Finding the Hard to Finds: Searching for Grey Literature (2006)

Dean Giustini, UBC Biomedical Librarian
Diane Thompson, Geological Survey of Canada Library

13 May 2006 – CHLA/ABSC Time: 8:30am - 12:30pm
Location: Lab C420, UBC Robson Square (downtown)

Time:	**Activities:**
0830hrs	1.0 **Outline** 1.1 - Orientation to computer lab & Robson Square 1.2 - Format of ½ day - CE Workshop 1.3 - Goals & objectives of workshop
0845	2.0 **Introduction to grey literature** 2.1 - What is grey literature? Classic definitions, types 2.2 - Library & information research into *grey lit* 2.3 - Grey lit in medical studies, missed studies; bias
0915	3.0 **Major trends** 3.1 Repositories (e-prints, preprints, etc.) 3.2 Self-archived articles 3.3 Impact of open access/ open *searching* 3.4 Grey literature retrieval in mainstream databases
0945	4.0 **Methods of finding grey lit – an iterative process** 4.1 Develop your search strategy (*decision tree* or checklist) 4.2 Documenting and conducting a thorough *search*
1015	***COFFEE/ TEA BREAK***
1040	5.0 – **Case study**
1100	6.0 **Small group grey literature search exercise** • Break into groups of 3 • Topics • Brainstorm • Compile checklist using structured strategies and rich resources of grey literature discussed in class • Discussion
1205	7.0 ***Conclusion*** • Future of "grey lit" • Highlights of G7 in France 2006 • Brainstorm of top skills needed to search GL
1225hrs	**Wrap-up & evaluation**

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1.0 Orientation to CE at Robson Square, May 13th, 2006

2.0 Introduction to GL

What differentiates traditional GL from other published literature?

- ***Not formally part*** of 'traditional publishing models'. Producers include research groups, non-profits, universities and government departments, to name a few.
- ***Not widely disseminated.*** Wide dissemination of published materials is the goal in traditional publishing. Often, an *infrastructure* exists to disseminate this material to make it visible.

What are some examples of non-traditional publishing?

- Some organizations create their own reports, studies, etc.
- ***What are some examples of health organizations that publish grey literature?***
- Librarians try to adopt pro-active approaches to finding this material, though Web-based searching, self-archiving and open access are helping to facilitate access.
- Specialized strategies are still needed to facilitate identification and retrieval.

The field of GL has evolved into a world of its own with specific research methodologies, vocabularies, systems and solutions. Before exploring these methods, let's review some of the major differences between traditional publishing and grey literature:

	Grey literature (*hard to finds)*	**Published literature *(easier to find)***
# of documents being published	Increasing at exponential rate	Increasing, but at a more measured pace
Speed of production	Instant, due to ease of self-publishing on the Internet	Slower, due to costs and editing process
Cost	Low (in most cases), *free*	High, increasing all the time
Access	Open, immediate, *free (in most cases)*	Locked, gated access, $$$
Quality	Highly variable	Excellent, edited, peer-reviewed
Findability	Improving	Generally stable
Archiving	Problematic due to volume, format	Problematic due to legal restrictions, space problems, selection
Impact on libraries	Traditional roles Opportunities for new services & roles for librarians	Problematic due to legal restrictions, licensing issues
Role of publishers	Not much but who knows?	Commercial interests

2.1 What is grey literature? Types of GL, and classic definitions

2.1.1 Grey literature, aka. gray, fugitive

Grey literature is defined as ... "information produced on all levels of government, academia, business and industry in electronic and print formats not controlled by commercial publishing" ie:. *where publishing is not the primary activity of the producing body*."

ICGL Luxembourg definition, 1997. Expanded in New York, 2004

"Grey Area" – or "Zone" ***Think of the grey zone as an in-between metaphor***
Definition: 'An ill-defined area that does not readily conform to an existing category or set of rules'.

Oxford English Dictionary

"**'Grey literature'** is used to describe materials not published commercially or indexed by major databases. GL may be of questionable relevance or quality but may still have an impact in research, teaching and learning. GL is occasionally the only source of information for specific research questions. While some GL may be published eventually, and may be easier to find, sometimes it never is. GL may not go through a peer-review process, and its authority must be scrutinized. "

"***Fugitive"***, ***hidden***, ***invisible*** *or literature in the* ***deep web*** may be on government sites, deep in archives, institutional repositories, theses databases, conference sites, associations. Informal communication is changing the notion of grey literature which is expanding to include e-mails, faxes, blog postings, wikis, RSS feeds and podcasts."

Searching for grey literature [subject guide]
UBC Library, Dean Giustini
http://toby.library.ubc.ca/subjects/subjpage2.cfm?id=877

2.1.2 Traditional types of GL

1. Theses and dissertations
2. Census, economic and other data sources
3. Databases of ongoing research
4. Statistics and Other Data Sources
5. Conference proceedings and abstracts
6. Newsletters
7. Research reports (completed and uncompleted)
8. Technical specifications, standards, and annual reports
9. Informal communications (telephone conversations, meetings, etc.)
10. Translations

2.1.3 Newer types of GL (technology-based)

1. e-prints, prepints
2. Electronic networks
3. blogs; audio, video over the Web
4. repositories
5. listserv archives
6. digital libraries
7. spatial data (ie. Google Earth)
8. meta-searching, federated searching, portals
9. wikis, blikis

2.1.4 Producers of GL

- Government departments and agencies (ie. municipal, provincial, national)
- Non-profit economic and trade organizations
- Academic and Research institutes
- Societies, political parties
- Libraries, museums, archives
- Businesses and corporations
- Freelance individuals

2.1.5 Other issues that pertain to GL

- Grey literature provides very current perspectives
- Complements or fills in gaps of traditional publishers
- Un-conventional formats (ie. pamphlets, ephemera, blogs)
- Lack of standard bibliographic description/ control
- Short life-cycle of the information

2.2 - Library & information research into grey lit (GL)

Librarians and information specialists are the acknowledged experts in searching, and several LIS experts write regularly about grey literature. One GL expert, Julia Gelfand, is an applied sciences librarian at the University of California. Gelfand has studied grey literature for fifteen years, and presented at international GL conferences. (*See* bibliography in the appendix) Gelfand's research includes searching, preservation issues and scholarly communication.

