Saskatchewan Skin and Wound Care Guidelines

HEALTH QUALITY COUNCIL

saho
Saskatchewan Association of Health Organizations

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Disclaimer

This document was created as a guideline to assist practice and is not intended to replace clinical judgment or professional scope of practice. The guidelines should be used within the context of your organization's policies and procedures. Individuals using the guidelines are responsible for understanding their own professional scope of practice and using the guidelines accordingly. While every effort has been made to ensure the accuracy of the contents at the time of publication, neither the authors, the Health Quality Council (HQC), and the Saskatchewan Association of Health Organizations (SAHO) guarantee the accuracy of the information contained in the guidelines nor accept any liability, with respect to loss, damage, injury or expense arising from any such errors or omission in the contents of the document. Any reference to specific products in the document does not imply endorsement of any of these products.

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The following organizations are pleased to endorse the Saskatchewan Skin and Wound Care Guidelines (March 2006):

College of Physicians and Surgeons of Saskatchewan

Saskatchewan Association of Licensed Practical Nurses

Saskatchewan College of Physical Therapists

Saskatchewan Dietetic Association

Saskatchewan Physiotherapy Association

Saskatchewan Registered Nurses Association

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Introduction

Clinical practice guidelines (CPGs) are tools to promote evidence-based practice among health care providers and patients. These tools are growing in popularity and in number because they can improve patient outcomes. CPGs help to improve consistency in care delivery by reducing inappropriate variations in patient care.

The Saskatchewan Skin and Wound Care Guidelines will support practitioners in providing high quality care for the prevention and treatment of different causes of skin integrity breakdown.

The objectives of the guidelines are:

- To promote evidence-based care in clinical practice;
- To emphasize ulcer prevention;
- To promote standardized ulcer care for patients across the province;
- To incorporate Saskatchewan-specific content and resources; and
- To create a multidisciplinary focus for patient care.

Consistent and appropriate use of these guidelines will assist in preventing ulcers from occurring and in healing existing ulcers; thereby, helping reduce the burden of illness due to ulcers for both patients and staff. Use of evidence-based dressings, equipment, and techniques will improve patient care and reduce the overall costs of ulcer care.

The guidelines are intended to be a shared reference for clinicians and administrators involved directly or indirectly with the prevention or treatment of ulcers. Pocket guides produced elsewhere are available for individuals to use more conveniently at the bedside.

Guideline Development Process

In October 2003, the Saskatchewan Association of Health Organizations (SAHO) convened a provincial committee of health care providers and materials management representatives working in the area of skin and wound care. The Health Quality Council (HQC) attended the first meeting, where it was decided a provincial strategy was needed to ensure consistent, quality skin and wound care for patients throughout the province.

The committee identified the need for evidence-based guidelines, standardized clinical resources, and providing nurses and physicians with education, research analyses, and access to clinical experts.

In January 2004, the HQC and SAHO established an Action Committee to provide direction and support in developing and implementing a provincial strategy. The committee, co-chaired by the HQC and SAHO, was made up of representatives from several regional health districts and other professionals.

Due to the large number of clinical practice guidelines that already exist in the area of skin and wound care, the authors of these guidelines chose to build on this work by adapting existing guidelines for practice in Saskatchewan. The Committee started with pressure ulcer and lower leg ulcer guidelines. A separate provincial committee developed the diabetic foot ulcer guidelines.

The SAHO Skin and Wound Management Committee will be responsible for the regular review, necessary revisions, and the subsequent dissemination of updated sections of this document to ensure it remains consistent with best practice.

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RNAO Registered Nurses' Association of Ontario
L'Association des infirmières et infirmiers autorisés de l'Ontario

Greetings from the Registered Nurses' Association of Ontario (RNAO)

It is with great excitement that the Registered Nurses' Association of Ontario (RNAO) has shared its expertise with the Health Quality Council of Saskatchewan (HQC) for the development of its Skin and Wound Care Guidelines. We offer our heartfelt congratulations to the HQC and to the many individuals who were engaged in developing these guidelines.

Evidence-based practice supports the excellence in service that we as health-care professionals are committed to delivering in our day-to-day practice. However, the translation of evidence into tools that are readily applicable to practice requires rigorous and expert work and financial support. RNAO acknowledges the Government of Ontario for recognizing our leadership ability, and for generously funding what is now the largest Nursing Best Practice Guidelines Program in Canada, and amongst the best known and most utilized in the world. The program, led by a team of experts, counts on the unwavering support and voluntary hours from our nursing community who provide topic-specific expertise which is essential for the development, implementation, evaluation and revision of each guideline. We also take this opportunity to acknowledge both Ontario and Saskatchewan employers who are enthusiastically working towards a culture of evidence-based practice.

Partnerships such as this one, between HQC and RNAO, provide tremendous opportunity to share expertise in the development of learning communities. Your application of our nursing clinical guidelines and toolkits to your interdisciplinary guidelines is of great interest to us and we look forward to learning from your experience. RNAO is convinced that this type of synergy in knowledge dissemination and uptake will serve to strengthen Canada's health system.

Successful uptake of these guidelines at the point of care requires a concerted effort from nurses, physicians, dietitians and all other health-care providers, as well as educators in academic and practice settings and employers. After lodging these guidelines into their minds and hearts, knowledgeable and skillful health-care providers and students need healthy and supportive work environments to help bring these guidelines to life.

We ask that you share your successes and challenges in utilizing these guidelines with us at RNAO. There is much to learn from one another. Together, we can ensure that Canadians receive the best possible care every time they come in contact with us. Let's make *them* the real winners in this important effort!

RNAO is delighted to have had the pleasure to contribute to your success and we look forward to future opportunities for collaboration. On behalf of RNAO's Board of Directors, members and staff we extend to you our most sincere congratulations. Together, we are building a healthier Canada!

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NORMAL WOUND HEALING

March 2006
Saskatchewan Skin & Wound Care Guidelines

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Introduction

A wound is a laceration or break in tissue integrity. Every wound, irrespective of type or degree of tissue damage, triggers a process designed to form new structures similar to the original tissue to restore anatomic continuity and function. Wound healing is a localized regeneration process, which is determined by the overall condition of the person and influenced by factors such as age, nutrition, medication, and metabolic condition. It is necessary to understand the process of normal wound healing and factors that affect its progress in order to provide appropriate skin and wound care.

Normal Wound Healing

Normal wound healing proceeds in four interrelated and overlapping dynamic phases:

Hemostasis

Hemostasis is characterized by clot formation resulting in cessation of bleeding. This process is enhanced by a 5-10 minute phase of vasoconstriction. The ultimate effect of coagulation is the conversion of fibrinogen to fibrin stabilizing the initial clot. Clot formation facilitates the migration of cells and begins the process of fibroblast proliferation into the wounded area. Platelet activity, integral to the establishment of a hemostatic plug, is mediated by the release of platelet-derived growth factor, platelet factor 4, transforming growth factorα and transforming growth factorβ. These substances stimulate the synthesis of extracellular matrix and initiate tissue repair.[1]

Medical conditions or medications that alter the body's ability to clot will slow down the initiation of healing.

Inflammation

This is the body's defense mechanism against bacterial invasion. Neutrophils and monocytes are attracted at the same time to the wound site. The neutrophils are the most abundant cell present in this phase of healing. Neutrophils migrate through the blood vessels to accumulate in the periphery of the wounded tissue. The main function of these cells is to phagocytose local bacteria and debris. The inflammatory environment stimulates the release of toxic reactive oxygen intermediates that destroy the contaminating bacteria.

The later phases of inflammation are characterized by conversion of monocytes to macrophages. Wound macrophages continue the process of phagocytosis. They generate chemotactic factors and these factors attract additional inflammatory cells. Macrophages are also thought to release growth factors critical to the coordination of granulation tissue formation.[1]

Any medical conditions (autoimmune diseases) or anti-inflammatory medications will alter this phase and delay healing.

Proliferation

The phase of proliferation overlaps inflammation. The key cells of this phase of healing are the fibroblasts and myofibroblasts. Fibroblasts secrete a loose extracellular matrix that is rich in collagen. Collagen synthesis peaks 5-7 days

post injury. Once this extracellular matrix is deposited the fibroblasts cease collagen production.

Myofibroblasts have been implicated in a process of wound healing called wound contraction. Wound contraction is the reduction of a tissue defect by the centripedal movement of the surrounding skin. This process of contraction will peak at approximately two weeks after the injury and varies in its ability to reduce wound size by the depth of the wound and the tension of the surrounding tissue.

Angiogenesis or the formation of new blood cells occurs simultaneously with the above two cellular processes. This is the process where capillaries bud from pre-existing small vessels found in close proximity to the wound to form granulation tissue. Granulation tissue is very metabolically active and requires a rich blood supply. If there is insufficient arterial inflow to support the formation of this tissue, fibroblasts and macrophages will stop proliferating and healing will be altered.

Re-epithelialization occurs as keratinocytes migrate across the wound defect. This process is aided by moisture at tissue level. This epithelial tissue is very fragile and is unattached to the wound surface until complete coverage has occurred.[1]

Maturation

Remodeling of the immature tissue matrix occurs at the same time as granulation tissue formation. The very vascular granulation tissue is gradually replaced and remodeled forming scar tissue. The composition of the extracellular matrix is in a state of constant change from the time it is first deposited. Tensile strength of the scar tissue is created by collagen deposition and also realignment and remodeling of the tissue. This process occurs for a period of months or years after initial wound closure. The functional strength of scar tissue can only regain up to 70-80% of its pre-injury strength and so is less resistant to tissue breakdown than previous to the injury occurring.[1]

Interpretation of Evidence

The recommendations made in these best practice guidelines have been critically reviewed and categorized by strength of evidence. Unless otherwise stated, the strength of evidence was determined by the RNAO Panel Members. The RNAO used two different systems for rating the level of evidence. The following taxonomy provides the definitions of the strengths of evidence and the rating system for the two systems.

Levels of Evidence	Levels of Evidence (used for Risk Assessment & Prevention of Pressure Ulcers)
Strength of Evidence A Requires at least one randomized controlled trial (RCT) as part of the body of literature of overall quality and consistency addressing the specific recommendations.	**Strength of Evidence Ia** Evidence obtained from meta-analysis or systematic review of randomized control trials.
	Strength of Evidence Ib Evidence obtained from at least one randomized control trial.
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Strength of Evidence C Requires evidence from expert committee reports or opinions and/or clinical experience of respected authorities. Indicates absence of directly applicable studies of good quality.	**Strength of Evidence IV** Evidence obtained from expert committee reports or opinions or clinical experience of respected authorities.

Underlined words can be found in the Glossary

Factors Affecting Wound Healing

The following factors affect the rate of wound healing:

Metabolic Disorders	• Systemic diseases (e.g., hepatic, renal, cardiac or lymphedema) can lead to increased wound edema and subsequent increased risk of infection and a reduction in epithelialization. *Strength of evidence = B* • Clients with diabetes have an altered immune response. *Strength of evidence = B* • Optimal wound healing is achieved by a holistic approach including blood sugar and blood pressure management. *Strength of evidence = C*
Nutrition	• Nutritional deficiencies are associated with a prolonged inflammatory response and delayed wound healing. Lack of key vitamins and minerals can be a significant deterrent to healing. *Strength of evidence = C*
Medications	• The most frequently encountered medications that are detrimental to wound healing are: systemic steroids, alcohol, NSAIDS and antineoplastics. *Strength of evidence = B*
Ischemia	• Wound hypoxia is harmful to all wound healing. Adequate evaluation of the client's circulatory status is essential. *Strength of evidence = C*
Infection	• All chronic wounds harbor bacteria but as long as there are no overt clinical signs and symptoms of infection treatment is not indicated. *Strength of evidence = C* • The presence of foreign fibers (gauze) or necrotic debris in a wound may predispose it to infection. *Strength of evidence = B* • Topical antibiotics should not be chosen at random and should be used for a maximum of 14 days. *Strength of evidence = A*
Treatment regimes	• Wound cleansing should be performed using normal saline or sterile water at a pressure per square inch of 4-15. This can be achieved through the use of a 35 ml syringe and 19 gauge angiocath or 100 ml single use saline squeeze bottle. *Strength of evidence = B* • Wipe down the wound edges only. Gauze wiped across newly epithelializing tissue can remove all new cell growth. *Strength of evidence = C* • Consider non-adherent dressings to reduce the risk of tissue trauma in minimally exudating wounds. Maintain a moist, not wet, wound environment. *Strength of evidence B/C*
Psychosocial well being	• Stress and insomnia may impact upon wound healing. *Strength of evidence = B*
Aging	• Aging reduces the rate of healing and alters all phases of healing. Elderly individuals typically have increased skin fragility and special care must be taken to reduce tissue damage with dressing changes. *Strength of evidence = C*
Smoking	• Nicotine is a vasoconstrictive drug and will limit oxygen supply to tissues and reduce the potential for healing. Smoking has been shown to cause an increase in scar formation and an increased risk of infection. *Strength of evidence = A*
Malignancy	• Wounds are at risk for malignancy.[2] If healing does not occur a biopsy should be obtained. *Strength of evidence = C*

Source: Saskatchewan Skin and Wound Care Action Committee, 2006.

Infection Prevention and Control

The overriding principles of Infection Prevention and Control apply in management of each type of wound addressed in the guidelines. The following infection prevention and control procedures should be implemented when carrying out wound care in accordance with Guidelines:

Hand Washing	• All personnel must wash hands with soap and water, for 10 seconds, or as an alternative, an antiseptic, waterless hand rub product, prior to and after any contact with the patient, and after the removal of gloves.
Clean Technique	• Clean technique involves strategies used in patient care to reduce the risk of transmission of microorganisms from one person to another or from one place to another. • Clean technique means no-touch-dressing technique, clean supplies and sterile normal saline or recommended wound cleanser. Whether an individual is allowed to shower or bathe depends on the clinical situation and must be approved by the attending physician. • No touch dressing technique is a method of changing surface dressings without directly touching the wound or any surface that might come in contact with the wound. • The accepted practice in continuing care centers and the community is clean technique.[3]
Aseptic Technique	• Aseptic technique is the purposeful prevention of the transfer of microorganisms from one person to another by keeping the microbial count to an irreducible minimum, and includes the application of principles for assuring that cross-contamination does not occur. • Aseptic technique must be used during dressing changes, wound irrigation and debridement procedures to avoid introduction of microorganisms into the wound. • Sterile gloves must be worn.[3,4]
Wound Cleansing Agents	• Before any wound cleansing agent is used, it should be inspected for any evidence of damage to the bottle, leaking, foreign material, mold, or fungus. • The wound cleansing agent should be handled in a manner to avoid contamination of the fluid itself, the inside of the neck of the bottle, and the inside of the top of the cap. • Containers of sterile normal saline, if not contaminated, may be resealed and labeled with a 24-hour expiration time.[5] • Solutions used for wound cleansing should never be "topped up" from bulk containers into small ones. • Unused contents of single use non-resealable containers of normal saline should be discarded following use. • Wound cleansing agents dispensed from a spray applicator (e.g., Sea-Clens) must be used according to the manufacturer's directions and be dedicated to single-patient use. When cleansing a wound with a spray applicator product, the container must be held 15 to 20 centimeters from the wound bed to prevent contamination of the bottle and its contents.

Dressing, Pastes, Gels	• Opened dressings, pastes or gels should be labeled, dedicated to single-patient use and stored in a clean area between use. • Outer packaging and containers of pastes and gels must be handled with clean hands. Care must be taken not to contaminate the contents of the packages or containers. • Manufacturer's written recommendations for shelf life and storage conditions should be followed.
Waste Disposal	• All used dressings and disposable supplies should be contained in plastic bags and placed in the general waste. • Irrigation solution and wound drainage may be disposed of by carefully pouring (to prevent splashing) into the hopper or toilet. • Silver nitrate solution should be disposed of in a sealed container. • All used disposable sharp instruments (e.g., needles, lancets, scalpel blades, broken or easily broken glass items) should be placed at the point of use, in a puncture-resistant, leak-proof, impervious container for disposal.[6]
Personal Protective Equipment	• Gloves should be worn for contact with the wound or wound drainage. • Cover gowns or aprons, masks, and eye protection should be worn by caregivers when splash or spray from wound drainage is anticipated. • These measures will assist in prevention of transmission of infection to the caregivers and to other patients/residents.
Antibiotic Resistant Organisms	• If the individual is known to be colonized or infected with a significant antibiotic-resistant organism (e.g., methicillin-resistant Staphylococcus aureus (MRSA) or vancomycin-resistant Enterococcus [VRE]), it should be communicated to personnel responsible for Infection Prevention and Control in the health care facility or home care program. • When the patient is transferred, infection prevention and control personnel in the receiving health care facility or home care program must be notified in advance of the time of transfer.

Source: Capital Health Authority. Regional wound care guidelines. Edmonton (AB): Capital Health Authority; 2001. Adapted with permission.

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Pressure Ulcers

March 2006
Saskatchewan Skin & Wound Care Guidelines

Pressure Ulcers Guideline Development Process

The Skin and Wound Care Action Committee identified several clinical practice guidelines and selected three recently released Canadian guidelines for critical appraisal. The Appraisal of Guidelines for Research and Evaluation (AGREE) instrument was used.[1] As a result of this review, the committee adapted the following evidence-based clinical practice guidelines developed by the Registered Nurses' Association of Ontario (RNAO) to include content specific to Saskatchewan:

- Registered Nurses' Association of Ontario. Risk assessment and prevention of pressure ulcers. Toronto (ON): Registered Nurses' Association of Ontario; 2002.

- Registered Nurses' Association of Ontario. Assessment and management of stage I to IV pressure ulcers. Toronto (ON): Registered Nurses' Association of Ontario; 2002.

The RNAO used the most current research evidence and expert opinion in the creation of their recommendations. The RNAO guidelines were also pilot-tested and evaluated.

The Action Committee developed a draft of the Saskatchewan guidelines and distributed it to self-identified and selected stakeholders, within and outside the province, for review. The committee incorporated the feedback into another draft of the guidelines, which was implemented in long-term care pilot sites in Saskatchewan. These pilot sites were selected based on an identified need and a high interest in improving the quality of care for patients with pressure ulcers.

During the pilot testing period, the RNAO reviewed and updated their 2002 *Risk Assessment and Prevention of Pressure Ulcers*. At the conclusion of the pilot site implementation, the draft guidelines used by the pilot sites were again revised incorporating pilot site feedback and changes found in:

- Registered Nurses' Association of Ontario. Risk assessment and prevention of pressure ulcers. [Revised]. Toronto (ON): Registered Nurses' Association of Ontario; 2005

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This symbol indicates a pearl of wisdom text box. The pearl of wisdom was created to emphasize important points of clinical information within the guidelines.

Underlined words can be found in the Glossary

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Introduction

A recent Canadian study reported by Woodbury and Houghton[2] suggests that pressure ulcers are a significant concern in all health care settings with an estimated overall prevalence rate of 26%. Stage three and four pressure ulcers are reportable critical events in Saskatchewan.

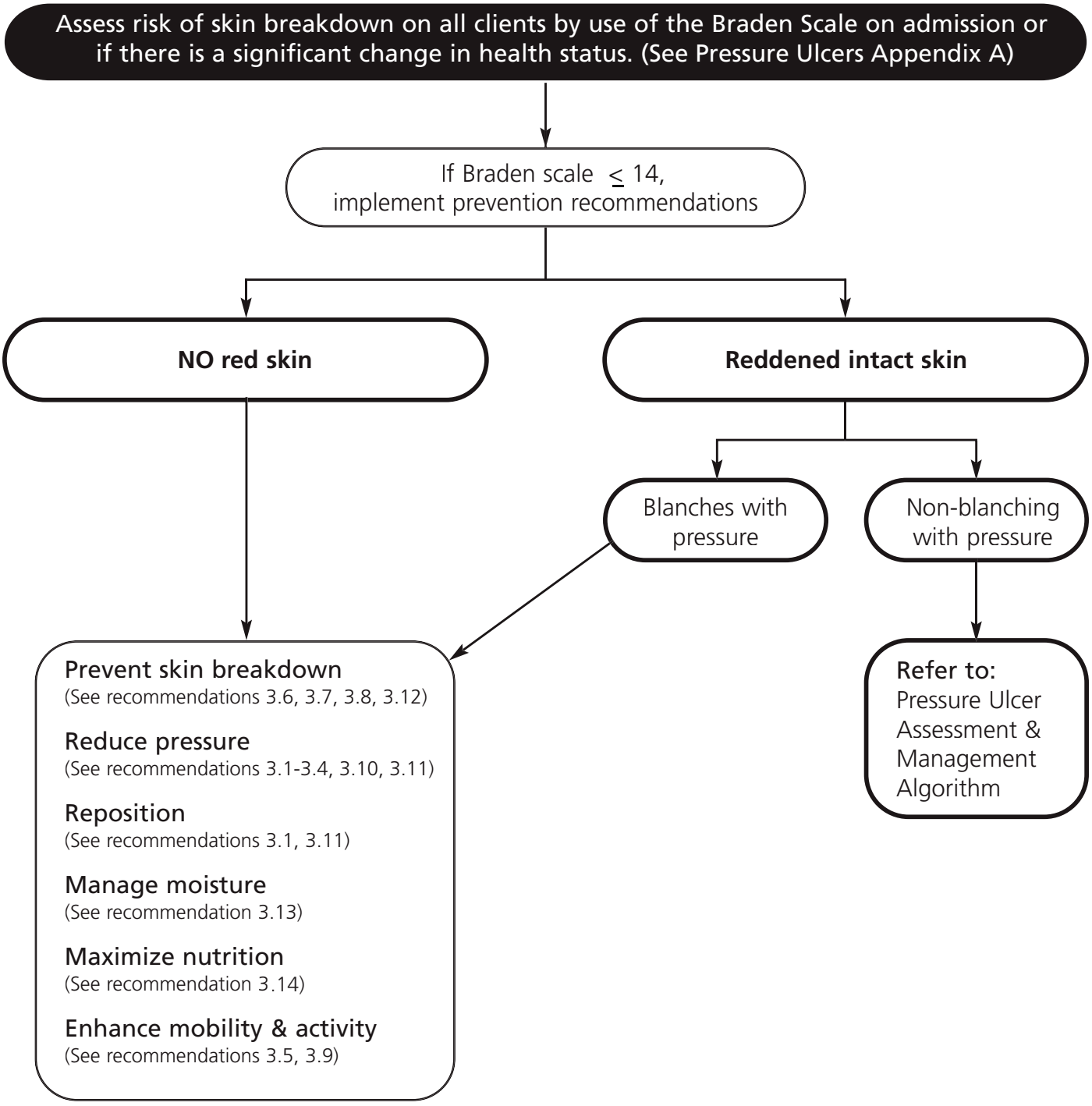
The Health Quality Council worked closely with seven long-term care pilot sites from September 2004 until September 2005 to implement this pressure ulcer guideline which includes wound assessment and management algorithms, tips on positioning for ulcer prevention, and recommended skin and wound care products.

The combined results for all pilot sites show a considerable decrease in the number of facility residents who acquired a new pressure ulcer.

Effective management of pressure ulcers improves the quality of life for people in long-term care, and in acute care and home care settings. Other benefits include less staff time spent on wound care and cost savings as fewer products are used.

PREVENTION

Pressure Ulcers Risk Assessment and Prevention Algorithm



PRESSURE ULCERS

Definition

Pressure Ulcer: Any lesion caused by unrelieved pressure that results in damage to underlying tissue. Pressure ulcers usually occur over a bony prominence and are staged to classify the degree of tissue damage observed.[3-5]

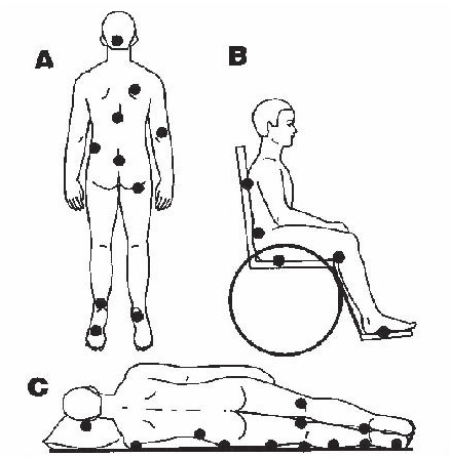
Prevention of Pressure Ulcers

Risk Assessment

1. **Risk Assessment:**

1.1 A head-to-toe skin assessment should be carried out with all clients at admission, transfer of care, and any time there is a change in health status. Particular attention should be paid to vulnerable areas, especially over bony prominences.
Strength of Evidence = IV

Pressure Points:



Dots show pressure points when lying on back (A), when sitting (B), and when lying on side (C).

Adapted from: Agency for Health Care Policy and Research. Treating pressure sores. Consumer guide, Number 15. AHCPR Publication Number 95-0654. Rockville (MD): U.S. Department of Health and Human Resources; 1994. p. 5. Used with permission of AHCPR.

1.2 The client's risk for pressure ulcer development is determined by the combination of clinical judgement and the use of a reliable risk assessment tool. The use of a tool that has been tested for validity and reliability, such as the Braden Risk Assessment Scale, is recommended. Interventions should be based on identified intrinsic and extrinsic risk factors and those identified by a risk assessment tool, such as the **Braden Scale** categories:

- sensory perception
- mobility
- activity

- moisture
- nutrition
- friction
- shear

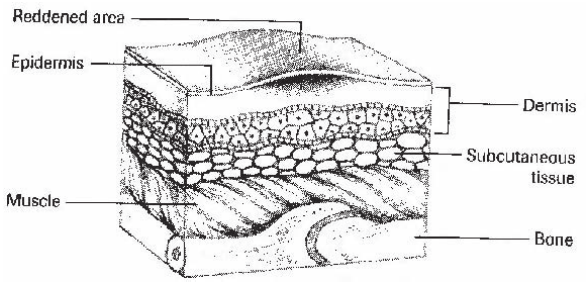
Risk assessment tools are useful as an aid to structure assessment.
Strength of Evidence = IV

See Pressure Ulcers Appendix A: Braden Risk Assessment Scale

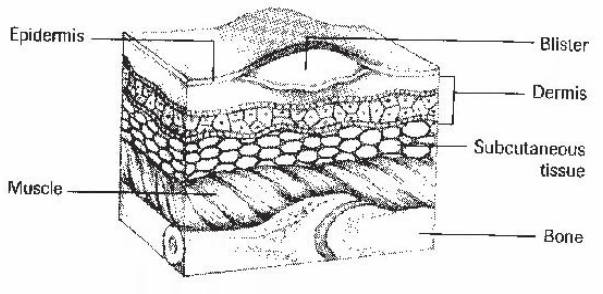
1.3 Clients who are restricted to bed or chair, or those experiencing surgical intervention, should be assessed for pressure, friction and shear in all positions and during lifting, turning and repositioning. *Strength of Evidence = IV*

1.4 All pressure ulcers are identified and staged using the **National Pressure Ulcer Advisory Panel** (NPUAP) criteria.[6] *Strength of Evidence = IV*

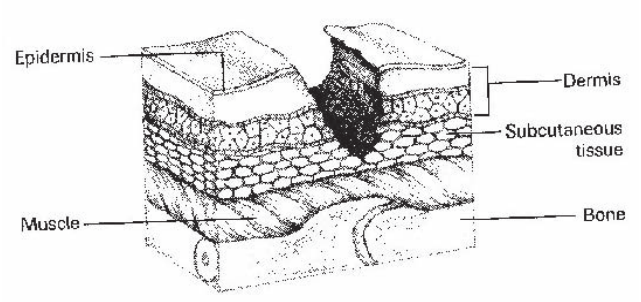
Stage I: Non-blanchable erythema (area appears red/pink) of intact skin, the heralding lesion of skin ulceration. In individuals with darker skin, discoloration of skin, warmth, edema, induration or hardness may also be indicators.



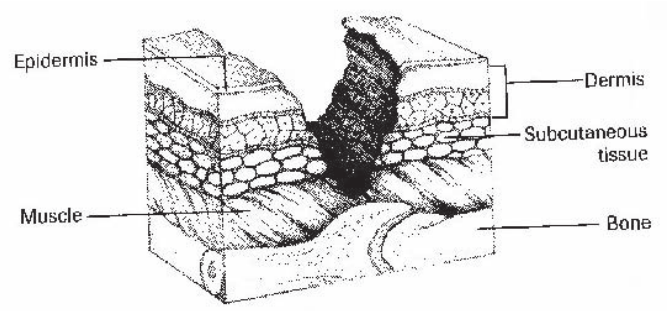
Stage II: Partial thickness skin loss involving epidermis, dermis or both. The ulcer is usually superficial and presents clinically as an abrasion, blister or shallow crater.



Stage III: Full thickness skin loss involving damage to or necrosis of subcutaneous tissue that may extend down to, but not through, underlying fascia. The ulcer presents clinically as a deep crater with or without undermining of adjacent tissue.



Stage IV: Full thickness skin loss with extensive destruction, tissue necrosis, or damage to muscle, bone or supporting structures (e.g., tendon, joint capsule). Undermining sinus tracts also may be associated with Stage IV ulcers.



Adapted from: Hess CT. Clinical guide: wound care. 3rd ed. Springhouse (PA): Springhouse Corporation; 1999. p. 16-17. Used with permission of Lippincott Williams & Wilkins.

[**Stage X or Unstageable**: When eschar or any necrotic tissue is present, it is impossible to stage the ulcer until the devitalized tissue is removed.[7]] The NPUAP states that reverse staging does not accurately characterize what is lost muscle. When ulcers heal to more shallow depth, lost muscle, subcutaneous fat, or dermis does not re-epithelialize.[8] To illustrate: a Stage IV pressure ulcer cannot become a Stage III, Stage II and/or a Stage I.

Note: There are differences in staging definition used by the NPUAP and the Saskatchewan Resident Assessment Instrument-Minimum Data Set (RAI-MDS) 2.0 for Long Term Care. See Pressure Ulcers Appendix C for an explanation of these differences.

Pearl of Wisdom: Scar tissue is at increased risk of re-ulceration because it will not achieve greater than 80% of the pre-injury tensile strength. Close monitoring and prevention measures will help protect these at risk areas.

1.5 All data should be documented at the time of assessment and reassessment.
Strength of Evidence = IV

See General Appendix A: Wound Record Guidelines and Form

Planning

2. Planning

2.1 An individualized plan of care is based on assessment data, identified risk factors and the client's goals. The plan is developed in collaboration with the client, significant others and health care professionals. *Strength of Evidence = IV*

2.2 The health care professional uses clinical judgment to interpret risk in the context of the entire client profile, including the client's goals.
Strength of Evidence = IV

2.3 Patient and caregiver teaching regarding preventive measures and treatment procedures is important in the planning process.
Strength of Evidence = IV (HQC Action Committee, 2006)

2.4 Empower caregivers with the knowledge and skill necessary to care for individuals at risk of pressure ulcers.
Strength of Evidence = IV (HQC Action Committee, 2006)

Preventive Interventions

3. Preventive Interventions

For all individuals at risk

For all individuals at risk:

3.1 For clients with an identified risk for pressure ulcer development, minimize pressure through the immediate use of pressure reducing/relieving equipment or a positioning schedule. *Strength of Evidence = IV*

See Pressure Ulcers Appendix D: Pressure-Reduction versus Pressure-Relief Surfaces

See Pressure Ulcers Appendix F: Selection of Wheelchair Cushions

3.2 Use proper positioning, transferring, and turning techniques (TLR). Consult Occupational Therapy/Physiotherapy (OT/PT) regarding transfer and positioning techniques and devices to reduce friction and shear and to optimize client independence. *Strength of Evidence = IV*

3.3 Clients at risk for developing a pressure ulcer should not remain on a standard mattress. A replacement mattress with low interface pressure such as high-density foam should be used. *Strength of Evidence = Ia*

See Pressure Ulcers Appendix G: Mattresses

3.4 For high-risk clients experiencing surgical intervention, the use of pressure-relieving surfaces intraoperatively should be considered.
Strength of Evidence = Ia

3.5 Consider the impact of pain. Pain may decrease mobility and activity. Pain control measures may include effective medication, therapeutic positioning, support surfaces, and other non-pharmacological interventions. Monitor level of pain on an ongoing basis, using a valid pain assessment tool.

Consider other therapeutic modalities for example transcutaneous electrical nerve stimulation (TENS). *Strength of Evidence = IV*

See General Appendix B: Pain Assessment Tools

3.6 Consider the client's risk for skin breakdown related to the loss of protective sensation or the ability to perceive pain and to respond in an effective manner (e.g., impact of analgesics, sedatives, neuropathy, etc.). *Strength of Evidence = IV*

3.7 Consider the impact of pain on local tissue perfusion. *Strength of Evidence = IV*

3.8 Avoid massage over bony prominences. *Strength of Evidence = IIb*

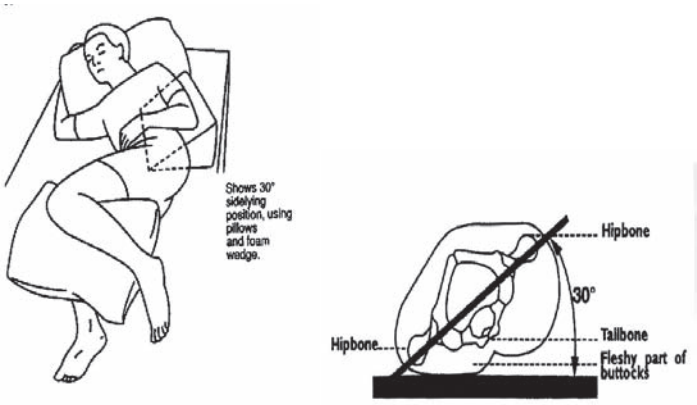
3.9 Institute a rehabilitation program if consistent with the overall goals of care and the potential exists for improving the individual's mobility and activity status. Consult the care team regarding a rehabilitation program. *Strength of Evidence = IV*

For individuals restricted to bed

3.10 **For individuals restricted to bed**:

- Utilize an multidisciplinary approach to plan care;
- Use devices to enable independent positioning, lifting and transfers (e.g., trapeze, sask-a-pole, bed rails);
- Reposition at least every two hours or sooner if at high risk;
- Use pillows or foam wedges to avoid contact between bony prominences;
- Use devices to totally relieve pressure on the heels and bony prominences of the feet (See Pressure Ulcers Appendix E: Heel Pressure Relief / Reduction Devices);
- A 30° turn to either side is recommended to avoid positioning directly on the trochanter. *Strength of Evidence = IV*

Proper Position While on Side

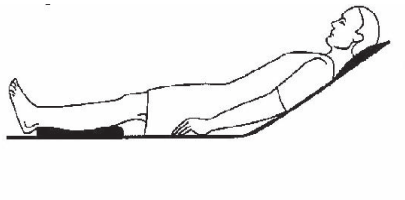


Adapted from: Maklebust J. Pressure ulcer update. RN 1991;(12):56-63.
Original illustration by J.Tady. Used with permission of Medical Economics Publishing.

