Final Report

A Multi-State Study to Develop and Test a Benchmark Protocol for Assessment of Health Emergency Preparedness in Eastern Mediterranean Region Title

Research Team

Ali Ardalan, Amin Saberinia, Seif Al Abri, Idris Saleh Al Abaidani, Osman Elmahal, Somia I. Okoued, Walid Othman AbouGalala, Adnan Muhammad Ali, Ahmed Hassan, Behnaz Rastegarfar, Mohamad Javad Moradian, Maryam Kandi

Research adviser:

Qudsia Huda

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STUDY BACKGROUND

Eastern Mediterranean Region (EMR) is a home for a wide range of emergencies and disasters from natural to human-made hazards (1,2). These include earthquakes, cyclones, floods, droughts, outbreaks, transportation crashes, conflicts, chemical, etc. Recent developments such as climate change, growing social unrest, and rapid urbanization are increasing the exposure of populations to, the frequency and magnitude of many of these types of events (3).

Among the most important consequences of emergencies and disasters is their impact on health, including increased rates of mortality, morbidity, and disability. While deaths are the most obvious health impact of emergencies, other consequences include increased morbidity (e.g. due to injury, infections, malnutrition, chronic diseases, mental health disturbances), long-term disability, and health system disruption. Emergencies can interfere with health service delivery through damage and destruction of health facilities, interruption of health programmes (e.g. vaccinations), loss of health staff, and overburdening of clinical services. Furthermore, the costs related to emergencies and disasters can lead to extraordinary and catastrophic expenditures from the household level to national health budgets (4-6). Finally, a single disaster can set back development gains by many years, including on health systems.

Over the recent past, emergency and disaster risk management have become a priority agenda for the EMR. More and more countries are getting involved in the actions of risk management focusing on evidence based planning. The need for such planning remains

critical due to the limited resources to support the work.

Risk is defined as “The combination of the probability of an event and its negative consequences.” To minimize the risk, preparedness improvement is a key strategy, especially those with an all hazards approach. In fact, effective preparedness measures both within the health sector and within multi-sectoral arrangements are necessary for timely and effective response (7-11).

As defined by United Nation International Strategy for Disaster Reduction (UNISDR), preparedness is the knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent, or current hazard events or conditions (12). Preparedness action is carried out within the context of disaster risk management and aims to build the capacities needed to efficiently manage all types of emergencies and achieve orderly transitions from response through to sustained recovery. Preparedness is based on a sound analysis of disaster risks and good linkages with early warning systems, and includes such activities as contingency planning, stockpiling of equipment and supplies, the development of arrangements for coordination, evacuation, and public information, and associated training and field exercises. These must be supported by formal institutional, legal, and budgetary capacities (12).

Measurement is the first step to enhance the preparedness. Despite frequent exposure of EMR countries to emergencies and disasters, and investing resources on training, exercises, etc,

the EMR region lack a metrics benchmark protocol to measure the health emergency preparedness and monitor it over time. Furthermore, the health information system of the member states does not include the disaster management indicators. This reminds us with this saying: If you cannot measure it, you cannot manage it!

Many EMR countries have invested and engaged some sort of preparedness measures (13-16), but it will be important to keep the continuation of the progress that is why it will need benchmarking. In addition, while there some countries have done some preparedness assessment, but they have had following limitations: 1) they are mostly cross-sectional survey without repeating over time; 2) these activities are not integrated to the health systems so that the results do not corporate effectively to policy making and planning; 3) protocols are not standardized with an accepted benchmarks so that the results are not comparable and the validity remains uncertain.

This research project aimed to develop and test a benchmark protocol for assessment of health emergency preparedness in EMR through a multi-state study supported by the Eastern Mediterranean Regional Office Special Grant for Research in Priority Areas of Public Health 2014-2015.

OBJECTIVES

General objective

- This study aimed to develop and test a benchmark protocol for assessment of health emergency preparedness in Eastern Mediterranean Region.