Canadian librarian Diane Helmer has written a number of articles about GL, and its retrieval in the systematic review. Librarians at the CADTH (Canadian Agency for Drugs and Technologies in Health) are expert searchers, and have developed extensive lists of sources (see Appendix E). U.S. medical librarian Marcus Banks has published several papers about the positive impact of open access on freeing GL from obscurity. The librarians at the New York Academy of Medicine produce reports on grey literature, which are useful for collection development and current awareness <http://nyam.org/library/grey.shtml>.

One of the standard texts in the field is Charles Auger's *Information sources in grey literature* now it its fourth edition (1998). Auger talks about a range of topics of interest to librarians such as accessibility, bibliographic control and cataloguing. Curiously, Auger has not published a fifth edition.

Google, Yahoo and MSN (GYM) have helped to uncover a lot of grey literature and made it findable. In fact, Banks' research suggests that the barriers to finding grey literature are slowly coming down as a result of open access and search engines. Gary Price, a search expert and librarian, has said that "*public information on the deep Web is currently 400 to 550 times larger than the surface Web"*. In light of institutional repositories and open archives, perhaps the deep web is more accessible than ever, but much information continues to be locked away, behind commercial (or password-protected) databases.

Health literature fares better than some areas. However, health-related conference proceedings, abstracts and government reports in the pre-digital era are difficult to verify and locate. The Web provides access to billions of web pages, but not all relevant health information is digitized yet. Health librarians should work toward improving access to older materials, which, arguably, now form part of the grey literature.

Some examples of grey literature librarians have written about:

- Systematic reviews, clinical trials and other in-house research covering health and wellness issues are issued by universities, medical schools, and organizations.
- Environmental organizations distribute publications and newsletters designed to gain support for conservation of wildlife and natural resources and to promote greater environmental awareness.
- Geological and geophysical surveys, maps, fossil records, and locations of minerals and ores are among the items of grey literature used by geologists to support their research.
- Grey literature in technological fields like aeronautics and engineering may include contractor reports, technical reports, product codes and standards, special publications, handbooks and patents.

Do you know about the HTAi Vortal developed by librarians? http://www.htai.org/vortal/

2.3 - Grey literature in medical studies, missed studies; bias

Effective searching of the grey literature is a professional skill usually undertaken by *information specialists*. The aim of this searching is to be *thorough* and to optimize *recall* but with sufficient *precision.*

Researchers doing *systematic reviews* (SRs) or the meta-analysis must ensure that every applicable clinical study is found. The focus is on exhaustiveness, and leaving no stone left unturned. Systematic reviews in medicine have become useful tools for health professionals in view of the massive amount of biomedical information being published. These reviews of the literature provide useful digests of the medical evidence.

It is imperative that health librarians and information specialists create good search strategies and execute them accordingly for medical trials, and studies. When a structured search is not performed, the results of the SR may be affected. Studies in other languages or those not indexed by major tools must also be located to avoid skewed results, and *publication bias*. In a recent study, it was estimated that an additional 29.2% items were found by using extended search methods in addition to mainstream sources. (*see* Savoie **Appendix E***)*.

Some researchers suggest that SRs that include grey literature of uncertain quality may actually *jeopardize* the findings of reviews. This is where rigorous inclusion criteria will ensure that only the most relevant studies make it into the final analysis. It is therefore a common occurrence that high numbers of studies retrieved by the librarian may not make it into the final review assessment.

In a December 2005 study, researchers showed that there are consequences (and some risk) associated of generalizing the importance of grey literature in avoiding publication bias in the field of psychiatry. (Martin et al. European Psychiatry. *Is grey literature essential for a better control of publication bias in psychiatry? An example from three meta-analyses of schizophrenia.* 2005 Dec;20(8):550-3

3.0 Major trends in GL

Open access to materials and institutional repositories are revolutionizing libraries, and searching for the grey literature. Despite these trends, however, some materials may still be hard to find. All librarians and information specialists have personal stories about that elusive conference proceeding, abstract or report.

The emergence of search engines has helped to index (and make findable) a lot of grey literature. But searching carelessly with Google creates other problems for information specialists as important documents can easily be missed. Even though the Web is estimated to have forty - perhaps as high as fifty billion – pages, its functionality as a search space is limited due to its methods of organization.

Computer algorithms have helped to improve search engines. Google's *Pagerank* uses popularity as a means of ranking results, with important items rising to the top. But by placing popular materials near the top of the display, most searchers will not look beyond the first six or seven results, let alone the second or third page.

As librarians are aware, relying on popular documents that rise to the top of search results is not a recommended search strategy. Important documents may be easily retrieved via search engines, but some grey literature may ultimately be hidden within results, down several pages or not visible at all due to a relative lack of popularity. (***Other trends to watch***: collaborative writing/publishing via wikis and blikis.)

3.1 Repositories (e-prints, preprints, etc.)

Here are a few examples of repositories that can be searched to find preprints, or e-prints, etc.

- ARL Directory of Scholarly Electronic Journals
  and SPARC - Scholarly Publishing and Academic Resources Coalition
- BioLine - open access to research in developing countries
- CARL Institutional Repository Search Service and browse select Canadian IRs
- Daedalus Project UK - IR model using ePrints, DSpace and PKP Harvester software
- DSpace Federation - open-source software to index, preserve and distribute scholarly research
- eScholarship Repository - University of California
- Harvard DSpace Archive
- NIH Public Access Project - ensures publicly-funded research is freely available.
- OIAster - University of Michigan – search at all ~600 institutions
- OpenDOAR - the Directory of Open Access Repositories NEW!
- Open Access Bibliography - Charles Bailey
- Open Archives Initiative
- Science Commons - new forms of scholarly communication for scientists
- Simon Fraser University's IR Project - selected SFU faculty research
- UBC Public Knowledge Project
- University of Toronto TSpace

3.2 Self-archived articles

Faculty members and researchers are voluntarily self-archiving their work in academic repositories however this continues to be a challenge. Most academic environments do not require mandatory archiving which means that most repositories are missing much of the work produced by the institution. Some staff and faculty feel that they are too busy to comply or that there is a lack of knowledge about how to self-archive their publications.

3.3 Impact of open access/ open searching

Trends in digitization and open access have given rise to institutional repositories (IRs). IRs collect and preserve published and unpublished information (e.g. lectures, data sets, research papers, electronic theses, etc.) and provide free access to all kinds of scholarly materials. IRs have the potential to promote significant change in scholarly publishing, and are linked to the open access movement and searching for grey literature.