- Use lifting devices to avoid dragging clients during transfer and position changes;
- Do not use donut type devices or products that localize pressure to other areas; and,
- Reduce shearing forces by maintaining the head of the bed at the lowest elevation consistent with medical conditions and restrictions. A 30° elevation or lower is recommended.

Strength of Evidence = IV

Head of Bed Raised (30°)



Adapted from: Maklebust J, Sieggreen M. Pressure ulcers: guidelines for prevention and nursing management. Philadelphia (PA): Lippincott Williams & Wilkins; 1991. Used with permission of Lippincott Williams & Wilkins.

For individuals Skin restricted to chair

3.11 ***For individuals restricted to chair***:

- Utilize an multidisciplinary approach to plan care;
- Have the client shift weight every 15 minutes, if able;
- Reposition at least every hour if unable to shift weight;
- Use pressure-reducing devices for seating surfaces;
- Do not use donut type devices or products that localize pressure to other areas;
- Consider postural alignment, distribution of weight, balance and stability, and pressure reduction when positioning individuals using chairs or wheelchairs; and,
- Refer to Occupational Therapy/Physiotherapy (OT/PT) for seating assessment and adaptations for special needs.

Strength of Evidence = IV

Skin integrity

3.12 ***Protect and promote skin integrity:***

- Ensure hydration through adequate fluid intake;
- Individualize the bathing schedule;
- Avoid hot water and use a pH balanced, non-sensitizing skin *cleanser;*
- *Minimize force and friction on the skin during cleansing;*
- Maintain skin hydration by applying non-sensitizing, pH balanced, lubricating moisturizers and creams with minimal alcohol content; and,
- Use protective barriers (e.g., liquid barrier films, transparent films, hydrocolloids) or protective padding to reduce friction injuries.

Strength of Evidence = IV

See Skin and Wound Care Products Section

Excessive moisture or incontinence

3.13 **Protect skin from excessive moisture and incontinence:**

- Assess and manage excessive moisture related to body fluids (e.g., urine, feces, perspiration, wound exudates, saliva, etc.);
- Minimize skin exposure to excess moisture. When moisture cannot be controlled, use absorbent pads, dressings or briefs that wick moisture away from the skin. Replace pads and linens when damp;
- Gently cleanse skin at time of soiling. Avoid friction during care with the use of a spray perineal cleanser or soft wipe;

Pearl of Wisdom: Cleansing skin at time of soiling will prevent irritation and skin breakdown.

Use topical agents that provide protective barriers to moisture

See General Appendix H: Topical Antimicrobial Agent

- If unresolved skin irritation exists in a moist area, consult with the physician for evaluation and topical treatment; and,
- Establish a bowel and bladder program.
  Strength of Evidence = IV

Nutritional assessment

3.14 A **nutritional assessment** with appropriate interventions should be

implemented on entry to any new health care environment and when the client's condition changes. If a nutritional deficit is suspected:

- Consult with:
  - A registered dietitian to assess dietary intake (proteins and calories); *Strength of Evidence = IV*
  - Occupational Therapist if problems with self-feeding is/or be comes a concern;
  - Speech Language Pathologist if problem with swallowing is or becomes a concern.

- Investigate factors that compromise an apparently well-nourished individual's dietary intake (especially protein or calories) and offer him or her support with eating; *Strength of Evidence = IV*
- Plan and implement a nutritional support or supplementation program for nutritionally compromised individuals; *Strength of Evidence = IV*
- If dietary intake remains inadequate, consider alternative nutritional interventions; and, *Strength of Evidence = IV*
- Nutritional supplementation for critically ill older clients should be considered. *Strength of Evidence = Ib*

Discharge/Transfer of Care

4. *Discharge/Transfer of Care Arrangements*

4.1 Advance notice should be given when transferring a client between settings (e.g., hospital to home/long-term care facility/hospice/residential care) if pressure reducing/relieving equipment is required to be in place at time of transfer (e.g., pressure relieving mattresses, seating, special transfer equipment). *Strength of Evidence = IV*

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

- Risk factors identified;
- Details of pressure points and skin condition prior to discharge;
- Type of bed/mattress the client requires;
- Type of seating the client requires;
- Details of healed ulcers;
- Stage, site and size of existing ulcers;
- History of ulcers, previous treatments, and products used;
- Type of dressing currently used and frequency of change;
- Adverse reactions to wound care products;
- Summary of relevant laboratory results; and,
- Need for ongoing nutritional support.

Strength of Evidence = IV

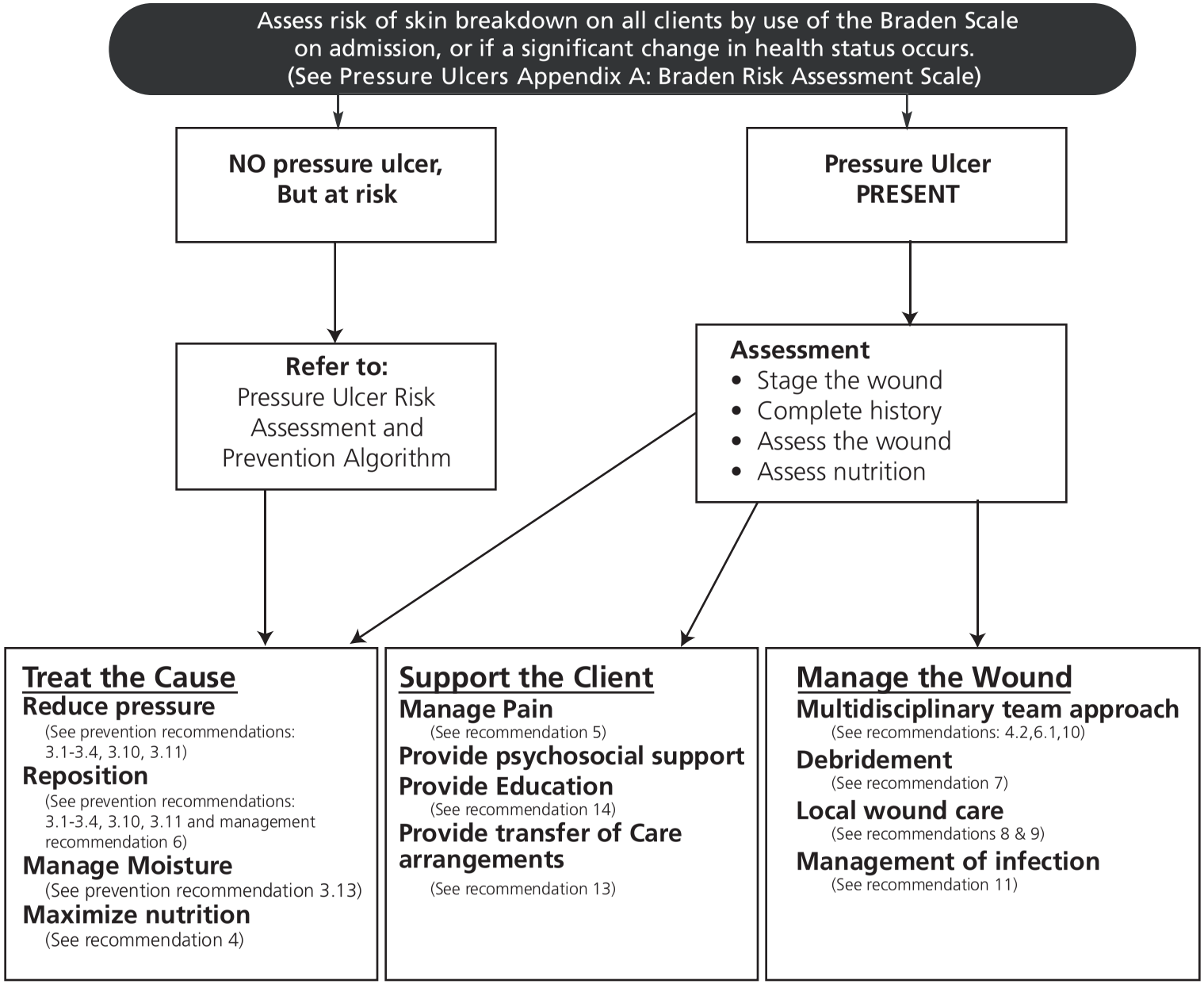
Pearl of Wisdom: Communication between caregivers/care settings is imperative so consistent care can be provided through the continuum of health service delivery.

4.3 Transfer to another setting may require a site visit, client/family conference, or assessment for funding of resources. *Strength of Evidence = IV* (HQC Action Committee, 2006)

See General Appendix E: Discharge Care Plan Guidelines and Form

MANAGEMENT of Stage I to IV Pressure Ulcers

Pressure Ulcer Risk Assessment and Management Algorithm



Management of Stage I to IV Pressure Ulcers

Assessment

History and Physical Examination

1. History and Physical Examination

1.1. Conduct a history and focused physical assessment. *Strength of Evidence = C*

Psychosocial Assessment

2. Psychosocial Assessment

2.1. Conduct a psychosocial assessment to determine the client's ability and motivation to comprehend and adhere to the treatment program.
Strength of Evidence = C

2.2. Establish client-centered goals, treatment program, and expected outcomes.
Strength of Evidence = C

Pressure Ulcer Assessment

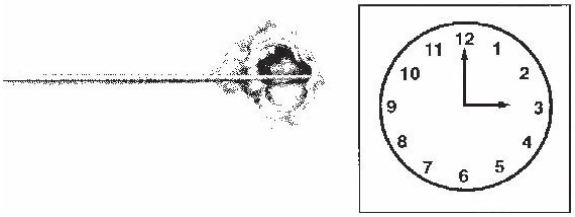
3. Pressure Ulcer Assessment

3.1. To plan treatment and evaluate its effects, assess the pressure ulcer(s) initially for (see below) and document:

- Stage *(See Appendix H: Pressure Ulcer Staging Pocket Guide);*
- Location;
- Odour;
- Size (measure longest length in cm, measure widest point [width] at 90° to length, measure greatest depth in cm);

Measure

- sinus tracts/undermining/tunneling



Adapted from: Hess CT*. Clinical guide: wound care. 3rd ed. Springhouse (PA): Springhouse Corporation; 1999. Used with permission of Lippincott Williams & Wilkins.

- Exudate (colour and amount);
- Appearance of wound bed and edges; and,
- Condition of surrounding skin (periwound) and presence of edema.
Strength of Evidence = C

* Cathy Thomas Hess, RN, BSN, CWOCN, President, Wound Care Strategies Inc., Harrisburg PA, USA

3.2. Vascular assessment (e.g., capillary refill, pulse pressure and Ankle/Brachial Pressure Index) are recommended for ulcers in lower extremities to rule out vascular compromise. *Strength of Evidence = C*

When non-healability has been determined based on vascular assessment or poor host factors, then moist wound care is contraindicated. The treatment plan should be to dry the wound by applying topical antiseptics (e.g., Betadine/Cicatrin powder and dry dressing) to prevent bacterial invasion of viable tissue as directed by physician.

3.3. Reassess ulcers at least weekly to determine the adequacy of the treatment plan and evaluate progress. *Strength of Evidence = C*

Pearl of Wisdom: Change dressings based on an assessment of the patient and wound, not on routines.

During the early stages of wound care the ulcer may actually increase in size before becoming smaller. Studies indicate that treatments need several weeks to have effect before an accurate assessment can be given.

Note: A wound that is not 30% smaller between weeks 0 and 4 is unlikely to heal by week 12.[9] If an ulcer is not progressing in a measurable way, several items must be reassessed: the treatment, the cause, local wound care, and client-related issues.

Nutrition Assessment and Management

4. *Nutrition Assessment and Management*

4.1. Ensure adequate dietary and fluid intake to prevent malnutrition and dehydration or replace existing deficiencies to the extent that this is compatible with the individual's wishes. *Strength of Evidence = C*

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

- Consultation with a registered dietitian for assessment;
- Consultation with a speech language pathologist for swallowing assessment;
- Consultation with an OT if self-feeding is a concern;
- A varied, balanced diet to meet clinical needs for healing and co-existing diseases, (e.g., renal failure and diabetes);
- Nutritional supplements if needed;
- Multivitamin and mineral preparations;
- Enteral tube feeding;
- Parenteral nutrition; and,
- Ongoing monitoring of nutritional intake, laboratory data, and weight.

Strength of Evidence = C

Pain

5. *Pain*

5.1. Assess all patients for pain related to the pressure ulcer or its treatment. *Strength of Evidence = C*

5.2. 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. *Strength of Evidence = B*

See General Appendix B: Pain Assessment Tool

5.3. Document findings and establish pain management plan in consultation with team members (e.g., Dr. prescribing analgesics, OT and PT) and client.

Pearl of Wisdom: Pain at dressing change is a recognized problem in wound care. Give analgesics well in advance of treatment. This should be documented in the care plan and assessed regularly in care of the client.

Positioning and support surfaces

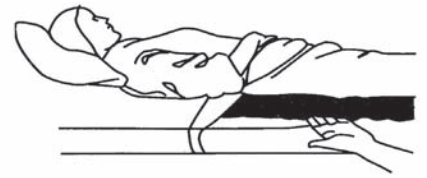
6. *Positioning and support surfaces*

6.1. Refer patients at risk to appropriate multidisciplinary team members (occupational therapist, physiotherapist, enterostomal therapist, etc.) for selection of appropriate seating. Postural alignment, distribution of weight, balance, stability, and pressure relief when positioning sitting individuals must be considered. Ensure support surfaces are used appropriately and are properly maintained. *Strength of Evidence = C*

Pearl of Wisdom: Healing will not occur without pressure relief. Minimize the layers between the client and surface.

6.2. Check support surfaces weekly for "bottoming out".

See Pressure Ulcers Appendix F: Cushion Selection Guide



Slide hand (palm up and fingers flat) under support surface, just under pressure point. Do not flex fingers.

With good support, about 1 inch or more of uncompressed support surface is between caregiver's hand and patient.

6.3. Assess all patients with **existing pressure ulcers** to determine their risk for developing additional pressure ulcers using the Braden Risk Assessment Scale. If the client remains at risk, use a pressure-reducing surface. *Strength of Evidence = C*

6.4. If the patient remains at risk for other pressure ulcers, a high specification foam mattress should be used to prevent pressure ulcers in moderate to high-risk patients. *Strength of Evidence = A*

6.5. Use a static support surface if the patient can assume a variety of positions without bearing weight on a pressure ulcer and without "bottoming out."
Strength of Evidence = B

6.6. Use a dynamic support surface if:
- Patient cannot assume a variety of positions without bearing weight on a pressure ulcer;
- Patient fully compresses the static support surface; or
- Pressure ulcer does not show evidence of healing.
Strength of Evidence = B

6.7. Use pressure relief for clients in the Operating Room to reduce the incidence of pressure ulcers post operatively. *Strength of Evidence = B*

6.8. Obtain a seating assessment if a client has a pressure ulcer on a sitting surface that requires relief from pressure or repositioning. *Strength of Evidence = C*

6.9. A client who has a pressure ulcer on a seating surface should avoid sitting. If pressure on the ulcer can be relieved, limited sitting may be allowed.
Strength of Evidence = C

Ulcer Management

Debridement

7. *Debridement*

7.1. Select the method of debridement most appropriate to:
- Client's condition and goals of treatment;
- Type, quantity, and location of necrotic tissue; and
- Depth and amount of fluid. *Strength of Evidence = C*

Debridement may be carried out using sharp techniques, mechanical methods, enzymatic agents or by supporting the natural autolytic cleansing process.

- Sharp debridement should be used if there is urgent need for debridement, as with advancing cellulitis or sepsis in consultation with physician.
Strength of Evidence = C

  This procedure involves the use of a sterile scalpel or scissors to remove necrotic tissue.

  ***Note**: This procedure requires **specialized training** for nurses.*

- Mechanical debridement is when force is used to remove non-viable tissue or debris. Common methods are forceful wound irrigation, wet to dry dressing

changes that remove debris adhered to dressing and whirlpool treatment.

- Enzymatic debridement involves the topical application of commercially prepared enzymes to necrotic tissue to break it down.

- Autolytic debridement involves using dressings that maintain moisture within the wound bed supporting the body's own ability to cleanse itself. The action of enzymes present in wound fluids will break down necrotic tissue.[10]

7.2. Vascular assessment (e.g., capillary refill, pulses, Ankle/Brachial Pressure Index) is recommended for ulcers in lower extremities prior to debridement to rule out vascular compromise. *Strength of Evidence = C*

7.3. Foot ulcers 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.
Strength of Evidence = C

Pearl of Wisdom: This procedure is only recommended when the expected outcome for treatment is healing based on the assessment that there is adequate blood supply to the area. Necrotic tissue and debris provides a medium for bacterial growth and must be removed before healing can occur.

7.4. Prevent or manage pain associated with debridement (plan analgesic administration pretreatment). Consult with a member of the health care team with expertise in pain management, when appropriate. *Strength of Evidence = C*

Wound cleansing

8. *Wound Cleansing*

8.1. Do not use skin cleansers or antiseptic agents (e.g., povidine iodine, iodophor, sodium hypochlorite solution (Dakin's), hydrogen peroxide (acetic acid) to clean wounds with healthy granulating tissue. (See section 11. for recommendations concerning wounds that are heavily colonized.) *Strength of Evidence = B*

8.2. Use normal saline, Ringer's lactate, sterile water or non-cytotoxic wound cleansers to clean wounds. *Strength of Evidence = C*

8.3. Fluid used for cleansing should be warmed at least to room temperature.
Strength of Evidence = B

Pearl of Wisdom: Avoid wound cleansers that may be cytotoxic to granulating tissue.

8.4. Cleanse wounds initially and at each dressing change. *Strength of Evidence = C*

8.5. To reduce surface bacteria and tissue trauma, the wound should be gently irrigated with 100 to 500 milliliters of solution. *Strength of Evidence = C*

8.6. 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 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. *Strength of Evidence = B*

8.7. Consider whirlpool treatment for cleansing pressure ulcers that contain thick exudate, slough, or necrotic tissue. Discontinue whirlpool when the ulcer is clean. *Strength of Evidence = C* (HQC Committee consensus, 2006)

Dressings

9. *Dressings*

9.1. Moisture retentive dressings optimize the local wound environment and promote healing. *Strength of Evidence = A*

9.2. Consider the following criteria for selecting an interactive dressing:

- Maintains a moist environment;
- Controls wound exudate, keeping the wound bed moist and the surrounding intact skin dry;
- Provides thermal insulation;
- Protects from contamination of outside micro-organisms;
- Maintains its integrity and does not leave fibers or foreign substances within the wound;
- Does not cause trauma to wound bed on removal; and
- Is simple to handle, and is economical of costs and caregiver time.

Strength of Evidence = B/C

9.3. When selecting a dressing use clinical judgment to select type of moist wound dressing suitable for the ulcer, considering:

- Etiology of the wound;
- Client's general health status, goals of care, and environment;
- Location of the wound;
- Size of the wound, including depth and undermining;
- A dressing that will loosely fill wound cavity;
- Exudate: type and amount;
- Risk of infection;
- 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; and,
- Dressing availability.

Strength of Evidence = C

9.4. The most suitable dressing that supports moist wound healing will keep the ulcer bed moist and surrounding skin dry. *Strength of Evidence = C*

9.5. Choose a dressing that controls exudate but does not desiccate the ulcer bed. *Strength of Evidence = C*

9.6. Monitor dressings applied near the anus, since they are difficult to keep intact. Consider use of special sacral-shaped dressings. *Strength of Evidence = B*
Dressing treatments should be done for several weeks before changing

products to evaluate optimum outcomes. Use clinical judgment to decide when a dressing is not effective for the wound and seek further assistance.

Adjunctive Therapies

10. *Adjunctive Therapies*

10.1. Chronic pressure ulcers may also be treated by :

- Vacuum assisted closure and normothermic therapies. *Strength of Evidence = B;*
- Therapeutic ultrasound. *Strength of Evidence = B;*
- Ultraviolet light. *Strength of Evidence = B;*
- Pulsed electromagnetic fields. *Strength of Evidence = B;*
- Growth factors and skin equivalents. *Strength of Evidence = C;*
- Electrical stimulation may also be useful for recalcitrant Stage II ulcers. *Strength of Evidence = A*

Refer to physiotherapy for a course of treatment with electrotherapy for Stage III and IV pressure ulcers that have proved unresponsive to conventional therapy. **Note**: At this point in time this type of therapy has the most research support.

Colonization and Infection

11. *Colonization and Infection*

See Infection Prevention and Control in Normal Wound Healing section

All open pressure ulcers are colonized with bacteria. Effective wound cleansing and debridement will reduce colonization and promote wound healing. If exudate becomes purulent or foul odour is present, this does not necessarily indicate infection but more frequent dressing changes and debridement.

Signs and symptoms of Infection:

- Local: erythema (redness), heat , edema, purulent drainage, foul odour and pain;
- Systemic: fever (>38° C), increased pulse, hypotension, mental confusion, agitation, general malaise (blood culture is done to identify organisms).
  Note: Clients may not show signs of infection if they are immune suppressed, diabetic, elderly, or on steroids.

11.1. Use sterile instruments to debride pressure ulcers. *Strength of Evidence = C*

11.2. Protect pressure ulcers from sources of contamination (e.g., fecal matter). *Strength of Evidence = B*

11.3. Follow Body Substance Precautions (BSP) or an equivalent system appropriate for the health care setting and the client's condition when treating pressure ulcers. *Strength of Evidence = C*

11.4. Medical management may include initiating a two week trial of **appropriate** 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. *Strength of Evidence = A*

11.5. Medical management may include appropriate systemic antibiotic therapy for patients with bacteremia, sepsis, advancing cellulitis, or osteomyelitis. *Strength of Evidence = A*

Treatment options for wounds with heavy bacterial overgrowth/colonization (as prescribed by physician) could be:

- Iodosorb or silver dressings (Acticoat, Aquacel Ag, Actisorb).
- Anti-bacterial soaked gauze dressings (clean vs. sterile dressing can be used). Solutions most often ordered by physicians are sodium hypochlorite (Dakins), iodine solutions and silver nitrate. Protect surrounding healthy tissue with a skin barrier product (e.g., Vaseline) and assess wound bed at each dressing change for irritation. Reassess treatment plan with physician at least **every two weeks** or as necessary if redness bleeding and pain occur.

The preferred culturing techniques are tissue biopsy and needle aspiration.

11.6. To obtain a wound culture using the swab technique, cleanse wound with normal saline first. Swab wound bed, not eschar, exudate or edges. Applying firm pressure, rotate swab in wound bed. *Strength of Evidence = C*

Note: Wounds with necrotic tissue or sinus tracts will require aerobic and anaerobic (need special media containers) cultures.

Operative Repair of Pressure Ulcers

12. *Operative Repair of Pressure Ulcers*

12.1. Possible candidates for operative repair are medically stable, adequately nourished, are able to tolerate operative blood loss and postoperative immobility. Quality of life, patient preferences, treatment goals, risk of recurrence, and expected rehabilitative outcome are additional considerations. *Strength of Evidence = C*

Discharge/Transfer of Care

13. *Discharge/Transfer of Care Arrangements*

13.1. Clients moving between care settings should have the following information provided well in advance:

- Risk factors identified;
- Details of pressure points and skin condition prior to transfer;
- Need for pressure relieving mattresses, special seating / transfer equipment;
- Details of healed ulcers;
- Stage, location and size of existing ulcers;
- Type of dressing currently used and frequency of change;
- Any allergies; and,
- Need for ongoing nutritional support.

Strength of Evidence = C

Pearl of Wisdom: Communication between caregivers/care settings is imperative so consistent care can be provided through the continuum of health service delivery.

Client and care giver education

14. *Client and Caregiver Education*

14.1. 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.
Strength of Evidence = C

Pearl of Wisdom: Collaborate with patient, family, and caregivers to design and implement a plan for pressure ulcer prevention and treatment.

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PRESSURE ULCERS

APPENDICES

Braden Risk Assessment Scale

Note: Bed and chair-bound individuals or those with impaired ability to reposition should be assessed upon admission for their risk of developing pressure ulcers. Patients with established pressure ulcers should be reassessed periodically.

Patient Name: **Room Number:** **Date:**

Sensory Perception	**1. Completely Limited**	**2. Very Limited**	**3. Slightly Limited**	**4. No Impairment**	***Indicate Appropriate Numbers Below***
Ability to respond meaningfully to pressure-related discomfort	Unresponsive (does not moan, flinch or grasp) to painful stimuli, due to diminished level of consciousness or sedation. OR limited ability to feel pain over most of body surface	Responds only to painful stimuli. Cannot communicate discomfort except by moaning or restlessness. OR has a sensory impairment which limits the ability to feel pain or discomfort over $^1/_2$ of body.	Responds to verbal commands, but cannot always communicate discomfort or need to be turned. OR has some sensory impairment which limits ability to feel pain or discomfort in 1 or 2 extremities.	Responds to verbal commands. Has no sensory deficit which would limit ability to feel or voice pain or discomfort.	
Moisture	**1. Constantly Moist**	**2. Very Moist**	**3. Occasionally Moist**	**4. Rarely Moist**	
Degree to which skin is exposed to moisture.	Skin is kept moist almost constantly by perspiration, urine, etc. Dampness is detected every time patient is moved or turned.	Skin is often, but not always, moist. Linen must be changed at least once a shift.	Skin is occasionally moist, requiring an extra linen change approximately once a day.	Skin is usually dry. Linen only requires changing at routine intervals.	
Activity	**1. Bedfast**	**2. Chair fast**	**3. Walks Occasionally**	**4. Walks Frequently**	
Degree of physical activity	Confined to bed.	Ability to walk severely limited or non-existent. Cannot bear own weight and/or must be assisted into chair or wheelchair.	Walks occasionally during day, but for very short distances, with or without assistance. Spends majority of each shift in bed or chair.	Walks outside the room at least twice a day and inside room at least once every 2 hours during waking hours.	
Mobility	**1. Completely Immobile**	**2. Very Limited**	**3. Slightly Limited**	**4. No limitations**	
Ability to change and control body position.	Does not make even slight changes in body or extremity position without assistance.	Makes occasional slight changes in body or extremity position but unable to make frequent or significant change independently.	Makes frequent though slight changes in body or extremity position independently.	Makes major and frequent changes in position without assistance.	
Nutrition	**1. Very Poor**	**2. Probably Inadequate**	**3. Adequate**	**4. Excellent**	
Usual food intake pattern.	Never eats a complete meal. Rarely eats more than 1/3 of any food offered. Eats 2 servings or less of protein (meat or dairy products) per day. Takes fluids poorly. Does not take a liquid dietary supplement, OR is NPO and/or maintained on clear liquids or I.V.'s for more than 5 days.	Rarely eats a complete meal and generally eats only about $^1/_2$ of any food offered. Protein intake includes only 3 servings of meat or dairy products per day. Occasionally will take a dietary supplement, OR receives less than optimum amount of liquid diet or tube feeding.	Eats over half of most meals. Eats a total of 4 servings of protein (meat, dairy products) each day. Occasionally will refuse a meal, but will usually take a supplement if offered, OR is on tube feeding or TPN regimen which probably meets most of nutritional needs.	Eats most of every meal. Never refuses a meal. Usually eats a total of 4 or more servings of meat and dairy products. Occasionally eats between meals. Does not require supplementation.	
Friction and Shear	**1. Problem**	**2. Potential Problem**	**3. No Apparent Problem**		
	Requires moderate to maximum assistance in moving. Complete lifting without sliding against sheets is impossible. Frequently slides down in bed or chair, requiring frequent repositioning with maximum assistance. Spasticity, contractures or agitation lead to almost constant friction.	Moves feebly or requires minimum assistance. During a move, skin probably slides to some extent against sheets, chair restraints, or other devices. Maintains relatively good position in chair or bed most of the time, but occasionally slides down.	Moves in bed and in chair independently and has sufficient muscle strength to lift up completely during move. Maintains good position in bed or chair at all times.		
				Total Score:	

NOTE: Patients with a total score of 16 or less are considered to be at risk of developing pressure ulcers.(15 or 16 = low risk; 13 or 14 = moderate risk; 12 or less = high risk)

PRESSURE ULCERS APPENDIX B
Bates-Jensen Wound Assessment Tool

Instructions for use

General Guidelines:

Fill out the attached rating sheet to assess a wound's status after reading the definitions and methods of assessment described below. Evaluate once a week and whenever a change occurs in the wound. Rate according to each item by picking the response that best describes the wound and entering that score in the item score column for the appropriate date. When you have rated the wound on all items, determine the total score by adding together the 13-item scores. The HIGHER the total score, the more severe the wound status. Plot total score on the Wound Status Continuum to determine progress.

Specific Instructions:

1. **Size**: Use ruler to measure the longest and widest aspect of the wound surface in centimeters; multiply length x width.

2. **Depth**: Pick the depth, thickness, most appropriate to the wound using these additional descriptions:
   - 1 = tissues damaged but no break in skin surface.
   - 2 = superficial, abrasion, blister or shallow crater. Even with, &/or elevated above skin surface (e.g., hyperplasia).
   - 3 = deep crater with or without undermining of adjacent tissue.
   - 4 = visualization of tissue layers not possible due to necrosis.
   - 5 = supporting structures include tendon, joint capsule.

3. **Edges**: Use this guide:

Indistinct, diffuse	=	unable to clearly distinguish wound outline.
Attached	=	even or flush with wound base, no sides or walls present; flat.
Not attached	=	sides or walls are present; floor or base of wound is deeper than edge.
Rolled under, thickened	=	soft to firm and flexible to touch.
Hyperkeratosis	=	callous-like tissue formation around wound & at edges.
Fibrotic, scarred	=	hard, rigid to touch.

4. **Undermining**: Assess by inserting a cotton tipped applicator under the wound edge; advance it as far as it will go without using undue force; raise the tip of the applicator so it may be seen or felt on the surface of the skin; mark the surface with a pen; measure the distance from the mark on the skin to the edge of the wound. Continue process around the wound. Then use a transparent metric measuring guide with concentric circles divided into 4 (25%) pie-shaped quadrants to help determine percent of wound involved.

5. **Necrotic Tissue Type**: Pick the type of necrotic tissue that is predominant in the wound according to color, consistency and adherence using this guide:

White/gray non-viable tissue	=	may appear prior to wound opening; skin surface is white or gray.
Non-adherent, yellow slough	=	thin, mucinous substance; scattered throughout wound bed; easily separated from wound tissue.
Loosely adherent, yellow slough	=	thick, stringy, clumps of debris; attached to wound tissue.
Adherent, soft, black eschar	=	soggy tissue; strongly attached to tissue in center or base of wound.
Firmly adherent, hard/black eschar	=	firm, crusty tissue; strongly attached to wound base and edges (like a hard scab).

6. **Necrotic Tissue Amount:** Use a transparent metric measuring guide with concentric circles divided into 4 (25%) pie-shaped quadrants to help determine percent of wound involved.

7. **Exudate Type:** Some dressings interact with wound drainage to produce a gel or trap liquid. Before assessing exudate type, gently cleanse wound with normal saline or water. Pick the exudate type that is predominant in the wound according to color and consistency, using this guide:

Bloody	=	thin, bright red
Serosanguineous	=	thin, watery pale red to pink
Serous	=	thin, watery, clear
Purulent	=	thin or thick, opaque tan to yellow
Foul purulent	=	thick, opaque yellow to green with offensive odour

8. **Exudate Amount:** Use a transparent metric measuring guide with concentric circles divided into 4 (25%) pie-shaped quadrants to determine percent of dressing involved with exudate. Use this guide:

None	=	wound tissues dry.
Scant	=	wound tissues moist; no measurable exudate.
Small	=	wound tissues wet; moisture evenly distributed in wound; drainage involves $\leq$ 25% dressing.
Moderate	=	wound tissues saturated; drainage may or may not be evenly distributed in wound; drainage involves > 25% to $\leq$ 75% dressing.
Large	=	wound tissues bathed in fluid; drainage freely expressed; may or may not be evenly distributed in wound; drainage involves > 75% of dressing.

9. **Skin Color Surrounding Wound:** Assess tissues within 4cm of wound edge. Dark-skinned persons show the colors "bright red" and "dark red" as a deepening of normal ethnic skin color or a purple hue. As healing occurs in dark-skinned persons, the new skin is pink and may never darken.

10. **Peripheral Tissue Edema & Induration:** Assess tissues within 4cm of wound edge. Non-pitting edema appears as skin that is shiny and taut. Identify pitting edema by firmly pressing a finger down into the tissues and waiting for 5 seconds, on release of pressure, tissues fail to resume previous position and an indentation appears. Induration is abnormal firmness of tissues with margins. Assess by gently pinching the tissues. Induration results in an inability to pinch the tissues. Use a transparent metric measuring guide to determine how far edema or induration extends beyond wound.

11. **Granulation Tissue:** Granulation tissue is the growth of small blood vessels and connective tissue to fill in full thickness wounds. Tissue is healthy when bright, beefy red, shiny and granular with a velvety appearance. Poor vascular supply appears as pale pink or blanched to dull, dusky red color.

