The Process of the Literature Review: Searching & Managing the Literature

Susan Meadows, MLS
Medical Librarian III, Adjunct Asst. Professor
Family and Community Medicine
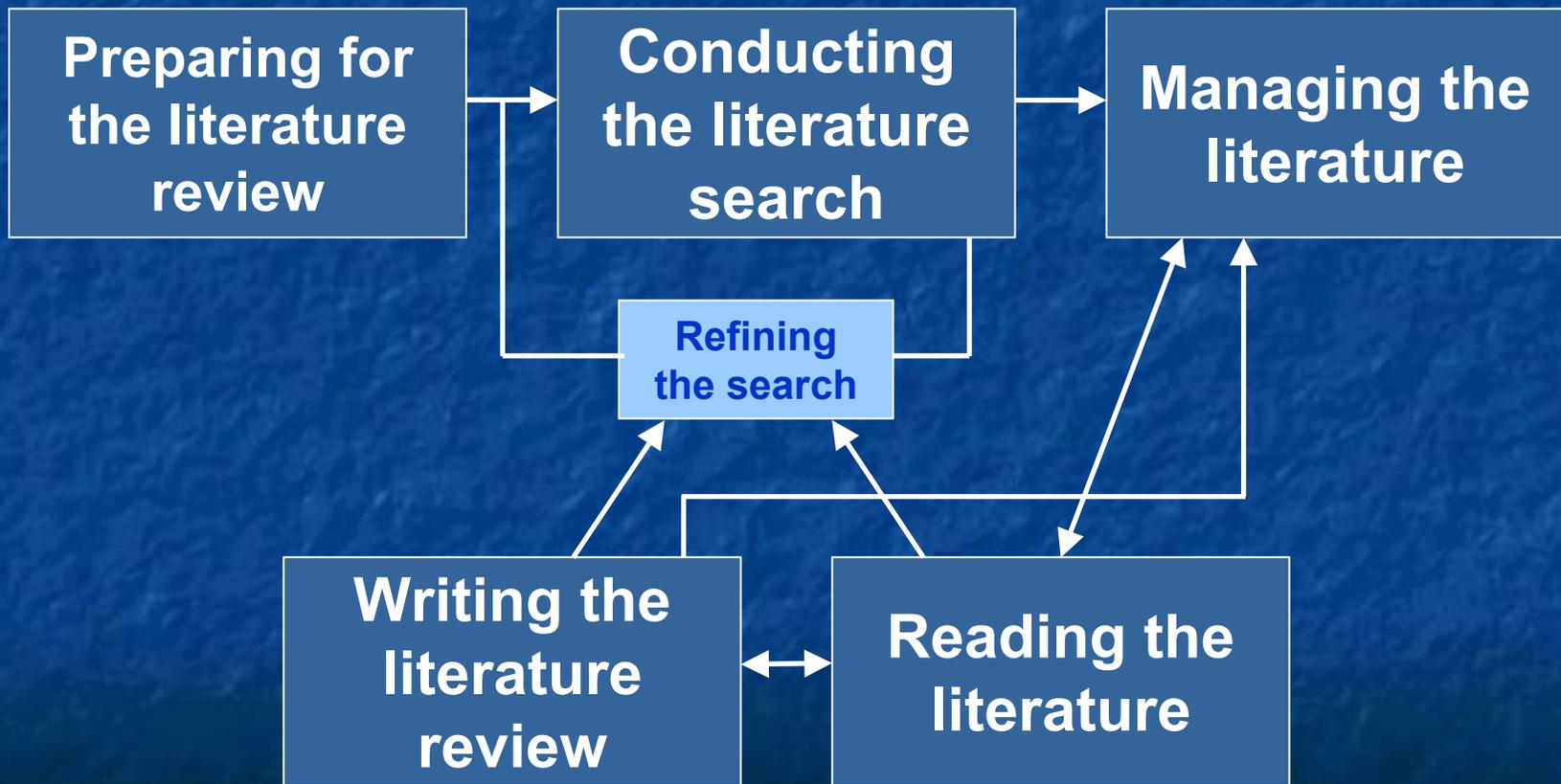**University of Missouri - Columbia**

Clinical Research Workshop – A.T. Still Research Institute
A.T. Still University of Health Sciences – Kirksville, Missouri
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Seminar Objectives

The objectives of this session are to describe and discuss from the perspective of faculty:

- ❖ **The literature review**
  - • context, process and issues

- ❖ **Working with the librarian search expert to do a comprehensive literature review**

- ❖ **Running a Medline search on your own**
  - • essential search tools
  - • perils & pitfalls

- ❖ **Reference management software programs**

- ❖ **Web resources**

A Literature Review is . . .

- A complete and careful critique, and analytical review of relevant previous literature, especially relevant literature

It provides . . .

- A context of what has been done previously, gaps in knowledge, and the problems and limitations encountered in previous research

It answers. . .

