Evidence-Based Practice: Searching for the Evidence

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Agenda

- Evidence-Based Practice
- Asking Focused Questions/PICO(T)
- Post-operative Nausea - Search Strategies
- Qualitative Research
- Quantitative Research & Study Types
- Mixed Methods
- Clinical Queries Tools - CINAHL & PubMed
- Pressure Ulcers - Find the Best Evidence
- Finding High Quality Evidence
Evidence-based Practice

There are many definitions of Evidence Based Practice, but most are based on the original definition of evidence-based medicine by Dr. David Sackett in the 1990’s.

“the integration of the best research evidence with our clinical expertise and our patient’s unique values and circumstances.”*

Balance!

- Keep in mind that research-based evidence should *always* be balanced with real world experience!


  - **OBJECTIVES:** To determine whether parachutes are effective in preventing major trauma related to gravitational challenge.

  - **DESIGN:** Systematic review of randomised controlled trials.

  - **RESULTS:** “We were unable to identify any randomised controlled trials of parachute intervention.”

    No evidence, but still, DON’T DO IT!!

- As well as patient needs and values…
Asking Focused Questions

- For **clinical topics**, it’s often helpful to break your big question into discrete parts.

- The PICO or PICOT model can help you to build your question
  - **Patient/Population & Problem**
  - **Intervention**
  - **Comparison**
  - **Outcome**
  - **(Time factor)**

- This can help focus your question and formulate your search strategy.

- Use this process as a GUIDELINE! It doesn’t fit every situation.
Asking Focused Questions - Patient/population & Problem

Who is the patient(s) or population and what is the particular condition or healthcare problem?

- Adult African-American patients with hypertension (age, ethnicity)
- Elderly patients at risk for influenza (age)
- Elementary school-age children with a mild head injury (age)
- Low-income Latino children exposed to second-hand smoke (age, ethnicity, economic status)
- 45 y/o Asian woman with asymptomatic mitral valve prolapse (age, ethnicity, gender)
Asking Focused Questions - Intervention (or Exposure)

What are the main interventions or exposures in my question?

- Therapeutic – diet rich in fruits, vegetables, legumes, and low in salty snacks and sweets (for high blood pressure)
- Preventive – influenza vaccination
- Diagnostic – CT Scan (head injury)
- Harm/Etiology - exposure to a Rx, disease, or other risk factor (second-hand smoke)
- Prognostic factor – moderate to severe mitral regurgitation
Asking Focused Questions - Comparison Intervention (Exposure)

Does your question include a "counter intervention" or exposure, e.g., a recognized standard, or the absence of treatment or exposure?

- Therapeutic/Preventive – blood pressure medication, no influenza vaccination
- Diagnostic – clinical observation only of patient with head injury
- Harm/Etiology – no exposure to cigarette smoke (absence of risk factor)
- Prognostic factor – mild mitral regurgitation
Asking Focused Questions - **Outcome**

Outcomes of interest from a clinical and patient perspective; what do you want to accomplish?

Will this intervention/exposure

- increase or decrease the risk of disease?
- affect the accuracy of diagnosis?
- improve quality of life?
- lead to greater patient comfort
- affect the rate of occurrence of adverse outcome, e.g., morbidity, mortality
As a nurse in the hospital’s post-anesthesia care unit, you are aware that post-operative nausea and vomiting (PONV) is a common cause of delayed discharge from the hospital after ambulatory surgery and that this affects a substantial percentage of pediatric patients. Dexamethasone has typically been used to treat this in your unit, but you have heard recently that ondansetron alone or in combination with dexamethasone can be more effective in treating PONV in children.

How could you phrase a question to begin investigating this?
Clinical Question

“In pediatric patients recovering from general anesthesia, is ondansetron, or ondansetron in combination with dexamethasone, more effective than dexamethasone alone in preventing post-operative nausea and vomiting in the immediate postoperative period?”

What type of question is this?

Therapy/Prevention? Prognosis? Diagnosis? Harm/etiology?

THERAPY/ PREVENTION

How would I break this down into the PICO(T) format?
P-I-C-O-(T)

- **P** = Pediatric patients recovering from general anesthesia
- **I** = Ondansetron, or ondansetron in combination with dexamethasone
- **C** = Dexamethasone alone
- **O** = Post-operative nausea and vomiting
- **T** = Immediate postoperative period

**What concepts from the above might be useful as search terms?**
Search Concepts

- pediatric patients (children, adolescents)
- general anesthesia
- ondansetron
- dexamethasone
- postoperative nausea and vomiting (PONV, POV)
Search Strategies

PubMed
- ondansetron AND dexamethasone AND postoperative AND (nausea OR vomiting)
- ondansetron AND dexamethasone AND PONV

Filters: published in the last 10 years; English; Child: birth-18 years

CINAHL
- ondansetron AND dexamethasone AND postoperative AND (nausea OR vomiting)
- ondansetron AND dexamethasone AND PONV

Limiters - Language: English; Age Groups: All Child

Why didn’t I use “general anesthesia” as a search term?
Search Results


Which are the “BEST” articles?

