

Identifying and
understanding the
problem:
determining the
research questions

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Why do we need research?

- Well-informed decisions need to be based on reliable evidence if they are likely to lead to more good than harm.
- This evidence needs to come from high quality research.
- High quality research needs to answer an important research question.
- This question should be based on a clear understanding of the problem, which might require its own research.

Chapter 3.5 Determining the research question

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Authors: Clarke M, Zhang Y.

Chapter 3.5 describes the key factors to consider when determining the question that would be answered by research to resolve an uncertainty in health emergency and disaster risk management (Health EDRM), including:

1. Deciding on the general issue that needs to be studied.
2. Defining a precise research question for the study.
3. Confirming that the study is a priority, will make an important contribution to the existing evidence base and will not waste funding or other resources.

What is this chapter about?

One of the first challenges when designing a research study is to state clearly the question that it will seek to answer. Guidance on how to prioritise, choose and define their research question should help researchers to avoid waste and to produce evidence that will inform decisions in Health EDRM.

This chapter outlines some of the types of research question and study that would be suitable for various studies relevant to Health EDRM. It provides frameworks for planning an impact evaluation and choosing a relevant and appropriate research question.

Case studies presented in the chapter:

1. Analysis of inpatients and deaths in the West China Hospital of Sichuan University following the 2008 Wenchuan earthquake in China.
2. Designing a study to investigate the health effects of using electric fans during a heatwave.
3. Evidence Aid prioritisation exercise to identify the highest priority systematic reviews of humanitarian action.
4. Template for uniform data reporting of acute medical response in disasters.

What are the key messages of this chapter?

- Defining a clear research question, including any comparisons that will be made, is vital when planning a research study to fill an evidence gap for Health EDRM.
- Outcomes to be measured and reported should be chosen carefully, in order to allow the study to answer the research question and provide evidence that will influence decision makers.
- A review of the existing evidence will help to ensure that the new study is a priority and that the answer to its research question is not available from existing research.
- If the study will need to be implemented rapidly (such as in a sudden-onset disaster), a pilot or feasibility study may be necessary and it will be important to have the design 'on the shelf' and ready to activate.

Research Themes

-  SERVICES & FINANCING
-  METRICS
-  HEALTH EMERGENCIES
-  LOCAL ENGAGEMENT
-  CALLS FOR PROPOSALS AND CONSULTANTS

Health Emergencies

- Research Methods for Health EDRM
- Research Projects for Key Health EDRM Themes
- Knowledge Hub
- Health EDRM Research Network



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Further Reading

Identifying and understanding the problem

- 2.1 Using epidemiological principles to assess impacts of emergencies and disasters
- 2.2 Measuring the health impacts of disasters
- 2.4 Databases and registers as tools for disaster epidemiology
- 2.6 The current state of the evidence: Mapping the evidence and systematic reviews
- 3.6 Assessing the problem and developing a scoping review



WHO guidance on research
methods for health emergency
and disaster risk management
Revised 2022



What types of research?

Quantitative research: to find out what happened

Qualitative research: to understand why it happened

Observational studies: to determine what happened without interference

Experimental studies: to see if we can change what happens

Health EDRM: quantitative research

- What injuries were caused by the Turkey-Syria earthquake on 6 February 2023?
- How many people were displaced by the earthquake?

Health EDRM: qualitative research

- What are the most important concerns of people affected by the earthquake?

Health EDRM: observational studies

- How were the injuries treated and how many people recovered from their injuries?
- Where have people been displaced to?
- What has been the impact on the injured, the displaced and their families?

Health EDRM: experimental studies

- If we change how injuries are treated, will it improve survival?
- Will changes be acceptable to local health providers?
- What resources would help displaced people in the places they have had to move to and what would help them to return?
- How do people feel about accepting or using these resources?

Case study: Health effects of electric fans during a heatwave

Identifying and understanding the problem

Identifying the problem

- Heatwaves cause serious morbidity and mortality.
- The cooling effect of electric fans *might* be a way to reduce this.

Understanding the problem

- A systematic review was done to inform England's national heatwave plan before the 2012 Olympics
- It found important uncertainties about whether electric fans improve or worsen morbidity and mortality during heatwaves.



Case study: Health effects of electric fans during a heatwave

Determining the research question

Research question: What are the effects on health of providing, versus not providing, electric fans during a heatwave?

Study design: Randomized trial, possibly a cluster trial across specific settings (eg care homes) or regions.

Population: During a heatwave, adults who are likely to be representative of a general population, with a particular focus on those ≥ 65 years in residential or care homes.

Outcome measures: Use of healthcare services, heat-related illnesses, deaths and self-reported comfort.



Being research ready

- We know or can predict many of the topics that decisions makers will need help with.
- Scoping and systematic reviews can help to identify these needs and to plan a new research study.
- Sudden-onset disasters might need to have plans for a new study 'on the shelf', pre-prepared and ready to be activated.
- But, all disasters and health emergencies present us with uncertainties that high quality research could resolve.

Conclusions

- Health EDRM decisions need to be likely to lead to more good than harm.
- This needs reliable evidence from high quality research.
- This needs to have answered important research questions.
- This needs to be based on a clear understanding of the problem.