Day 2

Module 2

ACCESSING EVIDENCE

OVERVIEW

MODULE OBJECTIVES

At the end of this module participants will:

- Know tips for engaging with researchers to enable increased access to and use of evidence
- Identify relevant high-quality search engines/databases for conducting searches
- Explain steps in a search strategy
- Know Boolean search terms and tips for searching the internet
- Identify search terms and relevant sources for searching for their policy question
- Describe characteristics of quality sources of evidence
- Demonstrate effective searching, assessment of sources, and development of components of their own search strategy

TIME

3 hours 15 min

Note: to save time, ensure computers are, connected to internet, and ready for use. Turn off monitors to retain attention of participants.

ACTIVITIES

A. Recap Day 1 – Introduction and Foundation of Policymaking [15 minutes]
B. Where do you get evidence? Brainstorm [10 min]
- Top Sources of Evidence: Presentation [10 minutes]

C. The Search Strategy – Brainstorm, interactive presentations, and case study [1 hour total]
- Steps in conducting an evidence search [20 min]
- Identifying Search Terms: Concept tables [5 min]
- Searching Tips: Boolean terms; quality assessment; Google search tips [10 min]
- Demonstration: Facilitator demonstrates a search using the case study [15 min]

Practical Application Exercise 2: Individual real-time searching for

evidence [1 hour 10 min]
D. Assessing Evidence Source Credibility - Presentation [15 min]
E. Module Reflection and Evaluation [15 min]

✂MATERIALS

- Laptop computers for each person for hands-on practice
- Internet connection
- Search strategy template hand-outs
- Example of search strategy completed

Module 2

ACTIVITY A: RECAP THE PREVIOUS DAY/MODULE

ACTIVITY OBJECTIVES

At the end of this activity participants will:

- Elicit and recap concepts and information from the previous day or module.
- Aid absorption and retention of information.

TIME

15 min

ACTIVITIES

1. Select and conduct a method for the recap activity. See options below.

Note to facilitator: You will have a sense of what material or learning was easy or challenging for the majority of participants and can choose a recap methodology (or use several) or duration that encourages more time or more details.

With all activity options, you can allow for looking in notes and materials or not. Similarly, with team exercises, you can decide if comparing with other groups in the end is allowed to be sure all answers are there.

These same activities can be a good way to test learning if used after a section of content or at the end of the module.

MATERIALS

In some cases you must prepare questions or statements ahead of time.

STEPS

Activity options:

1. **Summaries.** The recap done by the facilitator himself or herself by

providing a summary of the most important points that have just been covered. You can also elicit the participants' summary, by prompting and drawing out summary points from participants. This makes the recap even more interactive and engaging for participants.

2. **Blockbuster game**. On a flip chart, draw a grid of 4 by 4 squares, each square has a letter in it. You will need two packs of post-it notes in different colours (i.e. orange and green) and a set of questions, which you devise beforehand. Divide the group into 2 teams (doesn't matter if you have unequal numbers) and ask them questions, the answers to which begin with the letters you have written in the grid. e.g. 'what A is a key function of....?'
   The quickest team to press their 'buzzer' (be imaginative here) gets to answer the question and if correct, they get a post-it note of their team colour stuck onto the relevant letter. It's fun and noisy and they do learn from it.

3. **Mind map.** Ask the participants (can be individual, pairs, small group, or large group) to draw on chart paper a mind map of what was covered on the day or module in review. They can use colour, lines, or images to represent concepts; keywords radiate out from the central to show the association/relationship between terms. Mind maps records the information in the same way that our brains' structure and store information - through linked associations. The non-linear graphical manner encourages a brainstorming and eliminates the hurdle an intrinsically appropriate framework to work within.

4. **Sequence card sort.** Use a process with lots of logical steps. Write each step onto a small card; have 2 or 3 sets, depending on numbers and take a few out of each set (different ones). Then get the groups to put into order, identifying what is missing.

5. **Right brain drawing.** Split them into groups. Give each group a piece of flipchart and some coloured pencils or crayons. Give each group a major subject from the previous day or module and get them to draw their learning points (no words allowed). This review is fun and gets the right brain working.

6. **Participants present.** Divide group into small teams and give them the following instructions: "Working in teams, and using notes if needed, put together a 5 minute presentation to the group on your key learning points from the day or module. Your presentation should be creative, innovative, informative and involve all your

team. You have X minutes to prepare….."

7. **Team challenge.** Split into two teams, A and B. On a blank flip chart grid it off into a Team A and Team B scoreboard. Have them take 5 minutes to write questions for the opposing team from the material in review. When they teams ask the other teams questions if they get the answer correct they get a point. The first team to get a 2 or 3 or X number, "wins". Use this throughout training to generate a little competition. It's a fun and effective way to recap learning.

8. **Partner Quiz:** Participants are paired with someone they have not worked with so far. With their learning materials in hand, the pairs take turns creating quiz questions for each other on the day's work. The "quizzer" affirms his/her partner's response and adds to it or clarifies something. Then, the other person creates and poses a question. After sufficient time, the facilitator can pull the group together and field one question from each pair that they would like to explore further. This is a great way for a facilitator to assess learning as it happens and to see where the participants want more explanation, guidance, or practice.