For further background reading, see the Berlin Declaration on Open Access and the Open Access Initiative. For current debate and news, try Peter Suber's excellent Open Access News blog and the OA Librarian.

3.4 Grey literature retrieval in mainstream databases

A few examples:

- PubMed "out-of-scope"
- Theses, dissertations in CINAHL
- References and bibliographies in Cochrane Reviews
- CENTRAL database of clinical trials; hand-searched
- NLM Gateway, Entrez portal
- *IndexCat* – selective Index Medicus materials from 1879-1960
- Health & psychosocial instruments (HAPI)
- MDConsult
- Proquest Dissertations Abstracts
- PapersFirst
- Google scholar

4.0 Methods of finding grey literature – *an iterative process*

- Database searching (including specialized databases and search portals)
- Searching in obscure or small library catalogues
- Hand-searching of journals
- Personal communication (i.e. telephone, email, etc.)
- Scanning reference lists, bibliographies and academic CV's
- Googling (Google, Google Scholar, Scirus)
- Other search engines including Yahoo, MSN Search, and Windows Live Academic Search
- Blogging (finding the experts)
- Blogsearch, podsearch, specialized directories

Scoping your search - tips

1. Currency of topic / subject area

Is your topic current? A cutting-edge subject area? Is it Canadian? Of local interest? If your topic is about HIV incidence on Vancouver's eastside, this will limit the sources of information available to you. Geographic and national restrictions, public safety and intellectual property laws will limit access to certain types of information. A barrier to identifying and accessing some GL topics is the librarian's lack of familiarity with the subject, its indexing practices and search tools. It may be necessary to learn about the subject as well as how to find it.

2. **Form**

Are you seeking bibliographic references with immediate full-text; primary sources (raw clinical data, documents, publications); secondary sources (analysis, editorials); tertiary sources (EBM summaries, large reviews, digests); or comparable and/or comparative data and information?

3. **Subject-based approach**

In a subject-based approach, identify possible medical sources of information (databases, websites, experts) and, for interdisciplinary topics, tools in the related area (business, economics, engineering). It might be helpful to develop an understanding of your topic using a hierarchical approach.

Exercise: How would you organize your topic of *treatment of prostate cancer* using the following?

Broadening – Narrowing: ***could you use MeSH? USMLS***
Related – ***LCSH?***
Used for – ***Other vocabularies***

The information needed about your subject may include social, economic, political, psychological, legal and ethical perspectives, which may be influenced by identifiable groups and groupings. Gender, age, disease or condition are/ may be important. Ethnic, religious, cultural issues may also be pertinent.

Adapted from: Five (5) Steps of Evidence-Based Medicine

Centre for Evidence-Based Medicine (CEBM)
http://www.cebm.net/learning_ebm.asp

Figure 1: *How to develop a search strategy (example).*

Formulate your clinical or research question:

1. **The question**

   "In men aged 65 yrs of age with stage IV prostate cancer, are there any RCTs comparing radiation, hormone (chemotherapy) with either treatment alone?"

2. **Break down the question into facets**

Population	Aged men, prostate cancer, stage IV, advanced
Intervention	radiation and/or chemotherapies
Outcome	Pain control, prolonged survival
Study design	randomized controlled trials

3. **Identify** textwords, keywords, synonyms, spelling variants, wildcards, subject headings for each aspect of the clinical question, or facet.

Figure 1: *How to develop a search strategy (example).*
Similar to EBM process, frame question

Centre for Evidence Based Medicine (CEBM)
http://www.cebm.net/learning_ebm.asp

4.1 Building a search strategy / checklist

A well-organized checklist and search strategy will help maintain focus and direction in your searching. Many librarians and researchers have developed search optimization protocols and checklists that help to build strategies. Bidwell and Booth have created search protocols that are useful for documentation. <http://www.shef.ac.uk/scharr/ir/proto.html> The Canadian Agency for Drugs and Technologies in Health (CADTH) - *formerly* CCOHTA- and other health technology assessment agencies such as AHFMR have developed comprehensive checklists for grey literature searching (*see* **Appendix C**).

When building a search strategy, it is important to select terms specifically for each source. In using mainstream databases, or Google-type searches, it is advisable to draw from a list of keywords and variations developed prior to starting the search. To be consistent and systematic throughout the process, using the same keywords and strategy is recommended. It is important to create a strategy, compile a list of keywords, wildcard combinations and identify organizations that produce *grey literature*.

Tips and tricks on building a search strategy and checklist

- ☑ Construct a checklist with tables from left to right **(*see* page 22)**
  - ☐ Indicate all databases searched
  - ☐ List all web-sites with affiliated organizations & web addresses consulted
  - ☐ Formulate a search strategy, and modify as necessary
  - ☐ Note when (date) the search was conducted
  - ☐ Use comments column to note when the database/website was updated

- List databases in priority order: MEDLINE, EMBASE, CINAHL, PsycINFO, Web of Science.
- If controlled vocabularies are used, record index terms, qualifiers, keywords, truncation, wildcards.
- Recall will *increase* when searching by keywords. Improve *precision* by searching in titles only.
- Record when 0 hits are obtained. Compare the hits in the other databases searched.
- Check variant spellings and make note of differences in Canadian, American or British English.
- Save long search sets using MyNCBI in PubMed or OVID's saved searches feature.
- Import citations into a bibliographic management program.

4.2 Documenting and conducting a thorough search

Grey literature is increasingly referenced in journal articles. Knowing how to find the greys is essential for many types of literature reviews, graduate theses and doctoral dissertations. However, many searchers fail to develop a structured approach to finding this literature, and spend inordinate amounts of time re-doing searches over and over again. This is why you are taking this workshop.

Major abstracting & indexing (A&I) services index *do not* systematically index grey literature. Even when databases index comprehensively, there are no guarantees searchers will find all articles on a topic. To compensate for the limits of human indexing, hand searching can supplement online methods. Hand searching is recommended for systematic reviews (SRs) because of the hazards associated with missed studies.

Many steps along the way pose challenges to searchers of grey literature. (Obtaining the documents once they have been found poses other problems, but are not covered by this workshop.)

It is advisable to document your steps, so that your progress can be tracked. Consider *bibliographic management software* like EndNote or Ref Works to assist in building your grey lit database. Any documentation should include the organizations/individual researchers contacted and databases searched.

