Simulation Toolkit

DAI Global Health

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INTRODUCTION

A simulation is an exercise that imitates a real-life scenario to assess or reinforce preparedness protocols and capabilities. By using real-world applications, simulations assess levels of preparedness and test the practicality, adequacy, and efficiency of plans and procedures. Likewise, simulations enable organizations to identify gaps or weaknesses in staff skills and capacity. Platforms typically engage in simulation exercises to examine and strengthen the level of coordination across One Health sectors in preparedness activities.

Simulations should be understood as part of a broader performance improvement process. They are learning exercises that give insight into areas—policies, protocols, processes, resources, and capacity-building interventions—that need to be strengthened to improve preparedness and response efforts. To be effective, a simulation must support the achievement of an organizational objective and be backed up with a meaningful commitment to translate simulation learnings into meaningful improvements.

This toolkit aims to help platforms and other stakeholders understand:

- Common terms,
- The types of simulations,
- How to choose the right type of simulation given your objective(s), organizational readiness, timeline, and resources, and,
- The step-by-step process of designing and implementing a simulation.

The toolkit includes useful tools (denoted with an underline), as well as examples and resources.

Note: This toolkit aims to give you a high-level overview of simulations; it should not be understood as a comprehensive guide to conducting simulations, which are complex and involve exercises. For detailed guidance on simulations, we recommend that you read the European Centre for Disease Prevention and Control's *Handbook on simulation exercises in EU public health settings*, on which this toolkit is based. If you decide to do a simulation, we also recommend that you engage an experienced facilitator (see the facilitator scope of work) who can dedicate the time and energy needed for this significant undertaking.

STEP-BY-STEP PROCESS

A successful simulation is part of a broader performance improvement process, depicted in Figure 1. An effective simulation supports the achievement of an organizational objective—for example, to improve internal communications protocols or staff capacity building resources. It is designed to achieve those objectives through an appropriate and realistic scenario, a solid evaluation plan, and a clear plan for translating evaluation findings into concrete change. Because simulations are part of an overarching performance improvement process—and because they require significant human and financial resources—support from senior decision-makers is critical. In this section, we provide more detail on each step of the simulation development process, from setting the foundation for a successful simulation to improving based on insights that emerge through the simulation.

Figure 1. Simulation Process

STEP 1: SET THE FOUNDATION

Simulations serve organizational objectives and require a significant investment of an organization's human and financial resources, making senior decision-maker support a requirement. During this stage, the One Health platform (or other entity planning a simulation) should consider the following questions:

- What are your aims and objectives? How does the simulation support preparedness efforts? What do you aim to test and what do you hope to learn?
- What is your timeline?
- What resources—human and financial—do you need for the simulation? Do you have a team that can plan and manage the simulation?

Answering these questions can help situate the simulation in a larger performance improvement process and design and develop an appropriate simulation to meet the agreed aims and objectives given available resources.

> **▶ SIMULATION TOOLS**
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> - **Facilitator Scope of Work** – Describes the work the facilitator does to support the simulation.
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> - **Simulation Selection Tool –** Helps organizations choose the right type of simulation in light of their needs.
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> - **Sample Scenarios –** Some basic scenarios which can serve as a useful starting point for further scenario development.
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> - **Master Event Summary** – Tracks events in the simulation exercise.
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> - **Hotwash Agenda** – Provides guidance on holding a "hotwash" or debrief.

STEP 2: DESIGN & DEVELOP

Once the simulation aims and objectives are agreed upon, the platform should start the process of designing and developing the simulation. We recommend that the platform engage a facilitator (see the facilitator SOW) who can facilitate the process and the work under Steps 2 – 5, which can take anywhere from three weeks to two months, depending on the complexity of the simulation. The facilitator should work with the One Health platform to refine the simulation objectives, choose the appropriate simulation type, identify participants, develop the scenario, make logistical preparations, and plan for the simulation evaluation, as described below.

- **Set SMART objectives.** Objectives drive the design and development process, from choosing the simulation type to developing the scenario. Choose an objective that is specific, measurable, attainable, realistic, and time bound. For example, you may want to test an element of a new emergency response plan, the speed of a team's response, or a team's decision-making process.
- **Choose the type of simulation.** There are two types: discussion-based and operations-based (see text box). The type of simulation you choose depends on your aims and objectives, organizational level of maturity, available resources, and timeline (see simulation selection tool).
- **Put in place a simulation team.** Once you have agreed on objectives, it is time to put in place the human resources to design, develop, and conduct the simulation. This simulation typically includes a director/controller, who manages

> **▶ TYPES OF SIMULATIONS**
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> - **Orientation (discussion) –** An informal discussion to familiarize participants with plans, roles, and SOPs, focused on coordination & roles and responsibilities.
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> - **Table-top (discussion)** – Exercise where participants exchange views and problems become clear. Tests preparedness plans.
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> - **Drill (operations) –** Develops and maintains skills in a single response chain, with a focus on procedure and training.
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> - **Functional (operations) –** Creates a realistic situation to enable practicing response under stressful conditions.
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> - **Full-scale (operations) –** Tests operational capability and requires the actual deployment of resources.

the simulations, providing injects[1] and real-time modifications as needed; a facilitator who keeps participant discussions on track and leads evaluation and learning efforts; observers who watch and learn; and, role players, who act out their own or assigned roles—such as a journalist or doctor—called for by the scenario.

