

Tool for Evaluating Core Elements of Hospital Disaster Drills

Contract No. 290-02-0018

Prepared by:

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Chapter 1: Background

Hospitals must be prepared to respond to natural and manmade mass casualty incidents that may cause sudden demand on services. Disaster drills have been identified as a critical component of preparedness because they allow the institution to test response capabilities in real time. Evaluation of these activities is essential to understand the strengths and weaknesses of an institution's disaster response.

Evaluation is based on accurate observation. Accurate observation requires careful documentation of events before, during, and after a drill. Using a standardized observation and evaluation approach allows for a consistent record each time a drill occurs within an institution. A standardized approach helps both to capture the specific strengths and weaknesses of hospital responses during the drill and to draw comparisons across hospitals participating in similar drills. Using a standardized evaluation also allows comparison from one drill to the next to determine improvements in areas where weaknesses have been identified.

Drawing from the published literature on disaster drills as well as input from a variety of experts in the field, the Johns Hopkins University Evidence-based Practice Center (JHU-EPC) developed a set of evaluation modules and addendums for operationalized hospital disaster drills in 2004 entitled *Evaluation of Hospital Disaster Drills: A Module-Based Approach*.¹ This document includes substantial detail on evaluation of hospital disaster drills. In 2005, the Agency for Healthcare Research and Quality (AHRQ) requested that the JHU-EPC develop an abridged version of the original evaluation tool that focuses on the **critical** elements of drill evaluation that all hospitals should address as part of disaster preparedness.

This document describes the principles behind the approach used to develop the abbreviated evaluation modules and addendums and recommendations for their use.

Purpose

The purpose of the abridged evaluation tool is to provide institutions with an instrument designed to capture the most critical aspects of disaster drill activities. In cases in which a comprehensive drill evaluation is desired, the 2004 document, *Evaluation of Hospital Disaster Drills: A Module-Based Approach* should be used.¹ The abridged disaster drill evaluation modules should be used to efficiently identify the most important strengths and weaknesses in hospital disaster drills. The results gained from evaluation then can be applied to further training and drill planning. Although the evaluation modules can be used to identify improvement in repeated drills, they are *not* intended to be used to make final or complete judgments about whether a hospital *passes* or *fails* in its planning and training endeavors. This approach is designed to identify specific weaknesses that can be targeted for improvement and to promote continued strengthening of hospital disaster preparedness. Systematized and standardized observations are essential to assess overall process improvement.

When an institution decides to use this abridged evaluation tool, it is strongly recommended that the original evaluation tool be reviewed prior to the drill, as the original tool provides a more complete discussion of this evaluation approach and more detailed evaluation questions.¹ The original tool can be found at <http://www.ahrq.gov/research/hospdrills/hospdrill.htm>.

Guiding Principles in Developing the Evaluation Modules

In developing the 2004 document, *Evaluation of Hospital Disaster Drills: A Module-Based Approach*, the following principles were taken into account, and they continue to be relevant to the abridged evaluation tool.

Need for observing multiple hospital zones. Because evaluation of a disaster drill requires an understanding of drill activities in all areas of the hospital, the JHU-EPC developed an approach that allows evaluation of disaster response activity through documentation by trained observers in identifiable functional and geographic zones. To assist the hospitals in planning a drill, the JHU-EPC designed a Pre-drill Module to identify the active zones for the drill. The four zones identified in this approach are Incident Command, Decontamination, Triage, and Treatment. Each of these zones has a separate evaluation module. In addition, for exercises that include biological or radiation scenarios, a Biological Incident Addendum or a Radiological Incident Addendum is to be attached to each of the zone-specific forms. Table 1 illustrates the use of the modules and addendums for different scenarios.

Need for documentation of time points. Over-reliance on simple documentation of time points by a single observer detracts from the primary goal of the evaluation. Documenting the many simultaneous activities in the zone as a whole is necessary for an evaluation that identifies strengths and weaknesses of the hospital's response. The JHU-EPC addressed the issue of recording time points by designing the modules to document limited specific time points. These are listed in the first section of each zone module.

Documenting clinical care outcomes. The zone evaluation modules track the volume of victims in each zone and the adequacy of the provisions made for them, including space, staff, supplies, and other issues. The modules are not designed to collect individual victim level data.

Need for debriefing (after-action review). In addition to real-time observations, a comprehensive evaluation must include methods to obtain feedback from participants, including organizers, staff, and victims, at the end of the drill. This allows for discussion of issues that span more than one zone, for example, the effectiveness of communication between the incident command center and patient treatment areas. Thus, the JHU-EPC designed not only zone-specific modules that focus on issues that can be ascertained by an observer during the drill, but also a debriefing module that can be used to evaluate and integrate cross-zone issues at a post-drill debriefing session.

Chapter 2: Methods for Development of the Abbreviated Evaluation Tool

Identification of Expert Reviewers

A panel of three authors of the original tool (S.C., E.H., and M.J.) and external experts in disaster drill execution and evaluation was established. Nineteen external experts were invited to participate and 12 agreed to join the group. In addition to the three authors, four of the external experts had participated in the development of the original evaluation tool. External experts included representatives from government agencies (Department of Health and Human Services/Health Resources and Services Administration [DHHS/HRSA], AHRQ, the New York City Department of Health and Human Services [YC-DHHS] and the Navy Medical Office of Homeland Security), professional organizations (Joint Commission on Accreditation of Healthcare Organizations [JCAHO] and the American Association of Colleges of Nursing [ACN]), and academic medical institutions in several states (AL, GA, MD, PA, OR, CO).

Selection of Items for Inclusion

A modified Delphi technique was used to establish consensus on the items that should be included in the abbreviated tool for evaluating hospital disaster drills.² The authors of the original tool independently identified items from the complete modules that were felt to be of greatest importance and then met to obtain consensus internally. In addition, the authors identified target numbers of questions for reviewers to identify as important for each module and addendum.

The external experts were supplied with the original workbook, *Evaluation of Hospital Disaster Drills: A Module-Based Approach*, as well as a set of response sheets listing all item numbers for each module in the workbook. They were asked to identify independently the critical items from each module with a target number of items set by the authors. They were also asked to indicate the five most critical items for each module. Items above the targeted number and narrative comments were also accepted.

All responses from the expert panel were reviewed, and the abridged modules were drafted based on reviewer responses. Questions that were considered critical by at least two reviewers or those that were recommended for inclusion by more than half of the reviewers were retained. In response to reviewer comments, some language was modified to be more specific or inclusive and to reduce redundancies.

The revised modules were sent to the reviewers for a second review of (1) clarity of items and (2) appropriateness of content for effective drill evaluation. Based on feedback received, the modules were further revised as necessary.

Summary Items

Following discussion with AHRQ and DHHS personnel, summary questions were added to the beginning of each section of the zone modules. The purpose of these questions is to identify whether key activities of the zone occurred appropriately and to highlight points to keep in mind during the evaluation process.

Chapter 3: Use of the Abridged Modules

Overview

The abridged hospital drill evaluation is designed in a set of modules and addendums in a similar fashion to the original drill evaluation tool. This approach was reviewed in detail, and judged to be the most effective presentation as it allows observers in different zones of the drill to work independently and effectively. Each module and specifics for its use is described below. The Decontamination Zone Module is needed for radiation and chemical drills, but currently is not recommended for use in a biological drill because decontamination is generally not necessary in biologic events. Table 1 indicates the use of the different modules for a number of common disaster drill scenarios. If the drill is targeted at a particular clinical area, (e.g., decontamination), other modules can be omitted. For example, omit the Triage Zone Module when there is no victim influx.

Personal protective equipment (PPE) is needed in different areas at different times. The list of PPE for the modules and addendums includes different items on the different forms, reflecting current recommendations. These lists may need to be updated as new knowledge emerges regarding the most appropriate PPE for different types of exposures.