An important reason to document your search is *reproducibility* – if called upon to reproduce your search results, you can do so by using your strategy and documentation that was painstakingly developed.

5.0 Case study

"Acupuncture in the management of drug & alcohol dependence"

What is the effectiveness of acupuncture in the management of drug and alcohol dependence? The goal of the study is to uncover as many randomized controlled trials (RCTs) as possible, and to perform a meta-analysis on the data.

5.1 Starting with mainstream databases

- MEDLINE / Pubmed – an international biomedical database indexing ~5000 journals back to 1966 (1949-1965 in OLDMEDLINE), by NLM. Commercial vendors include Dialog, EBSCO, OVID, to name a few. PubMed is the free interface that links to PubMedCentral, and other NCBI databases.
- EMBASE – an international database of ~4000 biomedical journals produced by Elsevier with a strong emphasis on European pharmaceutical information back to 1974.
- CINAHL – cumulated index to nursing and allied health literature.
- Cochrane systematic reviews and protocols – full-text database of all Cochrane systematic reviews and protocols
- BIOSIS (Biological Abstracts)
- PsycINFO
- Sociological Abstracts
- CAM on PubMed
- AMED – Allied and Complementary Medicine Database

Tip:

Starting research in mainstream databases will gather a large number of items. Duplicates need to be pulled from the above databases as there may be substantial overlap. Be sure to manage the problem by using a bibliographic software tool like Procite or RefWorks to eliminate duplicates.

5.2 Directories & Organizations

Contacting relevant organizations is an excellent way to assess what resources exist (ie special databases, library catalogues, etc.). Some websites have resources which provide a "jumping off" point for your search. If you are unfamiliar with your topic and don't know what type of organizations exist in a field, there are a number of print or online directories that will help to focus your search efforts, and guide you along the way.

1. ECRI Healthcare Standards (print or online subscription)
2. OMNI
   http://omni.ac.uk/
3. Yahoo Search OR Google Search (keywords: Acupuncture, Organizations or Internet Resources ALSO alternative medicine databases)

For our topic, here are some examples of organizations that are relevant to the search.

- ETOH - Alcohol and Alcohol Problems Science Database, referred to as ETOH
  http://etoh.niaaa.nih.gov/Databases.htm
- National Institute on Alcohol Abuse and Alcoholism (NIAAA)
  http://www.niaaa.nih.gov/
- National Institute on Drug Abuse (NIDA)
  http://www.nida.nih.gov/
- Canadian Centre on Substance Abuse (CCSA)
  http://www.ccsa.ca/CCSA/EN/TopNav/Home/
- National Center for Complementary and Alternative Medicine (NCCAM)
  http://nccam.nih.gov/health/acupuncture/
- National Acupuncture Detoxification Association (NADA)
  http://www.acudetox.com

Invisible web directories, meta-search

Complete Planet **- ~70,000 specialized databases in the deep web (not in Google)**
Dogpile **– all the best search engines, piled into *one*.**
Incy Wincy - Spider **- so-called invisible web search engine**

5.3 Searching specialized databases for GL

It is advisable to organize keywords for your topic before beginning to search the various specialized databases. This means taking an approach that is methodical, and using the same keyword and wildcard combinations. Developing a structured, organized approach is important. Most specialized databases will have varying search interfaces and search functions but it is a good idea to try to be as systematic as possible.

Possible keyword combinations used: acupuncture, meridian, acupressure, electroacupuncture, shiatsu, drug, polydrug, substance, alcohol, tranquilize, tranquilizer, narcotic, opiate, solvent, inhalant, street drug, prescri, non-prescri, nonprescri, abuse, use, usin*, misus*, utliz*, utilis*, depend, addict, illegal, illicit, habit, withdraw, behavio*, abstinen*, abstain*, abstention, rehab, intox*, detox, dual, diagnosis, disorder.

Examples:

- HTA Database
  http://144.32.150.197/scripts/WEBC.EXE/NHSCRD/start
- The Traditional Chinese Drug Database (TCDBASE)
  http://www.cintcm.com/index.htm
- Canada Thesis Portal
  http://www.collectionscanada.ca/thesescanada/index-e.html
- Networked Digital Library of Theses and Dissertations (NDLTD)
  http://www.ndltd.org/index.en.html
- Drug Database (Alcohol and other Drugs Council of Australia)
  http://203.48.73.10/liberty3/gateway/gateway.exe?application=Liberty3&displayform=opac/main
- Canadian Centre for Substance Abuse
  http://www.ccsa.ca/CCSA/EN/Addiction_Databases/LibraryCollectionForm.htm
- Combined Health Information Database (CHID)
  http://chid.nih.gov/search/

5.4 Searching Library Catalogues for GL

Library OPACs (Online Public Access Catalogues) in academic, specialized and public libraries are excellent sources of grey literature. Catalogues provide access to local and regional materials, and inform researchers that they exist. Library catalogues are fertile sources for bibliographic verification and resource discovery in grey literature searching. Many library catalogues index dissertations, government and technical reports, particularly if the authors are affiliated with the parent organization as scholars or researchers.

Here are a few examples for the acupuncture topic:

- AMICUS
  http://amicus.collectionscanada.ca/aaweb/aalogine.htm
- The Lindesmith Library (drug policy alliance)
  http://library.soros.org/lindesmith.html
- Centre for Addiction and Mental Health Library
  http://library.camh.net/webopac/cgi/swebmnu.exe?act=3&ini=splus113
- Your Local Library
- CISTI library catalogue
  http://cat.cisti.nrc.ca/search
- WorldCat
  http://toby.library.ubc.ca/resources/infopage.cfm?id=84
- Canadian Centre for Substance Abuse (Library Collection
  http://www.ccsa.ca/CCSA/EN/Addiction_Databases/LibraryCollectionForm.htm

5.5 Personal communications (phone, email, fax, blogs, etc.)

Effective searching for grey literature combines targeted searching of key websites *and* general culls of the Web. Google, Google Scholar, Yahoo and Windows Live or meta- & federated search tools like Dogpile are useful. Blogs help to identify experts and see what types of discussions are currently happening on the blogosphere. Phone, fax, e-mail is a further means of obtaining more information on your topic, though it is difficult to track and record personal communications. The key is not to rule anything out.

