

THE UNITED REPUBLIC OF TANZANIA



**Ministry of Health, Community Development,
Gender, Elderly and Children**

**National Guideline for Emergency Simulation
Exercises**

February, 2018

PREFACE

Tanzania has been experiencing a number of disaster and emergency events of different nature. Health sector is one among the sectors which have a critical role to play in the events of disasters and emergencies. This is due to the fact that impacts of different emergencies will also involve human injuries, and other health related problems which tend to cause extra ordinary demand of health care services. Furthermore, health response for any emergency situation is expected to happen in the same conditions where routine services are provided. In this regard there is a critical need for health facilities to practice all suggested different emergency preparedness measures including Exercises.

To respond effectively to the impact of disasters is necessary to have preparedness and response plans to facilitate organized and coordinated actions during an event. Emergency plans are not theoretical guides, however they must be tested frequently so that they can be evaluated, adapted, and updated before and after an actual event. Having an attitude of conducting regular simulation exercises will allow health facilities to be prepared to handle emergencies based on the nature of an emergency and level of the facility. Since simulations and drills are used by different disciplines and different professional to their capabilities the concepts and definitions in this guidelines are used in the context of emergencies and disasters.

This guideline has been made primarily for health sector to describe application of different simulation exercises in the context of emergencies and disasters. It focuses on providing health departments with a generic and standardized guidance on organizing, developing and evaluating simulations and drills for emergency events response. It is my hope that, health facilities, institutions and health care

workers at different levels of the health sector will find this guideline a useful tool for reviewing and updating emergency preparedness and response plans as well as a measure for preparedness to handle emergency events.



Prof. Muhammad Bakari Kambi
Chief Medical Officer (CMO)

ACKNOWLEDGEMENT

The production of this National Guideline for Simulation Exercises in Health Facilities, is a result of efforts and contributions made by various institutions and individuals through several stages and involved various key stakeholders. The process included desk reviews, individual consultations etc.

This National Guideline for Simulation Exercises in Health Facilities and other materials that provide information about Simulation Exercises in Health Facility, has been developed in co-operation and with the support of various Government Departments, Agencies, groups and individuals.

I would like, therefore to convey my sincere gratitude to all who participated in developing this guideline, for their various technical supports. Special appreciation goes to the World Bank, for the financial support through the Grant/Loan given to the Government of Tanzania, which was one of the key factors that contributed to the finalization of this document.

Technical contributions by key experts who participated in the technical workshop to develop this Guideline played a big role in preparing the manual. Special thanks goes to experts from the Ministry of Health, Community Development, Gender, Elderly, and Children and The Office of the President- Regional Administration and Local Government, particularly the Mawenzi (Kilimanjaro) and Sekou-Toure (Mwanza) their contribution is highly appreciated.

Since it is difficult to mention every individual who participated and contributed actively at all stages in the development of this Guideline, we fully acknowledge and appreciate for their valuable contributions.

Lastly but not the least, I will like to put forward special thanks to the staff of the Emergency Preparedness and Response Section, Ministry of Health, Community Development, Gender, Elderly, and Children, for taking efforts in coordinating and supervising the development of this National Guideline for Simulation Exercises in Health Sector.



Dr. Mohamed Ally Mohamed
Director of Health Quality Assurance (DHQA)

ABBREVIATIONS

DMD	- Disaster Management Department
EOC	- Emergency Operation Centre
EPRS	- Emergency Preparedness and Response Section
FSE	- Functional Simulation Exercising
HEICS	- Hospital Emergency Incident Command System
IC	- Incident Command
M.T.A	- Motor Traffic Accident
MOUs	- Memorandum of Understanding Standards
SOPs	- Standard Operating Procedures
PMO	- Prime Minister's Office
TTX	- Table Top Simulation Exercise
WHO	- World Health Organisation

DEFINITION OF TERMS

Debrief

A debrief is a forum for planners, facilitators, controllers, and evaluators to review and provide feedback after the exercise is held. It should be a facilitated discussion that allows each person an opportunity to provide an overview of the functional area they observed and to comment both on strengths and areas for improvement they observed. A debrief is different from a hot debrief, in that a hot debrief is intended to capture feedback from players.

Emergency Operations Centre (EOC)

Refers to specially equipped facility from which officials exercises direction and control and coordinate necessary resources during an emergency situation.

Event

Within the scenario, an event is an expected action that is anticipated to take place during an exercise

Exercise Scope

The scope is the size of an exercise as determined by the extent of the plans being validated and the number of agencies and organizations participating. Scope levels include local, regional, national and international.

Injects

Injects are messages, or information about the next stage or events in the scenario. Injects are handed out by controllers or simulated by role-players and include directives, instructions and decisions. Injects are given to exercise players to drive play towards the achievement of specific objectives. Injects can be written, oral, televised and/or transmitted by any means (e.g. fax, phone, e-mail, voice).

Scenario

The scenario is a description of a series of hypothetical, but plausible, events that tell a story designed to make the players in an exercise take actions to respond. The scenario is designed to test the preparedness plan along with the procedures, systems and SOPs linked to it.

Simulation

Simulation is an imitation of the conditions of reality.

Simulated time

Is the time allocated for specific simulation exercise.

CONTENTS

PREFACE	ii
ACKNOWLEDGEMENT	vi
ABBREVIATIONS	vi
DEFINITION OF TERMS	vii
1.0 INTRODUCTION	1
1.1 BACKGROUND	1
BROAD OBJECTIVE.....	4
SPECIFIC OBJECTIVES	4
1.3 SCOPE	4
1.4 WHY SIMULATION EXERCISES	4
1.5 IMPORTANCE OF EMERGENCY PREPAREDNESS PLANS	5
2.0 TYPES OF SIMULATION EXERCISES	6
B. OPERATION BASED EXERCISES	7
3.0 PLANNING AND DESIGNING SIMULATION EXERCISES	10
3.1 PRE PLANNING PROCESS.....	10
3.2 PLANNING AND DESIGNING.....	12
3.3 LOGISTICS FOR SIMULATION EXERCISE	17
4.0 EXERCISING	21
4.1 POST- EXERCISE	25
5.0 MONITORING AND EVALUATION	28
5.1 MONITORING	28
5.2 EVALUATION	39

6.0	DOCUMENTATION.....	30
7.0	RECOMMENDATION AND IMPROVEMENT	31
	Summary	33
	Acronyms.....	33
	Introduction	33
	Methodology	33
	Observations	34
	Recommendations.....	34
	Conclusions.....	34
	Introduction	43
1.	Scope of the evaluation	43
	REFERENCES	46

1.0 INTRODUCTION

Simulation exercise is a practice activity that places participants in a simulated situation requiring them to function in the capacity expected of them in a real event. It is an exercise which promotes preparedness through testing policies, plans, standard operating procedures (SOPs) and capacity of the emergency responders and their institutions. Emergency exercises are activities to practice, develop, test and improve the plans and procedures on how various teams and their institutions will respond to emergencies.