Specific objectives

- Determine domains of health emergency preparedness and associated assessment indicators
- Develop an assessment protocol for health emergency preparedness including tool, calculator and implementation procedures
- Develop the benchmarks in line with preparedness domains and indicators
- Determine the reliability, validity of the assessment tool, and evaluate feasibility and suitability of the implementation benchmark protocol

METHODOLOGY

Study design

This study benefited from a range of research methodology, corresponding to the specific objectives that included review of literature; qualitative research approach mostly by obtaining experts opinion; and field assessments. The study was implemented over following steps:

- Step 1. Determine domains and measures
- Step 2. Determine index structure and calculator
- Step 3. Develop implementation guideline
- Step 4. Determine reliability and validity and test the protocol

In regard with steps 1 to 3, the research team developed the draft versions of the domains, measures, index structure and calculator, and implementation guideline. Accordingly, the draft

versions were disseminated to the project advisers to seek their feedback. Finalization of the index domains was done during a 2-day meeting in WHO/EMR where over 30 regional and international health emergency experts participated.

After finalization of the main domains, the study continued with the research team via email correspondences to decide on the measures, structure, and calculator and implementation protocol. During this process, face and content validity of the index were improved, and acceptability of benchmark measure along with feasibility and suitability of implementation protocol were evaluated. The weights of each domain and corresponding measures were also determined based on consensus of the research team.

I-CVI and S-CVI were calculated to measure the content validity of the index. To determine the reliability, a test-re-test was done within one month interval in five pilot countries.

Study setting

The study setting included health systems of EMR. The five member states including Iran, Iraq, Oman, Qatar and Sudan participated in testing the benchmark protocol. The preliminary arrangements were done with the key stakeholders in these countries (listed as the investigators), and the EMR Regional Advisor for Health Emergency Risk Management, to support and facilitate this multi-state study.

Data sources

We used different sources of data including:

- Scholar literature, organizational documents and reports
- Experts' opinion from EMR member states, and international

level. The experts were selected and invited form the disciplines of health care, and emergency (risk) management.
- Assessment at health systems of national level in Iran, Iraq, Oman, Qatar, and Sudan

Sampling method

Experts were selected through a purposive approach and upon their agreement to participate. The regional and international experts were selected and invited to a meeting in WHO/EMRO, according to their relevant expertise to the study objectives. In total 35 regional and international experts participated in the study process.

To test the benchmark protocol, five EMR member states (Iran, Iraq, Oman, Qatar, and Sudan) were selected based on their interests. In term of external validity, these five countries represented a wide range of both hazards exposure and health system development in the EMR.

Data collection and procedure

The study used two main strategies for data collection:

- First, collecting experts' opinion and assessing their level of consensus on a) domains, and b) benchmark indictors of health emergency preparedness. An Excel based questionnaire was developed and shared with the experts. In addition to the investigation team, two research assistants were trained to manage the communications and data collection process.
- Second, the developed benchmark protocol was tested in the pilot countries. In each pilot country, two health staff assisted to collect data.

Coordination, monitoring and quality control

The study was coordinated by a team based in Disaster and

Emergency Health Academy at TUMS. The team included the principle investigator and two research assistants. In each of other pilot countries, a similar coordination team was assembled. The coordination was responsible for monitoring of the study implementation using a check-list addressing the main steps of the implementation including selection and training of study teams, coordination with authorities for data collection, and quality control of the process.

Ethical considerations

The study protocol was approved by the Ethical Committee of Tehran University of Medical Sciences. No human subject was is involved in this research, except the experts that will participate to share their opinion about the different elements of the benchmark protocol. Depends on the experts' preference, their comments over Delphi panel rounds were shared anonymously. No sensitive national or local data on emergency preparedness were released or disseminated. Furthermore, the national coordination teams were required to obtain approval from the relevant authorities first.