5.6 Searching in repositories (e-prints, registries, etc.)

Here are a few examples for the acupuncture topic:

- National Research Register http://www.update-software.com/national/
- Scientific and Technical Information Network (STINET) http://stinet.dtic.mil/
- NCCAM Grantee Publications Database http://www.nccam.nih.gov/cgi-bin/bibliography.cgi
- Cog Prints http://cogprints.org/
- NetPrints http://clinmed.netprints.org/home.dtl
- arXiv.org (Cornell University) http://arxiv.org/
- Directory of Open Access Journals http://www.doaj.org/ljbs?cpid=78
- E-Print Network http://www.osti.gov/eprints/pathways/index.shtml
- ClinicalTrials.gov http://clinicaltrials.gov

5.7 Hand-searching journals or scanning reference lists (manually or online)

Targeted hand searching of relevant publications is a useful technique in locating grey literature. Hand searching supplements information that may not have been found through conventional retrieval methods. It is also an important way to find articles missed by databases or located in reference lists and bibliographies.

Hand-searching is also a means to locate recent publications not indexed or cited by other researchers. In systematic reviews, hand searching can be conducted by the researcher or the information specialist. Check Cochrane's master hand- search list to ensure that the journal or conference is not already being searched by CENTRAL <http://www.cochrane.us/masterlist.asp>.

Another effective way of scanning the literature is to identify academic experts and find his / her publication list or curriculum vitae (CV). This will likely reveal relevant items that are "grey". Increasingly, academics are putting their CVs onto web sites which helps to disseminate their work at very little cost.

5.8 Internet / Google searches / Portals

Some relevant general search engines/ directories:

Google http://google.ca
MSN Search http://search.msn.com
Librarian's Internet Index http://lii.org/
Internet Archive http://www.archive.org/index.php
Yahoo http://yahoo.com
Kosmix http://kosmix.com

Some relevant vertical search engines, or *vortals*, with medical/ health content*:*

Google Scholar

Using Google's popular interface, Google Scholar enables you to search specifically for scholarly literature including peer-reviewed papers, theses, books, preprints, abstracts and technical reports from all broad areas of research. GS is used to find articles from a wide variety of academic publishers, professional societies, preprint repositories and universities, as well as scholarly articles available across the web.

MEDLINEplus - National Library of Medicine

MEDLINEplus is the US National Library of Medicine's free consumer site leading patients to information on diseases, drugs, clinical trials, definitions, health organizations and news for more than 700 health topics. Extensive links to images, slideshows, videos and encyclopedia articles are included for common diseases, tests, symptoms, injuries and surgeries, and brand and generic drug information. Each topic has easy-to-read "health literacy" links, and pre-formatted "expert" searches for quick access to Pubmed.

NLM Gateway

This is "one-stop shopping" across multiple databases at the U.S. National Library of Medicine (NLM); MEDLINE/PubMed, OLDMEDLINE, LOCATORplus, MEDLINEplus to name a few.

PUBMED

PubMed.gov is the US National Library of Medicine's freely web searchable MEDLINE database - the premier international index to biomedical research covering almost 5000 journals and indexing more than 15 million citations from 1949 to present. Key sections include: 1) PubMedCentral's *free* journal database; 2) genomic search tools; 3) more than 4300 fulltext e-journals; 4) MEDLINEplus and 5) NCBI's *free*Bookshelf.

SCIRUS - for scientific, technical, medical information

Scirus is a science-specific search tool with results from over 200 million Web pages, including sites that other search engines don't index. In addition to science, technical and medical sites, Scirus indexes the following special sources: ArXiv.org, Biomed Central, Caltech, Cogprints (via OAI), DiVa, Project Euclid, Crystallography Journals Online, LexisNexis, MIT OpenCourseWare, NASA technical reports, NDLTD, MEDLINE, PubMed Central, RePEc, ScienceDirect, Scitation, SIAM and T-Space.

6.0 Group search activity

- Break into groups of three (3)
- Select a topic and brainstorm with your group. *Can you frame your topic as a question?*
- Discuss your search strategy. What databases and websites will you consult?
- Develop a basic outline or checklist for sites, databases, starting points
- What search terms, wildcards and keyword combinations might be relevant?
- *See* checklist template on next page

6.0.1 Grey literature outline – brainstorm in groups

Databases, organizations, Websites?	Gateways, existing pathfinders, guides to topic?	Date searched	# of hits or relevant documents	Notes, observations

7.0 Conclusions (*brainstorm)*

Appendix A

Health tests, measurement scales and questionnaires

- How do I find these *hard-to-finds?* Identifying Tests
    - MEDLINE, Health & psychosocial index (HAPI)
    - ERIC, PsycINFO
    - Tests and Measures in the Social Sciences (librarian-compiled)

    http://libraries.uta.edu/helen/test&meas/testmainframe.htm

- Which test is best?
    - Locating reviews and critiques
        - Buros Center for Testing http://www.unl.edu/buros/
    - Finding in books in library
    - Finding in journal articles

- Finding Tests
    - Buros/ERIC Test Publisher Directory
      http://ericae.net/testcol.htm#Testpub
    - ERIC Clearinghouse on Assessment and Evaluation. Directory allows name and address search for 900 major commercial test publishers.
    - Association of Test Publishers
      http://www.testpublishers.org/memserv.htm
    - Educational and Industrial Testing Service
      http://www.edits.net
    - ERIC Test Publisher Directory
      http://ericae.net/testcol.htm#TestPub

- Follow-up
    - Dictionaries, handbooks & encyclopedias
    - Sample websites
        - Kiersey Temperament and Character Website (MBTI)
          http://www.kiersey.com
        - Goldberg's Depression Scale
          http://www.psychcentral.com/depinv.htm
        - Goldberg's Mania Scale
          http://www.psychcentral.com/mancinv.htm
        - Personality and IQ Tests
          http://www.davideck.com/links/IQ.html
        - Tests, Tests, Tests...
          http://www.queendom.com/tests.html
        - Personality Pathways
          http://www.personalitypathways.com

Appendix B

Example Resources: Pandemic influenza

Information gateways to grey literature on this topic:

MEDLINEplus: Bird Flu (National Library of Medicine)
http://www.nlm.nih.gov/medlineplus/birdflu.html

Resource Guide for Public Health Preparedness (The New York Academy of Medicine)
http://www.phpreparedness.info/
Guide provides single point of access to resources in public health, and disaster preparedness.