Description of Modules and Addendums

Pre-drill

The evaluation starts at the planning stage of the drill. This is essential in maximizing the learning opportunities. The Pre-drill Module should be completed by the hospital during the planning stages of the drill, preferably by the planning team as a group. *This module should be used in all disaster drills.* This form is designed to collect the following:

- Goals and objectives for the scope of the evaluation
- Sufficient background information to facilitate the drill planning
- Information on specific areas that the hospital wishes to evaluate
- Resources required

Incident Command Center

This abridged module is designed to ascertain information about the basic operation of the incident command system that can be reliably recorded by an observer. *This zone module should be used in all disaster drills whenever the drill objective includes evaluation of the incident command structure.* This form is designed to assess the following:

- Adequacy of the command structure in the zone
- Adequacy of staffing in the Incident Command Center
- Adequacy of communication and information flow within and in and out of the Incident Command Center
- Adequacy of the security

Decontamination Zone

This abridged module is designed to collect information about the functioning of the decontamination area. *This zone module should be used in all disaster drills in which radiation or chemical exposure is in the scenario and decontamination must be conducted.* This form is designed to assess the following:

- Adequacy of the command structure in the zone
- Adequacy of communication and information flow in the zone
- Adequacy of victim flow in the zone
- Adequacy of security and victim and staff safety in the zone
- Adequacy of staffing in the zone
- Adequacy of availability and use of decontamination equipment and PPE

Triage Zone

This abridged module is designed to collect information about the functioning of the triage area(s) in a disaster drill. It can be used in primary or secondary triage areas. *This zone module should be used in all disaster drills involving live mock or paper victims.* This form is designed to assess the following:

- Adequacy of the command structure in the zone
- Adequacy of communication and information flow in the zone
- Adequacy of victim flow in the zone
- Adequacy of security and victim and staff safety in the zone
- Adequacy of staffing and physical space in the zone
- Efficiency and appropriateness of triage activities

Treatment Zone

This abridged module is designed to collect information about the functioning of the treatment area(s) in a disaster drill. *This module should be used whenever the drill objectives include evaluation of patient care activities beyond the triage area.* The items are appropriate for use in emergency department-based treatment areas or in other clinical care areas (for example, the radiology department or medical or surgical inpatient floors). This form is designed to assess the following:

- Adequacy of the command structure in the zone
- Adequacy of communication and information flow in the zone
- Adequacy of victim flow in the zone
- Adequacy of security and victim and staff safety in the zone
- Adequacy of staffing and physical space in the zone
- Adequacy of treatment operations
- Adequacy of materials and supplies in the zone

Group Debriefing Module

This module contains a series of open-ended questions that are designed to elicit valuable information and facilitate discussion during a group debriefing session after completion of a drill.

This module is designed to cover all issues raised during the drill, including incident command structure, communications, security, decontamination, triage, treatment, and other areas. The main objective of the debriefing is to identify issues experienced during the drill that may not be captured by the evaluation modules.

Addendums: Radiological Incident and Biological Incident.

Two addendums are part of the hospital disaster drill evaluation. Addendums must always be used with zone forms. In the case of radiation drills, the Radiological Incident Addendum is added to each of the zone modules. As an example, for a hospital-wide radiation exposure drill, the Radiological Incident Addendum must be added to the Incident Command Center, Decontamination, Triage, and Treatment Zone Modules. In the case of a biological scenario drill, the Biological Incident Addendum should be added to the Incident Command Center, Triage, and Treatment Zone Modules. As shown in Table 1, the Biological Incident Addendum should only be used for drills involving a biological scenario, and the Radiological Incident Addendum should only be used for drills involving a radiation scenario.

The **Biological Incident Addendum** is designed to collect additional information during drills that address the response to a biological incident. *This addendum should be used in all disaster drills that address a biological incident.* Due to the complexity of assessing the level of exposure for different biological incidents, an expert in the field should be involved when planning and assessing the drill. This form is designed to assess the following:

- Awareness that a biological agent was the cause of illness
- Whether appropriate expert monitoring personnel were contacted
- Whether health and safety needs of staff and victims were met
- Availability of special medications and supplies

The **Radiological Incident Addendum** is designed to gather additional information in drills that address the response to a radiation-related incident. *This addendum should be used in all disaster drills that address radiation exposure.* Due to the complexity of assessing the level of exposure for different radiation incidents, an expert in the field should be involved when planning and assessing the drill. This form is designed to assess the following:

- Awareness that radiation exposure was the cause of illness
- Whether appropriate expert monitoring personnel were contacted
- Whether health and safety needs of staff and victims were met
- Availability of special supplies

Observer Training

Training sessions for observers should occur before the drill takes place. Observers need specific zone assignments. Observers will be documenting complex tasks, and need familiarity with the content of the evaluation modules and addendums, as well as the zone configuration and equipment, in order to document correctly. This need not be time consuming; however, it is essential for first time observers/evaluators. The following points need to be made:

- All observations made during the drill are confidential.

- All observers should be familiar with the content of the forms, and the points to describe in the comment sections.
- Observers should be positioned so they are able to see drill activities, but do not obstruct flow.
- Observers may ask questions of drill participants to clarify the actions they have taken or to clarify observations and discussions when necessary in an unobtrusive manner; however, they must refrain from asking leading questions that may alter the actions of participants.
- Observers *must not* participate in drill activities. If asked a question by a drill participant about a drill issue, they should state that they are evaluating and are unable to answer the question.
- Each question on each module should have a response. The response NA should be indicated only when the question does not apply.

Role of the Evaluation Coordinator

Responsibilities of the Evaluation Coordinator at the hospital include the following:

- Recruiting and selecting observers
- Training and zone assignment for observers
- Interacting with the coordinators of a regional drill when the drill involves more than one hospital
- Assuring that all participants know the code word needed to stop the drill in case of a real emergency
- Acting as a point of contact for observers during the drill
- Collecting information from the post-drill debriefing session
- Monitoring performance of the observers in the various zones during the drill and rotating in new observers as appropriate
- Collecting forms at the end of the drill and reviewing the forms briefly with the observers to assure completeness and legibility

Note that additional specific details regarding planning and operationalizing the evaluation of hospital disaster drills can be found in *Evaluation of Hospital Disaster Drills: A Module-Based Approach*.¹

Overall Value of the Abridged Modules

The abridged modules are based upon the original complete set of modules; however, critical points have been abstracted to simplify the process of hospital disaster evaluation. Thirty-five percent of the questions in the original modules were retained, although there is variation in the number of retained questions among the modules (33% of the Pre-drill Module questions, 22% of the Incident Command Module questions, 25% of the Decontamination Module questions, 40% of the Triage Module questions, 43% of the Treatment Module questions, 36% of the Biological Incident Addendum questions, and 64% of the Radiological Incident Addendum questions). In addition, all zone modules contain summary questions for each area of evaluation that provide an overall assessment of drill activities in that area. These abridged modules can be used both for real-time evaluation in actual disaster drills as well as for formative evaluation

from drill to drill. In addition, they allow for capture of the most critical data that should be collected during the evaluation of any hospital-based drill.

Table 1. Recommended use of evaluation modules and addendums^a

Type of Drill	Modules				Addendums	
	Incident Command Center Zone	Triage Zone	Treatment Zone	Decontamination Zone	Biological Incident	Radiologic Incident
Fire ^b						
Incendiary device/explosive ^b						
Natural disaster (e.g., earthquake) ^b						
Structural collapse ^b						
Transportation accident ^b						
Internal hospital system failure ^b						
Biological						
Chemical						
Radiation						

^a  module/addendum needed
 module/addendum not needed

^b Assuming no hazardous materials

References

1. Cosgrove SE, Jenckes MW, Kohri K, Hsu EB, Green G, Feuerstein CJ, Catlett CL, Robinson KA, Bass EB. Evaluation of hospital disaster drills: a module-based approach. Prepared by Johns Hopkins University Evidence-based Practice Center under Contract No. 290-02-0018. AHRQ Publication No. 04-0032. Rockville, MD: Agency for Healthcare Research and Quality. April 2004.
2. Hasson F, Keeney S, McKenna H. Research guidelines for the Delphi survey technique. *J Adv Nurs* 2000; 32(4): 1008-15.

Modules and Addenda

Hospital Disaster Drill Evaluation
Pre-drill Module

Note: Circle or check (✓) as indicated. NA=Not applicable

1. Background Information

1.a	Name of person completing module: _____	
	Title: _____	Office phone: _____
	Hospital: _____	Cell phone: _____
	Room number: _____	E-mail: _____
	Street address: _____	FAX: _____
	City and state: _____	Pager: _____

Best method of contact during the drill. **(Check one.)**

- Cell phone E-mail FAX Office phone Pager

1.b	What will the disaster scenario include? (Check all that apply.)	
	<input type="checkbox"/> Biological agent	<input type="checkbox"/> Chemical agent
	<input type="checkbox"/> Fire	<input type="checkbox"/> Incendiary device/explosive
	<input type="checkbox"/> Natural disaster (e.g., earthquake)	<input type="checkbox"/> Radiological agent
	<input type="checkbox"/> Structural collapse	<input type="checkbox"/> Transportation accident
	<input type="checkbox"/> Internal hospital system failure (specify): _____	
	<input type="checkbox"/> Other (specify): _____	

1.c	Will the drill include decontamination? Y / N / U
-----	--

2. Level and Scope of the Hospital Drill Activity

2.a	What type of disaster drill is your hospital performing? (Check one.)
	<input type="checkbox"/> Operationalized drill
	<input type="checkbox"/> Tabletop Exercise
	<input type="checkbox"/> Computer Simulation
	<input type="checkbox"/> Other (specify): _____

2.b. What is your main overall goal for the disaster drill? **(Please limit to one sentence and include previous after-action items as appropriate.)**

2.c. What are the specific objectives for the disaster drill? **(Please limit to one sentence each.)**

- a.
- b.
- c.
- d.

