Implementing Wound Care Guidelines: Observations and Recommendations from the Bedside

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Abstract
The successful implementation of wound care guidelines requires an appreciation for the frustrations experienced by nurses trying to incorporate these tools into clinical practice. These frustrations or barriers to best wound care practice implementation are examined from the perspective of: 1) the practice environment, which must be understood; 2) the potential adopters, predominantly nurses seeking the best fit between evidence and their clinical practice setting; and 3) the evidence-based innovation created to change wound care practice at the point of care. Barriers identified include lack of available resources, time constraints, prescriptive guidelines that incorrectly assume details of the practice environment, and wound care product confusion. Recommendations to facilitate implementation from the bedside are discussed and include expanding guidelines to incorporate detailed educational content and dissemination strategies that serve to increase relevancy to everyday practice. Additional suggestions include decreasing wound care product confusion by developing standardized, function-based product nomenclature and improving the quality of wound care research to increase nurses’ confidence in the evidence and resultant recommendations. Resources currently used to develop guidelines also should be utilized to create accompanying educational material to support the transfer and uptake of knowledge.

Key Words: wound care, guidelines, implementation, barriers, nursing

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Tracey is a 30-year-old registered nurse who graduated from a baccalaureate program 5 years ago. She recently accepted the only clinical nurse educator position in her 100-bed hospital. Tracey’s manager asked her to create an effective in-service to remedy “all the confusion the nurses have about those new dressings.” Tracey investigated the value-added educational programs offered by the wound care manufacturers. The facilities in the region recently standardized the wound care product formulary, awarding products to six manufacturers, each with independent programs and company-specific product information. Tracey contacted the regional wound care specialist, who suggested that rather than focusing only on dressing selection, a comprehensive education program consistent with the province’s skin and wound care guidelines should be planned. After studying the regional guidelines, Tracey attempted to assemble a multidisciplinary team to organize and facilitate guideline implementation. Unfortunately, although most clinicians thought wound care standardization was a good idea, only two people attended the initial meetings. After several unsuccessful attempts to elicit support from the stakeholder and countless attempts to “chunk down” the guidelines to a series of short educational events, Tracey put the wound care product in-service on hold.

To the expert wound care provider, it may seem implausible that something as simple as creating a product in-service can become difficult. How hard can it be to plan and implement wound care educational sessions when nurses have access to a wealth of wound care resources, including specialist journals and textbooks, conferences and educational courses, numerous websites, clinical guidelines, care...
maps, implementation checklists, wound care specialists, and associations dedicated to the advancement of wound care?

Research-based practice is a hallmark of professional nursing. Although this example is specific to wound care, it typifies the frustration experienced by nurses trying to incorporate practice guidelines into clinical practice. According to the International Council of Nurses, nurses are professionally obligated to provide care based on the best evidence. However, these professional mandates and multiple resources have not resulted in practice change. Despite multiple wound care guidelines created to inform practice, research has identified the existence of multiple barriers that prevent guideline implementation at the point of care. It is troubling that the literature is replete with identified barriers that are predominantly conceptualized as issues with individuals. Valente states that many nurses simply ignore practice improvements; Hicks proposes that nurses lack motivation, interest, and confidence in the value of research at a personal level; McCaughan et al identify inadequate educational preparation of nurses; and Jones discusses how decisions often are influenced by nurses’ lack of assertiveness and interpersonal relationships with physicians.

The flow of the new practice recommendation information tends to migrate from the bench (researchers/academicians/clinical experts) to the boardroom (administration) to the bedside (care providers). Much of the published research focuses on the barriers that exist in the latter group and presents prescriptive strategies to address knowledge and aptitude deficits identified in the care providers. Generally, the simplistic view is that all would be well if nurses would just apply the findings of research. The purpose of this review is to: 1) examine impediments to knowledge transfer from another perspective (the issue of slow uptake from the bottom up), and 2) provide recommendations from the bedside to address identified barriers — ie, which barriers originating from the bench impede the delivery of best wound care practice at the bedside. Bolman and Deal’s research on organizational theory provides a basis for this critical reflection. Through the use of multiple frames or lenses to analyze issues, challenges previously overlooked may be identified by viewing issues through an alternate lens.

