Evidence-Based Practice in Chinese Medical Nursing: Clinical Application Approach

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24-11-2006
What is EBM (evidence-based medicine)?

Definition from MeSH term

The process of systematically finding, appraising, and using contemporaneous research findings as the basis for clinical decisions. Evidence-based medicine asks questions that are related to everyday clinical practice.

(From BMJ 1995;310:1122)

Year introduced: 1997
What is EBM (evidence-based medicine)?

Evidence-based medicine follows four steps:

- formulate a clear clinical question from a patient's problem;
- search the literature for relevant clinical articles;
- evaluate (critically appraise) the evidence for its validity and usefulness;
- implement useful findings in clinical practice.
Welcome to the National Institute for Health and Clinical Excellence website

NICE is the independent organisation responsible for providing national guidance on the promotion of good health and the prevention and treatment of ill health.

On 1 April 2005 NICE joined with the Health Development Agency to become the new National Institute for Health and Clinical Excellence (also to be known as NICE).

http://www.nice.org.uk/
What's new

- Corrected LR Nomogram - Newsletter from the September 2005 workshop

The CEBM

- About us - Contacting us - Members

EBM links

- EBM on the net - Affiliates

Join us at our next event!

One-Day Workshop on Evidence-Based Practice

Department of Continuing Education, Ewert House, Ewert Place, Summertown, Oxford OX2 7DD

30th November 2005

This workshop is intended to serve as an introduction to Evidence-Based Practice. It is aimed at clinicians and other health care professionals who wish to gain knowledge of critical appraisal and experience in the practice of evidence-based health care.

Learning EBM

- Background issues - EBM: what it is and what it isn't - EBM glossary - Study designs

Doing EBM

- Questions - searching - appraisal - decisions - evaluation

Teaching EBM

- Courses - Downloads

EBM toolbox

- NNTs - LRs - Pre-test probabilities - Calculators - and more.

http://www.cebm.net/index.asp
Welcome to CRD

Centre for Reviews and Dissemination

CRD undertakes reviews of research about the effects of interventions used in health and social care.

The centre maintains various databases, provides an enquiry service and disseminates results of research to NHS decision makers.

The University of York

Centre for Reviews & Dissemination, University of York, UK, YO10 5DD
Tel: +44 (0)1904 321040, Fax: +44 (0)1904 321041
E-mail: crd@york.ac.uk

News >> Hitting the Headlines: 'Viagra reduces heart stress' >>
News >> New records added to the CRD databases - October 2005 >>

http://www.york.ac.uk/inst/crd/
What is EBN?

Evidence-based nursing (EBN) is the process by which nurses make clinical decisions using the best available research evidence, their clinical expertise and patient preferences. Three research competencies are important to EBN: interpreting and using research, evaluating practice, and conducting research.

http://evidence.ahc.umn.edu/ebn.htm
To carry out EBN the following factors must be considered:

- sufficient research must have been published on the specific topic
- the nurse must have skill in assessing and critically analysing research
- the nurse’s practice must allow her/him to implement changes based on EBN
Grading of evidence on intervention

“hierarchy” of evidence
What is the status of EBN?

- search [www.baidu.com](https://www.baidu.com) (the global biggest search engine for Chinese) using EBN in Chinese “循证护理”， you will get 6990 hits in 0.001 second (access 2nd Sept. 2006);

- search [www.google.com](https://www.google.com) (the biggest search engine) using “evidence-based nursing”， you will get 8,390,000 hits in 0.14 second (access 2nd Sept. 2006);

- search [www.pubmed.gov](https://www.pubmed.gov) using “evidence-based nursing” limited to title and abstract, you will get 1056 hits in 1 second (access 2nd Sept. 2006);

- searched [CNKI](https://www.cnki.net) to get 359 hits on EBN in title
Organisational infrastructures to promote evidence based nursing practice
[Review]

DR Foxcroft, N Cole

Cochrane Database of Systematic Reviews 2006, Issue 3
Copyright © 2006 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.
DOI: 10.1002/14651858.CD002212 This version first published online: 24 July 2000 in Issue 3, 2000
Date of Most Recent Substantive Amendment: 25 August 2003

This record should be cited as: DR Foxcroft, N Cole. Organisational infrastructures to promote evidence based nursing practice. Database of Systematic Reviews 2006, Issue 3. Art. No.: CD002212. DOI: 10.1002/14651858.CD002212.