The answer depends somewhat on the type of information you are looking for:

- **Primary Sources** - first-hand evidence concerning a topic under investigation
  - Randomized Controlled Trials, Cohort Studies, Case Series, etc.
  - In-depth interviews, focus groups, participant observation, etc.

- **Secondary Sources** - summaries and analyses of the evidence derived from and based on primary sources.
  - Systematic Reviews/Meta-analyses, Qualitative Reviews/Meta-syntheses, Practice Guidelines, etc.

- **Quantitative or Qualitative Research?** Which is “best”?
Quantitative vs. Qualitative Research

Quantitative Research
- Objective research. Linear: step-by-step approach
- Seeks to confirm hypotheses
- Uses highly structured methods: questionnaires, surveys, and structured observation
- Focuses on prediction, outcomes, and generalizability
- Uses statistical data analyses
- Relatively large samples using often random sampling

Qualitative Research
- Subjective research. Iterative: can go back multiple times to gather more information
- Seeks to explore phenomena to understand how and why of human behavior, opinion, and experience
- Often uses semi-structured methods such as in-depth interviews, focus groups, and participant observation
- Focuses on rich description, similarities and contrasts, process and context.
- Uses non-statistical analyses, e.g., descriptive narrative
- Often uses small samples
Qualitative Research

- The purpose of qualitative research is to describe, explore, and explain phenomena being studied. Qualitative research questions often take the form of *what is this?* or *what is happening here?* and are more concerned with the process rather than the outcome.*

- Qualitative research methods are commonly used in nursing research as well as in sociology, anthropology, psychology, education, and historical research.

- CINAHL has ready-made **Clinical Queries** filters for qualitative studies:
  - Qualitative – High Sensitivity
  - Qualitative – High Specificity
  - Qualitative – Best Balance

- PubMed doesn't have any specific filters for qualitative studies. The best option is to use the Medical subject heading "**Qualitative Research**"[Mesh] or other keywords that describe the type of study you are trying to find.

*Ploeg, J. (1999). Identifying the best research design to fit the question. Part 2: qualitative designs. Evidence Based Nursing, 36-37*
Example of a Qualitative Research Question

“What is the experience of hope in women with ovarian cancer?”

CINAHL Search Strategy
- ovarian cancer AND hope
  Limiters - Clinical Queries: Qualitative - Best Balance

Results:
- “A Phenomenological Approach to Describe the Lived Experience of Ovarian Cancer.”
- “The experience of hope in women with advanced ovarian cancer.”
- “Transforming the death sentence: elements of hope in women with advanced ovarian cancer.”
- “Women living with ovarian cancer: dealing with an early death.”

PubMed Search Strategy
- ovarian cancer AND hope AND (qualitative OR meta synthesis)

Results:
- “Sustaining hope and life courage in patients undergoing ovarian cancer surgery - the impact of care.”
- “Secular, Spiritual, and Religious Existential Concerns of Women with Ovarian Cancer during Final Diagnostics and Start of Treatment.”
- “Hoping for the best, preparing for the worst: the lived experiences of women undergoing ovarian cancer surgery.”
A Phenomenological Approach to Describe the Lived Experience of Ovarian Cancer

Objective
To explore and illuminate the lived experience of women diagnosed with ovarian cancer.

Design
A phenomenological approach in which individuals tell their stories to make meaning of their truths, realities, and experiences. Phenomenology allows researchers to interpret the meaning of the experiences through hearing and observing the words and descriptions of participants.

Setting
The women were interviewed for an hour or more at their homes or workplaces. Each interview was audio-recorded and transcribed.

Sample
Eleven women aged 23 to 66 were interviewed beginning with the open-ended question “Tell me about events leading up to your diagnosis of ovarian cancer.” The women were diagnosed with stages II (n = 1), III (n = 8), and IV (n = 2) ovarian cancer within the past 5 years. Stages III and IV are advanced stages.

Methods
The narrative responses were analyzed for constitutive patterns and relational themes according to the hermeneutic phenomenological process. By illuminating the memories and recollections of the women, the meanings and particulars of the ovarian cancer experience were identified.

Results
Prior to diagnosis, most women were not aware of the symptoms of ovarian cancer. Even though symptoms were present, they were often attributed to gastrointestinal and renal problems by the woman and provider. There was an average delay in diagnosis of at least 6 months. Six constitutive patterns evolved from the experiences of the 11 women: the revelation, jeopardy, on the lookout, becoming normal, and living every moment.

