Complete Summary

GUIDELINE TITLE

Guideline for prevention and management of pressure ulcers.

BIBLIOGRAPHIC SOURCE(S)

Wound, Ostomy, and Continence Nurses Society (WOCN). Guideline for prevention and management of pressure ulcers. Glenview (IL): Wound, Ostomy, and Continence Nurses Society (WOCN); 2003. 52 p. (WOCN clinical practice guideline; no. 2). [141 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Pressure ulcers (also known as bedsores, pressure sores, and decubitus ulcers)

GUIDELINE CATEGORY

Evaluation
Management
Prevention
Risk Assessment
Treatment

CLINICAL SPECIALTY

Dermatology
Family Practice
Internal Medicine
Nursing
Physical Medicine and Rehabilitation
Plastic Surgery
Surgery

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Health Care Providers
Nurses
Physical Therapists
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To present an evidence-based guideline for pressure ulcer prevention and management
- To improve cost-effective patient outcomes as well as increase wound research in the areas where there are gaps between research and practice

TARGET POPULATION

Patients with or at risk for developing pressure ulcers

INTERVENTIONS AND PRACTICES CONSIDERED

Assessment

1. Assessment of individual risk for developing pressure ulcers using risk assessment tools (e.g., Braden Scale, Norton Scale, Braden Q Scale)
2. Identification of high-risk settings and groups to target prevention efforts and minimize risk
3. Assessment of skin
4. Assessment of cognition, sensation, immobility, friction and shearing, and incontinence
5. Assessment of nutritional status and laboratory parameters for nutrition status
6. Assessment for history of prior ulcer and/or presence of current ulcer, previous treatments, or surgical interventions
7. Assessment and monitoring of pressure ulcers at each dressing change
8. Assessment for factors that impede healing
9. Evaluation of healing
10. Assessment for potential complications associated with pressure ulcers

Prevention/Management/Treatment

1. Measures to minimize friction and shear (keeping skin dry, using lift sheets or turning devices, overhead trapeze bars)
2. Measures to reduce or relieve pressure (turning and repositioning; avoiding foam rings, donuts, sheepskin; proper positioning of chair-bound patients; use of pressure-reducing or relieving devices
3. Management of incontinence (bowel and bladder program; skin cleansing; skin barriers; use of absorbent material next to skin; collection devices for urine and stool)
4. Nutritional management (correction of deficiencies)
5. Patient/caregiver education (causes, risk factors, prevention and management of pressure ulcers)
6. Wound management (cleansing, debridement of tissue, topical dressing, managing infection)
7. Adjunctive therapies (growth factors; electrical stimulation; noncontact normothermic radiant heat therapy; topical negative pressure)

   Note: The guideline developers considered but did not recommend other adjunctive therapies (ultrasound, electromagnetic therapy, hyperbaric oxygen therapy; use of sugar, honey, or skin equivalents; topical phenytoin; topical estrogen; phototherapy)

8. Evaluation of need for operative repair
9. Evaluation and management of pain

MAJOR OUTCOMES CONSIDERED

- Cost, risk, incidence, and prevalence of pressure ulcers
- Efficacy of intervention measures at identifying patients at risk, preventing the development of pressure ulcers, and facilitating wound healing
- Validity of tools used to assess patients at risk and pressure ulcer healing

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

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

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The primary authors of this guideline independently conducted a literature search of Medline and Cochrane Library databases to identify studies and systematic reviews published in English from 1980 to 2002. The following medical subject headings (MESH) were used to search for each specific question related to pressure ulcers – pressure ulcer, pressure sore, decubitus ulcer, and bedsore. The search targeted meta-analyses, randomized controlled trials (RCTs), prospective clinical trials, retrospective studies, and systematic reviews. Bibliographies of selected articles also were reviewed.

NUMBER OF SOURCE DOCUMENTS

More than 200 articles were identified and reviewed for this guideline.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Level I: A randomized controlled trial (RCT) that demonstrates statistically significant difference in at least one important outcome defined by $p<.05$.

Level II: A RCT that does not meet Level I criteria.

Level III: A nonrandomized trial with contemporaneous controls selected by some systematic method. A control may have been selected because of its perceived suitability as a treatment option for individual patients.

