Finding Evidence on the Web Through HEAL-WA: Only a Click Away

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Objectives

• Describe how to access HEAL-WA, the evidence-based website for Washington State nurses
• Define evidence-based practice and what makes good evidence
• Identify e-resources on HEAL-WA to use for research and evidence-based nursing practice
What is evidence-based medicine?

- Evidence-based medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients.

- The practice of evidence-based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research.

Evidence-Based Medicine

The EBM Triad

- Individual Clinical Expertise
- Best External Evidence
- Patient Values & Expectations
What makes good evidence?

<table>
<thead>
<tr>
<th>Good</th>
<th>Shoddy</th>
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</thead>
<tbody>
<tr>
<td>• Based on scientific research</td>
<td>• Expert opinion</td>
</tr>
<tr>
<td>• RCT</td>
<td>• Consensus</td>
</tr>
<tr>
<td>• Systematic review</td>
<td>• Because it’s been done this way for 100 years</td>
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<tr>
<td>• Meta-analysis</td>
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<tr>
<td>• Clinical guidelines</td>
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</table>
EBP Implications for Nursing

• Are U.S. nurses ready for evidence-based practice?
  – Many don’t understand or value research
  – Many have little of no training to help find evidence on which to base their practice

• Failure to use evidence results in lower quality, less effective and more expensive care.
Levels and Grades of Evidence

Levels of Evidence and Grades of Recommendations

<table>
<thead>
<tr>
<th>Grade of recommendation</th>
<th>Level of evidence</th>
<th>Interventions</th>
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<tbody>
<tr>
<td>A</td>
<td>1a</td>
<td>Systematic review of randomized controlled trials</td>
</tr>
<tr>
<td></td>
<td>1b</td>
<td>Individual randomized controlled trial</td>
</tr>
<tr>
<td>B</td>
<td>2a</td>
<td>Systematic review of cohort studies</td>
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<tr>
<td></td>
<td>2b</td>
<td>Individual cohort study</td>
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<tr>
<td></td>
<td>3a</td>
<td>Systematic review of case-control studies</td>
</tr>
<tr>
<td></td>
<td>3b</td>
<td>Individual case-control study</td>
</tr>
<tr>
<td>C</td>
<td>4</td>
<td>Case series</td>
</tr>
<tr>
<td>D</td>
<td>5</td>
<td>Expert opinion without explicit critical appraisal or based on physiology or bench research</td>
</tr>
</tbody>
</table>
Searching for Evidence Categories

- **Systematic Reviews**: Cochrane
- **Metasearch Engines**: TRIP
- **Evidence Guidelines**: Natl. Guideline Clearinghouse
- **Evidence Summaries**: NRC, DynaMed, Natural Standard
- **Textbooks**: Mosby’s, etc. (Stat!Ref)
- **Journal Articles**: Original research found in CINAHL, MEDLINE, & other databases
Where can you find evidence only one click away?
• Began January **2009**
• Website offering online access to a collection of health information resources
• Who has access? selected health care providers in Washington **YES, NURSES!**
• Funded by: license fees
• Its mission: to provide evidence-based information to support patient care
What is included in HEAL-WA?

- **Resources:** electronic databases, online texts, and e-journals
  
- Includes information resources specific to nurses, such as *CINAHL* and the *Nursing Reference Center*

- Other excellent resources: *MEDLINE, DynaMed, Cochrane, Natural Standard*

- Gives practitioners access to timely, evidence-based answers to patient care Q’s
How do I access HEAL-WA?

- Site address: heal-wa.org
- Use the “Getting Started” links to set up your UW NetID and password
  - You will need your RN license number in order to set up your UW NetID (even if you hold an advanced practice license)
Welcome to HEAL-WA

HEAL-WA is a collection of health information resources funded by license fees from selected health care providers in Washington State. Its mission is to provide evidence-based information to support patient care.

MEDLINE® with Full Text is now available!

Getting Started

Certain resources in HEAL-WA (indicated by a lock icon) require a HEAL-WA access code (UW NetID) and password for access.

Set up HEAL-WA access - If you need to set up a HEAL-WA access code (UW NetID) and password, or if you have a UW NetID and need to add HEAL-WA affiliation to it, see the instructions on the Getting Started page.

PLEASE NOTE that once you have set up your UW NetID, it can take up to a day for your UW NetID to be recognized so you can log in to HEAL-WA.

If you have already set up your HEAL-WA access code (UW NetID) and password, log in to HEAL-WA by clicking on the "HEAL-WA Access" button at the upper right corner of the screen.

Dec 19, 2008 09:14 AM

H1N1 Influenza Information

CURRENTLY AVAILABLE

US Centers for Disease Control and Prevention - Influenza A (H1N1)
Washington State Department of Health Swine Influenza (H1N1) information
H1N1 Influenza - Patient information on MedlinePlus
Links to other Federal and Washington State information

Diagnosis & Therapy

Guidelines & Evidence

Search for Articles

MEDLINE® with Full Text

Drugs, Labs, Diagnostic Tests

Complementary & Alternative Medicine

Prevention, Screening, Immunizations

Information for Patients

Patient Care Management

Contact HEAL-WA

Send Us Feedback

Requesting Articles
Registered Nurse

There are no restrictions on access to HEAL-WA resources for eligible users – if you can log in to HEAL-WA, you can use any resources contained anywhere on the site. HEAL-WA Toolkits were developed strictly for users’ convenience, and are meant to bring together resources that a practitioner group might be most likely to use.

Nursing Resources
- Nursing Reference Center
- CINAHL (Nursing Literature)
- MEDLINE® with Full Text

Calculators & Tools
- Nursing Calculators
- MedCalc3000

Drugs, Labs, & Diagnostic Tests
- Davis's Comprehensive Handbook of Laboratory and Diagnostic Tests – with Nursing Implications – 2nd Ed. (2006)
- Laboratory Tests and Diagnostic Procedures with Nursing Diagnoses – 7th Ed. (2008)

Complementary & Alternative Medicine
- Natural Standard

Patient Education
- Detailed Drug Information for the Consumer™
- AAFP Conditions A to Z (2009)
- MedlinePlus – Health Information for Patients
- National Center for Complementary and Alternative Medicine Health Topics A-Z

Multicultural Information
- EthnoMed
Physician, PA, ARNP

There are no restrictions on access to HEAL-WA resources for eligible users – if you can log in to HEAL-WA, you can use any resources contained anywhere on the site. HEAL-WA Toolkits were developed strictly for users' convenience, and are meant to bring together resources that a practitioner group might be most likely to use.

