



Complete Summary

GUIDELINE TITLE

Assessment and management of stage I to IV pressure ulcers.

BIBLIOGRAPHIC SOURCE(S)

Registered Nurses' Association of Ontario (RNAO). Assessment & management of stage I to IV pressure ulcers. Toronto (ON): Registered Nurses' Association of Ontario (RNAO); 2007 Mar. 112 p. [118 references]

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Registered Nurses Association of Ontario (RNAO). Assessment and management of stage I to IV pressure ulcers. Toronto (ON): Registered Nurses Association of Ontario (RNAO); 2002 Aug. 104 p.

COMPLETE SUMMARY CONTENT

SCOPE
METHODOLOGY - including Rating Scheme and Cost Analysis
RECOMMENDATIONS
EVIDENCE SUPPORTING THE RECOMMENDATIONS
BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS
CONTRAINDICATIONS
QUALIFYING STATEMENTS
IMPLEMENTATION OF THE GUIDELINE
INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES
IDENTIFYING INFORMATION AND AVAILABILITY
DISCLAIMER

SCOPE

DISEASE/CONDITION(S)

Stage I to IV pressure ulcers

GUIDELINE CATEGORY

Evaluation
Management
Risk Assessment

CLINICAL SPECIALTY

Dermatology
Family Practice
Geriatrics
Nursing
Nutrition
Physical Medicine and Rehabilitation

INTENDED USERS

Advanced Practice Nurses
Nurses

GUIDELINE OBJECTIVE(S)

- To present nursing best practice guidelines on the assessment and management of stage I to IV pressure ulcers
- To identify nursing care related to assessment, management of tissue load, ulcer care, and the management of bacterial colonization and infection of pressure ulcers

TARGET POPULATION

Patients in Canada from all areas of clinical practice with or at risk for developing pressure ulcers

INTERVENTIONS AND PRACTICES CONSIDERED

Evaluation/Risk Assessment

1. History and physical examination
2. Psychosocial assessment
3. Assessment of quality of life
4. Nutritional assessment and support
5. Assessment of pain related to pressure ulcers
6. Assessment of risk for developing additional pressure ulcers or worsening of existing pressure ulcers ("Braden Scale for Predicting Pressure Sore Risk")
7. High specification foam mattress for moderate to high risk patients
8. Vascular assessment

Management

1. Management of causative/contributing factors
 - Choice of support surface
 - Pressure management of heels while in bed
 - Pressure management in the Operating room
 - Seating assessment
 - Referral to interdisciplinary team
 - Optimization of mobilization
2. Local wound care

- Assessment of ulcers (initial and weekly)
 - Debridement
 - Control of bacteria and infection
 - Wound cleaning with saline, Ringer's lactate, sterile water, or non-cytotoxic cleanser)
 - Comprehensive wound management, including dressing
 - Adjunctive therapy, including electrotherapy
 - Surgical intervention
3. Discharge/transfer of care arrangements
 4. Educational, organizational, and policy approaches and strategies

MAJOR OUTCOMES CONSIDERED

- Validity of assessment tools
- Incidence and severity of pressure ulcers
- Effectiveness of management interventions at promoting wound healing and preventing skin breakdown

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
 Hand-searches of Published Literature (Secondary Sources)
 Searches of Electronic Databases
 Searches of Unpublished Data

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The search strategy utilized during the revision of this guideline focused on two key areas. One was the identification of new guidelines published on the topic of assessment and management of stage I to IV pressure ulcers since the original guideline was published in 2002, and the second was to identify systematic reviews, and primary studies published in this area from 2001 to 2006.

A database search for existing evidence related to pressure ulcer prevention was conducted by a university health sciences library. An initial search of the Medline, Embase, and CINAHL databases for guidelines and studies published from 2001 to 2006 was conducted in February 2006. This search was structured to answer the following questions:

1. What assessment tools are available to guide treatment options?
2. What effective treatment interventions can nurses implement in practice?
3. What are the contributors to reoccurrence of pressure ulcers?
4. How can nurses accurately confirm the most appropriate and economic treatment options?

One individual searched an established list of websites for content related to the topic area in May 2006. This list of sites, reviewed and updated in May 2006, was compiled based on existing knowledge of evidence-based practice websites, known guideline developers, and recommendations from the literature. Presence

or absence of guidelines was noted for each site searched as well as date searched. The websites at times did not house a guideline but directed to another website or source for guideline retrieval. Guidelines were either downloaded if full versions were available or were ordered by phone/email.

A website search for existing practice guidelines on pressure ulcer risk assessment and prevention was conducted via the search engine "Google," using key search terms. One individual conducted this search, noting the results of the search, the websites reviewed, date, and a summary of the results. The search results were further reviewed by a second individual who identified guidelines and literature not previously retrieved.

Additionally, panel members were asked to review personal archives to identify guidelines not previously found through the above search strategy. Results of this strategy revealed no additional clinical practice guidelines.

