Chapter 7.2
How to identify and access reports of existing research

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Learning objectives

To understand the key factors to consider when searching for evidence for Health EDRM, by:

- Recognizing the issues related to searching for evidence for Health EDRM;

- Understanding the techniques required for finding the best evidence for Health EDRM;

- Identifying relevant information sources to answer the focused question; and

- Being aware of how to manage and appraise the evidence retrieved, so that it can be applied in practice.

Different types of disasters

- **Natural**: earthquakes, landslides, tsunamis, windstorms, extreme temperatures, floods, droughts, or wildfires.

- **Biological:** disease outbreaks, including human, animal, and plant epidemics and pandemics.

- **Technological:** chemical and radiological agent release, explosions, and transport and infrastructure failures.

- **Societal:** conflict, stampedes, acts of terrorism, migration, humanitarian emergencies, and riots.

Formulating a searchable question

- Frameworks are available for formulating a searchable question (see next slide).
- Although a framework does not have to be applied, it is important to break the scenario into **concepts** or **themes**, so that it is clear what is being searched for.

Frameworks for formulating searchable questions

When looking for evidence to answer a particular scenario, it can be useful to apply a framework to identify the focus of the question you need answers for. Here are some framework examples:

Framework	Definition	Area of interest
PICO	Patient/Problem/Population, Intervention, Comparison, Outcome	Clinical interventions
PECOT	Patient/Problem/Population, Exposure, Comparison, Outcome, Time	Causation or prognosis
SPICE	Setting, Perspective/Population, Intervention, Comparison, Evaluation	Project, service or intervention evaluation
SPIDER	Sample, Phenomenon of Interest, Design, Evaluation, Research type	Qualitative or mixed methods
ECLIPSE	Expectation, Client group, Location, Impact, Professionals, Service	Service evaluation

Example scenario

There has been an outbreak of infectious diseases in a war zone, and humanitarian workers want to further prevent the spread. They urgently need to find the best evidence for preventing further outbreaks in this challenging situation.

Collating additional search terms

When you have identified the key concepts for your search, start building your search strategy by making a list of additional similar terms. For example:

Concept 1: Communicable disease	Concept 2: Infection control	Concept 3: Areas of conflict
infection	prevention	war zones
infectious disease	prophylaxis	emergencies
Zika	prophylactic	disasters
Ebola	antibiotic chemoprophylaxis	relief work
cholera		rescue work
dengue fever		humanitarian crisis
plague		

Sensitivity vs specificity

- A **sensitive** search retrieves as much relevant information as possible.
- A **specific** search minimizes the amount of irrelevant information retrieved.
- Maintaining a balance between the two techniques is the ideal outcome.

Searching bibliographic databases

- If possible, work with a librarian, who has the skills and understands the context.
- The basic principles of searching are the same for most databases, but there may be slight differences, so refer to the databases' individual help/support pages for specifics.
- There are many databases, covering a range of topics, so choose the most relevant ones for your search.

Controlled vocabulary (1)

- Controlled vocabulary is also known as thesaurus terms, subject headings, index terms, or descriptors.
- Bibliographic records are assigned a number of controlled language terms so that searching for those terms, will retrieve papers specific to that topic.
- Controlled vocabulary will often automatically search for other terms that share the same meaning. For example, the index term for "public health" will also search for papers specifically about "community health" and "preventive health".

Controlled vocabulary (2)

- When you choose a term from the controlled vocabulary, there may be an option to "explode" results ("exp") so that the term you entered and any narrower thesaurus terms will be included. For example, if you explode "Disasters", you will also search for papers specifically about Disaster Planning, Emergencies, Natural Disasters (and within this term, Avalanches, Earthquakes, Floods, etc).
- You can also just search for "Disasters", without exploding, and then the database will only search for papers about "Disasters".
- When you have chosen to explode the term (or not), you can also choose from a selection of subheadings to focus your search even more.