Diagnosis & Therapy
- DynaMed (Diseases & Conditions)
- Merck Manual of Diagnosis and Therapy
- Current Medical Diagnosis & Treatment (2009)

Search for Articles
- PubMed Clinical Queries
- MEDLINE® with Full Text
- MANTIS

Drugs
- AHFS Drug Information® (2008)
- Drug Information Portal
- LactMed

Tools & Calculators
- MedCalc3000

Reference & Other Resources
- PAL: Partnership Access Line (Mental Health Consultation Outreach for children)

Information for Patients
- AAFP Conditions A to Z (2009)
- MedlinePlus – Health Information for Patients
- MedlinePlus Health Information in Other Languages (for patients)

Complementary & Alternative Medicine
- Natural Standard

Multicultural Information
- EthnoMed
Search for the Best Evidence to answer the Question
Search Databases Efficiently for Research Journal Articles

• Primary literature: MEDLINE/PubMed or CINAHL
  References to original journal articles on a topic
  – Some with full-text links
  – Most with abstracts

• You will see same interface when searching MEDLINE or CINAHL (or Cochrane) on HEAL-WA
CINAHL or [CINAHL Plus]

- Cumulative Index to Nursing and Allied Health Literature
- Provides coverage from 1982 [1937] to date, of nursing and 17 allied health disciplines literature
- 1700+ [3800+] journals indexed including virtually all English-language nursing journals
- Can easily search for Research articles
CINAHL Publication Type Limits

- Clinical trial
- Critical path
- Practice guidelines
- Research
- Standards
- Systematic review
1. Does hyperbaric oxygenation therapy benefit in the treatment of non-healing wounds in diabetic patients?

As the incidence of diabetes mellitus type II is steadily increasing in our society, diabetic non-healing lower extremity wounds are complicating patient care. Hospitalization and amputation rate... (Includes abstract: Novakovic C; Internet Journal of Academic Physician Assistants, 2009; 6 (2). (9p) (journal article - research, tables/charts). ISSN: 1092-4078 CINAHL AN: 2010177105

Database: CINAHL with Full Text

2. Effect of hyperbaric oxygen therapy on healing of diabetic foot ulcers.

Hyperbaric oxygen therapy can be used as an adjunct to standard wound care in the treatment of diabetic patients with foot ulcers. We undertook a prospective, randomized investigation of the use... (Includes abstract: Duzgun AP; Satir HE, Ozozan O; Saylam B; Kocab D; Coskun F; Journal of Foot & Ankle Surgery, 2008 Nov-Dec; 47 (6): 515-9 (journal article - research, tables/charts). ISSN: 1067-2518 PMID: 19239860 CINAHL AN: 2010124171

Database: CINAHL with Full Text

3. The case for evidence in wound care: investigating advanced treatment modalities in healing chronic diabetic lower extremity wounds.

BACKGROUND: Major complications of diabetes mellitus include lower leg and foot ulcers, which can result in amputation. Further study is needed to determine optimal treatments for these challenging... (Includes abstract: Lyon KC; Journal of Wound, Ostomy & Continence Nursing, 2008 Nov-Dec; 35 (6): 585-90 (journal article - pictorial, research, tables/charts). ISSN: 1071-5754 PMID: 19018158 CINAHL AN: 2010121597

Database: CINAHL with Full Text
Searching CINAHL Plus:
Cumulative Index to Nursing and Allied Health Literature

What is CINAHL Plus?

CINAHL Plus with Full Text provides access to the literature in nursing and 17 allied health disciplines dating back to 1937. Over 3800 journals are indexed including virtually all English language nursing journals along with selected titles in biomedicine, alternative therapies, and consumer health. It also offers access to Evidence-Based Care Sheets, searchable cited references, and over 350 research instrument descriptions.

Getting Connected

Connect through the HealthLinks > Resources > Databases page, or type CINAHL Plus in the Search box on the upper right corner of HealthLinks and follow the link.

Searching

Step 1: Enter your terms

- Type your search terms into the search boxes on the Advanced screen. Choose the field(s) you want to search from the pull down boxes and click Search.
- Use the asterisk (*) to search word roots, e.g., transplant* retrieves transplant, transplants, or transplantation

Step 2: Limit your results

- Narrow your search to a lower number of more precise results by selecting desired Age Groups, Language, Publication Type, Peer Reviewed, Research Article, etc. from the options available below the search boxes, and click Search.

Step 3: Combining Sets/Search History

- Click Clear next to the search boxes to remove the current search terms.
- Click Search History/Alerts and select the search sets to combine by clicking the Add to Search box. Choose the desired Boolean operator (AND, OR, etc.) from the Combine searches with drop down box, and then Add and Search.
- Alternatively, combine results by typing a search number into a new Search box, i.e., s1 and s2 or (keyword(s) and s1), and click Search.

Search using CINAHL Headings, Subheadings, Major Concept, and Explode

In most cases, the most efficient way to search is by using CINAHL Headings, the thesaurus terms used to assign subject headings to the articles in the database. Click CINAHL Headings at the top of the page and type your term in the Search box. Click Browse. Click Scope to see a definition of the term. Clicking on the Subject Heading itself will lead you to more information about the heading in the Tree, or hierarchical view of terms. You can select Subheadings if needed and may also specify that the term be a major focus of the article by checking the Major Concept box.

healthlinks.washington.edu/howto/cinahlplus
MEDLINE [on HEAL-WA] or PubMed

- MEDLINE (1940’s+) is included on PubMed
- Indexes 5,000 biomedical journals
- Covers all aspects of biosciences and healthcare
- 75%-80% of citations have abstracts
- Updated 5x/week
2 MEDLINE/PubMed Strategies for Finding Evidence-Based Citations

1. Use Publication Type limits
   – Randomized Controlled Trial
   – Meta-Analysis
   – Practice Guideline
   – Clinical Trial
   – Consensus Development Conference

2. Use Clinical Queries
A three species model to simulate application of Hyperbaric Oxygen Therapy to chronic wounds. Chronic wounds are a significant socioeconomic problem for governments worldwide. Approximately 15% of people who suffer from diabetes will experience a lower-limb ulcer at some stage of their life... 

Hyperbaric oxygen therapy for wound healing and limb salvage: a systematic review. This article is a systematic review evaluating published clinical evidence of the efficacy of hyperbaric oxygen therapy (HBOT) for wound healing and limb salvage. The data source is the Ovid/Medline... 

Can major amputation rates be decreased in diabetic foot ulcers with hyperbaric oxygen therapy? Although hyperbaric oxygen therapy has been used for diabetic foot ulcer since the 1980s, there is little information on its efficacy. The aim of this study is to evaluate whether hyperbaric oxyg... 

