Revisions on Clinical Practice Guidelines: Pressure Ulcer Prevention

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Learning Objectives

• State the process of developing and revising a clinical practice guideline (CPG) by the Consortium for Spinal Cord Medicine.
• Identify at least one source for obtaining electronic or paper versions of the CPGs.
• Indicate at least 3 methods of preventing a pressure ulcer.
Consortium for Spinal Cord Medicine

Develop and disseminate evidence-based Clinical Practice Guidelines (CPGs) and companion Consumer Guides

To improve the health care and quality of life for individuals with spinal cord injuries
Consortium for Spinal Cord Medicine

- Established by PVA in 1995
- PVA Research and Education
  - Maureen R Simonson RN, MSN-Director of Research and Education
  - Kim Nalle - Manager, Clinical Practice Guidelines
- Includes representatives from 23 health professional, payer, and consumer organizations
- Since its inception, it has developed 11 CPGs and 9 consumer guides
Consortium for Spinal Cord Medicine

- American Academy of Orthopedic Surgeons
- American Academy of Physical Medicine and Rehabilitation
- American Association of Neurological Surgeons
- American Association of Spinal Cord Injury Nurses
- American Association of Spinal Cord Injury Psychologists and Social Workers
- American College of Emergency Physicians
- American Congress of Rehabilitation Medicine
- American Occupational Therapy Association
- American Paraplegia Society
- American Physical Therapy Association
- American Psychological Association (Division 22)
- American Spinal Injury Association
- Association of Academic Physiatrists
- Association of Rehabilitation Nurses
- Christopher and Dana Reeve Foundation
- Congress of Neurological Surgeons
- Insurance Rehabilitation Study Group
- International Spinal Cord Society
- Paralyzed Veterans of America
- Rick Hansen Institute
- Society of Critical Care Medicine
- U.S. Department of Veterans Affairs
- United Spinal Association
Clinical Practice Guidelines

- Sexuality and Reproductive Health in Adults with Spinal Cord Injury
- Early Acute Management in Adults with Spinal Cord Injury
- Bladder Management For Adults with Spinal Cord Injury
- Preservation of Upper Limb Function Following Spinal Cord Injury
- Respiratory Management Following Spinal Cord Injury
- Prevention of Thromboembolism in Spinal Cord Injury
- Acute Management of Autonomic Dysreflexia
- Pressure Ulcer Prevention and Treatment Following Spinal Cord Injury
- Outcomes Following Traumatic Spinal Cord Injury
- Depression Following Spinal Cord Injury
- Neurogenic Bowel Management in Adults with Spinal Cord Injury
Clinical Practice Guidelines

• Guidelines Currently Being Developed
  – Cardiometabolic
    • Nutrition, metabolic disorders and obesity
  – Psychological adjustment and coping

• Revisions
  – Pressure ulcers
  – DVT
Subsequent to the development of the CPGs, consumer guides are developed by the CPG panel chair with input from the Consortium and consumers.
Consumer Guidelines

- Bladder Management Following Spinal Cord Injury: What You Should Know
- Respiratory Management Following Spinal Cord Injury: What You Should Know
- Preservation of Upper Limb Function Following Spinal Cord Injury: What You Should Know
- Autonomic Dysreflexia: What You Should Know
- Pressure Ulcers: What You Should Know
- Expected Outcomes: What You Should Know
- Depression: What You Should Know
- Neurogenic Bowel: What You Should Know
- Sexuality and Reproductive Health in Adults with Spinal Cord Injury: What you should know
Spanish Consumer Guides

- Ulceras por Decubito: Lo Que Usted Debe Saber (Pressure Ulcers)
- Intestino Neurog?nico: Lo Que Usted Debe Saber (Neurogenic Bowel)
- Reflejo Disfuncional Autonomo: Lo Qu? Usted Deberia Saber (Autonomic Dysreflexia)
CPG Development

- Panel of experts
  - Detailed explication of the topic
  - Consultant methodologists
    - review the relevant literature
    - prepare evidence tables: grade & rank quality of research and conduct statistical meta–analyses
  - Based on these evidence tables, the panel members develop recommendations that are refined by the panel.
# Scientific Evidence