- **Identify participants.** Next, work with the organization to decide who should participate. Participants should be staff involved in the plan, process, or protocol tested in the simulation and should include representatives from different One Health sectors. Consider including private sector and/or civil society actors where appropriate. In some industries, the private sector conducts robust simulations of their own systems and may be able to share simulation best practices. If the scenario is focused on a specific location where there is a large private sector facility such as a plantation or mine, consider including a company representative.
- **Define the scenario.** A scenario is a script that guides players toward the objective of the simulation. The scenario consists of a main event (e.g., a mass die-off of poultry), which in turn is divided into incidents (e.g., a die-off in a new city, a cluster of unconfirmed avian influenza cases among poultry farmers), which are presented to participants as injects (e.g., a phone call, an email, a report, or a newspaper article). Scenario development is complex, and it should be managed by the facilitator with the support of subject matter experts. See associated tools: the <u>sample scenarios</u>, and the <u>master event summary</u>.
- **Figure out the logistics**. Be sure to secure the venue and all necessary supplies and equipment. The facilitator is responsible for preparing all the handouts and materials participants will need during the simulation.
- **Define the evaluation questions.** The simulation team should develop and refine evaluation questions that can produce the insights and recommendations needed to drive organizational improvements. At the most basic level, the evaluations should assess whether the objectives were achieved and why or why not.

STEP 3: CONDUCT THE SIMULATION

Though the details of how the simulation is run will vary by type, the following guidelines apply to all simulations:

- **Brief participants.** The simulation director/ controller should inform participants of the simulation objectives, the value of their participation, rules, and the simulation team's expectations. Ideally, brief participants several days before the simulation.
- **Do a dry run.** The simulation team should go through the plans, materials, and logistical and technical issues, using a checklist prepared beforehand. Review the roles and responsibilities of simulation team members as well.

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[1] 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, pseudo media).

- **Be prepared to modify the simulation in real-time.** Players may take the simulation in unexpected directions. The facilitator should be flexible and creative in responding while keeping the objective(s) in mind.
- **Wrap up the exercise right.** The facilitator should make clear to players/participants that the exercise has ended and invite them to the debriefs immediately after the exercise.

> **▶ GENDER CONSIDERATIONS**
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> - Will women attend the simulation?
> - Does the simulation offer opportunities to address gender issues that may impact vulnerability in an outbreak?
> - Have the director/controller and facilitator received guidance to promote equitable participation during group discussions?
> - Have you included specific questions on gender in the evaluation questions?

STEP 4: EVALUATE

The purpose of the simulation is to produce learning and agree on areas for improvement. An effective simulation ends with a formal debrief, led by the facilitator (discussion-based) or one or more evaluators (operations-based).

- **Hold a debrief** (also called a hotwash) immediately after the simulation. This debrief gives participants a chance to share their reactions while the simulation is fresh in their minds. They typically focus on tactical learning. See the hotwash agenda for recommended questions.
- **Share what you learned** with the participants, the organization(s), and with the broader community of stakeholders working on preparedness. Recommendations on any short, medium, or long-term corrective actions should be structured around the overall exercise objectives and their related evaluation criteria.

STEP 5: PLAN AND IMPROVE

The final step is to translate evaluation insights and agreements into a plan for organizational action. The facilitator should work with the One Health platform to capture agreements discussed during the debrief/hotwash in a plan that outlines the actions to be taken, persons responsible, the timeline for actions, and methods for monitoring implementation.

ADDITIONAL RESOURCES

P&R EXPERIENCE

Simulations must always be tailored to your objectives, as well as your local, regional, and national realities. The following examples are just that—examples—but they can serve as a basis for scenario development in your given context.

1. **Uganda – Testing the WHO PHE Framework.** Contains the scenario and materials for a table-top simulation on lead poisoning used in Uganda in July 2013. This simulation was designed to simulate how participants would work together to address a public health event of initially unknown origin using the new WHO guidelines.
2. **Vietnam: Simulation Workshop to Test & Validate Rabies SOPs - Workshop Report**. Provides a sample agenda, facilitator guide, participant guide, and scenario for a simulation conducted in November 2016.

REFERENCES

[Handbook on simulation exercises in EU public health settings (ECDPC).](#) Provides in-depth guidance on the simulation process described in this toolkit.