

## ASPR TRACIE Technical Assistance Request

**Requestor:** [REDACTED]  
**Requestor Phone:** [REDACTED]  
**Requestor Email:**  
**Request Receipt Date (by ASPR TRACIE):** 26 October 2017  
**Response Date:** 3 November 2017; updated 17 April 2018  
**Type of TA Request:** Standard

### Request:

[REDACTED] requested resources on biological, chemical, and radiological agents; and medical treatments or capabilities currently known for these agents.

### Response:

The ASPR TRACIE team reviewed several existing Topic Collections and other ASPR TRACIE resources; namely the following:

- [Radiological and Nuclear](#)
- [VHF/ Ebola](#)
- [Zika](#)
- [Hospital Victim Decontamination](#)
- [Pre-Hospital Victim Decontamination](#)
- [Responder Safety and Health](#)
- [Select Infectious Disease Resources Webpage](#)
- **NOTE:** The ASPR TRACIE team is expected to develop the Bioterrorism and Chemical Topic Collections in Spring 2018.

The ASPR TRACIE team also conducted an online search for additional materials. Resources gathered are as follows:

- Section I: Overarching Resources
- Section II: Biological-Specific Resources
- Section III: Chemical-Specific Resources
- Section IV: Radiological-Specific Resources
- Section V: Radiological and Nuclear Scarce Resources
- Section VI: Casualty Estimator and other Modeling Tools

### I. Overarching Resources

Army Center for Health Promotion and Preventive Medicine Aberdeen Proving Ground. (2000). [The Medical NBC Battlebook](#).

This downloadable PDF serves as a quick reference guide for medical personnel in the field. The authors provide information on the following threats: nuclear, radiological hazards, biological, chemical, and lasers/ radiofrequency.

Heymann, D.L., (2014). [Control of Communicable Diseases Manual, 20th Edition](#). (Book available for purchase). American Public Health Association (APHA) Press.

This book (available for purchase as hard copy or electronic download) provides information on more than 130 infectious diseases globally. It contains information about the occurrence, transmission, and methods of control for each disease. It also includes information on where to find medical treatment stockpiles (e.g., CDC) if available.

Unknown. (n.d.). [Chemical and Biological Agents, Nuclear Events](#). Smithsonian Alerts.

This document provides background information, symptoms, and treatments for the most common chemical agents (mustard gas, sarin, tabun, VX), biological agents (plague, smallpox, tularemia, anthrax, botulism, ricin, VHF), and nuclear events (radiation, explosion, dirty bomb, potassium iodide).

## II. Biological-Specific Resources

**NOTE: Please refer to ASPR TRACIE's Topic Collections on [VHF/ Ebola](#) and [Zika](#) for a full list of resources on those agents.**

Centers for Disease Control and Prevention. (2017). [Bioterrorism Agents/Diseases](#).

The CDC maintains a website with information for healthcare professionals on all Bioterrorism Agents and links to their most up to date treatment information. CDC Category A Bioterrorism Agents include the following:

- Anthrax: [Treatment](#) and [Fact Sheet](#)
- [Botulism](#)
- [Plague](#)
- [Smallpox](#)
- [Tularemia](#)
- Viral Hemorrhagic Fevers
  - [General Information](#)
  - [Arenaviruses](#)
  - [Ebola](#)
  - [Lassa Fever](#)
  - [Marburg Virus](#)

John Hopkins Bloomberg School of Public Health. (2006). [Centers for Disease Control and Prevention \(CDC\) Classification of Bioterrorism Microorganisms](#).

This PowerPoint presentation provides a list of Category A, B, and C agents as identified by the CDC.

National Research Council. (2004). [Naval Forces' Defense Capabilities Against Chemical and Biological Warfare Threats](#). The National Academies Press.

This report provides an overview of the potential biological and chemical threats, and an evaluation of the Navy's operations, non-medical programs, and medical countermeasures designed to confront those threats. Specifically, Chapter 5 focuses on the medical chemical and biological countermeasures.

Rebmann, T. (2014). [Infectious Disease Disasters: Bioterrorism, Emerging Infections, and Pandemics](#). APIC Text of Infection Control and Epidemiology.

The author defines infectious disease disasters and highlights the need for specialized emergency planning and response, particularly for infection preventionists.