Conclusion/Implications for Nursing Practice
The women participated in this study with the expectation that their experiences would be passed on to health care providers who care for women. They wanted the information to contribute to improvement in the care provided with hopes for earlier diagnosis. They wanted others to know about the difficulties they experienced when they sensed something was wrong with their bodies and the need to search for answers by going from provider to provider. Once they were correctly diagnosed, they faced complex physical, spiritual, and psychological needs associated with an incurable illness. The women’s symptoms are described to enable nurses to educate women about the symptoms of ovarian cancer and to evaluate their risk factors. In addition, the women provided key insights into approaches and strategies for facing death while embracing life.
Meta-Syntheses

“A procedure for qualitative research synthesis that produces interpretive results from the integration and comparisons of findings from a body of qualitative research” *

AKA Meta-ethnography, Qualitative Systematic Review, Meta narrative review, Metasummary (related)

Good for topics that are studied using qualitative methods

Methodology
- Identify qualitative studies for synthesis; quality assessment is included
- Narrative (qualitative) synthesis and presentation of results, quantitative also possible (metasummary)

Meta-Syntheses

“When should nursing home staff be involved in transferring residents to hospital care?”

CINAHL Search Strategy

- nursing home staff AND hospital transfer
  Limiters - English Language; Publication Type: Meta Synthesis

Results:

A meta-synthesis of factors influencing nursing home staff decisions to transfer residents to hospital

Bridget Laging, Rosemary Ford, Michael Bauer & Rhonda Nay

Accepted for publication 19 February 2015


Abstract

**Aim.** To report a meta-synthesis of qualitative research studies exploring the role of nursing home staff in decisions to transfer residents to hospital.

**Background.** Nurses and nurse assistants provide the majority of care to residents living in nursing homes and may be the only health workers present when a resident deteriorates. To inform future strategies, it is vital to understand the role of nursing home staff in decisions to transfer to hospital.

**Design and review methods.** A systematic review identified 17 studies to be included. The process of meta-synthesis was undertaken using the Joanna Briggs Institute’s guidelines.

**Data sources.** Qualitative research papers published between January 1989–October 2012 were identified in key databases including Cinahl, Embase, Medline and PsyInfo.

**Results.** Nursing home staff members play a key role in decision-making at the time of a resident’s deterioration. Multiple factors influence decisions to transfer to hospital including an unclear expectation of the nursing home role; limited staffing capacity; fear of working outside their scope of practice; poor access to other professionals; and the reluctance to transfer.

**Discussion and conclusion.** The role of nursing home staff in decision-making needs to be clearly defined, and working relationships between nursing homes and hospitals need to be strengthened.
# Quantitative Research/Study Types

<table>
<thead>
<tr>
<th>Type of Question</th>
<th>Type of Study</th>
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<tbody>
<tr>
<td>Therapy</td>
<td>Systematic Review &gt; RCT &gt; Cohort</td>
</tr>
<tr>
<td>Prevention</td>
<td>Systematic Review &gt; RCT &gt; Cohort</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>Systematic Review &gt; Cohort (often comparison to a gold standard)</td>
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<tr>
<td>Harm/Etiology</td>
<td>Systematic Review &gt; Cohort &gt; Case Control &gt; Case Series</td>
</tr>
<tr>
<td>Prognosis</td>
<td>Systematic Review &gt; Cohort &gt; Case Control &gt; Case Series</td>
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What is the Best (Quantitative) Evidence?
Where To Find It

- **Primary** (Experimental/Observational)
  - CINAHL
  - PubMed

- **Secondary** (Synthesis)
  - Cochrane Database of Systematic Reviews (Cochrane Library)
  - Practice Guidelines (National Guideline Clearinghouse)
  - CINAHL/PubMed
Quantitative Study Types

- Case Reports/Case Series
- Case Control Study
- Cohort Study
- Randomized Controlled Trial
- Blinded Study
- Systematic Review/Meta-analysis
Case Series/Case Report

Collections of reports on the treatment of individual patients, or of reports on a single patient.

SUNY Downstate Evidence Based Medicine Course
Source: http://library.downstate.edu/EBM2/2600.htm
Case Series/ Case Report

- An example of primary evidence.

- Case series and case reports consist either of collections of reports on the treatment of individual patients, or of reports on a single patient.

- For example: one of your patients has a condition that you have never seen or heard of before and you are uncertain what to do. A search for case series or case reports may reveal information that will assist in a diagnosis. However, for any reasonably well-known condition you should be able to get better evidence. Case series and case reports, since they use no control group with which to compare outcomes, have no statistical validity.

- On June 5, 1981, a case report appeared in the Morbidity and Mortality Weekly Report describing 5 cases “of a rare lung infection, Pneumocystis carinii pneumonia (PCP), in five young, previously healthy, gay men in Los Angeles. All the men have other unusual infections as well, indicating that their immune systems are not working; two have already died by the time the report is published. This edition of the MMWR marks the first official reporting of what will become known as the AIDS epidemic.”