Effect of hyperbaric oxygen therapy on healing of diabetic foot ulcers. Hyperbaric oxygen therapy can be used as an adjunct to standard wound care in the treatment of diabetic patients with foot ulcers. We undertook a prospective, randomized investigation of the use...
Can easily limit your search to:
- Age groups
- Human or Animal studies
- Language
- Research or Review articles
- Subsets, such as Core Clinical Journals or CAM or Nursing Journals
Strategy #1 on PubMed: Limit to RCTs under Type of Article
Results: 8

1. **Hyperbaric oxygen, oxidative stress, NO bioavailability and ulcer oxygenation in diabetic patients.**
   PMID: 19341122 [PubMed - indexed for MEDLINE]
   [Related articles](#)

2. **Effect of hyperbaric oxygen therapy on healing of diabetic foot ulcers.**
   PMID: 19239860 [PubMed - indexed for MEDLINE]
   [Related articles](#)

3. **A prospective study: hyperbaric oxygen therapy in diabetics with chronic foot ulcers.**
   PMID: 17124820 [PubMed - indexed for MEDLINE]
   [Related articles](#)

4. **Effect of hyperbaric oxygen on cardiac neural regulation in diabetic individuals with foot complications.**
   PMID: 16620263 [PubMed - indexed for MEDLINE]
   [Related articles](#)
Effect of hyperbaric oxygen on cardiac neural regulation in diabetic individuals with foot complications.

Sun TB, Yang CC, Kuo TB.

Institute of Medical Sciences, Tzu Chi University, Hualien, Taiwan.

AIMS: There are relatively few effective methods to treat autonomic neuropathy in patients with diabetes mellitus. Our aim was to test the hypothesis that hyperbaric oxygen therapy may restore cardiac neural regulation dysfunction in diabetic individuals with foot complications. METHODS: We conducted a prospective randomized controlled study in patients with diabetic foot problems. Daily heart-rate variability analysis from 5-min electrocardiography was used to evaluate the temporal change of cardiac neural regulation. The experimental group consisted of 23 subjects exposed to hyperbaric oxygen therapy of 202.65 kPa for 90 min every Monday to Friday for 4 weeks (20 treatments). The control group consisted of 15 age-, sex- and disease-matched subjects who were not exposed to hyperbaric therapy. Patients with medical complications and failure of wound healing were excluded to eliminate possible confounding effects. RESULTS: There was no significant difference in baseline R-R interval (RR), variance, high-frequency power (HF), low-frequency power (LF), and LF/HF ratio between the two groups. In the hyperbaric oxygen group there were significant increases in changes of RR (82.7 +/- 16.02 ms); variance 0.88 +/- 0.12 ln(ms2); HF 1.06 +/- 0.18 ln(ms2); and LF 0.87 +/- 0.15 ln(ms2) after the treatment. Measurements of tissue oxygen demonstrated significant increases in local tissue oxygenation in the hyperbaric oxygen group (53.0 +/- 2.6 mmHg) compared with the control group (27.5 +/- 3.1 mmHg), P < 0.05. CONCLUSION: Hyperbaric oxygen therapy has a significant vagotonic effect, which is beneficial in improving cardiac neural regulation in patients with diabetic autonomic dysfunction.

PMID: 16620263 [PubMed - indexed for MEDLINE]
PubMed Clinical Queries

This page provides the following specialized PubMed searches for clinicians:

- Search by Clinical Study Category
- Find Systematic Reviews
- Medical Genetics Searches

Results of searches on these pages are limited to specific clinical research areas. For comprehensive searches, use PubMed.

### Search by Clinical Study Category

This search finds citations that correspond to a specific clinical study category. The search may be either broad and sensitive or narrow and specific. The search filters are based on the work of Haynes RB et al. See the filter table for details.

**Search** wound healing diabetic foot

<table>
<thead>
<tr>
<th>Category</th>
<th>Scope</th>
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<tbody>
<tr>
<td>etiology</td>
<td>narrow, specific search</td>
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<tr>
<td>diagnosis</td>
<td>broad, sensitive search</td>
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<tr>
<td>therapy</td>
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<tr>
<td>prognosis</td>
<td></td>
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<tr>
<td>clinical prediction guides</td>
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</tbody>
</table>

### Find Systematic Reviews

For your topic(s) of interest, this search finds citations for systematic reviews, meta-analyses, reviews of clinical trials, evidence-based medicine, consensus development conferences, and guidelines.

For more information, see Help. See also related sources for systematic review searching.

**Search** wound healing diabetic foot
PubMed at the UW


To watch the instructional video clips (see video below) RealOne player is required (download free player).

Basic Search Techniques

Step 1: Enter your terms

Type any key word or phrase into the search box as shown above. Use an asterisk (*) to retrieve variations on a word, e.g., bacter* retrieves bacteria, bacterium, bacteriophage, etc.

- For a Subject Search: Enter one or more words (e.g., asthma drug therapy) in the query box and click on Go. PubMed automatically combines (ANDs) terms together so that all terms or concepts are present and “translates” your words into MeSH terms.
- For an Author Search: Enter the author’s name in the format of last name first followed by initials (e.g., byrnes ca).
- For a Journal Search: To retrieve articles from a specific journal use PubMed’s Journals Database or Single Citation Matcher features (available from the left menu bar.

Try
CINAHL vs MEDLINE/PubMed

**CINAHL**
- Coverage: 1982+
- Indexes 1700 journals
- Focuses on nursing and allied health literature
- CINAHL Thesaurus with more nursing terms
- Has peer-reviewed limit
- Includes cited references at end of many refs

**MEDLINE**
- Coverage: late 1940’s+
- Indexes 5000 journals
- Focuses on biomedical literature
- Uses MeSH as its controlled vocabulary
- No peer-reviewed limit
- No cited references
Locating E-Journals

- Check with your library for access to full-text e-journals
- For UW Affiliates: use the Proxy service to access full-text e-journals from off-campus
  
  [healthlinks.washington.edu/howto/connect](http://healthlinks.washington.edu/howto/connect)

- Use HEAL-WA
  - Includes CINAHL and MEDLINE links to full-text articles
  - A-Z Journals: 2,600 full-text journals
Journals A-Z

2,600 full-text health-related journals
Information Overload!