The final step in determining whether the clinical practice guideline would be critically appraised was to screen the guidelines based on the following criteria:

- Published in English
- Developed in 2001 or later
- Guideline is evidence based
- Strictly on the scope of the original guideline
- Available and accessible for retrieval

NUMBER OF SOURCE DOCUMENTS

A total of 59 abstracts were identified for article retrieval and quality appraisal.

In addition, three recently published clinical practice guidelines were identified for review and critical appraisal by the panel, using the Appraisal of Guidelines for Research and Evaluation instrument.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence

Ia: Evidence obtained from meta-analysis or systematic review of randomized controlled trials

Ib: Evidence obtained from at least one randomized controlled trial

IIa: Evidence obtained from at least one well-designed controlled study without randomization

IIb: Evidence obtained from at least one other type of well-designed quasi-experimental study without randomization

III: Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case studies

IV: Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Original Development Process—2002

In June of 2000, a panel of nurses with expertise in clinical practice and research in the assessment and management of pressure ulcers, from both institutional and community settings, convened under the auspices of the Registered Nurses Association of Ontario (RNAO). The panel identified a set of five clinical practice guidelines related to the assessment and management of pressure ulcers. A quality appraisal was conducted on these five guidelines using an adapted tool from Cluzeau, Littlejohns, Grimshaw, Feder and Moran. From this systematic evaluation guidelines and updates were identified to adapt and modify (see original guideline document for complete list).

The guideline development panel proceeded to develop a synthesis table of the recommendations from the selected clinical practice guidelines. The panel adapted practice recommendations within these guidelines in order to ensure their applicability to best nursing practice. Systematic and narrative reviews of the literature were used in the development of practice recommendations that could not be extracted from existing guidelines. Panel consensus was obtained for each recommendation.

Revision Process—2006/2007

Guideline development staff have reviewed abstracts published in key databases on the topic of assessment and management of pressure ulcers, focusing on systematic reviews, randomized controlled trials (RCTs) and recently published clinical practice guidelines twice a year since the nursing best practice guideline

Assessment and Management of Stage I to IV Pressure Ulcers was originally published. The purpose of this monitoring was to identify evidence that would impact on the recommendations, either further supporting the published recommendations, or indicating that a recommendation was no longer appropriate. In the later case a full review would be conducted prior to the three-year schedule. No evidence of this nature was identified during the ongoing monitoring phase, and this guideline moved into the revision phase as originally scheduled.

In June 2006, a panel of wound care experts with particular specialty in pressure ulcer management from a range of practice settings (including institutional, community and academic sectors) was convened by the RNAO. This group was invited to participate as a review panel to revise the *Assessment and Management of Stage I to IV Pressure Ulcers* guideline that was originally published in 2002. This panel was comprised of members of the original development panel, as well as other recommended specialists.

The panel members were given the mandate to review the guideline, focusing on the currency of the recommendations and evidence, keeping to the original scope of the document.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

Guideline developers reviewed published cost analyses.

METHOD OF GUIDELINE VALIDATION

Clinical Validation-Pilot Testing
External Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

A draft guideline was submitted to a set of external stakeholders for review. The feedback received was reviewed and incorporated into the final draft guideline. This draft nursing best practice guideline was pilot implemented in selected practice settings in Ontario. Pilot implementation practice settings were identified through a "request for proposal" process conducted by the Registered Nurses Association of Ontario (RNAO). The implementation phase was evaluated, and the guideline was further refined taking into consideration the pilot site feedback and evaluation results, as well as current literature.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The levels of evidence (Ia, Ib, IIa, IIb, III, IV) are defined at the end of the "Major Recommendations" field.

Assessment

Recommendation 1.1

Conduct a history and focused physical assessment.

(Level of Evidence = IV)

Recommendation 1.2

Conduct a psychosocial assessment to determine the client's goals and their ability and motivation to comprehend and adhere to the treatment plan of care options.

(Level of Evidence = IV)

Recommendation 1.3

Assess quality of life from the client's perspective.

(Level of Evidence = IV)

Recommendation 1.4

Ensure adequate dietary intake to prevent malnutrition or replace existing deficiencies to the extent that this is compatible with the individual's wishes.

(Level of Evidence = III)

Recommendation 1.5

Prevent clinical nutrient deficiencies by ensuring that the patient is provided with optimal nutritional support through one or more of the following:

- Consultation with a Registered Dietitian for assessment *(Level of Evidence = IV)*
- Consultation with a speech language pathologist for swallowing assessment *(Level of Evidence = IV)*
- A varied, balanced diet to meet clinical requirements for healing and co-existing diseases (e.g., renal failure and diabetes) *(Level of Evidence = IV)*
- Nutritional supplements if needed *(Level of Evidence = Ia)*
- Multivitamin and mineral preparations *(Level of Evidence = Ib)*
- Enteral tube feeding *(Level of Evidence = IV)*
- Parenteral nutrition *(Level of Evidence = IV)*
- Ongoing monitoring of nutritional intake, laboratory data and anthropometric data *(Level of Evidence = IV)*

Recommendation 1.6

Assess all patients for pain related to the pressure ulcer or its treatment.

