites and other Web resources. Because the number of citations available about a topic may be unknown at first, it is best to begin a literature search with broad terms as keywords. Identifying articles that are most pertinent to a grant proposal results from using keywords, Boolean functions, and some practice. Littleton et al describe more advanced database search strategies by which an investigator can search electronic databases for studies using specific research designs. Examples of research designs applied in actual studies may be especially beneficial to the new investigator who is in the process of developing his or her investigative approach to a clinical problem.

Evidence-based databases also may prove valuable to your search. The Cochrane Central Registry of Controlled Trials and the American College of Physicians (ACP) Journal Club summarize randomized clinical trials that you may not have identified using the 3 databases previously listed. The Cochrane Database of Systematic Reviews may contain a systematic review that summarizes research related to your research question. Each of these databases is accessible via most health science libraries.

Using an ancestry search (ie, combing through the reference lists of papers identified from a computer search) may assist in identifying valuable articles that were not indexed in electronic databases. Finally, searching the gray literature may reveal recent research findings and abstracts whose content has not been published in full manuscripts. The gray literature contains abstracts from posters or presentations delivered at conferences and published in their proceedings books or full research reports from journals not indexed in the major electronic databases. This search may be particularly helpful for proposal reviews on a WOC topic because the WCET Journal is not indexed in PubMed, MEDLINE, or CINAHL, and the CAET Journal is not indexed in MEDLINE or PubMed. In recent issues of the Journal of Wound, Ostomy and Continence Nursing, abstracts presented at the WOC Nursing Society’s national conference are published. The amount of time required to complete a literature search will vary according to the investigator’s access to electronic databases and skill in bibliographic search techniques, the number of citations relevant to the research question selected, and the need to order through interlibrary loan services articles that are not locally available.

The review of a study’s quality is a critique of the design, methods, and rigor by which the study was conducted and the appropriateness of any statistical tests used. Some things to consider are the psychometric qualities of the instruments used, whether there was a control or placebo group and other control measures that strengthen the study design, and the types of procedures conducted and the appropriateness of any statistical tests used. An interesting clinical finding of a past study will provide greater support for the proposed investigation. The main variables in the study aims should be addressed with respect to what is currently known about them. In an experimental design, information about both the independent (predictor) and the dependent (outcome) variables should be included. Diagrams and models can enhance the description of variables and their hypothesized relationships.

The review of a study’s quality is a critique of the design, methods, and rigor by which the study was conducted and the appropriateness of any statistical tests used. Some things to consider are the psychometric qualities of the instruments used, whether there was a control or placebo group and other control measures that strengthen the study design, and the types of procedures used to insure the integrity of any intervention that was administered. For the new researcher, consultation with a more experienced researcher or statistician to explain more complex analyses can be highly instructional and build confidence. An interesting clinical finding of a past study will provide greater support for the proposed investigation if it was generated by a strong controlled design and carefully implemented procedures. Therefore, it is
The purpose of the literature review in a grant proposal is to set the stage for specific research questions raised in the grant proposal and to demonstrate the significance of the proposed study.

In a literature review, extant knowledge and gaps in information from current primary research sources are synthesized and the quality of the studies’ methods is evaluated.

Electronic databases and search tools have facilitated access to published literature.

A proposal literature review is succinctly and well written, often no more than 2 to 3 pages for a small-length to medium-length grant proposal.

Call for Manuscripts: Special Issue on Ostomy Care

We are currently seeking manuscripts for a special issue on care of the person with an ostomy. Topics may include, but are not restricted to, nursing research related to sexuality, adjustment to an ostomy, ethical considerations, specific clinical strategies in preparing a patient for surgery, follow up in the community, and complications related to stomas, such as peristomal hernia, pyoderma, prolapse, necrosis, and mucocutaneous fistula. State-of-the-science review of medical management, including pharmacology, of inflammatory bowel disease (IBD) and colorectal cancer; support groups; nutritional concerns of the patient with IBD; case studies; and case challenges.

All manuscripts are peer reviewed, and submission does not guarantee publication. The planned publication date is September 2006; deadline for manuscripts is September 1, 2005. Please see author information on www.jwocnonline.com. All manuscripts are to be submitted online to jwocn@look.ca.

KEY POINTS

✔ The purpose of the literature review in a grant proposal is to set the stage for specific research questions raised in the grant proposal and to demonstrate the significance of the proposed study.

✔ In a literature review, extant knowledge and gaps in information from current primary research sources are synthesized and the quality of the studies’ methods is evaluated.

✔ Electronic databases and search tools have facilitated access to published literature.

✔ A proposal literature review is succinctly and well written, often no more than 2 to 3 pages for a small-length to medium-length grant proposal.

References


Summary

The grant proposal literature review is a focused and succinct synthesis of research pertinent to the research questions contained in a proposal. The optimal review should briefly present existing knowledge about the specific topic contained in the application and persuade the reviewer that the research proposed is the next logical step toward expanding our understanding of the clinical problem at hand.
What Treatments Are Effective for the Management of Peristomal Hernia?

Mikel Gray ■ Janice C. Colwell ■ Margaret T. Goldberg

QUESTIONS
1. What factors have been identified that increase or reduce the risk of peristomal herniation?
2. What interventions are effective for preventing or reducing the risk for peristomal herniation?
3. Is surgical intervention effective for the management of peristomal hernia?
4. What nursing interventions are effective for managing peristomal hernia?

A hernia is defined as the protrusion of a loop of an organ through an abnormal opening. The more specific hernia that is the focus of this Evidence-Based Report Card, peristomal herniation, is defined as protrusion of bowel through an abnormal opening created by a weakness or interruption of the abdominal wall fascia adjacent to the stoma. Clinical manifestations include an unsightly or bothersome bulge adjacent to the stoma, difficulty pouching, difficulty maintaining a seal when a new pouch is applied, pressure or discomfort associated with stretching of the hernia ring, and intermittent bowel obstructions or acute abdominal pain associated with incarceration of the bowel within the hernia sac. The clinical diagnosis of a peristomal hernia requires assessment of the patient in a prone, standing, and sitting position. Attention is paid to the peristomal area, noting a bulging area in the area immediately around the stoma. This bulge should disappear when the patient is prone, because the intraabdominal pressure is lessened. A digital examination done with the patient performing a Valsalva maneuver will reveal an enlarged fascial ring. Although the physical assessment of the patient will provide evidence of a peristomal hernia, a computed tomography (CT) scan will provide the definite diagnosis.

An in-depth bowel history should be taken to establish normal function and compare to the present function now that the patient has noted the bulge around the stoma. Evaluation for the presence of intermittent obstructive symptoms is important. A history typical of a patient with fecal stoma and a peristomal hernia will include periods of non-bowel activity during physically active times, followed by high output during times of a prone position (such as sleeping).

An analysis of 16,470 patients in the United Ostomy Association’s patient registry reveals that the prevalence of peristomal herniations is approximately 30%. Reports of the incidence of peristomal hernias vary from 6.5% to as high as 62.5%. Variability in these reports can be attributed to many factors, including sampling differences (some studies were limited to urinary diversions, whereas others were limited to fecal diversions or a particular type of fecal diversion), to the underlying definition of what constitutes a hernia (some include any herniation, whereas others include only symptomatic hernias or those deemed appropriate for surgical repair), or to reporting methods (some relied on self-report, whereas others were based on physical or imaging studies).

Cheung reviewed 322 stomas and found that half of the peristomal hernias occurred within 2 years of initial ostomy surgery. The median time for peristomal hernias to appear in end sigmoid colostomies was 15.3 months, and the median time for herniation in patients with ileal conduits was 22.4 months. When all diversions were combined, 24% occurred in the first year after surgery and 50% after the first 2 years after surgery.
Two integrative reviews\textsuperscript{1,11} were located that identified 7 factors believed to influence peristomal hernia risk, including: (1) placement of the stoma outside the rectus sheath, (2) increased abdominal pressure, (3) suboptimal surgical technique (creation of an overly large abdominal wall defect), (4) placement of the stoma in a midline incision, (5) infection of the mucocutaneous border, (6) stomal effluent (fecal vs urinary), and (7) impaired abdominal wall muscle contractility associated with weight gain or loss. Several of these factors are modifiable and may be amenable to preventive interventions. Question 2 of this review explores clinical evidence related to the prevention of peristomal herniation in patients with a temporary or permanent ostomy.

The decision to treat a peristomal hernia is primarily based on the association of the hernia with bothersome symptoms, such as pain or pressure, psychologic distress associated with its appearance or the inability to conceal a hernia under clothing, difficulty pouching or maintaining the seal underneath a pouch, or the presence of obstruction\textsuperscript{1,11} Principal management options include watchful waiting, nonsurgical management techniques (such as a hernia support belt), alterations in irrigation regimens as indicated for patients with colostomies, and fluid and dietary regulation to prevent constipation. Surgery is limited to cases that are severe enough to produce significant and bothersome cosmetic or functional impairment. There are 3 principal surgical options: (1) primary fascial repair, (2) primary repair incorporating a synthetic material (such as a Gortex or Marlex mesh), and (3) relocation of the stoma.\textsuperscript{1} This Evidence-Based Report Card examines clinical evidence related to modifiable risk factors associated with peristomal herniation, preventive interventions, and treatments for existing hernias.

\section*{Methods}

A systematic review of the MEDLINE, PubMed, and CINAHL electronic databases from January 1966 to November 2004 was completed using key words: “ostomy,” “stoma,” “hernia,” “parastomal hernia,” and “peristomal hernia.” Evidence-based medicine databases available through the OVID database search service (ACP Journal Club, Cochrane Database of Systematic Review, Cochrane Central Register of Controlled Trials, and Database of Abstracts of Reviews of Effects) were also searched. In addition to electronic database search, the ancestry of original research reports and 2 integrative reviews\textsuperscript{1,11} were searched for relevant research. Articles reporting original research and those with an English-language abstract were included. Because of the paucity of available research, any study that compared treatments was included when judging the efficacy of interventions for managing peristomal herniation. Similarly, although the search for evidence related to risk factors for peristomal herniation focused on a search for case-control studies or randomized clinical trials evaluating the efficacy of certain interventions, the results from case series were also considered because of a paucity of available research.

\section*{Question 1: What Factors Have Been Identified That Increase or Reduce the Risk of Peristomal Herniation?}

Four associated factors identified by Colwell\textsuperscript{1} and Turnbull\textsuperscript{11} are postulated to influence the risk for peristomal herniation and are modifiable. Those factors are: (1) stoma placement, (2) surgical technique, (3) abdominal muscle strength, and (4) weight gain or loss. Therefore, they are particularly interesting to WOC nurses and other clinicians involved in the management of patients with fecal or urinary diversions. Ideally, risk factors (conditions whose presence increase the likelihood of the underlying disease or disorder) or protective factors (conditions whose presence decrease the likelihood of the underlying disease or disorder) are identified by a prospective or retrospective case-control study. A case-control study compares patients with a certain disease or condition (in this case peristomal herniation) to patients who are free from that condition. These subjects are labeled controls, although this term does not carry the same meaning as it does when applied to the example of a randomized clinical trial. The magnitude of risk determined by a prospective case-control study is usually expressed as the relative risk for developing the condition, given the presence of the factor being studied. In contrast, the magnitude of risk determined by a retrospective case-control study is expressed as an odds ratio. The odds ratio is not identical to the calculated relative risk, but it provides a reasonable approximation of this value. Prospective or retrospective case series may be used to determine an association of the factor under consideration to the presence or absence of the disorder, but it does not provide sufficient evidence to identify it as a risk (or protective) factor. As noted in the methods section, this Evidence-Based Report Card also includes retrospective case series. Although these studies provide evidence for an association with peristomal hernia, they are presented because of the generally paucity of research based knowledge and do not represent adequate evidence that specific factors act as risk or protective factors.

Arumugam and coworkers\textsuperscript{14} prospectively evaluated short-term and long-term complications in 97 consecutive patients who underwent ostomy surgery between January and August 2000, including 12 subjects who experienced peristomal herniations. Multiple acquired or constitutional factors were evaluated to determine their influence on stoma complication risk, including age, body mass index, diabetes mellitus, and cigarette smoking. The researchers also evaluated a variety of factors related to surgical technique, including whether the stoma surgery was completed by a senior or junior surgeon, whether the stoma was...
created electrically or under emergent circumstances, and the use of suture material (Monocryl, Vicryl, or catgut). In addition, they evaluated whether WOC/ET nurses preoperatively marked the stoma site and whether the WOC/ET nurse identified problems when siting the stoma. None of the factors identified exerted a statistically significant effect on the risk of peristomal herniation.

Del Pino and associates\(^\text{15}\) retrospectively reviewed data collected by an enterostomal therapist from 1758 patients who underwent ostomy surgery between 1976 and 1995. Patients were divided into 2 groups: emergently created who underwent ostomy surgery between 1976 and 1995. No inferential statistical analyses comparing these surgeries were located, but neither specifically compared the postoperative incidence of peristomal hernias.\(^{18,19}\)

In his review of complications in 322 stomas, Cheung\(^{13}\) reported that practice changed through the period of data collection so that new ostomies constructed within the rectus abdominis could be compared to those brought out lateral to the rectus via the obliques. A statistical analysis of this comparison, however, was not reported, and Cheung\(^{13}\) reported in the discussion of the article that the data did not support a difference in peristomal herniation rate based on stoma site. Carne et al\(^{12}\) pooled data from 6 additional studies comparing the incidence of peristomal herniation in 511 subjects, including 344 with a stoma in the rectus abdominis and 167 stomas placed outside of the rectus. These patients underwent loop ileostomies as well as end and loop colostomies. Five of 6 studies revealed no statistically significant differences in the incidence of peristomal herniation based on site of stoma formation.\(^{6,20-23}\) In contrast, Sjodahl\(^{10}\) compared the incidence of peristomal herniation in a group of 130 patients who underwent elective colostomy. Twenty-three had their stomas placed lateral to the rectus abdominis, and 107 had their stomas brought out through the rectus muscle. The incidence of peristomal herniation in those with stomas placed adjacent to the rectus was 21%, compared to a 3% incidence in those with stomas within the rectus abdominis. Absence of randomization and differences in group characteristics may account for the differences between the results of this study, compared to the 5 other studies previously cited that failed to demonstrate a difference based on stoma site.

Raza and coworkers\(^{24}\) reported on the results of a case series of 101 patients who underwent umbilical colostomy surgery. None of the patients in their series experienced a peristomal hernia severe enough to justify surgical repair. Search of subsequent literature up to November 2004 did not reveal any subsequent reports using this method for stoma construction.

As discussed in Question 1, Etherington and associates\(^{16}\) found that aperture size was associated with the incidence of peristomal herniation. Resnick\(^{25}\) used a

**Question 2: What Interventions Are Effective for Preventing or Reducing the Risk for Peristomal Herniation?**

A single randomized clinical trial was located that focused on the effect of surgical technique on the risk of peristomal herniation. Edwards and colleagues\(^{17}\) randomized 133 patients undergoing anterior resection and total mesorectal resection to either loop ileostomy or loop transverse colostomy. The incidence of 5 postoperative complications was compared, including peristomal herniation. When complications were combined, analysis revealed that patients with transverse loop colostomies experienced more problems than did those with a loop ileostomy. Isolation of peristomal herniation reveals that none of the 63 subjects randomized to loop ileostomy were affected vs 3% of those randomized to a transverse colostomy. Inferential statistical comparison of peristomal herniation alone was not reported. Two earlier randomized clinical trials comparing these surgeries were located, but neither specifically compared the postoperative incidence of peristomal hernias.\(^{18,19}\)
specialized trephine instrument to create a 7-mm, 25-mm, or 32-mm diameter aperture during stoma creation. The trephine was designed to create a hole through all layers of the abdominal wall, except for the rectus abdominis muscle, which was split. It was initially tested in a cadaveric model. The device was then used in 18 subjects undergoing colostomy or ileostomy diversion. Follow up over a 24-month period revealed no incidence of peristomal hernias. Koltun et al26 used a circular stapler to create a precisely sized aperture for stoma construction in 25 subjects undergoing colostomy and 7 subjects undergoing ileostomy. No subject who underwent ileostomy and 1 subject who underwent colostomy (4%) experienced a peristomal hernia. The length of follow up varied, so an accurate incidence cannot be calculated based on the data, but the mean follow up was 7 years. No additional studies were identified that reported peristomal hernia occurrence with use of either of these methods.

One study was located that implanted mesh in an attempt to reduce the incidence of peristomal herniation. Bayer and colleagues27 reported a case series of 43 patients undergoing colostomy creation. Polypropylene mesh was incorporated as a facial onlay to strengthen the outlet of the stoma and to firmly fix it to the abdominal wall aperture. No peristomal hernias occurred in 36 of the 43 subjects who were followed for a period of 4 years. However, 3 developed local infections that were effectively managed by antimicrobials and 1 developed stomal stenosis that required surgical removal of the mesh.

**Question 3: Is Surgical Intervention Effective for the Management of Peristomal Hernia?**

No randomized clinical trials were identified that compared surgical techniques for repairing peristomal hernias. A single retrospective was identified that compared stoma relocation to primary fascial repair or fascial repair supplemented by prosthetic mesh. Rubin and colleagues8 compared 80 patients who underwent surgical repair of peristomal hernias in 2 facilities. Thirty-six patients were managed by primary fascial repair, 25 underwent stoma relocation, and 7 had fascial repair with implantation of a prosthetic material. Based on a mean follow up of 31.5 months, the researchers found that 63% experienced recurrence of peristomal herniation when all repair types were considered together. Stoma relocation was superior to primary fascial repair, with recurrence of herniation in 75% of those undergoing fascial repair vs 33% of those managed by stoma relocation. Fascial repair failed in 100% of patients who underwent treatment for a recurring peristomal hernia, and stoma relocation failed in 71%. In contrast, fascial repair with prosthetic mesh was associated with a failure rate in 1 of 3 subjects. Although stoma relocation was less likely to result in a recurring hernia, it was associated with a significantly higher risk of postoperative complications (50% vs 88%). The most common complication was incisional hernia, which occurred in 52% of patients undergoing stoma relocation surgery vs 3% of those undergoing fascial repair. The clinical relevance of this difference, however, must be carefully weighed against the observations that the overall incidence of abdominal wall herniation were similar between the groups and the observation that reoperation rates for the groups were not statistically difference (31% vs 28%).