• 2 million articles published in biomedical journals each year
• considering everything of potential biomedical importance would require perusing about 6,000 articles per day...
• If you only read 2 articles a day, at the end of year you would be 60 centuries behind.
Email Alerts for Keeping Current

• Deliver current citations into your email
• Based on a search strategy you create
• In most cases, abstracts of the articles are provided
• May provide links to full-text articles
## Alerting Services

[healthlinks.washington.edu/howto/alerts.html](http://healthlinks.washington.edu/howto/alerts.html)

<table>
<thead>
<tr>
<th>Alert Service</th>
<th>Database Coverage</th>
<th>RSS</th>
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<tbody>
<tr>
<td>My NCBI</td>
<td>PubMed</td>
<td>yes</td>
</tr>
<tr>
<td>Alerts (EBSCO) on HEAL-WA</td>
<td>MEDLINE, CINAHL Plus</td>
<td>yes</td>
</tr>
<tr>
<td>ScienceDirect Search</td>
<td>Elsevier Journals</td>
<td>yes</td>
</tr>
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</table>
PubMed: My NCBI

Your personal space on the NLM computer system for:

- Storing search strategies,
- Storing references, or
- Creating email alerts

help: healthlinks.washington.edu/howto/myncbi.html
Search for Evidence Summaries

• DynaMed [on HEAL-WA]
  – Evidence-based clinical resource providing summaries of 3000+ diseases and conditions

• Nursing Reference Center [on HEAL-WA]
  – Comprehensive point-of-care resource for nurses that includes Evidence-based Care Sheets
DynaMed [on HEAL-WA]

• Provides summaries of the best evidence for over 3,000 clinical topics
• Can quickly browse and find key recommendations
• Updated daily
• Links out to full-text articles HEAL-WA has access to
• Download available for PDA and iPhones
Diabetic foot ulcer

You are viewing a DynaMed summary. Use of DynaMed indicates acceptance of DynaMed Terms of Use. Limitations of DynaMed are contained in the DynaMed Terms of Use.

Diabetic foot ulcer

Updated 2010 Jan 07 03:51 PM: review of diabetic foot ulcer (BMJ 2009 Dec 2)

- traditional dressings appear similar effective but more cost-effective compared to Aquacel dressing (Health Technol Assess 2009 Nov)

MEDLINE search strings added update

Related Summaries:

- Diabetes mellitus type 1
- Diabetes mellitus type 2
- Diabetic neuropathy
- Physician Quality Reporting Initiative (PQRI) 2009 Physician Quality Measures

- General Information (including ICD-9/10 Codes)
- Causes and Risk Factors
- Complications and Associated Conditions
- History
- Physical
- Diagnosis
- Prognosis
- Treatment
- Prevention and Screening
- Quality Improvement
- References including Reviews and Guidelines
- Patient Information
Low-molecular-weight heparins:

- **dalteparin** improves healing of chronic foot ulcers in patients with diabetes and peripheral arterial disease ([level 1 [likely reliable] evidence])
  - based on randomized trial
  - 87 patients randomized to dalteparin (Fragmin) 5,000 units vs. saline subcutaneously once daily until ulcer healing or maximum 6 months
  - comparing dalteparin vs saline
    - ulcer healing with intact skin in 32% vs. 21% (NNT 10)
    - ulcer area decreased by 50% or more (or healed) in 67.4% vs. 47.6% (NNT 5)
    - amputation in 4.5% vs. 18.6% (NNT 7)
  - Reference - Diabetes Care 2003 Sep;26(9):2575 full-text, commentary can be found in Evidence-Based Medicine 2004 May-Jun;9(3):73

- **bemiparin may not improve complete ulcer healing in patients with chronic diabetic foot ulcers** ([level 2 [mid-level] evidence])
  - based on randomized trial with inadequate power to rule out clinically significant differences
  - 70 diabetic patients > 8 years old with foot ulcer > 3 months randomized to bemiparin vs. placebo
    - bemiparin 3,500 units/day given for 10 days followed by 2,500 units/day for ≤ 3 months
    - both groups received usual care
  - comparing bemiparin vs. placebo
    - ulcer improvement by digital photography in 70.3% vs. 45.5% (p = 0.035, NNT 4, 95% CI for NNT 2-43)
    - complete healing at 3 months in 35.1% vs. 33.3% (not significant)
    - similar number of adverse events between groups
  - Reference - Diabet Med 2008 Sep;25(9):1090 EBSCOhost Full Text

Granulocyte-colony stimulating factor (G-CSF):

- **granulocyte-colony stimulating factor (G-CSF) may reduce amputation risk in patients with diabetic foot infections** ([level 2 [mid-level] evidence])
  - based on Cochrane review with clinical heterogeneity of studies
  - systematic review identified 5 randomized trials comparing G-CSF to placebo or no added growth factor in 167 patients with diabetic foot infections
  - all patients received usual care with antibiotics
  - clinical heterogeneity of studies included
    - patients with varying degrees of infection severity


Guidelines:

United States guidelines:

- Infectious Diseases Society of America (IDSA) guideline on diagnosis and treatment of diabetic foot infections can be found in Clin Infect Dis 2004 Oct 1;39(7):885 or at National Guideline Clearinghouse 2005 Jan 31:5888, summary can be found in Am Fam Physician 2005 Apr 1;71(7):1429
- American College of Foot and Ankle Surgeons clinical practice guideline on diabetic foot disorders can be found in J Foot Ankle Surg 2006 Sep-Oct;45(5 Suppl):S1 or at National Guideline Clearinghouse 2007 Jan 22:9846
- American Diabetes Association (ADA) guidelines
  - American Diabetes Association (ADA) standards of medical care in diabetes can be found in Diabetes Care 2009 Jan;32 Suppl 1:S13 full-text
  - prevention and management of diabetes complications can be found in Diabetes Care 2007 Jan;30(Suppl 1):S15-24 or at National Guideline Clearinghouse 2008 Jun 2;12185
  - policy statement on preventive foot care in diabetes can be found in Diabetes Care 2004 Jan;27(suppl 1):S63-S64
- American Society of Plastic Surgeons guideline on chronic wounds of lower extremity can be found at National Guideline Clearinghouse 2007 Nov 5:11513
- Wound, Ostomy, and Continence Nurses Society (WOCN) guideline for management of wounds in patients with lower-extremity neuropathic disease can be found at National Guideline Clearinghouse 2005 Jan 17:5912
Nursing Reference Center [on HEAL-WA]

- Evidence-based summaries
  - Diseases & Conditions
  - Evidence-based Care Sheets
  - Quick Lessons
  - Information about drugs and medications
  - Skills & Procedures
  - Patient Education
Pain Control: Acute Pancreatitis
Acute pancreatitis (AP) is a rapidly developing, potentially fatal inflammatory disorder of the pancreas, with diverse involvement of other organ systems; AP can be mild to severe, with a clinical course that varies widely from patient to patient. (4) (5) (6) (See Quick Lesson About... Pancreatitis, Acute; CINAHL Accession Number: 5000000256)

- The inflammation caused by dysfunctionally activated pancreatic enzymes in AP has a direct effect on sensory nerves at spinal cord level T5–T9, which results in visceral pain. (1) (6) (7)
  - Gradually increasing abdominal pain that plateaus after several hours is the primary characteristic of mild AP; pain that persists more than a few days is associated with the development of complications that characterize severe AP. (1) (2) (4) (5)
    - Pain may radiate from the abdomen to the back or chest
    - Pain is exacerbated by eating foods high in fat or drinking alcoholic beverages, or when the patient is in a supine position
    - Although rare, painless mild AP may occur in association with postoperative states, renal transplantation, peritoneal dialysis, diabetic ketoacidosis, and shock of unknown origin