Natural language/free text

- Natural language is also known as free text.
- When you search for a free text term, the bibliographic database will only retrieve papers which have the term exactly as you have entered it. For example, if you search for "infection", the database might not pick up papers containing the word "infectious".
- Some databases, such as PubMed, will automatically translate the free text into controlled vocabulary.

Truncation and wildcards

- These two methods can be used with natural language or free text searches.

- Truncation usually comes in the form of an asterisk (*) or a dollar sign ($), and if you add it to the stem of the word, you can broaden your options. For example, if you search for "infect*" or "infect$" you will find papers about infection, infections, infectious, or infected.

- Wildcards usually come in the form of a question mark (?), and it is used to replace a letter. For example, if you search for "behavio?r", you will retrieve papers with both American ("behavior") and UK ("behaviour") English spellings.

- Truncation and wildcards can be used together, for example behavio?r* will retrieve papers with behaviour, behavior, behavioural, behavioral, behaviours and behaviors.

Proximity searching

- Proximity searching is a way of combining words, so that they are searched for in close proximity to each other.

- NEAR or N and ADJ (adjacent) are the most commonly used proximity operators.

- NEAR or N lets the terms appear in any order.

- ADJ specifies that the terms appear in the order required.

- When numbers appear after the proximity operator, it means that the terms are separated by that number of words. For example, primary ADJ2 care will find articles on primary care or primary health care; while disaster N2 manag* or disaster NEAR2 manag* would retrieve papers on disaster management or management of disasters or managing disasters.

Combining searches

- Combine all the terms within one concept with OR.
- Once you have combined the terms within each concept, then combine those combinations with AND to retrieve relevant papers which contain all the relevant concept terms and/or synonyms. For example:

Concept 1:		Concept 2:		Concept 3:
communicable disease		**infection control**		**areas of conflict**
OR infection		**OR** prevention		**OR** war zones
OR infectious disease		**OR** prophylaxis		**OR** emergencies
		OR prophylactic		**OR** disasters
OR zika				**OR** relief work
	AND	**OR** antibiotic chemoprophylaxis	**AND**	
OR ebola				**OR** rescue work

Limiting searches

- The final results from the search can be limited by a range of options, to suit the population or question you are interested in.

- Types of limits include:
  ➢ language of article;
  ➢ date of publication;
  ➢ age of population;
  ➢ publication type (that is, to restrict to specific research methods including randomized controlled trial, meta-analyses or systematic reviews).

Search filters

- Search filters are specially-designed search strategies for different databases.

- These filters retrieve records on different themes, such as particular study type, geographical location, age, population group, etc.

- Two sources of search filters include:

  ➢ InterTASC Information Specialists' Sub-Group Search Filter Resource
    sites.google.com/a/york.ac.uk/issg-search-filters-resource/home
  ➢ Cochrane Effective Practice and Organisation of Care group
    epoc.cochrane.org/lmic-filters

Saving search strategies

- Most bibliographic databases have the option to save searches.
- These can be saved as a permanent saved search, an RSS feed, or an email alert, so that you can be regularly updated as new papers are added to the database.
- It is useful to save searches, so that you can easily re-run them at a later date.
- It is good practice to keep a record of your search strategy, because if you publish your research, you will need to report on your methodology.
- If you regularly run the search, it is important to review the search terms, in case new relevant ones need to be added.

Other searching techniques

- **Grey literature** refers to information not published or distributed in conventional ways.
- **Citation searching** is when you look up a specific report in a citation index, to find other reports that cited it, and then citations to those reports, and so on.
- **Reference list checking** is the checking of the references listed in a key paper that relates to your question to identify additional relevant references and terms.
- **Contact with experts** includes getting in touch with the authors of relevant reports to see if they have other work in the pipeline or if they can recommend other experts who have published on the topic.
- **Text mining** is the automated analysis of large collections of written content to identify additional terms to include in your search.
- **Pearl harvesting** is the use of the index terms applied to a relevant reference to identify additional terms for your search strategy.

