Literature Review
Acknowledgment to Assoc. Prof Dr Sharmini Selvarajah and Ms Chun Geok Ying for preparation of the core contents of this presentation.
Literature review

- What it is
  - Scientific account of what has already been published on a specific topic

- What it is not
  - Description or summary of all published information
Literature reviews must:

1. Be organised around a **specific research question**/ topic
2. **Synthesize** information into a summary of what is and is not known
3. Identify areas of **uncertainty**/ controversy
4. **Create questions** that need further research
Literature review

- Involves two processes
  - 1. Searching for information
  - 2. Critically appraising the literature
Literature Search using PubMed

Acknowledgement:
Prof. Geert van der Heijden
Contents

- Aim
- Systematic approach to searching
- How to use PubMed
- What not to do
Aim

- Time saving
  - Restrict absolute number titles
  - Increase number relevant titles

- Reduce **Numbers Needed to Read**
PubMed: What is it?

- **PubMed** is a **free** database accessing the **MEDLINE database** of citations, abstracts and some full text articles on life sciences and biomedical topics.

PubMed: What is in it?

- As of 8 March 2012 ~ over 21 million citations for biomedical literature
  - from MEDLINE, life science journals, and online books.
- As of November 2011, 5,582 in Medline
- Different languages []
Systematic approach to searching
What to do and what NOT to do
Search strategy in PubMed

- Use knowledge, logic and creativity
- Start with good Research Question
  - Population
  - Determinant/ Exposure
  - Outcome
- Have several terms & synonyms for all
  - Be aware: UK / US spelling
Search strategy

- Search #1: Population OR synonyms
- Search #2: Determinant OR synonyms
- Search #3: Outcome OR synonyms

- Search #4: Combine #1, #2 and #3
  - Population (#1) AND Determinant (#2) AND Outcome (#3)
Basic Search Scheme

<table>
<thead>
<tr>
<th>Population</th>
<th>Determinant/Exposure</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>term</td>
<td>term</td>
<td>term</td>
</tr>
<tr>
<td>Synonym 1</td>
<td>Synonym 1</td>
<td>Synonym 1</td>
</tr>
<tr>
<td>Synonym 2</td>
<td>Synonym 2</td>
<td>Synonym 2</td>
</tr>
<tr>
<td></td>
<td>Synonym 3</td>
<td>Synonym 3</td>
</tr>
</tbody>
</table>

**OR**

**AND**
Boolean operators

- **AND**: Hip AND Fracture
  - hip AND fracture

- **OR**: Renal OR Kidney
  - renal OR kidney

- **NOT**: Renal NOT Failure
  - Renal NOT Failure
How to search in PubMed?

- Use ‘Title/ Abstract’ in search builder, under Advanced Search tab in Pubmed

PubMed Advanced Search Builder

Use the builder below to create your search

Builder

All Fields

AND

Search or Add to history

History

There is no recent history
Research Question

- Does renal impairment increase mortality risk in Type 2 Diabetes Mellitus?

- Population: Type 2 DM
- Determinant: Renal impairment
- Outcome: Mortality
<table>
<thead>
<tr>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type 2 Diabetes</strong></td>
</tr>
<tr>
<td><strong>Type 2 diabetics</strong></td>
</tr>
<tr>
<td><strong>Non insulin dependent diabetes</strong></td>
</tr>
</tbody>
</table>
PubMed Advanced Search Builder

History deleted.

((type 2 diabetes[Title/Abstract]) OR type 2 diabetes[Title/Abstract]) OR non insulin dependent diabetes[Title/Abstract]

Search or Add to history
**Example**

<table>
<thead>
<tr>
<th>Determinant/Exposure</th>
<th>Renal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
</tr>
<tr>
<td></td>
<td>Kidney</td>
</tr>
<tr>
<td></td>
<td>OR</td>
</tr>
<tr>
<td></td>
<td>Albuminuria</td>
</tr>
<tr>
<td></td>
<td>OR</td>
</tr>
<tr>
<td></td>
<td>Glomerular</td>
</tr>
</tbody>
</table>
PubMed Advanced Search Builder

Use the builder below to create your search

Builder

All Fields ▼
AND ▼

Search ▼ or Add to history

Search

Query

Items found

Time

Search (glomerular[Title/Abstract]) OR kidney[Title/Abstract]) OR albuminuria[Title/Abstract] OR type 2 diabetes[Title/Abstract]) OR type 2 diabetes[Title/Abstract]) OR non insulin dependent diabetes[Title/Abstract]
Example

<table>
<thead>
<tr>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
</tr>
<tr>
<td>Death</td>
</tr>
</tbody>
</table>

Example table showing the relationship between outcome, mortality, and death.
(mortality>Title/Abstract) OR death>Title/Abstract)

Search or Add to history
### Example

<table>
<thead>
<tr>
<th>Population</th>
<th>Determinant/Exposure</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 2 Diabetes</td>
<td>Renal</td>
<td>Mortality</td>
</tr>
<tr>
<td>Type 2 diabetics</td>
<td>Kidney</td>
<td>Death</td>
</tr>
<tr>
<td>Non insulin dependent diabetes</td>
<td>Albuminuria/Albumin</td>
<td>Glomerular</td>
</tr>
</tbody>
</table>

AND

AND
Results: 1 to 20 of 851

1. Renin Inhibitors and Cardiovascular and Renal Protection: An Endless Quest?
   Azizi M, Menard J.
   Cardiovasc Drugs Ther. 2012 Mar;6. [Epub ahead of print]
   PMID: 22392165 [PubMed - as supplied by publisher]
   Related citations