(Level of Evidence = IV)

Recommendation 1.7

Assess location, frequency, and intensity of pain to determine the presence of underlying disease, the exposure of nerve endings, efficacy of local wound care, and psychological need.

(Level of Evidence = IIb)

Recommendation 1.8

Assess all patients with EXISTING PRESSURE ULCERS to determine their risk for developing additional pressure ulcers using the "Braden Scale for Predicting Pressure Sore Risk."

(Level of Evidence = IV)

Recommendation 1.9

If the patient remains at risk for other pressure ulcers, a high specification foam mattress instead of a standard hospital mattress should be used to prevent pressure ulcers in moderate to high risk patients.

(Level of Evidence = Ia)

Recommendation 1.10

Vascular assessment (e.g., clinical assessment, palpable pedal pulses, capillary refill, ankle/brachial pressure index and toe pressure) is recommended for ulcers in lower extremities to rule out vascular compromise.

(Level of Evidence = IV)

Management of Causative/Contributing Factors**Recommendation 2.1**

Choose the support surface which best fits with the overall care plan for the client considering the goals of treatment, client bed mobility, transfers, caregiver impacts, ease of use, cost/benefit, etc. Ensure ongoing monitoring and evaluation to ensure that the support surface continues to meet the client's needs and that the surface is used appropriately and is properly maintained. If the wound is not healing, consider the total care plan for the client before replacing the surface.

(Level of Evidence = IV)

Recommendation 2.2

Pressure management of the heels while in bed should be considered independently of the support surface.

(Level of Evidence = III)

Recommendation 2.3

Use pressure management for clients in the Operating Room to reduce the incidence of pressure ulcers post operatively.

(Level of Evidence = Ia)

Recommendation 2.4

Obtain a seating assessment if a client has a pressure ulcer on a sitting surface.

(Level of Evidence = IV)

Recommendation 2.5

Refer patients at RISK to appropriate interdisciplinary team members (Occupational Therapist, Physiotherapist, Enterostomal Therapist, etc). Utilize those with expertise in seating, postural alignment, distribution of weight, balance, stability, and pressure management when determining positioning for sitting individuals. Ensure support surfaces are used appropriately and are properly maintained.

(Strength of Evidence = IV)

Recommendation 2.6

A client with a pressure ulcer on the buttocks and or trochanter should optimize mobilization. If pressure on the ulcer can be managed, encourage sitting as tolerated.

(Strength of Evidence = IV)

Local Wound Care

Assessment

Recommendation 3.1a

To plan treatment and evaluate its effectiveness, assess the pressure ulcer(s) initially for:

- Stage/Depth
- Location

- Surface Area (*length x width*) (mm², cm²)
- Odour
- Sinus tracts/Undermining/Tunneling
- Exudate
- Appearance of the wound bed
- Condition of the surrounding skin (periwound) and wound edges

(Level of Evidence = IV)

Recommendation 3.1b

Conduct a comprehensive reassessment weekly to determine wound progress and the effectiveness of the treatment plan. Monitor for variances from assessment with each dressing change. Identification of variances indicates need for reassessment.

(Level of Evidence = IV)

Debridement

Recommendation 3.2a

Lower extremity ulcers or wounds in patients who are gravely palliative with dry eschar need not be debrided if they do not have edema, erythema, fluctuance, or drainage. Assess these wounds daily to monitor for pressure ulcer complications that would require debridement.

(Level of Evidence = IV)

Recommendation 3.2b

Prior to debridement on ulcers on the lower extremities, complete a vascular assessment (e.g., clinical assessment, palpable pedal pulses, capillary refill, ankle/brachial pressure index, and toe pressure) to rule out vascular compromise.

(Level of Evidence = IV)

Recommendation 3.2c

Determine if debridement is appropriate for the patient and the wound.

(Level of Evidence = IV)

Recommendation 3.2d

If debridement is indicated, select the appropriate method of debridement considering:

- Goals of treatment (e.g., healability)

- Client's condition (e.g., end of life, pain, risk of bleeding, patient preference, etc.)
- Type, quantity, and location of necrotic tissue
- The depth and amount of drainage
- Availability of resources

(Level of Evidence = IV)

Recommendation 3.2e

Sharp debridement should be selected when the need is urgent, such as with advancing cellulitis or sepsis, increased pain, exudate, and odour. Sharp debridement must be conducted by a qualified person.

(Level of Evidence = IV)

Recommendation 3.2f

Use sterile instruments to debride pressure ulcers.

(Level of Evidence = IV)

Recommendation 3.2g

Prevent or manage pain associated with debridement. Consult with a member of the healthcare team with expertise in pain management. Refer to the Registered Nurses' Association of Ontario (RNAO) *Best Practice Guideline Assessment and Management of Pain* (Revised)(2007).

(Level of Evidence = IV)

Control Bacteria/Infection

Recommendation 3.3a

The treatment of infection is managed by wound cleansing, systemic antibiotics, and debridement, as needed.