Cheung28 retrospectively compared the results of peristomal hernia surgical repair in 43 patients with colostomies. Sixteen subjects underwent primary fascial repair, 25 were managed by stoma relocation, and 2 were treated with fascial repair augmented by prosthetic mesh. They reported an overall recurrence rate of 45% but failed to detect statistically significant differences when patients managed by primary fascial repair were compared with those managed by stoma relocation (46% vs 40%, respectively). In addition, both patients who underwent fascial repair augmented by prosthetic mesh experienced a recurring peristomal hernia. The mean follow up between data analysis and surgical repair of peristomal hernia repair was similar to that reported by Rubin and colleagues8 at 37.8 months. Although surgical technique did not affect the success of repair, exclusion of formal laparotomy reduced the incidence of recurrent herniation to 8%. Cheung et al also analyzed the size of the hernia, whether it was performed on an elective or emergent basis, the gender of the patient, whether the procedure was undertaken for a first or recurrent hernia, and patient age. None of the factors were associated with the risk of recurrence.

Reiger and coworkers29 retrospectively compared outcomes of 5 peristomal hernia repairs in 43 patients. Three types of repair were used: 14 underwent primary fascial repair using local sutures, 19 underwent fascial repair with prosthetic mesh, and 18 underwent stoma relocation. The overall complication rate was 65%, including recurrence of peristomal herniation in 38% (n = 18). Patients managed by primary fascial repair were the most likely to experience recurrent herniation (59%), and those undergoing stoma relocation were least likely (24%). Thirty-nine percent of those managed by prosthetic mesh required repair. Mean follow up after surgical repair was 44 months, and 21 subjects were excluded from analysis because they were lost to follow up (n = 6), underwent stoma closure (n = 10), or follow up data were unavailable (n = 5).

**Question 4: What Nursing Interventions Are Effective for Managing Peristomal Hernia?**

Review of the literature reveals a paucity of research focusing on nursing management of peristomal herniations.
The absence of research is adequately sufficient that existing recommendations for management are solely based on expert opinion and clinical experience. The principal nursing interventions for peristomal hernia management are (1) changes in the pouching system, (2) discontinuation of irrigation, (3) patient education about obstruction and incarceration of the peristomal hernia, and (4) application of a hernia support belt in selected cases.30-32

Changes in the Pouching System
Several flexible pouching systems should be considered, including 1-piece systems, a 2-piece system with a floating flange, or a flexible 2-piece system without a rigid flange. Some authors support cutting the skin barrier slightly larger than the stoma to allow for the enlargement of the stoma when the hernia sac is enlarged.1 The use of convexity is not recommended because the anticipated outcome is the formation of a pressure ulcer as the skin over the hernia sac becomes compressed between the flange and the hernia sac contents.1,34 A literature search, however, did not reveal specific case studies documenting this complication.

Patients are advised that irrigation procedures should be stopped. This advice is based on a belief that introduction of the fluid increases intraabdominal pressure, which is believed to increase hernia size or severity or cause incomplete emptying and void the results of irrigation.1,30,31 This advice is based on the expert opinion of clinicians, but no evidence was found in the literature to support this likely outcome.

Education About Complications
Patient education focuses on 2 complications: bowel obstruction and incarceration. Patients are advised of symptoms of obstruction, such as aching, pain, bowel obstruction, and cramping. Patients are further informed that a dark-red, purple, or black appearance of the stoma, associated with severe unremitting pain, is likely to indicate incarceration and justifies urgent medical intervention.1 This recommendation is based on the experience with incarcerated ventral and incisional hernias, not specifically a peristomal hernia.

Hernia Support Belts
Hernia support belts are custom fitted and believed to reduce peristomal herniation, stabilize the peristomal plane, reduce leakage from the pouch, and prolong pouch wear time.1 Instructions include measuring the abdominal girth at the stoma line to determine the length of the support belt, as well as measuring the herniated area to determine the width of the belt. The belt will fit over the herniation to provide the support that the muscle no longer offers.

Implications for Clinical Practice
- Patients presenting with a peristomal hernia should be thoroughly evaluated for the need for surgical revision. As the results of a peristomal surgical repair are dismal, referral should be considered only when the patient presents with signs of obstruction or is unable to maintain a secure pouching seal or if psychological distress becomes overwhelming.

- A flexible pouching system should be considered if the patient with a peristomal hernia has problems with a secure predictable seal.

- A hernia support belt should be carefully fitted for the patient with a peristomal hernia, considering abdominal girth at the stoma line, as well as the belt width. The belt should be applied while the hernia is reduced.

Key Points
- Epidemiologic evidence demonstrates that 2 factors, diversion type and aperture size, influence the risk of peristomal herniation. Patients with colostomies and larger abdominal aperture size were associated with an increased risk for peristomal herniation, whereas smaller aperture sizes and smaller abdominal aperture sizes were associated with a lower risk for peristomal herniation (Strength of Evidence: Level 3).

- The risk for peristomal herniation among patients undergoing anterior resection can be reduced by creation of a loop ileostomy as compared to a transverse loop colostomy (Strength of Evidence: Level 1).

- Incorporation of an artificial mesh at the time of stoma construction may reduce the incidence of peristomal herniation (Strength of Evidence: Level 1).

- Effective nursing interventions include alterations in the patient’s pouching system, discontinuation of irrigation, patient education about obstruction, and incarceration of the peristomal hernia and application of a hernia support belt (Strength of Evidence: Level 5).
References

The Ramifications of Perspective
How Theory Focuses Research, Data, and Practice

Janice M. Morse

BACKGROUND: Although theoretical perspectives may be traced from theory to everyday life, the reverse is also true. In this article, the author explores how subdisciplines within nursing perceive and approach the clinical problem of incontinence in elderly persons.

OBJECTIVE: To examine the relationship among the perception of clinical problems, various theoretical perspectives considered pertinent to the research to resolve these problems, different approaches to the research, and different research ‘products.’

APPROACH: In everyday life, we may trace beliefs, opinions, and behaviors back to their theoretical perspectives. The author uses a fictitious everyday conversation among 3 nurse researchers and a clinician as they discuss a scenario from literature regarding incontinence in the homecare of the elderly and suggests various research alternatives to approach the problem.

RESULTS: Although nursing subscribes to a holistic perspective of the person, the scope of a holistic perspective cannot be accommodated within a single research approach. Specialization in nursing results in various priorities for approaching the problem of incontinence, resulting in different research agendas, different goals, and different outcomes.

DISCUSSION: These divergent perspectives—arising within a single discipline—compete for research funding, for political attention and for policy recommendations.

KEY WORDS: Nursing theory, nursing research, research outcomes, incontinence.

The links among theory, research, and practice were discussed endlessly by nurse researchers and theorists in the early 1980s, resulting in several classic articles that are still used in doctoral theory courses and are treated with reverence that is deserved, and they remain unquestioned and unchallenged. Since then, however, nursing has matured as a profession, and it is now time to revisit this traditional and important topic. Herein, I examine the relationships between the ways clinical problems are perceived, what she calls theoretical perspectives, that are considered pertinent to those problems, various subsequent approaches used to conduct the research, and the contributions of the different research products as they are applied nursing practice. The substantive area in which I place this discussion relates to urinary incontinence—for no particular reason except that this article was prepared for a plenary address for a summit planned to carve new directions for the research agenda in this area. Nevertheless, I believe that the points made in this article may be applicable to nursing research in other substantive areas and to nursing’s research agenda as a whole.

I argue that what is considered as a worthy question to research and as legitimate modes of inquiry, data, and realistic outcomes depends on the subdiscipline. That is, nurses differ widely within their profession according to their perspective of what nursing is, what theory has been learned and is considered appropriate, and what is consider the political agenda and priorities should be for resolving these clinical problems. Although subscribing to the belief in holism, nurses fractionate the whole into subdisciplines, which makes caring for the entire person attainable for the clinician, but at the same time makes nursing one of the most eclectic of all disciplines. For instance, a clinician in the urology unit will have a different research agenda from a public health nurse or a nurse administrator from a nursing home, a nurse epidemiologist will not agree with a qualitative nurse researcher, a family member will have a different list of priorities than the chief nurse in the Department of Health, and so forth.

I suggest that nurses can “see” these various views, evident in their day-to-day interactions. These various perspectives...
conflict, determining what research is funded and hence will or will not be conducted. These conflicts also determine how priorities are set and even which problems will be considered significant. I argue that these disagreements occur implicitly at the bedside, in the academic setting, and behind closed doors of the granting agencies. They occur publicly in newspapers and in government in the allocation of public monies and in policy development. This problem of diverse perspectives emanating from theory is therefore worthy of nurses’ awareness and consideration.

Scenario

Before continuing, however, take an exemplar, setting, and context on which to focus the discussion. Use a story told by Hagar, an elderly woman, whose son, Marvin, and daughter-in-law, Doris, are planning to place her in a nursing home:

He [Marvin] stands there awkwardly, his hands held out. Doris sidles up to him, nudges his ribs with a brown rayon elbow.

“Go on now, Marv. You promised.”

Marvin clears his throat, swallows, but fails to speak.

“Stop fidgeting, Marvin, for heaven’s sake. I can’t bear people who fidget. What is it?”

“Doris and me, we’ve been thinking—.” His voice peters out, goes thin as shadows, vanishes. Then, in a gunfire burst of words, “She can’t look after you any longer, Mother. She’s not been well herself. The lifting—it’s too much. She just can’t do it—.”

“Not to mention the disturbed nights—.”

Doris prompts.

“Yes, the nights. She’s up and down a dozen times and never gets a decent sleep. You need professional care, Mother—a nurse who’ll see to everything. You’d be much happier, yourself, as well—.”

“More comfortable,” Doris says. “We’ve been to Silverthreads Home, Mother, and it’s really cozy. You’d love it, once you got used to it.”

I can only gaze as though hypnotized. My fingers pleat my dress.

“A nurse—why should I need a nurse?”

Doris darts forward, her face not soft and flabby now, but peering earnestly. She gesticulates, as though she could convince me by this trembling of her hands.

“They’re young and strong, and it’s their business. They know how to lift a person. And all the other things—the beds—”

“What of the beds?” My voice is austere, but for some reason my hands are unsteady on the squeezed silk of the dress. Doris reddens, glances at Marvin. He shrugs, abandoning her to her own judgment.

“You’ve wet your sheets,” she says, “nearly every night these past few months. It makes a lot of laundry, and we haven’t been able to afford the automatic washer yet.”

Appalled, I search her face.

“That’s a lie. I never did any such thing. You are making it up. I know your ways. Just so you’ll have some reason for putting me away.”

She grimaces, an unappealing look, and I see that she is nearly in tears.

“I guess maybe I shouldn’t have told you,” she says. “It’s not a nice thing to be told. But we’re not blaming you. We never said it was your fault. You can’t help—”

“Please!”

My head is lowered, as I flee their scrutiny, but I cannot move, and now I see that in the entire house, mine, there is no concealment. How is it that all these years I fancied violation meant an attack upon the flesh? How is it that I never knew about the sheets? How could I not have noticed?

“I’m sorry,” Doris mumbles, perhaps wanting to make it totally unendurable, or perhaps only blundering, having to wait another thirty years or so before she can know.1(pp73-74)

Now we are going to use that scenario as data. Good novels—when considered as data—are unique and useful: they provide us with the dialogue for conversational analysis, they provide us with the emotional insight useful to phenomenology or narrative inquiry, they provide us with the description of participant observation, and they provide us a story for a clinician to use as an exemplar—more perspectives than can possibly be obtained from a single
data set. Of course this story is probably fiction and is, therefore, “invalid” from a research perspective, but we can easily forgive Margaret Laurence because “making data” was not her intention when she wrote *The Stone Angel.*

### Nursing Perspectives

Let me introduce you to 4 of my fictional friends and colleagues:

**Julie** is a clinician. She is now in her 50s, has a diploma from a hospital school of nursing, and proudly completed her baccalaureate in 1984. Her passion is incontinence care, and she works as the *nurse clinician* for a large hospital in Minneapolis. She reads every issue of the *AJN*, attends the urinary incontinence conferences and takes copious notes. She is wise and experienced, and, although she is interested in research, research is not the main focus of her day-to-day work—her patients are.

Next is **Stephanie**. Stephanie completed her master’s in nursing in 1984 and her PhD in 1999. She is well respected and published, with a research program in urinary incontinence. As an experienced *quantitative* researcher, she has completed many studies on the epidemiology of incontinence in elderly persons, identifying patterns and types of incontinence and incidence of complications and is now involved as the nurse clinician on a drug trial, examining the psychologic changes that occur with improved control. Her publications have appeared in *Nursing Research* and in *Gerontology.*

**Anne** is our nurse physiologist. She is one of nursing’s stars—shooting through her education—BS to PhD, graduating in 1999 at the age of 26. She has just completed a postdoctoral program at UCLA. Her expertise is the neurobiomcchanisms of bladder control in those aged over 80 years. Well-funded by the National Institute of Nursing Research (NINR), she conducts experimental studies using rats and is beginning to make real headway in the understanding of biomechanisms involved in incontinence. She primarily publishes in *Physiology* and medical urology journals.

Our last researcher is **Karen**, who also holds a PhD and has expertise in qualitative methods. Her substantive area of expertise is gerontology, and her special interest is the home care for the aged. She has conducted an ethnography of caring for the elderly at home, in which bladder care emerged as important, and she is now following up this with a study of incontinence in elderly persons who are home-bound. She receives small grants from the university for her research and has published several articles in *Qualitative Health Research.*

### Dialogue

Now let us eavesdrop on our new friends while they have coffee in the faculty lounge. In the course of the discussion, Anne tells them about Hagar’s family, and they begin to discuss our scenario.

“Well,” says clinician Julie. “That story clearly shows that what is needed most is improved home care, including support of visiting nurse-clinicians and basic, practical help, such as laundry services. Then incontinence can be managed in the home, and older adults can stay independent longer.”

“But that probably won’t happen until we have more information,” interrupted Stephanie. “We don’t know how many elderly persons are afflicted or how much it would cost the system! We don’t even know how many elderly people have families capable of caring for them!”

“That is not my concern,” said Julie, who is always practical. “Let’s start with offering something for Doris and see if that will help her to keep Hagar at home. Stopping to count will not resolve this situation.”

“Humph. Of course you are aware that neither of these ‘solutions’ will actually solve the problem,” said Anne. “Until we understand the physiology, we cannot develop real interventions. In fact, we cannot solve the problem at all. The real gains here are by focusing on the physiological mechanisms.”

“Physiological mechanisms! This is a *person*! This is a family! This problem can’t wait until you decide on the similarities between your rats and Hagar! What interventions can you conceive that will help Hagar! Kegel exercises? We know they don’t work for the elderly.”

“Cool it, Julie—you are right! We tend to put disproportionate research dollars chasing the golden ring of prevention, forgetting that immediate messes and crises are also important research problems,” said Karen. “But, as a science, that is the way nursing moves forward. It does not discount other facts—that when we look at the literature, we find that we know little about the family responses when an elderly member is incontinent. We don’t know for instance, if the elderly person is unaware of the incontinence, how she is told, how it is really managed within the family. We know little of the afflicted...

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**BOX 1.**

Kuhn² refers to differing perspectives as a *disciplinary matrix,* but in nursing, we have subdisciplinary matrices—perhaps a side effect of our attempt at attaining a holistic perspective clashing with a programmatic basis of specialized knowledge.
person’s emotional responses, the astonishment, chagrin and shame felt by Hagar . . .”

“One more time,” said Julie, “We need practical solutions, right now . . .

Anne, Julie, Stephanie, and Karen can argue all day—and do—because they all have what I call different theoretical frames when they look at the story. Their upbringing in nursing—within a single discipline—has provided them with different world views or cosmology that profoundly influence what they consider legitimate, researchable, fundable, useful, and significant. And theory is at the heart of this matter.

Most important, the differences in theoretical frames account for what theory is (its structure and role in the research), as well as its content (the substance, focus, or topic). Theoretical frames form differences in how theory is used; that is, how theory interfaces with research designs, what approaches and methods are seen as legitimate, and how nurses identify and value the outcomes of their research, including the goal of their research program. All of these vary. The theoretical frame includes what we consider as fact (including the information or content contained in the theory) that which we consider as valid or invalid, true or false, right or wrong, and worthwhile or rubbish.

Unfortunately, different paradigms divide researchers—even those focusing on a single topic—resulting in “paradigmatic wars” among competing groups.

A paradigm, on the other hand, has been described as the lens through which we view the world and conduct our research. Be it feminism or positivism, a paradigm provides a subtle and pervasive perspective, that, once embraced, appears to be more difficult for a researcher to change than citizenship. Paradigms provide enduring labels, so that a researcher’s entire lifetime of work is supposed to be consistent with his or her subscribed paradigm. Unfortunately, different paradigms divide researchers—those focusing on a single topic—resulting in “paradigmatic wars” among competing groups.

Despite all of this turmoil, there are still elderly people with this “problem with their urine.” Julie is right—life goes on, apparently ignoring the real problem as it occurs, while researchers seek utopian solutions.

Let us eavesdrop a bit more on this heated discussion, for it is just getting interesting.

“What I think is needed in this research agenda,” Stephanie said thoughtfully, “is a study to reduce the suffering of those who are incontinent. We could use a quality of life measure, put in interventions such as providing supportive home help, counseling, and financial assistance to purchase supplies, and then 1 month later, measure changes in quality of life.”

“You must be joking! When it is all said and done, you have no idea if you will have reduced suffering or not!” exclaimed Karen, whose qualitative theoretical frame was invested in understanding the phenomenon, delineating and defining the characteristics of the pertinent concept, and describing the changes that occur during interventions. “You have no idea what is going on on that metaphorical black box! You have not taken the time to even determine what suffering is, let alone the nature of suffering in the elderly with incontinence. You do not even know the relationship between quality of life and suffering! You do not know what you are measuring or even if that measure is appropriate! Why, the subjects may simply be happier on the day you gather your outcome measures, simply because the international situation has improved!”

“All right, then accept the challenge Karen, and tell me what the nature of suffering is in elderly persons with incontinence, and while we wait for you to delineate, for Stephanie to count, and for Anne to find the solution, I will patiently apply Band-Aids, case by case, with zippo resources . . .”

From the bleachers of the research game, Julie has researchers pretty much summed up, but now we are getting into the real nitty-gritty of the state of the science in nursing research. First, nursing, the author believes, is a profession with a serious epistemologic problem, because nurses have not paid adequate attention to developing their basic concepts and their theories. A group of thoughtful nurse scholars and leaders began to explore concepts pertinent to nursing in the 1970s. This work was then, I believe, submerged by several abstract, and a few very abstract nursing theories, and some nursing

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**BOX 2.**

I have borrowed the term world view from anthropologists, who used this to refer to shared cultural perspectives, knowledge, and beliefs. But world view or cosmology is much more encompassing than the “theoretical frame.” A theoretical frame is a term used for one’s approach to his or her research program. A theoretical frame is broader than “perspective,” for it includes the epistemology, as well as all stages of the research programs and anticipated outcomes and applications. But it is less than, and more personal than, a paradigm. And it causes us a lot of trouble in nursing.
frameworks for practice. At that time, not having the necessary qualitative skills to develop its concepts, the profession as a whole moved on, with the exception of a few individuals. Given what we now understand as the political ramifications of competing theoretical frames, we are not surprised that this small group (I am thinking of the nurse anthropologists, Madeleine Leininger, Pam Brink, Eleanor Bowen, Margarete Kay, and Agnes Aamodt, the grounded theory group at the University of California at San Francisco) was not given the resources it needed to do significant work, forcing it instead to focus on the more apparently urgent problem of moving qualitative inquiry into nursing education—which its members achieved successfully. Yet, in leaving this work of concept and theory development for succeeding generations, we must ask, have we failed them? How many researchers are funded to work on the theoretical foundations of the nursing profession? Is it given the attention and the priority it deserves?