- A Timeline of AIDS. (http://aids.gov/hiv-aids-basics/hiv-aids-101/aids-timeline/)
Dengue — Continued

Editorial Note: Dengue type 4 frequently occurs in Southeast Asia, the South Pacific, and Africa. How it was introduced onto St. Barthelemy, a small and relatively remote island in the Caribbean, remains unknown. However, French health authorities have reported to CAREC that an outbreak of dengue-like illness has been observed on St. Barthelemy, beginning in February or March, but has since declined. In the absence of reports of an ongoing outbreak of dengue in the Caribbean, the risk that travelers to this area will acquire dengue is probably small.

Dengue types 2 and 3 have been present in the Caribbean at least since the 1960s. Dengue type 1 was first recognized in that area when an outbreak in Jamaica in 1977 was followed by numerous outbreaks on other Caribbean islands and in Central America. All these dengue types, as well as type 4, usually cause an illness that is clinically mild and typically of short duration.

Pneumocystis Pneumonia — Los Angeles

In the period October 1980-May 1981, 5 young men, all active homosexuals, were treated for biopsy-confirmed Pneumocystis carinii pneumonia at 3 different hospitals in Los Angeles, California. Two of the patients died. All 5 patients had laboratory-confirmed previous or current cytomegalovirus (CMV) infection and candidal mucosal infection. Case reports of these patients follow.

Patient 1: A previously healthy 33-year-old man developed P. carinii pneumonia and oral mucosal candidiasis in March 1981 after a 2-month history of fever associated with elevated liver enzymes, leukopenia, and CMV viruria. The serum complement-fixation CMV titer in October 1980 was 256; in May 1981 it was 32.* The patient’s condition deteriorated despite courses of treatment with trimethoprim-sulfamethoxazole (TMP/SMX), pentamidine, and acyclovir. He died May 3, and postmortem examination showed residual P. carinii and CMV pneumonia, but no evidence of neoplasia.

Patient 2: A previously healthy 30-year-old man developed P. carinii pneumonia in April 1981 after a 5-month history of fever each day and of elevated liver-function tests, CMV viruria, and documented seroconversion to CMV, i.e., an acute-phase titer of 16 and...
Patients who already have a certain condition are compared with people who do not. (example: lung cancer patients are asked how much they smoked in the past and the answers are compared with a sample of the general population)
Case Control Study

- An example of primary evidence.

- Case control studies are studies in which patients who already have a certain condition are compared with people who do not. Case-control studies identify subjects by outcome status at the outset of the investigation.

- For example: a study on which lung cancer patients are asked how much they smoked in the past and the answers are compared with a sample of the general population would be a case control study.

- Case control studies are less reliable than either randomized controlled trials or cohort studies. Just because there is a statistical relationship between two conditions does not mean that one condition actually caused the other. For instance, lung cancer rates are higher for people without a college education (who tend to smoke more), but that does not mean that someone can reduce his or her cancer risk just by getting a college education.

- The main advantages of case control studies are:
  - They can be done quickly. By asking patients about their past history, researchers can quickly discover effects that otherwise would take many years to show themselves.
  - Researchers don't need special methods; they can take the people who show up at their institution with a particular condition and ask them a few questions.

- The first study to suggest a new medical conclusion will often be a case control study, perhaps designed to check on a hypothesis suggested by a case series. If possible, researchers will generally try to confirm the results with a randomized controlled trial or a cohort study.
A STUDY OF THE AETIOLOGY OF CARCINOMA OF THE LUNG

BY

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AND

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In a previous paper (Doll and Hill, 1950) we reported the first results of a large-scale investigation undertaken to determine whether patients with carcinoma of the lung differed materially from other persons, either in their smoking habits or in some way which might be related to the theory that atmospheric pollution is responsible for the development of the disease. We concluded that smoking is a factor in the production of carcinoma of the lung, and this conclusion was in conformity with the results of some other investigations. Our first observations were, however, limited to patients drawn mainly from London and the adjacent counties. We have now extended the investigation to other parts of the country and have made more detailed inquiries into smoking habits. Many further patients have been interviewed (during January, 1950, to February, 1952) in hospitals in Bristol, Cambridge, Leeds, and Newcastle-upon-Tyne, and also in eight of the twenty London hospitals which co-operated in the first part of the inquiry.

Method of the Investigation

The method of inquiry was described in detail in the previous paper. In brief, we obtained notifications of patients admitted with sarcoma of the lung, stomach, or those patients suspected of having lung cancer who were then in the hospitals. At Bristol, Cambridge, and Leeds they also interviewed a few who were attending the outpatient departments.

An important modification was in the choice of the matched control patients. It was impossible to obtain at the provincial centres a group confined, as before, to patients with diseases other than cancer. Our previous analysis, however, had shown that patients with cancer other than lung carcinoma (mainly patients with carcinoma of the stomach or large bowel) gave smoking histories indistinguishable from those given by non-cancer patients; we therefore widened the matched control group to include, with certain exceptions, other forms of cancer. The exceptions which we continued to exclude were cancer of the lip, tongue, mouth, pharynx, nose, larynx, and oesophagus, since it has at times been suggested that cancer of these sites may also bear some relationship to tobacco consumption. We also excluded all other cancers arising inside the chest.