(Level of Evidence = Ib)

Recommendation 3.3b

Protect pressure ulcers from sources of contamination, e.g., fecal matter

(Level of Evidence = IIa)

Recommendation 3.3c

Follow Body Substance Precautions (BSP) or an equivalent protocol appropriate for the healthcare setting and the client's condition when treating pressure ulcers.

(Level of Evidence = IV)

Recommendation 3.3d

Medical management may include initiating a two-week trial of topical antibiotics for clean pressure ulcers that are not healing or are continuing to produce exudate after two to four weeks of optimal patient care. The antibiotic should be effective against gram-negative, gram-positive and anaerobic organisms.

(Level of Evidence = Ib)

Recommendation 3.3e

Medical management may include appropriate systemic antibiotic therapy for patients with bacteremia, sepsis, advancing cellulitis or osteomyelitis.

(Level of Evidence = Ib)

Recommendation 3.3f

To obtain a wound culture, cleanse wound with normal saline first. Swab wound bed, not eschar, slough, exudate, or edges.

(Level of Evidence = IV)

Recommendation 3.3g

The use of cytotoxic antiseptics to reduce bacteria in wound tissue is not usually recommended.

(Level of Evidence = IIb)

Wound Cleansing

Recommendation 3.4a

Do not use skin cleansers or antiseptic agents (e.g., povidone iodine, iodophor, sodium hypochlorite solution, hydrogen peroxide, acetic acid) to clean ulcer wounds.

(Level of Evidence = III)

Recommendation 3.4b

Use normal saline, Ringer's lactate, sterile water, or non-cytotoxic wound cleansers for wound cleansing.

(Level of Evidence = IV)

Recommendation 3.4c

Fluid used for cleansing should be warmed at least to room temperature.

(Level of Evidence = III)

Recommendation 3.4d

Cleanse wounds at each dressing change.

(Level of Evidence = IV)

Recommendation 3.4e

To reduce surface bacteria and tissue trauma, the wound should be gently irrigated with 100 to 150 milliliters of solution.

(Level of Evidence = IV)

Recommendation 3.4f

Use enough irrigation pressure to enhance wound cleansing without causing trauma to the wound bed. Safe and effective ulcer irrigation pressures range from 4 to 15 pounds per square inch (psi). Pressure of 4 to 15 psi is achieved by using:

- 35 milliliter syringe with a 19 gauge angiocath, or
- Single-use 100 milliliter saline squeeze bottle

(Level of Evidence = IIa)

Management Approaches

Recommendation 3.5a

For comprehensive wound management options, consider the following:

- Etiology of the wound
- Client's general health status, preference, goals of care, and environment
- Lifestyle
- Quality of life
- Location of the wound
- Site of the wound, including depth and undermining
- Pain
- A dressing that will loosely fill wound cavity
- Exudate: type and amount
- Risk of infection
- Risk of recurrence
- Type of tissue involved
- Phase of the wound healing process
- Frequency of the dressing change
- Comfort and cosmetic appearance
- Where and by whom the dressing will be changed
- Product availability

- Adjunctive therapies

(Level of Evidence = IV)

Recommendation 3.5b

Moisture-retentive dressings optimize the local wound environment and promote healing.

(Level of Evidence = Ia)

Recommendation 3.5c

Consider caregiver time when selecting a dressing.

(Level of Evidence = Ib)

Recommendation 3.5d

Consider the following criteria when selecting an interactive dressing:

- Maintains a moist environment *(Level of Evidence = Ia)*
- Controls wound exudate, keeping the wound bed moist and the surrounding intact skin dry *(Level of Evidence = IV)*
- Provides thermal insulation and wound temperature stability *(Level of Evidence = IV)*
- Protects from contamination of outside micro-organisms *(Level of Evidence = IV)*
- Maintains its integrity and does not leave fibres or foreign substances within the wound *(Level of Evidence = IV)*
- Does not cause trauma to wound bed on removal *(Level of Evidence = IV)*
- Client/patient preference *(Level of Evidence = IV)*
- Is simple to handle, and is economical in cost and time *(Level of Evidence = IV)*

Recommendation 3.5e

Monitor dressings applied near the anus, since they are difficult to keep intact. Consider use of special sacral-shaped dressings.

(Level of Evidence = Ib)

Adjunctive Therapies

Recommendation 3.6a

Refer to physiotherapy for a course of treatment with electrotherapy for Stage III and IV pressure ulcers that have proved unresponsive to conventional therapy. Electrical stimulation may also be useful for recalcitrant Stage II ulcers.

(Level of Evidence = Ib)

Recommendation 3.6b

Chronic pressure ulcers may be treated by:

- Electrical stimulation (*Level of Evidence = Ib*)
- Ultraviolet light C (*Level of Evidence = IIa*)
- Warming therapy (*Level of Evidence = Ib*)
- Growth factors (*Level of Evidence = Ib*)
- Skin equivalents (*Level of Evidence = IV*)
- Negative pressure wound therapy (*Level of Evidence = IV*)
- Hyperbaric oxygen (*Level of Evidence = IV*)

Surgical Intervention

Recommendation 3.7

Possible candidates for operative repair are medically stable, adequately nourished and are able to tolerate operative blood loss and postoperative immobility.