RESULTS

Our study resulted in a benchmark protocol that is able to measure health emergency preparedness in EMR member states. During the WHO consultancy meeting that was held in September 2015 in Cairo, the name EMRO-10 was chosen for the index. Twelve advisers from 11 countries, representatives from two international organizations, representative from seven UN agencies and offices, and 15 WHO experts were consulted to select the core elements of preparedness assessment. Based on the universal consensus of the meeting participants, below 10 core elements were chosen:

1. National Policy for Health Emergency Management
2. National Plans for Health Emergency Management
3. National Emergency Preparedness Program for Health
4. National Financing for Emergency Preparedness and Response
5. Rules of Conduct for Partners in Health Emergency Preparedness and Response
6. Health Facilities Preparedness
7. All-Hazards Risk Assessment of Health System
8. Human Resources and Capacity Development
9. Information Management, Early Warning and Surveillance System
10. Advocacy, awareness development, and community participation

Accordingly, 87 benchmark measures were developed under 10 corresponding to core elements. The I-CVI showed a range from 0.9 (for 3 items) to 1.0 for 84 items. The S-CVI was calculated at 0.99. The Pearson correlation coefficient was 0.95 (P value <0.001).

The annex 1 presents the EMRO-10 along with its implementation manual.

DISCUSSION

The research team believes this index is a simple, easy to do, reliable and valid to measure the health emergency preparedness. The results can be used for policy making and planning of health emergency preparedness.

Developing the benchmark protocol was a collaborative effort and real life experience involving about 40 experts from EMR and other regions.

EMRO-10 needs to improved overtime. For this purpose, the EMRO-10 Working Group will be shaped. The group includes subject matter experts in the areas of emergency management and heath care. The group will be responsible for helping to improve and revise the protocol overtime.

Today, the EMRO-10 includes 87 measures aimed at more fully reflecting our nation's health emergency preparedness.

The EMRO-10 has been validated to-date through stakeholder input from and extensive dialogue among the health emergency preparedness community at international, regional and country levels. However, it needs to be further validated and evolve via an ongoing stakeholder engagement process. Future validation efforts around accuracy and utility should look at how well EMRO-10 predicts outcomes such as response and recovery during an emergency; and the extent to which EMRO-10 is used for its intended purposes by policymakers and planners. To answer the aforementioned questions, two approaches may be used: reviewing case studies of past disasters and compare the results of EMRO-10 and actual outcome disasters; and collecting data during the response and recovery phases of future events that are then

matched against pre-event EMRO-10 results to determine the predictive capability of the index.

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EMRO 10

The Emergency Preparedness Index for Health

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Contributing authors

Dr. Qudsia Huda (World Health Organization); Dr. Ali Ardalan (I.R.Iran); Dr. Amin Saberinia (I.R.Iran); Dr. Seif Al Abri (Sultanate of Oman); Dr. Idris Saleh Al Abaidani (Sultanate of Oman); Dr. Amin Saberinia (I.R.Iran); Dr. Osman Elmahal (Republic of the Sudan); Mrs Somia I. Okoued (Republic of the Sudan); Dr. Walid Othman AbouGalala (Qatar); Dr. Adnan Muhammad Ali (Iraq)

Editing and coordination

Dr Ali Ardalan

Research team

Dr. Behnaz Rastegarfar, Dr. Mohamad Javad Moradian, Ms. Maryam Kandi

Technical experts:

Participants in the WHO workshops on Technical Consultation on All Hazard Emergency Preparedness in the Eastern Mediterranean Region, WHO Regional Office, Cairo, Egypt, 8-10 September 2015:

Temporary Advisers: Dr Luis Jorge Perez-Calderon, Emergency and Disaster Risk Management Consultant, Bogota, D.C., Colombia; Dr Amr Mohamed Kandeel, First Undersecretary, Preventive Sector, Ministry of Health, Cairo, Egypt; Dr Bipin Verma, Emergency and Humanitarian Action Consultant, New Delhi, India; Dr Ali Ardalan, Chair of Disaster and Emergency Health Academy, Teheran University of Medical Sciences, I.R.Iran, Visiting Scientist and Senior Fellow, Harvard Humanitarian Initiative, USA; Dr Han Heijnen, Water, Sanitation and Hygiene Policy Consultant, Vientiane, Lao People's Democratic Republic; Dr Nada Ghosn, Head of Epidemiology Surveillance Programme, Ministry of Public Health, Beirut, Lebanon; Dr Rashid Hamad Al Badi, Director, Center for