Each participant is assigned a role in the exercise that can match his or her actual occupation. The events in the exercise happen in “simulated time” (representing days or weeks), during which the players receive information about situations that might arise during an emergency or disaster.

1.1 BACKGROUND

Tanzania like any other countries is vulnerable to both natural and man-made disasters and emergencies. In recent years there has been more events of disasters and emergencies where responding to them was a challenge as there were minimal preparedness. There are several ongoing interventions in the country to facilitate better preparedness. Each sector is implementing sector specific preparedness interventions however all efforts are coordinated by the DMD at the PMO. Health sector has a crucial role in responding to disasters or emergencies as in most of the disasters or emergencies health of the people is affected.

Preparedness activities in the health sector include development of various guiding documents, plans, conducting risk assessment and train people to respond to emergencies. Simulation exercises are conducted but not regularly and there is no guideline to guide the implementation of simulation exercises in the country. However,

emergency preparedness plans which need to be tested during simulation exercises do exist in some settings at regional and district levels. Moreover, these settings have limited capacity to conduct simulation exercises.

In view of the above, the Ministry of Health Community Development, Gender, Elderly and Children through Emergency Preparedness and Response Section (EPRS) has prepared this guideline to facilitate better understanding on how best to conduct simulation exercises. It will facilitate uniformity across the country in responding to emergencies and provide a generic guide to develop simulation exercises for emergencies. Therefore, it should be used and implemented in a way that is tailored and adapted to the specific needs and prevailing circumstances. It is designed to help the emergency teams to conceptualize, design, plan, coordinate, conduct and evaluate simulation exercises efficiently.

Exercises as part of emergency risk management

One of the goals of emergency risk management is to improve operational readiness for response through emergency preparedness. Simulation exercises are used to identify and eliminate issues before an actual emergency occurs. Exercise recommendations and corrective actions are essential to improving response systems and mechanisms to manage emergencies effectively. They also enable people to practice their roles and functions, and to gain experience in emergency settings. Exercises can be used as training and quality assurance tool, and provide evidence-based assessments for the monitoring, testing and strengthening of operational readiness to respond to emergencies.

As a training tool, exercises allow participants to learn and practice emergency response procedures in a safe and controlled environment. As a quality assurance tool, they test and evaluate emergency systems, policies, plans and procedures.

Exercise programme

An exercise programme is an important part of emergency risk management, and should be integrated in existing health plans at all levels.

The exercise programme forms a vital component of the emergency preparedness cycle and overall emergency management. The components of the preparedness cycle include: planning, organizing, training, equipping, exercising, evaluating, and taking corrective action. After action reviews/lessons learned activities from real events also feed into the cycle, as illustrated below:

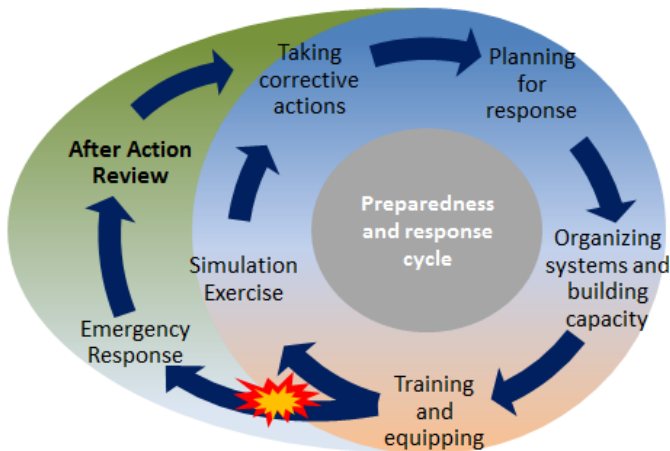


Figure 1: Emergency Preparedness cycle

Source: WHO

An exercise programme should be designed according to the results of risk assessments (planning) and training needs. A well-planned and well-implemented exercise programme helps ensure that risk assessments, training programmes and exercise events are consistent, progressive and focused on common goals that complement and build on one another.

1.2 OBJECTIVES

BROAD OBJECTIVE

To provide a standardized approach on conducting emergency simulation exercises.

SPECIFIC OBJECTIVES

1. To provide framework and methodological aspects of simulation exercises
2. To identify skills and resources that are necessary in dealing with emergencies
3. To orient institutions in planning of simulation exercises for emergencies
4. To facilitate health sector to conduct emergency simulation exercise of various types
5. To facilitate monitoring and evaluation of emergency plan and simulation exercises.

1.3 SCOPE

The simulation exercises can be organized at various levels of health care system such as national, regional, district and community. This guideline is focusing on how to conceptualize, design, plan, coordinate, conduct and evaluate the scenarios of the emergency situations. The exercise will involve health workers at the particular health facilities, non health workers and key stakeholders for particular scenario. Number of participants will depend on the scenario and type of exercise.

1.4 WHY SIMULATION EXERCISES

These exercises are done to assess the effectiveness of the emergency response plan. They are conducted to assess gaps in the plans and in their implementation procedures as well as to identify areas for improvement. Furthermore, exercises aim to evaluate different reactions to particular circumstances as well as the effectiveness of coordination mechanisms.

The simulation allows an organization to use operational tools, procedures to evaluate their systems and performance. It also provides for training and practicing tasks that require decision making and coordination. The process of evaluating the results of a simulation helps to identify critical areas of management and aspects that need to be strengthened. Furthermore, the results of the evaluation serve as lessons learned that can help in adapting and improving preparedness plans.

Emergency simulation exercises should be done at least once per year. However, emergency exercises should be done as often as necessary to keep all staff members up to date on the emergency response and should depend on risk assessment result

1.5 IMPORTANCE OF EMERGENCY PREPAREDNESS PLANS

The emergency preparedness plan is the guiding document for health facility and other institutions during emergency response. It is a prerequisite for the conduct of emergency exercises, without the plan there would be nothing to exercise. It details the organizational structure, roles, responsibilities, policies and procedures in place for allowing response to emergencies. It is implemented and assessed during emergency exercises, and to which recommendations from exercise evaluation are applied.