Even then it was still difficult in the provincial centres to find an adequately "matched" control for each lung-carcinoma patient. The provincial hospitals had been chosen so that a large number of lung-cancer patients could be interviewed at each visit. They were therefore thoracic or radiotherapeutic centres serving regions—that is, town and country. We could not seek control patients in the adjacent general hospitals, since these mainly serve the
Patients who presently have a certain condition/exposure and/or receive a particular treatment are followed over time and compared with another group who are not affected by the condition under investigation. Ideally, both groups are selected from the same population.

Source: http://library.downstate.edu/EBM2/2400.htm
Cohort Study

- An example of primary evidence.

- The current epidemiological definition of “cohort study” means a “group of people with defined characteristics who are followed up to determine incidence of, or mortality from, some specific disease, all causes of death, or some other outcome.” *

- A Cohort Study is a study in which patients who presently have a certain condition and/or receive a particular treatment, or are subject to an exposure are followed over time and compared with another group who are not affected by the condition under investigation.

- For instance, since a randomized controlled study to test the effect of smoking on health would be unethical, a reasonable alternative would be a study that identifies two groups, a group of people who smoke and a group of people who do not, and follows them forward through time to see what health problems they develop.

- Cohort studies are not as reliable as randomized controlled studies, since the two groups may differ in ways other than in the variable under study. For example, if the subjects who smoke tend to have less money than the non-smokers, and thus have less access to health care, that would exaggerate the difference between the two groups.

- The main problem with cohort studies, however, is that they can end up taking a very long time, since the researchers have to wait for the conditions of interest to develop. Another disadvantage with long studies is that things tend to change over the course of the study; people die, move away, or develop other conditions, new and promising treatments arise, and so on. Even so, cohort studies are generally preferred to case control studies, since they involve far fewer statistical problems and generally produce more reliable answers.

Cohort Study: Mortality in Relation to Smoking
By the same author as the article in the Case-control example, but published nearly 50 years later.

Mortality in relation to smoking: 50 years’ observations on male British doctors
Richard Doll, Richard Peto, Jillian Boreham, Isabelle Sutherland

Abstract
Objective To compare the hazards of cigarette smoking in men who formed their habits at different periods, and the extent of the reduction in risk when cigarette smoking is stopped at different ages.

Design Prospective study that has continued from 1951 to 2001.

Setting United Kingdom.

Participants 34,493 male British doctors. Information about their smoking habits was obtained in 1951, and periodically thereafter; cause specific mortality was monitored for 50 years.

Main outcome measures Overall mortality by smoking habit, considering separately men born in different periods.

Results The excess mortality associated with smoking chiefly involved vascular, neoplastic, and respiratory diseases that can be caused by smoking. Men born in 1900–1910 who smoked only cigarettes and continued smoking died on average about 10 years younger than lifelong non-smokers. Cessation at age 60, 50, 40, or 30 years gained, respectively, about 3, 6, 9, or 10 years of life expectancy. The excess mortality associated with cigarette smoking was less for men born in the 19th century and was greatest for men born in the 1920s. The cigarette smoker versus non-smoker probabilities of dying in middle age (35–69) were 42% vs 24% (a twofold death rate ratio) for those born in 1900–1909, but were 49% vs 15% (a threefold death rate ratio) for those born in the 1920s. At older ages, the cigarette smoker versus non-smoker probabilities of surviving from age 70 to 90 were 10% vs 12% at the death rates of the 1950s (that is, among men born around the 1870s) but were 7% vs 33% (again a threefold death rate ratio) at the death rates of the 1990s (that is, among men born around the 1910s).

Conclusion A substantial progressive decrease in the mortality rates among non-smokers over the past half century (due to Kingdom where the disease became by the 1940s a major cause of death). Throughout the first half of the 20th century the hazards of smoking had remained largely unsuspected. Around the middle of the century, however, several case-control studies of lung cancer were published in Western Europe and North America, leading to the conclusion in 1950 that smoking was “a cause, and an important cause” of the disease.

1951 prospective study
This discovery stimulated much further research into the effects of smoking (not only on lung cancer but also on many other diseases), including a UK prospective study of smoking and death among British doctors that began in 1951 and has now continued for 50 years. The decision that this study would be conducted among doctors was taken partly because it was thought that doctors might take the trouble to describe their own smoking habits accurately, but principally because their subsequent mortality would be relatively easy to follow, as they had to keep their names on the medical register if they were to continue to practise. Moreover, as most doctors would themselves have access to good medical care, the medical causes of any deaths among them should be reasonably accurately certified.

The 1951 study has now continued for much longer than originally anticipated, as the doctors did indeed prove easy to follow, and they provided further information about any changes in their smoking habits along the way (in 1957, 1966, 1971, 1978, and 1991). A final questionnaire was sent out in 2001.