(Level of Evidence = IV)

Discharge/Transfer of Care Arrangements

Recommendation 4.1

Clients moving between care settings should have the following information provided:

- Risk factors identified
- Details of pressure points and skin condition prior to transfer
- Need for pressure management/mobility equipment (e.g., support surfaces, seating, special transfer equipment, heel boots)
- Details of healed ulcers
- Stage, site and size of existing ulcers
- History of ulcers, previous treatments and dressings (generic) used
- Type of dressing currently used and frequency of change
- Any allergies to dressing products
- Need for on-going nutritional support

(Level of Evidence = IV)

Recommendation 4.2

Use the Registered Nurses' Association of Ontario Best Practice Guideline Risk Assessment and Prevention of Pressure Ulcers (Revised) (2005) (see the [National Guideline Clearinghouse \[NGC\] summary](#) of the RNAO guideline).

(Level of Evidence = IV)

Patient Education

Recommendation 5.1

Involve the patient and caregiver, when possible, in pressure ulcer treatment and prevention strategies and options. Include information on pain, discomfort, possible outcomes and duration of treatment, if known. Other areas of education may include patient information regarding appropriate support surfaces, as well as roles of various health professionals. Collaborate with patient, family and caregivers to design and implement a plan for pressure ulcer prevention and treatment.

(Level of Evidence = IV)

Educational Recommendations

Recommendation 6.1

Design, develop and implement educational programs that reflect a continuum of care. The program should begin with a structured, comprehensive, and organized approach to prevention and should culminate in effective treatment protocols that promote healing as well as prevent recurrence.

(Level of Evidence = IV)

Recommendation 6.2

Develop educational programs that target appropriate healthcare providers, patients, family members and caregivers. Present information at an appropriate level for the target audience, in order to maximize retention and facilitate translation into practice.

(Level of Evidence = IV)

Recommendation 6.3

Include the following information when developing an educational program on the treatment of pressure ulcers:

- Role of the interdisciplinary team
- Etiology and pathology
- Risk factors
- Individualized program of skin care, quality of life, and pain management
- Uniform terminology for stages of tissue damage based on specific classifications
- Need for accurate, consistent and uniform assessment, description, and documentation of the extent of tissue damage
- Principles of wound healing
- Principles of cleansing, debridement and infection control
- Principles of nutritional support with regard to tissue integrity

- Product selection (i.e., support surfaces, dressings, topical antibiotics, antimicrobials)
- Principles of postoperative care including positioning and support surfaces
- Principles of pressure management
- Mechanisms for accurate documentation and monitoring of pertinent data, including treatment interventions and healing progress
- Principles of patient education related to prevention to reduce recurrence

(Strength of Evidence = IV)

Recommendation 6.4

Update knowledge and skills related to the assessment and management of pressure ulcers on an ongoing basis. Organizations should provide opportunities for professional development related to the best practice guideline and support its use in daily practice.

(Level of Evidence = IV)

Organization & Policy Recommendations

Recommendation 7.1

Guidelines are more likely to be effective if they take into account local circumstances and are disseminated by an active ongoing educational and training program.

(Level of Evidence = IV)

Recommendation 7.2

Practice settings need a policy with respect to providing and requesting advance notice when transferring or admitting clients between practice settings when special resources (e.g., surfaces) are required.

(Level of Evidence = IV)

Recommendation 7.3

Practice settings must ensure that resources are available to clients and staff, e.g., appropriate moisturizers, barriers, dressings, documentation systems, access to equipment and clinical experts, etc.

(Level of Evidence = IV)

Recommendation 7.4

Practice settings need a policy that requires product vendors to be registered as a regulated healthcare professional if they provide assessment and/or recommendations on any aspect of pressure ulcer related practice.

(Level of Evidence = IV)

Recommendation 7.5

Practice settings need an interdisciplinary team of interested and knowledgeable persons to address quality improvement in pressure ulcer management. This team requires representation across departments and programs.

(Level of Evidence = IV)

Recommendation 7.6

Nursing best practice guidelines can be successfully implemented only where there are adequate planning, resources, organizational and administrative support, as well as the appropriate facilitation. Organizations may wish to develop a plan for implementation that includes:

- An assessment of organizational readiness and barriers to implementation
- Involvement of all members (whether in a direct or indirect supportive function) who will contribute to the implementation process
- Dedication of a qualified individual to provide the support needed for the education and implementation process
- Ongoing opportunities for discussion and education to reinforce the importance of best practices
- Opportunities for reflection on personal and organizational experience in implementing guidelines

(Level of Evidence = IV)

Definitions:

Levels of Evidence

Ia: Evidence obtained from meta-analysis or systematic review of randomized controlled trials.

Ib: Evidence obtained from at least one randomized controlled trial.