2.0 TYPES OF SIMULATION EXERCISES

There are five common types of emergency simulation exercises which are orientation, table top, drill, functional and full scale exercises. Nevertheless, they can be classified into two main groups: discussion based and operation based. Discussion-based exercises typically focus on strategic, policy-oriented issues while operation based exercises tend to focus more on response-related issues.

2.0.1 DISCUSSION BASED

These types of exercises are useful for drawing attention to existing plans, policies, mutual aid agreements, and procedures. They can familiarize agencies and personnel with current or expected capabilities and mainly the facilitators or presenters usually lead the discussion. Therefore, they are tools for familiarizing emergency responders with current or expected capabilities, they are divided into two types:

- a) Orientation exercises
- b) Table top exercises

a. Orientation exercises

An orientation exercise takes the form of an informal discussion designed to familiarize participants with plans, roles and SOPs. They focus on questions of coordination and delegation of roles and responsibilities. Typically, such orientation exercises are conducted by those who planned the exercise and/or the author(s) of the plan, with the support of a logging function to keep track of the discussions. Orientation exercises are the least complex and costly of the exercise types. This includes seminars and workshops.

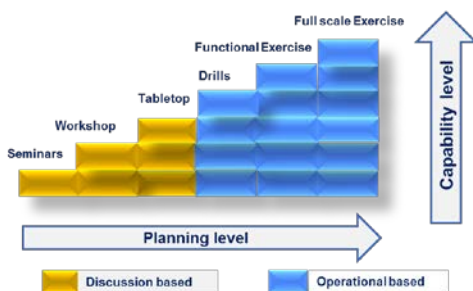


Figure 2

b. Table top exercises

It engages management and senior staff, elected or appointed officials, important partners in the district or region and or other key personnel or hospital partners for in-depth discussion centered on a hypothetical scenario. This type of exercise is intended to stimulate discussion of various issues regarding a hypothetical situation. It is useful for assessing plans, policies, and procedures or to assess types of systems needed to guide the prevention of, response to, and recovery from different events. Typically, are aimed at facilitating understanding of new concepts, identification of strengths and shortfalls or achieving a change in existing attitudes and perspectives.

Importance of table top exercises

- Practice group problem solving.
- Familiarize senior officials with a situation.
- Conduct a specific case study.
- Examine personnel contingencies.
- Test group message interpretation.
- Participate in information sharing.
- Assess interagency coordination.

2.0.2 OPERATION BASED EXERCISES

These types of exercises are more advanced than discussion based exercise, they are used to validate the plans, policies, agreements, and procedures which are developed and emphasized in discussion-based exercises. These include drills, functional exercises and Full Scale Exercises. They clarify roles and responsibilities, identify gaps in resources needed to implement plans and procedures, and improve individual and team performance. They are characterized by actual response, mobilization of equipment and resources and involvement of personnel, usually over an extended period of time. Specific type operation based are elaborated below

Drills

A drill is a coordinated, supervised activity used to test a *single specific* operation, function or skills in an institution/department. For

emergency preparedness, functions which can be tested through drills may include; biological and chemical hazard decontamination, triage, evacuation and fire extinguisher use. Also drills can be used to test operations like alert and notification, information flow, activation of an emergency plan and emergency operations centre notification. Drills can also be used to provide training on new equipment, develop or test new policies or procedures, or practice such as test the communication and notifications systems and equipment. This can be part of preparation for more complex exercise.

Importance of drills

- Provides an ideal practice on one small part of the response plan and to address a specific potential problem area
- An operational technique for maintaining and developing skills in a single-emergency response procedure in a facility.
- Learn and test new equipment, policies, procedures etc

Functional exercises

It is designed to test and evaluate personnel capabilities, multiple functions or activities within a function and usually rapid paced exercise that can be highly stressful. They are carried out to execute specific plans, policies, and procedures under crisis conditions, within a particular functional team(s) which could be from single or multi-agency. The focus is exercising plans, policies and procedures by providing the opportunity for key staff to practice their assigned function in the institution Emergency Incident Command System. It simulates the reality of operations in a functional area by presenting complex and realistic problems that require rapid and effective responses by trained personnel in a highly stressful environment using anticipated scenarios.

Importance of functional exercise

- Evaluate Emergency Incident Command System functions.
- Reinforce established policies and procedures.
- Measure resource adequacy.
- Examine Institutional relationships with key partners e.g. Health facilities, Fire agencies, police etc.

Full scale exercises

The most advanced and complex form of exercises. They test many aspects of institutional emergency response and recovery plans including the use of Emergency Incident Command System to effectively and efficiently respond to and recover from an incident. It is conducted in a real-time, stressful environment that closely emulate a real event. Resources are mobilized and deployed to place where the emergency actions are conducted e.g. decontamination, triage, EOC etc. As it is done when a real incident has occurred.

Importance of full scale exercises

- Assess organizational and individual performance.
- Demonstrate inter-Agency cooperation.
- Practice deployment of resources and personnel.
- Assess equipment capabilities.
- Activate personnel and equipment.
- Exercise public information systems.
- Test communications systems and procedures.
- Analyze Memorandums of Understanding (MOUs), Standard Operating Procedures (SOPs), plans, policies, and procedures.

3.0 PLANNING AND DESIGNING SIMULATION EXERCISES

The process of Planning and design development for a simulation exercise is composed of three main parts, these include pre planning, planning and designing and logistics for the exercises. These parts are summarized below.

3.1 PRE PLANNING PROCESS

Prior to exercise planning, it may be beneficial to assess the institutions emergency preparedness needs, what resources are available, what type of exercise is appropriate as well as what kind of support can be obtained from within and outside the institution. There are several preliminary steps that may help focus attention and concentrate efforts so as to wisely allocate limited resources. Do not skip the initial steps, for they can determine the entire direction, plans and outcome of the exercise.

The steps to be followed during pre-planning process are:

- Review the emergency response plan.
- Conduct needs assessment (determine what needs to be done).
- Assess capability to conduct an exercise (consider what can be done).
- Define exercise scope and type (decide on what will be done).
- Gain support from management and staff (involve and inform the staff).
- Coordinate with external agencies (work with others).

Review the emergency response plan

This is the process of reviewing what you have. Since the emergency response plan is practiced and assessed during emergency exercises, it is recommended therefore, before any exercise planning can be done, the plan must be reviewed. While reviewing the plan, consider issues like; what emergencies are addressed by the existing plan, what emergency responses are listed in the plan, what resources and

materials are used, which staff members are involved in the plan, what training is necessary to be carried out.