- "How should I best treat my patient in light of best known evidence?"

Key Components of a Literature Search

- What is the problem?
- Put problem in the form of a question
- Refine the question
- Identify "key words/terms"
- Identify major authors (if known)
- Identify major journals (if known)
- What years are of interest?
- Identify what should not be included
- Initial search

Key Components
of a Literature Search (cont.)

- **Review abstracts**
- **Refine**
- **Scan articles**
- **Prioritize articles**
- **Read articles**
- **Take notes**
- **Draft outline**
- **Write**

Getting the Search Expertise You Need

Consult with a medical librarian who can:

➢ **Perform comprehensive online searches in a variety of databases**

➢ **Set up SDIs**

➢ **Provide subject consultation and support**

➢ **Assist in the evaluation of the literature**

Working with a Librarian – the Search Interview

- **Review the question and its components with the librarian**

- **Think of additional keywords, phrases, synonyms which may help the librarian to focus the search strategy**

- **Decide how comprehensive in scope your search question should be:**
  - **Does the search question lend itself to only the medical literature? Or…**
  - **Does your question actually cover a spectrum of databases beyond the medical literature? If so, a librarian will be able to assist in identifying appropriate databases in which to run search strategies.**

Other Potential Databases

There are well over 700 informational databases in addition to Medline. Examples of some of the most common life, social and behavioral sciences databases include:

■ **CURRENT CONTENTS** - provides access to tables of contents of over 3800 international journals covering all disciplines. It is updated weekly and provides a more current access point to recently published articles.

■ **CINAHL** - provides coverage of nursing and allied health literature from over 1200 journals, 1982 to present.

ABI/Inform - Provides coverage of worldwide business and management information. The scope includes information on companies, products, business strategies and tactics, management tools and trends, and case studies of successes and failures. There is good coverage of health management information as well.

ERIC - Provides coverage of education-related research.

AARP Ageline – Provides coverage of aging-related materials from an interdisciplinary perspective of psychology, economics, sociology, gerontology, public policy, business, health and health care services.

PsycINFO - **Provides coverage of journal articles, book chapters, books, and technical reports related to the field of psychology. The scope also encompasses the disciplines of medicine, psychiatry, nursing, sociology, education, pharmacology, physiology, linguistics, anthropology, business, and law.**

SocioFILE - **Provides coverage of the world's literature in sociology and related disciplines. The scope includes topics on policy, planning, cultures and social structures, education, religion, demography, family, socialization, health, medicine, community, welfare, poverty, violence.**

Additional databases typically searched by librarians...

ETOH – Alcohol and Alcohol Problems database

HAPI – Health and Psychosocial Instruments database

SPORT – Sports and fitness database

Science Citation Index & Social Science Citation Index – Cited reference databases

Evidence-Based Resources

- Cochrane Library
  - Cochrane Database of Systematic Reviews
  - Database of Abstracts of Reviews of Effectiveness (DARE)
  - Cochrane Central Register of Controlled Trials
- Clinical Evidence
- Trip Database (http://www.tripdatabase.com

Working with a Librarian (cont'd)

- If available, bring along sample articles which are highly relevant to your search question. Relevant articles will aid the librarian in developing effective search strategies.

- Other points to consider:
  - Are there particular limits which should be applied to the strategy? (For example: age groups, gender, specific geographic areas, race or ethnic groups)
  - What range of years should the librarian search?
  - Should the librarian limit to English only?
  - How soon do you need the search results?
  - Would you like to receive the results electronically or in print format?
  - Would you like to receive a monthly search update on your topic?

So, you want to do your own searching in Medline? A word to the wise...

"*You've got to be careful if you don't know where you're going, 'cause you might not get there.*"

- Yogi Berra -

Essential Search Tools

If you'll be performing your own searches:

- **Learn about the systems available for searching MEDLINE**

- **Take a MEDLINE training class**

- **Learn about the essential tools for searching in MEDLINE:**
  - **MeSH Vocabulary**
  - **Tree Structures**
  - **Explode Feature**

Essential Tools for Searching Medline

- **MeSH** - National Library of Medicine's controlled vocabulary used by indexers to assign subject headings to each article. MeSH is considered to be the most efficient and effective means for retrieving relevant articles on a given subject.

- **Tree Structures** - Contains the hierarchical arrangement of MeSH headings. The searcher may view and select broader or narrower subject terms according to his/her specific subject interest.