Emergency and Crisis Management, National Coordinator for Medical and Public Health Response Sector, Ministry of Health, Muscat, OMAN; Dr Seif Al Abri, Director General, Disease Surveillance and Control, Ministry of Health, Muscat, Oman; Dr Marilyn Dela Vega GO, Chief, Emergency Preparedness, Department of Health, Manila, Philippines; Dr Walid Othman Abugalala, Consultant, Office of General Directorate of Health Affairs Department, Supreme Council of Health, Doha, Qatar; Dr Osman Elmahal, Deputy Director of Emergency Preparedness and Humanitarian Action Department, Federal Ministry of Health, Khartoum, Sudan; Mrs Lise Martel, Country Director, DCD, Guinea, Centers for Disease Control and Prevention, Atlanta, USA;

Representatives of United Nations agencies and other organizations: Dr Sajedul Hasan, Director, Chief of Party for Programme for Enhancement of Emergency Response, Asian Disaster Preparedness Center (ADPC), Bangkok, Thailand; Dr Magda El Sherbiny, Director General, Egyptian Red Crescent (ERC), Cairo, Egypt; Mr Ehab Burawi, Operations Manager, United Nations Development Programme (UNDP), Cairo, Egypt; Dr Amjad Abbashar, Regional Director, United Nations Office for Disaster Reduction (UNISDR), Arab States, Cairo, Egypt; Mr Faadi Jannan, United Nations Office for Disaster Reduction (UNISDR), Arab States, Cairo, Egypt; Ms Manal Arnous, Head of United Nations Relief and Works Agency (UNRAWA), Cairo Office, Garden City, Cairo, Egypt; Ms Mollie Fair, Humanitarian Programme Specialist, United Nations Population Fund/Arab States Regional Office (UNFPA), Arab States Regional Office, Cairo, Egypt; Mr Jonathan Brooker, Regional Office for the Middle East and North Africa (ROMENA), United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA), Cairo, Egypt;

WHO participants: Dr Ala Alwan, Regional Director, WHO Eastern Mediterranean Region; Dr Qudsia Huda, Regional Adviser, Health Risk Management, Department of Communicable Disease Prevention and Control, WHO Regional Office for the Eastern Mediterranean; Dr Hoda Atta, Regional Adviser, Malaria Control and Elimination, (A/DCD), Department

of Communicable Disease Prevention and Control, WHO Regional Office for the Eastern Mediterranean; Dr Ciro Rodolfo Ugarte, Director, Department of Emergency Preparedness and Disaster Relief, WHO Regional Office for the Americas; Dr Rudi Coninx, Coordinator, Policy, Practice and Evaluation, Emergency Risk Management and Humanitarian Response, Polio, Emergencies and Country Collaboration, WHO Head Quarters; Dr Stella Chungong, Coordinator, Global Preparedness, Surveillance and Response, Global Capacities, Alert and Response, Health Security and Environment, WHO Head Quarters; Dr Mohammad Assai Ardakani, Coordinator, Primary and Community Health Care, Department of Health System Development, WHO Regional Office for the Eastern Mediterranean; Dr Nada Jawad Amin Al Ward, Coordinator, Emergency Support Team (EMST); Dr Hamed Bakir, Coordinator, Environmental Health Interventions Unit and Regional Adviser, Water Sanitation and Health, Climate and Health, Centre for Environmental Health Action (CEHA); Dr Nevio Zagaria, Team Leader, Emergency Humanitarian Action, Health Security and Emergencies, WHO Regional Office for the Western Pacific; Dr Mamunur Malik, Regional Adviser, Pandemic and Epidemic Diseases, Department of Communicable Disease Prevention and Control, WHO Regional Office for the Eastern; Ms Alexandra Simon-Taha, Technical Officer, Emergency and Humanitarian Action, Office of the Director of Programme Management, WHO Regional Office for the Eastern Mediterranean; Dr Ute Sylvia Enderlein, Prgramme Manager, Country Emergency Preparedness, Preparedness and Response Operations, Communicable Diseases, Health Security & Environment, WHO Regional Office for Europe; Dr Iman Shankiti, Emergency Coordinator, WHO/Afghanistan; Dr Maria Luiza Galer, Emergency Coordinator, WHO/Sudan.