Conduct needs assessment

This determines what needs to be done. After reviewing the response plan, a needs assessment should be done. This activity serves as a review of the actual current state of the institutions emergency preparedness. It helps determine if exercises are really needed, in what areas to be applied, who should be involved, what emergency functions should be tested and what type of exercise should be done.

Assess capability to conduct an exercise

This step considers what can be done according to present capacity. Once the needs for exercising are determined, resources available must be inventoried for exercise conduction. These include a frank assessment of available funding, personnel, skills, facilities, time and support. Any deficiency observed must be considered in the planning of the exercise. These may lead to leveling of expectations on what to be accomplished and adjustments in the scope of and type of exercise to be used.

Define exercise scope and type

This step decides exactly on what will be done. As per the needs assessment and capability assessment, then exercise scope and type can be determined.

There are five exercise scope elements which are;

- Type of emergency; what emergency will be prepared?
- Location; where will the exercise be done?
- Functions; what emergency response function or operation will be tested?
- Participants; who will be involved?
- Exercise type; which particular type of exercise will be used?

Each element isolates particular considerations in planning an exercise.

Gain support from management and staff

After the details regarding the exercise have been decided, it is important to gain support for the exercise from the management and staff (important players) by providing them with a summary description of what is going to be done.

Coordinate with external agencies

In conducting emergency exercises, it is beneficial to work with external agencies that are also key players in that particular exercise for example Ministry of Health, Local Government, Ministry of Home Affairs, nearby health facilities, media and others.

3.2 PLANNING AND DESIGNING

Exercise Planning Process

The exercise planning phase focuses on the specific details of the exercise. It is often the longest and most tedious element of emergency exercises. It involves the design and development of all elements that come to play during execution of the exercise. The exercise planning process involves considerable coordination among participating institutions stakeholders and key staff.

The planning of an exercise comprises of the following components;

- Setting up the organization and management method for the exercise (Foundation),
- Convening a planning team
- Conducting planning meetings
- Identifying exercise design objectives
- Developing the scenario
- Documentation
- Assigning tasks
- Identifying the evaluation methodology

These components of exercise planning are explained below:

I. Setting up the foundation

This stage involves setting of management and organization for the exercise.

The purpose of this step is to establish foundation for designing, conducting, and evaluating an exercise. This stage involves developing exercise management timeline, establishing milestones, identifying a planning team and scheduling planning meetings.

II. Setting timelines for the exercises

Timelines for exercises may differ with type of exercise. Discussion based exercises will be longer than operational based exercises, likewise Orientation exercises will generally be shorter than a Table Top Exercise whereas the timelines for complex or multi-agency Full Scale Exercises could be longer than those for drills.

III. Convening a planning team

The exercise planning team is responsible for designing, developing, conducting, and evaluating all aspects of an exercise.

Roles of the team

- The planning team determines exercise design objectives, tailors the scenario to the institutions needs and capacity, and develops documents and tools used in carrying out the exercise, evaluation and control.
- Planning team members also help with developing and distributing pre-exercise materials and conducting exercise briefings and training sessions.
- During the exercise the team carries a role of controller and evaluator positions.

- In order to be successful the planning team should employ use of the institutions Incident Command/management Structure, clearly defines roles, responsibilities, functional area skills, practice leadership and team work and follow a standardized exercise design and development process and calls on the support of senior management.

Composition of the team

The team includes exercise team leader or exercise director, representative from each major participating institution, disaster response partner and institutions key departments. Planning team members should be experienced personnel. The size of the team should be manageable and modified to fit the type or scope of the exercise e.g. operational based will need more logistical and coordination inputs than for the discussion based exercise.

IV. Conducting planning meetings,

Planning meetings are a very important and useful part of exercise design and development. The planning team should decide number of the meetings based on the scope, type (operations or discussion-based), and complexity of the exercise. The meetings can be divided into phases as follows

- Concept and objectives development meetings – To identify the type, scope, objectives, and purpose of the exercise, to decide on the scenarios, venue for the exercises. Inputs from the meeting will generate roles and responsibilities to be assigned to the planning team.
- Mid-term planning meetings – These should be done for operational based exercises used to settle logistical and organizational issues that arise during planning such as staffing issues, scenario and timeline development. Also can be used for scheduling, logistics, administrative requirements, and reviewing draft exercise documents e.g. checklists.

- Final planning meetings – carried out to review the procedures for conducting the exercise, final drafts of all exercise materials and logistical requirements.

V. Design and development

This stage is also referred to as technical design. During this stage the various components of the exercise are planned, including the events to be addressed by the simulators, tasks to be performed, resources that will be available and all other necessary items for the exercise. This section describes the following necessary steps and documentation of tasks needed in building an exercise;

- Designing objectives of the exercise
- Designing the scenario
- Creating documentation
- Coordinating logistics
- Planning exercise conduct,
- Selecting an evaluation and improvement methodology.

Details and examples of scenarios will be provided in annex I

Designing Exercise Objectives

Objectives are descriptions of arrangement expected of participants to demonstrate competence and should reflect issues to be tested including specific measures or processes to be followed in the event of an incident and areas requiring practice, training, review or improvement. Exercise objectives are important because they define specific goals, provide a framework for scenario development, guide individual organizational objective development, and provide exercise evaluation criteria. During planning it is important to identify areas to be tested these will guide the objectives of the exercise.

The following are examples of areas to be tested that can form basis of objectives.

- Awareness on elements of emergency plans
- adherence to the plans
- speed of response
- decision processes
- information sharing (internally and externally)
- cooperation (internally and externally) to address the problem
- coordination of resources, logistics and support capabilities.

Designing Exercise Scenarios

A scenario is a hypothetical disaster or emergency event which is used to simulate the emergency response. Scenarios provides the backdrop and storyline that drive an exercise. The first step in designing the scenario is determining the type of threat/hazard (e.g. disease outbreak, chemical, biological, radiological, nuclear, explosive incident). Scenarios should also focus on the common local incidents and local facilities and capacities, it should also be designed based on exercise objectives derived from the health facility and local risk and vulnerability assessment. Each type of hazard is applicable to different exercise objectives because hazards presents different characteristics for testing and evaluating different aspects of response. During scenario development, the team should also determine the venue for the exercise.

Identifying the evaluation methodology.