Level IV: A before-and-after study or a case series of at least 10 patients using historical controls or controls drawn from other studies.

Level V: A case series of at least 10 patients with no controls.

Level VI: A case report of fewer than 10 patients.

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not stated

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

A level of evidence rating (A-C) has been assigned specific recommendations and is defined at the end of the "Major Recommendations" field. Citations in support of individual recommendations are identified in the original guideline document.

Assessment

1. Perform risk assessment on entry to a healthcare setting and repeat on a regularly scheduled basis or when there is a significant change in the individual´s condition. ***Level of evidence = C***.
    a. **Acute care**: Perform initial assessment at admission and reassess at least every 48 hours or whenever the patient´s condition changes or deteriorates.
    b. **Long-term care**: Perform initial assessment at admission. Reassess weekly for the first 4 weeks, then quarterly after that, and whenever the resident´s condition changes or deteriorates.
    c. **Home-health care**: Perform initial assessment at admission and reassess every visit.
2. Identify high-risk settings and groups to target prevention efforts to minimize risk. ***Level of evidence = C***.
3. Inspect skin and bony prominences at least daily. Any skin changes should be documented including a description of the skin changes as well as any action taken. ***Level of evidence = C***.
4. Assess for cognition, sensation, immobility, friction, shear, and incontinence. ***Level of evidence = C***.
5. Perform nutritional assessment on entry into a new healthcare setting and whenever there is a change in the individual´s condition that may increase the risk of malnutrition. ***Level of evidence = C***.
6. Assess laboratory parameters to determine nutritional status, which may include albumin or pre-albumin, transferring, and total lymphocyte count. ***Level of evidence = C***.
7. Assess nutrition to measure effectiveness of nutritional interventions. ***Level of evidence = C***.
8. Assess for history of prior ulcer and presence of current ulcer, previous treatments, or surgical interventions that increase risk for additional pressure ulcers. ***Level of evidence = C***.
9. Assess and monitor pressure ulcer(s) at each dressing change, and reassess and measure at least weekly, including location, tissue type, size, tunneling, exudates, presence/absence of infection, wound edges, stage, periwound skin, pain, and adherence to prevention and treatment. ***Level of evidence = C***.
10. Assess for factors that impede healing status, such as comorbid conditions or medications. ***Level of evidence = C***.
11. Partial thickness ulcers (stage II) should show evidence of healing within 1 to 2 weeks. Reduction in wound size following 2 weeks of therapy for Stage III and IV pressure ulcers has also been found to predict healing. If the condition

of the patients or the wound deteriorates, reevaluate the treatment plan as soon as evidence of deterioration is noted. ***Level of evidence = B***.
12. Assess for potential complications such as fistula, abscess, osteomyelitis, bacteremia, cellulites, and cancer. ***Level of evidence = C***.

Prevention

1. Continue preventive measures even when a patient has a pressure ulcer to prevent additional pressure areas from developing. ***Level of evidence = C***.
2. Clean and dry skin after each incontinent episode. ***Level of evidence = C***.
3. Use turning or lift sheets or devices to turn or transfer patients. ***Level of evidence = C***.
4. Maintain head of bed at, or below, 30 degrees or at the lowest degree of elevation consistent with the patient´s medical condition. ***Level of evidence = C***.
5. Avoid vigorous massage over bony prominences. ***Level of evidence = C***.
6. Schedule regular and frequent turning and repositioning for bed and chair-bound individuals. Turn at least every 2-4 hours on a pressure-reducing mattress or at least every 2 hours on a nonpressure-reducing mattress. ***Level of evidence = B***.
7. Place "at-risk" individuals on a pressure-reduction surface and not on an ordinary hospital mattress. ***Level of evidence = A***.
8. Avoid using foam rings, donuts, and sheepskin for pressure reduction. ***Level of evidence = C***.
9. Use pressure-relief devices in the operating room for individuals assessed to be at high risk for pressure ulcer development. ***Level of evidence = A***.
10. Position chair-bound patients when seated with attention to anatomy, postural alignment, distribution of weight, and support of feet. ***Level of evidence = C***.
11. Reposition chair-bound individuals every hour if they cannot perform pressure-relief exercises every 15 minutes. ***Level of evidence = C***.
12. Refer to trained healthcare professionals to select appropriate pressure reduction/relief devices for chairs, wheelchairs, and beds. ***Level of evidence = C***.
13. Relieve pressure under heels by using pillows or other devices. ***Level of evidence = B***.
14. Establish a bowel and bladder program for patients with incontinence. ***Level of evidence = C***.
15. Use incontinence skin barriers as needed to protect and maintain skin integrity. ***Level of evidence = C***.
16. Consider a pouching system or collection device to contain urine or stool to protect the skin from the effluent. In situations where the severity of urinary incontinence has contributed to or may contaminate the pressure ulcer, an indwelling catheter may be indicated for a short period of time. ***Level of evidence = C***.
17. Maintain adequate nutrition that is compatible with the patient´s wishes or condition to maximize the potential for healing. ***Level of evidence = C***.
18. Educate patients and caregivers about the causes and risk factors for pressure ulcer development and ways to minimize risk. ***Level of evidence = C***.