9. **Team Debate:** The facilitator divides the group into two equal-sized teams (mixing fields of work as much as possible). Using a set of provocative statements related to the day's content, the facilitator writes the statement on a chart and poses it to one team. This team then has to decide what position to take on the statement and quickly come up with an argument to defend their position and present it to the other team. The team is awarded points on a scale of one to four, with four being an excellent defence of their position. Then it is the other team's turn with a new statement. The team with the most points in the end wins.

Module 2

ACTIVITY B: WHERE DO YOU GET EVIDENCE?

ACTIVITY OBJECTIVES	At the end of this activity participants will: • Know tips for engaging with researchers for evidence • Top sources of evidence in the health sector
TIME	20 min
ACTIVITIES	A. Group brainstorm: Where do you get your evidence? [5 min] B. Interactive presentation: Review of top tier databases and search engines for health [10 min]
MATERIALS	• Module 2 PowerPoint • Chart paper with these titles: currently search, databases searched • Markers
STEPS	1. Introduce the module with an outline of what we will cover. In this module we are talking about getting information – finding the evidence. We'll address the best ways to go about that process as well as evaluating the credibility of the sources we find. This module includes: a. Where to look – Top, reputable sources and databases b. How to look – Boolean terms and Google modifiers c. The search strategy – Your own search or with expert help; strategy steps and structure d. How to assess if source is credible or not 2. Note that the Participants' Guide includes additional information on all these topics for future reference.

3. Set the stage by describing the sequence thus far: Now that you have your policy question or identified evidence need, you need to evidence to take action. Now, you need to collect that evidence. Regardless of what form evidence is applied (recall from Module 1, applied evidence can manifest by making a case at a technical working group, summarizing information, 'elevator speech', a policy brief, etc.), you will need to engage in a search.

A. Group brainstorm: Where do you get your evidence?

4. In full group, ask participants to name where they currently get their evidence.
    a. Prompt with: consider a time in the past when you had to collect as much information as possible on a topic for work. Where did you start? Did you get help? Who did you go to?
    b. Consider personalizing the brainstorm by asking participants to consider a personal, non-work example. Where do you get evidence (data to base a decision) to: buy a new phone (house, car), find a specialist doctor or service?
    c. If desired, share what was learned about this question from the 2014 SECURE needs assessment:
    Parliament: online resources, colleagues and conferences and seminars, newspapers and TV news.
    County: Conferences and seminars, MoH's health management information system, colleagues and MoH programmatic technical working groups (top level policy makers were not asked this question).

5. Facilitator/other writes answers on chart paper.
6. Answers should include both hard (facts) and soft (feedback from person) sources of evidence.
7. Use slides and compare and contrast answers to the brainstorm with the model of 7 sources of information for policy research from Pabrita Gurung's Role of Research in Policy Making (in terms of policy research). 2014. University of Northern British Columbia
8. Walk through each node of the model.
    a. Ask if anything is missing or under-represented in this model.
    b. Person-to-person sources are not as obvious on the graphic as other sources. Input, opinions, anecdotal information that helps us make decisions – including policy – may be included under headings like academic community or think tanks.
    c. Confirm that we know from the literature, and each of our

own experience – both work-related and personal decisions -- that we definitely seek out evidence that is considered subjective and delivered informally.

9. Point out that one take-away is that it illustrates the commonness of information coming from sources other than peer-reviewed journals.
10. Explain that we will make a quick exploration into person-to-person sources of evidence.
11. Note that evidence can be "hard": published literature, statistics, facts, local research and evaluation. Or "soft": input from colleagues, tacit knowledge, feedback from users, anecdotal evidence. Both are have a place in EIPM – and any decision-making process. As humans, we rely on other humans who we trust or know to have experience or expertise – to help us form opinions and take a decision.
12. Affirm that part of sourcing evidence for use, includes having skills in building a network of experts, recognizing and engaging expertise and being able to understand their contribution. Subject matter experts and researchers can be help in a number of ways including:
    a. Ensuring policy decisions are based on the most up to date information
    b. Enabling innovation in policy by bringing a range of valuable external viewpoints and fresh perspectives
    c. Bringing extra rigor to decisions, as they can ask and answer difficult questions and challenge and defend complex answers
    d. Bridging skills gaps in specialist analytical and data handling roles
13. Present the content on slide, Tips for Linking with Experts, Researchers, and Research Institutions:
    a. Make an effort to know the main researchers in your area of interest – their names, institutions where they work and their positions, telephone number, and email
    b. Make initial contact – drop them an email asking them to share any new research they are generating, and to keep you abreast of their new findings whenever these emerge
    c. Inform them of the key policy issues that you wish their research could answer
    d. Involve them in policy-making processes
    e. Request them to involve you in their conferences, meetings and research studies
    f. Attend key scientific conferences in your area of interest
    g. Subscribe to receive regular newsletters and other publications of the research institutions in your area of interest
14. Ask if there are other tips from the group.

15. Explain that we will revisit key audiences, networking, and communications in Sessions 5 and 6, Synthesizing and Applying Evidence

Note to Facilitator: Point out that the Participant's Guide includes a list of several communities of practice with listservs for Evidence Informed Policy Making such as: Evidence Based Policy in Development Network and the Africa Evidence Network.