Consider: What Would a Qualitatively Derived Theory Do for Nursing’s Understanding of the Experience of Elderly Persons With Incontinence?

Of course, it would depend on the level and scope of the theory developed. However, Karen is a theoretically smart qualitative researcher, not content with completing her research project at the level of description, but systematically working to move it to the conceptual level, then to the theoretical level. She plans not only to link her study with more developed concepts, such as shame, but also to show how, for instance, the shame of incontinence in the elderly modifies behavior differently when such phenomena as incontinence are be concealed. Her study will make us aware that private shame, internalized shame, is different from shame arising when problems can no longer be concealed.

“How Is It That All These Years Hagar Fancied ‘Violation’ Meant an Attack Upon the Flesh?” 1(p74)

Karen is acutely aware that you cannot explore the shame of incontinence without also considering behaviors such as independence that comes with the habits of a lifetime of night toileting, despite living with the risk of falling. Karen’s theoretical frame will not let her delimit the research problem easily and simplistically, which she would consider an impediment to understanding and a real threat to validity.

Back in the lounge, Stephanie picks up on this problem.

“Theories help quantitative researchers focus. They tell us what to include, how to delimit.”

“Exactly!” Karen was excited now. “But what we forget is that theories are political—while including, they also exclude! While focusing, they also silence! We forget that theory is no more than a tool. Just as a research method is a tool to uncover knowledge, so is theory.”

“I’m not even certain that theory is the end goal of any research” said Anne.

“You are right!” Now Julie is excited. “While theory is a tool, it is really only a mechanism for generalization—that is, a mechanism to generalize to other problems, research or clinical, or to other situations or groups. It is also a mechanism that enables us to apply solutions in the clinical settings. Theory produces knowledge, theory produces interventions!”

“Agreed. Theory is the crucial intermediate step between the single specific case and the standards of practice,” said Stephanie. “But let’s talk about how we value different kinds of data sources, the different kinds of theory, and the different kinds of certainty we have about different types of theories. We have all been carefully, but implicitly, taught that some theory is more correct, more solid than others. Some theories are worthy of our attention, time, and money, and others we ignore or simply discard.”

“Yes! I have been listening to patients complain of physical pain at times of loss for years,” said Julie, “and I know there are wonderful qualitative studies describing the nature of pain experienced as a physical sensation during bereavement. But just last week a neuropsychologist published that hurt feelings provided similar neural correlates to physical pain on fMRI. Now, maybe, ‘patient reports’ will be considered a more reliable data source, theories developed from such ‘subjective accounts’ will be taken more seriously, and we can use them to provide more appropriate care!”

“It was Sarrel who said that ‘soft science is harder’ 14,15 we have a hierarchy that values what kinds of theories are acceptable,” said Karen. “Theory used in physiology, biology and the really ‘hard’ sciences is respected; next, down this ladder of respectability, is theory used in quantitative research, and then competing theories do not seem to be such a political problem nowadays, for the latest way to cope with this is simply to blend them! Yet we seem to have forgotten that theory is a system. One cannot remove or add concepts or subtheory without much care, consideration, and research. I believe that “Theoretical triangulation” is the scientific glitch of the past 2 decades.

BOX 3.

Competing theories do not seem to be such a political problem nowadays, for the latest way to cope with this is simply to blend them! Yet we seem to have forgotten that theory is a system. One cannot remove or add concepts or subtheory without much care, consideration, and research. I believe that “Theoretical triangulation” is the scientific glitch of the past 2 decades.
qualitatively derived theory. You are right, we undeservedly place lay theories at the bottom of the credibility heap.”

This problem has extensive ramifications for all types of research. I often worry about how to respond when asked: “If I go into the field and ask lay participants what they know, how can I come out with anything new?” The answer lies in theoretical insights. This is true for all science. Biologist and Nobel Laureate Szent-György16 wrote: “Research is to see what everyone can see, and to think what no-one has thought.”

“There is another problem,” said Stephanie. “You know, and I know, that knowledge—and theory about this knowledge—are rote. They are ingrained, unexamined. And such new research takes forever to filter down and change practice—some say 17 years17—even when it is significant and contradicts the status quo. ‘Knowledge’ consist of information and beliefs we have about something, and this knowledge and belief (often fact and fiction) is taught as fact, whether it be fact, semi-fact, someone’s best guess,18 or something just simply wrong. Habit, ignorance, and unexamined theory are the bane of the clinician. And our patients bear the brunt of such practices.”

“And,” continued Karen, “worse is to come. Theory can be political; theory can be faddish—why, we may focus on family caregiving, rather than Hagar’s suffering or coping. In other words, we work to fix problems that are out of synch—or horrors, misguidedly try to fix the wrong problem. If we focused on Hagar, rather than Doris, Doris’s caregiving problem would be nonexistent.”

“Much theory we use has been developed very haphazardly,” Stephanie commented. “Once—in 1993—I heard a talk by Howard Leventhal describing how he developed the Health Belief Model. He sequentially described 17 studies that theoretically derived that Health Belief Model conducted over 30 years, starting with his own perceptions, or his best guess. Next, he let his nurse add her new insights. Then he quantitatively explored concepts, systematically modifying his instrument with different groups and populations over a period of more than 20 years. At the end of his talk—Karen you will love this—he said he really needed to “talk to the folks,” but he “didn’t know how!” Developing his Health Belief Model would have resulted in a more truncated and productive research career. Yet it is such theories—approximate at best for our purposes—that we are still embracing in nursing. We stand on such thin ice!”

There is another side to the epistemological problems in nursing. We moved from an atheoretical discipline directly to quantitative inquiry, and this transition has been endlessly documented and analyzed.19 But nurses now have the funding resources and the manpower to go back and conduct basic inquiry to rebuild their theoretical base—what is holding this up? This should be top be at the top of nursing’s NINR priority list, but for some reason, the urgency and the necessity of the quandary remains muffled and, by and large, remains unacknowledged.

“Mmmm” said Julie innocently, “I didn’t know that about Leventhal’s model. But can theory ever be wrong?”

“Oh my, yes” said Stephanie, “Just ask anyone following the Atkins diet controversy20,21 Now we are learning that fat does not necessarily make you fat! I bet we will soon see entire fields of biochemists and nutritionists rewriting their textbooks! Don’t ever tell me that theory is boring! Isn’t that so, Karen?”

“It can go wrong a number of ways. One way that causes me sleepless nights, is called ‘making conceptual leaps,’” said Karen. “I saw a cartoon once.22 It showed a long line of bored people waiting to be seated at a restaurant. A woman in the line passed information back to her husband, ‘He said it could be about 45 minutes [wait], due to the global economic slowdown!’”

One of the most common problems in research is to link indicators in the data too soon, too quickly, to concepts that are too abstract or concepts that have been sloppily developed—another version of the quantitative “black box” mentioned earlier. Making conceptual leaps is sadly quite common in qualitative inquiry, but quantitative researchers are carefully taught not to do this, where it is called to “generalize beyond their data.”23 Although researchers are obligated to make use of existing knowledge as they emerge from the data and to incorporate “official concepts” if they fit,24 the converse, recognizing these concepts in the real world from mere indicators—or generalizing during data analysis—must be done with wisdom and care.

Concepts and theories exist in a conceptual place, some local and close to the data, specific and narrow. Others are broad and general, applying, for instance, to a class of behaviors. Even more confusing, some may have a broad scope and wide application, yet a specific and tight application to a number of contexts and situations.25

“Right,” said Anne, “I know what you mean by
such concepts. I remember learning about Selye being in despair when he recognized that the physiological stress response could be caused by almost any stressor. Or suffering, as described by Morse, is a state (behavioral) response that may occur in response to bereavement, pain, the psychological assault of abuse or rape—or even when enduring incontinence.

I call such concepts as stress and suffering "horizontal concepts." These concepts are usually quite abstract, are commonplace, have broad application, and are useful. They allow us to class behaviors or responses, across contexts. There are many of them in nursing, and many may be applicable to the experiences of incontinence. We spoke of shame—that may be one, although it is a concept that needs work. Perhaps coping is, or urgency.

Urgency? “Urgency” is in need of inquiry? Do we all know what urgency is? There are different types of urgency—do these give rise to different sensations? Do our patients use different words when speaking of experiencing urgency with incontinence? Just as Inuit are purported to have numerous descriptions of snow, if we investigated linguistically, is it possible that we could identify particular words or metaphors used by our patients? We know we deal with “unmentionable” topics that force our patients to use euphemisms. Can we analyze these euphemisms and metaphors to increase our understanding of urinary urgency? Are these lay descriptors patterned enough so they could be used diagnostically?

Can we develop a lay language of descriptors, equivalent to Melzack’s expansion of pain descriptors? We already know that advanced stages of incontinence are reached when the sensation of urgency dissipates. Now it Julie’s turn:

“It’s a mess out there. Must we have theory? Maybe I could do a study without it? Do I need theory, for instance to evaluate a particular type of catheter?”

“Sometimes we try,” said Stephanie. “The research looks atheoretical, but if we analyzed the values and the perspectives, sooner or later we can identify the researcher’s theoretical frame. The problem is, if theory is not deliberately used, we shortchange both ourselves and our clients. Our research is less useful than it could be; it has less power and less application. On the other hand, we see theoretical tokenism in research, when data pertaining to some concept or other have just been analyzed into a framework. The favorite one in nursing is to sort the data into physical, psychological, social, and environmental categories. By describing dimensions in such simplistic ways, at the end of the day, we have contributed little to the literature, and even less to practice.”

“Right! I’m convinced that theory is an important and essential tool,” said Julie. “Theory is important enough to give it the time, understanding and work it needs. But we are late for a real meeting.”

### Discussion

Rarely does a group of researchers create space for deliberately identifying new paradigms for research. The summit held in Minneapolis in October 2003 was a remarkable opportunity for exploring new paradigms for incontinence research conducted for aging adults. Science is certainly led by our process of identifying clinical needs, subsequently lobbying for and making funding available, and requesting that agencies create competitions and calls for proposals. Yet committees of scientists with different worldviews ultimately decide which projects will be funded or not funded, and conversations in these committees, such as presented in this dialogue, will inevitably occur. Unfortunately, funding may still be a political process, with the research awards allocated according to the power basis of the disciplinary affiliations of the committee members. Attempts to direct the course of a research program by publishing requests for applications (RFAs) may produce important and needed research results, but it may also have a downside that we must not overlook. The process may produce instant experts, who may not be the best prepared either with the background or the methodological expertise to conduct the necessary work, but who have happened to produce the best proposal in the time available. Targeting research funding to particular problems also results in moving funding from other areas, thereby denying necessary funding for those who are doing excellent work on other problems and working industriously on the sidelines of the more “fashionable” areas. The work of such scientists may not be valued today, but we know that the most significant work is often conducted at the margins, and it is legendary that the practical application of such work may not be seen for years or even decades later. Nationally, it makes sense to develop as many scientists as we can support and to support the stars for maximum efficiency. It is a value statement and frequently a political agenda to decide if support should be targeted to applied or basic research; whether we should support research for breast cancer, HIV/AIDS, suffering, or incontinence; whether we should support multisite research teams or simply principal investigators with small research staff; whether to support nurses, physiologists, or multidisciplinary groups.

Efforts to seek new paradigms or new approaches to research has the effect of raising awareness of a hidden problem, in this case, incontinence. I hope you will accept
The summit held in Minneapolis in October 2003 was a remarkable opportunity for exploring new paradigms for incontinence research conducted for aging adults.

this challenge to begin with basic research when it is needed, but also to be confident enough and skilled enough in your use of knowledge and use of theory to attack incontinence as a hard science, a physiological problem, a social science, a psychological, and a phenomenological problem. Incontinence is a cellular physiological problem, a personal problem, a social problem, a pharmaceutical problem, and an epidemiologic problem. Together we will have a profound effect on this significant problem, for Hagar’s sake.

ACKNOWLEDGMENT

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Key Points

✓ How we conceive of a research problem depends on our disciplinary perspective, knowledge of research methods, and their underlying epistemology. This means that:

✓ Researchers and practitioners have different perspectives on what is a research problem
✓ The significance of those problems
✓ Which of those problems should be funded
✓ How the research should be conducted, what the results should look like, and how clinically useful they should be.
✓ The dialogue in this article is occurring at a personal level, but it also occurs in funding agencies, with healthcare professionals, and in the formation of policy and services.

References

Development, Implementation, and Evaluation of a Continence Education Package in Acute and Subacute Care Settings

Bev O’Connell ■ Keren Day ■ David Wellman ■ Linda Baker

OBJECTIVE: The objective of the study was to trial and evaluate the effect that a discharge Continence Education Package (CEP) had on patients’ continence awareness and management preferences.

DESIGN: An exploratory descriptive design was used.

SETTINGS AND SUBJECTS: A total of 631 participants were included in the study: 352 females (55.8%) and 279 males (44.2%) from 4 rural and regional settings in Victoria, Australia.

INSTRUMENTS AND METHODS: A specifically designed questionnaire was used to assess participants’ knowledge of incontinence and its management and also to investigate their treatment preferences and intentions if they experienced this type of problem. Data were collected at 2 time periods. Specifically, patients were interviewed before discharge from acute and subacute settings identified as Time 1 (T1). Then the participants were given the CEP and asked to complete a similar questionnaire.

RESULTS: The findings revealed that fewer than 25% of participants had received information on continence before the study being conducted, yet the majority had indicated that they had experienced continence symptoms. The majority of participants found the CEP easy to understand (98.2%) and helpful (95.3%). Most participants said it provided them with information about types of actions to take and/or treatment options for incontinence problems. It also raised their awareness of the signs and symptoms associated with incontinence and provided them with a useful self-administered gauge with which to assess their continence status.

CONCLUSIONS: These findings suggest that the CEP may be a useful educational tool for use in the general population.

Introduction and Literature Review

The prevalence of incontinence varies with age, type, and degree of incontinence. It is reported to be a problem experienced by between 20% and 50% of the population. Unfortunately, many individuals who experience this problem do not seek treatment. Individuals who are incontinent have given a number of reasons for not seeking medical advice, including that they believe the problem will ease or resolve with time, that the incontinence does not bother them, or that the symptoms of incontinence are a usual part of aging. Many individuals have also reported being too embarrassed to seek help or to speak to their general practitioner (GP) about their incontinence. In some cases, individuals have indicated that they have not accessed healthcare professionals because they are unaware of any specialist continence services. Thus, many individuals experiencing continence problems are living in the community untreated and adapting their lifestyles to the problem, which sometimes compromises the quality of their lives.

Even within hospital settings, evidence indicates that there is an inconsistent approach to managing incontinence, which is related to a lack of appropriate assessment, diagnosis, and treatment. For instance, although hospital staff members may identify continence problems in some patients, these patients are not always offered information or referred to continence services. This anomaly in diagnosis and treatment has been attributed to short patient stays, the large number of nurses involved in patient care, a lack of continuity of care, and poor communication. Additionally, continence problems are not usually seen as a priority in hospital settings, and with short patient stays, the level of the problem is difficult to determine, probably because of underreporting.
Consequently, many patients with incontinence, who could be identified and referred for treatment in acute and subacute settings, are discharged into the community without assistance. It is often not until the problem is severe and difficult to manage or until it overburdens caregivers that individuals seek help.

To address this problem, healthcare professionals need to consider a more active approach to the screening, diagnosis, and treatment of incontinence. As acute, subacute, and community healthcare settings provide a convenient treatment interface, it may be useful to consider using these settings to increase individuals’ knowledge and management of continence, thus promoting a preventive rather than a curative model of care. This approach of providing individuals with information as a health promotion strategy is supported by a recent study that found that raising individuals’ awareness of incontinence was the predominant trigger that prompted individuals to seek medical assistance.6

The current study was designed to address the problem of the undertreatment of continence by evaluating a Continence Education Package (CEP) that provided information on continence awareness and management before patients are discharged from acute and subacute settings.

Research Aims

The current study was designed to address the problem of the undertreatment of continence by evaluating a Continence Education Package (CEP) that provided information on continence awareness and management before patients were discharged from acute and subacute settings. It was hoped that by providing patients with information on continence awareness, incontinence symptoms, and self-management strategies, they would be encouraged to identify their continence status and, if necessary, take appropriate action. This paper reports the findings of the development and evaluation of the CEP.

The aims of this study were to:

- Develop, implement, and evaluate a CEP. This package consisted of a user-friendly Continence Self-Assessment Awareness Questionnaire (CSAAQ) and a Continence Educational Brochure in acute, subacute, and community settings.
- Determine the incontinence symptom levels of patients who were discharged from acute and subacute care settings and their preferred treatment options and behaviors.
- Assess the effectiveness of the CEP to increase individuals’ levels of awareness and knowledge about incontinence and its management.

Method

Design

This exploratory evaluative study was conducted in 2 stages. During Stage 1, the CEP was developed. Stage 2 focused on evaluating the effect the CEP had on patients’ knowledge of, and behavior related to, continence issues. Data were collected at 2 time periods. Specifically, patients were interviewed before discharge from acute and subacute settings identified as Time 1 (T1). These data were used as baseline information for comparison with data collected postintervention identified as Time 2 (T2), when the patients were discharged from the acute and subacute settings.

Stage 1

Development of the Continence Education Package

To assist in developing the CEP, which consisted of the CSAAQ and a Continence Educational Brochure, a comprehensive review was conducted of available literature and existing continence Web sites. In particular, continence risk-assessment and awareness instruments, continence symptom-assessment instruments, and continence quality of life instruments13,14 were identified that could be adapted for developing the CSAAQ.3,15-26

Development of the Continence Self-Assessment Awareness Questionnaire

Because there were no self-administered continence awareness instruments identified in the literature that encompassed urine and fecal incontinence assessment and risk factors, as well as continence effect on lifestyle factors, the research team developed the CSAAQ from existing instruments.3,15-26 The CSAAQ was developed to be a self-administered questionnaire that would enhance continence awareness and enable individuals to determine whether they had experienced incontinence symptoms or had adjusted their lifestyle because of incontinence problems. It was believed that this self-assessment would raise individuals’ awareness on incontinence. The CSAAQ consisted of 22 items listed within 4 subscales. Seven items related to urinary incontinence symptoms,24,27 5 concerned fecal...
incontinence symptoms, described possible behavioral changes as a result of incontinence, and the remaining 5 dealt with risk factors for incontinence. Two of these risk factor items concerned childbirth risks and were completed by female participants only.