12. **Epithelialization:** Epithelialization is the process of epidermal resurfacing and appears as pink or red skin. In partial thickness wounds it can occur throughout the wound bed as well as from the wound edges. In full thickness wounds it occurs from the edges only. Use a transparent metric measuring guide with concentric circles divided into 4 (25%) pie-shaped quadrants to help determine percent of wound involved and to measure the distance the epithelial tissue extends into the wound.

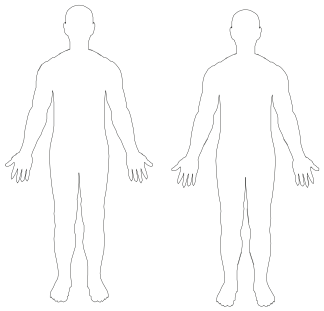
BATES-JENSEN WOUND ASSESSMENT TOOL

NAME _____

Complete the rating sheet to assess wound status. Evaluate each item by picking the response that best describes the wound and entering the score in the item score column for the appropriate date.

Location: Anatomic site. Circle, identify right **(R)** or left **(L)** and use **"X"** to mark site on body diagrams:

____ Sacrum & coccyx
____ Trochanter
____ Ischial tuberosity
____ Lateral ankle
____ Medial ankle
____ Heel
Other Site



Shape: Overall wound pattern; assess by observing perimeter and depth.

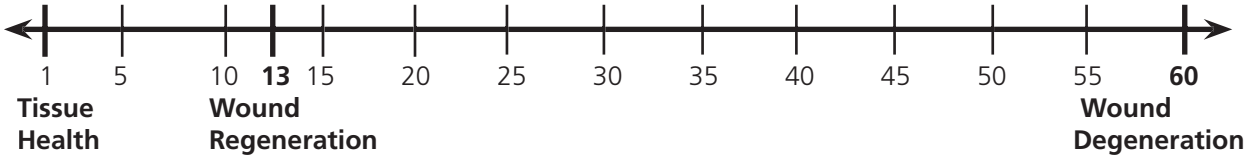
Circle and <u>date</u> appropriate description:

____ Irregular
____ Round/oval
____ Square/rectangle
____ Linear or elongated
____ Bowl/boat
____ Butterfly
Other Shape

Item	Assessment	Date Score	Date Score	Date Score
1. Size	1 = Length x width <4 sq cm 2 = Length x width 4--<16 sq cm 3 = Length x width 16.1--<36 sq cm 4 = Length x width 36.1--<80 sq cm 5 = Length x width >80 sq cm			
2. Depth	1 = Non-blanchable erythema on intact skin 2 = Partial thickness skin loss involving epidermis &/or dermis 3 = Full thickness skin loss involving damage or necrosis of subcutaneous tissue; may extend down to but not through underlying fascia; &/or mixed partial & full thickness &/or tissue layers obscured by granulation tissue 4 = Obscured by necrosis 5 = Full thickness skin loss with extensive destruction, tissue necrosis or damage to muscle, bone or supporting structures			
3. Edges	1 = Indistinct, diffuse, none clearly visible 2 = Distinct, outline clearly visible, attached, even with wound base 3 = Well-defined, not attached to wound base 4 = Well-defined, not attached to base, rolled under, thickened 5 = Well-defined, fibrotic, scarred or hyperkeratotic			
4. Under-mining	1 = None present 2 =Undermining < 2 cm in any area 3 = Undermining 2-4 cm involving < 50% wound margins 4 = Undermining 2-4 cm involving > 50% wound margins 5 = Undermining > 4 cm or Tunneling in any area			
5. Necrotic Tissue Type	1 = None visible 2 = White/grey non-viable tissue &/or non-adherent yellow slough 3 = Loosely adherent yellow slough 4 = Adherent, soft, black eschar 5 = Firmly adherent, hard, black eschar			
6. Necrotic Tissue Amount	1 = None visible 2 = < 25% of wound bed covered 3 = 25% to 50% of wound covered 4 = > 50% and < 75% of wound covered 5 = 75% to 100% of wound covered			

Item	Assessment	Date Score	Date Score	Date Score
7. Exudate Type	1 = None 2 = Bloody 3 = Serosanguineous: thin, watery, pale red/pink 4 = Serous: thin, watery, clear 5 = Purulent: thin or thick, opaque, tan/yellow, with or without odour			
8. Exudate Amount	1 = None, dry wound 2 = Scant, wound moist but no observable exudate 3 = Small 4 = Moderate 5 = Large			
9. Skin Color Surrounding Wound	1 = Pink or normal for ethnic group 2 = Bright red &/or blanches to touch 3 = White or grey pallor or hypopigmented 4 = Dark red or purple &/or non-blanchable 5 = Black or hyperpigmented			
10. Peripheral Tissue Edema	1 = No swelling or edema 2 = Non-pitting edema extends < 4 cm around wound 3 = Non-pitting edema extends ≥ 4 cm around wound 4 = Pitting edema extends < 4 cm around wound 5 = Crepitus and/or pitting edema extends ≥ 4 cm around wound			
11. Peripheral Tissue Induration	1 = None present 2 = Induration, < 2 cm around wound 3 = Induration 2-4 cm extending < 50% around wound 4 = Induration 2-4 cm extending ≥ 50% around wound 5 = Induration > 4 cm in any area around wound			
12. Granulation Tissue	1 = Skin intact or partial thickness wound 2 = Bright, beefy red; 75% to 100% of wound filled &/or tissue overgrowth 3 = Bright, beefy red; < 75% & > 25% of wound filled 4 = Pink, &/or dull, dusky red &/or fills ≤ 25% of wound 5 = No granulation tissue present			
13. Epithelialization	1 = 100% wound covered, surface intact 2 = 75% to < 100% wound covered &/or epithelial tissue extends > 0.5cm into wound bed 3 = 50% to < 75% wound covered &/or epithelial tissue extends to < 0.5cm into wound bed 4 = 25% to < 50% wound covered 5 = < 25% wound covered			
	TOTAL SCORE			
	SIGNATURE			

WOUND STATUS CONTINUUM



Plot the total score on the Wound Status Continuum by putting an "**X**" on the line and the date beneath the line. Plot multiple scores with their dates to see-at-a-glance regeneration or degeneration of the wound.

PRESSURE ULCERS APPENDIX C
Saskatchewan Resident Assessment Instrument-Minimum Data Set (RAI-MDS) 2.0 for Long Term Care

For clinical decision-making, use validated instruments such as the National Pressure Ulcer Advisory Panel (NPUAP) criteria and the Braden Scale. When completing the Saskatchewan Resident Assessment Instrument-Minimum Data Set (RAI-MDS) 2.0 for Long Term Care, current coding instructions must be followed.

The Saskatchewan RAI-MDS 2.0 Long Term Care User Manual instructs assessors to identify the stages of a pressure ulcer by describing depth in reverse order from deepest to lesser stages to describe the healing or improvement of a pressure ulcer (reverse staging or back staging). It also instructs assessors to code a pressure ulcer covered with eschar as Stage IV.

Use of validated instruments, such as NPUAP, to describe the healing of a pressure ulcer are appropriate for making treatment decisions, however they may not be utilized for coding the MDS. Until the RAI-MDS 2.0 for Long Term Care is revised, the present coding system (reverse staging) must be used for completion of the RAI-MDS 2.0 for Long Term Care.

PRESSURE ULCERS APPENDIX D
Pressure Reduction versus Pressure Relief Surfaces

Pressure Reducing Surface:
A surface that lowers pressure as compared to a hospital mattress or chair surface, but **does not consistently reduce** pressure to less than capillary closing pressure (RNAO, 2002).

Pressure Relieving Surface:
A surface that consistently reduces pressure below capillary closing pressure (RNAO, 2002). It is important to note that pressure relieving does not refer to the removal of all pressure, just lowering of pressure sufficiently to allow blood flow.

Note: All companies are listed, but for best patient outcome, follow manufacturers' directions.

	Pressure Reduction	**Pressure Relief**	**Moisture Reduction**	**Friction Shear Reduction**	**Low Air Loss**	**Stage of Wounds for Treatment**	**Companies for purchasing products**
Mattress Toppers Air Gel Sheepskin Foam Spenco	 Yes Yes Yes Yes Yes	 No No No No No	 No No Low Low Low	 No No Low Low Low	 No No No No No	Protection Only	Australian Sheepskin Apparel Golden Mobility HillRom KCI Medichair Schaan Sheepskin Downunder Span America Waterloo-/Gaymar
Foam Mattresses Recommendation 6 (Assessment and Management)	Yes	No	No	Yes	No	1	HillRom KCI Schaan Span America Stryker
Air Mattresses (Static) Recommendations 3.1, 3.2 (prevention) 6 (management)	Yes	No	No	Yes	No	1-2	Golden Mobility KCI MediChair Hillrom Schaan Span America Stryker Waterloo
Dynamic Mattresses Recommendations 3.1, 3.2 (prevention) 6 (management)	Yes	Yes	No	Yes	No	1-3	HillRom KCI MediChair Schaan Span America Stryker

PRESSURE ULCERS APPENDIX E
Heel Pressure Relief/Reduction Devices

The heel is particularly prone to the effect of pressure because it has a relatively low resting level of blood perfusion. This, coupled with a smaller surface area, increases surface pressure when under load.[1]

The one area of the body that can be totally relieved of pressure is the heel. By use of a pillow lengthwise, along the lower part of the leg, the heel can be 'floated'. This approach could be indicated for individuals who cannot be turned because of the limitations of traction. A contraindication to limb elevation would be ischemia of the lower limb.

There are a variety of devices that are marketed as heel pressure reduction devices and none have been adequately evaluated. Each of these devices needs to be looked at on a individual basis. Each of the devices must be assessed to ensure that the heel is floated off of the surface the foot is resting on. All of the devices should be single patient designated for reasons of infection control.

Name of device	Manufacturer information	Availability	Cleaning information	Pressure relief/reduction	Reduces friction/shear
Heel lift boot	DMI Systems Inc.	Schaan Healthcare, Saskatoon 1-800-254-5438 www.dmsystems.com	Machine washable	Pressure relief	Yes
Heel boot	Hollister	Schaan Healthcare, Nordon Medical, Saskatoon 1-800-263-7400	Washable sheepskin liner	Pressure relief	Yes
Bootie	Spenco	Schaan Healthcare, Saskatoon	Machine washable	Pressure reduction	Yes
Sheepskin boot	Australian Medical Sheepskin	Schaan Healthcare, Freedom Living Devices, Saskatoon	Washable	No	Yes
Gel heel protectors	Akton	Schaan Healthcare, Saskatoon 1-800-661-5432	Outer cover is washable	Pressure reduction	Yes

[1] Mayrovitz et al. Effects of Support Surface Relief Pressures on Heel Skin Blood Perfusion. Advances in Skin and Wound Care. 2003:16 (3);141.

PRESSURE ULCERS APPENDIX F
Selection Of Wheelchair Cushions

Wheelchair cushions have not been adequately evaluated to determine the best cushions for users[1]. Many factors must be taken into account when selecting a cushion. A trial of at least one cushion is strongly recommended before a final decision is made. When selecting a wheelchair cushion, it is important to consider the following areas:

Braden Scale

- Sensory perception loss
- Moisture
- Activity level
- Mobility
- Nutritional status
- Friction and shear (consider the cushion cover as well as cushion structure)

Other factors to be considered:

- Support needed to maintain sitting balance and good posture
- Support provided by the chair
- History of previous pressure ulcer
- Prominence of high risk areas such as coccyx and ischial tuberosities (especially if due to muscle atrophy)
- Ability to weight shift and frequency of positional changes
- Postural alignment
- Care cushion requires (e.g., resources to repair leaking air cushion)
- Program coverage/financial resources available
- Transfer requirements

Cushions must be carefully checked to ensure that there is sufficient protection between all sitting surfaces and bony prominences. As some cushions wear out quickly, some cushions require additions of air/fluid and others require kneading; checking regularly for "bottoming out" is essential. To check if a cushion has bottomed out, place your hand between each bony prominence in turn and check that there is the recommended amount of material between the bony prominence and the sitting surface (this is usually quoted as at least a finger's width). Strength of Evidence =C

When choosing a cushion, the wheelchair must also be taken into account. Wheelchairs that have a hammock sling seat often need a solid seat base under the cushion.

For high risk clients, power or manual tilt in space wheelchair may be an option to maximize the weight bearing surface. A specialized seating team/physiatrist referral will be required.

Pressure mapping with a pressure sensing array is increasingly being used to determine risk areas for skin breakdown, to compare effectiveness of cushions and to design specialized seating to prevent skin breakdown. Strength of evidence =C (Level B for the elderly)

Cullum N, Deeks J, Shldon TA, Song F, Fletcher AW. Beds mattresses and cushions for pressure sore prevention and treatment (Cochrane Review). In the Cochrane Library, Issue 2, Oxford: Update software; 2002.

Cushion Selection Guide

Cushion	Risk Rating (for developing pressure ulcer)	Availability	Incontinence Protection	Reduces Friction/ Shear	Air Circulation	Low Heat
Eggcrate foam	For no risk for comfort only	Special Needs Equipment Program	no	no	no	moderate
2" pinhole foam	comfort only	Special Needs Equipment Program	no	no	no	moderate
3" foam	for low risk only	Special Needs Equipment Program	no	no	no	moderate
T foam	low to medium risk	Special Needs Equipment Program	no	minimal	no	no
Acton Gel	medium risk	Special Needs Equipment Program	yes	minimal	no	no
Bye-Bye Decubiti	low to medium risk	Special Needs Equipment Program	yes	moderate	yes	yes
Stimulite Classic	medium to high risk	**	yes	moderate	yes	moderate
Stimulite Contoured	medium to high risk	**	yes	moderate	yes	moderate
Roho low profile	medium risk	**Special Needs Equipment Program	develops odour	yes	yes	no
Roho high profile	medium + High risk	*Special Needs Equipment Program	develops odour	yes	yes	no
Roho Enhancer	high risk	*Special Needs Equipment Program	develops odour	yes	yes	no
Roho Quadtro	high risk	*Special Needs Equipment Program	develops odour	yes	yes	no
Jay 2	high risk	*Special Needs Equipment Program	yes	moderate	no	moderate
Jay Active	medium to high risk	*Special Needs Equipment Program	yes	moderate	no	moderate
Advantage	medium to high risk	**	yes			
Star Cushion	Similar to ROHO	**				
Procontour Comfort	Specialty seating requirements	**Otto Bock Supplier				
Relax Gel Cell		**				
Mobile Air Chair	High risk	JB Medical		yes	yes	yes
Cloud	Medium to high risk	** Otto Bock Supplier	?			

*needs a physiatrist's or plastic surgeon's signature on the Special Needs Equipment requisition.
All other cushions available from the SNE Program may be ordered by a Physiatrist, OT or PT
Home Care Case Managers may order foam and Bye-Bye Decubiti cushions
** currently being evaluated by the Special Needs Equipment Program.

Call 787-7121 (SAIL) or 374-4448 (Special Needs Equipment Program) for a SAIL catalogue or further information

Cushion Options

Cushion	Advantages	Disadvantages
Egg-crate foam	• light weight • effective for under 80 to 90 lbs	• too thin for wheelchair seating
2" pinhole foam	• inexpensive, easily replaced	• lasts six months to one year • bottoms out easily • deteriorates when washed
3" foam	• inexpensive, easily replaced	• lasts six months to one year • deteriorates when washed
T foam	• reasonable cost • molds to person • does not bottom out as easily	• falls apart if washed • can be warm • lasts one to two years
Acton Gel	• washable, thin • reasonable cost • can be ordered by therapist • relatively inexpensive	• heavy • can bottom out
Bye-Bye Decubiti	• light weight • can be ordered by therapist • high quality rubber	• can bottom out • can be unstable
Stimulite	• air circulation • drains moisture • light weight • washable and durable • contoured option • decrease shear	
Roho – Low profile	• close to capillary pressure • very light weight • low shear • can use for sliding transfer • air circulation	• risk of punctures • can bottom out • can lose pressure slowly • needs pressure monitoring • expensive
Roho – High profile	• less likely to bottom out • very low shear • light weight • air circulation • close to capillary pressure	• risk of punctures • can lose pressure slowly • needs pressure monitoring • expensive • can be unstable
Roho Enhancer	• maximum conformity • custom fit • encourages good sitting position • air circulation	• risk of punctures • can lose pressure slowly • needs pressure monitoring • expensive
Roho Quadtro	• compensates for pelvic obliquity • more stable • close to capillary pressure	• risk of punctures • can lose pressure slowly • needs pressure monitoring • expensive
Jay 2	• encourages good sitting posture • puncture resistant	• must be put in wheelchair correctly • heavy
Jay Active	• puncture resistant • lighter	• easier to perform a sliding transfer

Note: The Special Needs Equipment Program is currently evaluating several other cushions.

PRESSURE ULCERS APPENDIX G
Mattresses

Manufacturers and Distributors

Company/ Distributors	Location	Telephone
Australian Sheepskin Apparel	Saskatoon SK	306-934-7119 800- not available
D & J Foamsmiths	Saskatoon SK	306-665-3626 877-452-3626
Gaymer/ Waterloo Bedding Co. Ltd.	Waterloo ON	800-203-4293, ext.239
Golden Mobility & Rehab Ltd.	Saskatoon SK	306-242-9060 877-825-7542
Hill-Rom Canada	Mississauga ON	800-267-2337, ext.248
KCI Medical Canada Inc.	BC, QC	800-668-5403, ext.6431
MediChair	Saskatoon SK Regina SK	888-327-6495 800-667-2273
Schaan Health Care Products	Saskatoon SK	800-667-3786, ext.333
Sheepskin Downunder	Regina SK	306-757-1999 800- not available
Sleepers Mattress Factory	Saskatoon SK	306-242-7378 800-665-2337
Span America	USA	800-888-6107, ext.336
JB Medical (distributors for Stryker Canada)	Saskatoon SK	800-667-9620

Note: This list is meant as a reference point and is not all-inclusive. Check with your local distributors and or look at mysask.com.

Mattress Consumer Tips

The following are tips on what to look for when purchasing a mattress:

Product Research

- Request a copy of product research. This should be:
  - Scientific evidenced-based research, independent of company studies, and support therapeutic outcomes.
- Has the research been published in:
  - JAMA, ADVANCE, OSTOMY/WOUND? or
  - similar, reputable, peer reviewed journals or reports?
- Would you be allowed to tour the company's lab or research centre?

Product Support

- Is the product manufactured by one company and distributed by another?
  – If yes, which company covers the product warranty?
  – If a partnership between the manufacturer and distributor ceases, who will honor the warranty?
- Does the company provide technical and clinical support 24 hours a day, seven days a week?
- Does the company follow Center of Disease Control (CDC) guidelines for cleaning coverlets and mattresses? Ask for documentation showing this.

Product Features

- Is the mattress latex free? Natural rubber latex is an irritant. Top fabric should be tested for skin irritation using CPSC 16 CFR 1500.41 method.
- Is it fire retardant? Ask to see documentation regarding fire specifications (CAN/CGSB-4.27.7-M89) Safety Code Federal Registration number.
- What does the company do to their mattress seams to prevent fluids from seeping through and contaminating the inner core of the mattress? Are the seams welded to prevent contamination from fluids leaking into the mattress?
- Is the mattress light-weight and portable? It should meet Occupational Health and Safety Standards in this regard.
- Does the mattress fit the width of the bed frame following the Hospital Bed Safety Workgroup (HBSW) guidelines? Further information is available on the FDA website for Bed Safety, http://www.fda.gov/cdrh/beds/

When selecting a static support surface made of foam, consider the following characteristics: stiffness, density, and thickness. Typical values for foam mattress overlays would be a 25% ILD of 30 pounds, a density of 1.3 pounds per cubic foot, and a thickness of 3 to 4 inches (Kemp & Krouskop, 1994).
Note: A thicker mattress (e.g., 6-8 inches) is needed for a bed or bariatric (heavier clients) mattress.

Product Testing

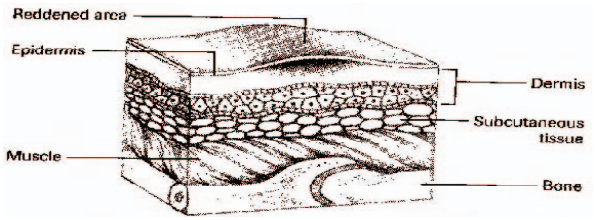
- Does the company address vascular analysis and body temperature response in their research?
- Interface Pressure-full body mapping should be used to measure interface pressure, not just the seat section.
- Head Elevations-the mattress should be tested at several head elevations (e.g., 0', 30', 45').

Note*:* As the head is elevated, the pressure in the coccyx and heel areas is increased. The mattress surface must adjust to reduce interface pressure. What methodology does the company use to reduce pressure in their mattress (e.g., is the mattress zoned)?

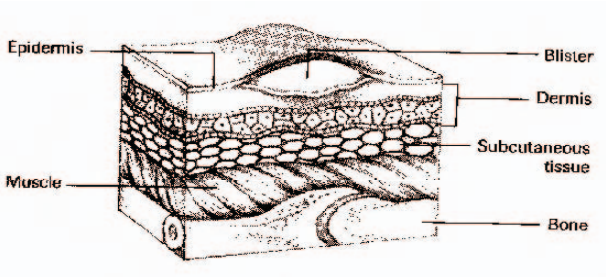
PRESSURE ULCERS APPENDIX H
Pressure Ulcer Staging Pocket Guide

Stages of a Pressure Ulcer

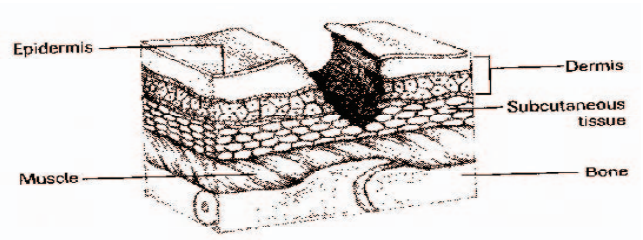
Stage I: Non-blanchable erythema (area appears red/pink) of intact skin, the heralding lesion of skin ulceration. In individuals with darker skin, discoloration of skin, warmth, edema, induration, or hardness may also be indicators.



Stage II: Partial-thickness skin loss of the epidermis, dermis or both. The ulcer is usually superficial and presents clinically as an abrasion, blister or shallow crater.

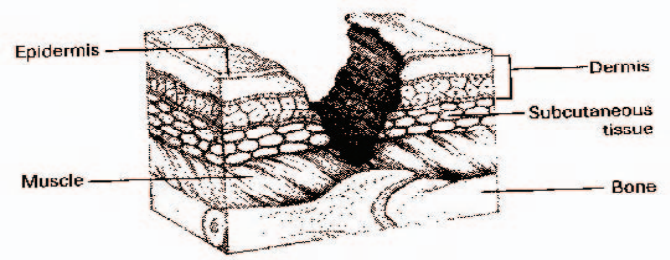


Stage III: Full-thickness skin loss involving damage to or necrosis of subcutaneous tissue that may extend down to, but not through, underlying fascia. The ulcer presents clinically as a deep crater with or without undermining of adjacent tissue.



(To make a portable copy of this pocket guide, copy this page and next page back to back, trim to size and laminate if you wish)

Stage IV: Full-thickness skin loss with extensive destruction, tissue necrosis, or damage to muscle, bone or supporting structures, e.g., tendon, joint capsule. Undermining sinus tracts also may be associated with Stage IV ulcers.



Stage X or Unstageable: When eschar or any necrotic tissue is present, it is impossible to stage the ulcer until the devitalized tissue is removed (Weir, 2001).

The NPUAP states that reverse staging does not accurately characterize what is lost muscle. When ulcers heal to more shallow depth, lost muscle, subcutaneous fat, and dermis does not re-epithelialize. To illustrate: a Stage IV pressure ulcer cannot become a Stage III, Stage II and/or a Stage I ulcer.

Pictures taken from C. Hess. Clinical Guide: Wound Care (3rd. ed). 1999, pp.16-17. Springhouse Corporation. Springhouse, PA. Used with permission of Lippincott Williams & Wilkins.

Pearl of Wisdom: Scar tissue is at increased risk of re-ulceration because it will not achieve greater than 80% of the pre-injury tensile strength. Close monitoring and prevention measures will help protect these at-risk areas.

Lower Limb Ulcers

March 2006
Saskatchewan Skin & Wound Care Guidelines

Lower Limb Guideline Development Process

In February 2005, the Health Quality Council (HQC) convened a subcommittee of the Skin and Wound Care Action Committee to develop the lower limb ulcer section of Saskatchewan Skin and Wound Care guidelines. The Skin and Wound Care Action Committee, co-chaired by the HQC and the Saskatchewan Association of Health Organizations was comprised of skin care experts and representatives from several regional health authorities. It was established in January 2004 with a mandate to provide direction and support in developing and implementing a provincial skin and wound care strategy.

The subcommittee adapted the following evidence-based clinical practice guidelines developed by the Registered Nurses' Association of Ontario (RNAO) to include content specific to Saskatchewan:

- Registered Nurses' Association of Ontario. Assessment and management of venous leg ulcers. Toronto (ON): Registered Nurses' Association of Ontario; 2004.

with content from the following RNAO guidelines incorporated:

- Registered Nurses' Association of Ontario. Assessment and management of stage I to IV pressure ulcers. Toronto (ON): Registered Nurses' Association of Ontario; 2002.

The RNAO used the most current research evidence and expert opinion in the creation of its recommendations. Each recommendation was assigned a rating to indicate the strength of the supporting research evidence to date supporting the recommendation. The RNAO guidelines were also pilot-tested and evaluated.

The subcommittee developed draft guidelines for lower limb ulcers and distributed them to self-identified and selected stakeholders within and outside Saskatchewan for review. The committee incorporated reviewer feedback into a final draft, which was then added to the Saskatchewan Skin and Wound Care Guidelines.

Interpretation of Evidence

The recommendations made in these best practice guidelines have been critically reviewed and categorized by strength of evidence. The following taxonomy provides the definitions of the strengths of evidence and the rating system. Unless otherwise noted, the source of the evidence is the RNAO guidelines.

Strength of Evidence A
Requires at least one randomized controlled trial (RCT) as part of the body of literature of overall quality and consistency addressing the specific recommendations.

Strength of Evidence B
Requires availability of well-conducted clinical studies but no randomized clinical trials on the topic of recommendations.

Strength of Evidence C
Requires evidence from expert committee reports or opinions and/or clinical experience of respected authorities. Indicates absence of directly applicable studies of good quality.

This symbol indicates a pearl of wisdom text box. The pearl of wisdom was created to emphasize important points of clinical information within the guidelines.

Underlined words can be found in the Glossary

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Table of Contents

Introduction

Lower limb ulcers are a common health problem. A recent Canadian study reported a prevalence rate of 1.8 per 1000 for the population 25 years of age and older.[1] Leg ulcer disease is often chronic with recurrence rates of up to 76% within one year.[2]

This guideline outlines the assessment and management techniques related to two common causes of lower limb wounds: chronic venous disease and arterial disease. Chronic venous disease is the main cause of tissue loss and is the underlying cause in 80 to 95% of leg ulcers.[3] Ischemia is the diagnosis in approximately 20% of lower limb wounds.[4]

About 5% of lower extremity wounds are related to other less common etiologies including carcinomas, lymphedema, vasculitis and immunological presentations (pyoderma gangrenosum). The following brief review of these less common etiologies is meant to encourage practitioners to consider other options when wounds do not respond to treatment in a "usual" fashion.

Malignancies of the lower limb are not uncommon. Any wound that presents in an unusual location with a lack of healing in a six to twelve week period or deterioration should be biopsied for possible malignant tissue growth.[5]

Lymphedema can occur in isolation or in combination with venous disease. In lymphedema, the diameter of the leg from knee to ankle is uniform rather than indenting in the "champagne glass" appearance characteristic of venous disease. Lymphedema is often bilateral and can be of unknown origin. Lymphedema management is compression therapy with wraps or a pneumatic pump, if arterial circulation is adequate.[5]

Vasculitis is characterized by multiple purpuric lesions, which are typically extremely painful and are often seen bilaterally. Vasculitis most commonly affects the lower leg where the most stasis is apparent in the limb. Vasculitis of the skin may also be associated with other organ involvement (joints, liver, kidney and gastrointestinal tract are the most common). Skin biopsies are required to determine the cause of the vasculitis and to institute appropriate therapy.[5]

Pyoderma gangrenosum is a destructive ulceration of the skin that is most commonly found on the calves, thighs, buttocks and face. Usually lesions start after minimal trauma, are extremely painful, and rapidly enlarge. Pyoderma gangrenosum can be of unknown etiology but in approximately half of the cases it is associated with an underlying diagnosis of rheumatoid arthritis, inflammatory bowel disease or a hematological malignancy. A biopsy may assist in diagnosis by ruling out other etiologies. Pyoderma gangrenosum is usually a diagnosis of exclusion. Treatment may be the use of immunosuppressant agents. Debridement is absolutely contraindicated in the management of these wounds as trauma can cause the lesion to enlarge.[5]

LOWER LIMB ULCERS

ASSESSMENT ALGORITHM

ASSESSMENT/DIAGNOSIS

- Complete history
- Wound Assessment
- Vascular Assessment (Ankle Brachial Pressure Index--ABPI)
- Investigations

VENOUS STASIS ULCER	*MIXED ETIOLOGY ULCER*	*ARTERIAL ULCER*
Clinical Characteristics • Usually located above the malleolus • Shallow with irregular borders • Typically, large amounts of edema and wound exudate • Granulation tissue or yellow slough usually present in the wound bed • Peri-wound skin may have dermatitis or maceration • Feet are generally warm to touch and pedal pulses are palpable	**Clinical Characteristics** • May be located anywhere on the lower limb • Typically shallow with irregular borders • Granulation tissue is usually present • Peri-wound skin may have dermatitis or maceration depending on the amount of exudate • Feet may be cool to touch with weakened peripheral pulses	**Clinical Characteristics** • Located on bony prominences of the lower legs and feet • "Punched out" appearance with well defined borders • Little/no edema or wound exudate • Yellow slough or black/gray eschar in the wound bed with pale granulation tissue • Feet are cool to touch and pedal pulses are weak or not palpable

Measurement of Ankle Brachial Pressure Index (ABPI) by Doppler Ultrasound

Must be done to guide treatment

VENOUS STASIS ULCER	*MIXED ETIOLOGY ULCER*	*ARTERIAL ULCER*
ABPI between 0.8 – 1.2 mmHG	ABPI between 0.6 - 0.8 mmHG	ABPI greater than 1.2 or less than 0.6 mmHG

Establish underlying etiology

LOWER LIMB ULCERS

MANAGEMENT ALGORITHM

VENOUS STASIS ULCER	*MIXED ETIOLOGY ULCER*	*ARTERIAL ULCER*
Doppler assessment completion & compression should be applied by suitably trained & experienced practitioner	**Consult an advanced wound clinician for treatment decision**	**Refer to Vascular Surgeon**
Treat the Cause • Elevate legs • Calf pump exercises, regular exercise or ROM • Weight management • Skin care • Instructions re: leg elevation, girdles, proper seating, extended standing • Education for the need for lifelong compression and lifestyle changes	**Treat the Cause** • Elevate legs • Calf pump exercises, regular exercise or ROM • Weight management • Skin care • Instructions re: leg elevation, girdles, proper seating, extended standing • Education for the need for lifelong compression and lifestyle changes	**Treat the Cause** • Risk reduction (i.e., smoking, lipid control, avoid trauma) • Maximize nutrition • Control underlying medical conditions • Exercise as tolerated • Proper foot care • Medication compliance
Compression Therapy ABPI 0.8 – 1.2 • Client qualifies for 40 mmHg compression (obtain physician's order) 1. Profore 2. Surepress 3. Compression hosiery 4. Jobst compression pump	**Compression Therapy** ABPI 0.6 – 0.8 • Client qualifies for modified compression 20-30 mmHg (obtain physician's order) 1. 3-layer Profore 2. Coban or Co-plus and cast padding 3. Compression hosiery 4. Tensors	**Incompressible arteries** (ABPI > 1.2) **Inadequate circulation for *compression*** (ABPI < 0.6)
Treat Patient Concerns • Manage pain • Provide emotional support, assess and consider financial situation • Provide patient and family education	**Treat Patient Concerns** • Manage pain • Provide emotional support, assess and consider financial situation • Provide patient and family education	**Treat Patient Concerns** • Manage pain • Provide emotional support, assess and consider financial situation • Provide patient and family education
Treat the Wound • Maintain moisture balance/ manage exudate • Prevent/treat infection • Refer to recommendations on ulcer care (p. 18)	**Treat the Wound** • Maintain moisture balance/ manage exudate • Prevent/treat infection • Refer to recommendations on ulcer care (p. 18)	**Treat the Wound** • Minimal potential to heal without surgery • Prevent/treat infection • Do not debride • Dry out the wound, do not clean with water or saline

DESCRIPTION

Venous Stasis Ulcer

Definition

Venous Stasis Ulcer: Lower extremity ulceration related to disruption in blood flow between the superficial and deep venous system causing chronic venous insufficiency.[6]

Characteristics

Venous Stasis Ulcer Characteristics:

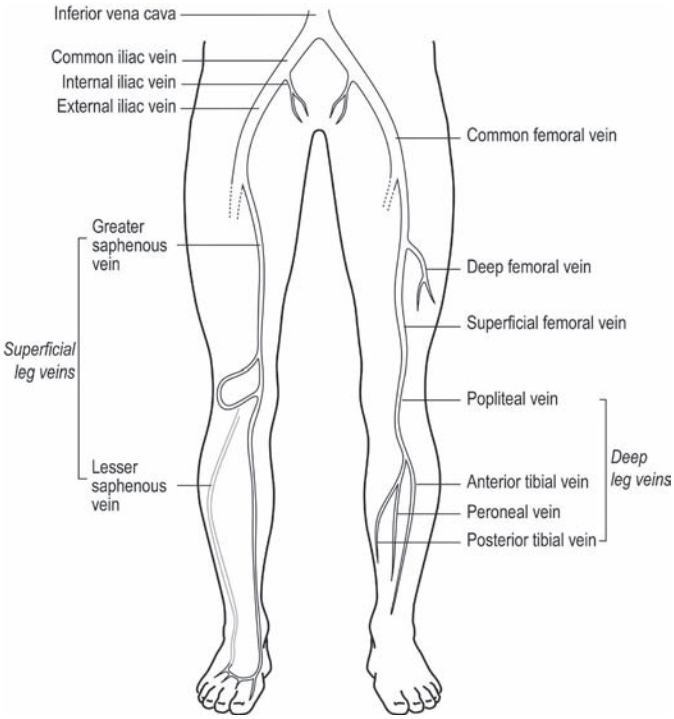
- Usually shallow moist ulcers;
- Situated on the gaiter area of the leg;
- Edema;
- Eczema;
- Ankle flare;
- Lipodermatosclerosis;
- Varicose veins;
- Hyperpigmentation; and,
- Atrophie blanche.