3. Drill Activity

3.a. How will the notification to initiate the drill occur? **(Check all that apply.)**

- By another hospital By first victim arrival
- By health department By government agency (e.g., federal or state emergency agency)
- EMS dispatch center
- Other (specify): _____

3.b. Which hospital personnel (not including victims or observers) from the following staff groups will actively participate in the drill activities? **(Check all that apply.)**

- | | | |
|---|--|--|
| <input type="checkbox"/> Administration | <input type="checkbox"/> Central supply | <input type="checkbox"/> EMS/patient transport service |
| <input type="checkbox"/> Engineering and physical plant | <input type="checkbox"/> Infection control | <input type="checkbox"/> Intensive care unit |
| <input type="checkbox"/> Laboratory | <input type="checkbox"/> Medical staff | <input type="checkbox"/> Nursing |
| <input type="checkbox"/> Occupational health | <input type="checkbox"/> Pharmacy | <input type="checkbox"/> Public affairs |
| <input type="checkbox"/> Radiation safety | <input type="checkbox"/> Safety | <input type="checkbox"/> Security |
| <input type="checkbox"/> Social work | <input type="checkbox"/> Emergency department | <input type="checkbox"/> Medicine department |
| <input type="checkbox"/> Pediatrics department | <input type="checkbox"/> Psychiatry department | <input type="checkbox"/> Radiology department |
| <input type="checkbox"/> Surgery department | <input type="checkbox"/> Hospital-wide | |
| <input type="checkbox"/> Other (specify): _____ | | |
| <input type="checkbox"/> Other (specify): _____ | | |

3.c	<p>What levels of activity will be included in the drill? (Check all that apply.)</p> <p><input type="checkbox"/> Materials and supplies received</p> <p><input type="checkbox"/> Triage of victims</p> <p><input type="checkbox"/> Simulated clinical procedures performed</p> <p><input type="checkbox"/> Victim decontamination</p> <p><input type="checkbox"/> Victim transport in the emergency department only</p> <p><input type="checkbox"/> Victim transport throughout hospital</p> <p><input type="checkbox"/> Other (specify): _____</p>												
3.d	<p>What other organizations/agencies will be involved in the drill? (Check all that apply.)</p> <table border="0"> <tr> <td><input type="checkbox"/> Ambulance system</td> <td><input type="checkbox"/> Hospital/health systems(s) (specify): _____</td> </tr> <tr> <td><input type="checkbox"/> Fire</td> <td><input type="checkbox"/> City/local agency(ies) (specify): _____</td> </tr> <tr> <td><input type="checkbox"/> Media</td> <td><input type="checkbox"/> State agency(ies) (specify): _____</td> </tr> <tr> <td><input type="checkbox"/> Police</td> <td><input type="checkbox"/> Federal agency(ies) (specify): _____</td> </tr> <tr> <td></td> <td><input type="checkbox"/> Military (specify): _____</td> </tr> <tr> <td></td> <td><input type="checkbox"/> Other (specify): _____</td> </tr> </table>	<input type="checkbox"/> Ambulance system	<input type="checkbox"/> Hospital/health systems(s) (specify): _____	<input type="checkbox"/> Fire	<input type="checkbox"/> City/local agency(ies) (specify): _____	<input type="checkbox"/> Media	<input type="checkbox"/> State agency(ies) (specify): _____	<input type="checkbox"/> Police	<input type="checkbox"/> Federal agency(ies) (specify): _____		<input type="checkbox"/> Military (specify): _____		<input type="checkbox"/> Other (specify): _____
<input type="checkbox"/> Ambulance system	<input type="checkbox"/> Hospital/health systems(s) (specify): _____												
<input type="checkbox"/> Fire	<input type="checkbox"/> City/local agency(ies) (specify): _____												
<input type="checkbox"/> Media	<input type="checkbox"/> State agency(ies) (specify): _____												
<input type="checkbox"/> Police	<input type="checkbox"/> Federal agency(ies) (specify): _____												
	<input type="checkbox"/> Military (specify): _____												
	<input type="checkbox"/> Other (specify): _____												

4. Incident Command

4.a	<p>Will there be an incident command center? (Check one.)</p> <p><input type="checkbox"/> Yes If yes, where is its location? _____</p> <p><input type="checkbox"/> No</p>
-----	--

5. Communications

5.a	<p>What methods will personnel use to communicate during the drill? (Check all that apply.)</p> <table border="0"> <tr> <td><input type="checkbox"/> 2-way radio/phone(s)</td> <td><input type="checkbox"/> E-mail/Internet/network</td> <td><input type="checkbox"/> Emergency radio</td> </tr> <tr> <td><input type="checkbox"/> FAX machine(s)</td> <td><input type="checkbox"/> Intercom</td> <td><input type="checkbox"/> Landline phone(s)</td> </tr> <tr> <td><input type="checkbox"/> Megaphone(s)</td> <td><input type="checkbox"/> Numeric paging</td> <td><input type="checkbox"/> Overhead paging</td> </tr> <tr> <td><input type="checkbox"/> PDA(s)</td> <td><input type="checkbox"/> Runner(s)</td> <td><input type="checkbox"/> Satellite phone(s)</td> </tr> <tr> <td><input type="checkbox"/> Text paging</td> <td><input type="checkbox"/> Wireless/cell phone(s)</td> <td><input type="checkbox"/> Ham radio</td> </tr> <tr> <td colspan="3"><input type="checkbox"/> Other (specify): _____</td> </tr> </table>	<input type="checkbox"/> 2-way radio/phone(s)	<input type="checkbox"/> E-mail/Internet/network	<input type="checkbox"/> Emergency radio	<input type="checkbox"/> FAX machine(s)	<input type="checkbox"/> Intercom	<input type="checkbox"/> Landline phone(s)	<input type="checkbox"/> Megaphone(s)	<input type="checkbox"/> Numeric paging	<input type="checkbox"/> Overhead paging	<input type="checkbox"/> PDA(s)	<input type="checkbox"/> Runner(s)	<input type="checkbox"/> Satellite phone(s)	<input type="checkbox"/> Text paging	<input type="checkbox"/> Wireless/cell phone(s)	<input type="checkbox"/> Ham radio	<input type="checkbox"/> Other (specify): _____		
<input type="checkbox"/> 2-way radio/phone(s)	<input type="checkbox"/> E-mail/Internet/network	<input type="checkbox"/> Emergency radio																	
<input type="checkbox"/> FAX machine(s)	<input type="checkbox"/> Intercom	<input type="checkbox"/> Landline phone(s)																	
<input type="checkbox"/> Megaphone(s)	<input type="checkbox"/> Numeric paging	<input type="checkbox"/> Overhead paging																	
<input type="checkbox"/> PDA(s)	<input type="checkbox"/> Runner(s)	<input type="checkbox"/> Satellite phone(s)																	
<input type="checkbox"/> Text paging	<input type="checkbox"/> Wireless/cell phone(s)	<input type="checkbox"/> Ham radio																	
<input type="checkbox"/> Other (specify): _____																			

6. Evaluation

6.a	Which aspects do you plan to evaluate during the disaster drill? (Check all that apply.)	
	<input type="checkbox"/> Decontamination	<input type="checkbox"/> Incident command
	<input type="checkbox"/> Treatment	<input type="checkbox"/> Triage
	<input type="checkbox"/> Biological illness exposure	<input type="checkbox"/> Chemical exposure
	<input type="checkbox"/> Communication and information flow	<input type="checkbox"/> Equipment and supplies
	<input type="checkbox"/> Facility engineering	<input type="checkbox"/> Patient documentation and tracking
	<input type="checkbox"/> Patient flow	<input type="checkbox"/> Personal protective equipment (PPE) use
	<input type="checkbox"/> Radiation exposure	<input type="checkbox"/> Rotation of staff
	<input type="checkbox"/> Security	<input type="checkbox"/> Staffing
	<input type="checkbox"/> Surge capacity	<input type="checkbox"/> Time points
	<input type="checkbox"/> Zone disruption	<input type="checkbox"/> Zone operations
	<input type="checkbox"/> Other (specify): _____	
6.b	Name of lead person, if different than 1.a, planning to conduct the debriefing session: _____	
	Title: _____	Office phone: _____
	Hospital: _____	Cell phone: _____
	Room number: _____	E-mail: _____
	Street address: _____	FAX: _____
	City and state: _____	Pager: _____
	Best method of contact during the drill. (Check one.)	
	<input type="checkbox"/> Cell phone	<input type="checkbox"/> E-mail
	<input type="checkbox"/> FAX	<input type="checkbox"/> Office phone
	<input type="checkbox"/> Pager	

END OF PRE-DRILL MODULE

Hospital Disaster Drill Evaluation
Incident Command Center Zone Module

Note: Circle or check (✓) as indicated. Y=Yes; N=No; U=Unclear; NA=Not applicable

Observer: _____	Date: ____/____/____
Observer title: _____	
Hospital: _____	
Period of time of evaluation: _____ AM/PM (Circle one.) to _____ AM/PM (Circle one.)	