Working drafts of the CSAAQ were circulated to 7 continence specialists, 6 of whom were nurses and 1 of whom was a medical physician. These specialists were asked to comment on the appropriateness of the items listed to establish content face validity. A total of 6 drafts were circulated, commented on, and discussed before the final draft was developed. Additionally, a working draft was circulated to 10 lay participants to gain their opinions about the clarity and user-friendliness of the questionnaire. The questionnaire was subsequently revised to reflect comments from both groups, including adding a third response option, “Don’t know,” to 1 of the items (which asked participants whether or not they were overweight for their height).

Development of the Continence Educational Brochure
The Continence Educational Brochure was developed using existing materials obtained from a number of organizations, Web sites, and documented best-practice initiatives. Working drafts of the Continence Educational Brochure were circulated to the 7 continence experts to establish content validity. A working draft was also circulated to 10 lay participants to obtain their opinions about the clarity and user-friendliness of the brochure and whether they found the information useful. The brochure was revised to reflect comments from both groups.

The Continence Educational Brochure provided information on healthy bladder and bowel habits, instructions on pelvic floor exercises, and facts about incontinence, as well as when to act and who to contact if incontinence was experienced.

Sample
This project was conducted through 4 regional and rural locations in west and southwestern Victoria, Australia. Participants involved in the study represented a broad cross-section of patients from acute, subacute, and community healthcare settings, optimizing the relevance of the project and ensuring broad potential application.

Stage 2
Procedure
During a 6-month period, all consenting patients admitted to each of the 3 healthcare settings were invited to participate in the project by a research assistant. Those who consented were asked to complete a brief questionnaire (Questionnaire A) administered by the research assistant before their discharge identified as T1. The questionnaire assessed participants’ knowledge of incontinence and its management and also investigated their treatment preferences and intentions if they experienced this type of problem. A sample of the questions in Questionnaire A follows:

- Have you ever been given any information about any type of continence problem?
- Do you think you are at risk of developing continence problems?
- Do you think there are appropriate services available to assist with continence problems?
- If you were to experience continence problems, would you know where to get help?

After completing Questionnaire A, participants were given the CEP, as well as a second questionnaire (Questionnaire B), and a prepaid envelope. Participants were instructed to first complete the CSAAQ, then read the brochure and, finally, complete Questionnaire B at home within a few weeks of being discharged (T2). Questionnaire B included items from the first questionnaire to enable a comparison of participants’ continence knowledge and intentions. It also contained items related to participants’ perceptions of the user-friendliness of the materials, whether they found the information useful and informative, and what, if any, actions had been taken to alleviate existing continence problems. Participants who did not return Questionnaire B within a 2-week period were given a reminder telephone call.

Data Analysis
Descriptive statistics were used to summarize all data. Cross tabulations were used to investigate responses obtained for knowledge of incontinence and its management and intentions to seek help for incontinence problems before (T1) and after (T2) receipt of the CEP. Important response changes were further investigated using t tests and McNemar’s Chi-square statistics. Qualitative responses were coded thematically, and data were analyzed using SPSS for Windows, Version 11.

Ethical Review
The study commenced after ethical approval was granted from the university and the 4 regional settings.

Results
Participants
A total of 976 questionnaires were completed at T1. After excluding participants who withdrew or did not return Questionnaire B and the CSAAQ at T2, 631 participants remained in the study: 352 females (55.8%) and 279 males (44.2%). Participants ranged in age from 19 to 98 years, with a mean age of 61.91 years (SD = 17.02).

As part of the study, participants completed questionnaires at both T1 and T2. Initial investigations indicated that some participants did not complete all of the items
on both Questionnaires A and B. In comparisons made between T1 and T2 responses, only participants who responded to the same item at both time periods were included in the analyses. The final number of participants for each item is specified in the tables.

Knowledge About Incontinence and Awareness of Services at T1

Participants’ existing knowledge of incontinence and awareness of specialist services at T1 were measured through several items. Participants were asked a general question about their previous access to continence information: “Have you ever been given any information about any type of continence problem?” A response of “Yes” was received from 163 participants (25.8%), suggesting that the majority of participants (74.2%) had never received prior continence information.

Participants were then asked if they were aware of the Continence Foundation of Australia’s national continence telephone help line and Web site. Participants were also asked if they were aware of local specialist continence service.

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Comparison Between T1 and T2 Responses

The questionnaire items of most interest to the investigators were comparisons between participants’ T1 and T2 responses. These responses provided an indication of the degree of change of participants’ continence-related knowledge and opinions after administration of the CEP. Only participants who provided responses to items at both T1 and T2 were included.

Questions asked whether participants believed that continence problems were a serious issue in the community, whether they believed they were at personal risk of continence problems, whether they believed there were appropriate continence services in the community, and whether they knew what questions to ask health professionals about continence problems. Response options were “Yes,” “No,” and “Not sure.” Frequencies were calculated and Chi-square tests conducted. Table 1 presents the T1 and T2 findings, represented as percentages (and T2 percentage change).

Interestingly, results indicated that participants responding that continence was not a serious issue in the community were significantly older than participants believing that continence was serious.
These results suggest that the majority of participants believed continence was a serious issue in the community at both time periods and that approximately half of the participants at T1 (52.4%, n = 283) and T2 (50%, n = 270) believed they were at risk of developing urinary incontinence. The results indicated that there was no significant change between T1 and T2 in the number of participants who believed continence was a serious issue in the community or who believed they were at personal risk of developing urinary incontinence. There was, therefore, no evidence to suggest that reading the brochure or completing the CSAAQ influenced these participants’ beliefs.

Interestingly, results indicated that participants responding that continence was not a serious issue in the community were significantly older than participants believing that continence was serious (p < .01). This finding may indicate that older participants are more accepting of continence problems and may regard incontinence as being a normal part of aging.

In contrast, significantly more participants indicated at T2 that they believed there were appropriate continence services available in the community (McNemar’s χ² = 112.50, p < .001) and that they knew what questions to ask health professionals about continence problems if they should arise (McNemar’s χ² = 50.49, p < .001).

To evaluate which continence services participants would access if they experienced a continence problem, participants were asked to select, from a list provided, which services they would access. The list comprised general practitioner, Continence Foundation of Australia’s national continence telephone help line and continence Web site, local specialist continence service, natural therapies, a friend, and other sources. Participants could indicate that they would access more than 1 form of continence service. For responses at T1 and T2, see Table 2.

### TABLE 1.
Comparison of Time 1 (T1) and Time 2 (T2) Continence Beliefs

<table>
<thead>
<tr>
<th>Item</th>
<th>Time and T2 Change</th>
<th>Yes, %</th>
<th>No, %</th>
<th>Not Sure, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant believes continence problems are a serious issue in the community (n = 540)</td>
<td>T1</td>
<td>86.4</td>
<td>6.1</td>
<td>7.5</td>
</tr>
<tr>
<td></td>
<td>T2</td>
<td>83.5</td>
<td>9.0</td>
<td>7.5</td>
</tr>
<tr>
<td></td>
<td>T2 Change</td>
<td>-2.9</td>
<td>+2.9</td>
<td>0</td>
</tr>
<tr>
<td>Participant believes he or she is at personal risk of developing continence problems (n = 540)</td>
<td>T1</td>
<td>52.4</td>
<td>41.9</td>
<td>5.7</td>
</tr>
<tr>
<td></td>
<td>T2</td>
<td>50.0</td>
<td>45.2</td>
<td>4.8</td>
</tr>
<tr>
<td></td>
<td>T2 Change</td>
<td>-2.4</td>
<td>+3.3</td>
<td>-0.9</td>
</tr>
<tr>
<td>Participant believes there are appropriate continence services (n = 560)</td>
<td>T1</td>
<td>40.2</td>
<td>5.2</td>
<td>54.6</td>
</tr>
<tr>
<td></td>
<td>T2</td>
<td>57.3</td>
<td>5.4</td>
<td>37.3</td>
</tr>
<tr>
<td></td>
<td>T2 Change*</td>
<td>+17.1</td>
<td>+0.2</td>
<td>-17.3</td>
</tr>
<tr>
<td>Participant believes he or she knows what questions to ask health professionals about continence problems (n = 547)</td>
<td>T1</td>
<td>56.7</td>
<td>43.3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>T2</td>
<td>78.4</td>
<td>21.6</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>T2 Change*</td>
<td>+21.7</td>
<td>-21.7</td>
<td>0</td>
</tr>
</tbody>
</table>

*Significantly different T1 and T2 responses, p < .001.

### TABLE 2.
Treatment Preferences of Participants: Frequency of T1 and T2 Responses Indicating Continence Services That Would Be Accessed

<table>
<thead>
<tr>
<th>Access</th>
<th>Time Period</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T1</td>
<td>T2</td>
</tr>
<tr>
<td>General practitioner</td>
<td>556</td>
<td>545</td>
</tr>
<tr>
<td>(97.5%)</td>
<td>(95.6%)</td>
<td>(100%)</td>
</tr>
<tr>
<td>Help line*</td>
<td>158</td>
<td>227</td>
</tr>
<tr>
<td>(27.8%)</td>
<td>(39.9%)</td>
<td>(100%)</td>
</tr>
<tr>
<td>Web site</td>
<td>86</td>
<td>102</td>
</tr>
<tr>
<td>(15.1%)</td>
<td>(17.9%)</td>
<td>(100%)</td>
</tr>
<tr>
<td>Specialist services*</td>
<td>266</td>
<td>355</td>
</tr>
<tr>
<td>(46.7%)</td>
<td>(62.4%)</td>
<td>(100%)</td>
</tr>
<tr>
<td>Natural therapies</td>
<td>131</td>
<td>121</td>
</tr>
<tr>
<td>(23.0%)</td>
<td>(21.3%)</td>
<td>(100%)</td>
</tr>
<tr>
<td>Friend</td>
<td>160</td>
<td>122</td>
</tr>
<tr>
<td>(28.1%)</td>
<td>(21.4%)</td>
<td>(100%)</td>
</tr>
<tr>
<td>Other</td>
<td>78</td>
<td>48</td>
</tr>
<tr>
<td>(13.7%)</td>
<td>(8.5%)</td>
<td>(100%)</td>
</tr>
</tbody>
</table>

*p < .001.
The CSAAQ provided a cumulative measure of incontinence symptoms, related behaviors, and risk factors. Figure 1 presents the complete list of items in the CSAAQ.

The findings of the CSAAQ revealed that, in general, the participants displayed an average of 5.02 incontinence risk factors or symptoms out of a total of 23 incontinence risk items. The symptom level was higher in females (M = 5.93, range 0 = 22) than in males (M = 3.87, range 0 = 20). Interestingly, the overall standard deviation was 3.96, indicating a broad range of scores among participants. An analysis was conducted to determine the number of participants who did not have any incontinence risk factors or symptoms (“No” for every CSAAQ item). There were 39 participants (6.3% of the sample) in this category. Participants who indicated that they were bothered by their leakage had more incontinence risk factors or symptoms (M = 9.29) than participants who were not bothered by their leakage (M = 4.68) or participants who indicated that they did not have a continence problem (M = 3.32). A similar pattern of results was found for females (risk factor mean scores of 9.54, 4.99, and 4.16, respectively) and males (risk factor mean scores of 8.68, 4.29, and 2.49, respectively). The most frequently reported risk factors or symptoms in each CSAAQ subscale are indicated in Table 3 for all participants, as well as for the group bothered by leakage. As expected, there were higher percentages of individual symptoms, behaviors, and risk factors reported by participants who were bothered by their leakage than was reported by the overall sample of participants.

**Limitations**

This study recruited participants from acute, subacute, aged care, and rehabilitation settings in rural and regional areas in Victoria, Australia. Participants who could not speak English, who could not communicate verbally, or who were assessed by a health professional as suffering a cognitive deficit were excluded from the study. Biases inherent in this sampling technique are acknowledged. The authors acknowledge that the CSAAQ was developed from items identified in the literature and requires further testing to establish its validity and reliability.

**Discussion**

This study involved the development and evaluation of a CEP consisting of a user-friendly CSAAQ and a Continence Educational Brochure.

The findings at T1 revealed that fewer than 25% of participants had received information on continence before taking part in the study, yet the majority indicated at T2 that they had experienced continence symptoms within the previous 6 to 12 month period. The reason they had not received continence information could have been that those participants had not sought assistance regarding their incontinence from healthcare professionals.

### Table 3.

<table>
<thead>
<tr>
<th>Subscale and item</th>
<th>All Yes, %</th>
<th>Bothered Yes, %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UIS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you experienced ANY accidental leakage of urine (no matter what amount)?</td>
<td>46.0</td>
<td>88.4</td>
</tr>
<tr>
<td>Is your flow of urine slow or does it stop and start?</td>
<td>26.0</td>
<td>46.9</td>
</tr>
<tr>
<td>When you pass urine, do you continue to dribble after you’ve finished?</td>
<td>25.3</td>
<td>48.3</td>
</tr>
<tr>
<td><strong>FIS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you experienced an inability to control wind from the back passage?</td>
<td>28.7</td>
<td>57.1</td>
</tr>
<tr>
<td>Have you experienced pain or discomfort when passing a bowel motion?</td>
<td>26.0</td>
<td>49.7</td>
</tr>
<tr>
<td><strong>LAB</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you ever sought medical advice for a bladder or bowel leakage problem?</td>
<td>22.8</td>
<td>62.6</td>
</tr>
<tr>
<td>Do you ever drink less fluid or avoid eating food at certain times of the day to</td>
<td>10.9</td>
<td>29.3</td>
</tr>
<tr>
<td>avoid either accidental passing of urine or accidental passing of a bowel motion?</td>
<td>9.5</td>
<td>30.6</td>
</tr>
<tr>
<td>Have you avoided going out because of uncertainty about toilet arrangements?</td>
<td>9.5</td>
<td>30.6</td>
</tr>
<tr>
<td><strong>OIR</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you taking any of these medications: sedatives (sleeping tablets); tablets</td>
<td>63.0</td>
<td>65.3</td>
</tr>
<tr>
<td>for anxiety or depression; diuretics (fluid tablets); blood pressure tablets;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>strong pain relief (tablets with codeine)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you had any MAJOR pelvic or lower abdominal surgery (e.g. hysterectomy,</td>
<td>37.5</td>
<td>55.8</td>
</tr>
<tr>
<td>prostate operation or bowel surgery)?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

UIS, urinary incontinence symptoms; FIS, fecal incontinence symptoms; LAB, lifestyle adjustment behaviors; OIR, other incontinence risk factors.

Note: N = 624 for all participants; n = 147 for the group bothered by leakage.
### Continence Self-Assessment Awareness Questionnaire

**Urinary incontinence**

Could you please fill in the following assessment form? Simply read the question and tick the appropriate box.

All questions relate to the last 6-12 months. Please answer ALL the questions.

1. Have you experienced ANY accidental leakage of urine (no matter what amount)?
   - Yes [ ]
   - No [ ]

2. Do you have trouble starting to pass urine when you go to the toilet?
   - Yes [ ]
   - No [ ]

3. Is your flow of urine slow or does it stop and start?
   - Yes [ ]
   - No [ ]

4. When you pass urine, do you continue to dribble after you’ve finished?
   - Yes [ ]
   - No [ ]

5. When you have finished passing urine, do you feel that you have not emptied your bladder?
   - Yes [ ]
   - No [ ]

6. Have you experienced pain, burning or discomfort when passing urine?
   - Yes [ ]
   - No [ ]

7. Do you experience accidental leakage of urine while you’re sleeping?
   - Yes [ ]
   - No [ ]

8. Have you had any MAJOR pelvic or lower abdominal surgery (like a hysterectomy, prostate operation or bowel surgery)?
   - Yes [ ]
   - No [ ]
   - Don’t know [ ]

9. Are you overweight for your height?
   - Yes [ ]
   - No [ ]
   - Don’t know [ ]

10. Are you taking any of these medications?  
    - Sedatives (sleeping tablets)  
    - Tablets for anxiety or depression  
    - Diuretics (fluid tablets)  
    - Blood pressure tablets  
    - Strong pain relief tablets with codeine

   - Yes [ ]
   - No [ ]

Question 11 and question 12 for **women** only.

11. Have you experienced a difficult or prolonged labor when giving birth to your children?
    - Yes [ ]
    - No [ ]

12. Have you given birth to more than 3 children?
    - Yes [ ]
    - No [ ]

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**FIGURE 1.** Continence Self-Assessment Awareness Questionnaire (continues).
Fecal incontinence

Could you please fill in the following risk assessment form? Simply read the question and tick the appropriate box.

1. Have you experienced accidental leakage of feces from the back passage?
   Yes ☐ No ☐

2. Have you experienced an inability to control wind from the back passage?
   Yes ☐ No ☐

3. Do you experience difficult and/or infrequent bowel motions?
   Yes ☐ No ☐

4. When you have finished passing a bowel motion, do you feel that you have not emptied your bowel?
   Yes ☐ No ☐

5. Have you experienced pain or discomfort when passing a bowel motion?
   Yes ☐ No ☐

Lifestyle questions

1. Have you given up enjoyable activities like walking, dancing or aerobics because of fear of either accidental passing of urine or loss of bowel control?
   Yes ☐ No ☐

2. Have you avoided going out because of fear of either accidental passing of urine or accidental passing of a bowel motion?
   Yes ☐ No ☐

3. Have you avoided going out because of uncertainty about toilet arrangements?
   Yes ☐ No ☐

4. Do you ever drink less fluids or avoid eating food at certain times of the day to avoid either accidental passing of urine or accidental passing of a bowel motion?
   Yes ☐ No ☐

5. Have you ever sought medical advice for a bladder or bowel leakage problem?
   Yes ☐ No ☐

6. If you have a bladder or bowel leakage problem, does it bother you?
   Yes ☐ No ☐ Don’t have a problem ☐

FIGURE 1. (Continued). Continence Self-Assessment Awareness Questionnaire.
or that national continence health-promotion strategies have been nonexistent or ineffectual. This finding concurs with the literature indicating some individuals do not seek help for urinary incontinence because they perceive the problem to be temporary, not abnormal, and not bothersome or that they believe that nothing can be done about the incontinence. This finding indicates a lack of knowledge about continence and a need for healthcare professionals to provide individuals with information instead of waiting for them to overcome barriers and seek help.