16. Transition to next sub-theme on the top search engines and databases for sourcing evidence.

B. Interactive presentation: Top sources of evidence [10 min]

1. If needed, clarify the terminology. We use both "database" and "search engine" in this training. These terms are frequently used interchangeably, although their meaning is different: *Database:* Content is reviewed and recommended by librarians. Information is organized and stable. Can be institutional repositories (open access journals) or virtual libraries.

   Search Engines: Designed to search for information on the World Wide Web. Free to anyone with computer access. No review standards with regard to content. Information is not organized. Information is not stable; locations and content continually change.

2. Start by emphasizing a specific and useful person-to-person contact when accessing evidence. That is, use the experts, librarians, knowledge management specialists or other repository curators of repositories, whenever possible. Explain that working with or through a librarian or knowledge management specialist can be a benefit to not only one's time but also the quality of the search. They have more experience with searching and literature repositories. They may also have access to databases that have fees or subscription costs. Remind participants that universities and some NGOs may have librarians who can help. Also, some repositories and databases have online technical support. Acknowledge that in some settings, such experts do not exist or are hard to access. Still, it's a good first step when possible.

3. Ask the group to name some of their "go-to" or favorite sites or search engines. Explain that first, we'll query the group and then provide a list and some description of top tier databases and search engine.

4. Write answers on chart paper if desired
5. Use the slides to show the list of 10 commonly used databases or search engines used for health evidence and highlight any differences. Explain that this list was created and endorsed by librarians and other information specialist on the training development team. It is not scientifically derived or validated. We trust these experts and our own experience.
6. Read or allow participants to read through the list of "go to" repositories for evidence in the health field. Note that the descriptions and details are in their Participants Guides. Affirm that there will be opportunities to work with these on their laptops soon.
    1. Google Search
    2. Google Scholar
    3. HINARI
    4. AIM
    5. Cochrane Library
    6. POPLINE
    7. PubMed
    8. Research for Life
    9. World Health Organization databases
    10. Development Experiences Clearinghouse (DEC)
    11. Others?

    Point out that most of these databases or engines have FAQs, how to search, and tutorials. There are many more top tier databases depending on what you are looking for.

7. **Note to Facilitator:** Explain that originally the list was presented alphabetically with none emphasized over others. However, in early trainings and in the follow-up program, we realized that a significant number of participants were not familiar with even Google searches. As a result, we have moved these to the top of the list and recommend that if nothing else you familiarize yourself with searching in Google, Google Scholar, and HINARI. HINARI is in the top 3 list because participants in early trainings really liked this database and felt it had a lot of value. They are not in order or importance or quality but they are a good place to start.
8. Use slides to cover Google, Google Scholar, and HINARI. If needed, explain that gray literature is a term used to refer to materials and research produced by organizations, outside of the traditional commercial or academic publishing and distribution channels. If needed, explain that indexed is when knowledge managers read and organize by terms.

Note to Facilitator: Decide if there is time and or need to describe each

of these very briefly. If so, use the descriptions below. Recommend they take a few notes on any they are unfamiliar with.

9. Use slide to make this important point about accessing: the idea of evidence-informed is to look at everything. Ensure you are getting all sides of the issue by doing in search in multiple databases.

Descriptions of databases and search engines.

1. **Google Search** (www.Google.com) -- commonly referred to as Google Web Search or just Google, is a web search engine owned by Google Inc. It is the most-used search engine on the World Wide Web, handling more than three billion searches each day. The order of search on Google's search-results pages is based, in part, on a priority rank called a "PageRank". Google Search provides many different options for customized search, using Boolean and other options specified in a different way on an advanced search page.

The main purpose of Google Search is to hunt for text in publicly accessible documents offered by web servers, as opposed to other data, such as image or database search. Google Search provides several features beyond searching for words.

From a librarian: "Using general Internet search engines such as Google to identify potential studies may be a good resource as these may be used to retrieve current (both published and unpublished) studies. Google will have more grey literature.

2. Google Scholar (https://scholar.google.com/) -- is a freely accessible web search engine that indexes the full text of scholarly literature across an array of publishing formats and disciplines. Google Scholar index includes most peer-reviewed online journals of Europe's and America's largest scholarly publishers, plus scholarly books and other non-peer reviewed journals. It is estimated to contain roughly 160 million documents.

From a librarian: "Google Scholar is good because it is peer reviewed. Both Google and Google Scholar will give you a lot (neither is indexed, that is read by staff who apply index terms to the articles) – and you'll have duplicates in them. These two are simply matching your terms – so you may have to put in a lot of different terms. That is, you can't assume 'vaccine' will get everything vaccine related term (e.g. vaccines, immunize, immunizations). You have to put in all possible alternatives."

3. **HINARI** (http://www.who.int/hinari/en/) -- HINARI Access to Research in Health Program provides free or very low cost online

access to major journals in biomedical and related social sciences to local, not-for-profit institutions in developing countries. Up to 13,000 journals (in 30 different languages), 29,000 e-books, 70 other information resources are now available to health institutions in more than 100 countries, areas and territories, benefiting many thousands of health workers and researchers.