Description

Venous Stasis Ulcer Description: The venous system of the legs consists of deep and superficial systems joined together by perforator veins. The deep veins below the knee run parallel to the corresponding arteries, anterior tibial, peroneal, and posterior tibial. There are more than 100 perforator veins in the leg; perforator vein incompetence is responsible for a lack of healing in some venous ulcers. The calf muscle pump is the primary mechanism returning blood from the periphery to the heart. The calf muscles, the deep venous compartment, the superficial veins and the perforator vessels are all part of the system that moves blood, against the force of gravity, to the heart. Venous valves have a significant role to play in maintaining the blood's upward flow.[4] Loss of valve function, causing blood reflux, or a reduction in the efficacy of the calf muscle pump can cause venous insufficiency.

Initially patients complain of swollen ankles by the end of the day; usually the swelling subsides overnight. Over time the leg edema worsens and the subcutaneous tissue is destroyed with fibrotic tissue replacing previously normal tissue. Red blood cell leakage into subcutaneous tissue, followed by cell disintegration, causes a brown colour change or hemosiderin staining in the skin. This edema and hyperpigmentation, as well as induration in the gaiter area of the limb are classic signs of venous disease. Venous ulcers may vary in size from very small to circumferential; wounds typically present with irregular borders, yellow fibrin covering the ulcer surface and moderate to large amounts of exudate. The recurrent nature of these wounds and the large amount of drainage often predispose individuals with venous ulceration to stasis dermatitis. The incidence of dermatitis in venous ulcer patients ranges from 51-85 per cent.[4] Pain is usually reported as a tired, achy sensation, often worse after standing for long periods of time. Venous hypertension can cause muscle irritability that may be manifested as nocturnal leg cramps.[4]

Figure 1. Deep and Superficial Venous System



Arterial Ulcer

Definition

Arterial Ulcer: Lower extremity ulceration related to disruption in arterial blood flow causing arterial insufficiency.[7]

Characteristics

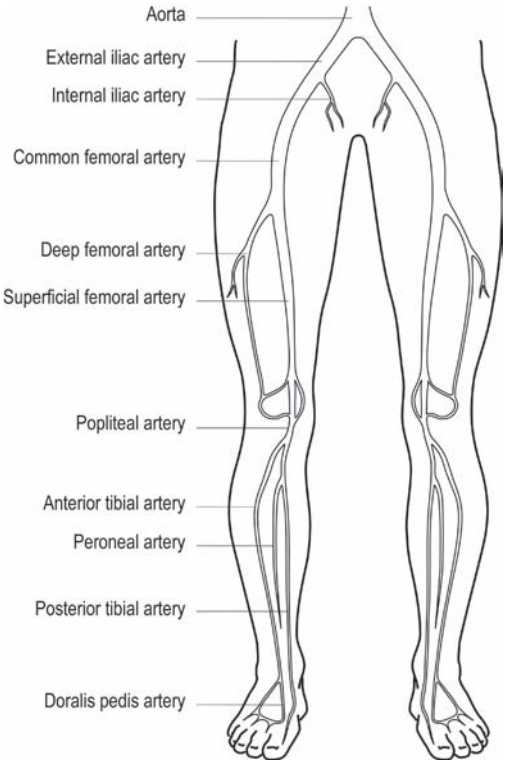
Arterial Ulcer Characteristics:

- Ulcers with a "punched out" appearance;
- Base of wound poorly perfused, pale, dry;
- Cold legs/feet (in a warm environment);
- Shiny, taut skin;
- Dependent rubor;
- Pale or blue feet;
- Gangrenous toes;
- Lack of hair on legs and feet; and,
- Thickened toenails.

Description

Arterial Ulcer Description: Arterial ulcers are usually found at the most distal point of perfusion.[8] Arterial disease is a common condition, especially among smokers, persons with diabetes and the elderly. Arterial disease is progressive and so it is important to recognize and treat complications as early as possible to restrict tissue loss.[9] The common presenting complaint with arterial ulceration is pain. Early on in the disease process the pain may only present with exercise; as the disease worsens it may be present at rest. Often the trauma of ill-fitting shoes or a heat source (hot water bottle) may be the precipitating factor causing ulceration. When a traumatic injury occurs the body initiates an inflammatory response. This response increases local metabolic requirements and blood supply, which may have been barely sufficient to maintain tissue viability, is now inadequate and results in tissue loss or gangrene.[9] Patients with ischemia present with reduced or absent pulses, skin that is thin, shiny and pale, a lack of hair growth and thickened toenails.

Figure 2. Major Arteries of the Lower Extremities



Mixed Etiology Ulcer

Definition

Mixed Etiology Ulcer: Lower leg ulcerations with characteristics of both venous and arterial disease.

Description

Mixed Etiology Ulcer Description: Difficult to identify as they present with combinations of signs and symptoms of both venous and arterial ulcerations.

PRACTICE RECOMMENDATIONS

Prevention

Risk Assessment

1. Risk Assessment:

1.1. Patients who present with a familial history of venous ulceration, varicosities, lower limb trauma or deep venous thrombosis should have a lower limb assessment done. Apply compression hosiery if his/her circulatory status is adequate, as preventive treatment for lower limb ulceration.

Strength of Evidence = C (HQC Committee Consensus, 2006)

1.2. Elderly patients, those who smoke, and persons with diabetes are at high risk of arterial disease. Professional toenail care is a component of a preventive program in these high-risk individuals. Teaching regarding appropriately fitting footwear to protect against trauma, avoidance of heat sources and management of high blood pressure are all important in restricting the risk of limb loss.

Strength of Evidence = C (HQC Committee Consensus, 2006)

Assessment

History and Physical Assessment

2. History and Physical Assessment:

2.1. Assessment and clinical investigations should be undertaken by healthcare professional(s) trained and experienced in leg ulcer management. *Strength of Evidence = C*

Pearl of Wisdom: A complete assessment precedes evaluation of the limb and ulcer characteristics. A comprehensive assessment is essential to determine the underlying ulcer etiology and appropriate treatment approaches.

2.2. A comprehensive clinical history and physical examination including blood pressure measurement, weight, laboratory data (CBC, urea, creatinine, albumin, CRP, ESR, electrolytes, hemoglobin A1C) and Doppler measurement of Ankle Brachial Pressure Index (ABPI) should be recorded for a client presenting with either their first or recurrent leg ulcer and should be annual thereafter. Vascular lab data should be included if available. *Strength of Evidence = C*

2.3. Information relating to ulcer history should be documented in a structured format. *Strength of Evidence = C*

An ulcer history should include:

- The first year the ulcer occurred;
- Site of ulcer and of any previous ulcers;
- Number of previous episodes of ulceration;
- Length of time taken to heal in previous episodes;
- Length of time with no recurrence of ulcers;
- Past treatment methods (both successful and unsuccessful);
- Previous operations on venous and arterial system; and,
- Previous and current use of compression hosiery.

2.4. Examine both legs and record the following signs and symptoms to aid in the assessment of the underlying wound etiology:

- Ulcer size and depth (measure longest length in cm, measure widest point (width) at 90 degrees to length, measure greatest depth in cm);

- Ulcer location;
- Edema;
- Eczema;
- Ankle flare;
- Lipodermatosclerosis;
- Varicose veins;
- Hyperpigmentation;
- Atrophie blanche;
- Exudate;
- Odour;
- Skin – appearance, colour, temperature;
- Wound base; and,
- Gangrene.

Strength of evidence = C

See Lower Limb Appendix A: Leg Ulcer Measurement Tool (LUMT)

Note: Lower limb ulcers are not staged the same as pressure ulcers but are referred to as:

Partial thickness wound – equivalent to the depth of a stage 2 pressure ulcer;
Full thickness wound – equivalent to a stage 3 or 4 pressure ulcer.

Pearl of Wisdom: Where there is mixed venous/arterial etiology, there may be features of venous ulceration in combination with signs of arterial impairment.

2.5. Measure the surface areas of ulcers, at regular intervals, to monitor progress. Maximum length and width, or tracings onto a transparency are useful methods. *Strength of Evidence = B*

2.6. The client's estimate of the quality of life should be included in the initial discussion of the treatment plan, throughout the course of treatment, and when the ulcer has healed. *Strength of Evidence = C*

2.7. Assess the functional, cognitive and emotional status of the client and family to manage self-care. *Strength of Evidence = C*

2.8. Regular ulcer assessment is essential to monitor treatment effectiveness and healing goals. *Strength of Evidence = C*

Pearl of Wisdom: If an ulcer is not progressing in a measurable way then several items must be reassessed: the treatment, the cause, local wound care, and client-related issues.[10]

Diagnostic Evaluation

3. Diagnostic Evaluation:

3.1. A combination of clinical examination and measurement of a reliably taken Ankle Brachial Pressure Index (ABPI) most commonly detect venous and arterial disease of the leg. *Strength of Evidence = A*

See Lower Limb Appendix B: Ankle Brachial Pressure Index (ABPI) Procedure

3.2. Doppler ultrasound measurement of Ankle Brachial Pressure Index (ABPI) should be done by practitioners trained to undertake this measure. *Strength of Evidence = B*

3.3. If there are no signs of chronic venous insufficiency and the Ankle Brachial Pressure Index (ABPI) is abnormal (greater than 1.2 or less than 0.8), arterial etiology should be assumed and a vascular opinion sought. *Strength of evidence = C*

Pearl of Wisdom: If ABPI is 0.9 further investigation is warranted to rule out arterial insufficiency.[11]

3.4. An ABPI < 0.5 indicates severe arterial insufficiency; wound healing unlikely unless revascularization can be done.[9] *Strength of Evidence = B* (HQC Committee Consensus, 2006)

3.5. An ABPI of 0.6-0.8 indicates mixed arterial/venous etiology and modified compression may be warranted.[9] *Strength of evidence = C* (HQC Committee Consensus, 2006)

3.6. Vascular assessment, such as Ankle Brachial Pressure Index (ABPI) is recommended for ulcers in lower extremities, prior to debridement, to rule out vascular compromise.
Strength of Evidence =C

3.7. Vascular assessment, such as Ankle Brachial Pressure Index (ABPI) is recommended for ulcers in lower extremities, prior to initiation of moist wound healing, to rule out vascular compromise.
Strength of Evidence = C

Ulcer care

Cleansing and Debridement

4. Cleansing and Debridement:

4.1. Choose the technique of debridement, considering the type, quantity and location of non-viable tissue, the depth of the wound, the amount of wound fluid, and the general condition and goals of the client. *Strength of Evidence =C*

***Sharp debridement is a high-risk procedure*. This procedure requires specialized training for nurses.**

Wound debridement is contraindicated for the patient receiving anticoagulant therapy, no palpable pulses or with an ABPI of <0.5.

4.2. Cleansing of the ulcer should be kept simple; warm tap water or saline is usually sufficient. *Strength of Evidence = C*

4.3. Moist wound cleansing, using saline or warm tap water, **is only indicated if circulation is adequate to support healing**, and should be done at each dressing change.
Strength of Evidence = C (HQC Committee Consensus, 2006)

4.4. Arterial wounds (**inadequate circulation to support healing**) can be cleaned with water or saline to remove excess debris but never soaked or irrigated.
Strength of Evidence = C (HQC Committee Consensus, 2006)

Pearl of Wisdom: For clients with an ABPI of < 0.5 (arterial ulcer) do not use the principles of moist wound healing. Dry out the wound with Betadine or Cicatrin powder.

4.5. Do not use cytotoxic skin cleansers or antiseptic agents (e.g., povidine iodine, iodophor, sodium hypochlorite solution [Dakin's], hydrogen peroxide, acetic acid) to clean wounds with healthy, granulating tissue. *Strength of Evidence = B*

4.6. Cleanse wounds initially and at each dressing change.
Strength of Evidence = C

4.7. To reduce surface bacteria and tissue trauma, the wound should be gently irrigated with 100 to 500 ml of solution.
Strength of Evidence = C

Pearl of Wisdom: Avoid wound cleansers that may be cytotoxic to granulating tissue.

4.8. 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 psi. Pressure of 4 to 15 psi is achieved by using a 35 ml syringe with a 19 gauge angiocath, or single-use, 100 milliliter saline-squeeze bottle.
Strength of Evidence = B

Dressings

5. Dressings:

5.1. Dressings must be simple, low adherent, acceptable to the client and should be low cost. *Strength of Evidence = A*

See General Appendix G: Dressing Selection Criteria

5.2. Avoid products that commonly cause skin sensitivity, such as those containing lanolin, phenol alcohol, or topical antibiotics.
Strength of Evidence = C

See General Appendix D: Potential Allergens

5.3. Refer clients with suspected sensitivity reactions to a dermatologist for patch testing. Following patch testing, identified allergens must be avoided, and medical advice on treatment should be sought. *Strength of Evidence = B*

5.4. Choose a type of dressing depending on the amount of exudate and the phase of healing.
Strength of Evidence = C

5.5. No specific dressing has been demonstrated to encourage ulcer healing. *Strength of Evidence = A*

5.6. In contrast to drying out, moist wound conditions allow optimal cell migration, proliferation, differentiation, and neovascularization. *Strength of Evidence = A*

Compression for Venous Ulcers

6.0 Compression for Venous Ulcers

Rule out arterial disease. Compression is contraindicated if arterial disease is present and can result in necrosis or amputation.

Compression Bandaging

6.1. Venous surgery followed by graduated compression hosiery is an option for consideration in patients with superficial venous insufficiency. *Strength of Evidence = C*

6.2. The treatment of choice for clinical venous ulceration, **uncomplicated by other factors**, is graduated compression bandaging, properly applied, and combined with exercise. Graduated compression is the main treatment for venous eczema. *Strength of Evidence = A*

Venous eczema is a result of exudate from venous ulceration. Compression heals the wound, reduces the exudate and the eczema resolves.

6.3. High compression increases venous ulcer healing and is more effective than low compression, but should only be used where ABPI $\geq$ 0.8 and ulcer is clinically venous. *Strength of Evidence = A*

6.4. Compression bandages should only be applied by a suitably trained and experienced practitioner. Strength of Evidence = B

6.5. Venous ulceration should be treated with high compression bandaging to achieve a pressure between 35-40 mm Hg. at the ankle, graduating to half at calf in the normally shaped limb, as per La Place's Law.
Strength of Evidence = C

La Place's Law: $P = \frac{4630 \times N \times T}{C \times W}$

Where:

P = sub-bandage pressure (mmHg)

N = number of layers

T = tension within bandage (Kg force)

C = limb circumference

W = width of bandage (cm)

Pearl of Wisdom: Tensor bandages and post-operative anti-embolic stockings do not provide therapeutic compression for treatment and management of venous stasis disease.

6.6. Use protective padding over bony prominences when applying high compression. *Strength of Evidence = C*

6.7. Ankle circumference should be measured at a distance of 2.5 cm (one inch) above the medial malleolus.
Strength of Evidence = C

6.8. Arterial insufficiency is a contraindication to the use of high compression. *Strength of evidence = B*

6.9. A modified form of compression may be used under specialist supervision with ABPI's between 0.6-0.8.
Strength of Evidence = C (HQC Committee Consensus, 2006)

See Lower Limb Appendix D: Compression Hosiery
and Lower Limb Appendix E: Compression Products

6.10. Use compression with caution in clients with diabetes, those with connective tissue disease and the elderly.
Strength of Evidence = C

6.11. Compression therapy should be modified until clinical infection is treated. *Strength of Evidence = C*

6.12. Bandages should be applied according to manufacturer's recommendations. *Strength of Evidence = C*

6.13. When using elastic systems such as "high compression" bandages, the ankle circumference must be more than or padded to equal 18 cm. *Strength of Evidence = C*

6.14. External compression applied using various forms of pneumatic compression pumps is indicated for individuals with chronic venous insufficiency. *Strength of Evidence = A*

Compression Hosiery

6.15. Graduated compression hosiery should be measured and fitted by a certified fitter. *Strength of Evidence = C*

The hazards of incorrectly fitting hosiery are the same as those of improperly applied compression bandages.

6.16. The concepts, practice, and hazards of graduated compression should be fully understood by those prescribing and fitting compression hosiery. *Strength of Evidence = A*

6.17. To maintain a therapeutic level of compression, hosiery should be cared for as per manufacturer's instructions, and replaced every six months. *Strength of Evidence = C*

6.18. Graduated compression hosiery should be prescribed for life
Strength of Evidence = B

Pearl of Wisdom: Compliance tends to be lower in people wearing high compression stockings. Compliance may improve if you prescribe the highest-grade stocking they are able to wear. *Low compression is better than no compression.*

6.19. The client should be prescribed regular vascular exercise by means of intensive controlled walking and exercises to improve the function of the ankle joint and calf muscle pump.
Strength of Evidence = A

Pearl of Wisdom: When resting, elevation of the limb above chest level is beneficial for <u>venous leg ulcers</u>.

Nutrition

7. Nutrition:

7.1. Optimal nutrition facilitates wound healing, maintains immune competence, and decreases the risk of <u>infection</u>.
Strength of Evidence = B

7.2. Ensure adequate dietary and fluid intake to prevent <u>malnutrition</u> and dehydration or replace existing deficiencies to the extent that this is compatible with the individual's wishes.
Strength of Evidence = B

Pain

8. Pain:

8.1. Assess Pain. *Strength of Evidence = C*

See General Appendix B: Pain Assessment Tools

8.2. Pain may be a feature of both venous and arterial disease, and should be addressed. *Strength of Evidence = B*

8.3. Pain may improve with effectively applied compression bandaging for venous ulcers.
Strength of Evidence = C (HQC Committee Consensus, 2006)

Pearl of Wisdom: Clients can experience considerable pain. Pain often increases when the limb is in a <u>dependent</u> position in venous ulcers and upon elevation in arterial ulcers.

8.4. Prevent or manage pain associated with debridement. Consult with a physician and pharmacist as needed.
Strength of Evidence = C

Infection

9. Infection:

9.1. Assess for infection. *Strength of Evidence = A*

Signs and symptoms of infection:

- Inflammation/redness/cellulites;
- Increased pain;
- Purulent exudate;
- Rapid deterioration of the ulcer; and,
- Pyrexia.

Pearl of Wisdom: All wounds are colonized by bacteria, but most do not become infected. In chronic wounds, with adequate circulation, an infection should be suspected if the wound does not begin to show signs of healing after two (2) weeks of optimal treatment.

Pearl of Wisdom: Because the ischemic wound is less able to mount an inflammatory response, clinical signs of infection may be more subtle.[12]

9.2. An infection is indicated when $>10^5$ bacteria/gram tissue is present. *Strength of Evidence = B*

9.3. To obtain a wound culture using the swab technique, cleanse wound with normal saline first. Swab wound bed, not eschar, exudate or edges. Applying firm pressure, rotate swab in wound bed. *Strength of Evidence = C* (HQC Consensus Panel, 2006)

9.4. The treatment of infection is managed by debridement, wound cleansing, and systemic antibiotics, when blood supply is adequate. *Strength of Evidence = A*

9.5. Do not use topical antiseptics to reduce bacteria in wound tissue, e.g., povidone iodine, iodophor, sodium hypochlorite, hydrogen peroxide, or acetic acid. *Strength of Evidence = B*

See General Appendix H: Topical Antimicrobial Agents and SAHO Product List Section

9.6. Antibiotics should only be considered if the ulcer is clinically cellulitic (presence of some of the following signs and symptoms: pyrexia; increasing pain; increasing erythema of surrounding skin; purulent exudate; rapid increase in ulcer size).
Strength of Evidence = C

9.7. Topical antibiotics and antibacterial agents are frequent sensitizers and should be avoided. *Strength of Evidence = B*

Pearl of Wisdom: Infection can be rapidly limb threatening in the presence of ischemia and emergency medical management is required for the purpose of limb salvage.

Revascularization

10. Revascularization:

10.1. Revascularization may be accomplished in several ways: angioplasty, surgical bypass grafting or stent placement. The decision as to which approach is the most appropriate will be made after further testing by the vascular surgeon and in consultation with the client. *Strength of evidence = B* (HQC Committee Consensus, 2006)

10.2. If surgery is not an option, conservative treatment may include raising the head of the bed or lowering the foot to increase gravitational blood flow. The use of wool socks or sheepskin boots may assist in comforting the patient.
Strength of evidence = C (HQC Committee Consensus, 2006)

Complementary Therapies

11. Complementary Therapies

11.1. Consider electrical stimulation in the treatment of venous leg ulcers. *Strength of Evidence = B*

11.2. Hyperbaric oxygen may reduce ulcer size in non-diabetic, non-atherosclerotic leg ulcers. *Strength of Evidence = A*

11.3. Therapeutic ultrasound may be used to reduce the size of chronic venous ulcers. *Strength of Evidence = A*

Reassessment

12. Reassessment

12.1. If clinical condition deteriorates or if there is evidence of infection refer clients on an emergency basis to a physician.
Strength of Evidence = C (HQC Committee Consensus, 2006)

12.2. If there is no evidence of healing within four (4) weeks, reassess treatment plan. If despite appropriate treatment there is no evidence of healing, refer to specialist (vascular surgeon or dermatologist).
Strength of Evidence =C (HQC Committee Consensus, 2006)

12.3. For resolving and healing ***venous*** leg ulcers, routine assessment at six-month intervals should include:

- Physical assessment;
- Ankle Brachial Pressure Index (ABPI);
- Replacement of compression stockings; and,
- Reinforcement of teaching.

Strength of Evidence =C

12.4. For resolving and healing arterial ulcers, routine assessment should include:
- Ongoing pain management;
- Teaching about injury reduction/trauma avoidance.[13]

Strength of Evidence = C (HQC Committee Consensus, 2006)

Secondary Prevention

13. Secondary Prevention

13.1. Measures to prevent recurrence of a venous leg ulcer include:
- Wearing compression stockings;
- Annual follow-up to monitor Ankle Brachial Pressure Index (ABPI);
- Discouragement of self-treatment with over-the-counter preparations; and,
- Avoidance of accidents or trauma to legs.

Strength of Evidence =C

13.2. After the ***venous*** ulcer has healed, inform the client regarding:
- Wearing and maintenance of compression stockings;
- Elevation of affected limb above chest level when at rest;
- Early referral at first sign of skin breakdown or trauma to limb;
- Need for exercise and ankle-joint mobility;
- Appropriate skin care;
- Avoidance of products likely to be sensitizers; and,
- Life-long use of compression along with routine assessment i.e., annual, of ABPIs.

Strength of Evidence = C

13.3. After the ***arterial*** ulcer has healed, inform the client regarding:
- Avoidance of heat sources near lower limbs;
- Need for wearing professionally fitted footwear at all times when ambulatory;
- Professional toenail care;
- Pain management;
- Early referral at the first sign of tissue breakdown or trauma to the limb; and,
- Appropriate skin care.

Strength of Evidence = C (HQC Committee Consensus, 2006)

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Lower Limb Ulcers
Appendices

LOWER LIMB ULCERS APPENDIX A

Leg Ulcer Measurement Tool (LUMT)

The Leg Ulcer Measurement Tool (LUMT) must be used without modification and in the manner indicated in the accompanying general instructions.

Item / Domain	**Response Categories**	**Score**					
		Date (mm/dd/yyyy)					
		__/__/__	__/__/__	__/__/__	__/__/__	__/__/__	__/__/__
(A) CLINICIAN RATED DOMAINS							
A1. Exudate type	**0** None **1** Serosanguinous **2** Serous **3** Seropurulent **4** Purulent						
A2. Exudate amount	**0** None **1** Scant **2** Small **3** Moderate **4** Copious						
A3. Size (from edge of advancing border of epithelium)	**(Length x Width)** **0** Healed **1** <2.5 cm^2 **2** 2.5-5.0 cm^2 **3** 5.1-10.0 cm^2 **4** 10.1 cm^2 or more						
A4. Depth	Tissue Layers **0** Healed **1** Partial thickness skin loss **2** Full thickness **3** Tendon/joint capsule visible **4** Probes to bone						
A5. Undermining	**Greatest at ____ o'clock** **0** 0 cm **1** >0 - 0.4 cm **2** >0.4 - 0.9 cm **3** >0.9 - 1.4 cm **4** >1.5 cm						
A6. Necrotic tissue type	**0** None **1** ***Loose*** white to yellow slough **2** ***Attached*** white to yellow slough or fibrin **3** ***Soft*** grey to black eschar **4** ***Hard*** dry black eschar						
A7. Necrotic tissue amount	**0** None visible **1** 1 to 25% of wound bed covered **2** 26 to 50% of wound bed covered **3** 51 to 75% of wound bed covered **4** 76 to 100% of wound bed covered						
A8. Granulation tissue type	**0** Healed **1** Bright beefy red **2** Dusky pink **3** Pale **4** Absent						

Item / Domain	Response Categories	Score					
A9. Granulation tissue amount	**0** Healed **1** 76 to 100% of wound bed covered **2** 51 to 75% of wound bed covered **3** 26 to 50% of wound bed covered **4** 1 to 25% of wound bed covered						
A10. Edges	**0** Healed **1** ≥50% advancing border of epithelium or indistinct borders **2** < 50% advancing border of epithelium **3** Attached, no advancing border of epithelium **4** Unattached or undermined						
A11. Periulcer skin viability - callus - dermatitis (pale) - maceration - induration - erythema (bright red) - purple blanchable - purple non-blanchable - skin dehydration	Number of factors affected **0** None **1** One only **2** Two or three **3** Four or five **4** Six or more factors						
A12. Leg edema type	**0** None **1** Non-pitting or firmness **2** Pitting **3** Fibrosis or lipodermatosclerosis **4** Indurated						
A13.Leg edema location	**0** None **1** Localized periulcer **2** Foot, including ankle **3** To mid calf **4** To knee						
A14. Assessment of bioburden	**0** Healed **1** Lightly colonized **2** Heavily colonized **3** Localized infection **4** Systemic infection						
Total - (A) CLINICIAN RATED DOMAINS:							

Item / Domain	Response Categories	Score					
(B) PATIENT (PROXY) RATED DOMAINS							
B1. Pain amount (as it relates to the leg ulcer) ***Rate your pain, experienced in the last 24 hours, on a scale from 0 to 10, where 0 is "no pain" and 10 is the "worst pain".***	**Numerical rating scale (0 - 10)** **0** None **1** >0 – 2 **2** >2 – 4 **3** >4 – 7 **4** >7						
B2. Pain frequency (as it relates to the leg ulcer) ***"Which of the following terms best describes how often you have had pain in the last 24 hours?"***	**0** None **1** Occasional **2** Position dependent **3** Constant **4** Disturbs sleep						
B3. Quality of life (as it relates to the leg ulcer) ***"How do you feel about the quality of your life at the present time?"***	**0** Delighted **1** Satisfied **2** Mixed **3** Dissatisfied **4** Terrible						
Total - (B) PATIENT (PROXY) RATED DOMAINS:							
Proxy Completed by:							
Total LUMT Score:							

LUMT 2000 General Instructions

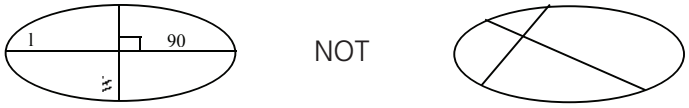
Section A CLINICIAN RATED DOMAINS

Assessments are to be done pre-debridement but after cleansing the wound. Evaluators should note the exudate type and amount on removal of dressings. Whenever possible, the time since the last dressing change should be consistent from one assessment to next.

A1. **Exudate type - Reminder: Some wound care products may change the appearance of the exudate, e.g., silver sulfadiazine or hydrocolloids.**
Definitions:
1 Serosanguinous - thin watery pale red to pink
2 Serous - thin watery clear pale yellowish
3 Seropurulent - thin opaque
4 Purulent - thick opaque yellow to green with foul odour (as distinct from body or foot odour)

A2. **Exudate amount - Reminder: Consider time since last dressing change.**
0 None - ulcer healed or wound tissue dry (if wound dressings changes are not regular)
1 Scant - wound bed moist with dressing dry
2 Small - wound bed moist with some drainage on dressing
3 Moderate - obvious fluid in wound bed and >50% of dressing soaked
4 Copious - overwhelming the dressing system

A3. **Size** - Measure length as the longest diameter; width is perpendicular to length. Avoid diagonals. Calculate wound area as length by width. Write this in space provided and select appropriate response category.



A4. **Depth** - layers. Pick the most appropriate descriptor.

A5. **Undermining** - Place moistened rayon-tipped sterile applicator or wound probe under the edge of the wound. Advance it gently as far as it will go. Place gloved thumb on the applicator against the wound edge to mark the extent of undermining on the applicator. Holding the thumb in place, remove the applicator and measure the distance along the applicator in centimetres. Indicate the area of greatest undermining according to the face of a clock with 12 o'clock at the top of the patient.

A6. **Necrotic tissue type** - ***Reminder: The wound should be thoroughly cleansed before evaluating.*** Pick the predominant type of necrotic tissue, e.g., if most of the wound bed is attached fibrin with small amount of black eschar, choose attached fibrin as tissue type.

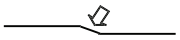
A7. **Necrotic tissue amount** of predominant type selected in A6. The sum of the percentages in A7 and A9 may be less than but should not exceed 100%.

A8. **Granulation tissue type** - Choose predominant type of granulation tissue.

A9. **Granulation tissue amount** - (The sum of the percentages in A7 and A9 may be less than but should not exceed 100%.) The percentage of granulation tissue refers only to the non-epithelialized (open) portion of the wound. The advancing border of epithelium is not considered part of the wound surface.

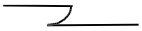
A10. **Edges** - Definition: Indistinct borders - where you would not be able to trace the wound edge.

1 More than half of advancing borders may be indistinct because most of wound is epithelializing.

Advancing wound edge is 

2 Less than half of the wound edge is advancing (the process of epidermal resurfacing appears smooth and shiny).

3 Attached, no advancing border - unable to probe. Looks like 

4 Unattached wound edge is  undermined wound edge is 

A11. **Periulcer skin viability** - Select the following items that are present; count the number selected; then use this total to determine appropriate response category.

Definitions:
Callus - thick dry epidermis

Scaling dermatitis - scaling red skin which may be weeping

Maceration - wet white opaque skin

Induration - feels firmer than surrounding skin when pressed

Erythema - skin redness (bright red)

A12. **Leg edema type -** Indicate the ***worst*** edema type located anywhere on leg.
Definition: lipodermatosclerosis - waxy white firm tissue.

A13. **Leg edema location** - Indicate the most proximal location of ***any*** type of edema. Clinical example: pitting edema ankles with non-pitting edema to mid calf: For A10, leg edema type = 2 >pitting= , A11, leg edema location = 3 >to mid calf=.

A14 **Assessment of bioburden**

1 Lightly colonized: small amount of serous- type exudate.
2 Heavily colonized: large amount of seropurulent drainage with foul odour and no other cardinal signs of inflammation.
3 Localized infection: large amount of seropurulent drainage with foul odour and either induration, erythema, warmth, or pain.
4 Systemic infection: advancing cellulitis or osteomyelitis.

Section B PATIENT (PROXY) RATED DOMAINS

Read the questions "as they are" to the patient. It is important to qualify that the questions refer to the last 24 hours. If the patient is unable to understand the questions due to cognition or language deficits, section B should not be completed or it may be completed by a proxy only if the proxy knows the patient well and has been with the patient for most of the last 24 hours. The same person should provide proxy information for each assessment; do not complete section B by proxy if the same person is not providing proxy information is not the same.

B1. **Pain amount** as it relates to the leg ulcer in the last 24 hours. Determine the rating based on a numerical rating scale ranging from 0 - 10, then place response in appropriate category.

B2. **Pain frequency** as it relates to the leg ulcer in the last 24 hours. How often patient experienced pain in the last 24 hours.

B3. **Quality of life** as it relates to the leg ulcer in the last 24 hours.

Woodbury MG, Houghton PE, Keast DH, Campbell KE. Development, validity, reliability and responsiveness of a new leg ulcer measurement tool. Adv skin wound care. 2004;17:187-196. Used with permission.

LOWER LIMB ULCERS APPENDIX B
Ankle Brachial Pressure Index (ABPI) Procedure

Step 1
- Ensure that the patient is lying flat for 5 to 10 minutes prior to the procedure and is comfortable.

Step 2
- Secure the appropriate size blood pressure cuff around the arm (paediatric or oversized cuffs may be indicated).
- Apply ultrasound gel over brachial pulse.
- Slowly move the Doppler probe at a 45-degree angle to the flow over area until a good signal is obtained.
- Inflate the cuff until Doppler signal disappears, then gradually release the pressure valve until the signal returns. This is the brachial systolic pressure.
- Measure the brachial pressure on both arms. Use the higher of the two measurements. This is the brachial systolic pressure.

Step 3
- Examine the foot for posterior tibial and dorsalis pedis pulses using fingers and/or Doppler probe.