IIa: Evidence obtained from at least one well-designed controlled study without randomization.

IIb: Evidence obtained from at least one other type of well-designed quasi-experimental study without randomization.

III: Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case studies.

IV: Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Guideline implementation is intended to help nurses in a variety of health care settings with the assessment and management of stage I to stage IV pressure ulcers in Canadian clients.
- Appropriate evaluation and management of pressure ulcers may help promote wound healing, prevent further skin breakdown, and decrease the incidence and severity of pressure ulcers.
- Nurses, other health care professionals and administrators who are leading and facilitating practice changes will find this document valuable for the development of policies, procedures, protocols, educational programs, assessment and documentation tools, etc.

POTENTIAL HARMS

- Debridement may not be appropriate for a limb or digit that is ischemic, and amputation is not possible.
- Debridement with a scalpel should be undertaken with caution and performed by specially trained and experienced health care professionals. It causes bleeding, may require anesthetic (for surgical debridement of Stage IV wounds), and has the potential to cause injury to nervous or other viable tissue.
- Mechanical debridement is a slow process, can be painful, and should be discontinued when necrotic tissue has been removed. Wet-to-dry dressings in particular are nonselective in that they remove both viable and necrotic tissue, and are potentially damaging to granulation and epithelial tissue. It is important to ensure that appropriate and adequate pain management is incorporated into the plan of care when this method is utilized.
- Autolytic debridement is slow, and should not be utilized on infected ulcers. It may be prudent to avoid all occlusive dressings if anaerobic infection is suspected or cultured, as occlusive dressings are thought to promote an anaerobic environment.
- Prolonged use of topical antibiotics may facilitate the development of resistant organisms.
- Commercial wound cleansers (not skin cleaners) may be appropriate when the wound has adherent material; however some have shown to be toxic to white blood cells.

- Irrigation pressures that exceed 15 pounds per square inch (psi) may cause wound trauma and force bacteria into the tissue.
- Avoid occlusive dressings if anaerobic infection is suspected or cultured, as occlusive dressings are thought to promote an anaerobic environment.
- The growth of fibroblasts and keratinocytes may be enhanced by pulsed low-intensity direct current due to changes in calcium homeostasis.

CONTRAINDICATIONS

CONTRAINDICATIONS

- The use of antiseptics to decrease the bacterial counts in open wounds is contraindicated
- Contraindications to different classes of wound care dressings are listed in Appendix Q in the original guideline document.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- These best practice guidelines are related only to nursing practice and not intended to take into account fiscal efficiencies. These guidelines are not binding for nurses and their use should be flexible to accommodate client/family wishes and local circumstances. They neither constitute a liability or discharge from liability. While every effort has been made to ensure the accuracy of the contents at the time of publication, neither the authors nor Registered Nurses Association of Ontario (RNAO) give any guarantee as to the accuracy of the information contained in them nor accept any liability, with respect to loss, damage, injury or expense arising from any such errors or omission in the contents of this work. Any reference throughout the document to specific pharmaceutical products as examples does not imply endorsement of any of these products.
- This nursing best practice guideline is a comprehensive document providing resources necessary for the support of evidence-based nursing practice. The document needs to be reviewed and applied, based on the specific needs of the organization or practice setting, as well as the needs and wishes of the client. Guidelines should not be applied in a "cookbook" fashion but used as a tool to assist in decision making for individualized client care, as well as ensuring that appropriate structures and supports are in place to provide the best possible care.
- Although the guideline is written for the nurse, wound healing is an interdisciplinary endeavour. Many settings have formalized interdisciplinary teams and the guideline development panel strongly supports this structure. Collaborative assessment and treatment planning with the client is essential. The recommendations made are not binding for nurses and should accommodate patient/family wishes and local circumstances.
- It is acknowledged that the individual competency of nurses varies between nurses and across categories of nursing professionals (registered practical nurses [RPNs] and registered nurses [RNs]) and is based on the knowledge, skills, attitudes and judgment enhanced over time by experience and education. It is expected that individual nurses will perform only those

- aspects of pressure ulcer assessment and management for which they have appropriate education and experience. Further, it is expected that nurses, both RPNs and RNs, will seek consultation in instances where the patient's care needs surpass the individual nurse's ability to act independently. It is acknowledged that effective patient care depends on a coordinated interdisciplinary approach incorporating ongoing communication between health professionals and patients, ever mindful of the personal preferences and unique needs of each individual patient.
- Pressure ulcer management includes the principles of pressure ulcer prevention. For this reason, the development panel strongly encourages the implementation of this guideline in conjunction with the RNAO Best Practice Guideline *Risk Assessment and Prevention of Pressure Ulcers* (Revised) (2005).

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Toolkit: Implementing Clinical Practice Guidelines

Best practice guidelines can only be successfully implemented if there are: adequate planning, resources, organizational and administrative support as well as the appropriate facilitation. In this regard, Registered Nurses Association of Ontario (RNAO), through a panel of nurses, researchers, and administrators, has developed the *Toolkit: Implementation of clinical practice guidelines* based on available evidence, theoretical perspectives and consensus. The *Toolkit* is recommended for guiding the implementation of any clinical practice guideline in a health care organization.