4. African Index Medicus (AIM) (http://indexmedicus.afro.who.int/Journals/Indexj.html) - The WHO, in collaboration with the Association for Health Information and Libraries in Africa (AHILA), has produced an international index to African health literature and information sources. This index is called African Index Medicus (AIM). Printed knowledge generated in African countries is given global exposure in the AIM. It promotes African publishing by encouraging writers to publish in their country or regional journals, whereas now scientists and researchers in developing countries are competing for publication space in the few worldwide "prestigious" journals.

5. **The Cochrane Library** (www.Cochrane.org) -- is published on behalf of the Cochrane Collaboration and strives to improve healthcare decision-making through systematic reviews of research on the effects of healthcare interventions. The Cochrane Collaboration identifies the strongest studies addressing a given issue, helping researchers and policy-makers to separate reliable information in properly done studies from less reliable or rigorous information. Cochrane Collaboration Library's five databases include:

10. Database of Systematic Reviews – extremely rigorous
11. DARE (Database of Abstracts of Reviews of Effectiveness) – well-done reviews by others
12. Controlled Trials Registry – database of controlled trials, much smaller than Medline
13. National Health Service (NHS) Health Technology Assessment Database – summaries of Health Technology Assessments
14. NHS Economic Evaluation Database – appraised summaries of economic evaluations

6. **POPLINE®** (www.popline.org) -- contains the world's most comprehensive collection of population, family planning and related reproductive health and development literature. An international resource, POPLINE helps program managers, policymakers, and service providers in low and middle income countries in development-supportive agencies and organizations gain access to scientific articles, reports, books, and unpublished documents. POPLINE is a free resource, maintained by the Knowledge for Health (K4Health) Project at the Johns Hopkins Bloomberg School of Public Health/Centre for

Communication Programs and is funded by USAID.
From a librarian: "Information searches in Pubmed and Popline are great but can be overwhelming. Have patience!"

7. **PubMed** (www.pubmed.gov) -- comprises more than 24 million citations for biomedical literature from MEDLINE, life science journals, and online books. Citations may include links to full-text content from PubMed Central and publisher web sites. National Center for Biotechnology Information, US National Library of Medicine host PubMed.

8. **Research4Life** (http://www.research4life.org/) -- is the collective name for four programs –HINARI, AGORA, OARE and ARDI– that provide developing countries with free or low cost access to academic and professional peer-reviewed content online. Eligible libraries and their users benefit from online access to over 44,000 peer-reviewed international scientific journals, books, and databases; full-text articles which can be downloaded for saving, printing or reading on screen; searching by keyword, subject, author or language; resources available in several languages; training in information literacy and promotional support. Research4Life is a public-private partnership of the WHO, Food and Agriculture Organization, UN Environmental Program, World Intellectual Property Organization, Cornell and Yale Universities and the International Association of Scientific, Technical and Medical Publishers.

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9. **World Health Organization (WHO)** resources (http://www.who.int/en/) -- The WHO has a wide range of information resources on global and country-specific health issues. Specific resources can be found in WHO's *Global Health Observatory* (http://www.who.int/gho/en/) and Publications (http://www.who.int/publications/en/) pages. The Observatory contains disease statistics, data repository, and analytical reports on global priority health issues.

10. **Development Experience Clearinghouse (DEC)** (https://dec.usaid.gov/dec/home/Default.aspx) -- USAID's DEC is the largest online resource for USAID-funded technical and project materials; makes nearly 200,000 items available for review or download, and continuously grows with more than 1000 items added each month. The DEC holds USAID's institutional memory, spanning

over 50 years; including documents, images, video and audio materials. The DEC collects research reports, evaluations and assessments, contract information, tutorials, policy and planning documents, activity information sheets, and training materials.

15. Transition from identifying top tier search engines to actions we take when conducting a search.

Module 2

ACTIVITY C: THE SEARCH STRATEGY

OBJECTIVES

At the end of this activity participants will:

- Identify relevant high-quality search engines/databases for conducting searches
- Explain steps in a search strategy
- Know Boolean search terms and tips for searching the internet

TIME

2 hours 5 min

ACTIVITIES

A. Group brainstorm: Steps in undertaking an evidence search [5 min]
B. Presentation: Steps in conducting a search [10 min]
C. Presentation: Identifying search terms [15 min]
D. Presentation: Applying Boolean and Google search operators [15 min]
E. Case study
F. Practical Application Exercise 2: Sourcing Evidence for your Policy Question [1 hour 20 min]

MATERIALS

Module 2 PowerPoint
Laptops
Internet connection

STEPS

1. Introduce this subtopic: The search strategy. Explain that we will cover:
    a. Steps involved in a search strategy
    b. Have a demonstration of searching
    c. Participants practice creating a strategy and conducting their own searches
2. Explain that conducting an evidence search puts you into a deep state of managing and evaluating a huge volume of information. Internet

and database searches can generate a large amount of potentially useful information. Reiterate that again, whenever possible, connect with a librarian or knowledge specialist for ideas and support

The Search Strategy – Brainstorm, interactive presentations, and case study [1 hour]

1. Set up a brainstorm and ask, what steps do you take? Have participants call out what they do when they are searching for evidence.