- **Explode Feature** - A "power" tool of MEDLINE which allows the searcher to "OR" together terms indented under a broader subject heading, thus retrieving a set of citations indexed to any one of those terms

Refining the Search

- ■ **Review search to date**

- ■ **Are major authors and journals covered**

- ■ **Is there additional material needed to**
  - a. **fill gaps**
  - b. **expand on areas of importance**

- ■ **Review references from major papers – does this reveal any additional literature needed**

Reading the Literature

- Judging the quality of the literature
- What are the most important articles?
- How much is enough?
- Determining where the gaps are
- Read
- Re-read
- Analyze
- Synthesize

Reference Management Software:

❖   **Software programs designed to facilitate the creation of databases for the purpose of organizing reprint files in one or more given subject areas, and to facilitate the generation of bibliographies and reference lists for manuscripts. These programs are also known as "bibliographic management programs" or "reprint file management programs."**

Why use a reference management program?

❖ **Decreases duplication of effort by researchers**

❖ **Allows researchers to share information and resources**

❖ **Reduces labor-intensive file organization and management**

❖ **Easily generates bibliographies in standard journal formats**

❖ **Allows searching of a database using various access points**

❖ **Allows the user to create subject-specific thesauri**

Filling in the Knowledge Gaps – Internet Resources

❖ *Grants & Foundation Websites*

    ❖ **Crisp Database** – a searchable database of federally funded biomedical research projects conducted at universities, hospitals, and other research institutions. https://www-commons.cit.nih.gov/crisp/

    ❖ **The Foundation Center** - to support and improve philanthropy by promoting public understanding of the field and helping grantseekers succeed. This site provides links to tools such as Foundation Finder, Foundation Directory Online, Foundation Grants to Individiuals Online, Grantmaker Websites. http://www.fdncenter.org/

    ❖ **GrantsNet** – created by the Dept. of Health and Human Services for finding and exchanging information about HHS and other federal grant programs. http://www.hhs.gov/grantsnet/

Grants & Foundation Websites…cont'd:

- ❖ **Grants & Funding Opportunities –** National Institutes of Health.
  http://grants.nih.gov/grants/

- ❖ **Maternal and Child Health Bureau** – funding opportunities.
  http://www.mchb.hrsa.gov/grants/default.htm

- ❖ **Robert Wood Johnson Foundation** -
  http://www.rwjf.org/index.jsp

- ❖ **U.S. Dept. of Education** – funding opportunities.
  http://www.ed.gov/topics/topics.jsp?&top=Grants+%26+Contracts

Organizational & Research Information:

❖ **MEDLINEplus links to Organizations on the web -**
http://www.nlm.nih.gov/medlineplus/organizations.html

❖ **National Library of Medicine links to related Health Services Research websites -**
http://www.nlm.nih.gov/medlineplus/organizations.html

❖ **Agency for Healthcare Research and Quality (AHRQ) -**
http://www.ahcpr.gov/

Statistical Information on the Web:

- ❖ **Centers for Disease Control and Prevention (CDC) – Data and Statistics** http://www.cdc.gov/scientific.htm

- ❖ **Disability Statistics Center – (temporarily down for site maintenance & upgrade on 2/28/03, but will eventually be re-launched)** http://dsc.ucsf.edu/index.html

- ❖ **Drug Statistics Master Page – Alcohol, Tobacco, and other Drug Statistics** http://www.drugs.indiana.edu/drug_stats/

- ❖ **Fatality Analysis Reporting System (FARS) –** http://www-fars.nhtsa.dot.gov/main.cfm

- ❖ **FEDSTATS -** http://www.fedstats.gov

Statistical Information on the Web:

- **Surveillance, Epidemiology, and End Results (SEER) Cancer Statistics – National Cancer Institute -** http://seer.cancer.gov/publications/

- **National Center for Health Statistics -** http://www.cdc.gov/nchs/

- **National Center for Health Statistics – Survey and Data Collection Systems -** http://www.cdc.gov/nchs/express.htm

- **Substance Abuse and Mental Health Statistics – Office of Applied Studies -** http://www.samhsa.gov/oas/oasftp.cfm

Statistical Information on the Web:

❖ **Statistical Abstract of the United States -** http://www.census.gov/prod/www/statistical-abstract-us.html

❖ **U.S. Census Bureau -** http://www.census.gov/

Recommended Readings

REQUIRED READING:

Stewart MG, Moore AS. Searching the medical literature. *Otolaryngologic Clinics of North America.* 1998;31(2):277-287.

SUGGESTED READINGS:

Glover J. Informatics education. Searching for the evidence using PubMed. *Medical Reference Services Quarterly 21(4):57-65, 2002 Winter (3 ref).* 2002;(4):57-65.

Lowe HJ, Barnett GO. Understanding and using the medical subject headings (MeSH) vocabulary to perform literature searches. *JAMA.* 1994;271(14):1103-1108.

Nicoll LH, Ouellette TH, Bird DC, Harper J, Kelley J. Bibliography database managers. A comparative review. *Computers in Nursing.* 1996;14(1):45-56.

Tasting an article. In: Gehlbach SH, ed. *Interpreting the medical literature.* 4th ed. New York, NY: McGraw-Hill; 2002:1-12.