- Providing adequate pain control is an essential treatment strategy for patients with AP. (5) (6)
  - Narcotic (i.e., opioid) analgesia is usually required because alternatives (i.e., nonopioid analgesia medications) are completely ineffective in alleviating the pain of severe AP. (2) (5) (7)
    - The traditional belief that opioid analgesia causes additional pancreatic dysfunction is unsupported by clinical trial evidence. (5) (9) (10)
  - Pain management with patient-controlled analgesia (PCA) is common because oral intake is restricted; PCA-infused narcotic analgesics typically prescribed for patients with AP are. (2) (6) (9)
Pressure Ulcers: Hospital-Acquired

What We Know

- Pressure ulcers are the most common hospital-acquired condition, accounting for almost 2 million cases per year.
- Pressure ulcers are a significant cause of morbidity and mortality, with an estimated mortality rate of 10-30%.
- Risk factors for pressure ulcers include immobility, inactivity, malnutrition, and chronic diseases.

What We Can Do

- Provide appropriate skin care to prevent pressure ulcers.
- Use appropriate pressure relief devices and techniques to prevent pressure ulcers.
- Assess patients at risk for pressure ulcers and develop a plan of care.

Codings Matrix

- Include patient's condition and history.
- Include patient's age, gender, and race.
- Include patient's weight, height, and body mass index.
- Include patient's history of previous pressure ulcers.

References

Administration of Medication: Intramuscular Injection

Access Device, Central Venous, Blood Sampling through

Accidental Hypothermia Management

Administration of Medication: Subcutaneous Infusion

Administration of Medications: Nasogastric Tube

Administration of Medications: Rectal Suppository

Administration of Medications: Vaginal Instillation

Administration of Medications: Z-track Injection

Adolescent Hmong Patients: Providing Culturally Competent Care

Adult Cardiopulmonary Resuscitation (CPR)

Airway Obstruction: Managing

Alginate Absorptive Wound Dressings

Alternative and Complementary Medicine, Use of - Providing Patient Education for

Ambu-Bag®: Use of

Amish Patients: Gynecological and Obstetrical Care - Providing Patient Education for

Aboriginal, Navajo Patients: Providing Culturally Competent Care

What is Administration of Medications by Nasogastric Tube?

Why Administration of Medications by Nasogastric Tube was Ordered

Why Administering Medications by Nasogastric Tube is Important

Other Tests, Treatments, or Procedures That May be Necessary Before or After Administering Medications by Nasogastric Tube

What to Expect After Administering Medications by Nasogastric Tube

Red Flags

What to Tell the Patient/Patient’s Family

Reference

Respiratory distress during medication administration through the NG tube may indicate migration of tube into the bronchial tree. Symptoms of this problem include cyanosis, decreased oxygen saturation by pulse oximetry, vomiting, increasing restlessness, stridor, and wheezing. If these symptoms occur, stop use immediately, and retract or remove the tube. Alert the clinician immediately and, if needed, initiate oxygen therapy and other emergency measures.

Sustained-release drugs must not be administered by NG tube. The crushing that is necessary in order for the pill to pass through the tube causes the rapid release of a high dose of medication into the patient’s stomach, making overdose likely to occur. Contact the clinician for an adjustment to the order if sustained-release medications are prescribed for NG administration.

If you note resistance when attempting to flush the tube, it may have become blocked by the precipitation of medication. Attempt to clear the tube with gentle suction by pulling up on the plunger of the syringe, then pressing on the plunger to create a moderate amount of positive pressure within the tube. If this intervention does not clear the obstruction, remove and replace the NG tube. Never use force to infuse solution into the NG tube as this may create excessive pressure within the stomach, causing regurgitation of stomach contents and possible aspiration.
Wound Dehiscence

(Surgical Wound Dehiscence; Operative Wound Dehiscence)

by: Catherine Duffek, MLS, MS

Definition
Wound dehiscence is the parting of the layers of a surgical wound. Either the surface layers separate or the whole wound splits open. This is a serious condition and requires care from your doctor.

Causes
Wound dehiscence varies depending on the kind of surgery you have. The following is a list of generalized causes:

- Infection at the wound
- Pressure on sutures
- Sutures too tight

Wound Infection
Search for Evidence Guidelines Resources

• National Guideline Clearinghouse
guideline.gov
• PubMed/MEDLINE
• CINAHL/CINAHL Plus
NGC Search Results

Keyword: pressure ulcers

Your search found 80 related guidelines, which are listed below by relevance. Use the "Limit Search" button to sort by publication date.

To view a guideline summary, click on a title below.

Limit Search  Select All  Add to My Collection  Next 20

Items 1 to 20

Title


GUIDELINE TITLE
Pressure ulcer treatment. Health care protocol.

BIBLIOGRAPHIC SOURCE(S)

GUIDELINE STATUS
This is the current release of the guideline.

BRIEF SUMMARY CONTENT

RECOMMENDATIONS
EVIDENCE SUPPORTING THE RECOMMENDATIONS
IDENTIFYING INFORMATION AND AVAILABILITY
DISCLAIMER

Go to the Complete Summary

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Note from the National Guideline Clearinghouse (NGC) and the Institute for Clinical Systems Improvement (ICSI): For a description of what has changed since the previous version of this protocol, refer to Summary of Changes Report– January 2008.

The recommendations for treatment of pressure ulcers are presented in the form of a protocol accompanied by 7 detailed annotations. Clinical highlights and the annotations follow.

Class of evidence (A-D, M, R, X) definitions are provided at the end of the "Major Recommendations" field.

Clinical Highlights

- The treatment of pressure ulcers should include an assessment specific to the wound, including the following elements: history and physical, etiology, psychosocial needs, nutritional status, wound assessment and documentation of these elements. (Annotation #1)
- The treatment of pressure ulcers should be consistent and evidence based. (Annotation #2)
- Education should be provided to the patient, family, caregivers and health care team members regarding treatment of pressure ulcers. (Annotation #6)

Special Considerations

Persons undergoing palliative or hospice care may need an alteration in their goals of care. The goals of care can shift from prevention and treatment to palliation and management of ulcer pain and odor [R].