The practice environment exerts powerful influences on practitioners that can encourage or discourage guideline adoption. This environment must be understood and taken into consideration when creating tools for wound care practice and their accompanying dissemination strategies. Losing touch with the clinical reality is an existing challenge for persons not involved with direct patient care.

Time factors. The current realities of practice include a nursing shortage, everyday heavy workloads, and high-acuity patients. Nurses on the front line struggle daily to meet the demands of patient care. According to the 2005 National Survey of the Work and Health of Nurses employed in Canada (N = 19,000, an 80% response rate), 62% of nurses working 40 hours per week of unpaid overtime. Consequently, it is not surprising that the most compelling barrier to the dissemination of knowledge is the need for time. According to Davies, the average practitioner does not have the time or desire to appraise large volumes of wound care research, complicated algorithms, or multipaged comprehensive guidelines.

Although research has shown that releasing nurses from their duties to attend educational programs is critical to the success of practice implementation, the reality is very few nurses are available to cover for co-workers; as such, it is becoming a luxury for nurses to attend half- or full-day workshops. Additionally, wound care is simply one of many educational offerings competing for nurses’ time. This lack of time may explain why the majority of nurses attend short in-services as opposed to day-long educational sessions. In-service sessions are typically 20 to 30 minutes long and usually held on the unit. A number of nurses with a keen interest in wounds may choose to attend wound care conferences but alternative strategies such as in-service education should be considered as a means to realistically reach large numbers of people.

It might be helpful if dissemination strategies accompanied each wound care practice guideline, such as the inclusion of segmented blocks of information conducive to in-servicing. By utilizing short learning episodes, the guidelines could be incrementally presented in educational sessions formatted to fit a 20- to 30-minute time frame.

Available resources. Ideally, every healthcare facility should have local wound care champions, specialized wound care nurses, and an adequate number of educators. This ideal does
not appear to be the reality, especially in smaller healthcare regions and rural communities. Nursing education to support the implementation of protocols and guidelines usually is the responsibility of the nurse educator, a role that does not exist in every healthcare institution or agency. The challenge is that the majority of educators are nonexpert wound care nurses and few resources are readily available to assist these educators in the dissemination of guidelines. The Registered Nurses Association of Ontario (RNAO)\textsuperscript{20} is a Canadian leader in providing resources for knowledge dissemination such as the online resource manual for educators (2005)\textsuperscript{20} and an implementation toolkit (2003).\textsuperscript{21} Corresponding initiatives to support wound care practice, such as those created by the RNAO, are sorely needed. Wound care guidelines must venture beyond prescribing what to do. With the current lack of generalized wound care expertise, guideline authors can facilitate best practice by expanding their guidelines to include the “what” (detailed educational content) and the “how” (dissemination strategies).

Pearson and Care’s\textsuperscript{8} research identified several barriers to knowledge dissemination in the Canadian system: a lack of integration, coordination, and sharing of educational services between agencies, health regions, and other disciplines. These shortcomings result in a redundancy of educational programs across the country. The creation of a centralized Canadian open-access database dedicated to the advancement of wound care would facilitate the uptake of knowledge by offering best practice support such as current guidelines, research findings, or educational modules. Consolidation and management of qualified information pertaining to wound care to one database would be extremely beneficial. Clinicians, industry personnel, and wound care and professional associations all would be encouraged to achieve the expert-derived criteria necessary to submit their research, educational presentations, or product information. In essence, this database would become a one-stop, trusted resource for all things wound-related.