1. Time Points

☛ 1a. Did the drill start on time?	Y / N / U
Comments: _____	
1b. Time the drill began: (Circle one.) _____ AM / PM / U	
1c. Time the hospital disaster plan was initiated in this zone: (Circle one.) _____ AM / PM / U / Not initiated	

2. Personnel

☛ 2a. Was an incident command system established?	Y / N / U
Comments: _____	
2b. How many minutes after the drill activities in this zone commenced did the incident commander assume command of the zone? (Check one.)	
<input type="checkbox"/> <10 min <input type="checkbox"/> 10 - 29 min <input type="checkbox"/> 30 - 59 min <input type="checkbox"/> 1 - 2 hrs <input type="checkbox"/> >2 hrs <input type="checkbox"/> NA <input type="checkbox"/> No one took charge.	
2c. Were the following drill participants identifiable?	
a. Incident Commander Y / N / U / NA b. Incident Command Personnel Y / N / U / NA c. Drill Evaluators Y / N / U / NA d. Drill Organizers Y / N / U / NA e. Security Y / N / U / NA	

Comments:			
Were the following communications devices used in the drill for internal or external communications? (Check all that apply.)			
	A. Internal	B. External	C. Comments (Note strengths and weaknesses.)
4b. 2-way radio/phone(s)	<input type="checkbox"/>	<input type="checkbox"/>	
4c. Landline phone(s)	<input type="checkbox"/>	<input type="checkbox"/>	
4d. Wireless/cell phone(s)	<input type="checkbox"/>	<input type="checkbox"/>	
4e. Personal data assistant(s) (PDA)	<input type="checkbox"/>	<input type="checkbox"/>	
4f. Numeric paging	<input type="checkbox"/>	<input type="checkbox"/>	
4g. Overhead paging	<input type="checkbox"/>	<input type="checkbox"/>	
4h. Text paging	<input type="checkbox"/>	<input type="checkbox"/>	
4i. E-mail/Internet access/network	<input type="checkbox"/>	<input type="checkbox"/>	
4j. FAX machine(s)	<input type="checkbox"/>	<input type="checkbox"/>	
4k. Intercom	<input type="checkbox"/>	<input type="checkbox"/>	
4l. Megaphone(s)	<input type="checkbox"/>	<input type="checkbox"/>	
4m. Runner(s)	<input type="checkbox"/>	<input type="checkbox"/>	
4n. Satellite phone(s)	<input type="checkbox"/>	<input type="checkbox"/>	
4o. HAM Radio	<input type="checkbox"/>	<input type="checkbox"/>	
4p. Emergency radio	<input type="checkbox"/>	<input type="checkbox"/>	
4q. How was incoming information to the zone recorded? (Check all that apply.)			
a. <input type="checkbox"/> Computer (or other electronic device) b. <input type="checkbox"/> Notepaper c. <input type="checkbox"/> Posted paper d. <input type="checkbox"/> White board/chalk board e. <input type="checkbox"/> Not recorded f. <input type="checkbox"/> Other (specify): _____			

5. Information Flow

☛ **5a. Was necessary information received?** Y / N / U

Comments:

5b. Did the incident command center receive timely updates regarding the total number of expected victims? Y / N / U

5c. Were problems created by delays in receiving information? Y / N / U

→ If problems were created by delays in information, specify in comment box at end of this module.

6. Security

☛ **6a. Were entrances and exits strictly controlled in this area?** Y / N / U

Comments:

7. Rotation of Staff

☛ **7a. Were incoming staff updated?** Y / N / U

Comments: (If comment refers to a specific item, give the item number):

END OF INCIDENT COMMAND CENTER ZONE MODULE

Hospital Disaster Drill Evaluation Decontamination Zone Module

Note: Circle or check (✓) as indicated. Y=Yes; N=No; U=Unclear; NA=Not applicable

Observer: _____	Date: ____/____/____
Observer title: _____	
Hospital: _____	
Period of time of evaluation: _____ AM / PM (Circle one.) to _____ AM / PM (Circle one.)	

1. Time Points:

☛ 1a. Did the drill start on time? Y / N / U
Comments:
1b. Time the drill began: (Circle one.) _____ AM / PM / U
1c. Time this zone was ready to accept victims: (Circle one.) _____ AM / PM / U

2. Zone Description:

☛ 2a. Were the zone boundaries clearly defined? Y / N / U						
Comments:						
2b. How was the boundary for this zone defined? (Check all that apply.)						
<table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">a. <input type="checkbox"/> Barricade(s)</td> <td style="width: 33%;">b. <input type="checkbox"/> Sign(s)</td> <td style="width: 33%;">c. <input type="checkbox"/> Tape</td> </tr> <tr> <td>d. <input type="checkbox"/> Wall(s)</td> <td>e. <input type="checkbox"/> No boundary</td> <td>f. <input type="checkbox"/> Other (specify): _____</td> </tr> </table>	a. <input type="checkbox"/> Barricade(s)	b. <input type="checkbox"/> Sign(s)	c. <input type="checkbox"/> Tape	d. <input type="checkbox"/> Wall(s)	e. <input type="checkbox"/> No boundary	f. <input type="checkbox"/> Other (specify): _____
a. <input type="checkbox"/> Barricade(s)	b. <input type="checkbox"/> Sign(s)	c. <input type="checkbox"/> Tape				
d. <input type="checkbox"/> Wall(s)	e. <input type="checkbox"/> No boundary	f. <input type="checkbox"/> Other (specify): _____				

3. Personnel:

☛ 3a. Did someone assume command of this zone? Y / N / U									
Comments:									
3b. How many minutes after the drill activities in this zone commenced did someone assume command of the zone? (Check one.)									
<table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">☐ <10 min</td> <td style="width: 33%;">☐ 10 - 29 min</td> <td style="width: 33%;">☐ 30 - 59 min</td> </tr> <tr> <td>☐ 1 - 2 hrs</td> <td>☐ >2 hrs</td> <td>☐ NA</td> </tr> <tr> <td colspan="3">☐ No one took charge.</td> </tr> </table>	☐ <10 min	☐ 10 - 29 min	☐ 30 - 59 min	☐ 1 - 2 hrs	☐ >2 hrs	☐ NA	☐ No one took charge.		
☐ <10 min	☐ 10 - 29 min	☐ 30 - 59 min							
☐ 1 - 2 hrs	☐ >2 hrs	☐ NA							
☐ No one took charge.									

6. Communications:

<p>☛ 6a. Were communications effective? Y / N / U</p> <p>Comments:</p>		
<p>Were the following communications devices used in the drill for communication? (Check all that apply.)</p>		
	A. Used	B. Comments (Note strengths and weaknesses.)
6b. 2-way radio/phone(s)	<input type="checkbox"/>	
6c. Intercom	<input type="checkbox"/>	
6d. Megaphone(s)	<input type="checkbox"/>	
6e. Runner(s)	<input type="checkbox"/>	
6f. Cell phones	<input type="checkbox"/>	
6g. Text paging	<input type="checkbox"/>	
6h. FAX machine(s)	<input type="checkbox"/>	
6i. PDAs	<input type="checkbox"/>	
6j. Email/internet/network	<input type="checkbox"/>	
6k. Numeric paging	<input type="checkbox"/>	
6l. Emergency radio	<input type="checkbox"/>	
6m. HAM radio	<input type="checkbox"/>	
6n. Landline phones	<input type="checkbox"/>	
6o. Satellite phone(s)	<input type="checkbox"/>	
6p. Overhead paging	<input type="checkbox"/>	
6q. Other (specify): _____	<input type="checkbox"/>	

7. Information Flow:

<p>☛ 7a. Was necessary information received? Y / N / U</p> <p>Comments:</p>
<p>7b. Were problems created by delays in receiving information? Y / N / U</p> <p>➔ If problems were created by delays in information, specify in comment box at end of this module.</p>
<p>7c. When was your zone made aware of the potential involvement of a chemical or radiological agent? (Check one.)</p> <p><input type="checkbox"/> Before the first victim arrived <input type="checkbox"/> After first victim arrived</p> <p><input type="checkbox"/> All victims completed decontamination <input type="checkbox"/> Never made aware</p> <p><input type="checkbox"/> Unsure</p>

8. Security:

<p>☛ 8a. Were entrances and exits strictly controlled in this area? Y / N / U</p> <p>Comments:</p>
<p>8b. Did any of the following security issues arise in this zone? (Check all that apply)</p>
<p>a. <input type="checkbox"/> Crowd control b. <input type="checkbox"/> Media control</p> <p>c. <input type="checkbox"/> Unruly victims d. <input type="checkbox"/> Other (specify): _____</p>
<p>8c. Were security personnel present in this zone? Y / N / U</p>