Canadian resources (sample)

B.C. Ministry of Health - Avian Influenza
http://www.hlth.gov.bc.ca/pho/avian_influenza.html

Public Health Agency of Canada – Avian influenza
http://www.phac-aspc.gc.ca/influenza/avian_qa_e.html

U.S Resources

PandemicFlu.gov / AvianFlu.gov (Dept of Health and Human Services)
http://www.pandemicflu.gov/
One-stop access to U.S. Government avian and pandemic flu information. Includes information on confirmed cases worldwide, planning documents and tools.

National Strategy for Pandemic Influenza (Homeland Security Council, The White House)
http://www.whitehouse.gov/homeland/pandemic-influenza.html
Plan for preparedness and communication, surveillance and detection and, response and containment.

CDC – Influenza (Flu) (Centers for Disease Control and Prevention)
http://www.cdc.gov/flu/
The CDC's page contains general influenza information, including information for the lay public.

International Resources

Avian Influenza (World Health Organization)
http://www.who.int/csr/disease/avian_influenza/en/
The World Health Organizations main avian influenza page with links to:

National Influenza Pandemic Plans
http://www.who.int/csr/disease/influenza/nationalpandemic/en/index.html

Pandemic Influenza (Pan American Health Organization)
http://www.paho.org/english/ad/dpc/cd/flu-pan.htm
Official pandemic influenza page of the Pan American Health Organization.

Consumer resources

Bird Flu (Avian Influenza) (Mayo Clinic)
http://www.mayoclinic.com/health/bird-flu/DS00566

Bird Flu (Avian Flu) (Nemours Foundation)
http://kidshealth.org/teen/infections/colds_and_flu/bird_flu.html

Appendix C

Example Resources: Smoking prevention

Scenario:

You've been asked to find supporting document regarding smoking prevention strategies for Canadian teenagers.

Questions while looking at the following resources:

- Where will I start to find the grey literature for question?
- What do I know about the organizations listed?
- Are there institutions studying this topic in Canada? Experts in the field?
- Is the quality of information better at certain sites beyond Canada?
- How would searching the major databases help you?

Resources:

Government organizations

Canadian Public Health Association
- http://www.cpha.ca

Health Canada
- http://www.hc-sc.gc.ca/hl-vs/tobac-tabac/research-recherche/stat/ctums-esutc/index_e.html

Quit for Life
- http://www.quit4life.com/

Search engines

Yahoo Canada http://yahoo.ca
Google Canada http://google.ca
Kosmix http://kosmix.com

Directories
Health Care Information Resources
http://hsl.lib.mcmaster.ca/tomflem/smok.html

Appendix D

Evidence-Based Complementary and Alternative Medicine (CAM) Resources

Dean Giustini - UBC Google Scholar blog

Either completely or partly "Free & Open Access" (some *available* @ UBC Library)

1. **ACUBRIEFS** was established and is supported by a grant from the Medical Acupuncture Research Foundation (MARF). Its purpose is to make available the most comprehensive database of references on acupuncture in the English language.

2. **ARCAM and CAMPAIN** The Center for Integrative Medicine regularly updates two bibliographic databases: The Arthritis and Complementary Medicine Database (ARCAM) and the Complementary and Alternative Medicine and Pain Database (CAMPAIN). Compiled from electronic and hand searches of scientific literature sources world-wide.

3. **AGRICOLA®** AGRICultural OnLine Access: "a bibliographic database of agricultural literature created by the National Agricultural Library and its cooperators". Includes citations about herbs and medicinal plants and references from HerbalGram.

4. **Bandolier**: a print and Web journal taking an evidence-based approach geared to health professionals and consumers. Content is 'tertiary'; distils information from (secondary) reviews of (primary) trials". A growing list of CAM content.

5. **CRISP (Computer Retrieval of Information on Scientific Projects)** Searchable database of projects funded by National Institutes of Health (NIH), Substance Abuse and Mental Health Services (SAMHSA), Health Resources and Services Administration (HRSA), Food and Drug Administration (FDA), Centers for Disease Control (CDCP), Agency for Healthcare Research and Quality (AHRQ), Office of Assistant Secretary of Health (OASH). Some CAM research.

6. **ClinicalTrials.gov**: locates current information on treatment or by disease, drug, modality, therapy or procedure. Contains CAM therapies [search by words: alternative (medicine or therapy) or complementary; modality: acupuncture, gingko or shark cartilage.

7. **The Cochrane Collaboration**: systematic reviews of relevant RCTs. Free abstracts to **Cochrane Database of Systematic Reviews**. Search by acupuncture, gingko, chinese medicine etc. See: **Cochrane Complementary Medicine** - promotes systematic reviews for CAM, massage, chiropractic, herbal medicine, homeopathy and mind-body therapy.

8. **Dr. Duke's Phytochemical and Ethnobotanical Databases** Agricultural Research Service U.S. Department of Agriculture.

9. **Datadiwan**: "information on holistic medicine; scientific discussion from around the globe. A network linking research organizations world-wide." Most literature is in German.

10. **EMBASE** ® International database covering biomedical, pharmacological and drug literature. 🔒 ***LOCKED*** - but some content is searchable via **Scirus.com**

11. **HerbMed®** - an interactive, electronic herbal database – provides hyperlinked access to the scientific data underlying the use of herbs for health. It is an evidence-based information resource for professionals, researchers, and the general public. Only 45 files are free.

12. **Hom-Inform Database** of indexed literature in homoeopathy. **British Homoeopathic Library at Glasgow Homoeopathic Hospital** host and develops tool. Searchable free online.

13. **Index to Chiropractic Literature 1985-2001**: Health librarians working in chiropractic colleges create this database whose goal is to improve access to chiropractic literature.

14. **IBIDS - International Bibliographic Information on Dietary Supplements database**: "produced by Office of Dietary Supplements, National Institutes of Health, with Food and Nutrition Information Center, National Agricultural Library, United States Department of Agriculture. Contains abstracts from scientific journals on dietary supplements, vitamins, minerals, herbal and botanicals. General public, scientists, researchers can search for CAM."

15. **MEDLINEplus – Complementary and Alternative Medicine and Natural Standard.**

16. **CAM on PubMed®**: bibliographic citations obtained from the National Library of Medicine's PubMed (MEDLINE) database that allows you to limit to a **CAM subset** of journals.