The Potential Adopters

The Ottawa Model of Research Use\textsuperscript{12} suggests that successful implementation of research into practice requires identifying the potential adopters of research and understanding their interests/needs. Consistent with Bolman and Deal’s\textsuperscript{3,11} reframing strategy, the Ottawa Model emphasizes “the need to view the proposed change from the potential adopters’ perspective.”

Nurses are predominantly the potential adopters of wound care guidelines. In Canada, the treatment of wounds has shifted to the home care sector of healthcare delivery. In two surveys of Peel region home care, Schultz et al\textsuperscript{13} found that patents with open wounds accounted for 32% to 38% of all clients and Biala et al\textsuperscript{14} report that the numbers and severity of wounds treated in the community are increasing.

Knowledge/skill. Despite the existence of wound care guidelines that support the use of nongauze dressings to facilitate moist wound healing, it is generally accepted that “less than 50% of chronic wounds receive modern moist wound dressings even when they are appropriate.”\textsuperscript{24} Adherence to this outdated practice may be due to the lack of knowledge among nurses providing wound care. Bolman and Deal\textsuperscript{23} propose that when people don’t know what to do they often do what they know. According to Shields and Wilkins,\textsuperscript{15} in 2005 the average Canadian nurse was 44 years old and his/her training occurred more than 18 years ago at a time when frequent dressing changes and the predominant use of gauze reflected best practice.

Hunt\textsuperscript{28} suggests another key reason why nurses do not embrace changes in practice is that they do not believe the research findings. Regrettably, this skepticism is supported by the wound care literature. According to Towler,\textsuperscript{27} “The evidence in wound care is often based on expert opinion rather than scientific evidence and much of the information generated from research is flawed.” One example typifying this criticism is an article by Jones\textsuperscript{8} who incorrectly summarized two systematic reviews\textsuperscript{28,29} of wound care product trials. Jones reported that the reviews provided “compelling evidence that a variety of moisture-retentive products will provide benefits over gauze in relation to healing, pain and infection.” Contrary to this citation, in both reviews the authors were actually critical of the poor quality of the studies included, with Vermuelen et al\textsuperscript{29} reporting “insufficient evidence to show that the choice of dressing or topical agent affects the healing of surgical wounds.” Vermuelen’s comments are consistent with current literature citing poor methodological quality in the majority of wound care research.\textsuperscript{30-32}

One strategy to improve nurses’ confidence in wound care research is to improve the quality of the research. For example, wound care journals could require contributing authors to report their trials according to established criteria, such as those outlined by the Consolidated Standards of Reporting Trials (CONSORT).\textsuperscript{33} These guidelines were created by an international group of leading physicians, statisticians, and trial experts to identify key elements necessary in the proper reporting of randomized clinical trials. Their goal was to ensure that published trials contained all of the elements necessary for the reader to determine the quality and relevance of the trial.\textsuperscript{34} The CONSORT guidelines have been shown to improve the quality of published trials\textsuperscript{35} and have been adopted by more than 100 major medical and research journals such as Annals of Internal Medicine, British Medical Journal, Journal of the American Medical Association, New England Journal of Medicine, Nursing Research, and The Lancet.\textsuperscript{36}

Attitudes and motivation. Contrary to Hicks’s\textsuperscript{6} perception that nurses lack interest in attending educational activities, McDiarmid’s\textsuperscript{37} descriptive research of general duty nurses (n = 32) found that the majority of nurses are very interested — only 8% of respondents offered lack of interest as a deterrent to attending educational sessions. A descriptive
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Logan and Graham’s Ottawa Model also focuses attention on identifying and maximizing the positive attributes of the guideline itself. Guideline attributes shown to be consistently and positively related to adopting a change in practice include being easy to understand and more advantageous than current practice.