Key information sources: Guidelines

- Medbox: the aid library
  www.medbox.org/

- Medécins Sans Frontiéres
  medicalguidelines.msf.org/viewport/MG/en/guidelines-16681097.html

- Local public health guidelines - The International Association of National Public Health Institutes
  www.ianphi.org/index.html

- WHO Guidance on Research Methods for Health Emergency and Disaster Risk Management
  extranet.who.int/kobe_centre/en/project-details/GUIDANCE_ResearchMethods_HealthEDRM

Key information sources: Evidence maps and syntheses

- Humanitarian Evaluation, Learning and Performance (HELP)
  www.alnap.org/help-library

- 3ie Developmental Evidence Portal
  developmentevidence.3ieimpact.org/

Key information sources: Systematic reviews

- Campbell Collaboration
  www.campbellcollaboration.org/

- Cochrane Library
  www.cochranelibrary.com/

- PROSPERO: International prospective register of systematic reviews
  www.crd.york.ac.uk/prospero/

- Epistemonikos
  www.epistemonikos.org/

- Evidence Aid
  evidenceaid.org/resource/

Key information sources: Primary research

- Global Index Medicus
  search.bvsalud.org/gim/advanced/

- PubMed
  pubmed.ncbi.nlm.nih.gov/

- TRIP (Turning Research Into Practice)
  www.tripdatabase.com/

- WHO COVID-19 Research Database
  search.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/

Key information sources: Clinical trials

- International Clinical Trials Registry Platform (ICTRP) search portal
www.who.int/clinical-trials-registry-platform

Key information sources: Grey literature

- Disaster Research Response (DR2) Resources Portal
  tools.niehs.nih.gov/dr2/

- EM-DAT: The International Disaster Database (see Chapter 2.1)
  www.emdat.be/index.php

- Prevention Web
  www.preventionweb.net/

- Relief Web
  reliefweb.int/

- Resilience Library – South East Asia Resources
  www.rcrc-resilience-southeastasia.org/

- ClimaHealth portal
  climahealth.info/

- TRACIE Healthcare Emergency Preparedness Information Gateway
  asprtracie.hhs.gov/

Key information sources: Discussion forums

- Healthcare Information for All (HIFA)
  www.hifa.org/

- Disaster Resilience
  www.jiscmail.ac.uk/cgi-bin/wa-jisc.exe?Ao=DISASTER-RESILIENCE

Key information sources: Tools

- Disaster apps for your digital go bag
  crateclub.com/blogs/articles/disaster-apps-for-your-digital-go-bag

Other information sources: Google/Google Scholar

- Google (www.google.com/) is easily accessible, and can identify relevant information, particularly when a topic is new, and there is not much established literature available yet.

- Google Scholar (https://scholar.google.com/) can be used to quickly locate research papers, particularly full-text articles, but it is not easy, or comprehensive, to use for complex searches.

Finding the evidence leaflet

The International Federation of Library Associations and Institutions (IFLA) Evidence for Global and Disaster Health (E4GDH) Special Interest Group (www.ifla.org/units/e4gdh/) has produced two guides, linking to many more information sources:

- Finding the evidence for global and disaster health (English/Spanish) www.ifla.org/resources/?oPubId=81736
- Multilanguage tools for evidence based practice www.ifla.org/resources/?oPubId=93058

Search tips

- Find a highly relevant paper which closely answers your question, and use it to identify terms and test your final search strategy.
- Search one database at a time.
- Search for one term at a time.
- Use subheadings and focus with caution – ideally narrow down the search by adding more search terms.
- Download the references in to reference management software.

Managing references (1)

Reference management software is useful for managing the references you retrieve. You can:

- ➢ create folders for different chapters/sections of your report;
- ➢ screen the results for inclusion/exclusion;
- ➢ attach PDFs, which you can annotate to your references;
- ➢ format references in standard referencing styles, such as Harvard, Vancouver, etc;
- ➢ create bibliographies;
- ➢ share reference collections with colleagues.