17. **Native American Ethnobotany Database** , Dan Moerman, Professor of Anthropology, University of Michigan-Dearborn: "foods, drugs, dyes, fibers and other uses of plants (a total of over 47,000 items). This represents uses by 291 Native American groups of 3,895 species from 243 different plant families." **http://www.umd.umich.edu/cgi-bin/herb**

18. **Phytotherapies.org** is a free service by registration "sponsored by Herbworx, an Australian company dedicated to ensuring practitioners can access quality herbal medicine and clinically relevant, scientifically validated information and quality herbal extracts." Though commercial, herbal monographs contain actions, constituents, studies & articles.

19. **Poisonous Plant Database** , United States Food & Drug Administration, Center for Food Safety & Applied Nutrition, Office of Plant and Dairy Foods and Beverages .

20. **TOXNET (includes TOXLINE)** An NLM-NIH initiative covering pharmacological, physiological, and toxicological effects of drugs and other chemicals. Over 3 million citations, almost all with abstracts and/or index terms and CAS Registry Numbers.

More CAM Resources that are 🔒 ***locked, hidden and in the deep web***

1. 🔒 ***LOCKED*** **ACUBASE** created by the **Bibliothèque Universitatire de Médicine de Nîmes** is a database of ~11,000 French and English references, book and journal articles dedicated to acupuncture. Includes conference proceedings.

2. 🔒 ***LOCKED*** **Allied and Complementary Medicine (AMED)** is a unique database produced by the Health Care Information Service of the British Library This database will be of interest to individuals wanting to know more about alternatives to conventional medicine, and includes resources to complementary medicine, palliative care and several professions allied to medicine. Available in a variety of formats from print to online.

3. 🔒 ***LOCKED*** **AltHealthWatch** Focuses on many perspectives of complementary, holistic, and integrated approaches to health care and wellness. Indexes articles, reports, proceedings, pamphlets, booklets, special reports, original research, and book excerpts as well as association and consumer newsletters from >140 international sources. Available by subscription or through libraries. www.epnet.com/academic/default.asp

4. 🔒 ***LOCKED*** **CINAHL®** Index to Nursing & Allied Health: quite a few CAM journals indexed.

5. 🔒 ***LOCKED*** **CISCOM Database**, ©The Centralized Information Service for Complementary Medicine, The Research Council for Complementary Medicine, United Kingdom: 4,000 randomized trials and over 60,000 citations and abstracts covering and arranged by the major complementary therapies including acupuncture, aromatherapy, healing, hypnotherapy, chiropractic, homoeopathy, and manipulative.

6. 🔒 ***LOCKED*** **Traditional Chinese Medicine Database System** China Academy of Traditional Chinese Medicine: ten Chinese language and two English language databases. English language database called Traditional Chinese Medicinal Literature Analysis and Retrieval System (TCMLARS); has references and abstracts to articles on acupuncture and phytotherapies from 1984. TCDBASE in English contains Chinese materia medica of medicinal plants, herbal drugs, mineral drugs.

7. 🔒 ***LOCKED*** **IBIS** (The Interactive BodyMind Information system)
Commercial database of Natural Medicine produced by Integrative Medical Arts Group, Inc. An unusual resource of comparative data on common medical conditions, offering treatment information for each from over 12 systems of natural medicine and alternative therapies.

8. 🔒 ***LOCKED*** **Manual, Alternative and Natural Therapy (MANTIS) Database**, (formerly CHIROLARS) Action Potential, Inc.: coverage for health care disciplines not significantly represented in the major biomedical databases, references from more than 1,000 journals, with preference given to peer-reviewed journals. Includes health promotion, & prevention, accupuncture, allopathic medicine, alternative medicine, chiropractic, herbal medicine, homeopathy, naturopathy, osteopathic medicine, physical therapy, and Chinese medicine.

9. 🔒 ***LOCKED*** **MICROMEDEX Complementary & Alternative Medicine (CAM) Series**, "an accurate and scientifically based, in-depth series of databases covering four areas: herbal medicine and dietary supplements,clinical protocols, patient education, and herbal & dietary supplement toxicology." The AltMedDex™ System, the first in the series provides information on herbals and other dietary supplements. "The Complementary & Alternative Medicine Series from MICROMEDEX is a comprehensive, clinically focused reference tool that is based on a thorough compilation of scientific literature."

10. 🔒 ***LOCKED*** **NAPRALERT, NAtural PRoducts ALERT** from **STN International**: bibliographic and factual data on natural products pharmacology,biological activity, taxonomic distribution, ethno-medicine and chemistry of plant, microbial, and animal (including marine) extracts. NAPRALERT contains ~100,000 records from 1650-to present. ~50% are from systematic review of literature from 1975 to present (selective indexing back to 1650).

11. 🔒 ***LOCKED*** **Natural Medical Protocols for Doctors**: "fee-based service that "includes current research data and treatment protocols for most common medical conditions and cross-linked reference material about vitamins, minerals, herbs, homeopathy and other supplements and therapies. The information was gathered and organized by a consortium of doctors from various branches of medicine. This includes MDs (conventional medical doctors), NDs (naturopathic doctors), Acupuncturists and PhDs of various kinds. The data compiled here was taken from research journals (through 2000) and medical books and the reference citations are included."

12. 🔒 ***LOCKED*** **Natural Medicines Comprehensive Database**: "up-to-date clinical data on the natural medicines, herbal medicines, and dietary supplements used in the western world. Compiled by pharmacists and physicians.

13. 🔒 ***LOCKED*** **NATURAL STANDARD** (www.naturalstandard.com) provides extensive, evidence-based reviews of research on botanical and dietary supplements, as well as other complementary and alternative medicine therapeutics to aid health care practitioners and patients in the decision-making process. (Some free content at MEDLINEplus).

14. 🔒 ***LOCKED*** **PhytoNET**, Centre For Complementary Health Studies University of Exeter: "resource for those involved in the development, manufacture, regulation and surveillance of phytomedicines and herbal drugs", contains information from the European Scientific Co-operative on Phytotherapy (ESCOP), forms to submit adverse effects of herbal medicines, development of European standards for safe use of phytomedicines.

15. 🔒 ***LOCKED*** **PsycInfo**, American Psychological Association: source for mind-body and other complementary and alternative therapies used in mental disorders, stress reduction or psychological and behavioural processes and neuroimmunology.