Annotations for Pressure Ulcer Treatment

1. Wound Assessment

   Key Points:

   - The assessment for pressure ulcer treatment should focus on the wound and following elements: history and physical, etiology, psychosocial needs,
<table>
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<th>Pressure ulcer treatment. Health care protocol.</th>
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<td>13 pages</td>
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Searching for Practice Guidelines in CINAHL and MEDLINE/PubMed

- In CINAHL: Limit to **Practice Guidelines** as a Publication Type
- In MEDLINE/PubMed: Limit to **Practice Guideline** under Type of Article
Special Meta-Search Engines that find evidence sites

TRIP
tripdatabase.com

SUMSearch
sumsearch.uthscsa.edu
TRIP Database
tripdatabase.com

- Meta-search engine
- Performs a simple search of more than 75 databases
- Finds evidence-based resources
- Searches Cochrane, National Guideline Clearinghouse, Bandolier, etc.
TRIP search: prevention of pressure ulcers

1. Risk assessment tools for the prevention of pressure ulcers
   - Cochrane Database of Systematic Reviews 2009
   - Use as CPD, Preview, Conclusion

2. Alternating pressure air mattresses as prevention for pressure ulcers: a literature review
   - DARE, 2008
   - Use as CPD, Preview, Conclusion

3. Best Practice Statement - prevention and management of pressure ulcers
   - NHS Quality Improvement Scotland 2009
   - Use as CPD, Preview, Conclusion

4. Skin safety protocol: risk assessment and prevention of pressure ulcers. Health care protocol
   - Institute for Clinical Systems Improvement 2007
   - Use as CPD, Preview, Conclusion

5. Support surfaces for treating pressure ulcers
   - Cochrane Database of Systematic Reviews 2008
   - Use as CPD, Preview, Conclusion

6. Alternating pressure air mattresses as prevention for pressure ulcers: A literature review
   - EvidenceUpdates 2008
   - Use as CPD, Preview, Conclusion

Filter Your Search

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Medline Articles

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SUMSearch
sumsearch.uthscsa.edu

SUMSearch - Documents found

Search for PRESSURE ULCERS
(Focus: NOFOCUS, ages: all, subjects: HUMAN)

For broad discussions that are easy to read, but not as up-to-date

Texts

- Wikipedia
  
  Scroll down or Click here to view first 10

  276 documents.

- Selected journals at PubMed
  
  PubMed-FullText did not complete a response within time; consider searching PubMed-FullText directly or searching later.

  0 documents.

Practice Guidelines (some guidelines are systematic reviews)

- National Guideline Clearinghouse™
  
  Scroll down or Click here to view first 20

  Additional guidelines for your topic may be available from:
  AHRQ Practice Guidelines

  29 documents.

- PubMed (possible guidelines)
  
  Scroll down or Click here to view first 20

  30 documents.

For more up-to-date answers to specific questions, but are harder to read

Systematic reviews (what is so good about systematic reviews?)

- DARE (includes Cochrane abstracts)
  
  Scroll down or Click here to view first 20

  33 documents.

- PubMed (possible systematic reviews)
  
  Scroll down or Click here to view first 20

  284 documents.
Systematic Review/Meta-Analyses Resources

- Cochrane Database of Systematic Reviews (CDSR)
- PubMed/MEDLINE Systematic Reviews
- CINAHL/CINAHL Plus
Systematic Reviews vs Meta-Analyses

A **Systematic review**: is a literature review focused on a single question which tries to identify, appraise, select and synthesize all high quality research evidence relevant to that question.

**Meta-analyses**: are systematic reviews that combine the results of several studies using quantitative statistics.
Cochrane Database of Systematic Reviews

- Widely regarded as the “gold standard” of evidence-based information
- Extensive systematic reviews and complex synthesis
- Very focused, specific questions
Support surfaces for pressure ulcer prevention

N Cullum, E McInnes, SEM Bell-Syer, R Legood

Cochrane Database of Systematic Reviews 2007 Issue 1
Copyright © 2007 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.
DOI: 10.1002/14651858.CD001735.pub2  This version first published online: 19 July 2004 in Issue 3, 2004
Date of Most Recent Substantive Amendment: 20 May 2004

This record should be cited as: Cullum N, McInnes E, Bell-Syer SEM, Legood R. Support surfaces for pressure ulcer prevention. Cochrane Database of Systematic Reviews 2007, Issue 1. [DOI: 10.1002/14651858.CD001735.pub2].

Abstract

Background
Pressure ulcers (also known as bedscores, pressure sores, decubitus ulcers) are areas of localised damage to the skin and underlying tissue caused by friction. They are common in the elderly and immobile and costly in financial and human terms. Pressure-relieving beds, mattresses and cushions are important aids to prevention in both institutional and non-institutional settings.

Objectives
This systematic review seeks to answer the following questions:

- to what extent do pressure-relieving cushions, beds, mattress overlays and mattress replacements reduce the incidence of pressure sores?

- how effective are different pressure-relieving surfaces in preventing pressure ulcers, compared to one another?

Search strategy
The Specialised Trials Register of the Cochrane Wounds Group (compiled from regular searches of many electronic databases including MEDLINE, EMBASE, CINAHL, PsycINFO, Cochrane Library and LRIN) identified 28 relevant studies. The search was updated in March 2004.
Finding Systematic Reviews and Meta-Analyses in *PubMed/MEDLINE and CINAHL*

- **In CINAHL:**
  - Refine search to *Systematic Reviews*
  - Search for *Meta Analysis* as a

- **In PubMed/MEDLINE:**
  - Select *Systematic Reviews* in Clinical Queries section
  - Limit to *Meta-analysis* as Publication/Type of Article
Searching for Evidence Categories

- **Systematic Reviews**: Cochrane
- **Metasearch Engines**: TRIP
- **Evidence Guidelines**: Natl. Guideline Clearinghouse
- **Evidence Summaries**: NRC, DynaMed, Natural Standard
- **Textbooks**: Mosby’s, etc. (Stat!Ref)
- **Journal Articles**: Original research found in CINAHL, MEDLINE, & other databases

Drill Down
Search for Evidence in Drug and Natural Medicines Databases

- AHFS Drug Information [on HEAL-WA]
- Davis’s Drug Guide for Nurses [on HEAL-WA]
- Natural Standard [on HEAL-WA]
  
  Evidence-based information on CAM, including supplements, herbs, acupuncture, massage, etc.
  