Note to facilitator: If you have plenty of time, consider splitting participants into two groups to have them work on answering this brainstorm for 5-10 minutes. Then come back together and have the groups report out (noting any differences between their answers; not repeating steps if already mentioned by the other group).

2. Suggest that it might be helpful to think in terms of beginning, middle, and end – although, in true brainstorm style, they can share anything in any order.
3. For background, explain that the search strategy is often talked about in 'information literacy' instruction. It can be a formal tool you use (we'll use one later) or it can be less formal and refer to the steps one takes when launching and revising their information search. Also, developing a search strategy is an iterative process in which the terms that are initially used may be modified based on what has already been retrieved.
4. Write their answers on chart paper.
5. Use slide to shows steps and compare with their answers. Explain that we will go into more detail on several key steps but at face value, looking at the list, ask participants:
   Do they agree with steps? Is anything missing?
   1) Plan!
   2) Define your information need – based on question
   3) Identify potential sources and limiters
   4) Which databases? Unpublished studies? Dates? Language?
   5) Identify search terms and cluster them
   6) Launch search - start wide and keep refining
   7) List results
   8) Evaluate results
   9) Record your search strategy
   10) Document your references
6. Note that the steps can be applied to any searching situation, electronic or otherwise. Tell participants to think of this as a checklist and encourage use of such a checklist by all information users, especially electronic resources as these are often searched directly by

users without the aid of a librarian.

7. Remind participants that there is no one-size-fits-all list of steps. Different methods of searching and searching strategies are appropriate depending on the user needs. The point is not to be too rigid about the steps but do work systematically.

8. Use slides and share additional detail on key steps, which include:
    a. Steps 1 and 2: Plan and Define your information need. Start by telling participants what they already know about the search strategy task – and most tasks, frankly. That is, taking a few moments to think about what information you need, and how you are going to look for it, can save you a lot of wasted effort. It can also help you to find more relevant results, which can enhance the quality of your search.
        - Next, try to put what you are looking for in the form of a question because that will focus your need and define relationships. It gets to what are you really trying to find out. We drafted policy questions in Module 1: Foundation. Ask if you looking for specific information (e.g. the date that the Antarctic Ozone hole was discovered) or for more general information (e.g. overview, or a literature survey, of a particular subject)?
        - Specific information can normally be answered quickly by using a reference source (e.g. Google, data book, encyclopedia, dictionary, the internet) or even a textbook.
        - General/research type information may require more thought, including how much information is needed and at what depth. These considerations will affect the next steps in the searching process.
    b. Step 3: Identify Potential sources and limiting factors. Explain that once decisions have been made regarding which databases will be searched, you must use limiting factors to get what you need:
        - You can limit by dates and language and country area. Generally, you would not limit when starting. Do not limit at all if doing a systematic review. If you really want to be comprehensive, do not limit to language but you may have to translate.
        - What limiting features target primary studies only (for example, use of Document Type codes). Keywords such as "study" or "studies" or "control group" may be used to limit the results to empirical research.
        - The study designs that will be included, if that's a need (Note that you can get more "bang for your buck" if you search for literature which is tagged as "review" or

"systematic review". In this way, you can access information that has already been compiled and evaluated. Similarly, you can use databases comprised only of systematic reviews like Cochrane or Campbell.
- Any geographic considerations
- The time period that you are interested in (keeping in mind that retrieval tools have different beginning dates and may not index very old material)
- Language of publication that is to be included

9. Set up the Individual Activity: Defining Information Need & Identifying Sources
    a. Pass out or have participants locate the worksheet titled, Search Strategy Template. Explain that this exercise is a first step towards for answering the policy questions that they brought to the training. This exercise will be followed incrementally by other exercises that will eventually result in a draft Policy Brief or whatever output was agreed upon (presentation, memo, etc.)
    b. Participants take 15 minute to work independently on their own policy issue/question. They are completing the first three fields on the worksheet: Your policy question; Define your information needs; Identify potential sources of information. When time is up, participants put their worksheets aside while we review more steps.

10. Return to presenting more detail on key steps as with Step 1 and 2 above. Step 4: Introduce Identifying Search Terms.
    a. Show slide and describe these steps for coming up with search terms:
        - Think about your subject, and what keywords and concepts you already know about it.
        - Using a mind-mapping type exercise can help you consider what you topic is part of or related to. Write down all aspects of the subject you can think of and then decide which are relevant to your search.
        - If you are new to a subject it may be worth finding a brief outline from an encyclopaedia, dictionary, textbook or a knowledgeable colleague.
    b. Explain that search terms are often subject keywords, but can also be names, significant numbers, depending on what you are searching for and the source you are using. Point out that you should ask yourself:
        - Are there any synonyms (words with similar meaning) for any of the words)?