By 1954 the early findings had confirmed prospectively the excess of lung cancer among smokers that had been seen in the retrospective studies. Findings on cause specific mortality in relation to smoking were published after four periods of follow up (1951 to 1959, 1959 to 1967, 1967 to 1974, and 1974 to 1982). The

Randomized Controlled Trial

Dear Parents,

To show our commitment to evidence-based practice, this year's fourth grade class will be randomly assigned to one of two groups. The treatment group will receive a good education while the control group will receive a placebo. This study will provide value for generations to come.

freshspectrum.com
Randomized Controlled Trial

There are two groups: one treatment group and one control group. The treatment group receives the treatment under investigation, and the control group receives either no treatment or some standard default treatment.

Patients are randomly assigned to all groups.
Randomized Controlled Trial

- An example of primary evidence.

- A randomized controlled study trial is one in which:
  - There are two groups, one (or more) treatment group(s) and one control group. The treatment group receives the treatment under investigation, and the control group receives either no treatment or some standard default treatment.
  - Patients are randomly assigned to all groups.

- Assigning patients at random reduces the risk of bias and increases the probability that differences between the groups can be attributed to the treatment.

- Having a control group allows the researcher to compare the treatment with alternative choices. For instance, the statement that a particular medication cures 40% of cases tells us very little unless we also know how many cases get better on their own! (Or with a different treatment).

- With certain research questions, randomized controlled studies cannot be done for ethical reasons. For instance, it would be unethical to attempt to measure the effect of smoking on health by asking one group to smoke two packs a day and another group to abstain, since the smoking group would be subject to unnecessary harm.

- Randomized controlled trials are the standard method of answering questions about the effectiveness of different therapies. If you have a therapy question, first look for a randomized controlled trial, and only go on to look for other types of studies if you don't find one.
A double blind study is one in which neither the patient nor the physician knows whether the patient is receiving the treatment of interest or the control treatment.
Double Blind

- A double blinded study is one in which neither the patient nor the physician knows whether the patient is receiving the treatment of interest or the control treatment.

- For example, studies of treatments that consist essentially of taking pills are very easy to do double blind - the patient takes one of two pills of identical size, shape, and color, and neither the patient nor the physician needs to know which is which.

- A double blind study is the most rigorous clinical research design because, in addition to the randomization of subjects which reduces the risk of bias, it can eliminate the placebo effect which is a further challenge to the validity of a study.

- In ophthalmology research, the term “masked” is often used instead of “blinded” as in “randomized masked trial.”
A randomised, double-blinded, placebo-controlled study of acupressure wristbands for the prevention of nausea and vomiting during labour and delivery

A. Sinha, M.J. Paech, M.E. Thew, M. Rhodes, K. Luscombe, E. Nathan

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Women and Infants Research Foundation, Western Australia, Australia

ABSTRACT

Introduction: Approximately 50% of women experience nausea or vomiting during labour. P6 acupoint stimulation reduces post-operative nausea and vomiting in early pregnancy and after chemotherapy. The aim of this randomised, double-blinded, placebo-controlled trial was to determine whether P6 acupressure prevented nausea and vomiting during labour and delivery.

Methods: After ethical approval and informed consent, women admitted for induction of labour, or in spontaneous labour, were randomised to receive either acupressure bands (Pressure RightTM) (Group A) or sham placebo bands (Group P) applied to each wrist. Exclusions included recent nausea or vomiting.

Results: We consented 365 women and randomised 340 (170 per group). The groups had similar patient and labour characteristics. The incidence of nausea and/or vomiting did not significantly differ (Group A 53% vs. Group P 50%, P = 0.58). There was no significant difference between groups (A vs. P, respectively) in the incidence of nausea (52% vs. 45%), vomiting (27% vs. 28%), rescue antiemetic treatment (27% in both), severity of nausea or vomiting, satisfaction with control of nausea or ratings of inconvenience or discomfort from the bands (10% vs. 11%). Factors significantly associated with emetic symptoms were smoking (OR 2.16, 95% CI 1.07–4.37), opioid analgesia (OR 1.95, 95% CI 1.06–3.59), history of motion-induced or postoperative nausea and vomiting (OR 1.85, 95% CI 1.17–2.94) and higher body mass index (OR 1.07, 95% CI 1.01–1.12).

Conclusion: In this study acupressure wristbands applied bilaterally did not reduce the incidence of nausea and vomiting during labour and delivery.

Keywords: Labour; Nausea and vomiting; Acupressure
Systematic Review/ Meta-Analysis

Study 1  Study 2  Study 3  Study 4

Combined Results  Meta-Analysis

Source: http://library.downstate.edu/EBM2/2700.htm
Systematic Review/ Meta-Analysis

- An example of **Secondary evidence.** Used to review and analyze **quantitative studies.**

- Important medical questions are typically studied more than once, often by different research teams in different locations.