Step 4
- Secure the blood pressure cuff just above the ankle.
- Locate the dorsalis pedis pulse using Doppler probe and gel.
- Inflate the cuff until the signal disappears then gradually release the pressure valve until the signal returns.
- Repeat this process using the posterior tibial pulse. The higher of the two measurements is the ankle systolic pressure.

Step 5
- To calculate the ABPI, divide the ankle systolic pressure by the brachial systolic pressure.

Caution: Unusually high readings may be obtained in elderly or diabetic patients as the cuff may not fully compress the calcified vessel.

Source: Kunimoto B, Cooling M, Gulliver W, Houghton P, Orsted H, Sibbald G. Best practices for the prevention and treatment of venous leg ulcers. Ostomy Wound Management 2001; 47(2):34-50. Adapted from: Moffatt C, O'Hare L. Ankle pulses are not sufficient to detect impaired arterial circulation in patients with leg ulcers. J Wound Care 1995;4(3):134-8, to include work from: Vowden P, Vowden K. (2001). Doppler assessment and ABPI: interpretation in the management of leg ulceration. Worldwide Wounds [serial online] 2001 Mar [cited 2005]; Available from: URL: http://www.worldwidewounds.com/2001/march/Vowden/Doppler-assessment-and-ABPI.html.

LOWER LIMB ULCERS APPENDIX C
Errors in Ankle Brachial Pressure Index (ABPI) Measurement

1. **Not enough gel:** Air is a poor conductor of ultrasound. Gel must be used in order to achieve excellent sound quality.
2. **Wrong cuff selection:** A cuff that is too small will falsely increase pressures on a large arm, up to 40 mmHg, therefore decreasing the ABPI and falsely indicating disease.
3. **Probe pressure:** Too much pressure on the foot and ankle can obliterate the flow signal.
4. **One ankle pressure measurement:** At least two of the three pedal vessels must be measured. With Metabolic Pattern Distal Disease the dorsalis pedis, posterior tibial, and peroneal pulses may all be different. One vessel may produce tissue risk, while the others are normal. Reporting tissue risk based on only one compromised vessel when there is normal flow in the other two vessels may result in unnecessary, more expensive, and invasive studies.
5. **Improper foot position:** Plantar flexion may cause obliteration of the dorsalis pedis pulse. The posterior tibial pulse may be missed if there is a lot of adipose tissue or edema. Dorsiflex the foot slightly to better hear the signals.
6. **Only one arm BP measurement:** Two measurements must always be taken. In the presence of vessel stenosis, the ABPI may appear normal if only the pressure from the diseased arm is used. Always use the highest blood pressure for the ABPI determination.
7. **Probe movement:** The probe may slip on and off the artery due to cuff inflation or an unsteady hand causing an underestimate of the systolic reading. Move distal to the cuff and rest your hand on something. To keep your hand steady, assistance with inflation of the cuff may be required.
8. **Position:** The patient should always be supine. Leg elevation may result in a reading that does not place the patient out of tissue risk and non-healing status on the basis of gravity. Please note on the chart when elevation is necessary and alert the physician.
9. **Too rapid BP assessment:** The opening systolic beats may be missed if the cuff is deflated too quickly. Take two or three readings, slowly, in the same vessel, especially with patients who have arrhythmia. If the BP measurement needs to be repeated, remove the cuff and wait 2-3 minutes before re-inflating the cuff.
10. **Poor cuff placement**: The bladder should be placed over the artery. At times, it may be difficult to obliterate arterial flow. This may suggest calcified vessels.

LOWER LIMB ULCERS APPENDIX D
Compression Hosiery

Low Compression Hosiery		
Brand Name	**Compression (mmHG)**	**Style**
Airway Plus	15 or 18 mmHg	Knee high (men and women) Thigh high (men and women) Pantyhose
Jobst for Men	8 to 15 mmHg & 15 to 20 mmHg	Knee high
Jobst Sensifoot	8 to 15 mmHg	Knee high
Sigvaris: Samson/Delilah	15 to 20 mmHg	Knee high (men and women) Thigh high (men and women) Pantyhose
Venosan Legline	15 to 20 mmHg	Knee high

Moderate Compression Hosiery		
Brand Name	**Compression (mmHG)**	**Style**
Airway Plus	22 mmHg	Knee high (men and women) Thigh high (men and women) Pantyhose
Jobst	20 to 30 mmHg	Knee high (men and women)
Jobst Relief	20 to 30 mmHg	Knee high (men and women) Thigh high (men and women) Waist high Open and closed toe
Sigvaris Sculpture	18 to 25 mmHg	Pantyhose only
Sigvaris 230 Cotton Series & Sigvaris 770 Series	20 to 30 mmHg	Knee high (men and women) Thigh high (men and women) Open and closed toe
Venosan Supportline	18 to 22 mmHg	Knee high (men and women)
Venosan Ultraline 4001	20 to 30 mmHg	Knee high (men and women) Thigh high (men and women) Open and closed toe Pantyhose (regular & maternity)

High Compression Hosiery		
Brand Name	**Compression (mmHG)**	**Style**
Jobst for Men	30 to 40 mmHg	Knee high
Jobst Relief	30 to 40 mmHg	Knee high (men and women) Thigh high (men and women) Waist high Open and closed toe
Jobst Ultrasheer (Ladies)	30 to 40 mmHg	Knee high (men and women) Thigh high (men and women) Pantyhose (regular & maternity)
Sigvaris 230 Cotton Series	30 to 40 mmHg	Knee high (men and women) Thigh high (men and women) Open and closed toe
Sigvaris 500 Series 770 Series 860 Series	30 to 40 mmHg	Knee high (men and women) Thigh high (men and women) Open and closed toe Pantyhose (regular & maternity)
Venosan Ultraline 4002	30 to 40 mmHg	Knee high (men and women) Thigh high (men and women) Open and closed toe Pantyhose (regular & maternity)

LOWER LIMB ULCERS APPENDIX E
Compression Products

SAHO PRODUCTS	Description	Indicators for use	Considerations
Profore	• 4-layer compression bandage composed of a cotton roll, crepe, elset and flexible cohesive bandage that compresses at 30-40 mmHg pressure when applied to a 18-25 cm. ankle.	• Venous stasis ulcer management. • ABPI >0.8	• Must have arterial circulation assessed prior to bandage application due to risk of arterial blood flow restriction with bandaging.
SurePress	• An elasticized 30-40 mmHg compression bandage consisting of a cotton/viscose contact layer and a nylon/lycra outer dressing with rectangular extension indicators for different size limbs.	• Venous stasis ulcer management. • ABPI >0.8	• Must have arterial circulation assessed prior to bandage application due to risk of arterial blood flow restriction with bandaging.
Proguide	• A 2-layer compression system composed of inner cotton padding and an outer compression bandage with circular extension markers that indicate when 30-40 mmHg compression is being applied at the ankle. The bandages are sold according to ankle sizes of 18-22 cm or 22-28 cm.	• Venous stasis ulcer management. • ABPI >0.8	• Must have arterial circulation assessed prior to bandage application due to risk of arterial blood flow restriction with bandaging.

SAHO PRODUCTS	Description	Indicators for use	Considerations
Co-Plus (4")	• A flexible cohesive latex-free bandage that applies 23 mmHg compression to a 18-25 cm ankle when applied in a 50 % overlap up the limb.	• Mixed etiology lower limb wounds. • ABPI >0.6	• Must have arterial circulation assessed prior to bandage application due to risk of arterial blood flow restriction with bandaging.
Coban (4")	• A flexible cohesive bandage that applies 23 mmHg compression to a 18-25 cm ankle when applied in a 50% overlap up the limb.	• Mixed etiology lower limb wounds. • ABPI >0.6	• Must have arterial circulation assessed prior to bandage application due to risk of arterial blood flow restriction with bandaging.
Profore Lite	• 3-layer bandage system composed of a cotton roll, crepe and a flexible cohesive bandage that compresses at 23 mmHg when applied to an 18-25 cm size ankle.	• Mixed etiology lower limb wounds. • ABPI >0.6	• Must have arterial circulation assessed prior to bandage application due to risk of arterial blood flow restriction with bandaging.
Shaped Tubigrip	• An elastic tubular support bandage that is anatomically shaped to aid lower limb venous return. • It offers 18-25 mmHg compression at the ankle when fitted to the size of the limb. It comes in a variety of full and half leg sizes.	• Mixed etiology lower limb wounds. • ABPI >0.6	• Must have arterial circulation assessed prior to bandage application due to risk of arterial blood flow restriction with bandaging.

SAHO PRODUCTS	Description	Indicators for use	Considerations
Comprilan	• A compression bandage system composed of a cotton roll and two inelastic outer wraps of different widths (8, 10 or 12 cm). The applicable bandage size is established by an assessment of limb width at the ankle and the calf. Comprilan compresses with limb movement up to 40 mmHg.	• Venous stasis ulcer management. • ABPI >0.8	• Must have arterial circulation assessed prior to bandage application due to risk of arterial blood flow restriction with bandaging.

Diabetic Foot Ulcers

Watch for information on the development of a Diabetic Foot Ulcers section, to be added to the Saskatchewan Skin and Wound Care Guidelines in the future.

Implementation Guide

March 2006
Saskatchewan Skin & Wound Care Guidelines

Table of Contents

Introduction

> *Quality is never an accident; it is always the result of an intelligent effort.*
> – John Ruskin, English essayist (1819-1900)

A wealth of research evidence shows that simply distributing best practice guidelines does not lead to better patient outcomes or improved quality of care. Successful adoption and implementation of these guidelines will require a carefully planned and well-executed strategy. It is our hope that this Implementation Guide will serve as a useful reference in planning and carrying out your implementation strategy.

In the summer of 2004, the HQC invited acute care, home care, and long-term care facilities across the province to participate in an HQC-sponsored pilot project to implement the Saskatchewan Pressure Ulcer Guideline. The objectives of this pilot project were to:

- Test an evidence-based implementation strategy;
- Evaluate the impact of implementing the pressure ulcers guideline on the incidence and prevalence of pressure ulcers;
- Identify the barriers and facilitators to implementation and identify strategies most effective in overcoming barriers; and
- Evaluate the structure and content of the pressure ulcers guideline.

Six long-term care facilities and one mixed acute/long-term care facility were chosen to participate in the project: Central Haven Special Care Home, Saskatoon; Estevan Regional Nursing Home; Parkland Place, Melfort; Porteous Lodge, Saskatoon; St. Ann's Senior Citizens' Village, Saskatoon; St. Joseph's Hospital, Estevan; and St. Paul Lutheran Home, Melville.

Between November 2004 and September 2005, the HQC supported these facilities' efforts to incorporate the pressure ulcer guideline into their daily practice. The HQC designed and supported an evidence-based implementation strategy that included establishing local interdisciplinary wound care committees, and providing training and ongoing clinical support.

Insights from the pilot project inspired the development of this Implementation Guide, designed to serve as a starting point for teams implementing the Saskatchewan Skin and Wound Care Guidelines. Drawing on quality improvement literature, it provides tips, tools and templates that can be used by teams in their improvement efforts. It is not, however, intended to be a recipe or "one size fits all" approach to implementation; users of this guide are encouraged to be innovative and to test and evaluate their own implementation strategies. It was designed for use in long-term, acute, and home care settings. Each team will have its own unique challenges and circumstances. No one strategy can address them all, but we hope that this guide will be a helpful starting point.

Several tools and templates are provided on the accompanying CD. Feel free to adapt these to meet your own needs.

We wish you all the best as you embark on this exciting and challenging quality improvement journey. We welcome any feedback on the Implementation Guide, and invite you to visit our website for additional quality improvement tools: www.hqc.sk.ca.

Throughout the Implementation Guide, you will find "Pilot site pearls". These boxes are similar to the pearls of wisdom found throughout the guidelines, and are intended to share the challenges, highlights and lessons learned from the pilot site experience.

Getting Started

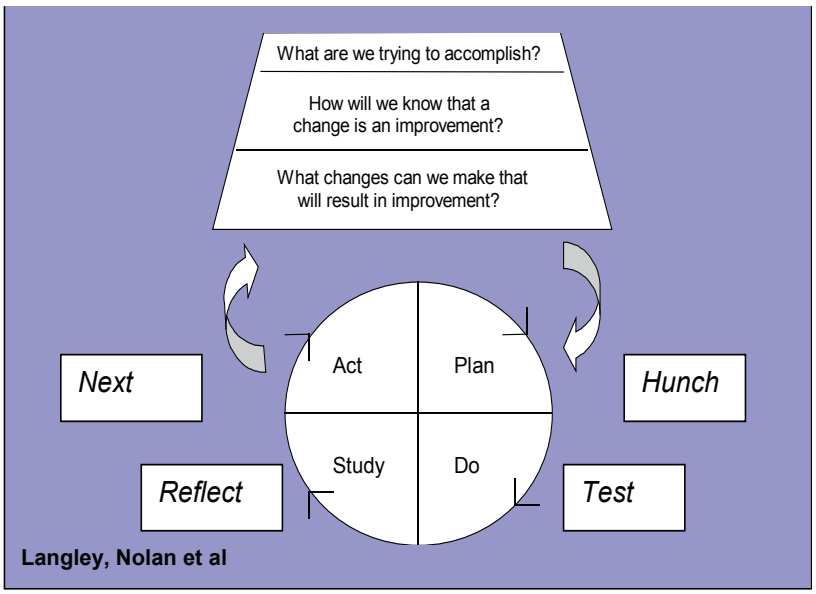
THE MODEL FOR IMPROVEMENT
All improvement involves change, not all change is an improvement.

Making changes to the way that we do things can be time-consuming and can sometimes feel risky. The Model for Improvement (Langley et al., 1996) is a tried and tested approach to achieving successful change. Use of the model offers the following benefits:

- It is a simple approach that anyone can apply;
- It reduces risk by starting small; and,
- It is highly effective.

The Model for Improvement
The model provides a framework for developing, testing and implementing changes that will lead to improvement.

The model consists of two parts that are of equal importance. The first, the 'thinking part', consists of three fundamental questions that are essential for guiding improvement work. The second part, the 'doing part', is made up of Plan, Do, Study, Act (PDSA) cycles that will help you make rapid change.



The three fundamental questions for achieving improvement
A planned approach to improving things will give you a better chance of being successful. The three fundamental questions for achieving improvement are a useful way of framing your work. When you have completed your Quality Improvement (QI) Charter, you will have answered the first two questions.

1. What are we trying to accomplish?
This question is intended to help you be clear about the improvements that you would like to make, what results you would like to get and how you would like things to be different. Having a clear aim is crucial.

2. How will we know that a change is an improvement?
Without measurement it is impossible to know whether you have improved. Think about how you want things to be different when you have implemented your change and agree what data you need to collect to measure it.

3. What changes can we make that can lead to an improvement?
Finally, you need to decide what changes you will try in order to achieve the results you are looking for. Change ideas may come from: evidence/ best practices; other teams that have made improvements; team member hunches; and analysis of your current processes (see Facility Self-Assessment Tool, and Process Mapping). You can adapt ideas from elsewhere or be completely creative.

Gather together as many ideas as you can. These will form the basis for the next step – your PDSA cycles (see PDSA Cycles on page E-32).

Checklist for Senior Leadership

Senior leaders support the front line QI team's efforts to plan, execute, and sustain the implementation process. Managers and senior leaders provide resources, minimize organizational obstacles, and influence policy decisions to ensure the success and sustainability of improvement efforts. Their support also communicates to the QI team and other staff that the change is important and that it links with organizational goals.

You may find this checklist a helpful reference in planning how you will support your front line QI team(s). As you go through the list, check the box if you can answer "YES" to the statement. This will quickly identify areas where you might need some further planning before you get started.

Task	Supporting Tools/ Resources
PLANNING	
☐ It has been decided that implementing the Saskatchewan Skin and Wound Care Guidelines is an organizational priority.	
☐ If a leadership team has been established, members are aware of their roles and responsibilities.	
☐ A clear improvement aim has been established.	Model for Improvement (page E-8) Quality Improvement Charter (page E-14)
☐ The necessary budget & other resources have been secured to support the planning, execution & evaluation of the implementation process.	
☐ Potential implementation barriers and facilitators have been identified	Gauging Readiness for Change (page E-36) Organizational Readiness Assessment Tool (page E-37)
☐ A Team Sponsor has been identified and recruited to support the front line QI Team	Quality Improvement Charter (page E-14)
☐ A Clinical Leader has been identified and recruited.	Quality Improvement Charter (page E-14)
☐ The roles and responsibilities of front line QI Team members have been explicitly described – this is the team who will lead the implementation process.	Team Composition (page E-24)
☐ The QI Team has been recruited.	

EXECUTING

- ☐ Ongoing support is being provided to the QI Team.
- ☐ A plan is in place for acknowledging the achievements made by the QI Team.

SUSTAINING

- ☐ New skin and wound care practices have been integrated into policies and procedures.
- ☐ New skin and wound care practices have been integrated into training & orientation programs.
- ☐ There is a system in place for ongoing education and support
- ☐ There is a system in place for ongoing evaluation & monitoring of staff knowledge & skills, to ensure the guidelines are being followed in practice.

Pilot site pearl: At all sites, the facility manager/director of care was a member of the wound care committee. At several sites, the facility manager was a key source of support for the team coordinator, particularly when changes were met with resistance, and when additional resources were needed.

Checklist for Front Line Quality Improvement Team

Interdisciplinary front line QI teams play a critical role in the planning, execution and sustainability of any improvement effort in healthcare. Front line care providers are in a unique position to assess current processes of care, identify improvement opportunities, and promote improvements among their peers.

You may find this checklist a helpful reference in planning your implementation strategy. As you go through the list, check the box if you can answer "YES" to the statement. This will quickly identify areas where you might need some further planning before you get started.

Task	Supporting Tools/ Resources
PLANNING	
☐ Through our team sponsor, we have active support from the senior leadership team	Quality Improvement Charter (page E-13)
☐ Our roles and responsibilities as QI Team members have been clearly outlined	Team Composition (page E-24) 10 Essential Ingredients for a Successful Team (page E-25) Running a Successful Meeting (page E-27) Agenda Template (page E-29) Meeting Record Template (page E-30)
☐ We have a clear picture of how skin and wound care is currently being delivered in our facility	Facility Self-Assessment Tool (page E-16) Process Mapping (page E-20)
☐ We have identified gaps between recommended and current practices (i.e., potential improvement areas)	Facility Self-Assessment Tool (page E-16)
☐ We have chosen 2-3 priority improvement areas	Facility Self-Assessment Tool (page E-16)
☐ We have set specific goals & progress measures for each improvement area	Quality Improvement Charter (page E-14) Measurement for Improvement (page E-22) Model for Improvement (page E-8)
☐ Priorities for improvement have been approved by senior leadership	
☐ We have completed our Quality Improvement Charter	Quality Improvement Charter (page E-14) Facility Self-Assessment Tool (page E-16)
☐ We have assessed potential implementation barriers and facilitators	Gauging Readiness for Change (page E-36)
☐ We have developed a plan for engaging key stakeholders	Quality Improvement Charter (page E-14) Diffusion of Improvements (page E-34) Reactions to Change (page E-35) Communication Plan (page E-39)

EXECUTING

☐ We have started testing changes on a small scale	PDSA Cycles (page E-32) PDSA Cycle Planning and Progress Sheet (page E-33) Model for Improvement (page E-8)
☐ We have a system in place to monitor progress, act on it, and communicate results to key stakeholders	Measurement for Improvement (page E-22) PDSA Cycles (page E-32) Communication Plan (page E-39)
☐ We have developed a detailed education plan	Developing an Education Plan (page E-44)
☐ We have recruited educators/ trainers	Assessing Educators and Learners (page E-47)
☐ We have assessed learning needs	Assessing Educators and Learners Sample Knowledge Survey for Nursing Staff (page E-48) Sample Knowledge Survey for Special Care Aides (page E-50)
☐ We have designed the initial learning event	Planning a Learning Event (page E-52) Learning Event Plan Template (page E-55) PowerPoint: Risk Assessment & Prevention (see CD) PowerPoint: Assessment & Management (see CD)
☐ We have conducted and evaluated the initial learning event	Evaluating a Learning Event (page E-57)
☐ We have completed the first round of educational sessions	
☐ We have decided on additional implementation strategies (e.g., reminders: pocket cards, posters)	See Appendix H of Pressure Ulcer Guidelines for Pressure Ulcer Staging Pocket Guide.

SUSTAINING

- ☐ We have made recommendations re: integrating new skin and wound care practices into policies and procedures
- ☐ We have made recommendations re: integrating new skin and wound care practices into training & orientation program
- ☐ We have made recommendations re: ongoing evaluation & monitoring of staff knowledge & skills

Pilot site pearl: When asked what additional support would have accelerated their improvements, several teams indicated that they had difficulty deciding where to begin, and that some guidance and support in choosing their first steps would have been very helpful. This checklist is intended to provide this kind of support.

Quality Improvement Charter Template

Improvement Aim	
Objectives	
Clinical Leader	
Team Sponsor	
Team Members	
Scope	
Measures	Outcome: Process: Balancing:
Key Stakeholders	
Timeframe	Beginning Date: End Date:
Meetings	
Constraints	
Resources	

Quality Improvement Charter Glossary

Improvement Aim	An explicit statement of aim summarizing what the team is trying to accomplish. A clear, measurable, time-specific aim statement helps focus and guide the team's efforts. Example: Within 8 months, the incidence of new pressure ulcers developed in our facility will be zero.
Objectives	In order to meet your aim, your team will identify 2-3 priority improvement areas. For each area, you will identify a specific objective. Example: Within 6 months, 100% of at-risk residents will have a pressure-ulcer-prevention-plan in their care plan.
Clinical Leader	Recognized and respected member of the community who is seen as knowledgeable and credible by clinical peers. He or she understands the processes of care, is willing to try new ideas, adapt an innovation to the local situation, and demonstrate its relative advantage over an existing practice. Ideally, your team's clinical leader will have a personal interest or specialized training in wound care, and some prior experience implementing best practice guidelines.
Team Sponsor	The person or team in the organization that provides the resources for the charter, minimizes organizational obstacles to the effort, and keeps senior management apprised of progress. The team sponsor's role and communication preferences should be clarified early in the improvement project.
Team Members	Quality improvement in health care requires teamwork. Consider the aim of your improvement effort when determining team composition. Be explicit about roles and expectations for team members. See "Team Composition".
Scope	What specific part(s) of the improvement process will this team be responsible for (e.g., planning, implementing, evaluating, monitoring)? How will the team know when its work is done? What are the key "deliverables"?
Measures	Only through measurement can teams determine whether a change is an improvement. Teams should have at least one outcome measure (what is better for the patient?), one process measure (what is better about provision of care?), and one balancing measure (what is the impact of the changes on other parts of the system?). See "Measurement for Improvement."
Key Stakeholders	Those individuals and groups who have an influence on the change initiative, may be affected by the outcomes, or share an interest in the project and would like to be informed of its progress and outcomes. Examples of stakeholders include: patients, family members, staff and care providers, facility and regional managers.
Timeframe	Specify a beginning and end date. You may also choose to identify milestones to review.
Meetings	Specify the purpose, frequency, and types of meetings your team will conduct. Meeting types may include: traditional face-to-face meetings, team huddles, and/or teleconferences. See "running a meeting." Clarify expectations regarding attendance & participation.
Constraints	Identify any boundaries or limitations that may impact this improvement effort. Constraints may include financial or human resource limitations, or parts of the system that have to stay as they are.
Resources	Does the team have a budget (e.g., for meeting expenses)? Who will approve expenditures? Who can the team turn to for expert guidance and coaching on improvement?

Facility Self-Assessment Tool for Pressure Ulcer Care: Instructions

The purpose of this tool is to help front line QI teams identify priority improvement areas for pressure ulcer care. Pilot site coordinators indicated that one of the most difficult aspects of implementing the pressure ulcer guidelines was deciding where to begin. This tool is intended to provide assistance in making that decision. Each item on the tool is a best practice recommendation from the Saskatchewan Pressure Ulcer Guidelines.

After completing the tool, teams should be able to:

1. Identify 2-3 priority improvement areas for pressure ulcer care; and,
2. Set a specific objective for each priority improvement area.

Instructions for using the tool:

1. As a team, answer each question by circling the number that best describes current practices in your facility. Those most familiar with day-to-day practice in the facility should be included in the self-assessment process, including all members of your front line QI team.
2. When the team has answered all of the questions, go back and identify areas for improvement. Items that are scored as "never" or "some of the time" are considered areas for improvement, and are indicated by shaded grey boxes on the tool.
3. List the areas for improvement in order of priority. High priority areas may include the most pressing or most promising (i.e., those that show the greatest room for improvement, or those that would be relatively easy to change and could, therefore, lead to a "quick win").
4. Choose the top 2-3 priority improvement areas. Set a specific objective for each priority improvement area. Enter these objectives into your Quality Improvement Charter.
5. As a team, use the tool on a regular basis to re-assess, monitor your progress, and identify areas for future improvement efforts.

Facility Self-Assessment Tool for Pressure Ulcer Care

Date:_____

As a team, answer each question by circling the number that best describes current practices in your facility.

Risk Assessment

1. A pressure ulcer risk assessment tool (e.g., Braden Risk Assessment Scale) is used to screen clients for risk of developing a pressure ulcer:

a. Upon admission.

Never	Some of the time	Most of the time	Always
1	2	3	4

b. Upon transfer of care.

Never	Some of the time	Most of the time	Always
1	2	3	4

c. Any time there is a change in health status.

Never	Some of the time	Most of the time	Always
1	2	3	4

Pressure Ulcer Prevention Plan for Clients at Risk

2. An individualized care plan for preventing pressure ulcers is developed for each client who is identified as being at risk for developing a pressure ulcer:

Never	Some of the time	Most of the time	Always
1	2	3	4

3. The care plan includes:

a. A positioning schedule:

Never	Some of the time	Most of the time	Always
1	2	3	4

b. Pressure reducing or relieving devices and equipment used or requested (e.g., pressure reducing/ relieving mattresses, cushions):

Never	Some of the time	Most of the time	Always
1	2	3	4

c. A nutritional intervention (e.g., consult with a dietician, increase protein intake, increase calorie intake, multi-vitamin supplementation) for clients with poor nutrition:

Never	Some of the time	Most of the time	Always
1	2	3	4

d. A plan to manage moisture for incontinent clients (e.g., use incontinence products that wick and hold moisture, use prompted voiding):

Never	Some of the time	Most of the time	Always
1	2	3	4

Care Plan for Clients with a Pressure Ulcer

4. An individualized care plan is developed for each client who has a pressure ulcer:

Never	Some of the time	Most of the time	Always
1	2	3	4

5. The care plan includes:

a. A positioning schedule:

Never	Some of the time	Most of the time	Always
1	2	3	4

b. Pressure reducing or relieving devices and equipment used or requested (e.g., pressure reducing/ relieving mattresses, cushions):

Never	Some of the time	Most of the time	Always
1	2	3	4

c. A nutritional intervention (e.g., consult with a dietician, increase protein intake, increase calorie intake, multi-vitamin supplementation) for clients with poor nutrition:

Never	Some of the time	Most of the time	Always
1	2	3	4

d. A plan to manage moisture for incontinent clients: (e.g., use incontinence products that wick and hold moisture, use prompted voiding):

Never	Some of the time	Most of the time	Always
1	2	3	4

Wound Care Documentation

6. Pressure ulcer treatments are clearly and thoroughly documented on a wound record:

Never	Some of the time	Most of the time	Always
1	2	3	4

7. Pressure ulcers are assessed and measured regularly to monitor progress/ healing:

Never	Some of the time	Most of the time	Always
1	2	3	4

Prioritize the Areas for Improvement

Items to which you responded "never" or "some of the time" highlight your areas for improvement.

List the areas for improvement in order of priority. High priority areas may include the most pressing and/or most promising (i.e., those that show the greatest room for improvement, or those that would be relatively easy to change and could, therefore, lead to a "quick win").

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

13.

14.

15.

Priority Areas for Improvement: Our Objectives

Choose the top 2-3 priority improvement areas and record them in the table below. For each area, specify your objective for that area. For example: Within 6 months, 100% of at-risk residents will have a pressure ulcer prevention plan in their care plan. Enter these objectives into your Quality Improvement Charter.

Priority Improvement Area	**Objective**

Process Mapping

To determine where you are going on your improvement journey, you must first determine where you are. In other words, a clear understanding of your current processes will reveal the most promising, and most pressing, improvement opportunities.

What is a process?

Processes are a series of connected steps or actions that achieve an outcome. A process can be short and simple, or it can be long and complex, but every process has a defined beginning and end. For example, a process might begin with the symptom and end with resumption of good health. Similarly, a process might begin with the request for an x-ray and end with the result.

Process Mapping

A process map is a picture of the sequence of steps in a process. The following tips may help your team map their own processes:

- Define the scope: where does this process begin and where does it end?
- Include everyone who takes part in the process from start to finish, including patients and care providers. No one person knows the entire process;
- Identify steps from the patient/customer's perspective;
- Focus on what happens to 80% of the patients 80% of the time. Avoid mapping what "should" happen, or what happens in rare or exceptional cases;
- Pay particular attention to all steps involving a hand-off, when information or work moves from one individual or group to another (e.g., from acute care to long-term care, from physician to nurse) - handoff areas are prone to errors and confusion;
- Determine the purpose or intended use of the process map – this will help you decide on the level of detail required;
- Respect all contributions;
- Raise issues and questions; and,
- Do not assign blame.

Creating your map:

- Using a whiteboard or sticky notes, write down each step in the process. Do not leave out a single step;
- For each step, write down the task and the name of the person(s) who carries out that task; and,
- Arrange the steps in order, but feel free to add new steps and move steps around at any point.

Analyzing the Process Map

Once the process is mapped, it is time for your team to critically analyze it. Depending on your improvement objectives, you may identify ways to make this process safer, quicker, error-free, cost-effective, and/or streamlined (logical flow, fewer delays and hand-offs).

For each step, answer these questions:

- Can it be eliminated?
- Can it be done in some other way?
- Can it be done in a different order?
- Can it be done somewhere else?
- Can it be done in parallel?
- Can any "bottlenecks" be removed?
- Who is responsible? Is it being done by the most appropriate person?

Measurement for Improvement

All improvement involves change, not all change is an improvement. So, how will we know that a change is an improvement?

Only through measurement can teams determine whether a change actually made things better. Improvement teams should regularly monitor a family of measures: outcome, process, and balancing measures.

Outcome Measures

Outcome measures answer the question: what is better for the patient? These measures are typically amenable to counting and can often be measured using a standard tool. Examples of outcome measures include: incidence of pressure ulcers, scores on a risk scale, number of infections.

Process Measures

Process measures answer the question: what is better about the way care is delivered? These measures indicate whether the processes of care have improved. Examples of process measures include: integration of Braden Risk score into care plans, consistency of wound care practice and documentation.

Balancing Measures

Balancing measures answer the question: what in the system may be adversely affected by the changes? We cannot change one part of a system without influencing other parts in some way. Balancing measures help teams track the impact of their changes on other parts of the system, including unintended consequences. For example, if we start to regularly reposition patients at risk of developing a pressure-ulcer, we will want to monitor the impact of our intervention on patients (e.g., sleep, pain) and staff (e.g., workload, injuries).

Measures should be:

- Useful – they needn't be perfect – measures should tell you whether the changes are having the desired impact;
- Simple – use existing sources of data whenever possible; any new measures should be easily incorporated into day-to-day work;
- Minimal – collect just enough data to satisfy the needs of the team; measurement should speed improvement, not slow it down; and,
- Real-time – routinely collect and present data to gauge progress and the continuing impact of the change.

Measurement can be a powerful tool for stimulating and sustaining improvements.

Pilot site pearl: The HQC was responsible for collecting data from the sites (e.g., Braden Risk Assessments and wound records), analyzing it, and sharing summary results with the sites. In hindsight, we would encourage local data collection, analysis and synthesis. Teams who develop and monitor their own measures are in a much better position to identify improvement opportunities and assess their own progress.

Building your Front Line Quality Improvement Team

Team Composition

Interdisciplinary team approach: Including the right people on your front line QI Team is critical to any successful improvement effort. Recruit staff and care providers from all aspects of the patient experience; each discipline brings a unique perspective on the processes of care involved in preventing and managing wounds. Depending on local resources, your committee may include nursing staff, special care aides, physicians, occupational therapists, physical therapists, nutritionists, dietitians, recreational therapists, social workers, and materials management personnel.

Team size: It is important to consider size when developing QI teams. A team that is too large may have difficulty coordinating schedules for meetings, and meetings may involve lengthy discussions and little consensus.

On the other hand, a team that is too small may be missing representation from key groups, and might feel overwhelmed by having to accomplish so many tasks with so few resources.

The optimal team size is between 6 and 12 members.

Pilot site pearl: In some facilities, the Wound Care Committee provided their first formal opportunity to have members of different departments and disciplines share their expertise. Members appreciated having their contributions to skin and wound care recognized, and being included in the improvement process. For example, in several sites, special care aides became QI champions once their critical role in the prevention of pressure ulcers was highlighted.

Wound care committees helped build relationships and understanding across departments by facilitating the sharing of both information and resources. One facility found that having someone from materials management on their Wound Care Committee facilitated their efforts to standardize and acquire skin and wound care products (e.g., dressings, cleansers, lotions). Another site found that the occupational therapist on their committee was integral to acquiring new support surfaces and cushions.

10 Essential Ingredients for a Successful Team

Although conflict is to be expected in any team, some common group difficulties can be prevented when teams ensure they have the following essential ingredients:

1. **Clarity in Team Goals**
   A team works best when everyone understands its purpose and goals. If there is confusion or disagreement about goals, effective teams work to resolve the issues and reach consensus.

2. **Established Ground Rules**
   Highly effective teams outline how they will work together and establish behavioural expectations for team members. For example, ground rules may include: we will start and finish meetings on time; we will value diversity of opinion in the group & respect each person's contribution.