Seek low complexity. The format and style of guidelines influence their adoption rate. Guidelines perceived as user friendly are adopted faster. In turn, content must be presented in a logical manner — ie, not confusing, vague, or unstructured. Wound care guidelines are multifaceted. Utilizing incremental in-services to present the guidelines is justified; the content should be separated into less complex learning episodes. Buonocore suggests the need for a starting point — eg, a single simple change in practice can be the impetus to fostering an environment that embraces change.

van Rijswijk observes that despite years of educational efforts, confusion surrounding modern dressings persists. Providing wound product education should be a simple task, but it is not. This is due to the vast array of dressings, the slurring of marketing claims versus valid product research, and the lack of objective definitions and performance benchmarks. To decrease confusion surrounding wound care products, clinical experts, researchers, and wound dressing manufacturers are encouraged to reach consensus regarding the organization and marketing of wound care dressings.

Standardize wound dressing categories. For the nonexpert nurse, choosing the correct dressing to match the amount of moisture present in a wound can be difficult. If the wound bed is wet with copious exudate, a product chart that lists wound dressings according to their ingredients is not helpful. The literature is replete with reviews and guidelines that group dressings according to their ingredients such as foam dressings, combination dressings, hydrocolloid dressings, film dressings, and hydrofiber dressings. These categories do not cue the nurse as to what type of dressing would match the level of moisture in the wound.

Dressings also have been grouped into five distinct categories: open, semi-open, occlusive, semi-occlusive, and biological. Again, nothing in these categories prompts the nurse to select an appropriate product. Several authors have criticized the current wound dressing classification paradigms and suggest the use of functional categories. Placing wound care dressings into categories according to what they do is congruent with the familiar classification system of medications. Nurses may not recognize a specific drug name, but it is beneficial to know if that drug is a diuretic or antibiotic. Similarly, if achieving a moist wound bed is a fundamental goal in the care of wounds, it would make sense to classify products based on their ability to add (hydration products), retain (moisture-retentive products), or absorb (exudate management products) moisture.

In the previous example of a wet wound, the nurse would be cued to select dressings from those listed in the category of products that absorb moisture. Clinicians would know that following their assessment of a wound’s moisture level, the dressing they choose to keep that wound moist is actually able to do so.

Operationally define and report wound dressing efficacy. A review of the literature concluded that many commonly used definitions and product descriptions have not been validated, resulting in ambiguity, confusion, and suboptimal wound care practices. Unlike pharmaceuticals, wound dressings are considered medical devices; thus, they are not subject to rigorous licensing requirements. Manufacturers can develop and market products with little evidence of product function, safety, or efficacy. General safety and effectiveness is assumed based on data of other similar dressing types. An additional challenge is that the manufacturing sector has a vested interest in sponsoring dressing trials, raising concern about the integrity of the results of industry-sponsored trials, although the aforementioned recommendation regarding adherence to the CONSORT guidelines would assist in diminishing this bias.

Another way to reduce product confusion and stimulate much-needed research would be to increase the stringency of product registration. Perhaps governmental regulating bodies could consider establishing criteria that require products to be registered and listed under the appropriate functional category (eg, hydration, moisture-retentive, exudate management) once the manufacturer has completed and reported the results of standardized, valid, and reliable testing. Inclusion of a product into a functional category would require manufacturers to provide data to establish that a product does what it is supposed to do.

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If products were given a numerical efficacy rating similar to those used to describe the energy efficiency of refrigerators or the fuel economy of cars, nurses would be able to compare and rank the functional capabilities of wound care dressings. For instance, if the nurse assesses a wound as having copious drainage, the product would be selected from the exudate management category and the appropriate product would be rated as having the highest absorbency capability of all dressings listed in that category. Potential efficacy ratings might include:

1. **Hydration products.** A standardized objective measurement of the product’s ability to add moisture to the wound would be reported by each manufacturer. Presently, the ingredients of these products are listed and hydration efficacy ratings/results do not exist.

2. **Moisture-retentive products.** Water vapor transmission rate (WVTR) through the dressing has been identified as a consistent method for measuring the moisture-retentive potential of wound dressings.**26,45** Only products shown to meet the standardized numerical threshold would be classified as moisture-retentive.