Managing references (2)

These are the three main reference managers:

➢ Endnote (endnote.com/) is subscription-based

➢ Mendeley (www.mendeley.com/) and Zotero (www.zotero.org/), which are examples of freely available, web-based software, which lend themselves well to collaborative working.

Transparent reporting

- The EQUATOR Network (Enhancing the QUAlity and Transparency Of health Research (www.equator-network.org/)) seeks to improve the reliability of published health research literature by promoting transparent and accurate reporting.
- The network provides easy access to hundreds of reporting guidelines for the main types of research study.
- Some of these tools include flow diagrams to record the number of included and excluded papers at each stage of the research or review process.

Obtaining full text of research papers

- Most databases provide brief summaries of the reports, known as abstracts, and in some cases, will include a link to the full text. If this is not the case, there are some options available to help you obtain the full text:
  - ➢ Local librarian;
  - ➢ Open access databases, for example PubMed Central www.ncbi.nlm.nih.gov/pmc;
  - ➢ HINARI – set up by WHO and publishers to enable people in low- and middle-income countries to access biomedical and health literature www.emro.who.int/information-resources/hinari/;
  - ➢ Research4Life - provides institutions in low-and middle-income countries with online access to academic and professional peer-reviewed content portal.research4life.org/;
  - ➢ Emergency Access Initiative (EAI) – provides temporary, free access to full text articles from major biomedicine titles. This site is only active when a disaster event is named and the access period specified eai.nlm.nih.gov/.

Appraising the evidence

- Critical appraisal is the process of assessing and interpreting evidence, enabling you to systematically assess the trustworthiness, relevance and results of published papers.

- There are many useful tools and checklists to help appraise retrieved content. A simple checklist to assess whether the information is relevant and reliable is:

  ➢ Authorship – Who wrote the content and what are their credentials? Are they qualified to provide this information?
  ➢ Attribution – is it clear how the information was generated (for example, is it referenced)?
  ➢ Disclosure – is the content sponsored by anyone who might have a commercial gain? When did they write it? Who did they write it for?
  ➢ Currency – is there a date to indicate age of the content?

  (*Silberg WM, Lundberg GD, Musacchio RA. Assessing, controlling, and assuring the quality of medical information on the Internet quality: Caveant lector et viewor--Let the reader and viewer beware. Journal of the American Medical Association. 1997: 277(15): 1244-5*)

Critical appraisal checklists

- The Critical Appraisal Skills Programme has a set of eight critical appraisal tools, which can be used to assess the quality of research papers (casp-uk.net/casp-tools-checklists/).

- The Centre for Evidence Based Medicine has translations of some of these English language checklists. Languages include Chinese, German, Lithuanian, Portuguese, Spanish, and Persian (www.cebm.ox.ac.uk/resources/ebm-tools/critical-appraisal-tools).

Conclusions

- Finding the evidence to inform decisions can be challenging in Health Emergency and Disaster Risk Management; timescales are short, and situations are often resource poor.

- This chapter provides guidance on searching for this type of evidence, so that people working in these areas can make informed decisions.

- The chapter guides you through each stage of the search process and highlights key information sources.

- It also discusses reference management, critical appraisal and transparent reporting.

- Although the purpose of the chapter is to facilitate independent information retrieval, you are encouraged to find a librarian for expert professional assistance or advice.

Key messages (1)

- If available, contact a librarian who has the skills and understands the context.

- Recognize the scenario and formulate a focused question.

- Identify the key search terms and compile a list of synonyms.

- Decide on the most appropriate study types to answer your research question.

- Choose the most relevant information sources and apply the search terms.

Key messages (2)

- Start with a broad (or sensitive) search, narrow down by adding additional concepts.

- Keep a record of the search strategies and results so that they can be revisited, and revised, later.

- Use reference management software to manage the references you find.

- Use critical appraisal skills to check whether the information you have found is reliable and relevant.

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