In addition, few participants had knowledge of the continence help line and Web site, indicating a further lack of dissemination of continence-specific service information. The help line and local specialist continence services were selected by a significantly greater percentage of participants at T2 than at T1; that is, after participants had knowledge about these services from information contained in the Continence Educational Brochure. In rural and remote areas, where specialist services can be difficult to access, the help line represents a valuable resource that could provide an alternative to accessing local GPs. Interestingly, GPs and continence specialist services were rated the most popular services for assisting with continence problems, suggesting that individuals prefer more personalized services when discussing such issues. The reasons stated by participants for accessing their GPs for continence issues related mainly to habit (ie, that they usually accessed GPs for healthcare problems) and/or the trust they had in their GPs. Because there is conflicting evidence in the literature regarding whether the GP is the most appropriate person to consult regarding these continence issues, healthcare professionals should provide more public education on the availability and use of appropriate continence specialist services other than the GP. It may be useful to consider locating specialist continence services within GP surgeries. Alternatively, GPs need to be better educated on the management of continence problems.

Few participants had knowledge of the continence help line and Web site, indicating a further lack of dissemination of continence-specific service information.

The majority of participants found the Continence Educational Brochure easy to understand (98.2%) and helpful (95.3%). They indicated that it provided them with information about types of actions to take and/or treatment options for incontinence problems. Participants also indicated that they found the CSAAQ easy to complete (97.6%) and helpful (88.8%). According to participant responses, the information raised their awareness of the signs and symptoms associated with incontinence and provided them with a useful self-administered gauge with which to assess their continence status. These findings suggest that the CSAAQ and the Continence Educational Brochure would be useful educational tools for the general population.

The majority of participants believed incontinence to be a serious problem in the community. Unexpectedly, younger participants were significantly more likely to rate this issue as being serious than were older participants.

It is of note that almost 25% of participants were bothered by their continence symptoms. Participants who indicated that they were bothered by their incontinence problem reported almost double the number of continence symptoms and/or risk factors and altered behaviors than did participants who were not bothered. This could indicate that participants need to experience a number of leakage problems before their incontinence problem becomes bothersome. This cumulative affect may be related to a leakage tolerance threshold, which must be exceeded before symptoms become bothersome. The challenge for healthcare professionals is to identify at-risk individuals before their experiencing a large number of symptoms so that early problems can be remedied before they affect lifestyle. Further work in this area is required to determine symptoms and symptom levels that are most likely to affect individuals’ everyday lifestyles and/or predict continence risk.

The findings of this study support the literature on the effect of urinary incontinence symptoms on lifestyle. More specifically, participants in this study reported altering their intake of food and fluid to avoid incontinence and avoiding going to places where they were uncertain about the toilet arrangements. Because these behaviors do not remedy the problem of incontinence, an awareness campaign to discourage avoidant actions as a way of dealing with continence problems may be beneficial.

The majority of participants believed incontinence to be a serious problem in the community. Unexpectedly, younger participants were significantly more likely to rate this issue as being serious than were older participants. This finding could be explained in several ways. Older participants may have an increased number of health problems and therefore rate continence as a less serious issue in their continuum of health. Alternatively, older participants may be more experienced in managing or living with an incontinence problem and may accept it as being part of the aging process, indicating a lack of knowledge about continence issues.
Interestingly, participants’ perceptions of their own level of risk for developing incontinence did not increase after completion of the CSAAQ (approximately 50% at both T1 and T2). This finding was unexpected because of the large number of participants who indicated that they had incontinence risk factors or symptoms and were informed by the CSAAQ that if they indicated “yes” to any of the items they may be at risk. This finding is difficult to explain and may indicate a need for further research to determine the items on the CSAAQ that are indicative of risk of developing incontinence.

The findings of the current study concur with findings of previous studies indicating that embarrassment is a factor that would hinder participants from seeking professional help. Any strategy that empowers people to seek help for incontinence could therefore be appraised as useful. Based on the findings of this study, it may be beneficial to distribute the CSAAQ and the Continence Educational Brochure within any adult population, including groups with specific continence problems, such as people who are disabled or postnatal women, because it may provide these groups with knowledge and information about continence without them having to reveal their continence status.

Suggestions for Further Research

It is recommended that the study be replicated using validated tools that more accurately predict individuals who are at risk of developing incontinence.

Conclusion

Incontinence is a serious healthcare issue that negatively affects the lives of individuals. This study showed that a large number of participants experiencing continence symptoms altered their lifestyles to deal with incontinence, yet they did not seek professional help. Thus, a proactive approach to disseminating continence information would be beneficial to overcoming barriers to seeking help. Participants in this study had little knowledge of available specialist continence services. The Continence Educational Brochure may address such knowledge deficits by raising awareness of available resources and services to individuals. Distribution of the brochure in a variety of settings should be tested so this important issue of not recognizing and treating continence problems in a timely manner is addressed. After completion of the CSAAQ, many participants in this study reported the presence of continence risk factors. Further research is required to investigate which risk factors best predict the development of continence symptoms and which symptoms are likely to increase in severity and become bothersome.

Acknowledgments

This research was funded by the Department of Health and Ageing as part of the National Continence Management Strategy.

Key Points

- Because a large number of individuals experiencing continence problems did not usually seek help, it may be useful to provide continence information as a matter of routine.
- Because individuals appraised the Continence Educational package as being useful in raising their continence awareness and knowledge, it is recommended that it be evaluated in high-risk populations, such as postnatal women, to determine whether it improves health-seeking behaviors.
- Because many participants reported the presence of continence risk factors, it may be useful to conduct a longitudinal study to investigate which risk factors best predict the development of continence symptoms or problems likely to increase in severity.

References


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**Instructions for Authors**

The *Journal of Wound, Ostomy and Continence Nursing (JWOCN)* is a peer-reviewed journal. It disseminates research, evidence-based best practice (where research evidence does not exist), and general information to meet the ongoing educational and professional practice needs of the members of the Wound, Ostomy and Continence Nurses Society (WOCN) and other healthcare professionals around the world. Manuscripts that make a clear and original contribution to practice, theory, and scholarship within the broad mandate of WOCN practice are encouraged.

*JWOCN* welcomes submissions that adopt an interdisciplinary approach; reflect cultural issues; address pediatric issues in wound, ostomy, or urinary and fecal continence care; address international issues in WOC care; or that make use of more traditional care methods presented in the form of case studies.

Submissions should avoid sexist language and must be prepared according to the *American Medical Association Manual of Style* (9th ed). They should be approximately 15 to 20 pages, including references and abstract. All manuscripts are to be submitted electronically only.

To review complete submission guidelines and details for submitting a *Research Report, Review, Case Study, or Letter to the Editor* please visit the Web site www.WOCN.org or e-mail the managing editor at jwocn@look.ca.
Research Comparing Three Heel Ulcer-Prevention Devices


OBJECTIVE: To compare 3 pressure-reduction devices for effectiveness in prevention of heel ulcers in moderate-risk to high-risk patients.

DESIGN: A prospective quasi-experimental 3-group design was used.

SETTING AND SUBJECTS: A sample of 338 “moderate-risk to high-risk” adult inpatients, ages 18 to 97, at 2 medical centers in South Texas were studied.

INSTRUMENTS: The Braden Scale for Pressure Ulcer Risk and investigator-developed history and skin assessment tools were used.

METHODS: Subjects were randomly assigned to the High-Cushion Kodel Heel Protector (bunny boot), Egg Crate Heel Lift Positioner (egg crate), or EHOB Foot Waffle Air Cushion (foot waffle). Data are demographics, Braden scores, comorbidities, skin assessments, lengths of stay, and costs of devices. Analyses were Chi-square, analysis of variance, and regression.

RESULTS: Of 240 subjects with complete data, 77 (32%) were assigned to the bunny boot group, 87 (36.3%) to the egg crate, and 76 (31.7%) to the foot waffle. Twelve ulcers developed in 240 subjects (5% incidence). Six subjects had only 1 foot. Eleven ulcers were Stage I (nonblanchable erythema), and 1 was Stage II (partial thickness). Overall incidence was 3.9% for the bunny boot, 4.6% for the egg crate, and 6.6% for the foot waffle (not significantly different among groups). The bunny boot with pillows was most cost effective (F[3], N = 240) = 1.342, p ≤ .001.

CONCLUSIONS: In this study, the bunny boot was as effective as higher-tech devices. The results, however, were confounded by nurses adding pillows to the bunny boot group.

Pressure ulcer prevention is a concern for all nurses, patients, and payers of healthcare. When pressure ulcers occur, poor nursing care is often blamed.1 In fact, development of pressure ulcers is considered by the US Health Care Financing Administration (now known as the Center for Medicare and Medicaid Services) as a sign of poor care in nursing home patients.2 In recent years, lawsuits have resulted in settlements of more than $250,000 for disfigurement, pain, suffering, and loss of function related to pressure ulcers.2 Cuddington et al reported an incidence of 0.4% to 38% in general acute care settings.3 Fife et al reported a 12.4% incidence of pressure ulcers in intensive care unit (ICU) patients after 6.4 days of hospitalization.4 Patients over 65 years of age experienced 70% of the pressure ulcers.4 Nursing is not always to blame, but responsible nursing can help prevent complications that could result in sepsis owing to wound infection and even death.2

Nurses who specialize in wound management, Certified Wound, Ostomy and Continence Nurses (CWOCNs), contribute to improvement of patient care through selection of pressure-reduction devices, staff education, role modeling, and evidence-based nursing practice.5 Pressure-reducing mattresses and specialty beds are relatively effective in preventing sacral ulcers; however, the second most common site for pressure ulcers is

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The purpose of this article is to present the findings of a study that assessed the effects of 3 heel pressure-relief devices that were in current use in 2 academic medical centers: the High-Cushion Kodel Heel Protector (bunny boot),6 the Egg Crate Heel Lift Positioner (egg crate),7 and the EHOB Foot Waffle Air Cushion (foot waffle).8

**Research Questions**

1. What is the incidence of heel pressure ulcer development in acutely ill patients who are randomly assigned to use of 1 of 3 heel pressure-reduction devices?
2. Are patient characteristics, such as age, gender, ethnicity, primary diagnosis, and comorbidities, different between subjects who do/do not develop a heel pressure ulcer while using a heel pressure-reduction device?
3. Which heel pressure reduction device provides the optimal patient outcome (ie, no pressure ulcer development) at the best price?

Three heel-pressure-relief devices were assessed: the High-Cushion Kodel Heel Protector (bunny boot), the Egg Crate Heel Lift Positioner (egg crate), and the EHOB Foot Waffle Air Cushion (foot waffle).

**Literature Review**

Studies of heel pressure ulcer prevention were reviewed. This literature review is divided into a description of the vulnerability of heels to ulceration, studies on the incidence and prevalence of heel pressure ulcers, and studies conducted to prevent heel pressure ulcers.

**Vulnerability of Heels to Ulceration**

Vulnerability of the heels to skin breakdown is well documented in the literature.10 The anatomic construction of the heel with the bony prominence of the calcaneous and a relatively thin fat pad contributes to increased skin pressure in an area of low-pressure blood flow (approximately 32 mmHg).10 Research has shown that when the pressure of the weight of the foot on the skin over the bony prominence of the calcaneous exceeds capillary pressure (approximately 32 mmHg) for an extended period of time, heel pressure ulcers may develop.10 Heel pressure ulcers are difficult to prevent and to treat. Skin breakdown in this area likely results from the combination of friction or shearing action during movement and the application of pressure.10

The Agency for Health Care Policy and Research (now the Agency for Healthcare Research and Quality [AHRQ]) *Clinical Practice Guidelines* for prevention of pressure ulcers identified difficulty in redistributing pressure on the small surface area of the heel as the problem.11 Interface pressures between the heel and the bed surface are between 55 and 147 mmHg, depending on the support surface.12 Because this exceeds the heel mean capillary pressure of 32 mmHg, heel ulcers develop.

**Incidence and Prevalence of Heel Pressure Ulcers**

Whittington et al studied 116 acute care hospitals of various sizes (<100 to >500 beds) in 34 states.13 They found a mean pressure ulcer incidence (all sites) of 7% over an average of 5 hospital days. The incidence of pressure ulcers among hospitals equivalent to the size of the 2 hospitals in the present study was 8%. Prevalence of all pressure ulcers was 15%. Among these pressure ulcers, 26% of ulcers occurred on the heels, and 91% were Stage I or Stage II ulcers. Seventy-two percent of ulcers occurred in people older than 65 years.

Pieper et al14 prospectively studied 694 patients with pressure ulcers in 5 acute care hospitals, a rehabilitation...
hospital, and a home care agency. These researchers found 59 pressure ulcers in hospitalized patients. The incidence of nosocomial ulcers was 29%, with a prevalence of 13.2% for heel ulcers. Patients with ulcers in the study had the following characteristics: (1) mean age of 70.4 years (SD = 20.2), older than patients without ulcers; (2) significantly more chronic conditions (M = 5.7, SD = 2.4); (3) longer hospital stays (M = 19.4 days, SD = 13.9); and (4) significantly lower hemoglobin (M = 11.1 g/dL, SD 2.6) and albumin levels (M = 3.0 g/dL, SD 0.7).14

Tourtual et al studied the characteristics of people who developed heel pressure ulcers in hospitals15 and found that patients who were most likely to develop pressure ulcers were subjects with the highest Braden Friction and Moisture Subscales. Several characteristics were significant predictors: admitted with pressure ulcers, incontinence, limb weakness, diagnosis of neoplasm, circulatory problems of the extremities, congestive heart failure, respiratory disease, age, height, initial and final weight, highest pulse, length of stay, and number of diagnoses.15

Meraviglia et al16 assessed the maintenance of skin integrity as a clinical indicator of nursing care with a descriptive correlational design and found an overall prevalence of pressure ulcers in hospitalized patients in central Texas of 10%. This compares with the national pressure ulcer prevalence study of Amlung et al17 that reported a national nosocomial pressure ulcer prevalence of 7.1% in 1999 and rates from 0.4% to 38% reported by Cuddigan et al.3 Meraviglia et al found the Braden and Norton Scales effective in identifying patients who are at risk for pressure ulcers.16 The Braden scale was used to predict pressure ulcer risk 322 times among 723 patients with a positive predictive rate of 67%. The study was conducted in Austin, Tex, and provides a good comparison of incidence rates within the region of the medical centers in this study.

Tourtual and colleagues found that patients who were most likely to develop pressure ulcers were subjects with the highest Braden Friction and Moisture Subscales.

Studies Assessing Heel-Protection Devices

DeKeyser et al18 studied the effects of 13 different heel-protecting devices among 40 elderly patients ranging in age from 71 to 94 years (mean age 82). Fifteen participants were men, and 25 were women. The devices compared were polyester foam, siliconized hollow fibers of four types, self-adhesive foam bandage, 2 types of polyurethane gel, a synthetic sheepskin, a cotton-wool compress bandage, and a standard bed pillow. Using the computerized Podo-Dyno-Gram to measure interface pressures, DeKeyser et al found that a standard bed pillow had the lowest interface pressure of 42mmHg when compared to the other devices.

Tymec et al19 compared the effectiveness of the foot waffle to a hospital pillow using repeated measures on 52 subjects, ages 27 to 90 years. Heel-interface pressures were recorded with patients in the supine and right lateral-tilt positions. No difference was found between the 2 pressure-relief devices in pressure (p = 0.06); however, subjects wearing the foot waffle developed pressure ulcers sooner (10 days compared to 13 days for the pillow). Tymec and colleagues stated that heels require additional protection beyond specialized mattresses and mattress overlays and recommended that nurses should consider proper fit, patient positioning, patient activity, and additional equipment in use when selecting heel-protection products.19 Tymec et al noted that the foot waffle was redesigned after their study.19

The Cochrane group found that simple constant low-pressure devices have not been adequately evaluated.20 This finding and the other literature establish a need for the study reported in this article to assess the effectiveness of 3 constant low-pressure devices. Heel pressure ulcers were occurring at the 2 medical centers, despite the use of various support surfaces; therefore, the investigators of this study believed evaluation of additional heel protection was needed.

Methods

Subjects and Setting

This study was conducted from October 1997 to August 2001 at 2 military tertiary-care academic medical centers with Level 1 trauma centers in south Texas. These 2 hospitals receive civilian emergencies and military casualties. The study focused on patients at moderate-risk to high-risk for heel pressure ulcers; therefore, a Braden Score ≤ 14 was selected. Subjects or their surrogates were required to read and write English to ensure informed consent. Patients with hip surgery were eliminated because the abductor pillow limited random assignment to the foot waffle because of the size of both objects. Subjects were excluded if it was anticipated they would be in the hospital <72 hours, they or a surrogate were unable to provide informed consent, or they had a preexisting pressure ulcer on the foot or a foot deformity.

The Braden scale assigns scores for 6 categories of patient assessment: (1) sensory perception, (2) moisture, (3) activity, (4) mobility, (5) nutrition, and (6) friction and shear.
Sample Size Power Analysis

A prospective power analysis was performed before the study to determine the number of subjects needed to find a statistical difference among the devices, if a difference was present. With alpha set at 0.05, an expected small effect size of 0.10 and a desired power of 0.80, a sample size of 550 participants was targeted.

Fifty to 75 patients were admitted each day at the hospitals where the study occurred. This made 5475 patients available for study screening; however, only 5 to 10 patients each day qualified by the Braden scale as high to moderate risk. Many of these patients were ICU patients with low levels of consciousness; therefore, surrogate consent from a relative or significant other was sought. A total sample of 338 was obtained over 3 years.

Variables

Development of a pressure ulcer on the foot was recorded as a stage between Stages I and IV as defined in the National Pressure Ulcer Advisory Panel Quick Reference Guide Number 3.9

Stage I, non-blanchable erythema over intact skin; the heralding lesion of skin ulceration . . . Stage II, partial thickness loss involving the epidermis and/or dermis. The ulcer is superficial and presents clinically as an abrasion, blister, or shallow crater . . . Stage III, full thickness skin loss involving damage or necrosis of subcutaneous tissue that may extend down to, but not through, underlying fascia . . . and Stage IV, full thickness skin loss with extensive destruction, tissue necrosis or damage to muscle, bone, or supporting structures (for example, tendon or joint capsule).

A pressure ulcer with eschar cannot be staged because the extent of damage cannot be assessed until the eschar is removed.9 Additionally, ulcers cannot be reverse staged, or down-staged, as they heal. A Stage IV ulcer does not become a Stage III or II, but rather it is a healing or healed Stage IV. This is because the scar tissue replaces the original tissue and is different in structure and characteristics from the tissue that was lost.

Other variables measured in this study were collected using investigator-developed forms. The variables measured were pressure-relieving device (on or off), hospital of admission (Air Force or Army), admission unit (medical ICU, surgical ICU, medical-surgical ward, cardiology ward), primary diagnosis, length of hospital stay, length of enrollment in the study, admitting service, comorbidities, demographic variables, and support surface. Demographic variables included gender, age, race, height, weight, smoker, employment status (military, retired military, or civilian), beneficiary category (military, family member, or civilian), and nutritional status. Comorbidities included medical conditions other than the admitting diagnosis. Support surfaces included ICU bed, hospital replacement mattress, mattress overlay, or low-air-loss bed. The investigators attempted to control for extraneous variables by monitoring all factors that were believed to be related to pressure ulcer development according to the literature.