- Are there any alternative spellings? E.g. neighborhood or neighborhood, cooperative or co-operative, analyze or analyze, or different spellings for place names
- Finally, do you need to consider plurals/capitalization of your keywords? E.g. search for mouse and mice? Search for 'New Scientist' (which may lead you to the journal) rather than 'new scientist' (which may lead you to articles about people who have just become scientists!)

c. Elaborate, if needed, on creating concept clusters to make visible the relationships between concepts, terms, and ideas. Use associates slides.
d. Explain that based on your topic of interest, start to cluster these into specific areas and also look for other terms that could be used to describe these areas. These terms are your search keywords, which you will eventually use to formulate a search strategy for locating information.
e. Explain that once you have gathered all the concepts together in the table you can begin to combine terms to create 'meaningful' search queries that respond to your search question. In this example, the terms "HIV AIDS", Nairobi and "Family Planning services" have been combined. Note that combinations of keywords e.g. HIV AIDS have been enclosed in speech marks. This may or may not be necessary in all databases or search engines.

Note to Facilitator: Participant may not need the example to comprehend creating search terms. They have likely done this many times. Consider skipping this and associated slides if not needed.

11. Set up the Individual Activity: Create Search Terms
    a. Have participants locate the search strategy worksheet they already started. Participants take 15 minutes to work independently to develop search terms using the considerations presented. When time is up, participants put their worksheets aside.

12. Return to presenting more detail on key steps.
    a. <u>Step 8:</u> Evaluate. Look at what you're getting. If you get nothing helpful, there may be a couple reasons: there may be not much out there, your terms are wrong, or the relationships are not right. Go back and try again if not getting what you want.
    b. <u>Step 9:</u> Recording your search strategy is a good practice even if you are not writing a manuscript or conducting a systematic review (where it would be a requirement). Recording the

basic fields of information in your strategy is not necessarily for reporting but to help you know what you have already done and what you still intend or need to do. This helps you and/or your collaborating colleagues to not repeat work and is particularly helpful if the search effort extends over many months or is done by more than one person. The following summary can be used to guide recording your search strategy.

i. List search terms
ii. List all databases searched
iii. Copy and save search terms as they are used to search each database; this is called a search strategy.
iv. Note the dates of the final search with the relevant results for each database AND the period searched
v. Note any language or publication status restrictions
vi. List grey literature sources
vii. List individuals or organizations contacted
viii. List any journals and conference proceedings specifically hand-searched for the review
ix. List any other sources searched (e.g. reference lists, the internet).

c. Step 10: Document your references. You can use an Excel spreadsheet or even a Word document to collect and organize your references. Reference manager software makes this task much easier and enables you to add notes to references, cite your references and create bibliographies more easily. There are many programs available. Some free ones are Zotero, Mendeley, and basic versions of Endnote (Endnote Online).

Some things to consider when choosing a reference manager software are:

i. What your colleagues use. It's easier to collaborate if you're using the same software as people you work closely with
ii. Is it compatible with your operating system? This could be a huge help as not all the reference managers are compatible with all the operating systems so this could help you narrow down the field quite quickly.
iii. Have a look at the screen shots on the website of the individual reference manager. Don't like what you see? Use something else. If there are no screen shots or no video tour, this is also a bad sign and may show things are getting a little out of date!
iv. Type the name of the reference manager into You Tube. If there are loads of how-to videos this is a good sign, if there aren't, forget about it.

v. Use Google – type the name of your reference software followed by review or forum and see what kind of results you get back.
vi. Twitter – Does the site have a twitter page? If so try and spark up a conversation. Being active on twitter is normally a sign that they are open and responsive to customer feedback.

13. Transition to search tips.

Boolean terms and Google search operators [15 min] [slides ##]

1. Start by acknowledging that some information specialists think that as search engines like Google are becoming more sophisticated, Boolean terms are becoming a thing of the past. Still, some repositories use Boolean terms so we include them here along with some Google search tips.

2. Use the slides and cover this content:

3. Explain that Boolean operators can provide a powerful way of entering your search as they allow you to specify how the search terms are combined. To do this you need to use Boolean operators, AND, OR, and NOT. It is important to find out how the particular resources you are using uses these commands: some use symbols such as AND + - * etc.
4. Remind participants that there is almost always a 'help' section, which will explain how that particular resources works.
5. Although different symbols may be used to represent the Boolean commands or operators—what the operators do is the same.

6. Show slide and walk through the example using this query: I would like information about education or literacy.
    a. OR term: In this search, we will retrieve records in which AT LEAST ONE of the search terms is present. OR logic is most commonly used to search for synonymous terms or concepts. We are searching on the terms education and also literacy since documents containing either of these words might be relevant. This is illustrated by:
    - the shaded circle with the word education representing all the records that contain the word "education"
    - the shaded circle with the word literacy representing all the records that contain the word "literacy"
    - the shaded overlap area representing all the records that contain both "education" and "literacy"
    b. AND term: Query: I'm interested in the relationship between education and literacy. In this search, we retrieve records in

which BOTH of the search terms are present. This is illustrated by the shaded area overlapping the two circles representing all the records that contain both the word "education" and the word "literacy." Notice how we do not retrieve any records with only "education" or only "literacy"

   c. The more terms or concepts we combine in a search with AND logic, the fewer records we will retrieve.
   d. NOT term: Query: I want to see information about education, but not secondary education. In this search, we retrieve records in which ONLY ONE of the terms is present. This is illustrated by the shaded area with the word 'education' representing all the records containing the word 'education'. No records are retrieved in which the word "secondary" appears, even if the word "education" appears there too. NOT logic excludes records from your search results. Be careful when you use NOT: the term you do want may be present in an important way in documents that also contain the word you wish to avoid. For example, the an excluded article might say 'In this paper I will be discussing the impact of funding cuts on education, and will consider the tertiary rather than secondary sector…'

