HSC1100 2018: Evidence-based Practice in Health Sciences: PICO and Finding the Evidence

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Caulfield Library
Know where to get help and information

Health Sciences Library Guide
http://guides.lib.monash.edu/health-sciences

Caulfield Research & Learning point
http://monash.edu/library.skills/resources/programs/drop-in.html

Caulfield Library

(Weeks 1 to Swot Vac inclusive. No drop-in sessions during mid-semester break)

- Librarian and Learning Skills Adviser
  - Monday to Friday 12pm to 2pm
  - Monday and Wednesday 4pm to 6pm
Assessment Task 2

HSC1100 Assessment Task 2: Evidence-based practice (EBP) case simulation

**Part A** will consist of describing the PICO elements, constructing an answerable question, performing a search in Medline and identifying a Randomized Controlled Trial paper.

**Due date: Part A - Friday 16th March, 12 noon**

See your Moodle unit for instructions on how and what to submit. The scenario worksheets and group work we will do in these sessions should help you complete this part of the assessment.
Session Overview

Introduction to Evidence-Based Practice

Formulating a question using PICO

Searching for evidence

Documenting a search strategy/history
What is Evidence Based Practice?

Evidence-based practice (EBP) for health involves using the best available evidence to ensure informed health practice and policy decisions.

"Evidence-based Policy and Practice" explores the processes of systematically finding, appraising and using scientific research as the basis for developing sound practices. The knowledge gleaned from this research is used to develop policies and practices that improve health outcomes and performance as well as allowing for more efficient use of resources.

EBP is used in a variety of fields, including nutrition & dietetics, medicine, nursing, psychology and allied health.
Why be evidence based?

Do no “harm” and promote good practice

For example:

Dr Spock’s ‘Handbook’ on Baby and Childcare

- Published 1948, by 1998 sold 50,000,000 copies
- 1958 edition stated, “if [an infant] vomits, he’s more likely to choke on the vomitus”; concluding that…. ‘Babies should be put to sleep on their front….’
- Evidence by the 1970s that this advice was incorrect
- Estimated 50,000 attributable deaths
Steps in the EBP process in health care

- Determine the public health/health problem and formulate a clear question
- Select information sources
- Identify keywords/concepts
- Search for the evidence
- Appraise the evidence
- Apply the evidence to public health practice and interventions
- Evaluating performance of decision
PICO-Formulating a question

- Formulate a specific, answerable question with 'PICO'
- **PICO:**
  - **[P]** Who or what is your patient/problem or population group?
  - **[I]** What is your intervention or indicator?
  - **Interventions** cover a wide range of activities from drug treatments and other clinical therapies, to lifestyle changes (e.g. diet or exercise) and social activities (e.g. an education program). Interventions can include individual patient care or population health activities (e.g. screening for diseases such as cervical or prostrate cancer).
  - **[C]** What is your comparison or control?
  - **[O]** What outcome are you looking for?
Formulating a clinical question (cont.)

- **Scenario:**
  There is an increasing concern about the high rate of people involved in playing in a range of football codes suffering concussions at weekend matches. There are calls to make a policy for all local clubs to require helmets to be worn, but the clubs want evidence that this will reduce concussions from occurring before making it mandatory.

- **Identify the PICO:**
  
  **[P]roblem/Population** players in football codes/concussions
  **[I]ntervention** helmets
  **[C]omparison** no helmets
  **[O]utcome?** reduce occurrence of concussions
Answerable question

In **football codes** does the use of **helmets** compared to **not wearing helmets** reduce **concussion** occurring?
Where & how do you find the evidence?

Google the question and hope for the best?

Read a blog someone wrote about how a helmet helped them when they played footy?