The *Toolkit* provides step-by-step directions to individuals and groups involved in planning, coordinating and facilitating the guideline implementation. Specifically, the *Toolkit* addresses the following key steps:

1. Identifying a well-developed, evidence-based clinical practice guideline
2. Identification, assessment and engagement of stakeholders
3. Assessment of environmental readiness for guideline implementation
4. Identifying and planning evidence-based implementation strategies
5. Planning and implementing evaluation
6. Identifying and securing required resources for implementation

Implementing guidelines in practice that result in successful practice changes and positive clinical impact is a complex undertaking. The *Toolkit* is one key resource for managing this process.

For specific recommendations regarding implementation of this guideline, refer to the "Major Recommendations" field.

Evaluation and Monitoring

Organizations implementing the recommendations in this nursing best practice guideline are advised to consider how the implementation and its impact will be

monitored and evaluated. A table found in the original guideline document, based on the framework outlined in the RNAO *Toolkit: Implementation of clinical practice guidelines* (2002c), illustrates some suggested indicators for monitoring and evaluation.

Implementation Strategies

The RNAO and the guideline development panel have compiled a list of implementation strategies to assist healthcare organizations or healthcare disciplines who are interested in implementing this guideline. A summary of these strategies can be found in the original guideline document.

IMPLEMENTATION TOOLS

Chart Documentation/Checklists/Forms
Patient Resources
Quick Reference Guides/Physician Guides
Resources
Tool Kits

For information about [availability](#), see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Registered Nurses' Association of Ontario (RNAO). Assessment & management of stage I to IV pressure ulcers. Toronto (ON): Registered Nurses' Association of Ontario (RNAO); 2007 Mar. 112 p. [118 references]

ADAPTATION

The guideline has been adapted and modified from the following guidelines and related updates:

1. Agency for Health Care Policy and Research (AHCPR). (1994). Treatment of Pressure Ulcers. Clinical Practice Guideline, Number 15. AHCPR Publication Number 95-0652. Rockville, MD: Agency for Health Care Policy and Research, Public Health Service, U.S. Department of Health and Human Services.

Updates

Krasner, D. (1999). The AHCPR pressure ulcer infection control recommendations revisited. *Ostomy/Wound Management*, 45(1A Suppl.), 88S-91S.

Ovington, L. (1999). Dressings and adjunctive therapies. AHCPR guidelines revisited. *Ostomy/Wound Management*, 45(1A Suppl.), 94S-106S.

van Rijswijk, L. & Braden, B. (1999). Pressure ulcer patient and wound assessment: An AHCPR clinical practice guideline update. *Ostomy/Wound Management*, 45 (1A Suppl.), 56S-67S.

2. Compliance Network Physicians/Health Force Initiative (1999). Guidelines for the outpatient treatment of chronic wounds and burns. Berlin: Blackwell Science Ltd.
3. Clinical Resource Efficiency Support Team (CREST) (1998). Guidelines for the Prevention and Management of Pressure Sores. Belfast, Northern Ireland: CREST Secretariat.
4. Singapore Ministry of Health (2001). Nursing management of pressure ulcers in adults. Singapore: Singapore Ministry of Health.
5. Folkedahl B.A., & Frantz R. (2002). Treatment of pressure ulcers. Iowa City, IA: The University of Iowa College of Nursing Gerontological Nursing Interventions Research Center, Research Translation and Dissemination Core.
6. Wound, Ostomy, and Continence Nurses Society (WOCN). (2003). Guideline for prevention and management of pressure ulcers. Glenview IL: Wound, Ostomy, and Continence Nurses Society.

DATE RELEASED

2002 Aug (revised 2007 Mar)

GUIDELINE DEVELOPER(S)

Registered Nurses Association of Ontario - Professional Association

SOURCE(S) OF FUNDING

Funding was provided by the Ontario Ministry of Health and Long Term Care.

GUIDELINE COMMITTEE

Not stated

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Revision Panel Members (2006/2007)

Kathryn Kozell, RN, BA, MScN, ACNP, ET
Team Leader
Coordinator GI Disease Site Team and Disease Site Team Council
London Regional Cancer Program
London, Ontario

Nancy Bauer, RN, BA, B.Admin, ET
Professional Practice Leader – ET
Leamington District Memorial Hospital
Leamington, Ontario

Donna Flahr, RN, BSN, MSc(c)
Equipment & Product Standardization Nurse
(EPSN) Skin and Wound
Saskatoon Health Region
Saskatoon, Saskatchewan

Dixie Goetz, RN, BScN, ET, CCN(C)
Enterostomal Therapist
St. Mary's General Hospital
Kitchener, Ontario

Rosemary Kohr, RN, PhD, ACNP
NP/CNS Medical Care Program
London Health Sciences Centre
Assistant Professor
University of Western Ontario
London, Ontario