3. **A Work Plan**
   Successful teams outline who will do what when. Clear action plans help the team identify what resources, materials or training are needed throughout the project so that they can plan accordingly. Work plans also flag uneven distribution of tasks among team members.

4. **Clearly Defined Roles**
   Teams operate most efficiently if they tap everyone's talents and all members understand their duties and know who is responsible for what issues and tasks. Roles may need to be re-visited periodically (e.g., as new tasks come to light, member workloads shift etc.). For example, the team recorder will summarize discussion outcomes and action items, and distribute the notes to team members.

5. **Balanced Participation**
   One or two members taking responsibility for the team's efforts is neither effective nor sustainable. All members should participate in discussions and decisions, share commitment to the project's success, and contribute their talents.

6. **Open Communication**
   Effective teams share information, thoughts and ideas in an open and direct manner. Team members seek to understand one another's perspectives.

7. **Beneficial Team Behaviours**
   Teams should encourage all members to make discussions and meetings more effective by initiating discussion, listening to others, working through conflict, etc.

8. **Established Decision-Making Methods**
   Teams should be aware of the different ways they reach decisions, and the consequences of using those methods. For example, when the designated leader makes the decision, others may not fully understand the decision or feel committed to implementing it.

9. **Experimentation/ Creativity**
   An effective team experiments with different ways of doing things and is creative in its approach.

10. **Evaluation**
    Teams need to regularly evaluate both their functioning and their accomplishments.

Pilot site pearl: At most pilot site facilities, the team coordinator often felt overwhelmed by the demands of the pilot project because responsibilities were not adequately shared among all of the Wound Care Committee members, and other staff were often reluctant to actively participate in the improvements. When asked what advice they would offer to other facilities implementing these new guidelines, team coordinators emphatically offered this caution: one person cannot be solely responsible for promoting the change! They suggested that if they could do it over again, they would spend more time in their early team meetings establishing, as a team, who would be responsible for which components of the improvement project so that members were clear about their roles and their assigned responsibilities.

Running a Successful Meeting or Teleconference

Useful Meeting Types

Team meetings are an important part of a quality improvement project. Holding both traditional and informal meetings (known as "huddles") will help move your project forward. Both meeting styles are useful, but one may be more appropriate than the other based on the goals of the meeting and the time constraints often faced within interdisciplinary teams.

Traditional Meetings: A traditional meeting is useful when there is a set amount of time for an in-depth discussion aimed at reaching a specific goal. This type of meeting is especially useful for reflecting on your current processes, setting improvement goals, and evaluating team progress. These meetings are typically between one and two hours in length and have a set agenda. These meetings can be face-to-face, by teleconference, or a combination of the two.

Keys to successful meetings:

1. **Be clear about the purpose**
   Is the purpose to generate discussion, agree on actions, or both? Clarity about the purpose will help establish the aims of the meeting and questions that need to be raised.

2. **Participant selection**
   Prior to the meeting decide which key people need to be invited (see "Team Composition"). Depending on the purpose of the meeting, you may invite people outside of your core improvement team (e.g., senior leadership representative, additional staff members).

3. **Logistics**
   It is important to clarify the dates, times and locations of meetings in advance so that team members can confirm their availability.

4. **The agenda as a planning tool**
   Distribute the agenda and any supporting material in advance of the meeting. The agenda can be used as a planning tool and should outline the goals of the meeting and the proposed structure. This will help those involved prepare for the meeting (see Agenda Template).

5. **Running the meeting**
   Be sure to establish the chair prior to the meeting. The chair is responsible for moving the agenda along, generating discussion, and encouraging group participation. The role of chair may be shared among team members. Discussion outcomes and action items (including timelines and person responsible) should be summarized and documented during the meeting.

6. **After the meeting**
   Distribution of meeting notes within a day or two will help maintain momentum.

Adapted with permission from: Australian Council for Safety and Quality in Health Care. National medication safety breakthrough collaborative implementation toolkit: wave 2. [Online]. 2005 [cited 2005]; Available from: URL: http://www.safetyandquality.org/nmsbcimprovew2.pdf

Huddles: Huddles are meetings designed to keep teams informed about the project progress, review previous accomplishments, and make plans for the next steps. Because huddles are more informal than traditional meetings, they can occur more frequently. They allow for greater participation of front line staff, who often cannot arrange schedules to attend longer meetings. They are great for keeping the momentum going.

Keys to successful huddles:

- Discuss the huddle concept with the team and explain how huddles can be used to speed improvement;
- Agree on a time and place where regular huddles will occur;
- Choose a huddle location that is convenient for the team members, particularly those who have the least time available for meetings;
- Have a clear set of objectives for every huddle;
- Limit the duration of the huddle to 15 minutes or less;
- Review the objectives of the huddle for that day, review the work done since the last huddle, act on the new information, and plan next steps; and,
- Huddle frequently -- daily or weekly -- particularly when many small changes are being tested and the team needs to share information frequently.

Pilot site pearl: Teams found that members were more likely to attend, and actively participate in, team meetings when the agenda was clear and the discussion was focused. Shorter, more frequent meetings accelerated their improvement efforts.

Agenda Template

Date:

Time:

Location:

Purpose:

Expected participants:

Chair:

Please read: ___ Agenda ___Supporting materials:

Please bring:

Topic	Objectives	Time
Updates		
Action Items		
Summary		

Meeting Record Template

Date:

Time:

Location:

Purpose:

Chair:

Participants:

Regrets (those who were unable to attend):

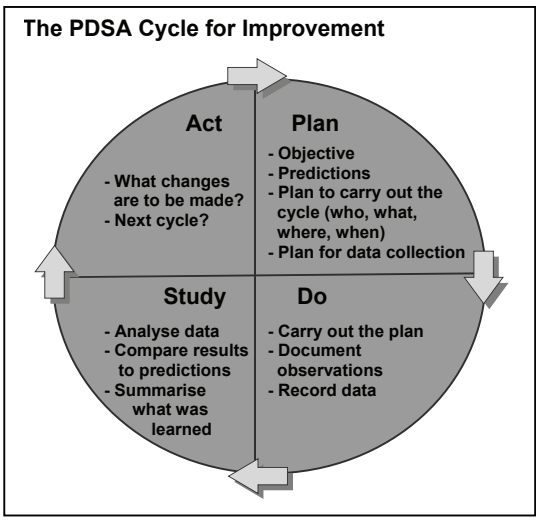
Agenda Item	Summary of Discussion	Decision / Next Steps	Person Responsible & Due Date

Next meeting: date, time, location, chair, purpose

Making it Work in Your Setting

PDSA Cycles

PDSA stands for 'Plan, Do, Study, Act'. Once you have decided exactly what you want to achieve, you can use PDSA cycles to test out your ideas developed from the third question, 'What changes can we make that will lead to an improvement?'



The key to PDSA cycles is to try out your change on a small scale to begin with and to rely on using many consecutive cycles to build up information about how effective your change is. This makes it easier to get started, gives results rapidly and reduces the risk of something going wrong and having a major impact. If what you try doesn't work as well as you hoped, you can always try a different idea, or go back to the way you did things before. When you have built up enough information to feel confident about your change, you can then implement and spread it throughout your system.

Practicalities

- People have a tendency to jump straight to solutions rather than really work out what the root of the problem is. If you use the three fundamental questions, it will help you be sure that you are dealing with the issue that really needs to be addressed.
- When you plan your cycle, make sure you are clear about who is doing what, where and when. Your results are dependent on how good your plan is. We have included a worksheet that you may find useful.(see page E-33)
- Discuss what you think will happen when you try out your change. What is your hunch? When you have carried out the cycle, compare your expectations with what actually happened. You may learn something interesting about how things work in your system.
- Record your PDSA as you go along: the plan, the results, what you learned and what you are going to do next. Not only is it very motivating to see the results of what you have tried, it is also a great way of accumulating information about your systems and a good way of sharing your learning with other people.
- Use PDSAs consecutively to build up the information about your change and then use them to implement it systematically into your daily work. PDSA cycles generally do not operate in isolation – you should expect to have a series of them leading towards your objective.

And finally….

PDSAs cannot be too small
One PDSA will almost always lead to one or more others
You can achieve rapid results
They help you to be thorough and systematic
They help you learn from your work
Anyone can use them in any area

PDSA Cycle Planning & Progress Sheet

Start Date _____ End Date (estimated) _____

PLAN
What are we trying to learn or accomplish during this cycle?
What exactly will we do?
Who will be involved?
Where will it take place?
When will it take place?
What do we predict will happen?
What data/information will we need to collect?

DO	*Was the test carried out as planned? Did anything unexpected cause us to deviate from the plan? What did we observe that was not part of the plan?*

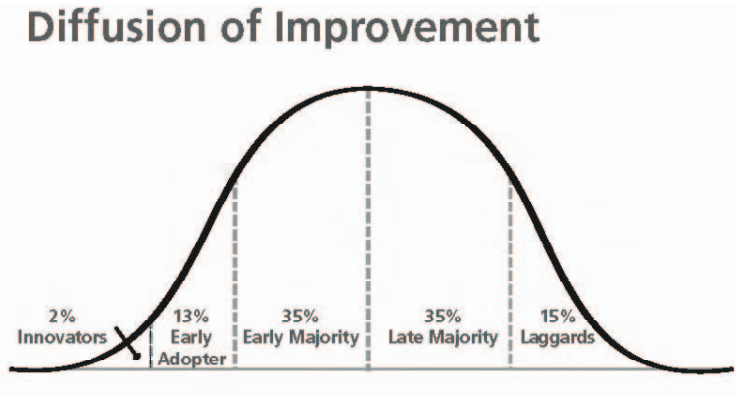
STUDY	*What were the results of our measurements? How did or didn't the results agree with our predictions? What new knowledge was gained through this cycle?*

ACT	*Now what? Do we abandon? Adjust? Adopt? Are there forces in our organization that will help or hinder those changes? Objective of next cycle?*

Diffusion of Improvements

Your improvement team may be relieved to hear that it is not necessary to convince every stakeholder of the importance of your proposed changes. Widespread acceptance is not necessary for change to take place. If you convince 20 per cent of the staff and care providers to change, momentum will build and the change will follow. This is the "tipping point" and rests on the proven logic of the 20/80 rule: 20 percent of effort will yield 80 per cent of the result. Do not spend too much time on those individuals who won't change easily.

The graph below illustrates the rate at which people accept change.



It shows that in the beginning (as a change is introduced) a small number of Innovators will quickly see the value of a change and serve as early examples to others. Next, the change will be accepted by the Early Adopters who, based on the example of the Innovators, will see the benefit of trying something new. The majority of people fall in the middle of the graph, adopting the change in a great wave as it gains momentum. By now, more people have accepted the change than have not. Only a small percentage of people are Traditionalists or Laggards who still won't, and may never see, the value in doing something new.

This graph can be applied to the adoption of cell phone technology. When cell phones were first introduced, a small percentage of the population purchased one because they were Innovators; it didn't matter how much the new technology cost. As cell phones came down in price (and size), more people adopted the technology. The big bubble in the middle includes the majority of people who bought cell phones once they were quite common. Finally, the small group of Laggards may still not have and never plan to get a cell phone.

All of us can identify times when we have been Innovators/Adopters of change and times when we have been Laggards. Our response varies according to the type of change being introduced, and how we feel about the status quo. In order to effect change, we need to understand the **perceived benefits and cost of maintaining the status quo**, as well as the **perceived benefits and costs of making the change**.

We will adopt new ideas and practices only when the change becomes more important and more appealing than maintaining the status quo.

Our response to change will be shaped, in part, by the following characteristics of the change:

- **Relative advantage:** What evidence is there that if I accept these ideas things will improve? Is it clear how these changes will make my work easier or more rewarding?
- **Compatibility:** How compatible is the idea with the current structure, organizational values, and culture? How compatible is the idea with my personal values?
- **Simplicity:** Can the idea be simply described or is it quite complex to understand?
- **Testability:** Can I test whether the idea might work for me, or if I make the change is it difficult to reverse?
- **Observability:** If I make a change and adopt the ideas, will I see a difference?

Reactions to Change

We are all somewhat uncomfortable with change because it can mean a time of loss and uncertainty. It is only natural that we want to have a sense of control. Our reactions to change might range from open resistance to commitment, depending on how the change is communicated and the circumstances surrounding the change.

It is important that leaders of the change explain the why and how of the change. People need time to learn about changes, to understand why the changes are being made and how the change is going to affect them.

Reactions to change may include:

Resistance: When change is perceived as threatening, people may actively try to block the change;

Apathy: Feeling or showing little or no interest in the change;

Compliance: Implementing the change while privately disagreeing with the change;

Conformance: Changing behaviour as a result of real or imagined group pressure; and,

Commitment: Becoming bound emotionally and/or intellectually to the change; invested in making it happen.

Some sort of reaction to change is to be expected, and leaders of the change should not view initial reactions as resistance. However, if these reactions are not properly dealt with, they can develop into full-blown resistance.

Reducing resistance and gaining commitment:

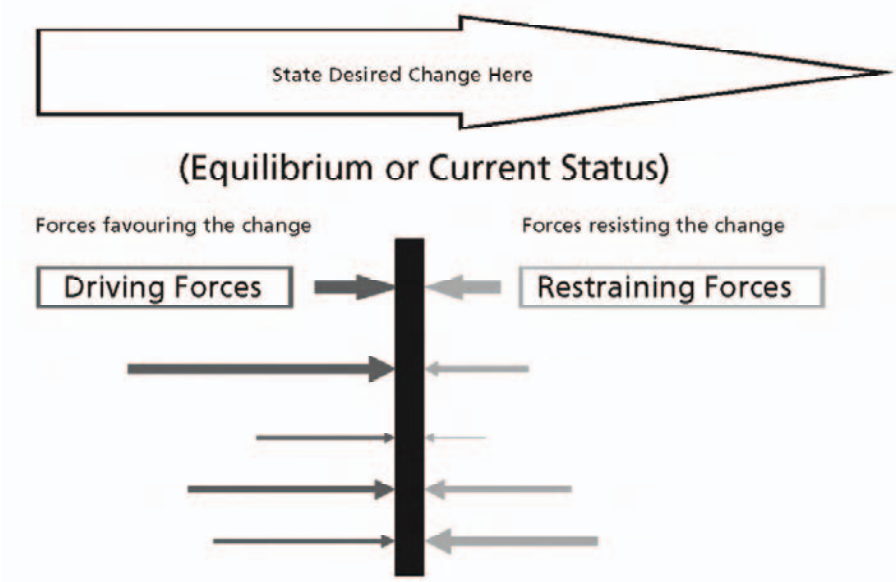
- Provide information on why the change is needed;
- Design changes to make work easier or more rewarding;
- Provide specific information on how the change will affect people;
- Be prepared to discuss questions, requests for clarification, or ideas about the change;
- Test changes on a small scale;
- Involve those who will be affected by the change in developing and testing the change;
- Provide regular progress updates;
- Publicize the various people in the organization who are involved in developing and testing the change;
- Use the results from the testing cycles to share visual displays of data and test results;
- Empathize with the anxiety created by the change (but do not expect to eliminate it);
- Reframe the change as an exciting opportunity, not something being forced on people;
- Acknowledge and appreciate people's efforts; and,
- Get input from others on how to make the implementation successful: *people have a tendency to support what they help to create!*

Pilot site pearl: Teams who introduced changes gradually (e.g., one unit at a time) found the implementation process more manageable. Those who tried to introduce a number of change ideas at once, throughout their whole facility, found their progress was slow and staff resistance was high.

Gauging Readiness for Change

You can gauge your organization's readiness for change by using Force Field Analysis. It views change as a struggle between driving forces, which propel change, and restraining forces, which slow or prevent change.

Force Field Analysis



The main vertical line represents the current situation. To the left, driving forces are pushing on the line. To the right, restraining forces are pushing back. To move the main line, we must increase the driving forces, decrease the restraining forces, or both.

When implementing the Saskatchewan Skin and Wound Care Guidelines, driving forces may include: organization has experience with successful improvement efforts, and the Clinical Lead is credible and influential among peers. Restraining forces may include: limited opportunities for cross-discipline communication, and concern that guidelines will restrict professional autonomy.

If you can only change one factor, it is more effective to decrease the restraining forces than increase the driving forces.

Organizational Readiness Assessment Tool

Use this assessment tool to tailor your team's implementation plan, taking advantage of the driving forces and addressing the restraining forces. Involve key stakeholders in this assessment.

Element	Question	Driving Forces	Restraining Forces
Workplace Culture	To what extent is the new wound care guideline consistent with the values, attitudes and beliefs of the practice environment? To what degree does the culture support change and value evidence?		
Communication	Are there adequate (formal and informal) communication systems to support information exchange related to the new guidelines and their implementation?		
Leadership	To what extent do the leaders within the practice environment support (both visibly and behind the scenes) the implementation of the new guideline?		

Target groups	Which potential target groups are open to change and new ideas? To what extent are they motivated to implement the new guideline?		
Commitment to quality measurement	Are we able to measure changes in the quality of care?		
Availability of resources	Are the necessary human, physical and financial resources available to support implementation?		
Interdisciplinary relationships	Are there positive relationships and trust between the disciplines that will be involved or affected by the new guideline?		

Adapted with permission from: Registered Nurses Association of Ontario. Toolkit: implementation of clinical practice guidelines. Toronto (ON): Registered Nurses Association of Ontario; 2002.

Communication Plan

Your improvement efforts will affect, and be affected by, individuals and groups outside of your core improvement team. It is important to keep these stakeholders informed, and invite their feedback, at all stages of the change initiative. Stakeholders who feel "out of the loop" may not support or implement the proposed changes.

Your communication plan should outline who, what, when & how.

Who – your target audiences (stakeholders) include those individuals and groups who have an influence on the change initiative, may be affected by the outcomes, or share an interest in the project and would like to be informed of its progress and outcomes. Note that your approach ("what, when and how") may vary, depending on your target audience. Examples of stakeholders include the following:

- Patients/Clients/Residents;
- Family members;
- Staff and care providers;
- Senior leaders;
- Facility and regional managers; and,
- Community members.

What – key messages are clear and succinct statements of a message that your team wants target audiences to receive. Fleshed-out versions of these key messages will appear in your communication tools. Examples of key messages include:

- Improvement aim;
- Priority improvement areas & related objectives;
- Pressure ulcers can be prevented;
- Use of consistent wound care practices speeds healing;
- An interdisciplinary team approach improves care;
- Members of the improvement team include…;
- We are working together to improve skin and wound care for patients/ clients/ residents; and,
- Your input is welcome.

When – your plan should outline the proposed timing and frequency of communication with each target audience.

How – choose methods or tools appropriate for the audience and the key messages. All materials should include contact information for one or two members of the improvement team who can provide additional information or address any questions/concerns. Examples of tools for communication include the following:

- Direct mail – post;
- Email;
- Printed materials and publications;
- Learning resources;
- Meetings;
- Presentations;
- Promotional materials;
- Resident chart;
- Communication book;

- Posters and newsletters;
- Special events (e.g., social activities); and,
- Direct contact.

Adapted with permission from: Australian Council for Safety and Quality in Health Care. National medication safety breakthrough collaborative implementation toolkit: wave 2. [Online]. 2005 [cited 2005]; Available from: URL: http://www.safetyandquality.org/nmsbcimprovew2.pdf

Pilot site pearl: Teams in larger facilities found it challenging to reach all of their staff to communicate changes and invite feedback. They realized that different strategies were needed to connect with full-time, part-time, and casual staff. These strategies included: attaching a note to employees' time sheets; making announcements at staff meetings and shift change reports; and informally connecting with staff during their shifts.

Communication Plan Template

Who	What	When	How

Contact Information:

Training Your Care Team

Developing an Education Plan

Key issues to be addressed:

1. Strategies to integrate guidelines into practice in your setting;
2. Driving and restraining forces to integration of the guidelines;
3. Forming partnerships to foster guideline implementation across all disciplines; and,
4. Resource requirements, including time, space, materials, expertise, and finances.

1. Strategies to integrate guidelines into practice in your setting

The first step in educating staff about the new guidelines is to choose strategies to incorporate the guidelines into your practice setting. The strategies you choose will be based on the level of experience staff members have with the guidelines; some staff may already be familiar with them, while others may not have had any experience with them. Table 1 provides some examples of strategies that could be used to integrate the guidelines into practice.

Table 1: Strategies for integrating guidelines into practice

Educational exposure to guidelines	Strategies for guideline integration
Staff with knowledge of guidelines: • Learned in basic education • In-service exposure • Post graduate courses with best practices in curriculum	• Encourage staff with knowledge of the guidelines to become champions. • Involve champions in establishing/ running workshops. • Have staff assess recommendations and decide how they can be implemented on their unit and identify how the guidelines fit into their scope of practice. Nurses can work with unregulated care providers to identify how to integrate specific recommendations into the daily care of clients.
Staff without previous guideline knowledge	• Plan in-service education sessions to stimulate change in practice through implementation of a specific guideline or specific recommendations. • Increase effectiveness by complementing in-service sessions with follow-up and integration of the guidelines in the workplace.

2. Driving and restraining forces to the integration of the guidelines

An important step in planning an educational program is to identify factors that might help you put your plan into action ("driving forces") and factors that might hinder your plan ("restraining forces"). Identifying these factors in advance will help you anticipate problems that may arise during the implementation of your education plan and develop strategies to deal with them. A good way to visualize the driving and restraining forces and their effects on your education plan is to perform a Force Field Analysis. See "Gauging Readiness for Change" on page E-36.

3. Forming partnerships to foster guideline implementation across all disciplines

Best practices for skin and wound care dictate that an interdisciplinary approach is required. To promote an interdisciplinary approach, it is important that the education plan includes strategies for collaboration with all disciplines involved in skin and wound care, including: special care aides, nurses, occupational therapists, physical therapists, dieticians, and physicians.

Some strategies that could be used to help form interdisciplinary partnerships are:

- Workshops for all staff regarding plan for the adoption of the guidelines into unit practice;
- Appeal to the value of evidence-based practice and the role of best practice guidelines in supporting all disciplines; and,
- Encourage staff to become guideline champions.

4. Resource requirements

The identification and allocation of resources is an essential step in the education plan. Several resources will be required, including time, space, materials, expertise and finances. Table 2 provides examples of resource questions that should be addressed in planning your education program.

Table 2: Resource considerations for education planning

Resource	Questions to consider
Time	• How available are learners – can they be released for one hour, for a half day, for a whole day? • Are repeat sessions required? How will you deal with shift work and continuity? • Do you have time for planning? • Experiential learning takes more time than lectures – can you build in that time?
Space	• How difficult is it to book suitable rooms? • Do the furnishings allow flexibility? • What is the optimum space?
Materials	• What is possible within the space – e.g., is projection equipment available? • What can be provided for those who cannot attend?
Expertise	• What expertise (e.g., content, facilitation, implementation) is needed? • What expertise is available?
Finances	• Will financing be needed for staff time, materials, room rental, honouraria for experts, and refreshments? • Is there a budget? • What are actual and "in-kind" budget requirements? Who can provide funding needed?

Source: Registered Nurses Association of Ontario. Educator's resource: integration of best practice guidelines. Toronto (ON): Registered Nurses Association of Ontario; 2005.

Pilot site pearl: Staff attendance at in-services was a challenge at all sites, but particularly for those sites that were not able to pay staff to attend training. When team coordinators were asked what they would do differently in future improvement efforts, they said they would include in their budget some funding for staff training.

Assessing Educators and Learners

An essential step in planning education sessions is to assess the current knowledge, attitudes and practices of both educators (those who will be leading the sessions) and learners with respect to skin and wound care and the best practice guidelines.

Assessing educators will help to determine their level of expertise with the guidelines and will affect the strategies used to assess, plan, implement and evaluate the education sessions. In addition, it will also help to determine whether the educators require additional training before they begin to teach others.

Assessing learners will help to determine the educational needs of the staff. The results of this needs assessment will help determine what information is presented in the education sessions. They will also help to determine whether the information should be presented at a novice, intermediate, or advanced level.

The HQC developed a Knowledge Survey to be used by pilot sites to conduct a learning needs assessment before their education sessions. This survey is specific to pressure ulcer prevention and management (see page E-48). This tool could also be used to evaluate learning after education sessions and to identify gaps in knowledge to be addressed in future sessions. Feel free to copy or adapt this survey and use it as a needs assessment tool.

Source: Registered Nurses Association of Ontario. Educator's reference: integration of best practice guidelines. Toronto (ON): Registered Nurses Association of Ontario; 2005.

Sample Knowledge Survey for Nursing Staff

Prevention & Treatment of Pressure Ulcers

Please answer the following questions by circling the correct answer:

1. Which of the following does NOT affect wound healing: *(circle all that apply)*
   a. Stress
   b. Smoking
   c. Medications
   d. Age
   e. Gender
   f. Nutrition

2. A blistering pressure ulcer is considered to be at what stage?
   a. Stage I
   b. Stage II
   c. Stage III
   d. Stage IV
   e. Not sure

3. Which of the following is NOT a wound debridement option?
   a. Sharp
   b. Mechanical
   c. Hemolysis
   d. Enzymatic
   e. Autolytic
   f. Not sure

4. Healing will not occur without pressure relief.
   a. True b. False c. Not sure

5. When documenting a wound that is filled with necrotic tissue that conceals the base of the wound, what stage would you document?
   a. Stage II
   b. Stage III
   c. Stage IV
   d. Unstageable
   e. Not sure

6. Residents/patients at risk for developing a pressure ulcer should be turned:
   a. At least every 2 hours
   b. Every 3 to 4 hours
   c. When they ask to be turned
   d. When you have time to turn them

7. Donut type devices are useful for reducing localized pressure.
   a. True b. False c. Not sure

8. Unless a specific medical condition exists, a resident/patient restricted to bed should not have their bed elevated more than:
   a. 15° c. 45° e. Not sure
   b. 30° d. 60°

9. Wounds should be cleaned at every dressing change.
   a. True b. False c. Not sure

10. Wounds with healthy, granulating tissue should be cleansed with antiseptic agents.
    a. True b. False c. Not sure

How would you rate your own knowledge of prevention of pressure ulcers?

☐ Poor ☐ Fair ☐ Good ☐ Excellent

How would you rate your knowledge of treatment for pressure ulcers?

☐ Poor ☐ Fair ☐ Good ☐ Excellent

Answer key: 1 e, 2 b, 3 c, 4 a, 5 d, 6 a, 7 b, 8 b, 9 a, 10 b

Sample Knowledge Survey for Special Care Aides

Prevention & Treatment of Pressure Ulcers

Please circle the correct answer to the following questions.

1. Who do you think is responsible for skin and wound care?

a. RN b. LPN c. SCA d. All staff

2.Residents at risk for developing a pressure ulcer should be turned:

a. At least every 2 hours
b. Every 3 to 4 hours
c. When they ask to be turned
d. When you have time to turn them

3. Donut type devices are useful for reducing localized pressure.

a. True b. False c. Not sure

4. Unless a specific medical condition exists, a resident restricted to bed should not have their bed elevated more than:

a. 15° b. 30° c. 45° d. 60° e. Not sure

5. Which of the following does NOT affect wound healing: *(select all that apply)*

a. Stress
b. Smoking
c. Gender
d. Medications
e. Age
f. Not sure

6. Massaging skin areas with bony bumps can help prevent a pressure ulcer from developing.

a. True b. False c. Not sure

7. Dry skin in more susceptible to injury than well-hydrated skin.

a. True b. False c. Not sure

8. If there is a red area of skin on a resident's hip:

a. Lightly press on the area to see if it turns white with pressure
b. Check the area again in 30 minutes
c. Report to nurse
d. All of above
e. Not sure

9. Lifting devices should be used to avoid dragging clients during transfer and position changes.

a. True b. False c. Not sure

10. To relieve heel pressure in bed:

a. Place a hot water bottle under heel
b. Put on booties
c. Place a pillow lengthwise under calf of leg
d. Raise foot of bed
e. Not sure

How would you rate your own knowledge of prevention of pressure ulcers?

☐ Poor ☐ Fair ☐ Good ☐ Excellent

How would you rate your knowledge of treatment for pressure ulcers?

☐ Poor ☐ Fair ☐ Good ☐ Excellent

Answer key: 1 d, 2 a, 3 b, 4 b, 5 c, 6 b, 7 a, 8 d, 9 a, 10 c

Planning a Learning Event

There are several key elements to include in a learning event plan. These are:

1) Timeline;
2) Topic;
3) Learning objectives;
4) Teaching methods;
5) Resources required; and,
6) Ongoing education.

Timeline

The timeline defines the start and end point of the learning event.

Topic

The topic defines the main theme of the learning event. For example, in the pilot sites, two separate in-service sessions were held to cover two separate topics: pressure ulcer prevention and pressure ulcer management.

The topics addressed and content covered in the sessions will be determined by the results of the educator and learner needs assessment. For more information, please see "Assessing Educators and Learners" (see page E-47).

Learning objectives

The learning objectives describe what you expect attendees to learn from the learning event. There can be more than one learning objective for the event. For example, the following learning objectives might apply to a learning event on pressure ulcer prevention:

1. Able to perform a pressure ulcer risk assessment with the Braden scale.
2. Able to use a repositioning schedule to regularly reposition residents confined to chair or bed.
3. Able to select and use appropriate products for pressure ulcer prevention (creams, cleansers, etc.).

Teaching methods

Individuals learn in different ways: visual learners retain new information by seeing, observing and writing; auditory learners prefer to talk and listen; and kinesthetic learners need to do, touch and be physically involved with their learning. It is likely that your learning event will include individuals with a mixture of learning styles; therefore, the learning event should incorporate a mixture of teaching methods that involve seeing, hearing and doing. Table 3 provides examples of teaching methods tailored to each learning style.

Table 3: Learning styles and teaching methods

Learning style	Teaching methods
Seeing (Visual)	• Use graphics to help learning: books, films, pictures, puzzles, videos, computer software • Use colour coding to organize content • Write directions • Use flow charts and diagrams for note taking • Visualize words and facts to be retained
Hearing (Auditory)	• Use audio tapes, films, records, videos, radio programs • Participate in debates, seminars, group assignments • Learn by reciting, discussing, interviewing, attending lectures • Ask for oral explanations
Doing (Kinesthetic)	• Memorize, drill, make decisions while walking or exercising • Use concrete materials: models, lab equipment, subject-related games and puzzles, computer programs • Take frequent breaks in study periods • Learn by touching and doing • Study by writing over and over

In addition, interactive methods, which promote active learning by participants, promote greater information retention than methods that are not interactive. **Some examples of teaching methods, in order of decreasing retention, are: lectures, reading, audio-visual, demonstration, discussion group, practice by doing, and teaching others/immediate use**.

Resources required

Several different types of resources will be required to plan and carry out the learning event: time, space, materials, expertise and money. Some important resource questions to consider when planning the learning event are:

- How much time will be required to plan and prepare for the learning event?
- How long will the sessions be? How often will they be repeated?
- Where will the learning event be held? Does this space require advance booking?
- What materials (e.g., handouts, product samples) will be required?
- What equipment (e.g., computers, projectors, tables, chairs) will be required?
- Who will facilitate the event? Will the facilitator be internal or external to the organization?
- Will staff be paid for time spent at the learning event?
- Is it necessary to schedule extra staff to cover for staff attending the event?

Please see **Table 2** in "Developing an Education Plan" for additional information about resources.

Ongoing education plan

The initial learning event is only the first step to incorporating the guidelines into routine practice. Following the learning event, there must be a plan in place for ensuring that staff have the opportunity to refresh and update their knowledge at regular intervals and have access to a knowledgeable colleague if there are questions. In addition, the education plan should include a procedure for providing new staff with orientation and education about the guidelines.

Source: Registered Nurses Association of Ontario. Educator's reference: integration of best practice guidelines. Toronto (ON): Registered Nurses Association of Ontario; 2005.

A sample Learning Event Plan is included. Feel free to copy or modify this form to use in planning your learning event.

Pilot site pearl: In several pilot sites, the team coordinator was the only one developing and delivering staff in-services. In most cases, these individuals did not have protected time to devote to staff training; rather, they were expected to add this duty to their already heavy workloads. As a result, the team coordinators felt overwhelmed, and staff training was delayed. To avoid these pitfalls, team coordinators offered the following advice to would-be-trainers: establish a training-team, and ensure members of that team have protected time for developing, advertising, delivering, and evaluating in-services.

Learning Event Plan Template

Timeline:

Date training will begin: _____

Date training will be completed: _____

Topic:

Learning objectives:

Teaching methods (more than one teaching method should be used):

Seeing	Hearing	Doing

Resources required:

Time	
Space	
Materials	
Expertise	
Finances	

Ongoing education:

	Who will do it?	When will it happen?	Who will be the target?
Refresher sessions			
One-on-one coaching			
Orientation for new staff			
Resource nurse(s) on each unit will keep unit informed of updates to best practice guidelines and products			
Other:			
Other:			

Additional Details:

Evaluating a Learning Event

Ongoing evaluation is necessary to determine the impact of the education program on staff knowledge and attitudes. It will also help determine whether staff have applied new knowledge to everyday practice. Evaluation should begin with an assessment of current knowledge, attitudes and practices, and should continue throughout the program to identify gaps and directions for future initiatives.

Evaluation efforts should focus on three areas:

1) Participant satisfaction with the program;
2) Changes in knowledge, skills and attitudes; and
3) Application into practice, measured by changes in practice in the actual practice setting.

Table 4 contains some helpful ideas about how to evaluate each of these areas.

Table 4: Levels of evaluation and strategies for measurement

Level of evaluation	Description	Strategies for measurement
Reaction	Participant satisfaction with the program and associated processes	• Feedback questionnaire • Participation/attendance records
Learning	Focus is on measuring the change in knowledge, skills, and attitudes. Directly related to learning goals.	• Pre and post-tests • Formal exams • Written assignments • Demonstration of required skills
Application	Focus is on the degree of application into practice; change in practice in the actual practice setting; sustainability measured over time.	• Direct observation • Clinical decision-making • Clinical pre-conference – degree of care planning • Clinical post-conference – discussion regarding patient care and related decision making • Clinical functioning – ability to apply learning to various scenarios • Follow-up surveys of the learning event (usually at 3, 6, and 12 months post)

Source: Registered Nurses Association of Ontario. Educator's reference: integration of best practice guidelines. Toronto (ON): Registered Nurses Association of Ontario; 2005.

