Chapter 4.15
Monitoring and Evaluation

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Learning objectives

To understand key factors in the development of studies that focus on the monitoring and evaluation (M&E) of Health EDRM interventions, including:

- Meaning and significance of M&E.
- Existing M&E frameworks in DRR and health.
- Methodologies for Health EDRM M&E studies.
- Challenges in developing Health EDRM M&E studies.

Introduction

Monitoring and evaluation (M&E) is used to assess the impacts of health emergency and disaster risk management (Health EDRM) and to identify lessons from both health and disaster management. It:

- Is applied across disciplines and organizations.
- Assesses the performance of an initiative, program, project or intervention.
- Provides evidence to improve future initiatives/programs.

Monitoring: routine tracking of an intervention's inputs and outputs, which might include regular record-keeping, reporting and surveillance.

Evaluation: assessment of the contribution made by the various factors of an intervention given the output or outcome.

M&E frameworks in disaster management and health

- The Sendai Framework (2015-2030) emphasizes M&E in relation to disasters.
- M&E is a relatively weak area in disaster risk reduction (DRR) research.
- Applying M&E frameworks depends on the development level of the country, the scale and nature of the disaster, the capacity of the agency and the funding sources.

Examples of M&E frameworks (1)

UNDRR's M&E Framework includes descriptions of terms, types of indicators, criteria for selecting indicators, implementation plan, data collection methods and reporting mechanisms. It classifies evaluation into formative evaluations and summative evaluations.

WHO's M&E Toolkit is disease-specific and emphasizes the importance of comparable indicators across time and countries, data collection supported by a surveillance system and a data dissemination plan.

Examples of M&E frameworks (2)

The Logical Framework ('logframe') Approach is used in development projects and clearly defines project strategy, objectives and outputs. It includes objectively verifiable indicators developed under each category, presented in a single matrix.

The Sphere Standards are widely used in the humanitarian sector. They comprise the Core Humanitarian Standard, standards in 4 technical areas (health, water supply, sanitation and hygiene promotion), food security and nutrition, and shelter and settlement. The Sphere M&E guide states that M&E should monitor the operation's context, activities and processes, and its impact on the affected population. It emphasizes real-time, mid-term and final evaluation.

Designing M&E studies for Health EDRM: design of the evaluation

The design of a M&E study must match the context of the study and fit the needs of the research:

- The type of evaluation will depend on the objective of the M&E study.
- In Health EDRM, M&E studies need to use practical research methods, for example to monitor and evaluate DRR interventions.

Designing M&E studies for Health EDRM: evaluation framework and levels

Depending on the focus of the study, an **evaluation framework** might be drawn up, with **levels** that

- Depend on the complexity of a program.
- Might be at an activity/output level, outcome/strategic level or organizational level (e.g., international, national, inter-agency, community or individual).
- Will affect the data sources and study design.

Some M&E studies might be multi-level.

Case study 1: *South Africa Disaster Management M&E Framework (1)*

- South Africa is exposed to many weather hazards and coastal floods.
- The Disaster Management Act in South Africa (2002) was established to manage these disasters and created the National Disaster Management Centre (NDMC).
- The Disaster Management Monitoring and Evaluation Framework (2014) was issued to provide M&E direction and to determine how to help with prevention, reduction, response and intervention.

Case study 1: *South Africa Disaster Management M&E Framework (2)*

The framework includes:

- Processes, tools, strategies and M&E methods.
- M&E architecture, system design and performance M&E plans.
- Details on how to use findings for evidence-based decision-making/accountability and policy development.

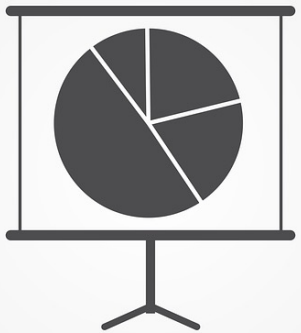
It requires all evaluations to have three components:

- Internal rapid assessment.
- Long-term impact and multidimensional evaluation projects.
- Joint venture evaluation projects with strategic partners.