Length of enrollment in the study was determined by using a Julian date calendar (military calendar that uses sequentially numbered days for the year) and subtracting the day of admission to the study from the Julian date that the participant ended the study. Hospital discharge, or changes in enrollment criteria (ie, Braden score >14) resulted in subjects’ ending participation in the study. Occurrence of a pressure ulcer also ended enrollment, and WOCNs employed by the hospital followed the subjects after termination.

Cost-effectiveness in this study was defined as lowest incidence of heel pressure ulcers at the lowest financial cost to the hospital. Discharge status was identified as final disposition, ie, transfer to home, nursing home, or rehabilitation hospital or death.

Two of the investigators and the project director were Certified Wound, Ostomy, and Continence Nurses.

Instruments

Braden Scale for Predicting Pressure Sore Risk

The Braden Scale for Predicting Pressure Sore Risk, also known as the Braden scale, was used because it has high validity and reliability.21-23 It is the most commonly used pressure ulcer risk assessment tool and was already in use in the hospitals.24,25 The scale has a sensitivity of 71% below a score of 18 and specificity of 83%.25 The positive predictive value is 63%, and the negative predictive value is 88%.25

The Braden scale assigns scores for 6 categories of patient assessment: (1) sensory perception, (2) moisture, (3) activity, (4) mobility, (5) nutrition, (6) friction and shear (1 category).21 All categories, except friction and shear, are scored from 1 to 4, with 1 being the greatest risk and 4 being the least. Friction and shear is scored from 1 to 3. The lowest possible score is 6, when scoring a 1 in each category. The highest possible score is 23, when scoring the maximum points in each category. Patients with Braden scores from 6 to 12 are at high risk for developing pressure ulcers. Patients with scores of 13-14 are at moderate risk.21 For this study, subjects who had Braden scores of ≤14 were enrolled.
Skin and Pressure Ulcer Assessment Guide

A complete skin assessment was performed on each subject daily head-to-toe by the study registered nurses (RNs). A form was created by the investigators to capture these data. This 2-sided form included a day-to-day summary of the Braden scale score and the results of the daily head-to-toe examination.

Selection of Pressure-Reducing Devices

Devices already in use in the hospitals were: High-Cushion Kodel Heel Protector (bunny boot), the Egg Crate Heel Lift Positioner (egg crate), and the EHOB Foot Waffle Air Cushion (foot waffle).6 All devices were held in place with Velcro straps. The bunny boot is a 1-size polyester fleece. It is ventilated for comfort at the heel. No clinical data are available from the manufacturer regarding its effectiveness. The egg crate is a 1-size 6.5”-×-4”-thick-×-24” long polyurethane egg-crate strip that holds the foot suspended above the bed surface with the heel dangling through a window created by the foam-strap fastened egg crate. The manufacturer, Sunshine Medical, claims it eliminates heel pressure and assists with the prevention of foot drop; however, Sunshine Medical had no clinical studies available regarding its effectiveness. The felt-coated plastic foot waffle is an inflatable plastic pillow with 1” circular windows every 3” for air circulation. It encircles the patient’s foot and extends 12” up the calf, leaving the heel suspended through a 4”-×-4” window in the heel area. It is available in small (calf measurement up to 12.5”), medium (calf measurements 13” to 16”), and large (calf measurement 16.5” or greater). This study used the redesigned foot waffle referred to by Tymec et al because this study was conducted from 1997-2001, after the waffle redesign was completed.19 The EHOB company has clinical studies demonstrating a 100% efficacy of the foot waffle in preventing heel pressure ulcers among patients with hip-fractures. Hip fracture patients were deliberately excluded in this study because the investigators believed that the addition wedge and the waffle boots used would be incompatible with each other.

Random Assignment of Participants to Device

A set (1 for each hospital) of twenty-one 3”-×-5” cards were prepared in advance: 7 with the bunny boot, 7 with the egg crate, and 7 with the foot waffle written on them. These 3”-×-5” cards were placed into identical 4”-×-6” envelopes, sealed, and shuffled 3 times. The cards were placed in a 5”-×-7” cardholder box. When the next participant was enrolled, the first card in the box was taken to determine device assignment. When the 21 cards were exhausted at a location, a new set of 21 cards was prepared for use.

Staff Training Procedure

Two of the investigators and the project director were CWOCNs. The project director learned the procedures of the study from the 2 CWOCN investigators and subsequently taught the other research personnel with one-to-one instruction regarding nursing staff teaching, obtaining informed consent, random assignment of subjects, data collection, application of the devices, patient assessment, heel pressure ulcer measurement, documentation, and protection of data files by securing them in locked filing cabinets.

Data were randomly spot-checked on a monthly basis and cleaned before analysis.

Interrater reliability for assessment and staging of pressure ulcers was obtained by the concurrent assessment of 10 patients’ skin by the 2 RNs. An 80% agreement was established as the acceptable agreement rate. The interrater agreement for the 6 risk subscales showed 94.3% agreement for sensory perception, 93.2% for moisture, 100% for activity, 97.3% for mobility, 90.5% for nutrition, 87.0% for shear/friction, and 96.5% for the total Braden score. This level of agreement was reevaluated and achieved every 6 months throughout the study.

The project director and investigators conducted initial education of nursing staff about the study on all hospital units where subjects were recruited. One data collection RN at each hospital conducted the recruitment, initial placement of pressure-reducing devices, and daily head-to-toe skin assessments for all participants enrolled in the study at that hospital (Air Force or Army). Therefore, the 1 nurse was performing all research tasks and was not blinded to the device to which the participant was assigned. The research nurses taught staff nurses and family members how to correctly replace the devices when they had to be removed for bathing, etc. When the devices were not replaced correctly, reteaching was done.

Informed Consent Procedure

Regulatory oversight was provided by the joint investigations review committee of both academic medical centers. Adult subjects with Braden scores of 6-14 were recruited within 18 hours of identification of risk and randomly assigned to 1 of the devices. Study RNs informed potential participants (or their surrogates when patients had decreased levels of consciousness) about the study and possible risks and benefits and asked whether they would like to participate. If the patient (or his or her surrogate) said he or she would, the study was explained to him or her. The participant (or his or her surrogate) read and signed the consent form. Subjects’ skin was assessed daily, and comorbidities were recorded. Data were recorded for Braden score and support surface. Hospital discharge, the desire to end participation, or changes in enrollment criteria (ie, Braden score >14) resulted in subjects’ ending participation in the study. If
occurrence of a pressure ulcer ended enrollment, staff WOCNs followed the subjects after discharge from the study.

Completed data files were brought to the Nursing Research Service at the Army hospital for secure storage and data entry. Data entry was performed by the study RNs using the Statistical Package for the Social Sciences, Version 10.26 Data were randomly spot-checked monthly and cleaned before analysis. Statistical tests used were measures of central tendency, frequencies, Chi-square, analysis of variance, and logistic regression analysis.

What is the incidence of heel pressure ulcer development in acutely ill patients who were randomly assigned to use 1 of 3 heel pressure-reduction devices?

Results

Sample
Subjects were 338 patients admitted to 2 military medical centers in south Texas: 1 was a member of the US Army, and the other, US Air Force. Fifty-three subjects were eliminated from the analysis because they did not wear the devices for at least 48 hours. Twenty-four of these subjects were eliminated because of early discharge from the hospital and only 24 hours in the study. The others were dropped because either they did not want to wear the devices or the devices were not replaced by family members or staff after patient-care activities as requested. Dropped subjects had a mean age of 68.3 years (SD 14, range 45-92).

Only 240 subjects had complete data. Six subjects had only 1 leg (heel). Data were analyzed for only the left leg because of the lack of independence of including both legs in the data. These 240 subjects ranged in age from 18 to 97 years (mean 63.9, SD 19.94; median 68.0; mode 64). The sample consisted of 32% minorities: 15.4% (37) Black; 16.3% (39) Hispanic; and 1% (1) Asian. The sample is representative of the minorities present in the military population. The distribution of ethnicity was equivalent among device groups ($\chi^2 [2, N = 240] = 0.615, p = n$ statistically significant). The final sample consisted of 139 males (57.9%) and 101 females (42%). The distribution of gender was not equivalent within groups ($\chi^2 [2, N = 240] = 9.704, p = .008$). The polyester-fleece-bootie group had significantly fewer men than the other groups (fleece bootie, 34; foot prop positioner, 53; and foot waffle, 52 = 139 males).

Sixty-nine percent of the enrolled subjects were patients in ICUs. Admitting diagnoses were 49% medical diagnoses, 22% surgical diagnoses, 18% trauma related, 8% critical care, and 3% related to chronic disease. The mean enrollment time in the study was 7.5 days (SD 7.4) (Figure 2.). Eighty-four subjects ended the study because they were discharged (35%), 57 (24%) ended because they no longer met the study criteria (Braden score $> 14$), 36 (15%) said they no longer wanted to participate after at least 48 hours in the study, 32 (13%) died, and 12 (5.0%) developed pressure ulcers. The severity of illness of subjects is reflected in the disposition of subjects (Figure 3.). Only 23% were discharged to home.

Occurrence of Pressure Ulcers

Research Question 1
What is the incidence of heel pressure ulcer development in acutely ill patients who were randomly assigned to use 1 of 3 heel pressure-reduction devices?

Twelve pressure ulcers developed in 240 subjects (incidence = 5.0% over 3 years or 1.68% per year). Three ulcers occurred in 77 subjects (3.9%) wearing the bunny boot, 4 pressure ulcers developed in 87 subjects (4.6%)
wearing the egg crate, and 5 pressure ulcers occurred in 76 subjects (6.6%) wearing the foot waffle. Analyses show no statistically significant differences among devices by analysis of variance (F[2, N = 240] = 0.880, p = 0.416).

**Research Question 2**
Are patient characteristics, such as age, gender, ethnicity, primary diagnosis, and comorbidities, different among subjects who do and who do not develop a heel pressure ulcer while using a heel pressure reduction device?

Pressure ulcers were equally distributed between males and females. An assessment of the distribution of pressure ulcers by ethnicity showed that 75% (n = 16.7%) of subjects who developed pressure ulcers were Caucasian, 16.7% (n = 2) were Hispanic, and 8.3% (n = 1) were Black. In this study, 25% (3) of subjects who developed pressure ulcers on the heel were admitted to the hospital with an existing pressure ulcer elsewhere on their bodies. Subjects who developed pressure ulcers were between the ages of 30 and 96 years, with a mean age of 64 years (SD ± 23.18).

The best we could accomplish was a “real-life” study to determine effectiveness of the devices in actual practice; therefore, we simply observed the results.

The most common comorbidities in subjects who developed heel ulcers were peripheral vascular disease (41.7%, n = 5), diabetes (33%, n = 4), hypertension (8.3%, n = 1), and alcoholism (8.3%, n = 1). Patients with increased risk of developing pressure ulcers were those with diabetes (odds ratio [OR] = 5.5, meaning they were 5.5 times as likely to develop a pressure ulcer), cardiac disease (OR = 4.4), fragile skin (OR = 3.8), alcoholism (OR = 2.5), sepsis (OR = 2.5), edema in the feet (OR = 2.4), preexisting pressure ulcer (OR = 2.4), smokers (OR = 2.2), and peripheral vascular disease (OR = 2.1). Because these numbers are small, conclusions must be drawn with caution.

Research Question 3
When price is considered, which heel pressure ulcer-reduction device provides the optimal patient outcome (ie, no pressure ulcer development) at the best price?

There was a statistically significant difference in the cost of the 3 devices, with the bunny boot being the least costly (High-Cushion Kodel Heel Protector mean $2.70/pair, Egg Crate Foot Prop Positioner mean $29.67/pair, and EHOB Foot Waffle Air Cushion mean $26.62/pair during the study). The bunny boots, however, were replaced frequently because they did not stay in place, came off easily, and went to the laundry with linen changes. When pillows were used to supplement the bunny boots, 2 pillows were needed ($7/pillow), resulting in a per-subject cost of $16.70 per subject, a figure that was still lower than costs of the other 2 devices. The bunny boot and the bunny boot with pillows were statistically significantly less expensive than the other 2 devices by ANOVA (F[3, N = 240] = 1,342.37, p = .001); the bunny boot with pillows was entered as a fourth device into the equation.

If all 240 subjects had received the bunny boot at a cost of $2.70 each, the total cost would have been $648.00. If all subjects received the bunny boot with 2 pillows, the cost would have been $16.70 per subject or $4008.00. If all subjects received the egg crate at a cost of $29.67 each, the total cost would have been $7120.80. If all subjects received the foot waffle at $26.62 each, the cost would have been $6388.80. Choosing the bunny boot with pillows would have resulted in $2380.80 savings. Therefore, there was a statistically significant and financially significant difference among the heel-protection device groups.

A post-hoc power analysis of the final data was performed by a statistician. The post-hoc analysis showed that the actual effect size for prevention of pressure ulcers was .01 (very small) between the groups rather than the 0.10 (small effect) allowed in the initial power analysis. With the very small actual differences between groups, a sample size of 6225 would be required to find a statistically significant difference between groups when a difference actually exists. The statistician concluded that there is likely no real statistically significant difference among the results of the three groups (Joseph L. Lucke, PhD, oral communication supplemented with written analysis, November 20, 2004).

**Discussion**
The investigators were seeking evidence of the efficacy and cost-effectiveness of the heel-protection devices to implement evidence-based and fiscally responsible nursing practice. The number of pressure ulcers was smaller than the literature predicts (3-30% per year) in acute care settings. This was true even though 167 of
participants (69%) were patients in ICUs with reduced levels of consciousness, decreased mobility, decreased nutrition, and lower Braden scores secondary to being seriously ill. Regarding Question 1: the incidence of pressure ulcers among moderate-risk to high-risk hospital inpatients, Hagisawa and Barnebel reported a rate of 3.3% of pressure ulcers in acute care patients assessed to be at risk by the Braden Scale. Evidence is therefore provided by this study for reduced rates of pressure ulcer development with prevention efforts using any of these devices; however, it must be emphasized that patients in this study also received daily head-to-toe skin assessments by study RNs.

The bunny boot did not always stay in place and neither did pillows in the hospital. Investigators’ observations indicate that nurses and family members move pillows for use elsewhere. This method of pressure relief is therefore unreliable. It is of note that Tymec and colleagues found that a standard bed pillow reduced interface pressures to 42 mmHg and performed in their study better than the foot waffle. Additional Findings

Compliance in wearing the devices was approximately 85% across all devices, although 39 subjects were dropped from the analysis because they did not wear the prevention devices for at least 48 hours. The more alert subjects became, according to the Braden subscale for sensory perception, the less compliant they were with wearing all devices. Anecdotally, some subjects found the bun not always stay in place and neither did pillows in the hospital. Investigators’ observations indicate that nurses and family members move pillows for use elsewhere. This method of pressure relief is therefore unreliable. It is of note that Tymec and colleagues found that a standard bed pillow reduced interface pressures to 42 mmHg and performed in their study better than the foot waffle.19

Additional Findings

Compliance in wearing the devices was approximately 85% across all devices, although 39 subjects were dropped from the analysis because they did not wear the prevention devices for at least 48 hours. The more alert subjects became, according to the Braden subscale for sensory perception, the less compliant they were with wearing all devices. Anecdotally, some subjects found the devices hot and bothersome, as evidenced by the fact that another 36 (15%) of subjects asked to end their use of the devices after 48 hours of wear time. Subjects stated that the devices did not allow them to move as freely in the bed as they would like. Because the authors’ study is also about best use of resources, noncompliance in wearing devices is an issue. There is no need to spend money for devices that will not be worn.

Nursing Implications

This study provided evidence for the importance of daily skin assessment for patients who are at high to moderate risk of developing pressure ulcers according to the Braden scale. Participants experienced a low rate of ulceration (1.6% per year). Literature cites rates from 13 to 30% in this group of patients.

Limitations of This Study

One problem encountered was the need to continually reeducate nursing staff because of constant turnover of nursing staff in military hospitals resulting from deployments. Also, outside agency personnel were extensively used, creating a constant influx of nursing personnel who were not familiar with the study. Nursing staff supplemented the polyester fleece booties by adding pillows under the calves of subjects randomly assigned to the fleece bootie to elevate the heels off the bed. The authors reeducated the nurses, and nurse managers were made aware of the problem; however, the problem continued despite the authors’ efforts. Because the authors were unable to assure compliance with avoiding additional pillows with the bunny boots, the best they could accomplish was a “real-life” study to determine effectiveness of the devices in actual practice; therefore, they simply observed the results. The intervention of added pillows was not performed for the other device groups and confounded results. Therefore, the bunny boot, as it is manufactured, was not truly evaluated.

That study nurses were not blinded to device assignment may have biased nurses’ assessments of participants. The study nurses, however, did not believe knowing the device assignment influenced skin assessments. Because all nurses on units were busy, it was not possible to assign research tasks to the staff nurses. To have hired more study nurses would have made the cost of the study prohibitive.

Future Research

There are implications for further investigation into the use of pillows as pressure-relief devices for the heels. Although excellent studies have been done by Tymec et al19 and Dekeyser et al,18 it is likely that there is great variability in how pillows could be applied. The investigators believe that the most effective way is with the long dimension of the pillow oriented to the length of the leg, with the heel suspended. This method distributes the weight over a greater surface area and reduces the weight per square inch on the heel. Softer, conformable pillows would provide superior relief compared to firmer pillows with less deformability; however, the pillow must not be so soft that it allows the heel to rest on the mattress surface.

Summary

There were no statistically significant differences in outcomes of heel pressure ulcer development among the 3 device groups. The most cost-effective was the polyester fleece High-Cushion Kodel Heel Protector (DeRoyal, Inc., Powell, TN) when supplemented with pillows under each leg and the heels suspended. Patients who developed pressure ulcers were exposed to constant moisture; had diabetes, hypertension, and peripheral vascular disease; and smoked. Knowing these risk factors assists nursing staff to monitor high-risk patients closely for signs of skin breakdown. Frequent skin assessment and good nursing care are keys to prevention.

Acknowledgments

Key Points

✔ WOC nurses are well positioned to provide specialized guidance and care to help prevent complications related to pressure ulcers.

✔ The second most common site for pressure ulcers is the heel.

✔ Although the vulnerability of the heels to skin breakdown is well documented in the literature, there are limited studies regarding comparative efficacy of various heel protection devices.

✔ In this study, the bunny boot was as effective as higher-tech devices, but the results were confounded by nurses adding pillows to the bunny boot group.

