LIBRARY RESEARCH OVERVIEW

2017

Donna Ó Doibhlin
Librarian, Medicine & Health Sciences
donna.odoibhlin@ucc.ie
https://library.ucc.ie/
Learning Outcomes - You should be able to:

- Plan and undertake a comprehensive search and review of the literature
- Develop effective strategies to locate, critically evaluate and access relevant information and research findings.
- Develop effective approaches to keep up to date with the latest research in your area
- Manage your research information using Endnote.
- Identify the legal and ethical issues relating to the use of information
Starting a literature search: Some challenges

The amount of information my search yields is overwhelming.

What are the best databases for my subject?

Where can I find full-text for my search results?

Where do I start?

How do I know what’s important?

How do I come up with a good research question?

I can’t find much information on my topic.
WHAT IS A SYSTEMATIC LITERATURE REVIEW?

- A review of a **clearly formulated question** that uses systematic and explicit methods to identify, select, and critically appraise relevant research, and to collect and analyse data from the studies that are included in the review. [http://www.cochrane.org/glossary/5#term423/](http://www.cochrane.org/glossary/5#term423/) (accessed 19.11.14)

- To complete such a review we must prepare, conduct, and record a very **comprehensive search strategy** based upon a very **definite research question**.
WHY DO WE NEED SYSTEMATIC SEARCH STRATEGIES?

- A high-quality literature search is essential for a comprehensive study and/or SR – the goal is to capture every relevant study.

- It is from the search results that data is gathered for analysis and evidence identified.

- Failure to locate important studies can significantly affect results and findings.

- It is important to report your search strategy so your methodology can be reproduced.
What does a systematic search strategy include? *

**Article Databases**
- **Medicine**
  - PubMed, Ovid MEDLINE, EMBASE, Cochrane Library, DARE
- **Multidisciplinary**
  - Scopus, Web of Science
- **Nursing and Allied Health**
  - CINAHL
- **Other**
  - AMED, PsycINFO, Compendex, Inspec, etc.

**“Grey Literature”**
- Association, Organization & Government Reports
  - Canadian Medical Association, Health Canada, World Health Organization, etc.
- Conference Proceedings
  - Embase, Scopus
- Dissertations & Theses
  - Proquest Dissertations & Theses Canada
- Web Search Engines
  - Google Scholar

YOUR RESEARCH QUESTION:

- Provides structure for literature review
- Informs what data is needed, how and where to locate it & how you analyse it
- To frame a research question - Identify an area of study which is of interest
- Refine this area of study based on an exploration of the literature
- Draw on what you have learned to draft your research question
DEVELOPING A SEARCH STRATEGY:

- Highlight the main concepts or keywords within your chosen topic.
- Identify any synonyms or alternative ways (related terms, variant spellings) to express the concepts.
- Combine the keywords (Boolean searching)
- Choose databases to search
- Search for information
DEVELOPING A SEARCH STRATEGY CON’T

- Truncation/wildcards/proximity searching
- Concept mapping
- Questions should be clear, feasible, connect with existing research and theories.
- Should have the potential to make a contribution to knowledge
TURN YOUR QUESTION INTO A SEARCH STRATEGY *

• PICO (C)
  • Population/ Patient/ Problem
  • Intervention
  • Comparison
  • Outcome
  • Context

* Kuhn, Cambridge, 2014
HOW CAN STIGMA OF MENTAL ILLNESS IN DEVELOPING COUNTRIES BE IMPACTED BY EDUCATION? *

• P – mental illness
• I – education
• C – n/a
• O – stigma
• C - developing countries
MAKING IT MORE COMPREHENSIVE - SYNONYMS

- mental illness / mental health / depression

- education / information / teaching

- stigma / prejudice / awareness / understanding

- developing countries/ low and middle income countries / lmic / least developed countries/ third world countries/ third world nations / under developed countries
CONNECTING THE TERMS – USING BOOLEAN OPERATORS:

A OR B

A AND B

A NOT B

http://uksourcers.co.uk/2012/capital-letters-the-key-to-boolean-success/
BUILDING OUR SEARCH USING SYNONYMS

- low and middle income countries OR lmic OR developing countries OR least developed countries

AND

- mental illness OR mental health OR depression

AND

- education OR information OR teaching

AND

- stigma OR prejudice OR awareness OR understanding
COMPREHENSIVE SEARCHING – COMBINING/TRACKING