Evaluation is part of the overall design and development phase and should take place from initial stages including objective development. This stage should involve designing of evaluation method and tools. Details will be provided in section 5

3.3 LOGISTICS FOR SIMULATION EXERCISE

Logistics is important component while planning for any simulation exercise. This will include gathering of all supplies, materials, equipment, services and facilities. The materials, equipment and facilities required will be determined by the type of exercise and scenario developed for that simulation exercise. Details of all exercise resources should be made available to the exercise director and the exercise team in order to be included in the exercise plan. The exercise administration and logistics checklist (see annex IV) will be used to guide in preparation of required resources. It is important to ensure ongoing review of the exercise resources by the exercise management team during the pre-exercise phase

The Logistics team should visit the exercise site on the day prior to the event to address any remaining logistical or administrative items pertaining to setup, and to arrange for registration. The logistics coordinator / team is responsible for:

- Ensuring that materials, equipment, facilities, and services required during the exercise are properly identified in advance.
- To develop some of the tools, especially if potentially complex software tools or other advanced equipment are required.
- Providing exercise controllers with all materials along with any potential training sessions and rehearsals (to ensure familiarity with material and/or advanced equipment, etc.) to ensure that everyone is ready and well prepared.

Table 1. Exercise requirements

The table below summarizes necessary exercise materials to be prepared for type of exercise.

<p>Discussion-based exercises</p>	<p>Facility and rooms Food and refreshments Audio/visual requirements Supplies Badges, name tags, table markers Forms eg. Registration, Toilets Internet</p>
<p>Operations-based exercises</p>	<p>Videotaping Props and devices Site security Communications including internet connectivity Safety Badges identifying the role of each exercise participant (e.g., participant, observer, VIP, facilitator, evaluator) Role-players Exercise control and simulation facilities Food and refreshments Transport Adequate number of Guide manuals or other written materials for exercise participants Multimedia presentation Appropriate Audio Visual equipment including televisions, projectors, projection screens, microphones, and speakers Labels for stations Name tags for each participant Forms eg registration, feedback etc Checklists</p>

Materials and Facilities for Simulation Exercises

Venue

Meetings and briefings should be conducted in facilities that are appropriate for the type, scope and size of the exercise. The venue should be large enough to accommodate all participants, observers, facilitators, and presenters. Table arrangement varies according to exercise type. For a Table top, for instance, the number of tables should be based on the number of participating functional areas. The layout should allow for as much participant and facilitator interaction as possible.

Food and Refreshments

Food and refreshments should be provided to participants and observers, especially during prolonged exercises.

Audio Visual and Videotaping Requirements

The requirements should be identified well in advance and specific responsibilities should be assigned to ensure proper equipment functioning.

Supplies

Exercise planners should prepare supplies (e.g. writing materials) deemed necessary for the exercise. These supplies should be procured prior to exercise and provided to all participants.

Tags, labels and Table or Breakout identification

Each exercise participant should have a tag clearly identifying him or her by name and agency. Labels identifying the functional area represented (e.g. public health, emergency management etc) should be placed on tables prior to the start of the exercise to ensure proper seating arrangements.

Registration

For both identification and security reasons, participants and observers should register upon arrival and provide their name, organization, phone or fax number, and e-mail address. Also, table assignments for each participant should be predetermined.

Toilets

Toilets should be accessible to all individuals involved in an exercise, can be portable and/or permanent toilets at the assembly area and the exercise play area depending on the local situation.

Communications

Communication facilities may include radio calls, mobile phones, landlines and internet this should be prepared prior to the exercise. Availability of radio and local media can also be utilized depending on the type of exercise.

Site safety and Security

Ensure security team of the institution is involved during exercise planning to facilitate preparation and arrangement for safety and security of participants, media personnel, traffic, and equipment.

Safety controller and safety officer should ensure availability of safety equipment and supplies such as medicines and vaccines.

Emergency medical service team

This team provides emergency medical service during the conduct of the exercise, and ensures that all participants, victims, simulators, evaluators, observers and others involved are safe during the conduct of the exercise.

4.0 EXERCISING

All planning and preparation culminate in the performance of the exercise. This phase involves three steps as explained below:

- i. Preparation (Set the stage)
- ii. Conduction (Monitor the action)
- iii. Recovery (Return to normal stage)

I. Preparation (set the stage)

This involves the last briefings to staff members and participants just prior to the exercise, it involves run-through which is done to ensure that all members of the exercise team receive the same initial information. This review should be brief and contain only information needed for participants to play their role in the exercise. The run through should be done one day before exercise and for exercises which are conducted for a number of days this must be done on a daily basis as a minimum. This will also allow synchronization of some changes made in the injects and scenario.

The following five specific areas may be used to structure the last exercise briefing or run through:

- Why the exercise is taking place (Information)
- What the exercise intends to do? (Intention)
- How the exercise will be done? (Method)
- All administrative issues for the exercise (Administration)
- All communication arrangements (communication)

Another component of this stage is the final checking of the systems and equipment such as computers, communication facilities etc. It also includes proper positioning of all exercise participants and other necessary facilities such as:

- Simulated casualties
- Equipment
- Exercise staff members and other participants.

II. Conducting the exercise (Monitoring the action)

At this stage the exercise is initiated by the facilitator or controller or exercise director. Initiation is done by reviewing the key points of the exercise plan, highlighting the objectives and rules of exercise. It also includes providing a brief summary of the nature of the situation being addressed eg the scenario and the capacity

This stage is followed by launching of the exercise. The launching of the exercise is done by the exercise director using different techniques as outlined in Annex 5. After launching the exercise, each participant will be responsible to practice his assigned roles and responsibilities.

Roles and Responsibilities of Exercise Team During the Actual Simulation Exercise

1. Design and Planning Team

This team plans the exercise in terms of how it will be done, what scenario will be used, expected timetable, what is expected of participants, and all other matters pertaining to how the exercise is to be conducted. This team also identifies the victims, orient them into their assigned roles and deploys them to their assigned areas.

2. Logistic team

This team gathers all supplies, materials, equipment, services and facilities required for the implementation of the exercise.

3. Simulators team

This team is responsible for acting as various agencies and positions that may interact and exchange messages during an exercise.

4. Victim actors team

This team includes individuals who have been identified by the exercise planning team to play or take the role of the victims. They are oriented and assigned roles and are deployed to assigned areas.

5. Facilitator

Facilitator is responsible for keeping the discussions on track and in line with the exercise's design objective, especially during discussion based exercises.

6. Controller

This team operates during actual exercise performance phase, and ensures that the exercise purpose and objectives are achieved in a realistic manner. Controllers plan and manage the exercise play, set up and operate the exercise. They direct the pace of exercise play. They provide key data to players and may prompt or initiate certain player actions and injects to the players, as described in the scenario to ensure continuity. Controllers issue exercise materials to players as required, monitor the exercise timeline and ensure the safety of all participants. Controllers are the only participants who should provide information or direction to players.