GLOSSARY

Anaerobic Organisms	A microorganism that grows and lives in the complete or almost complete absence of oxygen.
Ankle Brachial Pressure Index (ABPI)	Systolic ankle pressure over brachial pressure as measured by use of a Doppler. Normal pressure index is 0.8-1.2.
Ankle Flare	The characteristic clinical sign evident in the region of the ankle associated with venous hypertension/varicose veins visible as a result of a number of engorged veins in the area.
Antibiotic	An agent that is synthesized from a living organism (e.g., mold from penicillin) and can kill or halt the growth of microbes or bacteria.
Atherosclerotic	A thickening, hardening, and loss of elasticity of the blood vessel walls.
Antimicrobial	An agent that inhibits the growth of microbes.[1]
Antiseptic (Topical):	Product with antimicrobial activity designed for use on skin or other superficial tissues; may damage cells.[1]
Atrophie Blanche	White, avascular areas of scar tissue that are susceptible to skin breakdown. These areas can be quite painful.
Bacteremia	The presence of viable bacteria in the circulating blood.[1]
Bottoming Out	Expression used to describe inadequate support from a mattress overlay or seat cushion as determined by a "hand check". To perform a hand check, the caregiver places an outstretched hand (palm up) under the overlay or cushion below the pressure ulcer or that part of the body at risk for a pressure ulcer. If the caregiver feels less than an inch of support material, the patient has bottomed out and the support surface is therefore inadequate.[1]
Cell Migration	Movement of cells in the repair process.
Cellulitis	Inflammation of cellular or connective tissue. Inflammation may be diminished or absent in immunosuppressed individuals.[1]
Champagne Leg	Wide calf and narrow, woody ankle.
Charcot Joint	A neuropathic deformity that occurs in the presence of diabetic neuropathy. Often as a result of trauma; may cause collapse of the arch of the foot and a rocker bottom deformity.
Clean	Containing no foreign material or debris.
Colonized	The presence of bacteria on the surface or in the tissue of a wound without indications of infection such as purulent exudate, foul odour, or surrounding inflammation. All Stage II, III, and IV pressure ulcers are colonized.[1]
Compression Bandaging	The deliberate application of pressure using elastic bandages.

Contaminated

Containing bacteria, other microorganisms, or foreign material. The term usually refers to bacterial contamination and in this context is synonymous with colonized. Wounds with bacterial counts of 10x5 organisms per gram of tissue or less are generally considered contaminated; those with higher counts are generally considered infected.[1]

Culture (Bacterial)

Removal of bacteria from wound for the purpose of placing them in a growth medium in the laboratory to propagate to the point where they can be identified and tested for sensitivity to various antibiotics. Swab cultures are generally inadequate for this purpose.[1]

Culture (Swab)

Techniques involving the use of a swab to remove bacteria from a wound and place them in a growth medium for propagation and identification. Swab cultures obtained from the surface of a pressure ulcer are usually positive because of surface colonization and should not be used to diagnose ulcer infection.[1]

Debridement

Removal of devitalized tissue and foreign matter from a wound. Various methods can be used for this purpose.

Autolytic Debridement

The use of synthetic dressings to cover a wound and allow eschar to self-disgest by the action of enzymes present in wound fluids.[1]

Enzymatic (Chemical) Debridement

The topical application of proteolytic substances (enzymes) to breakdown devitalized tissue.[1]

Mechanical Debridement

Removal of foreign material and devitalized or contaminated tissue from a wound by physical forces rather than by chemical (enzymatic) or natural (autolytic) forces. Examples are wet-to-dry dressings, wound irrigations, whirlpool, and dextranomers.[1]

Sharp Debridement

Removal of foreign material or devitalized tissue by a sharp instrument such as a scalpel. Laser debridement is also considered a type of sharp debridement.[1]

Dependent

A dependent position is the fallen, limp or relaxed position of a limb or extremity.

Deterioration

Negative course. Failure of the pressure ulcer to heal, as shown by wound enlargement that is not brought about by debridement.[1]

Doppler Ultrasound (in leg ulcer assessment)

The use of very high frequency sound in the detection and measurement of blood flow.

Edema

The presence of excessive amounts of fluid in the intercellular tissue spaces of the body.

Electrical Stimulation — The use of an electrical current to transfer energy to a wound. The type of electricity that is transferred is controlled by the electrical source.

Erythema — Redness of the skin.

- ***Blanchable Erythema*** — Reddened area that temporarily turns white or pale when pressure is applied with a fingertip. Blanchable erythema over a pressure site is usually due to a normal reactive hyperaemic response.
- ***Nonblanchable Erythema*** — Redness that persists when fingertip pressure is applied. Nonblanchable erythema over a pressure site is a symptom of a Stage I pressure ulcer.

Eschar — Thick, hard, black, leathery, necrotic, devitalized tissue.

Exudate — Fluid, cells or other substances that have slowly been exuded or discharged from other cells and blood vessels through small pores or breaks in the cell membranes.

Fascia — A sheet or band of fibrous tissue that lies deep below the skin or encloses muscles and various organs of the body.[1]

Fibrin — An insoluble protein that is essential to clotting of blood, formed from fibrinogen by action of thrombin.

Friction — Mechanical force exerted when skin is dragged across a coarse surface such as bed linens.[1]

Full Thickness Skin Loss — The absence of epidermis and dermis.[1]

Gaiter Area — 2.5 cm below the malleolus to the lower one third of the calf.

Granulation Tissue — The pink/red, moist tissue that contains new blood vessels, collagen, fibroblasts, and inflammatory cells, which fills an open, previously deep wound when it starts to heal.[1]

Growth Factors — Proteins that affect the proliferation, movement, maturation, and biosynthetic activity of cells. For the purposes of this guideline, these are proteins that can be produced by living cells.[1]

Healing — A dynamic process in which anatomical and functional integrity is restored. This process can be monitored and measured. For wounds of the skin, it involves repair of the dermis (granulation tissue formation) and epidermis (epithelialization). Healed wounds represent a spectrum of repair: they can be ideally healed (tissue regeneration), minimally healed (temporary return of anatomical continuity), or acceptably healed (sustained functional and anatomical result). The acceptably healed wound is the ultimate outcome of wound healing but not necessarily the appropriate outcome for all patients.[1]

- ***Primary Intention Healing*** — Closure and healing of wound edges using sutures, staples, steristrips or skin grafts.

Secondary Intention Healing	Closure and healing of a wound by the formation of granulation tissue and epithelization.
Hemosiderin	Brown staining or discoloration of the tissues due to deposits of iron byproduct.
Hyperbaric Oxygen	Oxygen at greater than atmospheric pressure that can be applied either to the whole client inside a pressurized chamber or to a localized area (such as an arm or leg) inside a smaller chamber.
Induration	Engorgement of tissues, evidenced as a hard, elevated area of inflammation.
Infection	The presence of bacteria or other microorganisms in sufficient quantity to damage tissue or impair healing. Clinical experience has indicated that wounds can be classified as infected when the wound tissue contains 10^5 or greater microorganisms per gram of tissue. Clinical signs of infection may not be present, especially in the immuno-compromised client or the client with a chronic wound.
Inflammatory Response	A localized protective response elicited by injury or destruction of tissues that serves to destroy, dilute, or wall off both the injurious agent and the injured tissue. Clinical signs include pain, heat, redness, swelling, and loss of function. Inflammation may be diminished or absent in immunosuppressed clients.
Intermittent Claudication	Cramplike pains in the legs caused by reduced arterial circulation, often exacerbated with exercise.
Irrigation	Cleansing by a stream of fluid, preferably saline.[1]
Ischemia	Deficiency of blood supply to a tissue, often leading to tissue necrosis.[1]
La Place's Law	The theoretical pressure produced beneath a bandage can be calculated as follows: $P = \frac{4630 \times N \times T}{C \times W}$ Where P = sub-bandage pressure (mmHg) N = number of layers T = tension within bandage (Kgforce) C = limb circumference (cm) W = width of bandage (cm) A bandage applied with constant tension to a limb of normal proportions will automatically produce graduated compression with the highest pressure at the ankle. This pressure will gradually reduce up the leg as the circumference increases.
Lipodermatosclerosis (LDS)	Firm, fibrotic skin and subcutaneous tissue. Gives the lower leg a "champagne glass" look.
Low Air Loss	A series of interconnected woven fabric air pillows that allow some air to escape through the support surface. The pillows can be variable inflated to adjust the level of pressure relief.[1]

Maceration	Softening of tissue by soaking in fluids. In this context, it refers to degenerative change and disintegration of skin when it has been kept too moist.[1]
Malleolus	Ankle bone.
Malnutrition	State of nutritional insufficiency due to either inadequate dietary intake or defective assimilation or utilization of food ingested.[1]
Moisture	In the context of this document, moisture refers to skin moisture that may increase the risk of pressure ulcer development and impair healing of existing ulcers. Primary sources of skin moisture include perspiration, urine, feces, drainage from wounds, or fistulas.[1]
Multidisciplinary	A process where health care professionals representing expertise from various health care disciplines participate in a prevention based program standardizing and practicing pressure ulcer management.
Necrosis/Necrotic Tissue	Describes devitalized (dead) tissue, e.g., eschar and slough.
Needle Aspiration	Removal of fluid from a cavity by suction, often to obtain a sample (aspirate) for culturing.
Osteomyelitis	A bone infection which can be both localized and generalized.
Partial Thickness	Loss of epidermis and possible partial loss of dermis.
Proliferation	To produce new growth or offspring rapidly; to multiply.
Purulent Discharge/Drainage	A product of inflammation that contains pus - e.g., cells (leukocytes, bacteria) and liquefied necrotic debris.[1]
Recalcitrant	A recalcitrant wound is a chronic wound which has failed to respond to optimal standard wound care.[2]
Sepsis	The presence of various pus-forming and other pathogenic organisms or their toxins, in the blood or tissues. Clinical signs of blood-borne sepsis include fever, tachycardia, hypotension, leukocytosis, and a deterioration in mental status. The same organism is often isolated in both the blood and the pressure ulcer.[1]
Shear	Mechanical force that acts on a unit area of skin in a direction parallel to the body's surface. Shear is affected by the amount of pressure exerted, the coefficient of friction between the materials contacting each other, and the extent to which the body makes contact with the support surface.[1]
Sinus Tract	A cavity or channel underlying a wound that involves an area larger than the visible surface of the wound.[1] It is a pathway that can extend in any direction from the wound surface, which results in dead space with potential for abscess formation.
Skin Equivalent	A material used to cover open tissue that acts as a substitute for nascent (beginning) dermis and epidermis and that has at least some of the characteristics of human skin (e.g., amniotic tissue, xenografts, human allografts). For the purpose of this guideline, only tissue with viable, biologically active cells is given this designation.[1]

Slough	Necrotic (dead) tissue in the process of separating from viable portions of the body.[1] It is seen as the accumulation of dead cellular debris on the wound surface, and tends to be yellow in colour due to the large amounts of leukocytes present. However, yellow tissue is not always indicative of slough but may be subcutaneous tissue, tendon or bone instead.
Static Air Mattress	A vinyl mattress overlay composed of interconnected air cells that are inflated with a blower before use. The shifting of air among the cells distributes pressure uniformly over the support area to create a flotation effect.
Static Device (or Static Support Surfaces)	Pressure-reducing devices designed to provide support characteristics that remain constant - i.e., do not cycle in time. Examples include foam overlays, cushions, and water mattresses.[1]
Telangiectasia	Permanent dilation of superficial capillaries and venules. This is often referred to as areas of "starburst" vessels.
Tissue Biopsy	Use of a sharp instrument to obtain a sample of skin, muscle, or bone.[1]
Topical Antibiotic	A drug known to inhibit or kill microorganisms that can be applied locally to a tissue surface.[1]
Topical Antiseptic	Product with antimicrobial activity designed for use on skin or other superficial tissues; may damage some cells.[1]
Trochanter	Bony prominence on the upper part of the femur.
Tunneling	A passageway under the surface of the skin that is generally open at the skin level; however, most of the tunneling is not visible.[1]
Underlying Tissue	Tissue that lies beneath the surface of the skin such as fatty tissue, supporting structures, muscle, and bone.[1]
Undermining	A closed passageway under the surface of the skin that is open only at the skin surface. Generally it appears as an area of skin ulceration at the margins of the ulcer with skin overlaying the area. Undermining often develops from shearing forces.[1]
Vacuum Assisted Wound Closure	A closed wound management system which facilitates a negative pressure across the complete wound interface through suction, thereby stimulating improved circulation and a reduction in exudates production.
Varicose Veins	A distended, engorged vein, usually as a result of incompetent valves or local trauma. The long saphenous vein is most commonly affected.
Venous Eczema	Eczema associated with the development of venous ulcers. Also known as venous or stasis dermatitis.
Venous Hypertension	Back pressure on the venous system exerted either from central or pulmonary sources, or from extrinsic compression syndrome. For example, a mass, tumour, or tight girdle.
Venous Insufficiency	An obstruction which blocks outflow, valvular incompetence, which permits retrograde flow, or muscle pump failure, resulting in incomplete emptying of the venous system in the lower leg.

Venous Leg Ulcers

Wounds that usually occur on the lower leg in people with venous insufficiency disease. Venous leg ulcers are also known by such terms as venous stasis ulcer and venous insufficiency. Ulcers result from chronic venous hypertension caused by the failure of the calf muscle pump.[3]

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General Appendices

July 2006
Saskatchewan Skin & Wound Care Guidelines

GENERAL APPENDIX A:
Wound Record Guidelines and Form

WOUND RECORD GUIDELINES[1]

Objective

This form[2] provides a record of wound assessment and treatment provided.

General Information

- This is a double sided form.
- This form provides documentation of assessment and treatment for three different wounds. It assists in measuring and evaluating patient's response to treatment.
- Page 1 provides keys for documenting assessments and an area for recording for Wound # 1.
- The reverse side provides areas for recording for Wound # 2 and 3.
- This form is designed to complement the **Evidenced Based Wound Management Protocol©, Nova Scotia Department of Health – Community Care.**
- Complete form with each dressing change.
- Draw a '/' in any assessment area that was not done.
- Keys have been provided to assist in recording.

Using the Wound Record

- Number site of wound(s) on diagrams.
- Check appropriate box as to etiology of wound. Record date of closure if a closed surgical wound. Record stage number if a pressure ulcer.
- Record date and time assessment and treatment were done.
- Record size of wound; length, width and depth in centimeters (cm). The 'length is the longest portion of the wound surface wherever it lies in space'[3] and the 'width is the widest portion of the wound surface wherever it lies in space'[4]. The length is written in the first area and the width in the second.
- Record the undermining area in centimeters. The undermining area is the distance the wound extends under the wound margins.
- Using the keys provided, record the:
  - Wound Base – type of tissue that is predominant in the wound according to colour, consistency and adherence
  - Wound margins – rim or border of wound
  - Exudate Type – predominant exudate in the wound including colour and consistency (assess after cleansing the wound with normal saline or water)

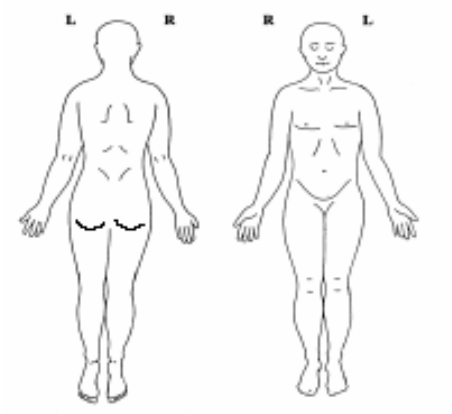
[1] Permission to include guidelines and form granted by SAHO.
[2] Available to NISS© clients from SAHO's designated printer.
[3] Evidence Based Wound Management Protocol, Government of Nova Scotia, Community Care.
[4] Ibid.

  - Exudate amount
  - Odour – absence or presence following wound cleansing
  - Pain – absence or presence of pain, numbness or paraplegia
  - Limb colour
- Record a pressure ulcer sore risk using the scale adopted by your facility (e.g., the Braden Scale©).
- Blank spaces have been left to record other assessments. Some of these assessments may be peripheral tissue edema and induration, granulation tissue, epithelization, etc.
- Swab taken – 3if swab is taken. Record specimen on the first page of the care plan.
- See Notes – 3if more documentation is in the notes. A 3 is also placed on the NARC.
- Record the Treatment being done by using the keys provided. Specify any other treatment being done.
- Record ID.

 July 2006

WOUND RECORD

Number Site of Wound



Goals: ☐ Palliative/Maintenance ☐ Healing
Date:_____ ID_____

Wound Base:	Wound Margins:	Periwound Skin: (cm from edge)
R – Red	I – Irregular	I – Intact
Pk – Pink	R – Rolled	M – Maceration
Y – Yellow	PO – Punched Out	Ind – Induration/firmness
B – Black eschar	A – Attached	Er – Erythema/redness
G – Grey	UA – Unattached	T – Temperature
P – Purple	C – Callous	

Pain: 0 1 2 3 4 5 6 7 8 9 10
No Pain Worst Pain

Exudate Type:	Exudate Amount:	Odour:	Limb Colour:	Limb Edema: (extend up limb)
Sa – Sanguinous	N – None	1. By client only	P – Pale	A – ankle, K – knee, Th - thigh
P – Purulent	SC – Scant	2. No odour at close range	Pk – Pink	N – None
S – Serous	SM – Small < 25%	3. Faint odour at close range	C – Cyanotic	+1 – slight, non-pitting
SS – Sero–sanguinous	M – Moderate 25-75%	4. Moderate odour in room	H – Hemosiderin (brownish)	+ 2 – Easily depressed
	L – Large > 75%	5. Strong odour in room	R - Ruberous	+ 3 – Pitting
				F – Fibrotic

Treatment Type: 1. Normal Saline Cleanse 2. Moist wound healing 3. Gauze Dressing 4. Ischemic Wound Treatment
3. Compression Therapy 4. Wound Irrigation 5. Other – Specify

Wound # 1	Lower limb – ☐Venous ☐Arterial ☐Mixed ☐ Diabetic ☐ Pressure ulcer – Stage #_____ Surgical – ☐Open ☐Closed – Date closed_____ ☐ Burn ☐ Skin Tear ☐ Other:							
Date & Time								
Size in cm L / W								
Depth in cm								
Undermining in cm								
Pain								
Wound Base								
Wound Margin								
Periwound Skin								
Exudate Type								
Exudate Amount								
Odour								
Limb Colour / Edema								
Pressure Ulcer Risk								
Swab taken								
See Notes								
Treatment Type: (describe)								
ID								

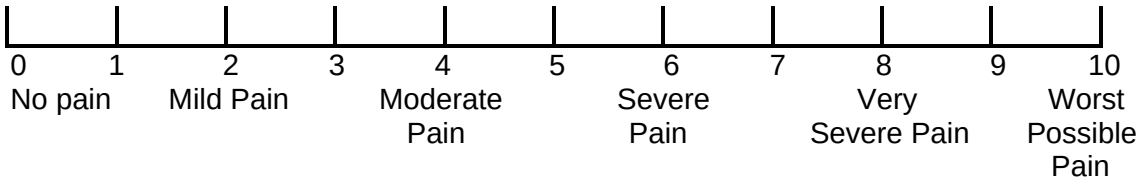
Wound # 2	Lower limb – ☐Venous ☐Arterial ☐Mixed ☐ Diabetic ☐ Pressure ulcer – Stage #_____ Surgical – ☐Open ☐Closed – Date closed_____ ☐ Burn ☐ Skin Tear ☐ Other:							
Date & Time								
Size in cm L / W								
Depth in cm								
Undermining in cm								
Pain								
Wound Base								
Wound Margin								
Periwound Skin								
Exudate Type								
Exudate Amount								
Odour								
Limb Colour / Edema								
Pressure Ulcer Risk								
Swab taken								
See Notes								
Treatment Type: (describe)								
ID								

Wound # 3	Lower limb – ☐Venous ☐Arterial ☐Mixed ☐ Diabetic ☐ Pressure ulcer – Stage #_____ Surgical – ☐Open ☐Closed – Date closed_____ ☐ Burn ☐ Skin Tear ☐ Other:							
Date & Time								
Size in cm L / W								
Depth in cm								
Undermining in cm								
Pain								
Wound Base								
Wound Margin								
Periwound Skin								
Exudate Type								
Exudate Amount								
Odour								
Limb Colour / Edema								
Pressure Ulcer Risk								
Swab taken								
See Notes								
Treatment Type: (describe)								
ID								

WR-145.2, July 2006

GENERAL APPENDIX B
Pain Assessment Tool

Numeric Rating Scale (NRS) and or Verbal Rating Scale(VRS)



Note: The patient rates pain on a scale from 0 to 10 by marking or verbally ("none to worst possible pain") stating the level their pain is at using the above scale.

Adapted from RNAO. Nursing Best Practice Guideline: Assessment and Management of Stage I toIV Pressure Ulcers.

Facial Grimace and Behaviour Checklist Flow Charts

Assessment and Management of Venous Leg Ulcers

Facial Grimace & Behaviour Checklist Flow Charts

Name: _____ Active ❑ Resting ❑ Time: _____

0 no pain | 2 mild | 4 discomforting | 6 distressing | 8 horrible | 10 excruciating

Regular pain Medication: _____ Rescue/PRN medication _____

Month:

Date or Time														
FACIAL SCORE														
10														
8														
6														
4														
2														
0														
PRN medication														

Facial Grimace Score: The facial grimace scale scores the level of pain (from 0-10 on the left) as assessed by the caregiver observing the facial expressions of the resident. Assessment is done once daily or more (14 days are indicated above). This assessment of the degree of discomfort should be done at the same time every day and during the same level of activity. **Note if rescue/PRN medication is given; yes (y), no (n) or dose.**

Behaviour Checklist

10 – always 8 – mostly 6 – often 4 - occasionally 2 – rarely 0 - never

Date or Time														
BEHAVIOUR														
eats poorly														
tense														
quiet														
indicates pain														
calls out														
paces														
noisy breathing														
sleeps poorly														
picks														
PRN medication														

Behaviour Checklist: Behaviour changes can be used to assess pain or distress, and thereby evaluate the efficacy of interventions. At the top of the scoring graph, when the specific behaviour has been observed, it can be rated from 10 (always) to 0 (never). The behaviours being rated and scored over 24 hours are listed down the left column. This chart scores 9 different behaviours over 14 days. The caregiver can expand on the checklist, i.e., rocking, screams, etc. **Note if rescue/PRN medication given. Both tools may be adapted for individual use.**

GENERAL APPENDIX C
Quality of Life Assessment Tool

Collect information on quality of life and impact of illness on a regular basis and assess for change over time. Use existing measure if your agency uses a quality of life assessment instrument (e.g.,, Medical Outcome Study - SF - 36 or the SF - 12 quality of life scale) or develop generic, simple questions to be incorporated into the nursing assessment.

Example:
How would you describe your current health status?

□ Very good □ Good □ Fair □ Bad □ Very Bad

How does the leg ulcer impact your day-to-day living?

□ Very little □ Moderately □ A lot

Periodic reassessment is recommended.

Set treatment goals with the client consistent with the values of the individual, family, and caregiver.

Arrange interventions to meet identified psychosocial needs and goals. Follow-up should be planned in cooperation with the individual, caregiver, and consultations with appropriate interdisciplinary team members.

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GENERAL APPENDIX D
Potential Allergens

Commonly Reported Allergens in Patients With Chronic Ulcers	
Allergen	**Source**
Topical antibiotics E.g., framycetin, neomycin, gentamicin.	Medicaments E.g., some tulles, powders, creams and ointments.
Lanolin	Many creams, ointments and emollients.
Cetyl stearyl alcohol	Present in many creams preparations E.g., in aqueous cream and some corticosteroid cream. Also in some ointments E.g., emulsifying ointment, and in some paste bandages.
Colophony (Rosin, Esters of Rosin)	Sticking plaster, adhesive in some bandages and some hydrocolloid dressings.
Rubber Chemicals E.g., Thiuram mix, including latex.	Bandages, tubular elastic bandages, elastic stockings containing natural rubber and latex gloves worn by carer.
Preservatives E.g., parabens and chloroxylenol.	In many medicaments and some paste bandages.
Antibacterials and antiseptics E.g., quinoline mix, chlorhexidine.	Solutions, creams, tulles.
a. Balsam of Peru/fragrance mix b. Benzocaine	Home care preparations: a. with perfume b. with local anaesthetic action
Tixocortol pivalate	Marker of corticosteroid hypersensitivity particular to hydrocortisone.

DISCHARGE CARE PLAN GUIDELINES[1]

Objective

This form[2] provides a patient with written instructions for continuing care upon discharge. This is to assist patient in making the transition from having caregivers to being responsible for their own care.

General Information

- Complete form prior to patient going home.
- This is a two copy (self-carboning) form; the carbon copy stays in the patient's record and the original copy is given to the patient.
- The Separation Summary is found on the reverse side of the carbon copy.
- Write using common language - most patients do not understand medical terminology and abbreviations and may be too embarrassed to ask for an explanation.
- Discuss instructions on form with patient/family/significant other.

Using the Discharge Care Plan

- Review current ICP and decide what continuing care is needed on discharge.
- Assess patient's understanding of the needs and capability for carrying out interventions.
- Assess patient's need for assistance from family members or outside agencies.
- Fill in the form using terminology and explanations that patient understands.
- If any of the components on the form are not applicable for a patient indicate this by using 'NA' or a '/' in the area.
- When form has been completed and discussed with patient/family/significant other both staff member and patient/family/significant other sign it. Record date.
- The original copy (top) is given to patient and the carbon copy (bottom) with the Separation Summary on the reverse side is kept on the patient record.
- Start the care plan when day of discharge is known or can be anticipated.
- On day of discharge review care plan and add additional comments based on caregiver's final assessment of patient. This will:
  - save caregiver from having to do this care plan 'five minutes' before patient leaves
  - prevent someone less familiar with patient having to do a last-minute care plan
  - ensure that no aspects of discharge care are missed either through rushing or from a lack of knowledge of patient
  - allow time for patient to participate in the plan

[1] Permission to include in these guidelines granted by SAHO.
[2] Available to NISS© clients form SAHO's designated printer.

 July 2006

DISCHARGE CARE PLAN

☐ From In-patient agency ☐ From Home Care

Referral to Home Care for:

☐ None ☐ Meals
☐ Nursing Care ☐ Physiotherapy
☐ Personal Care ☐ Occupational Therapy
☐ Home Maintenance ☐ Other:

saho
Saskatchewan Association of Health Organizations

INSTRUCTIONS FOR CARE
PERSONAL HYGIENE ☐ Independent ☐ Handout (name & dept):
ELIMINATION ☐ Independent ☐ Handout (name & dept):
NUTRITION ☐ Independent ☐ Handout (name & dept):
MOBILITY ☐ Independent ☐ Handout (name & dept):
MEDICATIONS Prescription Yes ☐ No ☐ Own Medications Returned Yes ☐ No ☐ ☐ Handout (name & dept):
TREATMENTS & PROCEDURES ☐ Handout (name & dept):
TEACHING ☐ Handout (name & dept):
SAFETY ☐ Handout (name & dept):
PSYCHOSOCIAL ☐ Handout (name & dept):
HOME CARE PLAN ☐ Yes ☐ No

APPOINTMENTS ☐ Made for you ☐ Make your own appointment

NAME	LOCATION	TIME/DATE	TELEPHONE

SHOW THIS PLAN TO YOUR HOME CARE PROVIDER(S) AND TAKE IT TO YOUR NEXT DOCTOR'S APPOINTMENT

The above information has been reviewed with the patient/family/significant other SIGNATURE	DATE	ID

White – to patient Yellow – patient record

DCP-102.1, February 2003

GENERAL APPENDIX F
Inter-agency Referral Guidelines and Form

INTER-AGENCY REFERRAL GUIDELINES[1]

Objective

This form[2] provides information on the patient's health status and current plan of care upon discharge or referral to another agency.

General Information

- This form is to be filled out when patient is discharged from your institution to:
  - another institution (e.g., hospital, special care home)
  - a community agency (e.g., community health, home care, VON)
- This is a two page, two copy (self-carboning) form.
- The original copy is sent to the referral agency and the carbon copy is kept on the patient record. The Separation Summary is found on the reverse side of the carbon copy, page 2.
- All disciplines are encouraged to complete their appropriate section.

Using the Inter-agency Referral

- Complete form outlining the current plan of care for the patient.
- If an area is not applicable for a patient indicate this by using 'NA' or a '/' in the area.
- Other disciplines (e.g., physiotherapists, dieticians, physicians, pharmacists) should be encouraged to use the designated portion of this form if they do not have an existing referral form of their own. Each discipline must sign its own entry.
- Referral to Home Care
  - The form provides space to document Home Care services which are requested for the patient. Depending on jurisdiction and type of service required a physician's order may be required.

Note: *Home Care in Saskatchewan requires a physician order for provision of Oxygen therapy and nursing care.*

- When complete send the original of page 1 and 2 to the referral agency and retain the carbon copy of page 1 and 2 on patient's record.

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[1] Permission to include guidelines and form granted by SAHO.
[2] Available to NISS© clients from SAHO's designated printer.

 July 2006

INTER-AGENCY REFERRAL (page 1 of 2)

Date & Time:	Diagnosis/Surgery & Date:	
Reason for Referral:		
Transferred from: ☐ Dr.: ☐ Agency: ☐ Home Care:	Transferred to: ☐ Dr.: ☐ Agency: ☐ Home Care:	Mode of Transfer: ☐ Car ☐ Ambulance ☐ Other:

Key Contact – Name & Relationship: Notified: ☐ Yes ☐ No Tel #: Home: Work: Cell:	Personal belongings with patient: ☐ Yes ☐ No *(If no, where?)* Hearing Aid ☐ Rt ☐ Lt ☐ Glasses ☐ Contacts Dentures ☐ U ☐ L ☐ Caps ☐ Partial ☐ Other:
Reports with patient: ☐ No ☐ Yes *(If yes, check boxes)* ☐ Lab ☐ X-ray *(type)* ☐ ECG ☐ Other: *(list)*	Equipment with patient: ☐ No ☐ Yes *(If yes, list)* Return equipment to - Allergies: *(list & describe reactions)* ☐ None Known

PH	**Bath** Dependent ☐ Assist ☐ Self ☐	Type of bath	Special skin care	Oral care
ELIM	**Bladder** Continent: ☐ Yes ☐ No Regime:	Type & size of Catheter Last Change / Change Due	**Bowel** Continent: ☐ Yes ☐ No Regime:	Last bowel care/BM Next bowel care due
NUTR	**Feed** Dependent ☐ Assist ☐ Self ☐	Type of Diet	Diet restrictions, dislikes, special feeding devices	
MOB	**Mobilize** Dependent ☐ Assist ☐ Self ☐	Type and extent of devices and assistance required	☐ Physio ☐ OT	

OBSERVATIONS & MEASUREMENTS

T	P	R	BP	SaO_2	Blood Glucose	Ht	Wt	Intake	Output	LMP

Systems Assessment *(CNS, CVS, Resp, GI, GUR, Integ, MS, EENT)*

Pertinent History

Previous Medical History

Date of last TB test: ☐ Negative ☐ Positive
Immunization History: ☐ Known ☐ Not Known
Type/dates:

MEDICATIONS

IV Therapy			
Type of Solution: Additive:	Initiated at: Amount absorbed: Flow rate:	Needle Size: Site:	Comments:

Current Medications	Rx	OTC	Dose	Route	Freq	Last Time Give	Own Meds with Pt. ☐ Yes ☐ No Comments

INTER-AGENCY REFERRAL (page 2 of 2)

MEDICATIONS (CONT.)

Current Medications (cont.)	Rx	OTC	Dose	Route	Freq	Last Time Given	Comments

TREATMENTS & PROCEDURES

Current treatments and/or procedures

TEACHING

☐ Handout given *(name & dept)*

SAFETY

Risk for: ☐ Falls ☐ Harm to self ☐ Harm to others ☐ Potential to be aggressive

PSYCHO-SOCIAL

Emotional Status *(include patient's/family's reaction to transfer & understanding of condition)*

Religious/Ethnic aspects of care

Advanced Health Care Directives *(describe)* ☐ Living Will ☐ DNR ☐ Feeding Restrictions ☐ Medication Restrictions ☐ Organ Donation ☐ Autopsy Request ☐ Other treatment restrictions

Other comments
☐ Palliative Care

Appointments:

Name	Location	Date/Time	Telephone

Agency Contact Name *(print)*, Tel # | Date & ID

Home Care Services: ☐ Requested ☐ Provided

☐ Nursing Care ☐ Occupational Therapy
☐ Personal Care ☐ Physiotherapy
☐ Home Maintenance ☐ Respite Care
☐ Meals ☐ Palliative Care
☐ Mental Health ☐ Social Services
☐ Other:

Comments:

Signature & Title

 2 of 2 IAR-103.1, February 2003

GENERAL APPENDIX G
Dressing Selection Criteria

Consider what you are replacing when you think about selecting a dressing. The skin's functions are: maintenance of body temperature, protection and immunity, sensory perception, absorption, synthesis of Vitamin D, excretion of waste products, maintenance of body pH and provision of a waterproof layer (Collier, 1996). The dressing replaces the skin for the time the wound is in situ and so must attempt to manage many of these functions.

There are four guidelines for selecting a wound dressing:
1. Function- Learn about dressings by function.
2. Consider safety, effectiveness, user-friendliness and cost effectiveness.
3. Change dressings based on an assessment of the patient, the wound and the dressing, not on standardized routines.
4. Adapt the wound treatment to optimize healing throughout the phases of the healing process.