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EMRO 10: the Emergency Preparedness Index for Health

BACKGROUND

The magnitude and scale of prevailing crises and high potential for future such events in the Eastern Mediterranean Region underscore the importance of improving national capacity for emergency preparedness, response, and recovery for national, regional and global health security. This has further been emphasized in the Sixty-first Session of Regional Committee (2014) under the Agenda item 3(a) as EM/RC61/R.1 as Regional Director's advice for Member States: (8.3)

> "Strengthen the capacity of health systems to prevent, mitigate, prepare for, respond to and recover from emergencies and crises following a whole-health and multi-sectoral approach, and increase technical capacity in preparedness."

Emergency preparedness is also a critical core capacity emphasized under IHR (2005) for attaining global health security.

The health sectors of countries are continuously being tested by crises in our region. It is imperative to learn from these past practice-based experiences to shape and guide preparedness policies and plans in countries in the region to respond to emergencies from any hazard timely and efficiently. Furthermore the catastrophic impact of these crises on developmental efforts scaling back years of progress, further emphasize the importance of emergency preparedness. Only through a very effective and meticulous process, optimum level of preparedness can be attained in the countries' health sector with adequate focus on health

systems. While it will need engagement of 'everyone' – health sector and beyond, this process as well will require intense advocacy and robust technical support to ensure that the preparedness is placed high on the priorities' agenda in all countries. The response experience from various past emergencies clearly emphasizes the need for targeted emergency preparedness and thus the need for evidence on risk and vulnerability profiles. This risk assessment-and risk-profile based approach is also part of strategic re-think under IHR (2005). The re-think emphasizes selective focus upon critical, high impact priority elements under each IHR core capacity/capability to catapult IHR implementation especially as the expiry of 2nd (and last) extension – June 2016, looms closer. The newly formulated WHO policy framework on 'Emergency and Disaster Risk Management for Health' hence highlights the need for a risk management approach to emergency preparedness, as no country is immune to the increasing frequency and severity of emergencies regardless of attainment in terms of socio-economic and human development. All countries require evidence-based, clear policies and programmes to minimize the health and other adverse consequences of these emergencies. Furthermore these policies and programmes would need to be based on a comprehensive risk management approach that addresses all-hazards and is inter-sectoral. Similarly, the Sendai Framework for Disaster Risk Reduction also emphasizes the risk management approach to form the continuum of emergency management from preparedness, response to recovery.

Based on those global references, EMRO took an initiative and developed the EMRO 10 that is a benchmarked emergency preparedness index for health. The index was developed through extensive expert consultation review, and a rigorous operational

research including field testing of the index in several regional countries, i.e., Iran, Iraq, Oman, Sudan, and Qatar.

The expert consultation reviewed the current preparedness actions in the region and identified the most relevant preparedness actions that are optimum to support the countries in developing further emergency preparedness capacities for health sectors. Through this consultation a set of core preparedness elements was agreed upon to be the most relevant in light of global references and regional specificities.

In this document, the terms "health emergencies" refer to the health threats associated with new or newly emerging diseases, the accidental release or deliberate use of biological, chemical or radio nuclear agents, natural disasters, human-made disasters, complex emergencies, conflicts and other events with a potentially catastrophic impact on human health, including the potential implications of climate change.

OBJECTIVES

The overall goal of EMRO-10 is to provide the WHO and EMR member states with critical information on health sector's preparedness and readiness for emergencies and disasters. It acts as an advocacy tool and awareness methodology for WHO, member states, policy makers, donors, stakeholders, and communities. In the context of health sector's preparedness and readiness for emergencies and disasters, EMRO-10 aims to:

- Measure the member states progress on annual basis
- Develop a structured platform for discussion among stakeholders
- Identify shortcomings, gaps, and capacities

- Enhance awareness of health stakeholders
- Create prioritized evidences for action planning by the member states and EMRO
- Guide the member states with benchmarked preparedness and readiness measures.