Abstract

Background
The purpose of this systematic review is to determine to what extent organisational infrastructures are effective in promoting the implementation of high quality research evidence on the effectiveness of nursing interventions.

Objectives
To identify and summarize rigorous evaluations of organisational infrastructure developments aimed at promoting evidence based practice.

Search strategy
We searched: The Cochrane Library, MEDLINE, EMBASE, CINAHL, SIGLE, HEALTHLINE, National Research Register, Nuffield Da Health Outcomes, NIH Databases up to August 2002. We hand searched the Journal of Advanced Nursing, Applied Nursing Research, Journal of Nursing Administration (to 1999), and checked the reference lists of articles obtained. We contacted experts in the fi relevant Internet groups.

Selection criteria
Randomized controlled trials, controlled clinical trials and interrupted times series studies of an entire or identified component organisational infrastructure development aimed at promoting effective nursing interventions. The participants were health care organisations comprising nurses, midwives and health visitors in hospital and community settings.

Data collection and analysis
All identified papers were screened independently for relevance, design and outcome by two reviewers.
Clinical trials on nursing published in *Chin J Pract Nursing* between 1985-2003

- 5 journals were handsearched (1954-2000) including *Chin J Nursing, J Pract Nursing, Chinese Nursing Research, J Nurse Refreshment, J Nursing Sci*
  
- RCT: 718 (2.97% of total articles)
- CCT: 548 (2.27% of total articles)
A questionnaire on knowledge of EBN among nurses

200 questionnaire issued, 189 answered

<table>
<thead>
<tr>
<th>questions</th>
<th>answer correctly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What is EBN?</td>
<td>16.9%</td>
</tr>
<tr>
<td>2. How to acquire research evidence?</td>
<td>29.1%</td>
</tr>
<tr>
<td>3. What is the grade (strength) of evidence?</td>
<td>6.3%</td>
</tr>
<tr>
<td>4. What is systematic review?</td>
<td>7.4%</td>
</tr>
</tbody>
</table>

95.3% (163/171) had positive attitude toward EBN
A questionnaire on knowledge of EBN among nurses

The main barriers for practising EBN are:

1. lack of training on EBN (68.3%)
2. not required by the hospitals (27%)
3. not be able to access research evidence (23.3%)
4. not stressed by leaders (13.2%)
The main barriers for practising EBN are:

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Subjects (N=190)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of time</td>
<td>126</td>
<td>66</td>
</tr>
<tr>
<td>Lack of staff</td>
<td>111</td>
<td>58</td>
</tr>
<tr>
<td>Lack of information</td>
<td>66</td>
<td>35</td>
</tr>
<tr>
<td>Lack of financial support</td>
<td>56</td>
<td>30</td>
</tr>
<tr>
<td>Insufficient facilities</td>
<td>49</td>
<td>26</td>
</tr>
<tr>
<td>Lack of support from colleagues</td>
<td>45</td>
<td>24</td>
</tr>
<tr>
<td>No appropriate research findings</td>
<td>36</td>
<td>19</td>
</tr>
<tr>
<td>Lack of support from physicians</td>
<td>33</td>
<td>17</td>
</tr>
<tr>
<td>Lack of support from administrators</td>
<td>20</td>
<td>11</td>
</tr>
</tbody>
</table>
Requirements for practising EBN by nurses investigated

1. training on EBN knowledge and methods (66.7%)

2. attention to be paid by the leadership (36%)

3. trained nurse on EBN assigned to each department (25.4%)

4. competence in methods, literature searching and statistics (27.5%)

Why EBN?

- Use health resources more efficiently;
- Improving nursing care by introducing scientific evidence;
- Updating nursing knowledge;
- Promote nursing research
What is EBN Practice meant?