## Levels of Evidence

<table>
<thead>
<tr>
<th>Level</th>
<th>Type of Study</th>
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<tbody>
<tr>
<td>I</td>
<td>High quality RCT or systematic review of level I RCT</td>
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<tr>
<td>II</td>
<td>Lesser quality RCT</td>
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<tr>
<td></td>
<td>(&lt;80% \text{ F/U})</td>
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<tr>
<td></td>
<td>no blinding</td>
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<tr>
<td></td>
<td>Prospective comparative studies</td>
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<td></td>
<td>Systematic review of level II studies</td>
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<tr>
<td>III</td>
<td>Case-control studies</td>
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<td></td>
<td>Retrospective comparative studies</td>
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<td></td>
<td>Systematic review of level III studies</td>
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<tr>
<td>IV</td>
<td>Case series</td>
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<tr>
<td>V</td>
<td>Expert opinion</td>
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<tr>
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<td>Strength of Evidence Associated with the Recommendations</td>
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<tr>
<td>A</td>
<td>Guideline recommendation is supported by one or more level I studies</td>
</tr>
<tr>
<td>B</td>
<td>Guideline recommendation is supported by one or more level II studies</td>
</tr>
<tr>
<td>C</td>
<td>Guideline recommendation is supported by only one or more level III, IV or V studies</td>
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</tbody>
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Sackett
Strength of Panel Opinion
Grading of Panel Consensus

• Each panel member votes on each recommendation
  1 neutral
  5 maximal agreement

• Level of panel agreement with recommendations
  – Low 1 - 2.32
  – Moderate 2.33 - 3.66
  – Strong 3.67 - 5
CPG recommendations

– reviewed by the Steering Committee of the Consortium
– field review by representatives of all of the Consortium member associations
– CPG panel revises the CPG as appropriate
– legal analyses to consider antitrust, restraint-of-trade and health policy matters
– medical editing
Dissemination

- Print
- Electronic
- eBook
- Apps
Revisions on Clinical Practice Guidelines
Pressure Ulcer Prevention and Treatment Following SCI

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Chester Ho, MD
Theresa Gregorio-Torres, OTR, MA, ATP
Conchita Radar, RN, MA, CFCN, CWCN
Marilyn Pires, MS, RN, CRRN, FAAN
Content

- Introduction
- Risk Assessment
- Prevention
- Assessment of Pressure Ulcer
- Treatment
  - Nonsurgical
  - Surgical
- Re-assessment of pressure ulcer
- Pressure Redistribution & Support Surfaces
- Future Research
Introduction

• Normal skin
• Skin changes with SCI
  – Underlying soft tissue composition
  – Skin and soft tissue vascularity
• Pathophysiology of pressure ulcers
  – Pressure and shear
• Staging of pressure ulcers
• Prevalence
• Costs
1. Risk Assessment

• Conduct comprehensive, systematic, and consistent assessment of pressure ulcer risk factors
  – Demographic
  – SCI-related
  – Co-morbid medical conditions
  – Nutrition
  – Psychological, cognitive, contextual and social
  – Support surfaces – bed and wheelchair

• Use both a validated risk assessment tool and clinical judgment to assess risk
Risk Assessment

• Demographic
  – Age
  – Gender
  – Ethnicity
  – Marital Status
  – Education

• SCI-related risk factors
  • Level & completeness of SCI
  • Duration
  • Activity and mobility
  • Hx of prior pressure ulcers
  • Bowel, bladder and moisture control
2. Prevention Strategies Across the Continuum of Care

- Implement pressure ulcer prevention strategies as part of the comprehensive management of acute and chronic SCI and review all aspects of risk when determining prevention strategies.

- Initiate pressure redistribution as soon as emergency medical condition and spinal stabilization status allow.
3. Daily comprehensive visual and tactile skin inspections
   – Particular attention to the areas most vulnerable to pressure ulcer development
     • Ischial tuberosities
     • Sacrum/coccyx
     • Greater trochanters
     • Ankles
     • Knees
4. Turn/reposition individuals Q2 hours in the acute and early rehabilitation phases or more frequently if nutritionally compromised or incontinent

5. Evaluate the individual and their support environment for optimal maintenance of skin integrity
   - Prevent moisture accumulation and temperature elevation at the skin-support surface interface
   - Utilize pressure redistribution support surfaces to protect soft tissues from injury
   - Do not use donut-type devices
   - Monitor performance of the support surfaces for the bed and wheelchair
6. Individually prescribed wheelchair pressure redistribution system
   – Employ a power weight-shift system when manual pressure redistribution is not possible