3. **Exudate management products.** These products should be tiered according to their ability to absorb against a standardized control — eg, the dressing’s ability to absorb 1 mL of saline per gram of dressing or the ratio of the amount of fluid the dressing is able to absorb compared to that absorbed by gauze.

**Relative advantages.** In terms of implementing guidelines, Foy et al’s**13** observational study examining the relationship between the attributes of 42 gynecological clinical practice guidelines and compliance (4,664 case notes contributed to baseline data and 4,382 to follow-up data) found the more the recommendation was compatible with clinician values, the higher the compliance. With respect to wound care guidelines, extensive research**45-49** indicates that moist healing is associated with up to a 40% reduction in healing time, lower levels of pain, reduced infection rate, and fewer dressing changes. These statistics translate to improved patient outcomes and decreased nursing time required to complete dressing changes.

The predominant organizational barrier to changing wound care practice is the perceived high cost of nongauze dressings.**47** However, the higher cost of dressings has been shown to be offset by the savings realized in improved outcomes and decreased human resource costs, especially when the dressing changes occur in the home care setting. Smith’s**48** h.e.a.l. program demonstrated the dramatic financial impact of reducing dressing changes in a Canadian home care setting.

In 2003, 253 patients were receiving daily and twice-daily dressing changes. By adopting the use of moist wound dressings and reducing the number of daily and twice-daily dressing changes, a cost savings of $1.5 million was realized within 2 years.

Guideline publication should be restricted to annotated guidelines containing the statistical results of the pilot study that applied the guidelines in practice or, at a minimum, some type of validity study. Patient outcome data, as well as financial and human resource cost effectiveness, should be included. This information would reinforce the relative advantage of the guidelines over current practice and strengthen the likelihood of adopting best wound care practice.

**Conclusion**

Clinical practice guidelines appear to be one of the most effective tools for improving the quality of healthcare.**49** Specifically, the adoption of wound care guidelines has been shown to improve patient outcomes.**48** It follows that strategies that successfully identify and decrease guideline adoption barriers are valuable. The analysis of guidelines**10-12** utilizing multiple perspectives or lens such as those presented in this article may assist stakeholders in recognizing previously overlooked challenges. Perhaps the number of guidelines produced should be slowed, and instead, the scope of what each guideline brings to the practice setting should be increased, including more focus on testing existing guidelines.

Expertise from all levels (bench, boardroom, and the bedside) is needed to reach the goal of improved patient care. No one works in isolation. Researchers, educators, and clinicians may be able to produce more effective guidelines and dissemination strategies if the dynamics at the point of care are better understood and the recommendations generated from care providers are assimilated. No doubt, there is value in identifying ideal healthcare solutions. Rather than perceiving less than ideal as settling for less or lowering the standards, the current reality in healthcare must be taken into account and wound care guidelines, and the authors who create them, need to recognize that the development of another guideline just isn’t enough.

Although Tracey is not a wound care expert, as an educator, she is confident she can facilitate a succinct wound product in-service. Tracey accesses the Canadian Association of Wound Care (CAWC) website and selects several wound case studies and product information data cards. Product information is listed on standardized templates. Each product is identified according to its functional category and has the numerical rating of its ability to add, absorb, or retain moisture.

Tracey creates a 30-minute in-service combining a didactic presentation, case studies, product samples for hands-on learning, a summary chart of the products for posting on the unit, and a small pocket-sized version of the chart for point of care reference. Tracey is able to prepare the in-service in less than 2 hours because the majority of learning tools were available from the CAWC website.

Tracey hopes to engage nurses and other stakeholders to learn more about advanced wound care. Future plans include in-service education to address the various aspects of the regional wound and skin care guideline such as the prevention of pressure ulcers, pressure offloading, maximizing healing, and examining the different etiologies of chronic wounds.
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References