- A **systematic review** is a comprehensive survey of a topic in which all of the primary studies of the highest level of evidence have been systematically identified, appraised and then summarized according to an explicit and reproducible methodology.

- A **meta-analysis** is a survey in which the results of all of the included studies are similar enough statistically that the results are combined and analyzed as if they were one study. In general a good systematic review or meta-analysis will be a better guide to practice than an individual article.
Mixed Methods Systematic Reviews

- “...[A] type of systematic review aimed at the integration of results from both qualitative and quantitative studies in a shared domain of empirical research.” *

- AKA Mixed research synthesis, Mixed methods synthesis, Mixed methods review, Mixed studies review, Metasummary (related)

- Good for topics with a body of literature that includes quantitative, qualitative, and mixed methods studies


Mixed Methods Systematic Reviews

“What are the experiences of and outcomes for incarcerated women during pregnancy and childbirth?”

CI NAHL Search Strategy

(prison* OR incarcerat* OR inmate*) AND (pregnan* OR childbirth OR maternity) AND (multimethod OR mixed methods)

Results:

REVIEW PAPER

Systematic mixed-methods review of interventions, outcomes and experiences for imprisoned pregnant women

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Abstract

Aims. To review published studies reporting maternity experiences and outcomes for pregnant incarcerated women and their babies.

Background. Numbers of women in prison have increased in many countries. Imprisoned women who are pregnant are particularly vulnerable and marginalised. Little is known about their maternity care experiences, or outcomes.

Design. Systematic mixed-methods review using a segregated approach.

Data sources. The Cochrane Library, CINAHL, EMBASE, MEDLINE PsychINFO and PubMed were searched using the terms ‘mother’ and ‘prison’, (January 1995–July 2012). From July 2012–May 2014 possible new studies were identified through scrutiny of 50 relevant journal contents pages via Zetoc.

Results. Seven studies met the review criteria and quality standards, all from the USA or UK. Four of the studies were quantitative, two were qualitative, and one used mixed-methods. None reported the outcomes of an intervention. Examination of the quantitative data identified a complex picture of potential harms and benefits for babies born in prison. Qualitative data revealed the unique needs of childbearing women in prison, as they continuously negotiate being an inmate, becoming a mother, complex social histories and the threat of losing their baby, all coalescing with opportunities for transformation offered by pregnancy.

Conclusions. There is very limited published data on the experiences and outcomes of childbearing women in prison. There appear to be no good quality intervention studies examining the effectiveness of interventions to improve wellbeing in the short or longer term for these women and their babies.
Clinical Queries Filters

Both PubMed and CINAHL can filter your search results to match certain clinical study types.

“Clinical Queries” are specific search strategies/filters which can be applied to retrieve clinically-relevant and scientifically-sound results from the these databases.
Clinical Queries Filters: CINAHL

There are five strategies/filters in CINAHL which can be applied:

- Therapy,
- Prognosis,
- Review,
- Qualitative,
- and Causation (Etiology/Harm).

You may also select a more highly-focused result for each strategy from one of the following:

- **High Sensitivity** - the broadest search to include ALL relevant material; it may include less relevant materials.
- **High Specificity** - the most targeted search to include only the most relevant set; may miss some relevant materials.
- **Best Balance** - retrieves the best balance between Sensitivity and Specificity.
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<th>Clinical Queries</th>
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<td>All</td>
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<td>Therapy - High Sensitivity</td>
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<tr>
<td>Therapy - High Specificty</td>
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<td>Therapy - Best Balance</td>
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<table>
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<th>Human</th>
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<th>First Author is Nurse</th>
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<th>Randomized Controlled Trial</th>
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<tbody>
<tr>
<td>All</td>
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</table>
There are five strategies/filters in PubMed which can be applied:

- Therapy
- Diagnosis
- Etiology (Causation/Harm)
- Prognosis
- Clinical Prediction Guides

You may also select a more highly-focused result for each strategy by selecting one of the following:

- **Sensitivity/ Broad** - the broadest search to include ALL relevant material; it may include less relevant materials.

- **Specificity/ Narrow** - the most targeted search to include only the most relevant set; may miss some relevant materials.
(Therapy/Narrow[filter]) AND (otitis media AND amoxicillin)
Pressure ulcers (bed sores) are common, costly and impact negatively on patients. Pressure is the prime cause, and immobility is the factor that exposes individuals to pressure.

International guidelines advocate repositioning; however, there is confusion surrounding the best method and frequency required.