Southern Illinois University School of Medicine. (n.d.). [Overview of Potential Agents of Biological Terrorism](#).

This webpage includes information on how infectious agents can be used as tools for mass casualties, historical background and trends, types of bioterrorism attacks, and agents that can be used. For select category A, B, and C agents, the following information is provided: microbiology and epidemiology, clinical features, laboratory diagnosis, antimicrobial therapy, post exposure prophylaxis, vaccination, and infection control procedures/ management.

### III. Chemical-Specific Resources

Centers for Disease Control and Prevention. (n.d.). [Medical Management Guidelines for Chemical Agents](#).

This page includes a list of common chemical agents and each link then includes information from the Agency for Toxic Substance and Abuse that notes general information on the agent, health effects, prehospital management, emergency department management, patient information sheet, and follow up instructions.

Ganesan, K., Raza, S., Vijayaraghavan, R. (2010). [Chemical Warfare Agents](#). J. Pharm Bioallied Sci 2(3), 166-178.

This article describes characteristics of various CW agents, medical protection methods, detection equipment available, and decontamination techniques. The following classifications are included: Nerve agents, Vesicants (blistering agents), Bloods agents (cyanogenic agents), Choking agents (pulmonary agents), Riot-control agents (tear gases), Psychomimetic agents, and Toxins.

National Institute for Occupational Safety and Health. (2010). [NIOSH Pocket Guide to Chemical Hazards \(NPG\)](#). Centers for Disease Control and Prevention.

This guide provides information on hundreds of chemicals/classes for workers, employers, and occupational health professionals. Information on personal protective equipment, respirator selection, and first aid is also included.

Pipeline and Hazardous Materials Safety Administration. (2012). [Emergency Response Guidebook \(ERG\)](#). U.S. Department of Transportation.

This version of the guidebook can help first responders respond to hazardous materials incidents within the first 30 minutes.

U.S. Army Medical Research Institute of Chemical Defense, Chemical Casualty Care Division. (2015). [Chemical Casualty Care Division](#).

Medical professionals can access links to a variety of tools, products, and courses on chemical casualty care from this web page.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response, National Library of Medicine. (2003). [Chemical Hazards Emergency Medical Management](#). U.S. Department of Health and Human Services.

This website provides a wide range of information on chemical hazards for first responders, healthcare providers, and incident command staff.

Various Authors. (2005). [Medical Treatment of Intoxications and Decontamination of Chemical Agents in the Area of Terrorist Attack](#).

This publication provides reports presented at a NATO Advanced Research Workshop entitled “Medical Treatment of Intoxications and Decontamination of Chemical Agent in the Area of Terrorist Attack”. The main areas covered were: new approaches in pre-treatment and prophylaxis of nerve agent intoxication; diagnosis of exposure to chemical agents; therapy of chemical agent intoxication; development of personal decontamination; and decontamination of intoxication with chemical agents.

Select articles included below.

- Paul, F. and Paul, L. (n.d.). [Epidemiology of Chemical Crisis, Public Health Impact, Specific Medical Countermeasures and Education](#).
- Khmel’ S.I. , Litvin Yu.P., and Gninenko A.N. (n.d.). [Certain Problems of Rendering Medical Assistance Under Acts of Chemical Terrorism](#).
- Rowell M. (n.d.). [Biomedical Sampling Following a Chemical Warfare Agent Terrorist Event – An OPCW Perspective](#).

## IV. Radiological-Specific Resources

**NOTE: Please refer to ASPR TRACIE's Radiological/ Nuclear Topic Collection for additional resources, including clinical guidance, plans/tools/templates, and lessons learned.**

American College of Radiology. (2006). [Response to Radiological Terrorism: A Primer for Radiologists, Radiation Oncologists and Medical Physicists.](#)

This document provides information that may guide hospital plans for radiological emergencies. It contains a list summarizing "10 basics of response," with individual sections for each of the 10 items.

Radiation Emergency Assistance Center/Training Site. (2017). [The Medical Aspects of Radiation Incidents.](#) Oak Ridge Institute for Science and Education (ORISE).

This guide provides basic information to physicians and other healthcare professionals necessary for the proper medical management of patients exposed to and/or contaminated with radioactive materials. It includes information on initial medical response, medical management of local injury and internally deposited radionuclides, decontamination, delayed effects, and psychological support and risks.