#1 low and middle income countries
#2 lmic
#3 developing countries
#4 least developed countries
#5 #1 OR #2 OR #3 OR #4
#6 mental illness
#7 mental health
#8 depression
#9 #6 OR #7 OR #8

#10 information
#11 education
#12 teaching
#13 #10 OR #11 OR #12
#14 stigma
#15 prejudice
#16 awareness
#17 understanding
#18 #14 or #15 or #16 or #17
#19 #5 AND #9 AND #13 AND #18 = RESULTS
EMPLOY A NUMBER OF THE DIFFERENT RESOURCE FEATURES TO FOCUS YOUR RESULTS

- Subject Headings - (MeSH)/EMTREE/Cinahl headings/etc
- Filters - (to find the right methodologies)
- Years of publication
- Age of population
- Inclusion / Exclusion criteria
- Truncate terms/phrases/wildcards - *, $, “”, etc.
## Subject Headings

<table>
<thead>
<tr>
<th>Database</th>
<th>Subject Headings*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medline/PubMed</td>
<td>MeSH</td>
</tr>
<tr>
<td>EMBASE</td>
<td>EMTREE</td>
</tr>
<tr>
<td>CINAHL</td>
<td>CINAHL Headings</td>
</tr>
<tr>
<td>Cochrane Library</td>
<td>MeSH</td>
</tr>
<tr>
<td>PsycINFO</td>
<td>Thesaurus of Psychological Index Terms</td>
</tr>
<tr>
<td>Scopus, Web of Science</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Tips:
- Select subject headings that are the closest match for your concepts
- Pay attention to “explode” commands – PubMed will search related headings by default

*Featherstone (2012)
WHICH SUBJECT HEADING EXPLODES?*

A. Bird Diseases

All MeSH Categories
Diseases Category
Animal Diseases
Bird Diseases
Avian Leukosis
Fowlpox
Influenza in Birds
Malaria, Avian
Marek Disease
Newcastle Disease
Poultry Diseases
Enteritis, Transmissible, of Turkeys
Influenza in Birds
Poul Enteritis Mortality Syndrome
Reticuloendotheliosis, Avian
Sarcoma, Avian
Tuberculosis, Avian

B. Neutropenia

All MeSH Categories
Diseases Category
Hemic and Lymphatic Diseases
Hematologic Diseases
Leukocyte Disorders
Leukopenia
Agranulocytosis
Neutropenia

*When you Explode a term, you create a search query that “explodes” the subject heading. The headings are exploded to retrieve all references indexed to that term as well as all references indexed to any narrower subject terms.

In a database with a tree, such as MeSH or CINAHL Headings, exploding retrieves all documents containing any of the subject terms below the term you selected. In other databases, exploding retrieves all documents containing the selected term, as well as any of its first level of narrower terms. If a plus sign (+) appears next to a narrower or related term, there are narrower terms below it.

*Featherstone (2012)
Why? Not all citations have subject headings

<table>
<thead>
<tr>
<th>Operator</th>
<th>Command</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>*</td>
<td>Find alternate endings</td>
<td>hosp* [will find hospital, hospitals, hospitalist, hospice, hospices, etc.]</td>
</tr>
<tr>
<td>.tw.</td>
<td>Search for this term in the Title and Abstract fields</td>
<td>anxiety.tw.</td>
</tr>
<tr>
<td>adj</td>
<td>Search for one term within x number of terms from another</td>
<td>patient adj3 anxiety [will find patient within three words of anxiety]</td>
</tr>
<tr>
<td>AND</td>
<td>Find articles where both terms appear</td>
<td>smoking AND cessation</td>
</tr>
<tr>
<td>OR</td>
<td>Find articles where either term appears</td>
<td>smoking OR tobacco</td>
</tr>
<tr>
<td>()</td>
<td>Control order of operations – commands within brackets run first</td>
<td>(smok* OR tobacco).tw.</td>
</tr>
</tbody>
</table>

WHERE TO SEARCH:

**Article Databases**

- Medicine
  - PubMed, Ebsco/Ovid MEDLINE, EMBASE, Cochrane Library, DARE

- Multidisciplinary
  - Scopus, Web of Science

- Nursing and Allied Health
  - CINAHL

- Other
  - AMED, PsycINFO, etc.