GLOBAL GUIDANCE

EMRO-10 has been developed under following global guidance that underlines the need for all countries to be prepared for health emergencies:

1. Emergency Disaster Risk Management for Health (EDRM-H)
2. International Health Regulation (IHR) 2005
3. Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030
4. Inter-Agency Standing Committee (IASC) Transformative Agenda

PRINCIPLES

EMRO-10 considers the followings principles to measure the emergency preparedness for health at the member states:

1. All hazards
2. Multi-sectorial
3. Whole Health
4. Community approach
5. Risk management approach

SCOPE

Type of emergency: EMRO-10 is concerned about any type of health emergency including natural, man-made, conflicts and crisis.

Administration level: EMRO-10 basically has been developed to measure the health emergency preparedness at the national level, however, its methodology has a flexibility to be used at any level of administration. In this case, the word "national" should be replaced with appropriate level of interest like "provincial", "directorate", district, etc.

Timing: EMRO-10 is a monitoring tool. It should be conducted on an annual basis.

CORE ELEMENTS

The EMRO-10 measures the health emergency preparedness in 10 core elements:

11. National policy for health emergency management
12. National plans for health emergency management
13. National emergency preparedness program for health
14. National financing for emergency preparedness and response
15. Rules of conduct for partners in health emergency preparedness and response
16. Health facilities preparedness
17. All-hazards risk assessment of health system
18. Human resources and capacity development
19. Information management, early warning and surveillance system
20. Advocacy, awareness development, and community participation

STRUCTURE

The EMRO-10 comprises three parts:

A. User manual
B. Assessment form
C. Calculator

USER MANUAL

The user manual includes:

- Pre-assessment activities
- Instructions on how to complete the assessment form
- Instructions on how to use the calculator
- Recommendation on how to prepare and communicate the report

Pre-assessment activities

The member states should establish an *EMRO-10 Working Group* before initiate the assessment. It is responsibility of the working group to coordinate the assessment, collect and compile information, and prepare the report on the findings along with recommendations. The working group should comprises a coordinator and 4 to 6 professionals from the decision-making level of the health ministry and experts from other institutions responsible for health emergency management. The coordinator of the WG is responsible for organizing and implementing the assessment, and ensuring that all members are briefed on the objectives and methodology of the assessment. If requested by the country, the WHO Country Office and/or the WHO Regional Office can provide technical support for the preparation and conduct of the assessment, including introductory training on its methodology.

Instructions on how to complete the assessment form

The EMRO-10 includes 87 measures that are grouped in 10 core elements. The status of each measure can be recorded according to a three level score including none (0), partly (1), yes (2). Simply type appropriate score value. Consensus of the Working Group is required to assign a score to each item. You may use

column “remarks” for recording any further information related to the measure status.

To ensure the maximum accuracy of the assessment, following source of information should be used for obtaining comprehensive results:

- Documents such as legislations, policies, annual reports, project reports, etc
- Interviews with key informants and authorities
- Health and population databases

Instructions on how to use the calculator

The tool is accompanied by an automatic calculator. It provide you with a summary result of the measurement of health emergency preparedness in your country. The summary results includes

- Normalized preparedness score on 100-point scale
- Radar graph presenting scores of core elements
- Classified normalized preparedness score into five classes …

The calculator considers equal weight to all core elements. Equal weight also has been considered for measures corresponding to one core element.

Recommendation on how to prepare and communicate the report

The EMRO-10 Working Group is responsible for the report development and dissemination. The below topics can be highlighted in the report: Cover page, list of main contributors, acknowledgment, preface by high authorities, executive summary, introduction and the assessment context, assessment results, discussion, and key messages.

The simplest way to disseminate a report is sending the printed copies to all stakeholders along with a formal cover letter. However, it does not mean that all stakeholders will read and use it for their programming. You may consider other means of

communications such as carrying out a workshop or seminar. You may also need to meet all key stakeholders in person to ask them if they saw and read the report, and if they have any question, concern or advice.

ASSESSMENT FORM AND CALCULATOR

Assessment form and the calculator can be found in the Excel spreadsheet attached to this file.

Acronyms

EMRO: Eastern Mediterranean Regional Office

EDRM-H: Emergency Disaster Risk Management for Health

IHR: International Health Regulation

IASC: Inter-Agency Standing Committee

SFDRR: Sendai Framework for Disaster Risk Reduction

WHO: World Health Organization