Centers for Disease Control and Prevention, Emergency Preparedness and Response. (2015). [Radiation Emergencies: Information for Professionals.](#)

This webpage contains links to resources for emergency health professionals and first responders tasked with preparing for and responding to a radiation emergency.

Centers for Disease Control and Prevention, Emergency Preparedness and Response. (2014). [Radioactive Isotopes.](#)

This webpage hosts links to information by isotope (e.g., cesium, iodine, plutonium). Users can click on the link to learn about each isotope's toxicity.

Flynn, F. and Goans, R. (2006). [Nuclear Terrorism: Triage and Medical Management of Radiation and Combined-Injury Casualties.](#) (First page only.) Surgical Clinics of North America. 86:601–636.

The authors discuss triage and medical management of patients with burns, trauma, and/or radiation sickness resulting from a nuclear detonation.

National Security Staff, Interagency Policy Coordination Subcommittee for Preparedness and Response to Radiological and Nuclear Threats. (2010). [Planning Guidance for Response to a Nuclear Detonation. Second Edition.](#) Homeland Security Council Interagency Policy Coordination Subcommittee for Preparedness and Response to Radiological and Nuclear Threats.

This document provides emergency planners (including emergency medical service

planners, medical receiver planners, and mass care providers) recommendations specific to nuclear detonation incidents in an urban setting.

NYC Hospital Radiation Response Working Group, NYC Department of Health and Mental Hygiene, Healthcare Emergency Preparedness Program. (2009). [NYC Hospital Guidance for Responding to a Contaminating Radiation Incident.](#)

This guidance was prepared to help New York City Hospitals prepare their response to an emergency involving radioactive contamination. The guidance and strategies can be tailored to other city hospitals.

Oak Ridge Institute for Science and Education. (2015). [Radiation Emergency Assistance Center/Training Site.](#)

This webpage links to the Radiation Emergency Assistance Center/Training Site (REAC/TS), which offers several resources to prepare medical professionals to respond to radiological emergencies. There are links to books, live training courses, online trainings, and assessment and treatment guidance documents. REAC/TS staff are available for deployment to provide medical consultation during emergencies, upon request.

Ross, J., Case, C., Confer, D. et al. (2011). [Radiation Injury Treatment Network \(RITN\): Healthcare Professionals Preparing for a Mass Casualty Radiological or Nuclear Incident.](#) *International Journal of Radiation Biology*. 87(8): 748–753.

This article discusses the Radiation Injury Treatment Network (RITN), which is a cooperative effort of the National Marrow Donor Program and the American Society for Blood and Marrow Transplantation. RITN works to educate hematologists, oncologists, and stem cell transplant specialists to treat casualties of radiation emergencies with marrow suppression. RITN members are transplant units within hospitals across the nation, and would be available to provide surge capacity either by having patients transferred to one of their sites, or by practitioners providing medical expertise in person or remotely to health care facilities caring for patients with marrow toxic injuries.

Turai, I., Veress, K., Günalp, B, and Souchkevitch, G. (2004). [Medical Response to Radiation Incidents and Radio Nuclear Threats.](#) *British Medical Journal* 328(7439):568-72.

The authors provide information on the basic medical management of radiation sickness and radiation injuries, and share information about related training on early recognition of and medical response to radiation accidents and purposeful incidents.

U.S. Department of Health and Human Services. (n.d.). [Radiation Emergency Medical Management.](#) (Accessed 9/14/2015.)

This webpage provides guidance on diagnosis and treatment for healthcare providers. It includes downloadable tools, templates, references, and contact lists.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (2012). [Medical Planning and Response Manual for a Nuclear Detonation Incident: A Practical Response Guide.](#)

This comprehensive document provides emergency planners with information not only on the effects of radiation and how to measure and treat them, but also on how to communicate during a radiological or nuclear emergency. It also describes federal response roles and the distribution of medical countermeasures for acute radiation sickness in an environment of scarce resources.

Various Authors. (2011). [Disaster Medicine and Public Health Preparedness.](#) Volume 5. Supplement 1.

This special issue contains articles highlighting the work of the Nuclear Detonation Scarce Resources Project Working Group. Included are discussions of triage and medical management of casualties resulting from nuclear detonations; social and behavioral response considerations for planners; and guidance to support health care system preparedness to respond to a nuclear detonation.