Factors Influencing Dressing Selection

Wound type	Description	Character	Bacterial profile	Blood supply	Dressing choices
Post-surgical	Wounds	Moist	Sterile	Adequate	Gauze, foam, hydrofiber (depends on amount of exudate)
Epithelializing wounds	Epithelial tissue	Epithelial tissue (silver) -Moist	Contaminated or colonized	Adequate	**Heavily exudating** - hydrofiber or alginate combined with foam, combination product **Moderately exudating** - foams ± hydrofiber (depends on length of wear time) or hydrocolloids + hydrofiber **Lightly exudating** - thin foams, hydrocolloids
Stage 2, 3, 4	Granulating	Granulating (red base) -Moist -May bleed easily	Contaminated or colonized	Adequate	**Heavily exudating** - hydrofibers or alginates combined with foams, combination products. **Moderately exudating** - foams ± hydrofiber (depends on length of wear time) or hydrocolloid + hydrofiber. **Lightly exudating** - thin foams, hydrocolloids **Cavity wounds** - ribbon gauze, hydrofiber or alginate.
Stage X	Necrotic	Dry/ black or gray	Colonized or Infected	Not adequate	Dry out the wound with Betadine, cicatrin, or gauze
Stage X	Necrotic	Dry/black or gray	Colonized or Infected	Adequate	Hydrating products -hdrocolloids or Hydrogels
Stage X	Sloughy	Moist/yellow or gray -Foul odor	Colonized or Infected	Adequate	Debriding products (Cadexomer Idodine, hydrocolloids (depending on moisture level). If largely exudating, hydofiber and/or foams may be used to control drainage.

GENERAL APPENDIX H
Topical Antimicrobial Agents

Agent	Vehicle	Staph. Aureus	Streptococcus	Pseudomonas	Comments
Cadexomer Iodine**** Product: Smith&Nephew	Yellow-brown paste/ointment	√	√	√	Releases iodine slowly(use with caution if thyroid disease), less toxic to granulating tissue, broad spectrum, including virus and fungus. Good autolytic debridement.
Fusidic Acid*	Glycerin cream or lanolin ointment	√	√		Lanolin in ointment base may act as a sensitizer.
Gentamicin sulphate* cream/ointment	Alcohol cream base or petrolatum ointment	√	√	√	Good broad spectrum vs gram negatives.
Metronidazole gel/cream***	Wax-glycerin cram and carbogel 940/propylene gycol gel				Good anaerobe coverage and wound deodorizer.
Mupuricin 2% Ointment/cream***	Propylene glycol ointment	√	√		Good for MRSA. Excellent topical penetration.
Polymyxin B Sulphate - Bactracin zinc***	White petrolatum ointment or cream	√	√	√	Broad spectrum. Low cost. Ointment contains increasing allergen bacitracin (#q in North America).
Polymyxin B sulphate- Bacitracin zinc – neomycin**	White petrolatum ointment.	√	√	√	Neomycin is a potent sensitizer and may cross react in 40% of cases to aminoglycosides.
Silver sulfadiazine***	Water miscible cream	√	√	√	Do not use in sulfa sensitive individuals.
Silver (ionized)****	Absorbent bilayered sheet + alginate (absorbent) + foam (moisture control)	√	√	√	Ionized silver is activated with sterile water. **Do not use** Saline, will precipitate the silver as silver chloride.

*Used systemically

** Contains common sensitizer

*** Non-sensitizing and will not cause resistance with topical use

**** Provides moisture balance +/- autolytic debridement

 Krasner, D. & Sibbald, R. G. (1999). Local aspects of diabetic foot ulcer care: Assessment, dressings and topical agents. M.E. Levin, D. N. O"Neal, & J. H. Bowker (Eds). In The Diabetic Foot, 6th edition, St. Louis , MO: Mosby

GENERAL APPENDIX I
Web-Based Resources

Canada:

Canadian Association of Wound Care
http://www.cawc.net/

Canadian Association of Enterostomal Therapy
www.caet.ca

Canadian Association of Nursing Research
www.canr.ca

Registered Nurses Association of Ontario – Best Practices Guidelines
http://www.rnao.org/bestpractices/

Toronto Wound Healing Centres
http://www.twhc.ca/

United States:

Agency for Healthcare Research and Quality
http://www.ahrq.gov/

American Academy of Wound Management
http://www.aawm.org/

BioMechanics Magazine's Wound Management Page
http://www.biomech.com/specialties/WoundManagement/

"Cleaning Up Wound Care"
http://www.orthopedictechreview.com/issues/junjul99/pg51.htm

Medscape
http://www.medscape.com/px/urlinfo

National Pressure Ulcer Advisory Panel
http://www.npuap.org/

Ostomy Wound Management
www.o-wm.com

rmis.com (Risk Management Internet Services) Resource Library - Wound Care
http://www.rmis.com/sites/medwound.htm

"Taking Diabetic Foot Wound Care into the New Millennium"
http://www.mmhc.com/engine.pl?station=mmhc&template=storyfull.html&id=1456

Woundbiotech
http://www.bu.edu/woundbiotech/

World Wide Wounds
www.worldwidewounds.com

Wound Care Consultants' Information Center
http://www.cytokine.com/wcenter.html

Wound Care for Wounds That Have Resisted Healing
http://www.wound.com

Wound Care Information Network
www.medicaledu.com/wndguide.htm

Wound Care Institute
www.woundcare.org

Wound Care - Vince Lepak, PT, MPH, CWS
http://moon.ouhsc.edu/llepak/wounds/home.htm

Wound Healer
www.woundhealer.com

Wound Healing Society
www.woundheal.org

WoundHealth Reference Library
http://www.dumex.com/whrl/pages/index.html

Wound, Ostomy and Continence Nurses Society
www.wocn.org

University of Iowa - College of Nursing
Chronic Wound Healing Site
http://www.nursing.uiowa.edu/sites/chronicwound/

Wounds: A Compendium of Clinical Research and Practice
http://www.woundsresearch.com/wnds/

Wounds1.com – Your Complete Source for Wound Care
http://www.wounds1.com

United Kingdom:

Oxford International Wound Healing Foundation
http://www.oxfordinternationalwoundfoundation.org/

Tissue Viability Nurses Association
http://www.tvna.org/default.html

Tissue Viability Society
http://www.tvs.org.uk/

Wound Healing Research Unit
http://www.whru.co.uk/

Wound Management Practice Resource Centre
http://www.smtl.co.uk/WMPRC/index.html

WoundSci
http://www.woundscience.com/index.html

Europe:

European Pressure Ulcer Advisory Panel
http://www.epuap.org/

European Tissue Repair Society
http://www.etrs.org/

European Wound Management Association
http://www.ewma.org/

Australia:

Australian Wound Management Association
http://www.awma.com.au/

South Australian Wound Management Association
http://www.wound.sa.edu.au/

International:

Association for the Advancement of Wound Care (AAWC)
http://www.aawc1.com/

Cochrane Collaboration
www.cochrane.org

Cochrane Collaboration- Wound Group Reviews
www.york.ac.uk/healthsciences/gsp/themes/woundcare/Wounds

Medscape
http://www.medscape.com/px/urlinfo

Smith & Nephew's Wound Management Page
http://www.smith-nephew.com/what/wound.jsp

World Council of Enterostomal Therapists
www.wcetn.org

World Union of Wound Healing Societies
http://www.wuwhs.org/

World Wide Wounds
http://www.worldwidewounds.com/

Wound Ostomy and Continence Nurses Society
http://www.wocn.org/

WoundSpecialist.com
http://www.woundspecialist.com/

Skin and Wound Care Products

March 2006
Saskatchewan Skin & Wound Care Guidelines

Skin and Wound Care Products
Per SAHO Contracts – July, 2004

The following appendix lists the skin and wound care products available in Saskatchewan under SAHO contract. Through group purchasing, SAHO Materials Management Services assists members with the acquisition of skin and wound care products. By so doing the regions are able to realize the advantage of cost containment, standardization of products, price stability and vendor service.

As SAHO members, institutions should neither solicit nor accept quotations from vendors for the same products. It is also expected that members reject and report to Materials Management Services any attempt by unsuccessful vendors at backdoor selling.

To access the SAHO skin and wound care products please contact the provincial SAHO product distributors. If you have questions or concerns, please contact SAHO Materials Management Services.

The medical supply companies head office contact information and company web sites are included in this appendix.

Manufacturer WEB Sites and Contact Information

Convatec
www.convatec.com
Telephone: 800-465-6302

Coloplast
www.us.coloplast.com
Telephone: 800-788-0293

Hollister LTD
www.hollister.com
Telephone: 800-263-7400

3M
http://cms.3m.com
Telephone: 800-661-8126

Molnlycke
www.molnycke.net
Telephone: 800-494-5134

Johnson & Johnson
www.jjmp.ca
Telephone: 1-800-642-6748

Smith & Nephew
www.smith-nephew.com
Telephone: 514-956-1010

Skin Care Products

Cleanser

SAHO products	Description	Indicators for use	Considerations
Sproam –(Coloplast) 178 ml (6oz), 355 ml (12 oz), 3.8 L (1 gal)	• No-rinse fragrance free formula Fragrance free • Non-aerosol bottle provides foam or spray • PH balanced to the acid mantle of the skin	• Bedside total body cleanser,shampoo and incontinence cleanser • Removes occlusive skin paste	• Sproam is PH balanced to the acid mantle of the skin, contains a humectant to moisturize, a surfactant to loosen feces, blood, emesis and zinc oxide paste • For external use only

No-rinse Incontinent Cleanser and Deodourizer

SAHO products	Description	Indicators for use	Considerations
Peri–Wash II-(Coloplast) 118ml, 250 ml, 3.8 L	• No-rinse incontinent cleanser and deodorizer • PH balanced	• For cleaning of perineal area due to incontinence • Re-moisturizes skin	• For external use only

Basic Lotion

SAHO products	Description	Indicators for use	Considerations
Xtra-Care- (Coloplast) 2ml, 59ml, 118ml, 237ml, 621ml, 800ml, 3.8L	• Moisturizing body lotion with natural Vitamin E • Retains skin moisture	• Backrubs, massage therapy, foot care, hand care and dry skin	• Routine skin moisturizer for all dry areas
Professional Care- (Smith & Nephew) 360ml bottle, 30ml tube	• Moisturizes the skin • Does not contain mineral oil or perfume	• A general body moisturizer for everyday use • Backrubs, massage therapy, foot care, hand care and dry skin	• Contains 88% H2O

Cream

SAHO products	Description	Indicators for use	Considerations
Sween Cream (Coloplast) Fragrance free – 57g jar Regular–57g tube, 142g tube	• A therapeutic moisturizing cream with vitamins A&D designed to hydrate moderately dry skin • Helps to soothe red, sore, irritated skin resulting from incontinence, psoriasis, minor burns or perspiration irritation • Because Sween cream is greaseless, it allows tape to adhere to skin after application	• Reddened, irritated, chapped, cracked, itchy skin • May be used under tape	• External use only

Barrier Cream

SAHO products	Description	Indicators for use	Considerations
Baza-Protect- (Coloplast) 57g tube, 142g tube	• Occlusive skin protectant cream with zinc oxide, petrolatum and dimethicone • Forms a barrier by remaining on top of the epidermis to protect the skin from the harmful effects of body fluids	• Protect skin from moisture and wetness • Aids in prevention and treatment of dermatitis (diaper rash), inflammatory skin condition (perineum, buttocks, lower abdomen and/or inner thighs)	• Prevents dermatitis
Uni-Salve (Smith&Nephew)	• A long-lasting topical skin protection for severe cases of incontinence • 99.3 petrolatum formula seals out moisture and minimizes skin exposure to irritants • Contains chlorometoxylenol to reduce odour	• Indicated for the prevention of skin irritation caused by exposure to urine, feces or other body fluids	• For external use only

Occlusive Skin Paste

SAHO products	Description	Indicators for use	Considerations
Critic-Aid- (Coloplast) 71g (2.5 oz) tube, 170g(6 oz) tube	• A zinc oxide skin barrier paste which conditions sensitive inflamed and denuded skin caused by caustic diarrhea or enzymatic drainage • Occlusive skin paste with Vitamins A &D	• Adheres to wet weepy skin, protecting it from further trauma • Anal area in severe diarrhea • Protect skin around tubes or wounds • Superficial and partial skin thickness skin injury	• Use sproam for removal • For external use only

Moisturizer with Urea

SAHO products	Description	Indicators for use	Considerations
Atrac-Tain **(Coloplast)** 2g packets, 142g (5oz) tube, 56g(2oz.) tube	• A superior moisturizing cream for severely afflicted dry, scaly and cracked skin conditions • Contains 10% urea (increases water binding capacity of the epidermis and attracts water to the dry skin cells) and 4% alpha hydroxy acid (retains moisture, increasing elasticity and resistance to cracking) • Non-occlusive emollients • Fragrance and preservative free	• Severely dry skin, scaly skin and cracked skin • Safe for use on sensitive skin	• For external use only

Skin Barriers

SAHO products	Description	Indicators for use	Considerations
Liquid **3M – No Sting Barrier Film** **Barrier Film Wipe**-1 ml **Barrier Foam** applicator – 1 ml, 3 ml **Pump Spray** bottle – 28ml	• Quickly drying liquid to provide a thin layer of skin protection • Durability varies • Available as moistened wipes, applicators or spray	• Protects peri-wound skin from maceration, irritation or tape injury • Apply to the skin tissue surrounding draining wounds that require sustained peri-wound protection. • Enhances adhesion of cover dressings. • Use under adhesive tapes to prevent skin stripping	• Allow product to dry before cover dressing is applied
Smith& Nephew **Skin Prep**– Wipes **Convatec** **AllKare**– Wipes	• Quickly drying liquid to provide a thin layer of skin protection • Durability varies • Available as moistened wipes, applicators or spray • Some contain alcohol of variable amounts	• Protects peri-wound skin from maceration, irritation or tape injury • Apply to the skin tissue surrounding draining wounds that require sustained peri-wound protection. • Enhances adhesion of cover dressings	• Allow product to dry before cover dressing is applied • Not for use on open wounds • Products containing alcohol can cause transient burning or stinging if skin is broken
Solid **Coloplast** **-Skin Barrier** 10x10cm, 15x15cm, 20x20cm **Convatec** **Stomahesive Skin Barrier**– 10x10cm, 20x20cm ***Thin Hydrocolloids*** *See Hydrocolloid section of this appendix*	• Solid adhesive sheets of varying sizes/densities	• Use under adhesive tapes to prevent skin stripping	• Replace by seven days or if drainage migrates underneath • Cut barrier to fit close to wound margins Thin hydrocolloid sheets promote healing of peri-wound skin irritation

Wound Cleansers

Caution – ***Wound cleansers are for wounds. Skin cleansers are for intact skin only.***

SAHO products	Description	Indicators for use	Considerations
Normal Saline **Shur Clens-** **(Convatec)** 20 ml, 100 ml **Sea-Clens-** **(Coloplast)**	• Not harmful to tissue. • Physiologically balanced • Commercial wound cleansers • May contain surfactants to assist with removal of debris • Adjustable spray nozzle provides variable pressures for cleansing (from gentle flush to 15 pounds per square inch (psi)	• Cleanses wound debris with minimal trauma	• Levels of toxicity vary among commercial wound cleansers. Some contain antimicrobial agents, which may be toxic to new tissue. Read literature and product monograph to determine safety • Cleansers contain mild preservatives, which stabilize the product but may cause irritation and increase toxicity

Moisture Retentive Dressings: Transparent Films

SAHO products	Description	Indicators for use	Considerations
(SMITH&NEPHEW) **Op-Site Flexi-Grid** 6x7cm,10x12cm, 12x25cm, 15x20cm **Op-Site-**28x10cm, 10x14cm, 28x15cm, 14x25cm, 28x30cm, 42x40cm ,28x45cm 55x45cm, 84x56cm **Op-Site Spray** 110ml **Op-Site Flexi-Fix** 5cmx10M, 15cmx10M, 10cmx10M **Op-Site Post-Op-** 6.5x5cm,9.5x8.5cm, 15.5x8.5cm, 25x10cm	• Transparent moisture vapor permeable (MVP) adhesive film dressings • Impermeable to water molecules and bacteria • Transparency permits wound visualization • Non-sterile roll is intended for use on intact skin, as a secondary cover dressing or as a fixative (tape)	• Wounds at risk for contamination • Protects intact skin from friction or irritants • Secondary cover dressing to enhance moisture and odour containment • A flexible outer dressing for uneven areas • Superficial wounds, skin breaks with minimal drainage • Supports autolytic debridement	• Can be cut to accommodate difficult areas or used as adhesive strips to waterproof dressing edges • Moisture resistance allows for bathing • Use with caution on fragile peri-wound skin • For removal, stretch product to break adhesive bond and prevent skin stripping • Decrease wound pain by protecting superficial nerve endings • Use of liquid skin barriers on peri-wound skin increases adhesion • **Latex free**

Moisture Retentive: Non-adherents

SAHO products	Description	Indicators for use	Considerations
IMPREGNATED/TULLE (Johnson & Johnson) Adaptic- petrolatum gauze 7.5x7.5cm, 20x7.5cm	• Non-adhesive knitted cellulose acetate fabric impregnated with a petroleum emulsion. • Varied size and shapes of woven mesh	• Wound contact layer to: • Protect fragile tissue • Maintain some wound hydration • Prevent painful dressing adherence • Decreases skin irritation • Provides a moist wound environment	• Requires a secondary dressing to absorb drainage and enhance stability • May be cut to size without unraveling or shredding
(Smith & Nephew) Jelonet- paraffin gauze 10x7cm, 10x10cm, 10x40cm	Non-medicated paraffin-based tulle dressing	• Decreases skin irritation • Provides a moist wound environment	Requires a secondary dressing to absorb drainage and enhance stability • May be cut to size without unraveling or shredding
Bactigras – 10x10 cm, 5x5 cm, 15x20 cm.	Non-adherent tulle dressing containing 0.5% Chlorhexidine Acetate on open mesh gauze.	• Indicated for the prevention of wound infection. • Non-adherent	• Latex free • Sterile • Designed as a wound contact layer • Requires a secondary dressing
Viscopaste-Zinc oxide wrap bandage- 7.5cmx6M	• Open woven cloth impregnated with a 10% zinc oxide paste	• Decreases skin irritation • Provides a moist wound environment	• Latex free • Sterile • Designed as a wound contact layer. • Requires a secondary dressing
Zipzoc-Zinc oxide impregnated stocking - one size	20% zinc impregnated stocking	• Accommodates a leg up to 60 cm in size. • Sterile	• Latex free • Convenient and easy application • Designed as a limb contact layer

NON-IMPREGNATED **(MoInlycke)** **Mepore**-island drsg. with non-adherent absorb pad 6x7cm, 10x9cm, 15x9cm, 20x9cm, 25x9cm, 30x9cm **Mepore Pro**-shower proof, self-adhesive, absorb 'film and pad'- 6x7cm, 10x9cm, 15x9cm	Self-adhesive dressing with an absorbent viscose pad as a contact layer.	Low profile dressing used predominantly on post-op wounds	• Conformable and easy to apply • Water repellant outer cover • Breathable Radioparent, can remain in place during x-ray procedures Reduces risk of wound contamination
Ete- rayon pad 10x10 cm	Highly absorbent rayon pad that manages a moderate to large amount of exudate	Used as a secondary dressing to manage exudate or as a primary dressing to protect when moist wound healing is contraindicated	• Minimizes adherence to wound surface • Limits the risk of maceration • Protects newly formed tissue • Low friction with maximum absorption • Soft and flexible • Needs tape for securement
Mepitel-transparent micro-adherent wound contact layer- 5x7.5cm, 7.5x10cm, 10x18cm, 20x30cm	Non-adherent, medical grade silicone bound to an elastic polyamide net	Minimizes pain and trauma at dressing changes	• Protects the wound bed and promotes undisturbed wound healing
Mepitel Transfer-silicone exudate transfer dressing- 15x20cm, 20x50cm	Soft silicone exudate transfer dressing	Minimizes pain and trauma at dressing changes while transferring exudate vertically away from the wound	• Does not adhere to moist wound bed but adheres gently to peri-wound tissue • Can remain in place for seven days or longer • Conforms to body contours • Lowers the risk of maceration

Wound Hydration: Hydrocolloids

SAHO products	Description	Indicators for use	Considerations
(Colopast) **Comfeel and ComfeelPlus**- Hydrocolloid drsg with an alginate to increase absorption **Comfeel Plus**-4x6cm, 10x10cm, 15x15cm, 20x20cm **Comfeel plus triangle** 18x20cm **Comfeel plus clear**- 5x7 cm, 10x10cm, 9x14cm, 15x15cm, 15x20cm, 20x20cm **Comfeel plus contourdressing**- 6x8cm, 9x11cm **Triad- Zinc** oxide based hydrophilic paste- 71g tube, 170g tube	• Available as adhesive sheets, powders or pastes • May contain gelatin, sodium carboxymethylcellulose, and pectin • Sheet dressings have an occlusive polyurethane outer layer • Thickness, size, absorption capability, and transparency varies • Minimal to moderate absorbency • Some have tapered or adhesive borders to increase stability	• Wounds with minimal drainage • Wounds requiring debridement • Protects from contamination • As an aesthetic cover dressing • A moisture retentive secondary dressing over an absorbent filler	• Sheets can be customized to fit difficult areas. Size must always extend 2.5-5 cm beyond wound margins to ensure adherence and wear time • Use of additional tapes or transparent film dressing to edges may improve stability in areas of high stress • Exercise caution when using adhesive dressing on fragile peri-wound skin • Dressings create an occlusive barrier • May remain in place for up to 7 days Frequency of change is determined by amount of drainage and before leakage occurs
(ConvaTec) **Duoderm CGF/Signal** **Duoderm**-5x10cm, 5x20cm, 7.5x7.5cm, 10x10cm, 10x15cm, 15x15cm,15x18cm, 15x20cm,20x20cm, 20x30cm,20x23cm, 14x14cm **Duoderm Signal**- 20x20cm,14x15cm, 10x10cm,15x18cm, 18x23cm	• Adhesive bordered (hydrocolloid) wound dressing that is tapered at the edge to reduce rolling	• Primary or secondary dressing • Protects the wound from contamination • Creates a moist wound environment	• Can be used over absorbent alginates or hydrofibers to contain drainage • Monitor individuals for allergic response

Duoderm thin 10x10cm, 15x15cm, 5x10cm, 7.5x7.5cm,10x15cm, 15x17.5cm	• Gel formula dressings designed for use on dry to lightly exudating wounds	• Can be used as a friction reducing agent • Provides protection from contamination	• Protective dressing • Wounds with minimal exudate only • The dressing should extend 1.25" beyond the wound margin for longer wear time
(3M) Tegasorb Hydrocolloid dressing with film border: **Tegasorb-** 7x9 cm, 10x12cm, 14x17cm, 12.4x13.9cm **Tegasorb Thin**-7x9cm, 10x12cm, 14x17cm	• Hypoallergenic, hydrocolloid dressing. • Vapor and water permeable • Bacteria impermeable	• Maintains a moist wound environment. • Promotes autolytic debridement. • Has a thin transparent film edge to decrease dressing profile and enhance adhesion.	• Dressings create an occlusive barrier • May remain in place for up to 7 days Frequency of change is determined by amount of drainage and before leakage occurs • Can be used over absorbent alginates or hydrofibers to contain drainage • Monitor individuals for allergic response • Lift all the film edges first before the rest of the dressing prior to removal. Roll the rest of the dressing off slowly folding it over itself until it is free of all skin surfaces

Wound Hydration: Hydrogels

SAHO products	Description	Indicators for use	Considerations
(ConvaTec) Duoderm Gel 15gm, 30gm	• Sterile gel composed of natural hydrocolloids (pectin, sodium carboxymethylcellulose) in a clear viscous vehicle. • Moisture donating • Non-toxic • Non-adherent	• Granulating wounds • Prevents dressing adherence, bleeding or pain • Wounds requiring debridement • Minimally exudating wounds • Promotes natural debridement by hydration of necrotic tissue • Promotes moist wound healing	• Cross-hatch eschar to promote penetration of gel • Secondary dressing is required to retain moisture, absorb excess drainage and to stabilize gels over wounds • Can be used in combination with transparent films, foams or other non-adherent cover dressing • Wear time varies from one to three days according to amount of drainage
(Smith&Nephew) Intrasite Gel **Applipack** , 8gm,15gm,25gm **Intrasite** conformable dressing	• Clear amorphous hydrogel containing polymers, glycol and water. Sterile packaging • Available as liquid gels, in solid sheets or imbedded into gauze dressings • Moisture donating • Non-toxic • Non-adherent		

Absorbent Dressings: Alginates

SAHO products	Description	Indicators for use	Considerations
(ConvaTec) **Kaltostat** – 5x5cm, 7.5x12cm, 10x20cm, 2gm	• Sterile non-woven pad or ribbon dressing of calcium-sodium alginate fiber. • As drainage is absorbed, it coverts to a gelatinous mass • Hemostatic capabilities, calcium and sodium interact to promote clotting • Non-adhesive	• Wounds with visible depth requiring soft filler • Exudating wounds as a primary dressing. • Minimally bleeding wounds	• Remove residue by flushing with an appropriate wound cleanser • Requires a secondary dressing • Trim to wound size • When packing a wound with this product leave 2.5 cm or 1" external to the wound for easy retrieval

Absorbent Dressings: Hydrofiber, Hypertonic Gauze

SAHO products	Description	Indicators for use	Considerations
HYDROFIBER **(Convatec) Aquacel** – 5x5cm, 10x10cm, 15x15cm, 2x45cm	• Soft, non-woven fibrous sheet or packing strip of sodium carboxymethylcellulose • Highly absorbent • Converts to a solid gel when activated by moisture	• Pack wounds with a visible base • Supports debridement of exudating wounds • Prevents trauma to fragile wound tissue • Manages large amounts of drainage	• Dressing can overlap wound margin onto peri-skin • Requires moisture-retentive cover dressing • Flush to remove all residue • Leave 2.5 cm or 1" external to the wound for easy retrieval • Wear time- maximum 7 days • Change dressing when saturated or leaking or cover dressing is rolling off
HYPERTONIC GAUZE **(Molnlycke)** **Mesalt** - 5x5cm, 7.5x7.5cm, 10x10cm, 2cmx1M	Absorbent, non-woven viscose/polyester wound pad impregnated with crystalline sodium chloride	Wounds with moderate to heavy drainage, including wounds with yellow slough or fibrin and infected wounds	• Apply Mesalt in dry state to wound • Natural cleansing action supports healing, even in infected wounds • Absorbs exudate, bacteria and necrotic material • Creates a hypertonic wound environment which is unfavorable to the growth of micro-organisms

Absorbent Dressings: Foams

SAHO products	Description	Indicators for use	Considerations
AllevynAdhesive 7.5x7.5cm, 12.5x22.5cm, 12.5x12.5cm, 17.5x17.5cm, 22.5x22.5cm Plus Cavity – 5x6cm, 10x10cm, 15x20cm Plus Adhesive – 12.5x12.5cm, 17.5x17.5cm, 12.5x12.5cm	Combines a centrally located absorbent hydrocellular pad sandwiched between a perforated adhesive wound contact layer and a waterproof outer film	• Provides a moist wound environment • Absorbs a moderate to large amount of exudate	• Maximum wear time of 7 days or until exudate visibly approaches within 2 cm of the dressing edge • Inspect dressings frequently during the early stages of wound management • Prevents bacterial contamination of the wound • Comes in a variety of shapes and sizes. • If changed too frequently or in the presence of fragile skin, skin stripping can result • If redness or sensitivity to the dressing is noted, discontinue use • The use of Allevyn dressings with sodium hypochlorite solutions (Dakins) can cause dressing breakdown and Dakins should not be used with these products
Mepilex Border 7.5x7.5cm, 10x10cm,15x15cm, 15x20cm	Self-adherent waterproof foam dressing with a soft silicone contact layer	• Indicated for use on fragile periwound skin • Promotes moist wound healing	• Conformable • Low profile • Reduces pain and trauma at dressing change
Mepilex 10x10cm, 10x20cm,15x15cm ,20x20cm	Absorbent foam pad with soft silicone contact layer	• Non-adherent to wound bed • Promotes moist wound healing • Reduces maceration	• Reduces pain and trauma at dressing change • Requires a fixative (tape or kling) • Can be cut to size or shape

Biatain 10x10cm, 15x15cm,20x20cm,5cm round, 8cm round	A foam dressing with a 3-D polymer structure that manages exudates and conforms to the wound bed for total contact. Highly permeable thin film top layer allows for evaporation of excess moisture	For low to highly exudating chronic wounds	• Comes in a variety of shapes and sizes • Needs secondary fixation • Designed as a secondary dressing

Absorbent Dressings: Composites, Odour Specific, Non-adherent

SAHO products	Description	Indicators for use	Considerations
Composites **(Convatec)** **Combiderm** **Non-Adhesive** – 7.5x7.5, 13x13cm, 15x25cm **Hydrocolloid Adhesive Combiderm** – 10x10cm, 13x13cm, 15x18cm, 15x25cm, 20x20cm, 20x20.5cm	• A sterile dressing with an option to have an adhesive hydrocolloid border	• Promotes moist wound healing • Assists in autolytic debridement • Can be used as a primary or secondary dressing • Provides a barrier to external contaminants	• Maximum wear time is 7 days • Store at room temperature in a dry location • Ensure appropriate size of dressing is used • Dressings come in a variety of shapes and sizes • Change when strikethrough occurs • Support the skin adjacent to the dressing when removing it to decrease the risk of trauma to surrounding tissues • The dressing should extend 1.25" or 3.2 cm beyond the wound edges

Versiva – 9x9cm, 14x14cm, 19x19cm, 19x24cm, 18x19cm, 21x22.5cm	Composite adhesive exudates management dressing consisting of three components: a top polyurethane foam/film layer, an absorptive non-woven fibrous blend layer and a thin perforated adhesive layer	• Promotes moist wound healing • Can be used as a primary or secondary dressing • Supports autolytic debridement • Provides a barrier to external contaminants	• Maximum wear time is 7 days • Store at room temperature in a dry location • Ensure appropriate size of dressing is used • Dressings come in a variety of shapes and sizes • Change when strikethrough occurs • Support the skin adjacent to the dressing when removing it to decrease the risk of trauma to surrounding tissues • The dressing should extend 1.25" or 3.2 cm beyond the wound edges
Charcoal **(Johnson & Johnson)** **Actisorb Plus** – 10.5x10.5cm, 19x10.5cm	Activated charcoal dressing with silver that is composed of pure activated carbon impregnated with silver. The dressing binds and immobilizes micro-organisms that contaminate and infect wounds	Indicated for wounds where bacterial contamination, infection or odour is an issue	• Compatible with water or saline • Most effective if in direct wound contact • Primary wound dressing • Maximum wear time – 7 days
Non-adherent **(Smith&Nephew)** **Exu-Dry**-10x10cm, 15x23cm, 23x28cm, 38x46cm, 38x61cm, 91x183cm, arm drsg., leg drsg., burn vest	A one-piece, multi-layer synthetic dressing with a sealed construction that eliminates frayed edges, loose threads and linting. It has an anti-shear layer that minimizes friction and shear forces and protects the wound	• Highly absorbent • Suggested for use in burns	• Non-adherent in the majority of uses

(Monlycke) **Mesorb**- 10x10cm, 10x15cm, 10x20cm, 15x20cm, 20x25cm, 30x20cm	Absorbent dressing with a strike through exudate barrier	Absorbs and retains high amounts of exudate	• Latex free • Sterile • Requires a fixative tape • Select a dressing that overlaps wound edges by 2-4 cms • Use as a secondary dressing • Change as indicated by strikethrough

Antimicrobial Agents

SAHO products	Description	Indicators for use	Considerations
Cadexomer Iodine Products: (Smith&Nephew) **IodosorbOintment** 10G, 20G, 40G **Iodosorb Paste** 5G,10G ,17G	Iodosorbcomes in ointment or paste. It is a topical antibacterial agent that cleans up the wound, reduces pain and speeds healing	Promotes moist wound healing. Protects from bacterial contamination	• Reduces bacterial burden. Intended for adult use only. • Consider iodine allergy • Protect product from heat and humidity. • May sting on initial application • Apply 2-3 X per week or when it loses its color. Apply to all wound parts to a minimum depth of 3 mm
Silver (ionized) Products: (Smith & Nephew) **Acticoat Burn Wound Dressing** 10x10cm, 10x20cm, 20x40cm, 40x40cm, 10x120cm **Acticoat 7**– 10x12.5, 15x15cm **Absorbent Wound Dressing**– 10x12.5cm, 1.9x30cm **Moisture Control (Foam) Dressing**– 12.5x12.5cm	Rayon, polyester core between 2 outer layers of silver-coated, polyethylene mesh. Contains ionic silver	Promotes moist wound healing. Protects against bacterial contamination.	• Allergy to silver. around the wound tissue may become stained with silver • Not compatible with oil-based products-petrolatum (Vaseline) • Not compatible with use of MRI • Do not use if color is not uniform • Can be cut to shape • Dressing should be kept moist • Three-day wear time • Should not come into contact with electrodes or conductive gels • Avoid exposure to temperatures above 50° • Must use sterile water to moisten the dressing

Convatec **Aquacel Ag**- 4.5x4.5cm, 9.5x9.5cm, 14.5x14.5cm, 19.5x29.5cm, 1.8x44.5cm	• Silver impregnated hydrofiber, antimicrobial dressing containing Sodium carboxymethylcellulose and 1.2% ionic silver The silver kills bacteria trapped in the dressing • The dressing gels upon contact with wound fluid.	Promotes moist wound healing. Supports autolytic debridement Controls wound bacteria levels	• Use as a primary dressing • Not compatible with petrolatum (Vaseline-based products) • Overlap one half inch onto skin • When used as a packing leave 1" or 2.5 cm external to wound for ease of retrieval • Consider silver allergy • Store at room temperature • Reduces risk of infection