9. Personal Protective Equipment (PPE) and Safety:

<p>☛ 9a. Was an appropriate supply of PPE available? Y / N / U</p> <p>Comments:</p>
<p>9b. Was the PPE applied correctly? Y / N / U</p> <p>Comments:</p>
<p>9c. Was staffing of the decontamination zone adequate? Y / N / U</p> <p>Comments:</p>

If needed, were these items for standard precautions available for the healthcare workers?			
→ If safety materials were not available, circle "N" in column "A" and go to the next row.			
	A. Available?	B. Used by staff?	C. Adequate Supply?
9d. Protective suit	Y / N / U	Y / N / U	Y / N / U
9e. Hoods	Y / N / U	Y / N / U	Y / N / U
9f. Boots	Y / N / U	Y / N / U	Y / N / U
9g. Gloves, chemical resistant	Y / N / U	Y / N / U	Y / N / U
9h. Apron	Y / N / U	Y / N / U	Y / N / U
9i. Masks	Y / N / U	Y / N / U	Y / N / U
9j. Respirators (e.g., powered air purifying respirator)	Y / N / U	Y / N / U	Y / N / U
9k. Other (specify): _____	Y / N / U	Y / N / U	Y / N / U
9l. Were instructions available regarding appropriate donning and removal of PPE?			Y / N / U
9m. If available, in what format were they? (Check all that apply.)			
a. <input type="checkbox"/> Verbal instructions by staff		b. <input type="checkbox"/> Poster(s)	
c. <input type="checkbox"/> Written instruction(s)		d. <input type="checkbox"/> Video	
e. <input type="checkbox"/> Other (specify): _____			
9n. Were all workers in the decontamination area dressed in appropriate PPE?			Y / N / U
9o. Was there inadvertent contamination of staff or victims?			Y / N / U
9p. What issues with donning and removing PPE arose in this zone? (Check all that apply.)			
a. <input type="checkbox"/> Broken seals	b. <input type="checkbox"/> Delay in donning PPE		c. <input type="checkbox"/> Improper fit
d. <input type="checkbox"/> Staff not trained to don PPE	e. <input type="checkbox"/> Staff not trained to remove PPE		f. <input type="checkbox"/> None
g. <input type="checkbox"/> Other (specify): _____			
9q. What issues with staffing arose in this zone? (Check all that apply.)			

a. Could not communicate with each other b. Fatigue c. Over-heating/dehydration

d. Inadequate numbers to allow work cycles e. Other
(specify): _____

9r. How were victims screened for appropriate decontamination prior to leaving the decontamination zone? (Check all that apply.)

a. Screening device (e.g., radiation or chemical detector) b. Physical examination c. Not screened

10. Zone Disruption:

☛ 10a. Did the zone function as planned? Y / N / U

Comments:

10b. Was there a plan in place to relocate this zone if necessary? Y / N / U

Comments (If comment refers to a specific item, give the item number.):

END OF DECONTAMINATION ZONE MODULE

Hospital Disaster Drill Evaluation

Triage Zone Module

Note: Circle or check (✓) as indicated. Y=Yes; N=No; U=Unclear; NA=Not applicable

Observer: _____	Date: ____/____/____
Observer title: _____	
Hospital: _____	<input type="checkbox"/> 1 ^o triage <input type="checkbox"/> 2 ^o triage <input type="checkbox"/> NA
Period of time of evaluation: ____AM / PM (Circle one.) to ____AM / PM (Circle one.)	

1. Time Points

☛ 1a. Did the drill start on time? Y / N / U
Comments:
1b. Time the drill began: (Circle one.) ____AM / PM / U
1c. Time this zone was ready to accept victims: (Circle one.) ____ AM / PM / U

2. Zone Description:

☛ 2a. Were the zone boundaries clearly defined? Y / N / U
Comments:
2b. How was the boundary for this zone defined? (Check all that apply.)
a. <input type="checkbox"/> Barricade(s) b. <input type="checkbox"/> Sign(s) c. <input type="checkbox"/> Tape
d. <input type="checkbox"/> Wall(s) e. <input type="checkbox"/> No boundary f. <input type="checkbox"/> Other (specify): _____

3. Personnel

☛ 3a. Did someone assume command of this zone? Y / N / U
Comments:
☛ 3b. Was staffing for the triage zone adequate? Y / N / U
Comments:
3c. How many minutes after the drill activities in this zone commenced did someone assume command of the zone? (Check one.)
<input type="checkbox"/> <10 min <input type="checkbox"/> 10 - 29 min <input type="checkbox"/> 30 - 59 min
<input type="checkbox"/> 1 - 2 hrs <input type="checkbox"/> >2 hrs <input type="checkbox"/> NA
<input type="checkbox"/> No one took charge

3d. Were the following drill participants identifiable?			
a. Person in charge	Y / N / U / NA	b. Drill evaluators	Y / N / U / NA
c. Drill organizers	Y / N / U / NA	d. Media	Y / N / U / NA
e. Medical personnel	Y / N / U / NA	f. Mock victims	Y / N / U / NA
g. Observers	Y / N / U / NA	h. Security	Y / N / U / NA

4. Zone Operations

<p>☛ 4a. Did the triage area function efficiently? Y / N / U</p> <p>Comments:</p>
<p>4b. Was the hospital disaster plan followed? Y / N / U / Partially / No plan</p>
<p>4c. If not followed, what were the reason(s)? (Check all that apply.)</p> <p>a. <input type="checkbox"/> Not available b. <input type="checkbox"/> Too complex</p> <p>c. <input type="checkbox"/> Not relevant to drill d. <input type="checkbox"/> Participants unfamiliar with plan</p> <p>e. <input type="checkbox"/> Too hard to access f. <input type="checkbox"/> Other (specify): _____</p>
<p>4d. If the hospital disaster plan was available, what was its format? (Check all that apply.)</p> <p>a. <input type="checkbox"/> Complete manual b. <input type="checkbox"/> Flow diagram c. <input type="checkbox"/> Job action sheets</p> <p>d. <input type="checkbox"/> No disaster plan e. <input type="checkbox"/> Other (specify): _____</p>
<p>4e. Was the space allocated for the zone adequate? Y / N / U</p>
<p>4f. If victims were screened for biological, chemical, or radiological exposure, how were they screened? (Check all that apply.)</p> <p>a. <input type="checkbox"/> Personal interview b. <input type="checkbox"/> Physical examination c. <input type="checkbox"/> Screening device (e.g., radiation or chemical detector)</p> <p>d. <input type="checkbox"/> Not screened e. <input type="checkbox"/> NA f. <input type="checkbox"/> Other (specify): _____</p>
<p>4g. Did a bottleneck develop in this zone? Y / N / U</p> <p>→ If a bottleneck did develop, describe in the comment box at the end of this module.</p>
<p>4h. If triage occurs after decontamination, did any contaminated victims enter this zone? Y / N / U / NA</p>

6j. FAX machine(s)	<input type="checkbox"/>	
6k. Intercom	<input type="checkbox"/>	
6l. Megaphone(s)	<input type="checkbox"/>	
6m. Runner(s)	<input type="checkbox"/>	
6n. Satellite phone(s)	<input type="checkbox"/>	
6o. Emergency radio	<input type="checkbox"/>	
6p. HAM radio	<input type="checkbox"/>	
6q. Other (specify): _____	<input type="checkbox"/>	

7. Information Flow

<p>☛ 7a. Was necessary information received? Y / N / U</p> <p>Comments:</p>
<p>7b. Did your zone receive updates regarding the situation outside the hospital (e.g., status of disaster events, number of victims arriving, acuity of victims)? Y / N / U</p>
<p>7c. How was this zone kept aware of the ongoing general situation within the hospital? (Check all that apply.)</p> <p>a. <input type="checkbox"/> Call(s) from incident command b. <input type="checkbox"/> FAX from incident command</p> <p>c. <input type="checkbox"/> Other contact from incident command d. <input type="checkbox"/> Runner(s) from incident command</p> <p>e. <input type="checkbox"/> Contact from other internal sources (specify): _____</p>

8. Security

<p>☛ 8a. Were entrances and exits strictly controlled in this area? Y / N / U</p> <p>Comments:</p>
<p>8b. Did any of the following security issues arise in this zone? (Check all that apply)</p> <p>a. <input type="checkbox"/> Crowd control b. <input type="checkbox"/> Media control c. <input type="checkbox"/> Unruly victims d. <input type="checkbox"/> Other (specify): _____</p>
<p>8c. Were security personnel present in this zone? Y / N / U</p>