An ability to solve problems encountered by nurses by carrying out four steps:

1. Clearly identify the issue or problem based on accurate analysis of current nursing knowledge and practice
2. Search the literature for relevant research
3. Evaluate the research evidence using established criteria regarding scientific merit
4. Choose interventions and justify the selection with the most valid evidence.
There are two groups of nurses in the era of EBN:

- **Doer** - nurses who produce research evidence
- **User** - nurses who use research evidence in their daily practice
To be qualified,

Nurses must command below EBP skills

- Asking right question
- Retrieving evidence
- Appraising evidence
- Utilizing evidence

- transfer research findings to nursing practice can be carried out by individual nurses, groups of nurses working together to solve problems, by interdisciplinary teams, and by institutions and organizations seeking to make system-wide improvements in care outcomes
“The most beautiful thing we can experience is the mysterious. It is the source of all true art and science.”

Albert Einstein
5 “A’s” for EBN practice

Step 1 ask
Step 2 acquire
Step 3 appraise
Step 4 apply
Step 5 assess
Step 1 ask

- Define the question, there are generally four parts to question building:
  - the situation
  - the intervention
  - the comparison
  - the outcomes
Some examples of situations

- A patient with a grade two pressure sore – *a single patient*
- Patients with hypertension – *a group of patients with a particular condition*
  Children under the age of 10 – *a population with similar demographic characteristics*
- Primary health care for the elderly – *an aspect of healthcare delivery*
- Organisation of outpatients – *managerial aspects of organising health care*
Some examples of interventions

- *Therapeutic* – eg, different wound dressing
- *Preventive* – eg, influenza vaccination
- *Diagnostic* – eg, measurement of blood pressure
- *Managerial* – eg, implementation of a computerised appointment system
- Concerned with *health economics* – eg, the cost-effectiveness of managing venous leg ulcers in primary versus secondary care
Comparison and outcome

- Control – ie, counter intervention may be standard treatment or no treatment at all.
- Outcome – ie, the result we are interested in from a clinical and patient perspective

Does the giving of flu vaccinations to people over the age of 75 lead to reduced morbidity?

<table>
<thead>
<tr>
<th>Situation</th>
<th>Intervention</th>
<th>Counter intervention</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>People &gt;75 years of age</td>
<td>Influenza vaccination</td>
<td>No vaccination</td>
<td>Reduced morbidity</td>
</tr>
</tbody>
</table>
An example

- **Community clinics versus home management for leg ulcer treatment** *(CDSR 1996; issue 1)*

  1. Do patients receiving leg ulcer treatment in community leg ulcer clinics experience *increased healing rates* compared to those receiving care in the home?

  2. Do patients receiving leg ulcer treatment in community leg ulcer clinics experience *reduced leg ulcer recurrence rates* compared to those receiving care in the home?

  3. Do patients receiving leg ulcer treatments in community leg ulcer clinics report *a higher quality of life* compared to those receiving care in the home?

  4. What is the relative *cost-effectiveness* of the two models of care?
Step 2 acquire

- A search will be made of the Cochrane Wounds Group Specialised Trials Register (see Scope). This contains citations of trials in wound prevention and management collected by searching 19 electronic databases, and hand searching wound care journals and conference proceedings. In addition the reference lists of relevant trials will be searched for further trial reports.
Search evidence-based journals for a pre-appraised systematic review

**YES?** Read the structured abstract and commentary. If relevant to you, obtain and read the full text of the review

**NO?** Search the Cochrane Library (CDSR and DARE) for a systematic review

**YES?** Remember to appraise its quality. Use an appraisal checklist designed for appraising review articles

**NO?** Search the evidence-based journals for appraised primary research (e.g., RCTs).

**YES?** Read the structured abstract and commentary. If the study is relevant to you, obtain and read the full report

**NO?** Search Medline, CINAHL, Cochrane Library (CENTRAL) for primary studies.

**YES?** Critically appraise retrieved primary studies for validity and clinical applicability using a checklist.

*(Cullum N. EBN 2006;3:71)*
What is the resources of EBN?

