

# **WHAT IS EVIDENCE BASED MEDICINE?**

**CARRIE SUSSMAN, DPT, PT**

# **What is your concept of Evidence Based Medicine?**

**Carrie Sussman, PT**  
**Wound Care Management Services**

# Why Use EBM?

- **Improve the quality of patient care.**
- **Guideline for clinical decision making**
- **Recognize the value of clinical experience**
- **Recognize the limitations of available research**
- **Generate new research ideas**
- **Identify validity of research and applicability to the problem**

# Why Use EBM?

- **Sharing of clinical decision making between clinician and patient**
- **Stop ineffective or harmful patient care**
- **Encourages self directed professional learning**

# SACKETT DEFINITION 2000

- **Use of best evidence in making decisions about patient care**
- **Integration of**
  - **Clinical expertise ( judgment)**
  - **Best research evidence**
  - **Patient values**

# MAKING A EBM SANDWICH

**Top slice: Patient Medical History and  
Problem**

**Filling: Clinical Expertise**

**Relevant /Best Research Evidence**

**Patient Values**

**Bottom Slice: Clinical Decision Making  
with the Patient**

# Defining the Fillings

## Clinical Expertise

### – Learned Clinical skills

- The ability to rapidly identify the patient's unique health status
- Recognize risks and benefits for the patient

### – Results of Past experience

- Pattern recognition
- Prior knowledge of evidence

# DEFINING THE FILLINGS

## Clinical Expertise

### – Personal values

- Awareness of personal beliefs
- Acceptance of recommendations by “authorities”
- Willingness to abandon or change ineffective methods and beliefs

### – Expectations

- Evaluate outcomes of care

# DEFINING THE FILLINGS

## Relevant /Best Research Evidence

### – Clinically relevant

- Basic science of medicine
- Patient centered clinical research
- Power of prognostic markers
- New evidence that changes or replaces previously reported information
- Applicability, generalizability, utility

# DEFINING THE FILLINGS

## Patient Values

- **Unique concerns and preferences**
  - Awareness of the problem
  - Types of treatment needed or wanted
- **Expectations of care**
  - Knowledge of alternative treatments
  - Benefits wanted or needed
- **Integration into clinical decision making**

# 5 STEPS TO PRACTICE EBM

1. **Convert need for information into an answerable question.**
2. **Track down the BEST evidence to answer the question**
3. **Critical appraisal of the evidence for validity and relevance**

# **5 STEPS TO PRACTICE EBM**

- 4. Critical appraisal based on the patient's unique characteristics**
- 5. Evaluate ones own effectiveness in practicing EBM**

# **3 LIMITATION OF EBM PRACTICE**

- 1. Need to develop new skills in searching for and critically appraising relevant research.**
- 2. Limited time of busy clinicians to master and apply the new skills**
- 3. Limited evidence that improved patient care follows practice of EBM**

# CASE EXAMPLE

- **History:** AJ is a 27 year old paraplegic male who is 6 months post SCI.
- **Patient values:** avoiding surgery, healing ulcer so he can return home
- **Problem:** There is a pressure ulcer on the R ischial tuberosity that has not responded to 3 months of care with debridement, moisture balancing dressings, pressure relief plus negative pressure therapy.
- **Wound Assessment:**
  - Size: ulcer is now 2.5 cm x 3 cm x 1.5 cm deep with undermining.
  - Tissue : there is pale pink granulation tissue with patches of yellow slough and moderate wound exudate.

# CLINICAL QUESTIONS

- **Chester Ho, MD :**
- **What is the patient's medical status (coexisting medical conditions, nutrition, infection or bacterial overcolonization including osteomyelitis)?**
- **What are the patient's lab results ( albumin, prealbumin CBC) and medical tests (diagnostic imaging etc)?**
- **What is his pressure ulcer treatment regime (pressure relief, debridement, dressings, cleansing)?**

# CLINICAL QUESTIONS

- **Chester Ho, MD :**
- **What are published results of research using Laser or US for wound healing?**
- **What is the quality and class of evidence presented in the papers?**
- **Are there reports of any adverse effects? What is the risk benefit ratio ?**
- **Are reliable colleagues using the method and their impression? ( sources of information: conference, companies, objective data, case studies, anecdotal reports)**

# CLINICAL QUESTIONS

- **Pat Banks, RN**
  - Research shows that Ultra Sound and laser have been effective in the area of wound management, cost savings, and time saving. However, these techniques are very limited in the nursing practice arena.
  - Are these treatment/techniques feasible for use by nurses in the actual practice arena?
  - Please explain the practical considerations feasibility and applicability of these evidence based practices to nursing.