9. Personal Protective Equipment (PPE) and Safety

<p>☛ 9a. Was an appropriate supply of PPE available? Y / N / U</p> <p>Comments:</p>																																								
<p>☛ 9b. Was the PPE applied correctly? Y / N / U</p> <p>Comments:</p>																																								
<p>If needed, were these items for standard precautions available for the healthcare workers?</p>																																								
<p>→ If safety materials were not available, circle "N" in column "A" and go to the next row.</p>																																								
<table border="1"> <thead> <tr> <th></th> <th>A. Available?</th> <th>B. Used by staff?</th> <th>C. Adequate Supply?</th> <th>D. Problems with use? (e.g., donning)</th> </tr> </thead> <tbody> <tr> <td>9c. Face shields/Masks</td> <td>Y / N / U</td> </tr> <tr> <td>9d. Waterproof gowns</td> <td>Y / N / U</td> </tr> <tr> <td>9e. Isolation gowns</td> <td>Y / N / U</td> </tr> <tr> <td>9f. Gloves</td> <td>Y / N / U</td> </tr> <tr> <td>9g. Passive (negative pressure) filtration (e.g., N95 or N99 masks)</td> <td>Y / N / U</td> </tr> <tr> <td>9h. Respirators (e.g., powered Air purifying respirator)</td> <td>Y / N / U</td> </tr> <tr> <td>9i. Other (specify): _____</td> <td>Y / N / U</td> </tr> </tbody> </table>		A. Available?	B. Used by staff?	C. Adequate Supply?	D. Problems with use? (e.g., donning)	9c. Face shields/Masks	Y / N / U	Y / N / U	Y / N / U	Y / N / U	9d. Waterproof gowns	Y / N / U	Y / N / U	Y / N / U	Y / N / U	9e. Isolation gowns	Y / N / U	Y / N / U	Y / N / U	Y / N / U	9f. Gloves	Y / N / U	Y / N / U	Y / N / U	Y / N / U	9g. Passive (negative pressure) filtration (e.g., N95 or N99 masks)	Y / N / U	Y / N / U	Y / N / U	Y / N / U	9h. Respirators (e.g., powered Air purifying respirator)	Y / N / U	Y / N / U	Y / N / U	Y / N / U	9i. Other (specify): _____	Y / N / U	Y / N / U	Y / N / U	Y / N / U
	A. Available?	B. Used by staff?	C. Adequate Supply?	D. Problems with use? (e.g., donning)																																				
9c. Face shields/Masks	Y / N / U	Y / N / U	Y / N / U	Y / N / U																																				
9d. Waterproof gowns	Y / N / U	Y / N / U	Y / N / U	Y / N / U																																				
9e. Isolation gowns	Y / N / U	Y / N / U	Y / N / U	Y / N / U																																				
9f. Gloves	Y / N / U	Y / N / U	Y / N / U	Y / N / U																																				
9g. Passive (negative pressure) filtration (e.g., N95 or N99 masks)	Y / N / U	Y / N / U	Y / N / U	Y / N / U																																				
9h. Respirators (e.g., powered Air purifying respirator)	Y / N / U	Y / N / U	Y / N / U	Y / N / U																																				
9i. Other (specify): _____	Y / N / U	Y / N / U	Y / N / U	Y / N / U																																				
<p>9j. Were instructions available regarding appropriate donning and removal of PPE? Y / N / U</p>																																								
<p>9k. If available, in what format were they? (Check all that apply.)</p> <p>a. <input type="checkbox"/> Verbal instructions by staff b. <input type="checkbox"/> Poster(s) c. <input type="checkbox"/> Written instruction(s)</p> <p>d. <input type="checkbox"/> Video e. <input type="checkbox"/> Other (specify): _____</p>																																								

10. Equipment and Supplies

☛ 10a. Were there appropriate quantities of medical supplies?		Y / N / U
Comments:		
Were these medical supplies available? → If the medical supplies were not available, circle "N" in column "A" and go to the next row.		
	A. Available	B. Issues
10b. Alcohol-based hand cleaner	Y / N / U / NA	
10c. Bandages	Y / N / U / NA	
10d. Basic airway equipment	Y / N / U / NA	
10e. Blood pressure equipment	Y / N / U / NA	
10f. Oxygen masks	Y / N / U / NA	
10g. Oxygen tanks	Y / N / U / NA	
10h. Stethoscopes	Y / N / U / NA	
10i. Stretchers	Y / N / U / NA	
10j. Suction equipment	Y / N / U / NA	
10k. Vascular access supplies (catheters, fluids, etc)	Y / N / U / NA	
10l. Wheelchairs	Y / N / U / NA	
10m. Other (specify): _____	Y / N / U / NA	

Comments (If referring to a specific item, give the item number.)

END OF TRIAGE ZONE MODULE

Hospital Disaster Drill Evaluation Treatment Zone Module

Instructions: This form can be used in the Emergency Department, and in medical and surgical care areas.

Note: Circle or check (✓) as indicated. Y=Yes; N=No; U=Unclear; NA=Not applicable

Observer: _____ Date: ____/____/____
Observer title: _____
Hospital: _____
Period of time of evaluation: _____ AM / PM (Circle one.) to _____ AM / PM (Circle one.)

1. Time Points

☛ 1a. Did the drill start on time? Y / N / U Comments: _____
1b. Time the drill began: (Circle one.) _____ AM / PM / U
1c. Time this zone was ready to accept victims: (Circle one.) _____ AM / PM / U

2. Zone Description:

☛ 2a. Were the zone boundaries clearly defined? Y / N / U Comments: _____
2b. What type of unit is this zone during regular hospital functioning? (Check all that apply)
a. <input type="checkbox"/> Emergency Department (ED) b. <input type="checkbox"/> Intensive Care (ICU) c. <input type="checkbox"/> Medical Inpatient d. <input type="checkbox"/> Medical Outpatient e. <input type="checkbox"/> Surgical Inpatient f. <input type="checkbox"/> Surgical Outpatient g. <input type="checkbox"/> Other (specify): _____
2c. Were actual patients treated in the drill treatment area (along with mock victims)? Y / N / U

3. Personnel

☛ 3a. Did someone assume command of this zone? Y / N / U Comments: _____
☛ 3b. Was staffing of the treatment zone adequate? Y / N / U Comments: _____

<p>3c. How many minutes after the drill activities in this zone commenced did someone assume command of the zone? (Check one.)</p>			
<input type="checkbox"/> <10 min	<input type="checkbox"/> 10 - 29 min	<input type="checkbox"/> 30 - 59 min	
<input type="checkbox"/> 1 - 2 hrs	<input type="checkbox"/> >2 hrs	<input type="checkbox"/> NA	
<input type="checkbox"/> No one took charge.			
<p>3d. Were the following drill participants identifiable?</p>			
a. Drill evaluators	Y / N / U / NA	b. Drill organizers	Y / N / U / NA
c. Media	Y / N / U / NA	d. Medical personnel	Y / N / U / NA
e. Mock victims	Y / N / U / NA	f. Observers	Y / N / U / NA
g. Security	Y / N / U / NA		
<p>4. Zone Operations</p>			
<p>☛ 4a. Did the treatment area function efficiently? Y / N / U</p> <p>Comments:</p>			
<p>4b. Was the hospital disaster plan followed? Y / N / U / Partially / No plan</p>			
<p>4c. If not followed, what were the reason(s)? (Check all that apply.)</p>			
a. <input type="checkbox"/> Not available	b. <input type="checkbox"/> Too complex		
c. <input type="checkbox"/> Not relevant to drill	d. <input type="checkbox"/> Participants unfamiliar with plan		
e. <input type="checkbox"/> Too hard to access	f. <input type="checkbox"/> Other (specify): _____		
<p>4d. If the hospital disaster plan was available, what was its format? (Check all that apply.)</p>			
a. <input type="checkbox"/> Complete manual	b. <input type="checkbox"/> Flow diagram	c. <input type="checkbox"/> Job action sheets	
d. <input type="checkbox"/> No disaster plan	e. <input type="checkbox"/> Other (specify): _____		
<p>4e. Was the space allocated for the zone adequate? Y / N / U</p> <p>→ If space allocated was not adequate, specify in comment box at end of this module.</p>			

6. Communications

<p>☛ 6a. Were communications effective? Y / N / U</p> <p>Comments:</p>		
<p>Were the following communications devices used in the drill? (Check all that apply.)</p>		
	A. Used	B. Comments (Note strengths and weaknesses.)
6b. 2-way radio/phone(s)	<input type="checkbox"/>	
6c. Landline phone(s)	<input type="checkbox"/>	
6d. Cell phone(s)	<input type="checkbox"/>	
6e. PDAs	<input type="checkbox"/>	
6f. Numeric paging	<input type="checkbox"/>	
6g. Overhead paging	<input type="checkbox"/>	
6h. Text paging	<input type="checkbox"/>	
6i. E-mail/Internet/network	<input type="checkbox"/>	
6j. FAX machine(s)	<input type="checkbox"/>	
6k. Intercom	<input type="checkbox"/>	
6l. Megaphone(s)	<input type="checkbox"/>	
6m. Runner(s)	<input type="checkbox"/>	
6n. Emergency Radio	<input type="checkbox"/>	
6o. HAM radio	<input type="checkbox"/>	
6p. Satellite phones	<input type="checkbox"/>	
6q. Other (specify): _____	<input type="checkbox"/>	