  - Also available partially through MedlinePlus

- Natural Medicines Comprehensive Database
  www.naturaldatabase.com
Escitalopram Oxalate

Introduction

C_{20}H_{21}FN_{2}O\cdot C_{2}H_{2}O_{4}

- Escitalopram, the S-enantiomer of citalopram, is a selective serotonin-reuptake inhibitor (SSRI) and an antidepressant.¹

Uses

- Major Depressive Disorder

Escitalopram oxalate is used in the treatment of major depressive disorder.¹ Efficacy for the management of major depression was established in 3 placebo-controlled studies of 8 weeks' duration in adult outpatients who met DSM-IV criteria for major depressive disorder.¹ ² ³ In these studies, 10- and 20-mg daily dosages of escitalopram were more effective than placebo in improving scores on the Montgomery Asberg Depression Rating Scale (MADRS), the Hamilton Rating Scale for Depression (HAM-D), and the Clinical Global Impression Improvement and Severity of Illness Scale.¹ ² ³ ⁴ Escitalopram also was more effective than placebo in improving other aspects of depressive disorder, including anxiety, social functioning, and overall quality of life.² ³ Substantial improvement in MADRS scores was noted in patients receiving either dosage of escitalopram compared with those receiving placebo after 1-2 weeks of therapy.² ³ ⁴ ⁵ In addition, escitalopram dosages of 10-20 mg daily appeared to be at least as effective as racemic citalopram dosages of 20-40 mg daily.⁶ ⁷ ⁸ ⁹ There is some evidence that escitalopram may offer some clinical advantages compared with citalopram on selective serotonin-reuptake inhibitors (e.g., increased efficacy, more rapid onset of therapeutic effect, fewer adverse effects); however, additional studies are needed to confirm these initial findings.⁸ ⁹ ¹⁰ Efficacy of escitalopram in hospital settings has not been established to date.¹ ³ For further information on use of SSRI in the treatment of major depressive disorder and considerations choosing the most appropriate antidepressant agent for a particular patient, see Uses: Major Depressive Disorder, in Citalopram Hydrobromide 28:16.04.20.

References

1. Forest Pharmaceuticals, Inc. Lexapro® (escitalopram oxalate) tablets/oral solution prescribing information. 2016. Available at: https://www.forestpharma.com/products
Natural Standard was founded by clinicians and researchers to provide high quality, evidence-based information about complementary and alternative therapies. This international multidisciplinary collaboration now includes contributors from more than 100 eminent academic institutions.

For each therapy covered by Natural Standard and expert opinions. Validated rating scales. Information is incorporated into comprehensive decision making. All monographs undergo Natural Standard databases.

Professional reading level: 12th grade reading level

Patient handout 5th grade
## Scientific Evidence for Common/Studied Uses:

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<td>Ulcerative colitis (including inflammatory bowel disease)</td>
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<td>Mucositis</td>
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<td>Pressure ulcers</td>
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### Level of Evidence Grade

- **A** (Strong Scientific Evidence): Statistically significant evidence of benefit from ≥2 properly randomized trials (RCTs), OR evidence from one properly conducted RCT AND one properly conducted meta-analysis, OR evidence from multiple RCTs with a clear majority of the properly conducted trials showing statistically significant evidence of benefit AND with supporting evidence in basic science, animal studies, or theory.

- **B** (Good Scientific Evidence): Statistically significant evidence of benefit from 1-2 properly randomized trials, OR evidence of benefit from ≥1 properly conducted meta-analysis, OR evidence of benefit from ≥1 cohort case-control/non-randomized trials AND with supporting evidence in basic science, animal studies, or theory. This grade applies to situations in which a well designed randomized controlled trial reports negative results but stands in contrast to the positive efficacy results of multiple other less well designed trials or a well designed meta-analysis, while awaiting confirmatory evidence from an additional well designed randomized controlled trial.

- **C** (Unclear or conflicting scientific evidence): Evidence of benefit from ≥1 small RCT(s) without adequate size, power, statistical significance, or quality of design by objective criteria, OR conflicting evidence from multiple RCTs without a clear majority of the properly conducted trials showing evidence of benefit or ineffectiveness, OR evidence of benefit from ≥1 cohort case-control/non-randomized trials AND without supporting evidence in basic science, animal studies, or theory, OR evidence of efficacy only from basic science, animal studies, or theory.

- **D** (Fair Negative Scientific Evidence): Statistically significant negative evidence (i.e., lack of evidence of benefit) from cohort case-control/non-randomized trials, AND evidence in basic science, animal studies, or theory.
# Wound Healing and Related Conditions

**Levels of Scientific Evidence for Specific Therapies**

*Natural Standard* does not recommend specific therapies or practitioners.

## Grade: C (Unclear or Conflicting Scientific Evidence)

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Drugs, Supplements & Herbal Information page

Drugs, Supplements & Herbal Information page

Drug Information

Browse by first letter of generic or brand name drug:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z 09

Information on thousands of prescription and over-the-counter medications is provided through two drug resources

- MedMaster™†, a product of the American Society of Health-System Pharmacists (ASHP)
- USP DI® Advice for the Patient®, a product of the United States Pharmacopeia (USP).

For additional drug information, see the MedlinePlus drug therapy topic pages.

Herbs and Supplements

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Natural Standard is an international research collaboration that aggregates and synthesizes data on complementary and alternative therapies.

- Using a comprehensive methodology and reproducible grading scales, information is created that is evidence-based, consensus-based, and peer-reviewed
- Tapping into the collective expertise of a multidisciplinary Editorial Board.

For additional herb and supplement information, see the MedlinePlus herbal medicine topic page.
105 Herbs and Supplements Monographs in English & Spanish

Peppermint oil

Peppermint oil (Mentha x piperita L.)


Commercial distribution prohibited. This monograph is intended for informational purposes only and should not be interpreted as specific medical advice. You should consult with a qualified healthcare provider before making decisions about therapies and/or health conditions.

While some complementary and alternative techniques have been studied scientifically, high-quality data regarding safety, effectiveness, and mechanism of action are limited or controversial for most therapies. Whenever possible, it is recommended that practitioners be licensed by a recognized professional organization that adheres to clearly published standards. In addition, before starting a new technique or engaging a practitioner, it is recommended that patients discuss their current healthcare providers' potential benefits, risks (including financial cost), and alternatives should be carefully considered. The bottom monograph is designed to provide historical background and an overview of clinically-oriented research, and neither advocates for or against the use of a particular therapy.

Related Terms:

- Balm mint, black peppermint, brandy mint, curled mint, Feuilles de menthe, Japanese peppermint, Katzenkraut (German), lamb mint, Mentha arvensis, L. var. piperascens, menta prima (Italian), Menthae piperisae aetheroleum (peppermint oil), Menthae piperisae var. officinalis, Menthae piperisae folium (peppermint leaf), Menthe arugule, Menthe poivree, Menthe poivre, Mentha piperita var. vulgans, Ours Lady's mint, pebermin (Danish), Pfefferminz (German), Pomarza, Schnecke, spear mint (Mentha spicata L.), water mint (Mentha aquatica), white peppermint, WS(R) 1340.

- Essential oil constituents: cineole, isomenthone, limonene, menthofuran, menthol, menthone, methyl acetate, terpinenes.

- Leaf constituents: Caffeic acid, chlorogenic acid, luteolin, hesperidin, rutin, "volatile" oil.

- Selected brand names: BenGay®, Colpermín®, China Maze, Cholylol®, Citaehol, Enteroald® (contains peppermint and caraway oil), Kimino, Mentacur, Mentholatum, Mintex, Rhuki Gel®, Robustuss® cough drops, SX Mentha®, Vicks VapoRub®.