7. Observer

Observers are invited guests who have no official role in the conduct of an exercise, although they may be asked to submit their observations. Observers can include individuals from organizations relevant to the scope of the exercise. It is important to consider who to invite during the planning phase so as to ensure that observers have a chance to attend. It is recommended to identify observers who have a better understanding of simulation exercise.

8. Evaluation team

The team reviews all existing evaluation tools, develops new tools based on the objectives, identifies and orients evaluators on the tools to be used, reproduces and distributes the tools,

deploys evaluators to assigned areas, compiles all evaluation findings and develops a final evaluation report with recommendations.

9. Documentation team

Ensures adequate documentation of the exercise (e.g. pictures, videos and notes) from pre-planning, planning, execution and post exercise evaluation and provides the final report on the events of the exercise.

10. Food and refreshment team

In charge of providing nourishment during the entire process.

NB It is also recommended that duties of individuals or group should be reviewed periodically and particularly in the light of emergency simulation exercise. This in turn ensures that there is an effective use of resource personnel

III. Recovery (return to normal state)

After completing the exercise, as in an actual emergency, there must be provision for system recovery and return to normal operations. These include;

- Demobilization
- Cleaning of exercise site.
- Return of emergency equipment
- Proper discharge of participants from exercise and return to regular posting.

4.1 POST- EXERCISE

The exercise process does not end after the execution of an exercise. This phase involves debriefing meetings, conducting and writing up an after-action and monitoring follow-up measures to ensure that the lessons learned from the exercise are applied.

The importance of this phase is to ensure that all efforts in preparing for and conducting an exercise improve the emergency management system. By taking the time to go through the feedback, recommendations and insights from the exercise, changes to the emergency response plan can be made and improvements applied. Gaps in the plan or in its implementation can be noted and rectified. Future actions can be determined, and the purpose for conducting the exercise fulfilled. Simply, post-exercise processing helps ensure that all efforts invested into the activity are not put to waste.

Post Exercise Steps:

1. Conduct post exercise meetings (Debriefing the participants)
2. Write After-Action Report (Make evaluation)
3. Conduct follow up activities (Apply the learning).

Step 1: Conduct post-exercise meetings (debrief the participants /management team).

This is informal discussion often lead by the exercise director, with the full exercise management team. Every member of the team is given the opportunity to offer feedback and comments on the exercise.

The aim of the debriefing session is to reflect on exercise feedback on what went well, what needs improvement, and what can be simplified in terms of planning and implementation.

(See Annex 1: guidance tool)

Step 2. Write initial report to senior officials on after-action

The aim is to report back to the senior management on the outcome of the planned activities and share the initial findings of the exercise, including challenges, achievements and recommendations. This may include gaining senior support for implementation of the proposed recommendations. The after-action report should be distributed to the director, officer in charge or chief executive of the institution and each participating department or other affected units. The after-action report is the final output of the evaluation team. It documents the effectiveness of the exercise. It also:

- Improves the emergency response plan
- Improves how the emergency response plan is implemented and
- Serves as the basis for future exercises.

(See Annex II: guidance tools)

Step 3 : The exercise report and follow-up activities (apply the learning).

The report will be completed by the lead team leader by drawing on reports from facilitators and observers. A record of the exercise and report will present an overview of the exercise, lists of key achievements, challenges and recommendations to the leadership. The exercise report aims to ensure lessons identified are incorporated into the work plan, and that action is taken on key recommendations.

In this step, the implementation and recommendations are reviewed by the senior management, emergency management coordination unit or committee and other key decision making units. It is the responsibility of the emergency management coordination unit in each level to ensure recommendations are implemented and status of implementation is shared at all levels.

(See Annex 3: guidance tool)

Recommendations may translate to:

- Changes in policy, resource acquisition or allocation,
- Personnel training
- Decision to conduct further exercises.
- Revision or development of response plan/s

Exercise follow-up strategies:

- Clearly assigning tasks and schedules, and designating responsibility for each recommended improvement.
- Establishing a monitoring plan to track the progress of the recommendations' implementation.
- Completing the cycle by incorporating the testing of noted improvement indicators into succeeding exercises. In the end, the recommendations and the exercise itself are useless if no efforts are placed into their implementation.

5.0 MONITORING AND EVALUATION

5.1 MONITORING

Monitoring of simulation exercise should be done throughout the whole process. This means from planning stage up to the evaluation stage. The monitoring should be parallel with improvement of identified problems or gaps to facilitate better implementation. For example through monitoring, one can realise number of participants for particular exercises are not adequate. This should be corrected immediately by sourcing more appropriate participants to be part of simulation exercise team.

Establishing indicators

It is important to identify key indicators for measuring performance of particular simulation exercise. Establish status of each indicator need to be done before planning and implementation of the exercise and continuously assess the progress. Indicators are specific to particular scenario and type of simulation exercises however; some are cross cutting. Examples of indicators include the following:

- Availability of emergency preparedness plan.
- Monitoring and evaluation team identified.
- Number of participants involved.
- Availability of plan for simulation exercise.
- Number of pre-planning meetings conducted.
- Number of Post exercise feedback meetings conducted.
- Number of different Agencies involved

Methodology of monitoring

There are different ways of measuring the set indicators. Measuring can be done through observation using the already developed checklist or review various documents or data, etc. The design of specific type of simulation exercise will include number of activities to be implemented and output of each activity. If the output is missing monitoring and evaluation team need to establish output and target of

each activity. Examples of planned activities and expected output include the following:

- Scenario developed [scenario of simulation exercise]
- Orient participants on the planned scenario [participants understand the scenario]

5.2 EVALUATION

The evaluation team need to be established however, it can be the same team serve as monitoring and evaluation. Clear objective of particular simulation exercise need to be established and understood well by all key players. Evaluation can be done through survey, observation and discussions. Evaluation for a simulation has two parts:

- i. Evaluating the performance of participants during the exercise
 - This involves rating the performance of participants and how they meet the objectives of the simulation.
 - Evaluators use an evaluation form to record their assessments while observing and monitoring the deliberations and actions of the participants without intervening.
 - After the exercise ends participants are given time to express their perceptions
 - Tools to be used included evaluation forms which need to be prepared during planning
- ii. Evaluation of the organization of the simulation
 - This involves evaluation of the whole process of planning, design, and execution of the exercise in order to produce feedback and provide recommendations for improvement
 - This should take place in a session involving all team members
 - Produces a final evaluation document with recommendations to improve future exercises

6.0 DOCUMENTATION

Exercise documentation should involve gathering and saving all information and events (pictures, video, audio messages) that are formulated and collected from the initial design planning of exercise to the final after the action report. These includes:

Pre-planning activities

Panning

Exercise

Post exercise

Monitoring and evaluation

Recommendation

Exercise report.