Select articles included below (scarce resources articles noted in Section V of this document).

- Murrain-Hill, P., Coleman, C.N., Hick, J.L. et al. (n.d.). [Medical Response to a Nuclear Detonation: Creating a Playbook for State and Local Planners and Responders.](#)
- Watkins, S.M., Perrotta, D.M., Stanbury, M. et al. (n.d.). [State-Level Emergency Preparedness and Response Capabilities.](#)
- Meit, M., Redlener, I., Briggs, T.W. et al. (n.d.). [Rural and Suburban Population Surge Following Detonation of an Improvised Nuclear Device: A New Model to Estimate Impact.](#)
- Tan, C.M., Barnett, D.J., Stolz, A.J., and Links, J.M. (n.d.). [Radiological Incident Preparedness: Planning at the Local Level.](#)

Yale New Haven Health, Center for Emergency Preparedness and Disaster Response. (2013). [Radiation Clinical Guidelines: A Quick Guide for the Management of Radiation Disasters for Emergency Department Personnel.](#)

This guide (and associated Job Aid) serves as a quick reference for an emergency department's response to radiation disasters. Steps based on the word "DISASTER" can help staff quickly assess and respond to an incident. (Detection, ICS, Safety/Security, Assessment, Support, Triage and Treatment, Evacuate, Recovery.)

## **V. Radiological and Nuclear Scarce Resources**

Caro, J.J., DeRenzo, E.G., Coleman, C.N. et al. (2011). [Resource Allocation After a Nuclear Detonation Incident: Unaltered Standards of Ethical Decision Making.](#) Disaster Medicine and Public Health Preparedness. Volume 5. Supplement 1.

The authors provide practical ethical guidance for healthcare providers faced with making decisions after a nuclear detonation, prior to the establishment of a coordinated response.

Casagrande, R., Wills, N., Kramer, E., et al. (2011). [Using the Model of Resource and Time-Based Triage \(MORTT\) to Guide Scarce Resource Allocation in the Aftermath of a Nuclear Detonation.](#) Disaster Medicine and Public Health Preparedness. Volume 5. Supplement 1.

The authors used the model of resource- and time-based triage (MORTT) and found that in settings where resources were scarce, prioritizing victims with moderate life-threatening injuries over victims with severe life-threatening injuries saves more lives and reduces demand for intensive care.

Coleman, C.N., Knebel, A. R., Hick, J.L. et al. (2011). [Scarce Resources for Nuclear Detonation: Project Overview and Challenges.](#) Disaster Medicine and Public Health Preparedness. Volume 5. Supplement 1.

This article summarizes the medical challenges associated with scarce resources and nuclear detonations, and serves as an introduction to the rest of the articles in this issue.

Coleman, C.N., Weinstock, D.M., Casagrande, R. et al. (2011). [Triage and Treatment Tools for Use in a Scarce Resources-Crisis Standards of Care Setting After a Nuclear Detonation.](#) Disaster Medicine and Public Health Preparedness. Vol 5. Sup 1.

Based on the information shared in other articles in this issue, the authors discuss possible triage options during the first four days after an event.

DiCarlo, A.L., Maher, C., Hick, J.L. et al. (2011). [Radiation Injury After a Nuclear Detonation: Medical Consequences and the Need for Scarce Resources Allocation.](#) Disaster Medicine and Public Health Preparedness. Volume 5. Supplement 1.

This literature review focuses on radiation injuries from human exposures and animal models and is accompanied by various triage and management approaches (covered in the rest of this special issue).

Hick, J.L., Weinstock, D.M., Coleman, C.N. et al. (2011). [Health Care System Planning for and Response to a Nuclear Detonation.](#) Disaster Medicine and Public Health Preparedness. Volume 5. Supplement 1.

The authors use vignettes to describe how a nuclear the incident may unfold for the various components of the health and medical systems. They also emphasize the need for first responders to protect themselves physically and psychologically.

Knebel, A.R., Coleman, C.N., Cliffer, K.D. et al. (2011). [Allocation of Scarce Resources After a Nuclear Detonation: Setting the Context](#). Disaster Medicine and Public Health Preparedness. Volume 5. Supplement 1.

The authors emphasize the need for all involved sectors to plan and practice for the allocation of scarce resources in a nuclear incident.