7. Advanced search tips:
   a. Using quotation marks allows you to search for an exact phrase, e.g. "information literacy"
   b. Truncation: place a symbol at the end of the word so you search for variant endings of that word E.g. litera$ would look for literature, literacy, literal
   c. Wildcards: place a symbol within a word to find variations on it. E.g. analy*e would find analyse or analyze
8. Transition to a facilitator-led demonstration of searching

Facilitator demonstrates a search using the illustrative case study - Demonstration and discussion: [15 min]

1. Demonstrate two to three searches to the group using the different tips above. Each search demonstration should last about 5 minutes. You can use the examples below.

Example 1: Demonstrate the Boolean operators 'AND', 'OR', 'NOT'

- Search for the following phrases in different search engines and databases (Google, Google Scholar, Pubmed, The Cochrane Library, etc) and discuss the resulting information with participants:

- Family planning AND HIV
- Family planning OR HIV
- Family planning NOT HIV

• If you searched the last two phrases on the Google search engine, you realize that these did not work – the phrase 'family planning OR HIV' returned documents with 'family planning' only, and the phrase 'family planning NOT HIV' returned documents with both 'family planning' and 'HIV'. Remind participants that the Google search engine is an example of an engine that already has these operators in-built and so it is not necessary to use these operators when searching the Google search engine. However, remind participants that the Boolean operators work quite well in specialized databases such as Pubmed, The Cochrane Library, among others.

Example 2: Demonstrate use of punctuation symbols

• Search for the following phrases in different search engines and databases (Google, Google Scholar, Pubmed, The Cochrane Library, etc) and discuss resulting information with participants:

- Family planning +HIV
- Family planning -HIV

• You will notice that some databases do not support some symbols. For instance, The Cochrane Library does not support the '+' symbol and as such, it does not return any results.

Example 3: Demonstrate the 'site+colon' tip

Note to Facilitator: This one might be considered advanced. Most laypersons would not be familiar with it.

• Demonstrate the use of the 'site+colon' tip to search for information on family planning and HIV and AIDS from the FHI 360 website.

• Reiterate to participants that this tip is only useful if you already know the website where you think you will find the relevant materials. The tip saves the learner time by enabling him/her to quickly search for specific documents on a known website. For instance, in our example, we already know that FHI 360 is well known for implementing programs on integration of family planning and HIV and AIDS services, and publishing

lessons from these programs. Therefore, FHI 360 will be a good source of evidence on integration of family planning and HIV and AIDS With this knowledge, instead of conducting a general search on Google, we specifically conduct a search that searches the FHI 360 website directly for relevant documents on this issue.

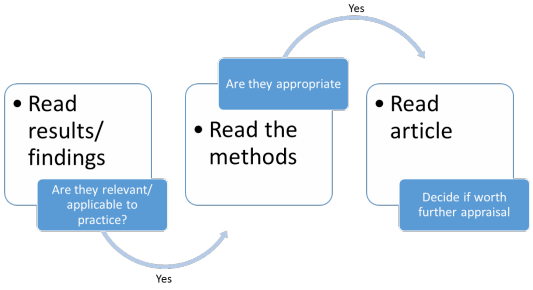
- Type in the Google search engine browser the phrase: "site:fhi360.org family planning HIV AIDS" without the quotation marks.
- This phrase returns documents published by FHI 360 on family planning and HIV and AIDS.

Presentation: Strategies for deciding if article is relevant and worth further appraisal [slides ##] [time ##]

1. Use the slides and note that we spend more time in Module 3 on appraising the evidence we found, but that there is also the need to do a first pass at determining if what you found in your search is relevant and worth looking at more.

   Share the following strategies for how to approach looking at a research article once located. These tips allow us to judge whether or not to keep an identified article for further appraisal (Appraisal is covered in Module 3.)

2. Note that Purugganan and Hewitt's in their article, *How to Read a Scientific Article*, suggest the following: "Reading a scientific article is a complex task. **The worst way to approach this task is to treat it like the reading of a textbook**—reading from title to literature cited, digesting every word along the way without any reflection or criticism. Rather, you should begin by skimming the article to identify its structure and features. As you read, look for the author's main points. Generate questions before, during, and after reading. Draw inferences based on your own experiences and knowledge. And to really improve understanding and recall, take notes as you read."
3. Explain that the take-away is to skim articles.
4. The graphic in the slide presents a short cut to appraising a scientific article.



For more information on the search topic, reference this publication which is also in the Participants Guide Module 2: *Searching for studies: Information retrieval methods group policy brief* available at: http://www.campbellcollaboration.org/artman2/uploads/1/C2_Information_retrieval_policy_brief_new_draft.pdf

Practical Application Exercise 2: Sourcing Evidence for your Policy Question [1 hour 10 min]

1. Explain that the next exercise is the first step towards accessing and applying research evidence for answering the policy questions that participants brought to the training workshop. The exercise will be

followed by incremental exercises that will eventually result in a draft Policy Brief for answering the policy question identified by each learner.