- PubMed ([www.pubmed.gov](http://www.pubmed.gov))
- Centre for EBN, University of York ([www.york.ac.uk/healthsciences/centres/evidence/cebn.htm](http://www.york.ac.uk/healthsciences/centres/evidence/cebn.htm))
- EBM Syllabi - Evidence-Based Nursing ([www.cebm.utoronto.ca/syllabi/nur/](http://www.cebm.utoronto.ca/syllabi/nur/))
- Academic Center for Evidence-based Nursing (ACE) ([www.acestar.uthscsa.edu/](http://www.acestar.uthscsa.edu/))
- The Nursing & Allied Health Database (CINAHL) ([www.cinahl.com/](http://www.cinahl.com/))
- The Cochrane Library ([www.thecochranelibrary.com](http://www.thecochranelibrary.com))
Centre for Evidence Based Nursing

The Centre for Evidence Based Nursing (CEBN) is concerned with furthering EBN through education, research and development. Evidence based nursing is the process by which nurses make clinical decisions using the best available research evidence, their clinical expertise and patient preferences, in the context of available resources (DiCenso A, Cullum N, Gillisik D. Implementing evidence based nursing: some misconceptions [Editorial]. Evidence Based Nursing 1998; 1:38-40).

Staff

Professor Nicky Cullum
Dr Carl Thompson
Dr Andrea Nelson
Dorothy McCaughan
Pauline Raynor
Kate Fleming

Our research activities in this area involve:

Final Report - NHS R&D Project

Producing reliable research evidence for clinical nursing through primary research and systematic review. Current projects include:

Systematic reviews of wound care through the Cochrane Wounds Group

A systematic review of the evidence relating to support for carers of people with Alzheimer’s Disease (Carl Thompson - published in the Cochrane Library)

A multicentre RCT of compression bandages for people with leg ulcers.

Researching how nurses in practice use their clinical expertise alongside research evidence and patient preferences in making decisions.
This site is best viewed at 800x600 (15” screen). Javascript and cookies must be turned on. Click here for web site assistance.
Step 3 appraise

- objective of the study
- outcome measures
- setting
- description of the sample
- research design
- use of blinded outcome assessment
- comparability of groups at baseline
- concealed allocation
- care received by intervention and comparison groups
- results.
Step 4 apply --- applying the results of studies to your patients

- What were the results?
  - how large was the treatment effect?
  - How precise is the estimate of treatment effect?

- Will the results help me in caring for my patients?
  - are my patients so different from those in the study that the results don’t apply?
  - Is the treatment feasible in our setting?
  - Were all clinically important outcomes (harms as well as benefits) considered?
Step 5: Assess

- After applying research findings into your situation, you need to evaluate short-term and long-term outcomes;
- You will decide whether to change your practice or not based on the feedback from staff and from patients;
- You need to assess the effectiveness and efficiency of the evidence-based process and consider avenues for improvement.
However, in reality,

EBNP face challenges:
- lack of education on EBN
- insufficient evidence
- availability of resources
- time for doing EBNP
Fig. 1  A model for evidence-based clinical decisions (after DiCenso et al. 1998).

Fig. 2  An alternative model of expert decision-making.
How to use evidence

- transfer research findings to nursing practice can be carried out by individual nurses, groups of nurses working together to solve problems, by interdisciplinary teams, and by institutions and organizations seeking to make system-wide improvements in care outcomes
Research designs for nursing questions

- RCT
- Cohort study
- Case-control study
- N of 1 trial
- Qualitative research
Figure 8.2. Structure of a Clinical Trial.
Figure 6.1. Design of A Cohort Study of Risk.
Exposure to Risk Factor

- Yes
- No

Disease

Sample with Disease (Cases)

Population at Risk

Sample without Disease (Controls)

TIME

RESEARCH

Figure 10.1. The design of case-control studies.
Design of single case study (N of 1 trial)

\( R: \) randomly allocate treatment/management;

\( M: \) outcome measurement
Examples of studies on nursing practice
Example 1: Effect of pre-operative skin preparation on post-operative wound infection

- **Objectives:** to compare the effect of method of scrubbing the operative site for 10’ with an antiseptic with a simplified method of painting the antiseptic onto the operation site on post-operative wound infection;

- **Design:** randomised controlled trial

- **Setting:** surgical unit in a hospital

- **Patients:** 135 patients undergoing elective and emergency operations

Example 1: Effect of pre-operative skin preparation on post-operative wound infection

- **Interventions:** group A: skin preparation by traditional methods, i.e., scrubbing the site for 10’ with a solution containing 0.75% chlorhexidine and 1.5% cetrimide followed by wiping the area dry and application of 1% iodine in 70% spirit, group B: painting the site with the same antiseptics for about 2-3’ before being wiped off, followed by 1% iodine in 70% spirit.