Should cover all necessary components including:

- Background including justification of simulation exercises
- Objective
- Type and scenario of simulation exercises
- Planned Activities
- Strengths
- Gaps
- Ways of addressing gaps

Use the tools for documentation to document each stage. **see annex III**

7.0 RECOMMENDATION AND IMPROVEMENT

This is important part of the exercise plan as it analyses the gaps that are found and provide areas for improvement. These may include, personnel training, logistic issues, coordination mechanism etc. The focus of simulation exercise is to locate and eliminate problems prior to an actual emergency. Hence the corrective actions are part of exercise design, evaluation and follow up.

It is important to identify areas of weakness or gaps in the emergency plan and modify implementing procedures. A part from gaps in the emergency plan, other gaps identified during simulation exercises need to be addressed as well.

Training during preparedness should include all improvement following the simulation exercises and updates on new policies techniques and equipment used to create efficiency. It is essential that such procedures or equipment should be tested and evaluated before incorporation into the emergency procedures to eliminate any inconveniences during real event.

ANNEXES

ANNEX 1: Exercise Management Team Debriefing Guidance

1. Ensure sufficient time is booked for the exercise management team to discuss before ending the mission, estimate 60 minutes
2. Review the main activities in the work plan and discuss lessons and opportunities to improve processes
3. Discuss how the simulation exercise was actually delivered
4. Discuss if the evaluators were able to perform their tasks properly
5. Discuss the venue and the room layout
6. Ask the following questions:
 - a. As a team, did we manage this project efficiently?
 - b. What would I change in a future exercise?
 - c. What would I recommend to another exercise management team?
7. Thank all the members of the exercise management team for their cooperation, support and engagement.
8. Explain how these identified lessons will be used to improve future exercises.

ANNEX II: Leadership Debriefing Guidance

1. Ensure sufficient time is booked with the senior management team to discuss the results of the activities before ending the mission; estimate 20-40 minutes
2. Review the outcomes of the participant and exercise management team debriefing sessions to prepare summary notes and talking points for the meeting.
3. Start with a short overview of the exercise scenario, and then focus on key achievements by highlighting the challenges identified by the participants and followed by recommendations proposed to close gaps, strengthen plans/procedures and enhance system readiness.

4. Discuss the way forward (action plan) and any priority follow-up activities recommended for action to support the management.
5. Thank senior management for their cooperation, support and engagement, and highlight specific individuals who enabled the mission.
6. Give details of the post-exercise report process and the due date for comments and finalization

ANNEX III: Exercise Report Template

Summary

Insert the summary of the different sections of the report.

Acronyms

List the acronyms used in the report.

Introduction

The introduction presents a brief description of the exercise:

- Purpose, scope and objectives
- A summary of participants, resources, exercise location, set-up and staging, and the activities relating to the preparation and execution of the exercise

Methodology

The methodology section presents a brief description of the methodology

- The methodology of the exercise including
 - Type of the exercise
 - Methods of the exercise conduct
 - Exercise debriefing
 - Identification of any exercise process constraints.

Observations

- The observations present the exercise outcome along with the input from observers and participating organizations, and the debriefings.
- Should cover observations in relation to purpose and objectives of the exercise, describing key outcomes, and highlighting actions taken and significant strengths and weaknesses.
- The observation section also presents the results of the participant feedback forms.

Recommendations

This section includes:

- Recommendations for improvements, with responsibilities assigned and completion dates set
- Recommendations for a next exercise
- Any limitations on findings or guidance on how findings should be interpreted.

Conclusions

This section includes:

- Conclusions regarding the validity of the exercise
- Next steps for the exercise report:
 - Circulation to participating organization(s) for input
 - Finalization and release to ministry of health.

Annex IV

Exercise Administration and Logistics Checklist

NOTES: This template can be used to assess tasks and items necessary for an exercise.

What, where, when, who and how?

- Agreement and budget allocated
- Venue, date and time - agenda set
- Facilitators, participants and admin support
- Equipment required
- Tools, templates and guidance material
- Flexibility

Before the exercise				
Task	Items and remarks	Date	Responsibility (who)	Status
		Due		
Concept note	Define the purpose and scope of activities			
Resources	Facilitation team identified and confirmed			
	Guidance, tools and templates available			
	Budget prepared			
	Funding sources agreed			
	Guidance, tools and templates available			
Venue	3 x quotes received if venue to be rented			Completed
	Venue selected (security approved, appropriate size)			In process
	Final venue booked			Not started

	Room layout agreed with venue manager			
	Venue setup			
	Supplies and equipment delivered and set up			
Catering	Catering package (meals and refreshments)			
	3 x quotes received (if needed)			
	Catering confirmed and times provided			
	Optional group dinner booked			
Invitations	Participants identified			
	Participants invited			
	Participant list and directory created			
	Admin note & reminder sent			
Facilitator accommodation & transport	Visa letters sent (if needed)			
	Airport transfers (if needed) - both ways			
	Accommodation booked			
	DSA (if appropriate)			
Participant accommodation & transport	Visa letters sent (if needed)			
	Airport transfers (if needed) - both ways			
	Accommodation booked			
	DSA (if appropriate)			

Supplies	Event banner (including logos)			
	Welcome packs (folders) for each participant			
	4 x flipcharts on stands and paper			
	First aid kit			
	Digital camera / official photographer			
	Pad of paper and water per person			
	Rubbish & paper recycling bins			
	Large clock for the room			
	<u>Stationery:</u>			
	• Name badge holders			
	• Pens (might be supplied by the hotel?)			
	• Memory sticks (at least 4)			
	• Flipchart paper & markers			
	• Staplers & box of staples			
	• Adhesive tape (paper tape)			
	• Scissors			
	• Packet of A4 print paper			

	<ul style="list-style-type: none"> Spare printer ink (black) 			
	<ul style="list-style-type: none"> Pack of large post-it notes 			
Equipment	Microphone and speakers (sound system)			
	LCD projector, cables and screen			
	Printer			
	Power-boards			
	Presentation remote			
	Facilitator laptops			
	Collect all equipment & return to owners			
Print/ documents	Name badges			
	Registration sheet			
	Print agenda			
	Print inject matrix (1 set per control team member)			
	Print master scenario (1 copy per participant)			
	Guidance note			
	M&E survey			
Translation	Documents translated			