Treatment

1. Reduce friction and shear. ***Level of evidence = C***.
2. Turn patient every 2 hours. ***Level of evidence = C***.
3. Utilize positioning devices to avoid placing patient on an ulcer. ***Level of evidence = C***.
4. Maintain the head of the bed at 30 degrees elevation for supine positions and 30 degrees or less for side-lying. ***Level of evidence = C***.
5. Use pressure relief such as low air loss or air-fluidized mattresses/beds for individuals with Stage III or IV ulcers or those with multiple ulcers over several turning surfaces. ***Level of evidence = A***.
6. Shift weight for chair-bound individuals every 15 minutes; if patient cannot perform shifts, caregivers should reposition every hour. ***Level of evidence = C***.
7. Limit time in chair and use pressure-relief chair cushions in the presence of pressure ulcers on sitting surfaces. ***Level of evidence = C***.
8. Manage fecal and urinary incontinence. ***Level of evidence = C***.
9. Select underpads, diapers, or briefs that are absorbent to wick effluent away from the skin. ***Level of evidence = C***.
10. Ensure adequate nutrient and fluid intake to maximize the potential for wound healing: 35-40 kcalories per kg of body weight/day for total calories and 1.0-1.5 g protein/kg of body weight/day for total protein. ***Level of evidence = C***.
11. Cleanse the wound at each dressing change with a noncytotoxic cleanser, minimizing trauma to the wound. ***Level of evidence = C***.
12. Consider the use of high-pressure irrigation to remove slough or necrotic tissue.
13. Debride the ulcer of devitalized tissue. ***Level of evidence = C***.
14. Do not debride dry, black eschar on heels that are nontender, nonfluctuant, nonerythematous and nonsuppurative. ***Level of evidence = C***.
15. Perform wound care using topical dressings determined by wound, patient needs, cost, caregiver time, and availability. ***Level of evidence = C***.
16. Choose dressings that provide a moist wound environment, keep the periwound skin dry, control exudates, and eliminate dead space. ***Level of evidence = C***.
17. Reassess the wound with each dressing change to determine whether modifications are needed as the wound heals or deteriorates. ***Level of evidence = C***.
18. Manage wound infections and differentiate between contamination, colonization, and infection. ***Level of evidence = C***.
19. Obtain a quantitative culture or tissue biopsy if high levels of bacteria ($>10^5$) are suspected in a wound exhibiting clinical signs of infection such as absence of healing.
20. Use topical antibiotics in wounds cautiously and selectively. ***Level of evidence = C***.
21. Consider use of topical antimicrobials if a high level of bacteria is present ($>10^5$). ***Level of evidence = C***.
22. Use systemic antibiotics in the presence of bacteremia, sepsis, advancing cellulitus, or osteomyelitis. ***Level of evidence = C***.
23. Consider adjunctive therapies to enhance the healing of recalcitrant Stage III and IV wounds such as
    a. Growth Factors--platelet-derived growth factor-BB (rPDGF-BB). ***Level of evidence = A***.
    b. Electrical stimulation. ***Level of evidence = A***.
    c. Noncontact normothermic radiant heat therapy. ***Level of evidence = A***.

d. Topical negative pressure (i.e., vacuum-assisted wound closure). ***Level of evidence = A***.