   Bolignano D, Zoccali C.
   Nutr Metab Cardiovasc Dis. 2012 Feb 23. [Epub ahead of print]
   PMID: 22304688 [PubMed - as supplied by publisher]
   Related citations

   Hamilton CA.
   PMID: 22340835 [PubMed - in process]
   Related citations

4. One Risk Assessment Tool for Cardiovascular Disease, Type 2 Diabetes, and Chronic Kidney Disease.
   Diabetes Care. 2012 Feb 14. [Epub ahead of print]
   PMID: 22338169 [PubMed - as supplied by publisher]
   Related citations

   Zoppini G, Targher G, Bonora E.
   PMID: 22322306 [PubMed - in process]
   Related citations

   Age Ageing. 2012 Feb 8. [Epub ahead of print]

7. Free Full Text (621)
   Review (255)
   Manage Filters

Find related data
Database: Select
Find items

Search details

Recent activity
How to MeSH up your search

What NOT to do
MeSH database

- Medical Subject Headings (MeSH)
- Systematic keyword catalogue
- Related to content
- 5 MeSH terms per record
  - Based on title and abstract words
- Partially manual process
  - Misclassification possible
    - MeSH = US spelling
MeSH database

- Author keywords: NOT used
- Only available 3 – 6 months after publication
- Adjustment to terms regular
  - Eg. 2007
    - 22 terms removed
    - 494 terms added
    - 99 terms replaced
What else not to do

- Use sparingly wildcard/ truncation *
  - Eg. Random*
  - Look at ‘search details’

- Try NOT to use Boolean term NOT
5. Comparison of the radial artery and saphenous vein as composite grafts in off-pump coronary artery bypass grafting in elderly patients: a randomized controlled trial.

Song SW, Sul SY, Lee HJ, You KJ.
PMID: 22396886 [PubMed - in process]
Related citations

6. Comparison between topical honey and mafenide acetate in treatment of burn wounds.

Maghsoudi H, Salehi F, Khosrowshahi MK, Baghaei M, Nasirzadeh M, Shams R.
PMID: 22396871 [PubMed - in process]
Related citations

7. Uncovering the dynamics of cardiac systems using stochastic pacing and frequency domain analyses.

Lemay M, de Lange E, Kucera JP.
PMID: 22396831 [PubMed - in process]
Related citations


Kim HS, Suh DH, Kim MK, Chung HH, Park NH, Song YS.
PMID: 22396819 [PubMed - as supplied by publisher]
Additional tips

- Save search strategy under My NCBI
- Save/ Email collection on articles
Brain Aging and Regeneration after Injuries: an Organisal Approach.
Results: 1 to 20 of 754968


Nurses and other allied health researchers

- RQ: What is the level of knowledge and attitudes of nursing students toward tuberculosis?

- Reason: To understand and determine whether there is a need for improvement in nursing education regarding tuberculosis.
Research Question

- What is the level of knowledge and attitudes of nursing students toward tuberculosis?

- Population: Nursing students
- Determinant: Level of knowledge and attitudes towards TB
- Outcome: None
<table>
<thead>
<tr>
<th>Population</th>
<th>Nurse</th>
<th>? Nurse student</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>nursing</td>
<td></td>
</tr>
<tr>
<td>Determinant/Exposure</td>
<td>attitude</td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>knowledge</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>behaviour</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>Behavior</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>Perception</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>perceive</td>
<td></td>
</tr>
</tbody>
</table>
Example

<table>
<thead>
<tr>
<th>Determinant/Exposure/ (Disease of interest)</th>
<th>tuberculosis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
</tr>
<tr>
<td></td>
<td>TB</td>
</tr>
</tbody>
</table>
Cerebral malaria: What is known and what is on research.

   PMID: 23366788 (PubMed - indexed by publisher)
   Related citations

Do nurses have a different physical health profile? A systematic review of experimental and observational studies on nurses' physical health.

2. Frentz E, Penttinen P.
   PMID: 21792130 (PubMed - indexed by MEDLINE)
   Related citations

Knowledge, attitudes and practices of private sector providers of tuberculosis care: a scoping review.

3. Bell CA, Duncan G, Saini B.
   PMID: 21689027 (PubMed - indexed by MEDLINE)
   Related citations

Welcome intrusions: an interpretive phenomenological study of TB nurses' relational work.

   PMID: 21661285 (PubMed - indexed by MEDLINE)
   Related citations

Knowledge of and attitudes toward tuberculosis of Turkish nursing and midwifery students.

   PMID: 21398610 (PubMed - indexed by MEDLINE)
   Related citations

Mycobacterium tuberculosis: implications for district nurses.

6. James S, Watson M.
   PMID: 20909248 (PubMed - indexed by MEDLINE)
   Related citations

Knowledge of and attitudes toward tuberculosis of Turkish nursing and midwifery students.
Practical session

- Think of a research question and prepare search terms
  - 5 minutes
- Go through PubMed search together
Literature search for Qualitative Studies

- Challenges of search in database:
  - **Titles are descriptive** c.f. RCT which usually has clear description of population, determinants, outcome and/or research method
    - Eg: Unbearable incidents: Failure to endure the experience of Illness
    - Specific key terms difficult
  - Limited standardisation in presentation of abstract c.f RCT : poor description of study method
  - Poor indexing: inconsistent indexing in Pubmed
  - Complex and difficult!
Literature search for Qualitative Studies

- Currently, no established search strategy for qualitative study.
- Potentially useful method:
  - Use appropriate MeSH terms in search:
    - eg: qualitative research, focus groups, narration, anecdotes, grounded theory, attitude, knowledge, practice
  - Limit search to publication types
  - Use a Quality research filter
    - Pubmed Health services research queries
Thank you

Any Questions?