- **Outcomes:** wound infection, verified by culture

- **Main findings:** no significant difference was demonstrated in the infection rates between the scrub group and paint group.

- **Conclusions:** The traditional method of prolonged scrubbing the operation site can safely be omitted to a more simplified approach.
Example 2: Structured discharge procedure for children admitted to hospital with acute asthma: a randomised controlled trial of nursing practice

- **Objectives:** to examine the impact of a structured, nurse-led discharge package for children admitted to hospital with acute asthma on readmission to hospital, reattendance at the accident and emergency department, and general practitioner consultations for asthma;

- **Design:** randomised controlled trial

- **Setting:** hospital

- **Patients:** 160 children aged 2-16 years admitted for asthma

Example 2: Structured discharge procedure for children admitted to hospital with acute asthma: a randomised controlled trial of nursing practice

- **Interventions**: a structured, nurse-led discharge package consisting of a 20’ patient education programme and self management plan for children with asthma;

- **Outcomes**: readmission to hospital, reattendance at the accident and emergency department, and general practitioner consultations for asthma

- **Main findings**: reduced readmission to hospital in the next 6 months, reduced attendance to A&E department, fewer children had visit to GP for asthma

- **Conclusion**: By delivering the simplest form of education and support during a child’s stay in hospital, readmissions over a 6 month period were reduced. The programme was designed to be suitable for administration by nursing staff on the children’s wards after a brief period of training.

Qualitative research

Objectives:
- to describe, explore, and explain phenomena related to nursing concern
- to understand knowledge, attitude, belief, and satisfaction

Methods:
- questionnaire
- focus group interview
- participant observation
Qualitative research produces large amounts of textual data in the form of transcripts and observational field notes:
- Interviews
- Focus groups
- Diary or chronological account
- Free text
Qualitative research, in particular, addresses research questions that are different from those considered by clinical epidemiology.

Qualitative research can investigate practitioners’ and patients’ attitudes, beliefs, and preferences, and the whole question of how evidence is turned into practice.
Not so bad after all..., Women's experiences of pelvic examinations.

Soderlund A, Skoge AM, Malterud K. "I could not lift my arm holding the fork...". Living with chronic fatigue syndrome.

Espeland A, Baerheim A. Factors affecting general practitioners' decisions about plain radiography for back pain: implications for classification of guideline barriers--a qualitative study.

BMC Health Serv Res. 2003 Mar 24;3(1):8.
“An empty and happy feeling in the bladder...”: health changes experienced by women after acupuncture for recurrent cystitis

Alræk T, Bærheim A
Complement Ther Med (2001) 9, 219-223
“We experience sometimes that people who receive acupuncture treatment may notice changes in themselves after treatment. Therefore we ask you to write down in your own words if you have noticed anything which may have been different in one way or other. Include everything, even though you think it does not mean anything”.
The present, qualitative study

46 questionnaires, 46 returned

7 reported no changes

Material consist of 39 free text answers
Results

1. Changes related to urinary habits.

‘Earlier I used to go to the toilet many times during the night, in some periods once every hour. Now I sleep through the night. Sleep and rest have become much better, and I feel good in the morning.

‘After the AP. I felt a change in emptying of the bladder. I ‘felt a happiness and emptiness’ as if there were no more pressure from the bladder. I do not go so often to the toilet.’
2. More energy, sleep and initiative, good mood.

‘I have had for a while a depression. (My mother has cancer). After each treatment I felt a certain lift in my mood, looking at life with a more bright light.’

‘I felt I got more energy, wanted to do more, and the body is more relaxed.’
3. Changes related to digestion

‘Usually diarrhoea and problems with the stomach. Believed that it was caused by food intolerance — now when it is gone, I am not sure.’

‘Feeling that the stomach/belly is ‘much lighter’, before there was a pressure or feeling of discomfort all the time.’
4. Help against other complaints.

‘I used to have a headache, of a chronic type I would say. After acupuncture it is much better.’

‘For many years I have had bad pain attacks which I been told is due to adheranses. But now, which to me is a miracle the pain is nearly gone.’
Qualitative methods have a role in TCM research that may enrich our knowledge in other ways than traditional quantitative methods may
Thank you!