Terri Labate, RN, BScN, CRRN, GCN(C)
Nurse Clinician
St. Joseph's Health Care – Parkwood Hospital
London, Ontario

Fran MacLeod, RN, MScN
Advanced Practice Nurse – Wound Care
West Park Healthcare Centre
Toronto, Ontario

Linda Norton, OTReg.(ONT)
Occupational Therapist
Shoppers Home Health Care
Toronto, Ontario

Nancy Parslow, RN, ET
Wound Care Specialty Nurse
Southlake Regional Health Centre
Newmarket, Ontario

Pamela Savage, RN, BA, MAEd, CON(C)
Clinical Nurse Specialist – Medical Oncology
University Health Network – Princess Margaret Hospital
Toronto, Ontario

Kevin Woo, RN, MSc, PhD(c), ACNP, GNC(C)
Clinical Scientist/ Nurse Practitioner –Wound Healing Clinic
Women's College Hospital
Lecturer, Department of Public Health Science
Faculty of Medicine
University of Toronto
Toronto, Ontario

Samantha Mayo, RN, BScN, MN
Program Coordinator
Registered Nurses' Association of Ontario
Toronto, Ontario

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Declarations of interest and confidentiality were requested from all members of the guideline revision panel. Further details are available from the Registered Nurses' Association of Ontario.

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Registered Nurses Association of Ontario (RNAO). Assessment and management of stage I to IV pressure ulcers. Toronto (ON): Registered Nurses Association of Ontario (RNAO); 2002 Aug. 104 p.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the [Registered Nurses Association of Ontario \(RNAO\) Web site](#).

Print copies: Available from the Registered Nurses Association of Ontario (RNAO), Nursing Best Practice Guidelines Program, 158 Pearl Street, Toronto, Ontario M5H 1L3.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Summary of recommendations. Assessment & management of stage I to IV pressure ulcers. Toronto (ON): Registered Nurses Association of Ontario (RNAO); 2007 Mar. 7 p. Electronic copies: Available in Portable Document Format (PDF) from the [Registered Nurses Association of Ontario \(RNAO\) Web site](#).

- Repositioning techniques - risk assessment and prevention of pressure ulcers. Toronto (ON): Registered Nurses Association of Ontario (RNAO); Electronic copies: Available from the [Registered Nurses Association of Ontario \(RNAO\) Web site](#).
- Positioning techniques in long-term care: self-directed learning package for health care providers. Toronto (ON): Registered Nurses Association of Ontario (RNAO); Electronic copies: Available from the [Registered Nurses Association of Ontario \(RNAO\) Web site](#).
- Educational workshop for RNs and RPNs: assessment and management of pressure ulcers. Toronto (ON): Registered Nurses Association of Ontario (RNAO); Electronic copies: Available from the [Registered Nurses Association of Ontario \(RNAO\) Web site](#).
- Toolkit: implementation of clinical practice guidelines. Toronto (ON): Registered Nurses Association of Ontario (RNAO); 2002 Jan. 91 p. Electronic copies: Available in Portable Document Format (PDF) from the [RNAO Web site](#).

Print copies: Available from the Registered Nurses Association of Ontario (RNAO), Nursing Best Practice Guidelines Program, 158 Pearl Street, Toronto, Ontario M5H 1L3.

In addition, a variety of implementation tools, including screening and assessment tools, are available in the [original guideline document](#).

PATIENT RESOURCES

The following is available:

- Health education fact sheet. Taking the pressure off: preventing pressure ulcers. Toronto (ON): Registered Nurses Association of Ontario (RNAO); 2003 Nov. 2 p.

Electronic copies: Available in Portable Document Format (PDF) from the [Registered Nurses Association of Ontario \(RNAO\) Web site](#).

Print copies: Available from the Registered Nurses Association of Ontario (RNAO), Nursing Best Practice Guidelines Program, 158 Pearl Street, Toronto, Ontario M5H 1L3

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC STATUS

This NGC summary was completed by ECRI on December 17, 2003. The information was verified by the guideline developer on January 16, 2004. This

NGC summary was updated by ECRI Institute on September 28, 2007. The updated information was verified by the guideline developer on October 17, 2007.

COPYRIGHT STATEMENT

With the exception of those portions of this document for which a specific prohibition or limitation against copying appears, the balance of this document may be produced, reproduced, and published in its entirety only, in any form, including in electronic form, for educational or non-commercial purposes, without requiring the consent or permission of the Registered Nurses Association of Ontario, provided that an appropriate credit or citation appears in the copied work as follows:

Registered Nurses Association of Ontario (2007). Assessment and management of stage I to IV pressure ulcers. Toronto, Canada: Registered Nurses Association of Ontario.

DISCLAIMER

NGC DISCLAIMER

The National Guideline Clearinghouse™ (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the NGC Inclusion Criteria which may be found at <http://www.guideline.gov/about/inclusion.aspx>.

NGC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or clinical efficacy or effectiveness of the clinical practice guidelines and related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI Institute, and inclusion or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.

Date Modified: 6/9/2008