You would like to find studies that address different methods and/or different frequencies of repositioning elderly (65+ yo) bedridden patients to reduce or eliminate the occurrence of pressure ulcers.
CINAHL Search

- pressure ulcers AND repositioning  [a simple broad search]
- pressure ulcers AND repositioning AND frequency  [more specific]
- (pressure ulcers OR bed sores) AND reposition* AND (frequen* OR hourly)  [use of synonyms]
  - Limiters - Published Date: 20000101-20181231; English Language; Clinical Queries: Therapy - High Sensitivity; Age Groups: Aged: 65+ years
PubMed Search

- **Therapy/ Broad[filter]** AND (pressure ulcers OR bed sores) AND (reposition OR repositioned OR repositioning) AND (frequency OR frequent OR frequently OR hourly)
  - Filters: published in the last 10 years; English; Aged: 65+ years

  (Multisite Randomized Controlled Trial)
Finding High Quality Evidence

- Determining article, journal, or source quality
- Peer review
- Impact factors
Finding High Quality Evidence

Determining article quality

- Did you find it in a database that includes scholarly publications?
- Did you limit the search results to scholarly or peer-reviewed publications?
- Is it from a recognized journal of high quality?
- Does the article have a bibliography & citations of other sources?
- Are the author's credentials listed?
- Is the article based on original research (as opposed to personal opinion)?
- Is the article divided into sections such as Introduction, Methods, Results, Conclusions, etc.?
Finding High Quality Evidence

Determining journal or source quality

- Visit the website of the journal, publisher, or organization
- Reputation of association, society, institution?
- Peer reviewed?
- Impact metrics?
- Is the journal indexed in major databases?

Much of this information can be found on the journal website
Finding High Quality Evidence

- Is it peer-reviewed?

  - Find the journal website in Google: “Research in Nursing & Health”

  - Look for “About this Journal”, “Instructions for Authors” or something similar.
Research in Nursing & Health

Edited By: Margaret L. Kearney, RN, PhD, FSN

Impact Factor: 1.438
ISI Journal Citation Reports® Ranking: 2015: 18/114 (Nursing (Social Science)); 20/113 (Nursing (Science))
Online ISSN: 1098-240X

Overview

Aims and Scope

Research in Nursing & Health (RINAH) is a peer-reviewed general research journal devoted to publication of a wide range of research that will inform the practice of nursing and other health disciplines. The editors invite reports of research describing problems and testing interventions related to health phenomena, health care and self-care, clinical organization and administration, and the testing of research findings in practice. Research protocols are considered if funded in a peer-reviewed process by an agency external to the authors’ home institution and if the work is in progress. Papers on research methods and techniques are appropriate if they go beyond what is already generally available in the literature and include description of successful use of the method. Theory papers are accepted if each proposition is supported by research evidence. Systematic reviews of the literature are reviewed if PRISMA guidelines are followed. Letters to the editor commenting on published articles are welcome.

Readership

Researchers and clinicians in nursing and health sciences, health policy officials, and faculty in nursing and other health fields

Abstracting and Indexing Information

- AgeLine Database (EBSCO Publishing)
- CINAHL: Cumulative Index to Nursing & Allied Health Literature (EBSCO Publishing)
- Current Contents: Social & Behavioral Sciences (Thomson Reuters)
Finding High Quality Evidence

Steps of peer review

1. Author submits manuscript for publication

2. Impartial (ideally) reviewers charged with carefully evaluating the quality of manuscript
   - ‘Peers’ in field of research/subject area

3. Reviewers check for accuracy & assess validity of methodology

4. Reviewers suggest acceptance (as is), revisions or rejection
Finding High Quality Evidence

Impact factors

- A measure reflecting the average number of citations to recent articles published in that journal

- A ‘proxy’ for relative importance of a journal within a specific field

- These can be found in the InCites Journal Citation Reports (http://uclibs.org/PID/36787) via the Web of Science

### Nursing Journals Ranked by Impact Factor

**Journal Titles Ranked by Impact Factor**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Full Journal Title</th>
<th>Total Cites</th>
<th>Journal Impact Factor</th>
<th>Eigenfactor Score</th>
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<tr>
<td>1</td>
<td>INTERNATIONAL JOURNAL OF NURSING STUDIES</td>
<td>7,186</td>
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<td>NURSE EDUCATION TODAY</td>
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<td>6</td>
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SJR allows for comparisons at a more specific level.

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<td>147</td>
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<td>30.51</td>
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</tbody>
</table>
Finding High Quality Evidence

- Impact Factor Limitations
  - InCites rankings only available for journals indexed by the database
  - Not comparable across disciplines
  - Does number of citations actually = a measure of quality?

- Bottom Line
  - Take with a grain of salt; think critically

- A comprehensive overview of how to measure the impact of journals in different fields of study may be found in the UC Irvine Libraries’ website:

  “Research Impacts Using Citation Metrics: Journal/ Source Impact”
Predatory Journals/ Publishers

- The rise of open access publishing, coupled with the pressure on academics to “publish or perish” has unfortunately led to the creation of predatory, open-access publishers; those that unprofessionally exploit the author-pays model of open-access publishing (Gold OA) for their own profit.

- While articles published in these journals may at first appear legitimate, the lack of peer review and other quality measures calls into question the scholarship of the articles.

- “Such journals, of which there are thousands, charge authors hundreds of dollars in return for lackluster or nonexistent peer review and rapid publication.”

Ask Us!

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