7. Information Flow

<p>☛ 7a. Was necessary information received? Y / N / U</p> <p>Comments:</p>
<p>7b. Did your zone receive updates regarding the situation outside the hospital (e.g., status of disaster events, number of victims arriving, acuity of victims)? Y / N / U</p>
<p>7c. How was this zone kept aware of the ongoing general situation within the hospital? (Check all that apply.)</p> <p>a. <input type="checkbox"/> Call(s) from incident command</p> <p>b. <input type="checkbox"/> FAX from incident command</p> <p>c. <input type="checkbox"/> Other contact from incident command</p> <p>d. <input type="checkbox"/> Runner(s) from incident command</p> <p>e. <input type="checkbox"/> Contact from other internal sources (specify): _____</p>
<p>7d. Were problems created by delays in receiving information? Y / N / U</p> <p>→ If problems were created by delays in information, specify in comment box at end of this module.</p>

8. Security

<p>☛ 8a. Were entrances and exits strictly controlled in this area? Y / N / U</p> <p>Comments:</p>
<p>8b. Did any of the following security issues arise in this zone? (Check all that apply.)</p> <p>a. <input type="checkbox"/> Crowd control</p> <p>b. <input type="checkbox"/> Media control</p> <p>c. <input type="checkbox"/> Unruly victims</p> <p>d. <input type="checkbox"/> Other (specify): _____</p>
<p>8c. Were security personnel present in this zone? Y / N / U</p>

9. Personal Protective Equipment (PPE) and Safety

<p>☛ 9a. Was an appropriate supply of PPE available? Y / N / U</p> <p>Comments:</p>				
<p>☛ 9b. Was the PPE applied correctly? Y / N / U</p> <p>Comments:</p>				
<p>If needed, were these items for standard precautions available for the healthcare workers?</p> <p style="text-align: center;">→ If safety materials were not available, circle "N" in column "A" and go to the next row.</p>				
	A. Available?	B. Used by staff?	C. Adequate Supply?	D. Problems with use? (e.g. donning)
9c. Face shields/masks	Y / N / U	Y / N / U	Y / N / U	Y / N / U
9d. Waterproof gowns	Y / N / U	Y / N / U	Y / N / U	Y / N / U
9e. Isolation gowns	Y / N / U	Y / N / U	Y / N / U	Y / N / U
9f. Gloves	Y / N / U	Y / N / U	Y / N / U	Y / N / U
9g. Passive (negative pressure) filtration (e.g., N95 or N99 masks)	Y / N / U	Y / N / U	Y / N / U	Y / N / U
9h. Respirators (e.g., powered air purifying respirator)	Y / N / U	Y / N / U	Y / N / U	Y / N / U
9i. Other (specify): _____	Y / N / U	Y / N / U	Y / N / U	Y / N / U
<p>9j. Were instructions available regarding appropriate donning and removal of PPE? Y / N / U</p>				
<p>9k. If available, in what format were they? (Check all that apply.)</p>				
<p>a. <input type="checkbox"/> Verbal instructions by staff b. <input type="checkbox"/> Poster(s) c. <input type="checkbox"/> Written instruction(s)</p> <p>d. <input type="checkbox"/> Video e. <input type="checkbox"/> Other (specify): _____</p>				

10. Equipment and Supplies

<p>☛ 10a. Were there appropriate quantities of medical supplies? Y / N / U</p> <p>Comments:</p>		
<p>10b. Were medications needed for treatment of victims available in the hospital? Y / N / U / NA</p>		
<p>Were needed medical supplies available?</p>		
<p>→ If medical supplies were not available, circle "N" in column "A" and go to the next row.</p>		
	A. Available	B. Issues
10c. Alcohol-based hand sanitizer	Y / N / U / NA	
10d. Bandages	Y / N / U / NA	
10e. Basic airway equipment	Y / N / U / NA	
10f. Blood drawing supplies	Y / N / U / NA	
10g. Blood pressure equipment	Y / N / U / NA	
10h. Burn packs	Y / N / U / NA	
10i. Cleaning supplies for contaminated equipment	Y / N / U / NA	
10j. Crash carts	Y / N / U / NA	
10k. Intravenous fluids	Y / N / U / NA	
10l. Intubation equipment	Y / N / U / NA	
10m. Medications	Y / N / U / NA	
10n. Monitors	Y / N / U / NA	
10o. Oxygen masks	Y / N / U / NA	
10p. Oxygen tanks	Y / N / U / NA	
10q. Splints	Y / N / U / NA	
10r. Stethoscopes	Y / N / U / NA	
10s. Stretchers	Y / N / U / NA	
10t. Suction equipment	Y / N / U / NA	
10u. Surgical masks	Y / N / U / NA	

10v. Vascular access supplies (catheters, fluids, etc.)	Y / N / U / NA	
10w. Ventilators	Y / N / U / NA	
10x. Wheelchairs	Y / N / U / NA	
10y. Other (specify): _____	Y / N / U / NA	

Comments (If comment refers to a specific item, give the item number.):

END OF TREATMENT ZONE MODULE

Hospital Disaster Drill Evaluation Biological Incident Addendum

Instructions: Attach to Incident Command, Triage, and Treatment Zone Modules for biological drills.

Notes: Circle or check (✓) as indicated. Y=Yes; N=No; U=Unclear; NA=Not applicable

Observer: _____	Date: ____/____/____
Observer title: _____	Zone: _____
Hospital: _____	
Period of time of evaluation: ____AM / PM (Circle one.) to ____ AM / PM (Circle one)	

1. Time Points

1a. Time that the zone became aware that victims were affected by an illness caused by a biological agent: (Circle one.)	_____ AM / PM / U
--	-------------------

2. Information Flow

Were the following informed that a biological agent may be involved? → If not informed, circle "N" in column "A" and go to the next line.				
A. Informed	B. Time Notified			
2a. Incident commander	Y / N / U	<input type="radio"/> <30 min	<input type="radio"/> 30-59 min	<input type="radio"/> 1 - 2 hrs
		<input type="radio"/> >2 hrs	<input type="radio"/> Unclear	<input type="radio"/> NA
2b. Hospital epidemiologist or designee	Y / N / U	<input type="radio"/> <30 min	<input type="radio"/> 30-59 min	<input type="radio"/> 1 - 2 hrs
		<input type="radio"/> >2 hrs	<input type="radio"/> Unclear	<input type="radio"/> NA
2c. Local and/or state health department	Y / N / U	<input type="radio"/> <30 min	<input type="radio"/> 30-59 min	<input type="radio"/> 1 - 2 hrs
		<input type="radio"/> >2 hrs	<input type="radio"/> Unclear	<input type="radio"/> NA
2d. Occupational health	Y / N / U	<input type="radio"/> <30 min	<input type="radio"/> 30-59 min	<input type="radio"/> 1 - 2 hrs
		<input type="radio"/> >2 hrs	<input type="radio"/> Unclear	<input type="radio"/> NA
2e. Was a "chain of custody" implemented? ^a Y / N / U				
^a Chain of custody is defined as securing items continuously and marking evidence gathered by date, time, location, and when, how, and by whom acquired. It includes signatures of all persons successively responsible for custody. It must be conducted so the validity of the chain of custody will hold up in court.				

If using BIOLOGICAL INCIDENT ADDENDUM in the INCIDENT COMMAND ZONE, STOP HERE. Do not complete the rest of module.

3. Victim Diagnosis

3a. Was the suspected illness caused by a biological agent known prior to the arrival of affected victims in this zone? Y / N / U

3b. If the cause of the illness was not known prior to victim arrival, how long after the first victim arrived was the cause of the illness identified? (**Check one.**)

- <1 hr 1 - 4 hrs 5 - 8 hrs
 >8 hrs Never identified NA

3c. What was the cause of the illness? (**Check all that apply.**)

- a. Anthrax b. Botulinum toxin
c. Plague d. Influenza
e. Smallpox f. Tularemia
g. Viral hemorrhagic fever h. Unknown
i. Other (specify): _____

3d. What resources were used to make the diagnosis(es)? (**Check all that apply.**)

- a. Consultation with an in-hospital expert
b. Consultation with an expert from state/local health department
c. Consultation with the Centers for Disease Control and Prevention (CDC)
d. History and physical exam by the treating health care provider
e. Microbiological data
f. Radiologic data
g. Telemedicine
h. NA
i. Other (specify): _____

4. Safety: Isolation Precautions

4a. Was isolation required for the suspected illness involved? Y / N / U

Isolation required for smallpox, plague, viral hemorrhagic fever, certain pneumonias or rashes, and other symptoms suggestive of a contagious infection outbreak.

→ If no isolation was required, skip to the Screening and Prophylaxis section.

4b. Were there delays in placing victims in isolation rooms? Y / N / U

→ If there were delays, specify in comment box at the end of this module.