16. 🔒 ***LOCKED*** **SIGLE, System for Information on Grey Literature in Europe**

17. 🔒 ***LOCKED*** **TCMLARS** (Traditional Chinese Medicine Literature Analysis & Retrieval System) Beijing, China

18. 🔒 ***LOCKED*** **Web of Science** Produced by the **ISI** (Institute for Scientific Information), these two databases cover scientific and social science journals worldwide, together with selected coverage of related material. The multi-disciplinary set of ISI databases, including the Arts and Humanities Index, totals over 300 million references.

Other miscellaneous sources:

19. 🔒 ***LOCKED*** **INMEDPLAN** Ayurvedic databases, India
20. 🔒 ***LOCKED*** **Beijing Database of Traditional Chinese Medicine** SPAC, China.
21. 🔒 ***LOCKED*** **Chinese Medicinal Material Research Centre (CMMRC)**, Hong Kong.
22. 🔒 ***LOCKED*** **Medicinal Plants of Native America Database (MPNADB)** USDA.
23. 🔒 ***LOCKED*** **TradiMed** Oriental Medicine, Seoul, Korea.
24. 🔒 ***LOCKED*** **Qigong and Energy Medicine Database**, California, USA
25. 🔒 ***LOCKED*** **Private Library of Francis Treuherz**

Appendix E

Annotated Bibliography

Anderson, Byron. Grey literature and electronic publishing. Behavioral and Social Sciences Librarian 2001 19 (3/4): 57-73.

Anderson points out that some information not found in traditional databases is more easily found in the grey literature. Addressing librarians and scholars, he describes access problems and efforts of the National Library of Medicine (NLM) to improve access to grey literature.

Auger Charles P. Information sources in grey literature, 4e. London: Bowker, 1998.

Auger describes grey literature as "difficult-to-define" publications not available through regular channels. This guide concentrates on identifying, tracing, and acquiring publications. Contents include a short discussion on the nature and production of grey literature and methods of bibliographic control, cataloging, and indexing. Individual chapters devoted to aerospace, life sciences, business and economics, education, energy, and science and technology summarize information on major grey literature sources and materials they produce. A list of international organizations dealing in grey literature appears at the end of the text.

Banks, Marcus. Connections between open access publishing and access to gray literature. J Med Libr Assoc. 2004 April; 92(2): 164-166.

The potential of open access to increase access to peer-reviewed literature is worth discussion. We must not forget the challenge of providing access to the gray literature to complement peer-reviewed research. We do not need to launch an open access movement to obtain this material, due to its lack of commercial significance. The challenge is to develop resources of depth comparable to peer-reviewed scholarship.

Banks Marcus. Towards a continuum of scholarship : the eventual collapse of the distinction between grey and non-grey literature. In Farace, Dominic, Eds. *Proceedings GL7 : Seventh International Conference on Grey Literature*, Nancy (France). 2005.

The distinction between grey and non-grey (or white) literature will become less relevant over time, as online options proliferate. In the meantime, the political success of the open access publishing movement has valuable lessons for proponents of increasing access to grey literature.

Devine, Jane, and Francine Egger-Sider. "Beyond Google: the invisible web in the academic library." Journal of Academic Librarianship 30:4 (2004): 265-269.

The authors discuss the importance of uncovering materials in the invisible web, in an academic context.

Gelfand, Julia M. 1998. Teaching and exposing grey literature: what the information profession needs to know - examples from the sciences. Collection Building 17 (4): 159-166.

Julia Gelfand, a U.S. applied sciences librarian who writes about grey literature, describes the progress made in exposing it – making it accessible and *visible*. She describes the impact of the Web on publishing and its implications for grey literature and scholarly communication.

Gray, Tim. "Yahoo Mines the Deep Web" InternetNews.com. 17 June 2005. 27 June 2005

This is an announcement of Yahoo's "search subscriptions" service which supposedly will tap into Deep Web subscription content. Note the author's surname.

Joyce Janet et al. Canadian Agency for Drugs and Technologies – Checklists. April 2006
Formerly the Canadian Coordinating Office for Health Technology Assessment (CCOHTA), now the Canadian Agency for Drugs and Technologies in Health (CADTH) <http://cadth.ca/index.php/en/home>. Produces an excellent checklist of resources for librarians and information specialists.

McKimmie, Tim and Joanna Szurmak. 2002. Beyond grey literature: how grey questions can drive research. Journal of Agricultultural and Food Information 4(2):71-79.

Grey lit is broadly defined as news clippings, reports, newsletters, listserv queries, consultations and personal contacts and periodicals not in databases. GL raises "grey questions" and fills in knowledge gaps left by peer-reviewed literature. Traditional databases do not index grey lit and leave researchers with a false impression that information cannot be found. The authors recommend a database of grey questions and networking among information providers and librarians to find answers.

Pace, Andrew K. 2002. Black, white, and shades of gray (literature) on the Web. Computers in Libraries 22 (4): 44-47.

The author discusses 'gray' literature - what librarians used to call 'the vertical file' - on the Web. Web content not making its way into commercial databases should be enriched with descriptive tagging to increase subject access. He mentions Google as a search engine surpassing all others in indexing web content and providing better index access to electronic theses and dissertations (ETD) than library OPACs.

Savoie I, Helmer D, Green CJ, Kazanjian A. Beyond Medline: reducing bias through extended systematic review search. Int J Technol Assess Health Care. 2003 Winter;19(1):168-78.

Extended systematic search methods uncovered 29.2% of all items retrieved for systematic reviews. The search of specialized databases was the most effective method, followed by scanning of reference lists, communicating personally and hand searching. Although the number of items identified through hand searching was small, these unique items would otherwise have been missed. Systematic search methods are effective tools for uncovering material for the systematic review. The quality of the items uncovered has yet to be assessed and are key in evaluating the value of the systematic search methods.

Shpilko I. Locating grey literature on communication disorders. Med Ref Serv Q. 2005 Fall; 24 (3): 67-80.

An overview of resources of grey literature in the area of communication disorders geared to practitioners, researchers, and consumers seeking reliable, freely available scientific information. Includes identification of the methods specialists use to obtain this valuable, yet often overlooked, literature. Access points and search tools for identifying grey literature on communication disorders are recommended. Commercial databases containing grey literature are not included.