What about finding the actual research, the conclusions and published study results communicated by the experts?
How research gets communicated

Health problem? treatment/therapy/medication

Clinicians, health researchers conduct experimental research/randomised controlled trials/controlled studies (humans/animals)

Might report initial findings at a conference

Write article documenting methods and findings of research and send to peer-reviewed journal to be published

American Journal of Public Health

If findings from different trials have varying conclusions then a group of researchers might conduct a systematic review of RCTs and publish results

Peer Reviewed means the editors are experts in the field of research and ensure certain research requirements are met before accepting articles
Databases - where to find the published evidence

**Journals**

**Ovid Medline Database** -
Key medical database containing over 19 million articles
Includes: primary articles and reviews, as well as systematic reviews
Databases - where to find the published evidence

Health Sciences Libguide
http://guides.lib.monash.edu/health-sciences/evidence-based-practice

Health Sciences: Home
Guide to resources for assessment tasks in health issues, health education and public health

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<th>Library search</th>
<th>Call numbers</th>
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<tr>
<td>Evidence-based practice</td>
<td>Critical appraisal</td>
<td>Research</td>
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<td>Literature review</td>
<td>Theses</td>
<td>Health promotion</td>
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Key resources for evidence-based practice

**Cochrane Library** includes controlled trials, systematic reviews and economic evaluations. Access is free for all Australian residents.

**Ovid Medline** or free **PubMed** covers medicine, nursing, allied health and pre clinical sciences.
Levels of Evidence

What is "the best available evidence"? The hierarchy of evidence is a core principle of Evidence-Based Practice (EBP) and attempts to address this question. The evidence hierarchy allows you to take a top-down approach to locating the best evidence whereby you first search for a recent well-conducted systematic review and if that is not available, then move down to the next level of evidence to answer your question.

![Quality of evidence pyramid](image.png)

Descriptions from: [http://guides.mclibrary.duke.edu/ebm/studydesign](http://guides.mclibrary.duke.edu/ebm/studydesign)
Searching Databases - Boolean operators

Combine your keywords with **AND/OR** (Boolean operators)

Use **AND** in a search to:

- narrow your results
- tells the database that **ALL** search terms must be present in the resulting records

eg. football **AND** helmets **AND** concussion
Boolean operators

Use OR in a search to:

- connect two or more similar concepts (synonyms)
- broaden your results, telling the database that ANY of your search terms can be present in the resulting records

Example: concussion OR “brain injury”
Finding synonyms

You may not know enough about a topic or concept terms to be able to think of your own synonyms.

Doing some background reading might help as well as using a medical dictionary or handbook to look up terms and see what other medical terms are used for the same word.

This is an online dictionary that can be accessed through the library.

Oxford Concise Medical Dictionary
Apply limits to your search

- Most databases allow you to limit your search by a date range or publication type

- Check the help or search tips on a database search page to view the options
Developing a search strategy

- see if you can identify synonyms and alternate terms used by the authors to include in your search strategy

<table>
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<th>football</th>
<th>helmet</th>
<th>concussion</th>
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<tbody>
<tr>
<td>Rugby league</td>
<td>protective headgear</td>
<td>brain injury</td>
</tr>
<tr>
<td>Rugby union</td>
<td>padded headgear</td>
<td>head injury</td>
</tr>
<tr>
<td>Soccer/Australian rules</td>
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</tbody>
</table>

football OR rugby union OR rugby league OR soccer OR Australian rules
AND
helmet OR protective headgear OR padded headgear
AND
concussion OR brain injury
Searching Databases

**Keyword searching** - when you use keyword searching you are searching for the exact words that an author used in the title or abstract of an article. Different authors may use different terms to talk about the same concept. It is important to think of all possible synonyms that different authors might use to refer to that concept. You will need to search all of these synonyms in order to ensure that collect a comprehensive set of relevant articles.

**Subject Heading** (e.g. MeSH terms in Ovid Medline Database) are a controlled vocabulary taken from a thesaurus of approved terms applied to article citations by human indexers. Searching with subject headings can help you find more relevant results as they effectively 'tag' articles that cover the same topics.

**Combined keyword and subject heading** searching provides the most comprehensive search as it ensures that if an indexer has not assigned an article correctly it can still be found by the author keywords.
Searching Ovid Medline

Follow the instructions on your handout to search the OVID Medline database using the PICO search strategy we have developed.
Searching Ovid Medline

(Group Activity)

- Using the Scenario worksheet provided develop a PICO and answerable question for your assigned topic

- Develop a Search strategy and search MEDLINE using keywords and Subject Headings

- Use limits where appropriate to find a Randomised Controlled Trial article to answer your question

- Follow the instructions in your workbook to save your search and the full-text pdf of the RCT article