U.S. Department of Health and Human Services, Radiation Emergency Medical Management. (2016). [Nuclear Detonation Scarce Resources Project Working Group Publications](#).

This link takes users to the full triage module on REMM. This provides users access to an online flowchart/decision tree for complex triage decisions and links to various resources which provide the background information on the triaging and medically managing patients in the early days following a radiological event. The online Triage tool allows for data entry and customization of decision-making.

## Community Reception Center Plans

Centers for Disease Control and Prevention (Accessed 2017). [Community Reception Center \(CRC\) Drill Toolkit](#).

The CRC Drill toolkit provides guidance and templates that any jurisdiction can adapt to exercise the full range of CRC operations. The drill was developed to be compatible with the U.S. Department of Homeland Security's Homeland Security Exercise and Evaluation Program (HSEEP). It also incorporates insights, issues, and lessons learned from real-world events.

Centers for Disease Control and Prevention. (2014). [Population Monitoring in Radiation Emergencies: A Guide for State and Local Public Health Planners](#). Second Edition.

This guide provides information for state and local planners to develop post radiological emergency response plans. This guide describes processes for managing the radiation monitoring required to evaluate exposure in the affected population, including the use of community reception centers.

Centers for Disease Control and Prevention (2011). [Virtual Community Reception Center](#).

This interactive webpage is designed as a planning/training experience where users learn how to describe the process flow, identify key stations, and recognize essential services for each station in a community reception center.

Florida Department of Health. (2011). [After-Action Report and Improvement Plan Matrix](#).

This report covers the July 12, 2011, Community Reception Center (CRC) Drill conducted at Cypress Creek High School in Orlando, Florida. The Improvement Plan highlights recommendations and adjudications to the state CRC plan. Appendices are included.

Florida Department of Health. (n.d.). [Community Reception Center \(CRC\) Form](#). (Accessed 3/13/2017.)

First responders can use this intake form as a model when creating their own CRC forms. It includes incident-specific questions and two pages of instructions.

\*Radiation Response Volunteer Corps and Population Monitoring. (n.d.). [Radiation Response Volunteer Corps and Population Monitoring](#). (Accessed 3/13/2017.)

This website includes a “Templates and Forms” tab that takes the user to a Dropbox page. Links to templates are provided here, including:

[Kansas Community Center Flow Diagram](#)  
[Kansas Radiation Incident Community Reception Center Standard Operating Guidelines](#)  
[Kansas Department of Health and Environment CRC Template](#)

[Union County \(OH\) Example CRC Supply and Equipment List](#)

Chatham County (GA) Health Department. (n.d.). [EOP/ Incident Annex G / Appendix 1: CRC Specifications](#). (Accessed 3/13/2017.)

Appendix 1 includes Community Reception Center (CRS) features and requirements, and includes an equipment list, a staffing matrix, and a list of potential CRC sites.

Federal Emergency Management Agency. (2010). [Millstone Power Station. After-Action Report/Improvement Plan](#).

This report covers the June 30, 2010 Host Community Reception Center (CRC) Drill conducted in Windham, CT. The Improvement Plan highlights recommendations and adjudications to the state CRC plan specific to the performance of offsite response organizations. Appendices are included; Appendix C specifically covers the CRC.

Los Angeles County. (2009). [Playbook 9: Monitoring People for Contamination at Public Reception Centers](#). Los Angeles County Multi-Agency Radiological Response Plan.

This document provides steps for responders to take upon receipt of residents at Community Reception Centers. It includes forms for responders and handouts for visitors.

Los Angeles County (2009). [Community Reception Center Flow Diagram](#).

This is a set of floorplans for various stages of CRCs, including intake, emergency medical care or transfer, and discharge.

Matariyeh, Ameer. (2013). [Reception Centers in Response to Radiological Hazards: Correctly Triage Survivors](#).

This master's thesis publication includes a detailed literature review of published and gray literature on the effectiveness of community reception centers for managing population evaluation.

Radiation Response Volunteer Corps and Population Monitoring. (n.d.). [Radiation Response Volunteer Corps and Population Monitoring](#). (Accessed 3/13/2017.)

This website includes a "Templates and Forms" tab that takes the user to a Dropbox page. Links to templates are provided here, including:

[Union County \(OH\) Example CRC Supply and Equipment List](#)

## VI. Casualty Estimator and other Modeling Tools

John Hopkins. (n.d.). [PACER SUITE](#). (Accessed 4/12/2016. Free registration is required.)