24. Evaluate the need for operative repair for patients with Stage III and IV ulcers who do not respond to conservative therapy. ***Level of evidence = C***.
25. Implement measures to eliminate or control pain. ***Level of evidence = C***.
26. Educate patients, caregivers, and healthcare providers involved in the continuum of care about prevention, treatment and factors contributing to recurrence of pressure ulcers. ***Level of evidence = C***.
27. Monitor vigilantly for recurrence of any pressure ulcers, and emphasize to patients and families that measures to prevent and manage pressure ulcers are lifelong endeavors. ***Level of evidence = C***.

Definitions:

Levels-of-Evidence Rating

Level A: Two or more randomized controlled trials (RCTs) on pressure ulcers in humans (at levels I or II), meta-analysis of RCTs, or Cochrane Systematic Review of RCTs.

Level B: One or more controlled trials on pressure ulcers in humans or two or more supporting trials in an animal model (at Level III).

Level C: One supporting controlled trial, at least two supporting case series that were descriptive studies on humans, or expert opinion.

CLINICAL ALGORITHM(S)

An algorithm is provided in the original guideline document to determine wound etiology.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence is identified for selected recommendations (see "Major Recommendations" field and defined as follows:

Level A: Two or more supporting randomized controlled trials (RCTs) on lower extremity arterial disease (LEAD) in humans (at Levels I or II), meta-analysis of RCTs, or Cochrane Systematic Review of RCTs.

Level B: One or more supporting controlled trials on lower extremity arterial disease in humans or two or more supporting trials in an animal model (at Level III).

Level C: One supporting controlled trial, at least two supporting case series that were descriptive studies on humans, or expert opinion.

Where a level of evidence rating is not included, the information presented represents a consensus of the panel members.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Early identification of individuals at risk for developing pressure ulcers and early prevention measures.
- Appropriate strategies/plans to:
    - attain/maintain intact skin
    - prevent complications
    - promptly identify or manage complications
    - involve patient and caregiver in self-management
- Cost-effective strategies/plans that prevent and treat pressure ulcers

POTENTIAL HARMS

- Wounds treated with topical antibiotics may develop resistant organisms over time.
- Topical creams, ointments, and gels containing antibiotics may cause sensitivity reactions.
- Rates of surgical complications and recurrence are high.
    - Complications rates have been reported at 7%-49%.
    - Osteomyelitis has been cited as the major cause of breakdown after surgery and biopsy is recommended to rule out osteomyelitis in Stage IV pressure ulcer patients.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Clinical Algorithm

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness
Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2003

GUIDELINE DEVELOPER(S)

Wound, Ostomy, and Continence Nurses Society - Professional Association

SOURCE(S) OF FUNDING

Wound, Ostomy, and Continence Nurses Society

GUIDELINE COMMITTEE

Wound, Ostomy, and Continence Nurses (WOCN) Pressure Ulcer Panel

Wound Guidelines Task Force

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

To ensure the integrity of the Wound, Ostomy, and Continence Nurses Society (WOCN) and the WOCN Clinical Practice Guidelines, all participants in the development of clinical practice guidelines submitted a Conflict of Interest Disclosure Form to WOCN prior to participation in any guideline development activity. The WOCN Executive Director reviewed the forms and determined that no conflict of interest exists with any panel member. In addition, panel members disclosed any financial relationships with commercial companies during panel meetings.

Members of the WOCN Council, WOCN Ad hoc Ethics Committee, and the Journal of Wound, Ostomy, and Continence Nursing Editor receive no compensation from companies that provide products related to the practice of WOC(ET) nursing or from firms that provide services to WOCN.

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Not available at this time.

Print copies: Available for purchase ($15 nonmembers; $10 members) from the Wound Ostomy and Continence Nurses Society (WOCN), 4700 W. Lake Avenue, Glenview, IL 60025-1485; Web site: www.wocn.org. Orders can be placed via telephone at (888) 224-9626 or by fax at (866) 615-8560.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on January 14, 2004. The information was verified by the guideline developer on February 16, 2004.

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