7. Implement an ongoing exercise regimen to promote maintenance of skin integrity
Prevention Across the Continuum of Care

8. Assess nutritional status
   – dietary intake
   – anthropometric measurements
   – biochemical parameters

9. Adequate nutritional intake
   – Calories
   – Protein
   – Micronutrients
   – Fluids
10. Educate individuals with SCI, their family, and health-care professionals on effective strategies for prevention and treatment of pressure ulcers

- Pressure ulcer etiology
- Reducing pressure ulcer risk
- Skin cleansing and care techniques
- Frequency, duration, and techniques of skin inspection, position changes & pressure reliefs
- Nutrition
- Use and maintenance of support surfaces
Assessment Following Pressure Ulcer Onset

11. Perform an initial comprehensive assessment
• Complete history and physical
• Complete skin assessment
• Laboratory tests (infection and nutritional status)
• Psychosocial history
• Nutritional status
• Positioning, posture, and equipment
• Assessment of ADL, mobility, and transfer
12. Describe and document in detail

- Anatomical location and general appearance
- Stage
- Characteristics of wound base
  - Viable tissue (granulation, epithelialization, muscle)
  - Nonviable tissue (eschar, slough)
- Size of wound including undermining and sinus tracts/tunneling
- Exudate amount and type
- Odor
- Wound edges
- Periwound skin
- Wound pain
13. Monitor, assess, and document any change in wound status

– Monitor the pressure ulcer at each dressing change
Treatment
Nonsurgical

• Creating a Physiologic Wound Environment
  – Cleansing
  – Debridement
  – Dressings
  – Adjunctive therapies and biologics
14. Cleanse pressure ulcers at each dressing change without harming healthy tissue

- Use normal saline, sterile water, pH-balanced wound cleanser, or lukewarm potable tap water
- Use diluted sodium hypochlorite ¼ strength to ½ strength solution for wounds with heavy bioburden
Cleansing

- Use wound cleansing techniques such as:
  - Low pressure irrigation with angiocatheter & syringe or pulsatile lavage (4-15 pounds/square inch)
  - Hydrotherapy for ulcers containing large amounts of exudate and necrotic tissue
  - Gentle scrubbing – use mechanical force with wet gauze
  - Cleanse periwound skin with normal saline or pH-balanced skin cleanser with dressing changes or every 24 hours
Debridement

15. Debride eschar and devitalized tissue with the exception of a stable heel eschar.

- Autolytic debridement
- Enzymatic debridement
- Mechanical debridement
- Sharp debridement
- Surgical debridement
- Maggot debridement
16. Use a dressing that achieves a physiologic wound environment to maintain an appropriate level of moisture in the wound bed

• Control exudate and odor
• Eliminate dead space
• Eliminate or minimize pain
• Protect the wound and the periwound skin
• Remove nonviable tissue
• Prevent and manage infection
17. Adjunctive Therapies and Biologics

- Electrical Stimulation
- Negative Pressure Wound Therapy
- Hyperbaric Oxygen
- Ultrasound
- Laser
- Skin substitutes
- Growth factors
- Autologous platelet-rich plasma
- Autologous bone marrow mononuclear cells
20. Surgical evaluation indicated for complex, deep stage III or stage IV pressure ulcers

• Excise the ulcer, surrounding scar, bursa, soft tissue calcification, and underlying necrotic or infected bone

• Fill dead space, enhance the vascularity of the healing wound, and distribute pressure off the bone

• Resurface with a large regional pedicle flap, placing suture line away from the area of direct pressure, and avoiding encroaching on adjacent flap territories

• Preserve options for future potential breakdowns
21. Optimize for surgery

- Wound infection
- Nutritional status
- Bowel regulation
- Spasticity and contracture
- Comorbid conditions
- Smoking
- Osteomyelitis
- Urinary tract infection (UTI)
- Heterotopic ossification
Pressure Redistribution and Support Surfaces

22. Bed positioning
23. Bed support surfaces
24. Wheelchair positioning
25. Wheelchair seating systems
26. Padded bathroom DME
Future Research