This resource provides three tools. The first is the Electronic Mass Casualty Assessment and Planning Scenarios (EMCAPS) tool, which models plausible disaster scenarios (based on the Department of Homeland Security National Planning Scenarios) to help planners better understand and assess preparedness and response capabilities needs. By scenario, the tool asks questions, then provides the estimated casualty numbers. The second is the Surge tool, which assesses current hospital surge capacity and allows the user to simulate bed expansion, inflow alteration, and outflow alteration to increase capacity or make room for disaster patients. The third tool is the FLUCAST, which forecasts the current week's flu cases for the user's hospital based on historical data. References used to develop the tool are available on the site for further research.

**NOTE:** For questions related to EMCAPS, contact Jim Scheulen at 410-735-6450. The ASPR TRACIE team tested this tool and reached out the POC.

### Other Casualty Estimate Tools

Centers for Disease Control and Prevention. (n.d.). [Pandemic Flu Preparedness Tools](#). (Accessed 4/12/2016.)

This webpage provides several resources to help hospital administrators, and state and local health officials prepare for the next influenza pandemic by estimating the spread within a community, and surge on healthcare centers and services.

The Lauren Ancel Meyers Lab. (n.d.). [Various Tools](#). The University of Texas at Austin, Department of Integrative Biology, Institute for Cellular and Molecular Biology. (Accessed 4/12/2016.)

This webpage provides multiple tools including the following: 1) DiCon (Disease Control System) – provides a general optimization framework, with a special focus on distributed, parallel epidemic disease simulation with policy optimization; 2) Texas Pandemic Flu Toolkit – includes tools for antiviral release scheduling and distribution, vaccine allocation and ventilator stockpiling, and simulating pandemic flu and public health responses; 3) Public Health Laboratories (PHL) Sample Size Calculators – provides a systematic approach to estimate the number of specimens to be tested within a specific level of data confidence for situational awareness and rare/novel influenza event detection and investigation; and 4) EpiFire – simulates the spread of epidemics on contact networks.

## Casualty Estimate Tool Related Resources

Department of Defense, Office of the Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs/ Nuclear Matters. (n.d.). [Specialized Radiological Monitoring and Hazard Assessment Capabilities](#). (Accessed 4/12/2016.)

This resource describes the Defense Threat Reduction Agency (DTRA) Hazard Prediction and Assessment Capability (HPAC), which is a forward deployable and/or reachback modeling capability available for Government, Government-related, or academic use. This software tool assists in emergency response to hazardous agent releases. It allows users to model and predict hazard areas and human collateral effects in minutes. It also provides the capability to accurately predict the effects of HAZMAT releases into the atmosphere and their impact on civilian and military populations.

Sandia National Laboratories. (2011). [New Tool Allows First Responders to Visualize Post-Event Disaster Environments](#).

This article describes the Standard Unified Modeling, Mapping and Integration Toolkit (SUMMIT), which is a science-based software tool that allows emergency preparedness officials and first responders to view and modify accurate models of building damage and other post-event disaster effects.

YouTube. (2011). [Brooke Buddemeier, Nuclear Detonation in a Major City](#).

This 35-minute YouTube video is a presentation given by Brooke Buddemeier, Global Security Directorate of the Lawrence Livermore National Laboratory, at a 2011 conference held in Washington, D.C. called Advancing U.S. Resilience to a Nuclear Catastrophe. Mr. Buddemeier discusses "Bounding the Problem: Updated Models of the Effects of a Nuclear Detonation in a Major City."

## Other Tools

U.S. Department of Health and Human Services Office of the Assistant Secretary for Preparedness and Response, Public Health Emergency. (n.d.). [Hospital Surge Evaluation Tool](#). (Accessed 4/12/2016.)

The Hospital Surge Evaluation Tool was developed by RAND and is in beta testing. It is a software-based tool designed to help hospitals evaluate their level of preparedness by identifying gaps and assessing their ability to respond to mass casualty incidents. The tool takes the form of a no-notice drill, and incorporates the real-life considerations of healthcare delivery in acute care settings. This tool can help hospital emergency managers make recurring tabletop exercises a reality by providing a fully developed tabletop exercise that can be used at their facilities.