**“Grey Literature”***

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- LENUS
- Conference Proceedings
- Embase, Scopus,
- Dissertations & Theses
- Proquest Dissertations & Theses
- Web Search Engines
- Google Scholar

TO TRACK YOUR SEARCHES AND KEEP UP-TO-DATE:

• Sign up for an Endnote account

• Sign up for personal accounts in each database/resource

• Utilise the controlled vocabulary in the resources

• Monitor your field of research – who is publishing in that area – set up alerts.

• Attend one of our PG6009 tutorials.

• Make an appointment with your Librarian and check out our website @ http://libguides.ucc.ie/index.php.
More information on research methods:

- https://owl.english.purdue.edu/owl/section/2/8/
- http://libguides.ucc.ie/medicineandhealthsciences/findinginformation
- http://library.ucc.ie/search/Y?SEARCH=research&SORT=D
Appendix 1. Search strategies - Cochrane Central Database of Controlled Trials (CENTRAL) - 2012 Issue 2 searched on 2 March 2012 [2145 records] - 2013 Issue 4 searched on 8 May 2013. Limited to publication year = 2012 to 2013 [98 records]

- #1  MeSH descriptor Overweight explode all trees
- #2  MeSH descriptor Body Weight, this term only
- #3  (obes* or overweight or over-weight)
- #4  MeSH descriptor Body Weight Changes explode all trees
- #5  (weight near/2 (loss or lost or losing or reduc*))
- #6  (weight near/2 (gain* or increas*))
- #7  MeSH descriptor Body Fat Distribution explode all trees
- #8  MeSH descriptor Body Mass Index explode all trees
- #9  MeSH descriptor Skinfold Thickness explode all trees
- #10 MeSH descriptor Waist-Hip Ratio explode all trees
- #11 ("body weigh** or bodyweigh* or "body mass** or bodymass or "body fat** or bodyfat*)
- #12 MeSH descriptor Overnutrition, this term only
- #13 (overeat* or over-eat* or overnourish* or over-nourish* or overnutrit* or over-nutrit*)
- #14 (#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR OR #10 OR #11 OR #12 OR #13)
- #15 MeSH descriptor Child explode all trees
- #16 MeSH descriptor Adolescent, this term only
- #17 (child* or schoolchild* or preschool* or pre-school* or schoolage* or school-age* or schoolboy* or schoolgirl* or boy* or girl* or preteen* or teen* or adolescen* or youth* or "young people" or "young person"* or pediatr* or paediatr*)

* http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD009728.pub2/abstract;jsessionid=B7765953D8D949004C8649F4641811E0.f01t01
SEARCH STRATEGY (CON’T)

- #18 (#15 OR #16 OR #17)
- #19 **MeSH descriptor** Exercise, this term only
- #20 **MeSH descriptor** Exercise Therapy, this term only
- #21 **MeSH descriptor** Physical Exertion, this term only
- #22 **MeSH descriptor** Motor Activity, this term only
- #23 **MeSH descriptor** Sports, this term only
- #24 (sport*)
- #25 **MeSH descriptor** Physical Education and Training **explode all trees**
- #26 (physical near/3 (activit* or education* or exertion* or training))
- #27 (exercise*)
- #28 **MeSH descriptor** Diet Therapy explode all trees
- #29 ((diet or dieting) near/5 (health* or weight*))
- #30 (calorie near/3 (control or reduc* or restriction))
- #31 "food choice**"
- #32 ("fat camp**" or "weight loss camp**")
- #33 "nutrition education"
- #34 **MeSH descriptor** Nutrition Therapy, this term only
- #35 **MeSH descriptor** Behavior Therapy, this term only
- #36 **MeSH descriptor** Cognitive Therapy, this term only
- #37 **MeSH descriptor** Psychotherapy, this term only
- #38 (behavio?r* near/3 (therap* or technique* or modif* or intervention*))
- #39 (cognit* near/3 (therap* or technique* or modif* or intervention*))
- #40 CBT
- #41 (psychotherap* or psycho-therap*)
SEARCH STRATEGY (CON’T)