2. Ask participants to get to their computers and connect to the Internet. Go round (with other facilitators if they are in the room) to ensure that each learner has a functioning computer and it is connected to the Internet.
3. Ask participants to open a search engine of their choice (e.g. Google) and/or go to specific databases relevant to their subject (e.g. Pubmed, The Cochrane Library), and use the search terms identified earlier to conduct an actual search to identify research documents that look relevant for answering their policy questions.
4. They should download and store documents that deem useful to answering their policy questions in a folder on their computers.
5. Using the worksheet in their participants' guide, provide a list of the documents that they found.
6. During this exercise session, the facilitator(s) should walk around to monitor progress and provide assistance and guidance individually where necessary.

Module 2

ACTIVITY D: ASSESING SOURCE CREDIBILITY

ACTIVITY OBJECTIVES

At the end of this activity participants will:

- Identify search terms and relevant sources for searching for their policy question
- Describe characteristics of quality sources of evidence
- Demonstrate effective searching, assessment of sources, and development of components of their own search strategy

TIME

15 min

ACTIVITIES

Presentation: Assessing quality of sources

MATERIALS

- Module 2 PowerPoint
- Participant Guides

STEPS

Presentation: Assessing quality of sources [15 min] [slides]

1. Start by noting that we will address evaluating studies and content in the next section on Appraising Evidence. Now, we'll discuss ways to evaluate the source of the evidence.
2. Explain that it is very difficult for policymakers to check all the evidence available to them therefore they often rely on the reputation of its source and/or journal ranking as proxies for quality. Here are the proxies:
    a. ***Proxy for quality #1: Reputation*** The source of the evidence is sometimes as important as the evidence itself. Another way to assess quality of knowing whether or not the manuscript comes from a reputable source. Because your source is Cochrane, for example, you can have a certain amount confidence about the credibility of the evidence. But they can make mistakes too.
    b. ***Proxy for quality #2: Journal rankings*** Journal ranking

systems can provide an indicative proxy guide regarding the scrutiny with which an academic study has been subjected prior to publication. The principal journal ranking system is the 'Impact Factor' rating. Journals often publish their Impact Factor ranking somewhere on their website.

c. You can also look at the Impact Factor rating for a particular journal – the higher the number then belter. It's the measure of how many times the average article has been cited in the last two years. It tells you if people are using it to write about other things. It's good but not to be oversold. It doesn't inform you if people are using a particular program or intervention but not writing about it. Also, a new journal may be great but it won't have an impact factor because it's not on the playing field yet (remember the Impact Factor using a two year time period for measurement.)
d. Reference the Module 2 *Impact Factor List* in their Participants Guide for a selection of rankings from some commonly used journals in health and development.
e. Note that not all well-designed and robustly applied research is to be found in peer-reviewed journals and not all studies in peer-reviewed journals are of high quality.
f. Point out that journal rankings do not always include publications from southern academic organizations or those that feature in online journals, so a broad and inclusive approach is required to capture all relevant studies.

3. For more information on this topic, read DfID's How to Note: Assessing the Strength of Evidence, which is referenced in the Participants Guide Module 2: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/291982/HTN-strength-evidence-march2014.pdf

4. To end the module, remind participants that searching for evidence is an iterative cycle and requires patient reflecting, reviewing, and revising.

Module 2

ACTIVITY E: MODULE REFLECTION EVALUATION

TIME	15 minutes
ACTIVITIES	A. Reflection Notebooks: Reflect and write take aways and/or outstanding questions in notebooks B. Complete module evaluation form
MATERIALS	▪ Notebooks, paper, or Participant Guides for reflection notes ▪ Module objectives slide ▪ Evaluation form
STEPS	**A. <u>Reflection: Notebook</u>**

1. Explain that for this reflection activity, participants will take a few minutes to write down and track key points to remember, how their learning could be applied in their jobs, tasks or "to do's" for later, and outstanding questions that need more attention.

2. Share that this activity can be 100% confidential if they choose – they do not need to share their notebooks or written reflections.

3. Have participants use blank pages in the Participants Guide, their own notebooks, or other blank pages to reflect and make notes on the session.

4. Explain that there is value in returning to one's written notes at a later point in time or after the workshop. Points and notes written in their own language may come in handy for: making a debrief at their workplaces; reminding themselves of tasks or priorities they want to continue exploring; or communicating to the facilitators where they need more help.

5. If needed, writing prompts might include the following. Create a slide for these or write on chart paper:

- What did you learn that you can use in your work place?
- What would you share in a debrief at your work place?

- Are there sub-topics from that module you want to explore more?
- What ideas did this module generate for you?
- Are there tasks or "to-do's" you want to follow up on later?
- Are there topics or areas you want to clarify with the facilitator or group?

B. <u>Module Evaluation</u>

1. Ensure that the slide with the module objectives is shown or otherwise reviewed.

2. Hand out the evaluation forms and remind participants that their feedback is valued and will be used. The facilitators will review feedback daily. Their names on the forms are optional.