After the exercise				
Task	Items and remarks	Date	Responsibility (who)	Status
		Due		
Resources	All expenses recorded			
	Produce a financial report if required			
Venue	Collect and check invoice vs. quote			
	Confirm with finances whether invoice is OK for payment			
Catering	Collect and check invoice vs. quote			
	Confirm with finances whether invoice is OK for payment			
Supplies	Collect and allocate leftover stationery			

	supplies			
Equipment	Collect all equipment & return to owners			
Print/ documents	Update participant contact list			

Source: *Who Simulation Exercise Manual*

ANNEX V

EXERCISE CONDUCT TECHNIQUES

Techniques that can be used to announce the start of the exercise
<ol style="list-style-type: none">1. The exercise director gathering all participants in a room and announcing that the exercise has now begun2. Players gathering to see/hear a fictional newscast (pseudo media item)3. Players sitting at their usual desks and receiving a text message saying that the exercise has now started4. One of the players receiving information that is then disseminated to the others (very useful if the objective is to practice information flow through an agency)5. The exercise starting at a predetermined and published time and being initiated by injects or interactions.
Techniques to ensure that all participants understand that the scenario is fictitious and that it is an exercise
<ol style="list-style-type: none">1. Players should remain isolated during the exercise, enabling them to act realistically in the simulation2. Players should be very clear that any phone calls or written messages during the exercise are exercise materials. This is best done by starting all telephone calls by saying ‘exercise, exercise, exercise’ and by writing ‘exercise, exercise, exercise’ at the beginning of all email messages or other written injects3. Should gather all telephone numbers for actors and participants in an exercise telephone list. The players are informed that only those on the list may be contacted during the course of the exercise.4. Have controllers and players use functional email boxes specifically created for the exercise

Source: *Handbook on Simulation Exercises in EU Public Health Setting*

ANNEX VI: POINTS TO CONSIDER FOR EXERCISE EVALUATION

DISCUSSION BASED EXERCISES	OPERATIONAL BASED EXERCISES
<p>The evaluator should ask the following questions</p> <ol style="list-style-type: none"> 1. Were the objectives of the exercise achieved? 2. Did the discussions show that all staff would be able to complete their tasks successfully in the event of a real crisis? 3. Did the discussions show that all staff were appropriately trained to manage the activities that they would 4. Have to perform in a live situation? 5. Was any resource deficit or gap identified that might impede on the ability to perform a task? 6. Do existing plans, policies and procedures support the players' behavior? 7. Is there a need for extra staff from other units or organizations to cooperate in order to carry out an activity? 8. If so, are there agreements or relations that support the necessary coordination of such activities? 	<p>The evaluator should answer the following questions</p> <ol style="list-style-type: none"> 1. What did the evaluators observe during the exercise? 2. What should the evaluators have observed, had the exercise players acted in accordance with policies, plans and procedures (measurement points)? 3. Is there a difference? If yes, why? 4. What are the consequences of these differences? 5. What improvements should be made or what best practice should be introduced?

9. What are the main lessons learned from this exercise? 10. What strengths were identified? 11. Which areas were identified for improvement?	
---	--

Source: Handbook on Simulation Exercises In EU Public Health Setting

ANNEX VII: Table top Exercise Evaluation Guidance Note

Introduction

This tool provides some tips and keys steps to ensure evaluation is built into the exercise from the design phase to the reporting phase.

1. Scope of the evaluation

The evaluation could address one or more of the following three aspects:

- Evaluation of the response system
- Evaluation of the response plan
- Organization of the exercise.

Evaluation is a key part of the pre-exercise planning phase, and is necessary to ensure that the evaluation material and expected outputs will achieve the exercise objectives.

2. During the exercise design phase

- Compile all plans, SOPs and other reference materials existing within the response system
- Assemble an evaluators' team. Nominate a lead evaluator and ensure that all the required technical expertise is represented within the team. Ensure balanced representation by choosing members from different organizations/departments when possible.

- Define expected actions for each task and operation and/or function.
- Provide indicators for success for each (i.e. specific decision made, correct use of specific SOPs, process initiated, etc.).
- With the management team, develop a methodology for the exercise debriefing e.g. evaluation can be built into each session or run as a separate activity at the end of the exercise.
- Develop the slides, support materials and templates needed to run the debriefing sessions.
- In most cases the evaluation can be done by using the exercise outline template (TTX 13), in which expected outcomes are listed per session and can be tracked by the evaluators.
- Develop slides, support materials and templates needed to run the debriefing sessions.
- Prepare the feedback form.
- Prepare materials for the evaluators' briefing prior to the exercise.
- Invite all evaluators to the pre-exercise briefing and confirm availability.

3. Evaluators' briefing

- Provide evaluators with clear directives on their expected roles and behaviours during the simulation.
- Allocate specific roles and responsibilities within the evaluation team during the exercise as well as during the debriefing sessions.
- Explain how evaluators are expected to compile and submit their observations.
- Confirm deadline for submission of their inputs.

4. During the exercise

- For a TTX, the simplest form of evaluation is to capture and report the exercise discussion points related to the exercise purpose and objectives. This would include solutions,

comments, recommendations and ideas on how to improve the level of preparedness or response readiness.

- During the discussion sessions, assign one or more evaluators to capture the discussions, decisions, key comments and recommendations.
- Conduct quick meetings between the evaluation team and the facilitation team in between the sessions of the exercise in order to share any particular concerns regarding the conduct of the exercise.

5. After the exercise

- Conduct an evaluators' meeting before the participants' debriefings.
- After the participants' debriefing, the lead evaluator should facilitate an additional debriefing with all the exercise management team to collect feedback on the conduct of the exercise and lessons for future exercises.
- Provide all input necessary for drafting the report.

Source: *WHO Simulation Exercise Manual 2017*

REFERENCES

1. European Union, 2014 Handbook on simulation exercises in EU public health settings.
2. Patick Lagadec 1993 emergency preparedness exercise for nuclear facilities. Preparation and conduct and evaluation
3. Pan American Health Organization 2012. Guidelines for emergency simulation and drills in Caribbean
4. UK 2013 Public safety and emergency guidance, United Kingdom Frederick Spielberg; using simulation to improve emergence
5. WHO 2010 Hospital and health facilities emergency simulation exercise: Guiding materials. Western Pacific
6. WHO 2017, Simulation Exercise Manual