References

6. DeRoyal, Incorporated, Powell, Tenn. Web site catalog download: Available at: http://www.deroyal.com/divisions/patientcare_main.asp. Accessed AU: Refs 6, 7, 8; Please provide the date you accessed these sites.
Pelvic surgery for bladder, colon, prostate, and gynecologic cancers or disease amelioration can affect sexual health and functioning for the long-term or short-term. A person with a permanent diversion is likely to experience longer term adjustment challenges and may suffer from serious sexual dysfunction. Wound, ostomy, and continence nurses caring for the whole person must consider this in their overall care plan. Being prepared with specific information and practical interventions can assist in this endeavor. This article targets sexuality issues for a person with an ostomy and provides suggestions for comprehensive nursing interventions.

Given the increases in prostate, bladder, colon, and gynecologic cancers and the substantial numbers of persons with fecal and urinary diversions, it is striking that relatively little is available in the literature on sexuality and sexual functioning in persons who experience these surgeries. Cancer, radiation therapy, pharmacotherapy, and pelvic surgery, singly or in combination, can change sexual health and activity in the short-term and possibly long-term. Permanent ostomies may affect sexual health for the longer term and may be associated with full-blown sexual dysfunction. This article examines the components of human sexuality, discusses specific sexuality issues for a person with an ostomy, and offers suggestions for wound, ostomy, and continence (WOC) nursing interventions. MEDLINE/PubMed, National Library of Medicine, and Cumulative Index to Nursing and Allied Health Literature (CINAHL) databases were used for the literature review. Terms searched included sexuality, sex, gender, and ostomy. Inclusion criteria included human and English only and major topic only.

Incidence

Current statistics regarding urinary bladder, prostate, colorectal, and gynecologic cancers are sobering. For example, prostate, colorectal, and bladder cancers are in the top 5 most commonly diagnosed cancers for men in the last 5 years in the United States; for women, colorectal, uterine, and ovarian are in the top 5 diagnosed cancers. Although death rates for all cancers combined have declined in recent years, the number of cancer cases can be expected to increase because of the growth and aging of the population. In fact, the single most important risk factor for cancer is age. Because death rates are decreasing, associated quality-of-life issues, including sexual function and well-being, will become important. In some cases, surgical or radiation treatment for these cancers result in the need for a urinary or fecal diversion.

More specifically, prostate cancer was predicted in approximately 229,000 men in 2003; 57,400 new cases of bladder cancer were predicted in the same time frame.
An estimated 147,500 Americans were diagnosed with colorectal cancer in 2003. Nearly 74,000 women were diagnosed with cervical, uterine, or ovarian cancer in 2003.3

For younger patients with cancer, the effect of the diagnosis (and therapy) can be even more profound. Younger patients worry about infertility, damage to germ cells producing chromosomal changes, the likelihood of a committed relationship and marriage, problems with childbearing, and transmission of cancer to their offspring.4,5 These issues are major life concerns and cannot be ignored by health professionals.

Inflammatory bowel disease (IBD) is also a significant problem. It is estimated that as many as 1 million Americans have IBD, with that number evenly divided between Crohn’s disease and ulcerative colitis. For those with the most severe IBD, an ostomy may be the only recourse. Given the current incidence, WOC nurses and other health professionals are sure to encounter persons experiencing sexuality issues related to disease processes, their medical treatments, and surgery.

Even without the challenge of a urinary or fecal diversion, the cancer diagnosis itself is a threat to a patient’s sexuality. Cancer can affect sexuality either directly or indirectly. The fear of death, the effects of cancer treatments (eg, chemotherapy and/or radiation), the loss of social activity, and family role changes can simply or jointly hinder the sexual well-being of patients with cancer. It can be difficult to be dependent as a result of physical issues and then suddenly switch to the role of lover.

For some patients who have had an ostomy created to treat IBD, the stoma is viewed positively, representing a chance at better health and a more normal lifestyle. Conversely, other patients with IBD may not adapt well to a fecal diversion, despite that they no longer suffer from abdominal pain and/or diarrhea. No matter what diagnosis was the impetus for surgery, a person with an ostomy will experience an altered self-concept and body image, at least temporarily.6

Although sphincter-sparing procedures (eg, neobladder or ileal reservoir) have been developed, many patients ultimately require permanent urinary or fecal diversions. The majority of patients with ostomies wear an external pouching system to collect effluent, and the stoma serves as a permanent reminder of their underlying disease and surgical experiences. The pouch is also visible to partners. How persons with an ostomy and their partners or families adapt to this change greatly determines the ultimate degree of sexual health and functioning.7

Although the focus of this article is sexual health concerns of patients with permanent ostomies, it should be noted that persons without permanent ostomies may also experience sexual dysfunction as a result of pelvic surgery, chemotherapy, or radiation therapy. Much of the following discussion on sexuality may be helpful in caring for those persons as well.

Sexuality has been described as a highly complex phenomenon that pervades human beings, influencing their self-image, feelings, and interpersonal relationships. Sexuality is a part of a person’s total make-up throughout the lifespan and has biological, psychological, and social aspects.8 Biologic components include the reproductive organs and physical appearance; psychological aspects include body image, self-esteem, and self-concept; and social components include gender roles, cultural expectations, and stereotypes.

Authors generally agree that sexuality is much more than the sex act. Regardless of whether a man or woman is currently engaged in a physical sexual relationship, he or she is still a man or a woman. Gender differences are often noted lightheartedly as if men and women must be from different planets, but the differences are real and must be acknowledged. Although writers may emphasize different aspects, all submit that sexuality and sexual health are critical to quality of life and that many physiologic and psychologic factors can disrupt sexual health.4,5,9,10 Some of these factors are listed in Table 1.

In 1975, the World Health Organization (WHO) defined sexual health as: “the integration of the somatic, emotional, intellectual, and social aspects of sexual being in ways that enhance personality, communication and love.”11 For nurses to deliver holistic comprehensive care, sexuality and sexual health concerns must be included in their care plans. Waterhouse suggests that sexuality is an important aspect of nursing care in all settings with clients of all ages and for most medical and surgical diagnoses.12 She submits that nurses who are caring for patients with mastectomies, hysterectomies, and colostomies must encourage discussion of sexual concerns related to living with these changes in both patients and their partners. Unfortunately, research consistently demonstrates that nurses do not address sexuality and sexual functioning unless the patient initiates specific questions.12

Gamel et al13 suggest that 5 factors may influence sexuality-related approaches in a health professional’s practice: sexuality knowledge, attitudes about sexuality, opinions about professional responsibility to address sexuality, comfort in addressing sexuality, and continuing education about sexuality. Some nurses may believe that discussing sexuality will make the patient uncomfortable.
Although sexuality is personal, so are the bowel and bladder functions that nurses routinely discuss with patients. A survey of persons with ostomies in England revealed that information about sexual problems that may be encountered was important and these patients did not believe that they received this information from their “stoma care nurse.” Even though WOC nurses and others may be reluctant or unable to discuss this aspect of care, Zmijewski makes the point succinctly about the role of the WOC nurse and the sexual counseling needs of ostomates by saying, “if not you, then who?”

Males and females may have different physical concerns regarding sexual health after surgery that includes creation of a stoma. For example, women who have pelvic surgery may experience dyspareunia or painful intercourse. Orgasm may be more difficult to achieve. In one study, more than half the women had stopped any sexual activity after urostomy surgery. Younger women may experience complications with fertility, pregnancy, and normal vaginal delivery.

For men, problems after surgery for cancer of the rectum can include parasympathetic nerve damage. Consequently, the male with an ostomy can experience difficulties with ejaculation and erection. In addition to impotence, men can experience retrograde ejaculation or “dry” orgasm. Men may also experience the inability to have, or a decrease in, the intensity of an orgasm.

Even though the extant literature is sparse, available articles and publications suggest that males and females with an ostomy experience common fears associated with the stoma and pouch appearance, noise, possible leakage, pain, and rejection by significant others. Often these problems became more acute later in the adaptation process, when patients are no longer concerned with the acute issue of surviving required treatment.

In the short-term, patients with ostomies, like other surgical patients, may fear anesthesia, postoperative pain, cancer spread, etc. Persons experiencing a cystectomy or an abdominal-perineal resection also have long-term concerns: the loss of highly valued organs or their normal function and mutilation or relocation of a body orifice. Both can severely and negatively affect body image.

Self-esteem can be hampered by negative body image. A person with an ostomy may find that, at least temporarily, his or her role in the family changes and his or her work life may be significantly altered. Self-esteem can also be damaged if patients lose the ability to perform sexually as before. In a vicious cycle, performance issues may lead to further decreases in self-esteem.

A person with an ostomy may also fear abandonment. Patients with low self-esteem may be afraid of being deserted by their partners, friends, and families. The inability to or fear of resuming normal sexual activity may make patients with ostomies feel sexually undesirable.

People who have undergone fecal and/or urinary diversions usually experience loss and grief. Loss of body parts, fertility, and libido can generate feelings of sadness, denial, anger, despair, guilt, etc. Partners and family members should be warned that anger and other emotional reactions are often manifestations of patients’ feelings toward the illness and not their true feelings about loved ones.

Some patients with ostomies may experience guilt if they express concerns about their sexual health, reflecting a belief that talking about sex is “dirty.” There are cultures and religions that prohibit talk about such intimate topics, especially with strangers. Respect for their rights must be maintained, as channels to teach them in acceptable ways are explored. Certainly, if there is a language barrier, a medical interpreter is needed. If language is not a barrier but because of status or gender the patient is not to discuss sexual matters, conduct the discussion with a respected family member or a religious figure if that is acceptable in that particular culture or religion.

Patients need reassurance that giving and receiving sexual enjoyment can continue to be a part of their lives, even if altered because of physical changes. A person with an ostomy who is too ill to want to receive sexual...
gratification often still wants to give his or her partner pleasure. Those who are celibate still may need assistance in adjusting their self-image and feelings of sexual well-being.

Adolescents also experience fears and concerns, but possibly even more intensely. Peer acceptance is crucial. With the normal emphasis they have on body image, adolescents may be more concerned that their pouches “will show.” They may also fear loss of sexual functioning (inability for erection, ejaculation, or orgasm) and the ability for sexual arousal and may wonder if they can ever have the relationships they desire. Females need to be reassured that having an ostomy does not interfere with successful pregnancy and delivery.20

An ethnographic qualitative study by Erwin-Toth showed that ostomy surgery between the ages of 6 and 12 years was likely to have long-term effects on psychosocial development.21

A feeling of being unattractive at this age is common and is exacerbated by having body-altering surgery. By the time they were young adults, however, none of the participants reported difficulty with sexuality related to their stomas.21

### Comprehensive Interventions for Sexual Health Problems: Implications for WOC Nurses

**Key Elements, Behaviors, and Objectives**

Several authors have offered insightful suggestions for nursing interventions related to sexual health challenges for the person with an ostomy. In an excellent review of nurses’ responsibilities in sexual healthcare, Waterhouse12 suggests that nurses’ practice may include the following activities:

- Assessing sexuality and physical status
- Providing guidance about sexual development
- Validating normalcy and sexuality
- Educating about sexual functioning and disease processes
- Counseling patients about altered sexual expression
- Referring patients to specialists for intensive therapy about sexual health problems

Bell22 identifies 3 challenges for nurses when promoting sexual health for patients. First, nurses must examine their own sexuality and their comfort levels in addressing the sexuality of others. It is crucial that nurses accept their own thoughts, feelings, beliefs, and values and that of their patients. Second, nurses must be knowledgeable teachers—they must know anatomy and physiology, pathophysiology, and psychosexual development and functioning. Nurses must be cognizant of the cultural, religious, and ethical implications of their patients’ situations. In general, nurses who have more knowledge of sexuality and sexual health will be more competent engaging in patient, partner, and family interactions. Third, nurses must become proficient at communication skills. Bell suggests that nurses function as both educator and counselor while guiding patients to solving their problems and challenges within their own sexual value systems. Outside values cannot be imposed.

A third approach or framework provides structure for nurses’ approach to sexual healthcare intervention: the Permission, Limited Information, Specific Suggestions, and Intensive Therapy (PLISSIT) model.23 WOC nurses should be able to function at the permission and limited information levels, conveying to patients that sexuality and sexual functioning are appropriate topics for patients with stomes to discuss. They need to provide factual information related to the person’s problem or general sexual knowledge. WOC nurses should be able to provide specific suggestions for their patients by acquiring knowledge and skills related to sexual functioning and stomes. Intensive therapy is usually reserved for referral to professionals with special psychotherapeutic training.

### General Strategies and Resources

For WOC nurses to deliver holistic nursing care, they must first assess their own comfort levels and knowledge bases regarding sexuality, sexual functioning, and sexual assessment. If necessary, they should review anatomy and physiology of the reproductive systems and practice using their interpersonal skills so that frank and open discussions can occur. Attendance at continuing education activities can provide excellent sources of information in these areas. A regular review of the nerve pathways involved in genital functioning is a necessary part of being prepared to offer education to patients regarding what to expect after various surgical procedures. Keeping a textbook or diagrams at hand is one way to be well prepared.

The United Ostomy Association (UOA) booklet, *Intimacy, Sexuality and an Ostomy,*24 provides detailed...
practical information for nurses to share with patients. This handout, authored by WOC nurse, Gwen Turnbull, can be purchased from the Web site, www.uoa.org, or by calling 800-826-0826. If a clinical facility is not willing or able to supply these booklets, contact the local American Cancer Society office or a local UOA group for support.

After a trust relationship is developed, the WOC nurse may approach the subject of sexuality through the use of questions. The nurse may ask: “Most people after surgery wonder how this will affect their roles as a parent or sexual partner. Do you have any concerns about that?” or “One of the things we usually discuss after ostomy surgery is how this will affect the way you see yourself as a man/woman. Do you have any concerns about that?” Another approach is to introduce mini-pouches, pouch covers, and ostomy undergarments and note that these can be useful for intimate times. If the patients are open to talking at that time and express concerns, try to address them simply. If they speak about the physical aspects, address those; if they speak of the social or psychologic aspects, address those. Any aspects of sexuality that are not addressed at that session can be brought up at a later session through the use of similar questions. As with any personal information shared, assure the patient that confidentiality will be maintained. The medical record should contain general facts, such as “discussion of physical sexual concerns.” If any history of abuse is brought up that has not yet been reported, law requires this must be reported. Most facilities have a sexual abuse counselor or team available to assist with these issues.

The timing of sexual health education activities is critical. Ideally, these activities should begin preoperatively so trust can be developed.25 They must also occur well after the patient is assured of his or her survival of the surgery. With the shorter hospital stays typical of today, plan to have an outpatient session once the patient has recovered at home, a month or so postoperatively. Keep information about sexuality short and to the point during the hospital stay. Teaching survival techniques has become the norm for inpatient education. Sexual education and counseling should follow this trend.

Patients should be consulted to determine if they want their partners present at these discussions.17 Patients should be counseled that the timing for resumption of sexual activities is important. It should occur when pain, discomfort, and fatigue are less likely to interfere with performance and pleasure. Directions given to the patient must be explicit. One author discussed a woman patient who had not had sexual intimacy with her spouse for 2 years because the physician said “wait a while” and never broached the topic again.26

The level of physical activity chosen can make the difference between a satisfying experience and frustration. Help both partners remember that communication is the key to intimacy. The person with an ostomy will need to let a partner know what feels good and what does not. Partners need to let the person with an ostomy know if they have fears, such as hurting the stoma. It will help them to hear from the nurse that these fears are normal but that physical contact, as long as nothing rigid is inserted in the stoma, will not cause pain or physical harm.

It is important that WOC nurses help patients differentiate between sexuality and sexual functioning. Sexual functioning may be altered, but sexuality cannot be destroyed. For example, physical intimacy is often desired by patients, but if it is impossible, other means of sexual expression can provide pleasure and satisfaction.9 Remind patients and their partners that if they are ready for physical sexual expression, pleasuring need not involve intercourse to be satisfying. Stroking of sensitive areas not affected by surgery can be pleasing. There are times when simply holding each other can be rewarding. The main point is to keep open the lines of communication. Honesty and, when possible, a sense of humor go a long way in maintaining a healthy relationship through difficult times.

For intercourse to be comfortable, it may be necessary for the female to use a vaginal lubricant to avoid painful penetration. A side-lying position may be helpful, and the person with the ostomy may want to lie on the side with the stoma to allow the pouch to drape down.

The American Cancer Society Web site (www.cancer.org) contains many topics on sexuality. From the home page it is possible to access these by typing in “sexuality” in the search engine box provided. Included are descriptions of normal male and female anatomy and sexual responses and expected changes during treatment or surgery for cancer. There is a specific section for the person with an ostomy.

Specific Considerations and Guidelines

A person with an ostomy will need to be counseled to “be prepared” for occasions of intimacy. To ward off fears of odor or leakage during lovemaking, it is important to ensure that pouches are clean, secure, well fitting, and as attractive as possible. This should always include emptying and cleaning the pouch, and may include wearing an opaque pouch or using a pouch cover. Premade pouch covers are available for sale. Persons who are on a limited income can make a pouch cover out of patterned paper towels, simply taped on, or for those who sew, a washable cover from tee-shirt material is useful. For a person with a colostomy with bowel movements on a fairly predictable routine or who irrigates with success, a small cap or mini-pouch may be worn rather than a full-size pouch during...
physical sexual expression. The WOC nurse may provide a sample of these options. Special underwear is also available that leaves the perineum accessible, yet acts to hide the pouch.\textsuperscript{17,27} Various pouch deodorants are available to further increase confidence. See Box 1 for specific suggestions.

Support groups can play a profoundly important role in the sexual rehabilitation of persons with diversions and/or sexual dysfunction.\textsuperscript{28} The UOA visitor program offers the person with a new ostomy a connection with someone who’s “been there, done that” and is trained to answer questions without giving medical advice. Persons who have “lived” the ostomy experience can play an essential important role in sexual and social rehabilitation.

A person with an ostomy must be counseled to “be prepared” for occasions of intimacy.

Intimate problems faced by and anticipated by the person with an ostomy, such as the way in which excrement is eliminated and possible deteriorated sexual ability, are not easily expressed by patients or accepted by society, including loved ones. Acceptance of the ostomy can be influenced considerably by the opinions of family members. Support by family and significant others can make sexual adaptation much quicker and less traumatic.

The Sexual Educational Care Plan

Every person’s concerns and educational needs must be addressed with the same compassion and respect, even if a patient’s beliefs and practices differ from the nurse’s.\textsuperscript{29} For WOC nurses using the PLISSIT model, it is important to remember that without additional education, intensive therapy is not in the WOC nursing scope of practice. Although many patients may be reluctant to discuss sexuality at all, some may want to offer more detail than is appropriate for the situation or may have questions beyond the nurse’s expertise. If the WOC nurse is not trained in intensive sexual therapy, a referral to qualified resources is most appropriate.