4c. Were there enough isolation rooms? Y / N / U

4d. If insufficient isolation rooms, how were victims isolated? (Check all that apply.)

a. Conversion of other rooms/area (specify): _____

b. Existing isolation room in other area (specify): _____

c. Overflow victims not isolated

d. Victims with the same suspected illness caused by a biological agent placed in the same isolation room

e. NA

f. Other (specify): _____

4e. Were there signs on victims' doors that described the type of isolation required? Y / N / U

4f. Were any breaches in isolation precautions identified? Y / N / U

→ If there were any breaches in the isolation precautions, specify in comment box at end of this module.

4g. Did representatives from infection control arrive in the zone to assess the appropriateness of isolation precautions? Y / N / U

5. Safety: Personal Protective Equipment (PPE)

5a. Given the suspected illness caused by a biological agent, was PPE used to protect healthcare workers? Y / N / U

Isolation required for smallpox, plague, viral hemorrhagic fever, certain pneumonias or rashes, and other symptoms suggestive of a contagious infectious outbreak.

5b. Did you observe staff without PPE interacting with potentially contagious victims Y / N / U / NA

6. Screening and Prophylaxis

6a. Were prophylactic medications available for staff? Y / N / U / NA

6b. Were prophylactic and/or treatment medications available for victims? Y / N / U / NA

7. Laboratory Specimens

7a. Were guidelines available for packaging and transporting microbiological specimens? Y / N / U

Comments (If comment refers to a specific item, give the item number.):

END OF BIOLOGICAL INCIDENT ADDENDUM

Hospital Disaster Drill Evaluation Radiological Incident Addendum

Instructions: Attach to Incident Command, Decontamination, Triage, and Treatment Zone Modules for radiological drills.

Note: Circle or check (✓) as indicated. Y=Yes; N=No; U=Unclear; NA=Not applicable

Observer: _____	Date: ____/____/____
Observer title: _____	Zone: _____
Hospital: _____	
Period of time of evaluation: _____ AM / PM (Circle one) to _____ AM / PM (Circle one)	

1. Time Points

1a. Time that this zone became aware that radiological victims were involved: (Circle one.)	_____ AM / PM / U
--	-------------------

2. Information Flow

2a. How did this zone become aware that radiological victims were involved? (Check all that apply.)	
a. <input type="checkbox"/> Informed by fire department	b. <input type="checkbox"/> Informed by incident command center
c. <input type="checkbox"/> Onsite alarm	d. <input type="checkbox"/> Other (specify): _____

Were the following informed that a radiological agent was involved?

→ If not informed, circle "N" in column "A" and go to the next line.

	A Informed	B. Time Notified		
2b. Incident commander	Y / N / U	<input type="checkbox"/> <30 min <input type="checkbox"/> >2 hrs	<input type="checkbox"/> 30-59 min <input type="checkbox"/> Unclear	<input type="checkbox"/> 1 - 2 hrs <input type="checkbox"/> NA
2c. Radiation safety officer or designee	Y / N / U	<input type="checkbox"/> <30 min <input type="checkbox"/> >2 hrs	<input type="checkbox"/> 30-59 min <input type="checkbox"/> Unclear	<input type="checkbox"/> 1 - 2 hrs <input type="checkbox"/> NA
2d. Local and/or state health department	Y / N / U	<input type="checkbox"/> <30 min <input type="checkbox"/> >2 hrs	<input type="checkbox"/> 30-59 min <input type="checkbox"/> Unclear	<input type="checkbox"/> 1 - 2 hrs <input type="checkbox"/> NA
2e. Hazardous materials (HAZMAT) official	Y / N / U	<input type="checkbox"/> <30 min <input type="checkbox"/> >2 hrs	<input type="checkbox"/> 30-59 min <input type="checkbox"/> Unclear	<input type="checkbox"/> 1 - 2 hrs <input type="checkbox"/> NA
2f. Occupational health	Y / N / U	<input type="checkbox"/> <30 min <input type="checkbox"/> >2 hrs	<input type="checkbox"/> 30-59 min <input type="checkbox"/> Unclear	<input type="checkbox"/> 1 - 2 hrs <input type="checkbox"/> NA
2g. Municipal wastewater treatment officials	Y / N / U	<input type="checkbox"/> <30 min <input type="checkbox"/> >2 hrs	<input type="checkbox"/> 30-59 min <input type="checkbox"/> Unclear	<input type="checkbox"/> 1 - 2 hrs <input type="checkbox"/> NA

3. Materials and Supplies

3a. If prophylaxis for the given agent was indicated, was it available? Y / N / U / NA
3b. Were specialized cleaning supplies available for contaminated equipment? Y / N / U / NA

If using RADIOLOGICAL INCIDENT ADDENDUM in the INCIDENT COMMAND ZONE, STOP HERE. Do not complete the rest of module.

4. Zone Description

4a. Was the radiological decontamination zone separate from the triage zone? Y / N / U
4b. Was the integrity of the boundary between the radiological decontamination zone and the triage zone assessed by the use of radiation detectors? Y / N / U / NA

5. Safety: Precautions

Were the following available?			
5a. Dosimeters	Y / N / U	5b. Floor covering	Y / N / U
5c. Radiation signs	Y / N / U	5d. Radiation survey meters	Y / N / U
5e. Striped tape			Y / N / U
5f. Radioactive and mixed waste (Bio/Rad) disposal containers			Y / N / U
5g. Other (specify): _____			Y / N / U
5h. Were breaches in precautions observed?			Y / N / U
→ If breaches in precautions were observed, specify in comment box at end of this module.			
5i. Did the institutional safety officer arrive in this zone to assess the activity? Y / N / U / NA			

6. Safety: Personal Protective Equipment (PPE)

6a. Was PPE used to protect healthcare workers? Y / N / U				
If needed, were these safety materials available for the healthcare workers?				
→ If safety materials were not available, circle "N" in column "A" and go to the next row.				
	A. Available?	B. Used by staff?	C. Adequate Supply?	D. Problems with use? (e.g. donning)
6b. Face shields	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA
6c. Passive (negative pressure) filtration (e.g., N95 or N99 masks)	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA
6d. Respirators (e.g., powered air purifying respirator)	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA
6e. Protective suit	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA
6f. Waterproof gowns	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA
6g. Hoods	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA
6h. Boots	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA
6i. Waterproof shoe covers	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA
6j. Gloves, chemical resistant	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA
6k. Double latex gloves	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA
6l. Apron	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA
6m. Surgical caps	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA
6n. Other (specify): _____	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA	Y / N / U / NA
6o. Did you observe staff without PPE interacting with contaminated victims?				Y / N / U / NA

Comments (if comment refers to a specific item, give the item number):

END OF RADIOLOGICAL INCIDENT ADDENDUM

Hospital Disaster Drill Evaluation Group Debriefing Module

Note: The debriefing session(s) should be recorded by audiotape or scribe. Each item is relevant to every zone involved in the drill. Delete items on decontamination if not relevant to drill. Debriefing participants **should state their zone when responding.**

1. Did you feel you were notified of the disaster in a timely fashion?
2. Did the incident command center work effectively?
3. Did any zone receive incorrect information from the incident command center?
 4. If not correct, what specifics do you recall about incorrect information?
5. Was the information from the incident command center received by other zones in a timely way?
6. Were there problems with information flow within the hospital?
7. Were memorandums of understanding (MOUs) with outside agencies (e.g., police) activated?
8. Did nurses and physicians respond quickly to the disaster call?
9. Was the zone set up when the first mock victim arrived?
10. Was security in place before the first mock victim arrived?
11. Did people have a good understanding of their roles, as defined in the disaster plan?
12. Did the decontamination system work effectively?
13. Did you have any problems with the decontamination equipment?
 14. Functioning properly?
 15. Adequate number of units?
 16. Participants used correctly?
17. Were there delays in decontamination?
 18. If so, what triggered these delays?

19. Did the triage system work effectively?
20. Were there delays in triage?
 21. If so, what triggered these delays?
22. Did the treatment system work effectively?
23. Were there delays in treatment?
 24. If so, what triggered these delays?
25. Was personal protective equipment (PPE) used correctly?
26. Were you able to function in the PPE?
27. Were you rotated adequately when wearing the PPE?
28. Was security adequate?
29. Was staffing adequate?
30. Were supplies adequate?
31. Was the equipment adequate?
32. If not, what equipment was not adequate (give specifics)?
33. Were there problems with transporting patients?
34. Were there problems with communication devices (e.g., equipment failure)?
35. Did the hospital appear to work well with city and/or regional disaster agencies?
36. Were there problems with information flow between the hospital and outside agencies?
 37. If yes, which agencies?
38. Were there bottlenecks?
39. Was workspace adequate?
40. Did you feel you could accomplish what you were assigned to do during the drill?

41. What did you learn from participating in the drill?
42. Overall, what parts of the drill went well?
43. What could have been done differently to make the drill run better?

END OF GROUP DEBRIEFING MODULE