Laboratory Services Exercise in a Box—Nuclear Detonation Scenario

Situation Manual

[Insert Date Here]

This Situation Manual (SitMan) provides exercise participants with all the necessary tools for their roles in the exercise. Some exercise material is intended for the exclusive use of exercise planners, facilitators, and evaluators, but players may view other materials that are necessary to their performance. All exercise participants may view the SitMan

# Exercise Overview

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| **Exercise Name** | **Nuclear Detonation Lab Surge Exercise in a Box** |
| **Exercise Dates** | [Insert date and time here] |
| **Scope & Purpose** | This exercise is a tabletop exercise, planned for [#] hours at the [location]. Exercise play is limited to [insert participants here]. The purpose of this exercise is to assess the ability of area laboratories to support the surge in patient care after a nuclear detonation event. This event could be local, or regional. Depending on location and damage, a lab outside of the region may be asked to assist in the patient care surge. The response considerations for a lab after a nuclear detonation event are coordination, laboratory testing, receipt/interpretation of results, staff and equipment needs, and outpatient testing capabilities/needs.  |
| **Mission Area(s)** | Response |
| **HPP Capabilities** | Capability 2: Health Care and Medical Response Coordination * Objective 1: Develop and Coordinate Health Care Organization and Health Care Coalition Response Plans
* Objective 3: Coordinate Response Strategy, Resources, and Communications

Capability 4: Medical Surge * Objective 1: Plan for a Medical Surge
* Objective 2: Respond to a Medical Surge
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| **Objectives** | 1. Assess the ability of the hematology laboratory to meet the increase in demand for Complete Blood Counts (CBC) with Differential Counts.
2. Assess the ability of the clinical chemistry laboratory to meet the increase in demand for Comprehensive Metabolic Panels (CMPs).
3. Assess the ability of the coagulation laboratory to meet the increase in demand for coagulation parameters.
4. Assess the ability of the blood bank to meet the increase in demand for blood products.
5. Address outpatient laboratory testing needs and capabilities.
6. Identify staff, equipment, and other resource needs to include supply chain disruptions.
7. Prioritize the most significant gaps that need to be addressed to effectively manage a lab surge on a mass scale
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| **Threat or Hazard** | Nuclear/Radiological Detonation |
| **Scenario** | **Scenario 1:** A 20 kt nuclear detonation occurred at the Mall of America. Approximately 50,000 civilians have been exposed to radiation and will need testing to be assessed for Acute Radiation Syndrome. Although no one is ill yet, testing will need to be completed at multiple locations. The Minnesota Department of Health and the Metro Healthcare Coalition have requested the public health lab handle as much testing as they can to alleviate the burden for smaller labs at clinics and hospital. **Scenario 2:** A 20 kt nuclear detonation occurred at the Minnesota State Capital Building. Approximately 100,000 civilians have been exposed to radiation and will need testing to be assessed for Acute Radiation Syndrome. Although no one is ill yet, testing will need to be completed at multiple locations. The Minnesota Department of Health and The Public Health Lab have been destroyed. The Metro coalition along with other Healthcare Coalitions across the state have declared smaller labs in clinics and hospitals throughout the state will need to help in the testing process.  |
| **Sponsor** | [Insert jurisdiction name]  |
| **Participating Organizations** | See Appendix A for a complete list of participants. |
| **Point of Contact** | [Insert name, title, organization, and contact information]  |

# General Information

## Exercise Objectives and HPP Capabilities

The following exercise objectives in Table 1 describe the expected outcomes for the exercise. The objectives are linked to HPP capabilities, which are distinct critical elements necessary to achieve the specific mission area(s). The objectives and aligned HPP capabilities are selected by the Exercise Planning Team.

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| Exercise Objective | HPP Capability |
| Assess the ability of the hematology laboratory to meet the increase in demand for Complete Blood Counts (CBC) with Differential Counts | Capability 2: Health Care and Medical Response Coordination Objective 3: Coordinate Response Strategy, Resources, and Communications |
| Assess the ability of the clinical chemistry laboratory to meet the increase in demand for Comprehensive Metabolic Panels. | Capability 2: Health Care and Medical Response Coordination Objective 3: Coordinate Response Strategy, Resources, and Communications |
| Assess the ability of the coagulation laboratory to meet the increase in demand for coagulation parameters. | Capability 2: Health Care and Medical Response Coordination Objective 3: Coordinate Response Strategy, Resources, and Communications |
| Assess the ability of the blood bank to meet the increase in demand for blood products. | Capability 2: Health Care and Medical Response Coordination Objective 3: Coordinate Response Strategy, Resources, and Communications |
| Address outpatient laboratory testing needs and capabilities | Capability 4: Medical Surge Objective 1: Plan for a Medical Surge  |
| Identify staff, equipment, and other resource needs to include supply chain disruptions. | Capability 2: Health Care and Medical Response Coordination Objective 1: Develop and Coordinate Health Care Organization and Health Care Coalition Response Plans |
| Prioritize the most significant gaps that need to be addressed to effectively manage a lab surge on a mass scale | Capability 4: Medical Surge Objective 2: Respond to a Medical Surge |

Table 1. Exercise Objectives and Associated HPP Capabilities

## Participant Roles and Responsibilities

The term *participant* encompasses many groups of people, not just those playing in the exercise. Groups of participants involved in the exercise, and their respective roles and responsibilities, are as follows:

* **Players.** Players are personnel who have an active role in discussing or performing their regular roles and responsibilities during the exercise. Players discuss or initiate actions in response to the simulated emergency.
* **Observers.** Observers do not directly participate in the exercise. However, they may support the development of player responses to the situation during the discussion by asking relevant questions or providing subject matter expertise.
* **Facilitators.** Facilitators provide situation updates and moderate discussions. They also provide additional information or resolve questions as required. Key Exercise Planning Team members also may assist with facilitation as subject matter experts (SMEs) during the exercise.
* **Evaluators.** Evaluators are assigned to observe and document certain objectives during the exercise. Their primary role is to document player discussions, including how and if those discussions conform to plans, polices, and procedures.