- #42 MeSH descriptor Family Therapy, this term only
- #43 (family near/3 (therap* or intervention*))
- #44 family-based
- #45 MeSH descriptor Sedentary Lifestyle, this term only
- #46 (sedentary near/3 (lifestyle or behavio?r*))
- #47 MeSH descriptor Video Games, this term only
- #48 MeSH descriptor Television, this term only
- #49 (television or tv)
- #50 "screen time"
- #51 (psycho-social or psychosocial)
- #52 MeSH descriptor Health Promotion explode all trees
- #53 MeSH descriptor Health Education, this term only
- #54 (health* near/3 (promot* or educat* or lifestyle))
- #55 MeSH descriptor Life Style, this term only
- #56 (lifestyle* or life-style*)
- #57 ((video or computer) next game*)
- #58 (#19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #36 OR #37 OR #38 OR #39 OR #40 OR #41 OR #42 OR #43 OR #44 OR #45 OR #46 OR #47 OR #48 OR #49 OR #50 OR #51 OR #52 OR #53 OR #54 OR #55 OR #56 OR #57)
- #59 (#14 AND #18 AND #58)
ADDITIONAL SEARCH STRATEGIES & MORE INFORMATION AVAILABLE:

- Database of Abstracts of Reviews of Effects (DARE)
- SPORTDiscus (EBSCO)
- Networked Digital Library of Theses and Dissertations

See also:
http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD009728.pub2/abstract;jsessionid=B7765953D8D949004C8649F4641811E0.f01t01
Cochrane search strategy – Reminder-systems for women with previous gestational diabetes mellitus to increase uptake of testing for type 2 diabetes or impaired glucose tolerance.
USEFUL WEBSITES FOR SYSTEMATIC REVIEWS*

• The Cochrane Library www.cochrane.org

• The Joanna Briggs Institute
  www.joannabriggs.edu.au/pubs/systematic_reviews.php

• The Campbell Collaboration www.campbellcollaboration.org

• The Centre for Evidence-Based Medicine www.cebm.net

• The NHS Centre for Reviews and Dissemination
  www.york.ac.uk/inst/crd

• Bandolier www.medicine.ox.ac.uk/bandolier

• PubMed Clinical Queries: Find Systematic Reviews

* Pippa Hemingway, 2009.
Thanks.

Questions.

Donna Ó Doibhlin
Librarian, Medicine & Health Sciences
University College Cork

[Email Link]
[Website Link]
REFERENCES:

- Robin Featherstone, 2012, Research Librarian at Alberta Research Centre for Health Evidence, Department of Pediatrics, University of Alberta. Source: http://www.slideshare.net/featherr/how-to-conduct-a-systematic-search-10966748?qid=ff33f5ad-8f85-4035-a763-b59f19433eb3&v=default&b=&from_search=10
- Pippa Hemingway & Nic Brereton, University of Sheffield, http://www.medicine.ox.ac.uk/bandolier/painres/download/whatis/syst-review.pdf
- Isla Kuhn, Reader Services Librarian at University of Cambridge Medical Library, Systematic review how to - Easter 2014, http://www.slideshare.net/ilk21/systematic-review-how-to-easter-2014
- University of Western Australia, Information for systematic reviewers (2014), http://guides.is.uwa.edu.au/systematic_reviews/grey_literature
FURTHER READING:

Finding Systematic Reviews:

- **The Cochrane Library**
  Part of the Cochrane Collaboration, a research network that produces systematic reviews on a range of health/medical topics. Cochrane Systematic Reviews are updated every three years. You can also find review protocols. [http://www.thecochranelibrary.com/view/0/index.html](http://www.thecochranelibrary.com/view/0/index.html)

- **The Campbell Collaboration**
  Research network that produces systematic reviews in the social sciences including: education, crime and justice, international development and social welfare. [http://www.campbellcollaboration.org/](http://www.campbellcollaboration.org/)

- **Medline and CINAHL (Medical Bibliographic database)**
  Access from A-Z Databases list via Library and Information Services web pages. You can limit your search by systematic reviews. [http://www.wlv.ac.uk/lib/resources/databases_a-z.aspx](http://www.wlv.ac.uk/lib/resources/databases_a-z.aspx)

Review Protocols:

- **PROSPERO**
  An international database of prospectively registered systematic reviews in health and social care. Only includes interventions within healthcare. Researchers can register their systematic review title. [http://www.crd.york.ac.uk/prospero/](http://www.crd.york.ac.uk/prospero/)

Guides to Systematic Reviews:

- **Centre for Reviews & Dissemination Guidance for Undertaking Reviews in Healthcare**
  A guide developed by the CRD is a detailed handbook on producing a systematic review, including advice about identifying sources and examples of how to report your search. [https://www.york.ac.uk/inst/crd/index_guidance.htm](https://www.york.ac.uk/inst/crd/index_guidance.htm)
FURTHER READING:

Finding Systematic Reviews con’t

- **How to review the evidence: systematic identification and review of the scientific literature**

- **Cochrane Handbook on Systematic Reviews of Interventions**

- **Reporting the Systematic Review Search**
  PRISMA - Preferred Reporting of Systematic Reviews and Meta Analyse

- **Other Resources**
  Cochrane Collaboration – Introduction to Systematic Reviews open learning material
WHY GREY LITERATURE?

- The term grey literature "is usually understood to mean literature that is not formally published in sources such as books or journal articles" (Lefebvre, Manheimer, & Glanville, 2008, p. 106). Grey literature may include reports, conference proceedings, theses or dissertations, clinical trials, newsletters, government documents, informal communications, census data, standards, patents, videos, practice guidelines, preprints, emails, listserv articles, and more!

- A systematic review conducted in 2008 by members of the Cochrane methodologies team found that often the results from grey literature significantly affect the outcome of a review, as they often report more negative or inconclusive data than published journal articles (Hopewell et al., 2008). As such, it is important to treat grey literature as another potential source of studies for inclusion.

Sources of grey literature

In addition to the specific resources listed below, grey literature can be found in many institutional repositories, pre-print archives, on scholarly and professional association's web sites and through scholarly conversation and networks.

- [http://ulir.ul.ie/](http://ulir.ul.ie/) ULIR provides access to the digital archive collections, and published and unpublished works of faculty and researchers at the University of Limerick.
- [http://rian.ie/](http://rian.ie/) RIAN, provides access to the digital collections of Open Access Irish research publications.
- [World Health Organization](https://www.who.int) WHO is the directing and coordinating authority for health within the United Nations system. This website houses reports, data and publications from the WHO.
- [The Grey Literature Report](https://www.nyam.org/grey-literature-report) A bimonthly publication of The New York Academy of Medicine Library alerting readers to new grey literature publications in health services research and selected public health topics. In addition to this alert service, all resources are added and indexed in their online catalogue.
- [National Technical Information Service (U.S.)](https://www.ntis.gov) The National Technical Information Service serves as the largest central resource for U.S. government-funded scientific, technical, engineering, and business related information available today. Includes over 3 million publications in 350 subject areas.
- [OAIster](https://oaister.org) OAIster is a union catalog of millions of records representing open access resources. OAIster includes theses, technical reports and research papers, amongst other digital items.

* University of Western Australia, [http://guides.is.uwa.edu.au/systematic_reviews/grey_literature](http://guides.is.uwa.edu.au/systematic_reviews/grey_literature)
WHY GREY LITERATURE?

Sources of grey literature (con’t)

- **Google** Try a general search of Google or Google Scholar (http://scholar.google.com.au/) using your keyword search strategies. You can also search Google for other repositories of grey literature and also limit to site:org and/or site:gov domains and by filetype:pdf

- **PsycEXTRA** Technical, annual and government reports, conference papers, newsletters, magazines, newspapers, consumer brochures and more from the field of psychology and the behavioural sciences. This database complements PsycINFO.

- **CogPrints** An electronic archive for self-archive papers in any area of Psychology, Neuroscience, and Linguistics, and many areas of Computer Science.

- **Mednar** A federated search engine that conducts real-time searching of peer-reviewed medical resources.

- **OpenGrey** Open access to 700,000 bibliographical references of grey literature (paper) produced in Europe. Covers Science, Technology, Biomedical Science, Economics, Social Science and Humanities. (Formerly SIGLE)

- **OpenDOAR** OpenDOAR is an authoritative directory of academic open access repositories.

- **WorldWideScience** WorldWideScience.org is a global science gateway comprised of national and international scientific databases and portals. It is multilingual and provides real-time searching and translation of globally-dispersed multilingual scientific literature.

- **Science.gov** Science.gov is a gateway to government science information and research results from the U.S. It provides a search of over 60 scientific databases and 200 million pages of science information, and is a gateway to over 2200 scientific Websites. Science.gov is an interagency initiative of 19 U.S. government science organizations within 15 Federal Agencies.