- Combination products: Absorbine Jr®, Ibrogast®, Listerine®.

Aceite de menta (menta piperita)


Se prohíbe su distribución comercial. Esta monografía ofrece la información de salud para fines informativos únicamente, pero no debe ser interpretada como un consejo médico específico. Usted debe consultar con un proveedor médico calificado antes de tomar decisiones respecto a terapias y atención de salud.

No obstante se han estudiado de forma científica ciertas técnicas complementarias y alternativas, para la mayoría de las terapéuticas hay limitación o controversia sobre los datos de alta calidad respecto a la seguridad, eficacia y mecanismo de acción. Se recomienda, al máximo posible, que los practicantes cuenten con licencias específicas por una organización profesional reconocida que se adhiera a claramente publicadas. Antes de iniciar una nueva técnica o contratar a un practicante, se recomienda que los pacientes consulten con su propio proveedor(es) médico(s) principal(es). Se deben considerar atentamente los beneficios y riesgos potenciales incluyendo los costos financieros así como las alternativas. La siguiente monografía está diseñada para ofrecer una revisión y un resumen de la investigación con orientación clínica, y la revisión se defiende al uso de una terapia en particular.

Términos relacionados:

- Balsamo de menta, menta negra, menta de brandy, menta crespa, Feuilles de menthe, menta japonesa, Katzenkraut (alemán), menta de cordero, menta arvensis, L. var. piperascens, menta prima (italiana), Menthae piperisae aetheroleum (ajo de menta), Menthae piperisae var. officinalis, Menthe poivrée, Mentha piperita var. vulgans, Ours Lady's mint, pebermin (danesés), Pfefferminz (alemán), Pomarza, Schnecke, hierbasbuenas (Menta spicata L.), menta acuática (Mentha aquatica), menta blanca, WS(R) 1340.

- Elementos constituyentes esenciales del aceite: Cineole, isomentona, limoneno, menthofuran, menthol, mentona, acetato de mentilo, terpinenos.

- Elementos constituyentes de la hoja: Ácido caffeico, ácido clorogénico, luteolina, hesperidina, rutina, aceite "volatile".

- Selección de marcas registradas: BenGay®, Colpermín®, China Maze, Cholylol®, Citaehol, Enteroald® (contiene aceite de menta y salvia), Kimino, Mentacur, Mentholatum, Mintex, Rhuki Gel®, Robustuss® cough drops (pastillas para la tos), SX Mentha®, Vicks VapoRub®.
MedlinePlus
medlineplus.gov

- **#1 SOURCE** for basic quality consumer/patient information
- Includes drug information
- Medical Encyclopedia – full-text with illustrations
- Spanish version
- Preformulated *PubMed* searches
- Interactive tutorials
- Current health news
Cystic Fibrosis (CF) is an inherited disease of the mucus and sweat glands. It affects mostly your lungs, pancreas, liver, intestines, sinuses and sex organs. CF causes your mucus to be thick and sticky. The mucus clogs the lungs, causing breathing problems and making it easy for bacteria to grow. This can lead to problems such as repeated lung infections and lung damage.

The symptoms and severity of CF vary widely. Some people have serious problems from birth. Others have a milder version of the disease that doesn’t show up until they’re teens or young adults.

Although there is no cure for CF, treatments have improved greatly in recent years. Until the 1980s, most deaths from CF occurred in children and teenagers. Today, with improved treatments, people with CF live, on average, to be more than 35 years old.

### Start Here
- [Cystic Fibrosis](https://www.ncbi.nlm.nih.gov/pubmed/18392766) (NIH, National Heart, Lung, and Blood Institute)
- [Cystic Fibrosis Interactive Tutorial](https://www.sinus.org/health-tips/cystic-fibrosis-interactive-tutorial) (Patient Education Institute) - Requires Flash Player
- Also available in [Spanish](https://www.sinus.org/health-tips/cystic-fibrosis-interactive-tutorial)
- Genetics Home Reference: Cystic fibrosis (NIH, National Library of Medicine)

### Basics
- Overviews
- Latest News
- Diagnosis/Symptoms
- Treatment
- Prevention/Screening

### Learn More
- Nutrition
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The primary NIH organization for research on Cystic Fibrosis is the National Heart, Lung, and Blood Institute.
Cystic fibrosis

Cystic fibrosis is a hereditary disorder characterized by lung congestion and infection and malabsorption of nutrients by the pancreas.

Cystic fibrosis is the most common cause of chronic lung disease in children and young adults, and the most common fatal hereditary disorder affecting Caucasians in the US.

Update Date: 5/11/2009

Updated by: Daniel Rauch, MD, FAAP, Director, Pediatric Hospitalist Program, Associate Professor of Pediatrics, NYU School of Medicine, New York, NY. Review provided by VeriMed Healthcare Network. Also reviewed by David Zieve, MD, MHA, Medical Director, A.D.A.M., Inc.
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Management of severe sepsis and septic shock in adults

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Last literature review version 17.3: September 2009 | This topic last updated: October 16, 2009 (More)

INTRODUCTION — Sepsis is a clinical syndrome characterized by systemic inflammation due to infection. There is a continuum of severity ranging from sepsis to severe sepsis and septic shock. Over 750,000 cases of sepsis occur in the United States each year, resulting in approximately 200,000 fatalities [1]. Even with optimal treatment, mortality due to severe sepsis or septic shock is approximately 40 percent and can exceed 50 percent in the sickest patients [2-5].

Numerous interventions exist that decrease mortality due to sepsis. In this topic review, the management of severe sepsis and septic shock is discussed. Definitions, diagnosis, pathophysiology, and investigational therapies are reviewed separately. (See "Sepsis and the systemic inflammatory response syndrome: Definitions, epidemiology, and prognosis" and "Pathophysiology of sepsis" and "Investigational and ineffective therapies for sepsis".)

THERAPEUTIC PRIORITIES — Therapeutic priorities for patients with severe sepsis or septic shock include:

- Early initiation of supportive care to correct physiologic abnormalities, such as hypoxemia and hypotension [6-9].

- Distinguishing sepsis from systemic inflammatory response syndrome (SIRS) (table 1 and table 2) because, if an infection exists, it must be identified and treated as soon as possible (table 3). This may require a surgical procedure (e.g., drainage), as well as appropriate antibiotics.

EARLY MANAGEMENT — The first priority in any patient with severe sepsis or septic shock is stabilization of their airway and breathing. Next, perfusion to the peripheral tissues should be restored [7,10].

Stabilize respiration — Supplemental oxygen should be supplied to all patients with sepsis and oxygenation should be monitored continuously with pulse oximetry. Intubation and mechanical ventilation may be required to support the increased work of breathing that typically accompanies sepsis, or for airway protection since encephalopathy and a depressed level of consciousness frequently complicate sepsis [11,12].
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