## Exercise Structure

This exercise will be a multimedia, facilitated exercise. Players will participate in the following three modules:

* Module 1: Activating, preparing, and resourcing the laboratories for surge
* Module 2: Receiving samples, throughput, result reporting, outpatient testing, and blood product availability

Module One provides a scenario background that leads exercise participants to walk through the act of a nuclear detonation, and the next steps in handling the affects/strain it can put on labs. Participants will review the situation and engage in discussion using the series of questions provided.

Module Two exercise participants will focus on healthcare surge response, in the hours/days after the nuclear detonation, and what role the lab(s) in the area play in the response. Participants will review the situation and engage in discussion using the series of questions provided.

## Exercise Guidelines

* This exercise will be held in an open, low-stress, no-fault environment. Varying viewpoints, even disagreements, are expected.
* Respond to the scenario using your knowledge of current plans and capabilities (i.e., you may use only existing assets) and insights derived from your training.
* Decisions are not precedent setting and may not reflect your organization’s final position on a given issue. This exercise is an opportunity to discuss and present multiple options and possible solutions.

Issue identification is not as valuable as suggestions and recommended actions that could improve response efforts. Problem-solving efforts should be the focus.

## Exercise Assumptions and Artificialities

In any exercise, assumptions and artificialities may be necessary to complete play in the time allotted and/or account for logistical limitations. Exercise participants should accept that assumptions and artificialities are inherent in any exercise and should not allow these considerations to negatively impact their participation. During this exercise, the following apply:

* There will be much more activity going on across the US and greater Minnesota in the scenario depicted in this exercise. Players will limit themselves to discussing and planning the operating of the lab(s) within their jurisdictions.
* The exercise is conducted in a no-fault learning environment wherein capabilities, plans, systems, and processes will be evaluated.
* The exercise scenario is plausible, and events occur as they are presented.
* All players receive information at the same time.

## Exercise Evaluation

Evaluation of the exercise is based on the exercise objectives and aligned HPP capabilities and critical tasks which are documented in Exercise Evaluation Guides (EEGs). Evaluators have EEGs for each of their assigned areas. Additionally, players will be asked to complete participant feedback forms. These documents, coupled with facilitator observations and notes, will be used to evaluate the exercise, and compile the After-Action Report (AAR).

# Module 1: Activating, preparing, and resourcing the laboratories for surge

### [Date and Time Here]

The lab has been notified a nuclear detonation has just occurred (scenario 1 or 2), and to begin to prepare to receive many samples, it is believed you will have a brief amount of time to get ready while triage is happening on site and community reception centers are being set up. The most common test the lab will run during this surge is a CBC with differential.

## Group Discussion

Based on the information provided above, and using the questions below, assign a scribe in your group and have a discussion for the next 30 minutes. Identify any critical issues, decisions, requirements, or questions that should be addressed at this time.

1. How will lab surge protocol be activated?
	1. How does the lab interact with the Hospital Incident Command System (HICS)?
2. How will all needed supplies be obtained and where will extra supplies be kept if needed?
3. Do you have enough supplies?
	1. Can you complete all samples if there is a lack of power, or internet?
4. Can the lab properly store samples?
	1. What if there is no power for a time?
5. What samples can you accept to be processed?
6. Who is responsible for communicating with incident command/hospitals/community reception centers to stay informed on the number of samples and when they will arrive?
7. How will samples be tracked?
	1. If there is no internet, how will samples be tracked?
8. Are there enough staff members to keep the lab operating 24/7 for a period of time?
	1. How will you call staff members in for a surge event?

## Notes:

# Module 2: Receiving samples, throughput, result reporting, outpatient testing, and blood product availability

### [Date and Time Here]

Samples are coming in steadily, and everything is getting busier. Timely, ongoing communication with stakeholders is critical. [Staff Member] must coordinate with MDH regarding the transportation of samples.

## Group Discussion

Based on the information provided above, and using the questions below, assign a scribe in your group and have a discussion for the next 30 minutes. Identify any critical issues, decisions, requirements, or questions that should be addressed at this time.

1. How will staff communicate and coordinate with the jurisdiction’s emergency management agency and/or emergency operations center?
2. What types of events or triggers would prompt you to reach out to MDH? What method(s) would you use to communicate with MDH?
3. If you cannot accept samples due to volume or capability, do you have a relationship with another lab to assist you meet the demand? If you already received samples and cannot complete them, how would you transport them to another lab? Are there infrastructure implications to think about?
4. What types of information will need to be shared with health care partners and how will it be shared?
5. How will the results make it back to either the provider or the community reception sites?
6. Who in the lab will be responsible for each role that is needed?
	1. Logistics?
	2. Communications?
	3. Receiving samples, testing samples, and reading results of samples?
	4. Who will report back results?
	5. Who will stock supplies and monitor to make sure there are enough?

## Notes:

# Next Steps/ Assignments (Hot Wash):

Discuss the following questions immediately after the exercise and take notes to inform your After Action Report:

1. Which processes need additional work to be operational?
2. Which partners do we need to do more work to coordinate with?
3. Which trainings need to be given in advance? Which just-in-time training materials are needed?
4. What information isn’t in the MDH guidance that you still need?
5. What are the action steps to address the issues you’ve identified? Who is responsible for each action step?

Other notes:

# Appendix a: Exercise Participants

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| Participating Organizations |
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