Designing M&E studies for Health EDRM: data sources (1)

Data sources:

- A wide range of data sources may be needed for different components of a study.
- Data sources can be categorized as documents, qualitative data and quantitative data.
- The studies used to generate or capture the data might include randomized trials, cohort studies, ecological studies and case series.



Designing M&E studies for Health EDRM: data sources (2)

- **Quasi-experimental designs (QED)** (see chapters 4.5 and 4.14) are used in disaster settings to test the attribution of the intervention to the outcome change, especially if random assignment would be not easily done in a disaster settings.
- QED achieves a balance between the practicality of the study and its internal and external validity.

Designing M&E studies for Health EDRM: study design (1)

- M&E studies can be qualitative, qualitative or mixed methods studies which might use concurrent or sequential designs.
- **Pre/post designs with non-equivalent control groups** compare data collected before and after the intervention; and the control group is not randomly assigned.
- **Interrupted time series** use multiple observation points over a period of time before and after the intervention.
- **Stepped-wedge design** allows the staggered introduction of the intervention for different groups.

Designing M&E studies for Health EDRM: study design (2)

- During the impact stage of large-scale disasters, or in the absence of baseline data, quasi-experimental studies may be unrealistic for M&E studies.
- This might require the use of non-experimental designs, such as participatory monitoring and evaluation, in which stakeholder input is used in decision-making about processes, results or policies.

M&E studies in Heath EDRM: challenges (1)

Challenges of impact evaluation:

- Methodology: the lack of randomization may compromise the validity of findings.
- Ethics: having a control group may deprive some individuals of the potentially life-saving experimental intervention.
- Practicality: difficulty demonstrating the impact of an intervention that had prevented or reduced risk.
- Lack of available and good quality data.

M&E studies in Heath EDRM: challenges (2)

- Difficulty in selecting indicators
  - Sendai Framework's 7 targets and 38 indicators are used by researchers globally to develop indicators.
- M&E studies in multi-country and multi-agency settings are increasing but:
  - Different actors may have different priorities.
  - Study direction needs to be relevant to all partners.
  - Data availability and data quality may differ.
  - Standardized M&E questions and indicators can solve some of these issues.

Conclusions

- M&E studies can be used to provide evidence of the effectiveness of DRR and other Health EDRM interventions.
- Health EDRM initiatives need M&E studies in order to be effective and sustainable.
- Researchers need to develop studies that are feasible in disaster settings without compromising strength in demonstrating causality.
- In order for the findings of M&E studies to be useful to Health EDRM, research methodologies must be continuously enhanced to fit the needs of routine practice.

Key messages (1)

- M&E studies can be used to demonstrate the effectiveness of Health EDRM interventions and be instrumental in providing evidence and justifications for sustainable resource allocation.
- The M&E framework chosen by a researcher will determine the study focus during data collection, analysis and interpretation of findings.

Key messages (2)

- Randomized trials might not be practical for M&E in some areas of Health EDRM and quasi-experimental designs might be used.
- In quasi-experimental M&E studies, measures must be taken to minimize bias and to ensure the internal and external validity of the study, and findings must be interpreted in light of the specific context of the study.
- Poor availability of high-quality data and the choice of indicators are major challenges for M&E studies in Health EDRM.

Further readings (1)

Health in Humanitarian Crisis. Lancet. 2017;390:10109.
Journal series evaluating the evidence base for humanitarian health interventions in disasters.

Scott Z, et al. Monitoring and evaluating disaster risk management capacity. Disaster Prevention and Management. 2016: 25(3): 412–22.
Describes improvements to M&E frameworks for Health EDRM capacity.

Further readings (2)

Shek DT, Wu J. Quasi-experimental Designs. In: Frey BB, editor. The SAGE encyclopedia of educational research, measurement, and evaluation. Thousand Oaks, CA: SAGE Publications. 2018: pp.1353-6.
Introduces quasi-experimental designs for research in the educational sector.

Monitoring and Evaluation Framework. United Nations Office for Disaster Risk Reduction (UNISDR). 2015. https://www.unisdr.org/we/inform/publications/49324
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How to design a monitoring and evaluation framework for a policy research project. London, UK: A Methods Lab publication. 2016

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