# CLINICAL QUESTIONS

**Carrie Sussman, DPT**

- In patients with pressure ulcers, does using US for debridement or wound healing speed results?**
- Does using laser accelerate healing of pressure ulcers?**
- Are these results generalizable to SCI patients with PU?**

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# CATEGORIES FOR CLINICAL QUESTIONS

- **Clinical findings**
- **Etiology**
- **Clinical manifestations of the disorder**
- **Differential diagnosis**
- **Diagnostic tests**
- **Prognosis**
- **Therapy**
- **Prevention**
- **Experience and meaning**
- **Self-improvement**

# TYPES OF QUESTIONS TO ASK ABOUT A DISORDER

- **Background**
  - Ask for general or background information about a disorder
  - **Essential components:**
    - A disorder or aspect of a disorder
    - Includes the who, what, where, why, when and how questions plus a verb.
  - **Example: Etiology: What causes pressure ulcers in patients with SCI? Prognosis: When do complications occur in SCI patients with pressure ulcers?**

# LOOKING AT QUESTIONS

- **Pat Banks:**
- **Research** shows that Ultra Sound and laser have been effective in the area of wound management, cost savings, and time saving. However, these techniques are very limited in the nursing practice arena.
- **Is this an assumption, authoritative information or based on review or knowledge of the literature?**

# LOOKING AT QUESTIONS

- **Pat Banks:**
- **Are these treatment/techniques feasible for use by nurses in the actual practice arena? This is a good background type question about nursing clinical practice and the use of US or LASER by nurses.**
- **Sources: Nursing clinical journals, research articles, poster presentations, conference reports**
- **A searchable question might be: Who provides the clinical service for US and Laser ?**
- **Please explain the practical considerations feasibility and applicability of these evidence based practices to nursing. Do nurses need background information about treatments provided by other providers to their patients or before making a referral?**

# TYPES OF QUESTIONS TO ASK ABOUT A DISORDER

- **Foreground**

- Question asks for specific knowledge about managing patients with a disorder
- Has 3 or 4 essential components
  1. Patient and or problem
  2. Intervention
  3. Comparison intervention if relevant
  4. Clinical outcomes ( results)
- Example: Therapy and Prognosis: In SCI patients with pressure ulcers does an intervention with kHz ultrasound speed healing compared to intervention with laser?

# CLINICAL QUESTIONS

- **Chester Ho, MD : Foreground questions pertaining to the patient and potential problems.**
- **What is the patient's medical status (coexisting medical conditions, nutrition, infection or bacterial overcolonization including osteomyelitis)?**
- **What are the patient's lab results ( albumin, prealbumin CBC) and medical tests (diagnostic imaging etc)?**
- **What is his pressure ulcer treatment regime (pressure relief, debridement, dressings, cleansing)?**

# CLINICAL QUESTIONS

- **Chester Ho, MD :**
- **What are published results of research using Laser or US for healing pressure ulcers?**
- **What is the quality and class of evidence presented in the papers?**
- **Are there reports of any adverse effects? What is the risk benefit ratio ?**
- **Sources of Information: peer reviewed journals.**
- **Foreground questions about asking for specific knowledge about managing patients with a disorder and questions include the essential components.**

# CLINICAL QUESTIONS

- **Chester Ho, MD :**
- **Are reliable colleagues using the method and their impression?**
- **Sources of Information: conference reports or abstracts , companies, objective data, case studies, anecdotal reports**
- **Background question : asks a “who” question and seeks general information about the clinical experience of others with the intervention**

# LOOKING AT QUESTIONS

- **Carrie Sussman**
- **In patients with pressure ulcers, does using kHz US for debridement or wound healing speed results?**
- **Does using laser accelerate healing of pressure ulcers?**
- **Are these results generalizable to SCI patients with PU?**
- **Foreground questions about asking for specific knowledge about managing patients with a disorder using and possibly comparing the two interventions and they include essential components.**

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# FINDING THE BEST EVIDENCE

- Computer data bases and websites
- Pub Med ( [www.pubmed.gov](http://www.pubmed.gov) )
- CINAHAL
- Cochrane Library ([www.update.cochrane.co.uk](http://www.update.cochrane.co.uk))
- Up to Date
- Science Direct
- OVID

# SEARCHING METHODS

- **Select key words from the question**
- **Set limits for search (time frame, type of study, population, etiology)**
- **Use Boolean terms : AND/OR, NOT**
- **Use reference lists from articles or referenced textbooks for authors and subject**
- **Select articles to review that meet search objectives**
- **Read the abstract. If applicable and feasible, secure the original study**
- **Systematic Reviews , Meta analysis**

# EXAMPLES OF SEARCH RESULTS

- **Limits: 10 years**
- **kHZ Ultrasound and wound debridement AND/OR wound healing : 22,612 Hits**
- **kHZ debridement : 1386 Hits**
- **kHz Ultrasound : 697 hits**
- **kHz Ultrasound AND debridement: 3 hits**  
( 2 review articles, 1 RCT with diabetic ulcers [OWM] )

# EXAMPLES OF SEARCH RESULTS

- **Limits: 10 years**
- **LASER AND pressure ulcers: hits 35**
  - **Cochrane systematic review of US NOT LASER**
  - **RCT Archives of Physical Medicine 2004**
  - **RCT LASER Med SCI 2003**

# RESOURCES USED

- **Sackett, DL et al “ Evidence-Based Medicine”  
How to practice and Teach EBM Churchill  
Livingstone second edition, 1999 Website:  
[www.library.utroonto.ca/medicine /ebm/](http://www.library.utroonto.ca/medicine /ebm/)**
- **Law, M Evidence Based Rehabilitation : a  
Guide to Practice, Slack 2002**
- **Greenhalgh, T How to Read a Paper: The  
basics of evidence based medicine, BMJ 2001**

# WHAT IS YOUR EXPERIENCE WITH EBM?

**Barriers**

**Benefits**

**Difficulties**

**Perception**

**Outcomes**

**Other**