Role-playing for the WOC nurse can help increase confidence and decrease the feelings of embarrassment that often come from discussing something so intimate.

Support is available from the United Ostomy Association (UOA).

This can be a useful exercise at regional and affiliate WOC nurse meetings. The authors suggest a preconference session on this topic, with role-playing exercises included.

<table>
<thead>
<tr>
<th>Box 1. Specific Suggestions for a Person With an Ostomy Regarding Sexual Intimacy\textsuperscript{18,37,36}</th>
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<tbody>
<tr>
<td>1. Reduce worries about sexual activity by being prepared</td>
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<tr>
<td>A. Empty or change pouch before sexual activity</td>
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<tr>
<td>B. Make sure pouching system seal is tight to avoid odor; use perfume sparingly if it increases confidence; avoid odor-causing food</td>
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<td>C. Wear opaque pouch or use pouch cover with attractive design</td>
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<td>D. If pouch security is an issue, “picture-frame” wafer with tape</td>
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<td>E. Consider using crotchless panties or “teddies” to cover pouch</td>
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<td>F. Add a rubber sheet or absorbing towel under sheets in case of leakage</td>
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<tr>
<td>G. If pouch leaks, continue intimacy in the shower</td>
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<tr>
<td>2. Reduce tension by setting the mood and environment</td>
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<tr>
<td>A. Provide for rest before and after intimacy</td>
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<tr>
<td>B. Play music to relax both partners</td>
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<tr>
<td>C. Discuss fears with partner openly</td>
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<tr>
<td>D. Use humor to help relax both parties</td>
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<tr>
<td>3. Reduce discomfort by considering positioning and type of surgery</td>
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<tr>
<td>A. Experiment with side-lying/posterior entry positions</td>
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<td>B. Use pillows to support body weight</td>
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<tr>
<td>C. Explore alternate ways of expressing physical intimacy</td>
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<td>D. Discuss the need for extra lubrication</td>
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It is especially important to have resources to offer support to the patient. Support is available from the UOA. There are specific networks for persons with an ostomy who share common interests and concerns that can be accessed through the UOA Web site (www.uoa.org). All persons living with a stoma have some common concerns, including issues with changed self-image, self-esteem, body image, etc. Pelvic surgery involving proctectomy, however, physically affects men and women differently.

Men should be counseled about the availability of oral and injectable medications and penile implants for those who become impotent related to the nerve damage possible during a proctectomy. Women should be counseled that there is a change in the shape and angle of the vaginal vault resulting from removal of the rectum. This, along with scar tissue in the area, may cause painful intercourse and should be discussed with the healthcare provider. There are lubricants available and reconstructive surgery options that may be helpful.

Men and women with an ostomy must also be counseled that the stoma may not be substituted for the anus for intercourse. For anyone undergoing an abdominal perineal resection, the loss of an orifice that may have been previously a part of their sexual pleasuring can be difficult. Anal intercourse is fairly common, though less discussed than vaginal. In a survey of heterosexual college students, 23% of nonvirgin students reported having experienced anal intercourse.\textsuperscript{30} In another study, almost half of adult women reported engaging in anal intercourse.\textsuperscript{31} In counseling, it is helpful to give specific facts, such as the
difference in compliance between the rectum and the bowel. Even though the rectum is able to distend greatly without negative consequences, placing firm objects in the bowel will likely cause cramping and possibly perforation, though the literature is not helpful in knowing the prevalence of this occurrence. Rigid objects, such as a vibrator or erect penis, are also likely to damage the mucocutaneous junction, causing bleeding and, over time, scarring and possible constriction. Another useful fact is that although anal stimulation may be sexually pleasurable, the stoma and bowel do not induce a similar response. The media have again recently exposed the extent of sex abuse. The nurse must be sensitive to the fact that patients with ostomies may also have experienced sexual abuse. This can affect their desire or ability to discuss sexual matters. If a reluctance to discuss sexuality or a discomfort is expressed, the nurse’s offer to arrange counseling may be the link the patient needs to begin to deal with these issues. In caring for the patient who has been abused, a simple procedure, such as an enema or intubating the stoma, may cause exaggerated reactions. Persons having a history of sexual abuse may also fear any situation, such as hospitalization, that results in feelings of helplessness or vulnerability. Privacy and caring support are even more important in these instances.32

An important aspect for the female with an ostomy is the topic of fertility and pregnancy. Unless other medical conditions exist, such as endometriosis or extensive adhesions, ostomy surgery does not affect fertility or the ability to carry a pregnancy to term. Patients are often counseled to wait at least 1 year after the surgery for scar tissue to mature.33 Changes during pregnancy result in difficulty with pouching for 25% of pregnant women, but consultation with a WOC nurse can easily remedy most of the issues. Stomal prolapse is fairly common in the last trimester, but usually resolves after delivery. Loss of the fetus was reported in one series as 8%, similar to fetal loss in women without ostomies.34

The older person with a new ostomy has special needs as well. Reynaud and Meeker35 studied the coping styles of older adults with ostomies. Twenty-seven participants were followed. The most effective coping styles were promoting optimism and self-reliant coping. WOC nurses should support these approaches with patients. Remember that older adults are not necessarily celibate. Do not assume that they do not want specific sexuality information. Give them permission to ask by showing the caps or mini-pouches available for times of intimacy or by using the statements previously suggested.

### Summary

Sexuality is a lifelong part of being human. To care for the whole person, the WOC nurse must be prepared to address the physical, psychologic, and social aspects of sexuality with the person with an ostomy. By self-assessment of knowledge deficits, attitudes, and beliefs about sexuality, the WOC nurse will be better prepared to assess, plan, and intervene on behalf of their patients.

A critical consideration to assess is the willingness of patients to discuss sexual health issues. If patients do not want to discuss these topics, WOC nurses should not force the issue and should respect patients’ wishes. There may be religious or cultural taboos about discussing sexual topics. When using the PLISSIT model, the technique is not to force the subject but rather to give permission to

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**Key Points**

- Persons with permanent diversions are more likely to face long-term adjustment challenges and serious sexual dysfunction.
- WOC nurses caring for the whole person must consider their patient’s sexuality in their overall care plan.
- PLISSIT is an acronym for Permission, Limited Information, Specific Suggestions, and Intensive Therapy; WOC nurses must function at the permission, limited information, and specific suggestion levels, conveying to patients that sexuality and sexual functioning are appropriate topics for discussion.
- Diagnosis and therapy can be even more profound for younger patients, who fear infertility, chromosomal changes, issues related to intimate relationships and marriage, childbearing, and transmission of cancer to their offspring.
- Older patients may not be celibate; therefore, the topic of sexuality must be broached in a manner that is sensitive to their needs.
References


Supplementary Readings

CE Test

Sexuality and the Person With a Stoma: Implications for Comprehensive WOC Nursing Practice

Instructions:
• Read the article on page 121.
• Take the test, recording your answers in the test answers section (Section B) of the CE enrollment form. Each question has only one correct answer.
• Complete registration information (Section A) and course evaluation (Section C).
• Mail completed test with registration fee to: Lippincott Williams & Wilkins, CE Group., 333 7th Ave, 19th Floor, New York, NY 10001.
• Within 4-6 weeks after your CE enrollment form is received, you will be notified of your test results.
• If you pass, you will receive a certificate of earned contact hours and answer key. If you fail, you have the option of taking the test again at no additional cost.
• A passing score for this test is 11 correct answers.
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CE TEST QUESTIONS

General Purpose: To provide registered professional nurses with an overview of sexuality as it affects the person with an ostomy and interventions for promoting optimal sexual functioning in this population.

Learning Objectives: After reading this article and taking this test, you will be able to:
1. Identify the implications of the available literature and statistical evidence on sexual issues affecting persons with stomas.
2. List appropriate interventions and strategies for promoting the sexual health and functioning of persons living with stomas.
3. Describe the potential effects of a disease process or change in body image on an individual’s sexuality and the role of the nurse in providing holistic care.
4. In caring for individuals across the life cycle, health professionals might expect
5. The WHO definition of sexual health
6. Men and women are most likely to experience common fears associated with the stoma and pouch appearance
7. According to a study by Erwin-Toth, ostomy surgery on children between the ages of 6 and 12
8. In order to promote sexual health of their patients, Bell suggests that nurses begin by
10. The PLISSIT model of sexual healthcare intervention is based on the premise that
   a. nurses must be equipped to provide counseling to all individuals experiencing sexual dysfunction due to the body-altering surgery.
   b. nurses should be able to function at the permission and limited information levels by conveying factual information about sexuality as appropriate.
   c. most individuals with permanent ostomises will require intensive therapy.
   d. nurses require extensive, ongoing education in the subject of sexuality in order to address their patients' needs.

11. In approaching the subject of sexuality, a WOC nurse might begin by
   a. eliciting their patients' concerns about roles as a parent or sexual partner.
   b. suggesting that patients formulate questions to discuss at a later interview.
   c. reviewing the anatomy and physiology of the reproductive systems with their patients.
   d. providing educational materials or referrals to support groups for all individuals with stomas.

12. With respect to timing, initial sexual health education
   a. should begin preoperatively so that trust between clinician and patient can be established.
   b. should begin several days after surgery when issues of survival are no longer paramount.
   c. is best undertaken during the hospital stay when staff is available to answer questions and clarify concerns.
   d. should be reserved for the outpatient setting and begin a month or so postoperatively.

13. In assisting patients to achieve an optimal level of sexual functioning, it is perhaps most important to
   a. include both partners in all discussions regarding intimacy.
   b. emphasize the importance of communication as the key to intimacy.
   c. provide explicit directions regarding the resumption of sexual activity.
   d. stress the importance of humor in maintaining a healthy relationship through difficult times.

14. When addressing the topic of fertility and pregnancy, be aware that
   a. women should be counseled to wait a least six months after surgery before attempting to become pregnant.
   b. ostomy surgery of itself does not affect fertility or a woman's ability to carry a pregnancy to term.
   c. changes during pregnancy result in difficulties with pouching for less than 10% of pregnant women.
   d. stomal prolapse is fairly common in the second trimester but usually resolves before delivery.

15. The author would most likely agree that
   a. the role of patient advocate is in many respects unique to the WOC nurse.
   b. nurse who anticipate their patients' sexual concerns can effectively eliminate the later need for intensive therapy.
   c. addressing issues of sexuality is a integral component of providing holistic nursing care.
   d. addressing issues of sexuality related to the presence of a stoma is the exclusive concern of the WOC nurse.

CE Enrollment Form
Journal of Wound, Ostomy and Continence Nursing, March/April 2005:
Sexuality and the Person With a Stoma: Implications for Comprehensive WOC Nursing Practice

A Registration Information:
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B Test Answers: Darken one for your answer to each question.

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2. Was the journal home study format an effective way to present the material?
   ☐ Yes ☐ No
3. Was the content relevant to your nursing practice?
   ☐ Yes ☐ No
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Addressing the Challenge of Providing Nursing Care for Elderly Men Suffering From Urethral Erosion

Kimberly LeBlanc ■ Dawn Christensen

Urethral erosion in the male patient with a long-term indwelling catheter is a known but poorly documented sequelae of catheter injury. It is a difficult and challenging problem for staff, the patient, and his family. Urethral erosion affects not only the complexity of the patient’s care but also the patient’s quality of life. In recent months, 3 elderly gentlemen who were living in 3 different long-term care facilities were referred to us for assistance with their wounds, which were a direct result of catheter-related urethral erosion. In an attempt to find a solution for these difficult-to-manage wounds, the authors conducted a review of the literature. It quickly became evident that although literature is available describing urethral erosion and its relationship to indwelling urethral catheters, there is no literature available that describes the treatment and management of wounds caused by urethral erosion.

Realizing that a solution to the problem or treatment of urethral erosion could not be found in the literature, the authors developed a treatment option for the management of urethral erosion. This article describes the plan of care devised to treat these 3 male patients with urethral erosion. Through the use of soft silicone foam and soft silicone tape, a treatment plan was devised that removed the pressure, decreased catheter movement, and provided a moist wound healing environment.

It is well known that the incidence of incontinence in long-term care facilities is high and that incontinence places the patient at risk for comorbid conditions, such as perineal irritation, dermatitis, pressure ulcers, urinary tract infections, falls, and fractures. In addition to the physical problems, psychological stress is common. Psychological stressors include embarrassment, stigmatization, isolation, and depression. Incontinence contributes to the need for institutionalization and is the most common reason for admission to long-term care facilities.

There are associated problems that patients with indwelling urinary catheters experience. Some problems are bacteriemia, chronic renal inflammation, chronic pyelonephritis, urinary tract infection, sepsis, and death. These complications mean that the total client situation should be considered before catheterization for continence control is initiated. However, for many patients, an indwelling catheter is the only intervention that will maintain patient comfort, dignity, and skin health. Many of the catheter-related problems can be limited by using a small (14-16 Fr) catheter with a 5-mL balloon and providing adequate support to the catheter and tubing to prevent tension on the bladder neck and urethra. Despite conscientious nursing care, some patients will have significant complications related to positioning of the catheter, local tissue reaction to the catheter surface, and recurrent symptomatic urinary tract infections. One often-overlooked but potentially psychologically and physically painful complication of urinary catheterization is urethral erosion.

Urethral erosion on the distal urethra may be linked to the size, stiffness, or positioning of the catheter. Repeated and/or continual pressure and movement of the catheter can lead to full-thickness wounds, which result in urethral erosion. Using the basic principles of wound assessment, these wounds can be classified as pressure ulcers. Given the depth of tissue involvement, the wounds can be staged as either stage III or IV pressure ulcers. When the resulting pressure ulcer occurs on the edge of the meatus, the result can be a lengthening of the opening of the meatus (Figure 1). This lengthening of the urethral opening causes the urinary catheter to exit down the penile shaft.

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Treating urethral erosion can be a challenging activity for healthcare professionals. Urethral erosion demands not only the physical care of the resulting wound but also care of the psychologic stress that has been caused to the patient and his family. This type of wound is painful. Based on quality of life articles,\textsuperscript{9,10} it can be speculated that it is psychologically damaging to the patient. These quality of life issues should be considered when the care plan is being developed.

Suprapubic catheterization may be a preferred long-term management to avoid urethral erosion in the male patient. Insertion of a suprapubic catheter removes the catheter from the meatus and thus removes the underlying causative factors of the erosion. Because these wounds are pressure ulcers, removal of the underlying cause (ie, the pressure, friction, moisture, and shear) is the first step toward closing the wound. The patient, however, may not be a candidate for suprapubic catheterization, or the patient/family may be unwilling to have the procedure performed. In these cases, healthcare providers must be creative and choose a different treatment plan.

\textbf{Case Studies}

In recent months, 3 elderly gentlemen with urethral erosion related to indwelling urethral catheters were referred to our care. It was recognized that these wounds were not likely to heal. In addition, in each of the cases, the families were unwilling to have the patient’s catheter changed to a suprapubic catheter. The challenge, therefore, was to develop a means of providing comfort for the patient, to prevent further trauma, and to protect the patient from infection.

\textbf{Case 1}

Mr JS is a 72-year-old male living in a long-term care facility. He has a history of lung carcinoma and a left-sided cerebral vascular accident with hemiplegia. He is palliative and currently bedridden. He was recently catheterized for urinary retention with #18 French, silicone catheter. During a 3-week period and when catheterized, he developed urethral/meatal erosion at the tip of the meatus (Figure 2). The patient complains of discomfort and pain in the affected area and frequently tries to remove the catheter. The current goal is to prevent further breakdown. The opening measures 0.5 cm in length, and the catheter exits from a normal position. The patient’s Power of Attorney refuses to have a suprapubic catheterization for Mr JS.

\textbf{Case 2}

Mr RB is a 78-year-old male who was admitted to a long-term care facility with multiple health problems, including dementia. He is currently bedridden and was recently hospitalized for a small bowel obstruction. He underwent a bowel resection and reanastomosis. Postoperatively, Mr RB developed urinary retention and was subsequently catheterized with a #18 French silicone catheter. He developed urethral/meatal erosion after 1 month of catheterization. The opening measures 3 cm in length, and the catheter exits midshaft (Figure 3). His family refuses to have a suprapubic catheter inserted. Mr RB frequently pulls at his catheter.

\textbf{Case 3}

Mr EB is an 82-year-old male gentleman who was admitted to a long-term care facility because of deterioration related to Alzheimer’s. His disease has progressed, and he is currently bedridden. Mr EB’s lower extremities are severely contracted. He was recently admitted to acute care for a spontaneous fracture to his right hip. Postoperatively he developed urinary retention. An indwelling #18 French silicone urinary catheter was inserted and remained in place during his entire hospitalization. He remained in the hospital for 1 month, and during this period, he developed severe meatal erosion, which extended down
the entire penile shaft, causing the catheter to exit at the base of the penis (Figure 4). The nursing staff found that Mr EB grimaced and showed other facial expressions, indicating discomfort during catheter care.

**Management Plan**

A care plan was developed for these gentlemen. The established goals and objectives were to:

- Prevent further erosion
- Protect the exposed mucosa
- Control the pain
- Prevent infection
- Maintain the patient’s dignity
- Provide a cost-effective and appropriate dressing
- Provide a moist wound-healing environment
- Provide psychologic support for nursing staff, patient, and family

These goals and objectives led us to develop a means of dressing and caring for these wounds. A thin flexible foam with soft silicone technology was used to protect the eroded area. A thin strip of the soft silicone foam dressing was cut 1 cm wider than the eroded area. This strip of foam dressing was wrapped around the penis, above the exit site for the catheter, with the ends crossing in an “X” at the back. Crossing the ends in an “X” allowed the penis to change in size without causing a tourniquet effect. The foam was secured using soft silicone tape. The urinary catheter was then placed on top of the foam dressing and secured to the dressing with soft silicone tape.

**Application**

Steps 1, 2, and 3 of the application process are shown in Figures 5 through 8.

Through the use of this technique, the authors were able to:

- Remove pressure from the meatus
- Prevent maceration
- Maintain a moist wound environment
- Provide easy access to perform catheter care
- Protect the wound from further trauma
- Reduce pain

**Conclusion and Future Direction**

Caring for individuals with urethral erosion is challenging for the following reasons:

- There is little, if any literature, describing treatment or prevention.
- The prevalence and incidence rate for these types of wounds has not been studied.
- The paucity of evidence means that treatment is based on professional expertise rather than substantive data.

In these case studies, the authors have demonstrated a unique method for managing a challenging situation. They have minimized pain and trauma for the patient and optimized wound care.

Prevention for this complication is important. Healthcare professionals must recognize the potential risks associated with urinary catheterization.

To begin to more fully understand the problems associated with urethral erosion, research is needed to determine the true prevalence of this problem. In addition, more time and expertise needs to be applied to this problem so that the best possible treatment options can be determined. Predictors are required to aid healthcare professionals to identify those at risk for the development of urethral erosion.
References