OFFICE OF PREPAREDNESS AND EMERGENCY MANAGEMENT

Hospital Decontamination Self-Assessment Tool

A resource to assist hospitals evaluate decontamination plans and capabilities

HSPH-EPREP

Updated June 2014

HARVARD SCHOOL OF PUBLIC HEALTH
Emergency Preparedness and Response Exercise Program

This page intentionally left blank

Table of Contents

This page intentionally left blank

Foreword

The *Hospital Decontamination Self-Assessment Tool* was developed by the Harvard School of Public Health Emergency Preparedness and Response Exercise Program (HSPH-EPREP) through a contract with the Office of Preparedness and Emergency Management at the Massachusetts Department of Public Health, with funding from the Office of Assistant Secretary for Preparedness and Response (ASPR) Hospital Preparedness Program.

The views and opinions expressed as part of this toolkit do not necessarily represent the views and opinions of the Office of the ASPR Hospital Preparedness Program or the Massachusetts Department of Public Health.

A list of references used to support the development of this document can be found in Appendix C.

Introduction

In 2011, through a contract with the Massachusetts Department of Public Health, the Harvard School of Public Health Emergency Preparedness and Response Exercise Program (HSPH EPREP) engaged Massachusetts' hospitals in a series of regional tabletop exercises focused on response to a hazardous materials incident. The exercise series highlighted a significant degree of heterogeneity among hospital decontamination programs and capabilities. Subsequent on-site assessments of hospital decontamination systems conducted at a representative sample of facilities throughout the Commonwealth confirmed this finding.

To begin to address this issue of heterogeneity, HSPH-EPREP developed structured tools and guides to assist hospitals develop, maintain, and augment their decontamination programs. The *Hospital Decontamination Self-Assessment Tool* was developed to provide hospitals with a means of evaluating decontamination plans and capabilities against current regulatory standards, recommendations from subject matter experts, and national and international healthcare decontamination best practices. This tool provides scalable considerations based upon presently available guidance to assist hospitals plan for and respond to small and large-scale incidents requiring the decontamination of patients contaminated by and/or exposed to chemical, biological, radiological, and/or nuclear agents.

How to use this tool:

The Hospital Decontamination Self-Assessment Tool is intended for use by hospital emergency preparedness planners, hospital decontamination team members, and other personnel with a responsibility for their facility's decontamination plans and procedures.

The tool is designed to walk the user through the *emergency management cycle* of a hospital response to a hazardous materials incident requiring decontamination of patients. Each 'cycle', or section, contains a list of questions drawn from current subject-matter guidance and best practices, intended to assist the user evaluate the degree to which their facility has planned and prepared for hazardous materials incidents involving the decontamination of patients. The checklist format allows the user to keep track of the specific planning and response considerations their hospital has addressed. Links to additional resources and other useful information on hospital decontamination can be found on the "posted notes" throughout the document.

Additional resources, including planning matrices to assist with the development of decontamination teams, are available in the appendices of this document.

Assumptions

The content presented in this tool revolves around the following assumptions, which should be taken into consideration in the development, evaluation, and revision of hospital decontamination plans:

- *Hospitals will be relied upon to provide medical care to victims of a mass-casualty event resulting from a chemical, biological, radiological, nuclear, or explosive incident.*
- *All hospitals with an emergency department should be prepared to decontaminate victims in small and large- scale hazardous materials incidents.*
- *An influx of patients requiring decontamination has the potential to overwhelm any hospital.*
- *The safety of hospital personnel during decontamination operations is paramount, and should be carefully considered as a critical component of decontamination planning, training, response and recovery.*
- *The hospital's main priorities in a decontamination event are responder safety, limiting the spread of contamination, patient triage, decontamination, and medical care, as well as medical monitoring of patients and staff.*
- *Information regarding the contaminant, number of victims, and victim status may not be immediately available to hospital decontamination staff.*
- *Victims are likely to self-transport from the incident scene to the closest hospital, often arriving with little or no advance warning.*
- *Effective field decontamination resources may be limited, and hospitals should assume that all incoming victims may need to be decontaminated, unless otherwise notified by first responders.*
- *During a large-scale mass-casualty incident, hospitals should anticipate that non-symptomatic, "worried-well" victims will present to the hospital along with contaminated and/or injured victims.*
- *Victims of a hazardous materials incident may have certain access, functional, and social needs and should be accommodated to the greatest extent possible during a decontamination response. These needs should be considered in decontamination planning, training, exercise, and response.*
- *Hospitals will benefit from regular training and exercises designed to test and reinforce knowledge of hospital decontamination plans and procedures.*

Decontamination Planning and Preparedness

- ☐ Has your facility developed a written Decontamination/Hazardous Materials Incident Plan or Annex as a component of the hospital Emergency Operations Plan (EOP)?
- ☐ Is the decontamination plan reviewed and revised in conjunction with your hospital's Hazard Vulnerability Analysis (HVA)?
- ☐ Is there at least one person at your facility who is responsible for the ongoing maintenance and revision of the decontamination plan?
- ☐ Is the decontamination plan reviewed internally with staff on an annual basis?
- ☐ Is the decontamination plan reviewed with local emergency response partners on an annual basis?
- ☐ Is the decontamination plan scalable to facilitate a response to both small and large-scale incidents?
- ☐ Does the decontamination plan include clearly defined activation levels or phases designed to facilitate a timely, measured response?
- ☐ Does your facility oversee a Decontamination or Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) planning committee that meets at least on a quarterly basis?
- ☐ Does at least one hospital representative participate on a standing Local or Regional Emergency Planning Committee (LEPC/REPC) to collaboratively address community hazards and/or decontamination response protocols?
- ☐ Does your plan include decontamination team-specific Job Action Sheets (JAS) to assist team personnel in completing essential duties?

The Center for Bioterrorism Preparedness and Planning (Continuum Health Partners) developed a hospital-based decontamination policy document which includes decontamination team-specific Job Action Sheets. This resource is available at:

http://www.nyc.gov/html/doh/downloads/pdf/bhpp/bhpp-focus-hosp-chpprot-decon.pdf

Which of the following methods does your facility use to distribute the decontamination plan to internal personnel with an expected role in decontamination planning and response?

- ☐ Hard copy document/email distribution
- ☐ Review at team meetings
- ☐ In-house trainings
- ☐ Other:

☐ Is the decontamination plan accessible to staff via your facility's intranet system, Learning Management System, or other readily available database?

☐ Are hospital personnel with a role in hospital decontamination planning familiar with how to access relevant guidance and regulatory standards?

Staffing/Decontamination Team

☐ Is your facility's decontamination team capable of receiving patients within 15 minutes of activation on a 24/7 basis?

Does the size and structure of your decontamination team allow your facility to address the following?

- ☐ 24/7 coverage to respond to an incident
- ☐ Periodic shift rotations for all personnel, as appropriate to the incident
- ☐ Specific needs/vulnerabilities of the surrounding community

Larger, metropolitan hospitals should aim to have a 5-6 member decontamination team trained and available on a 24/7 basis. Smaller, more rural hospitals should aim to have a 2 person team available at all times. (Hick et al, n.d.)

☐ Does your facility use a specific algorithm or trigger to determine how many decontamination team members to deploy for a given incident?

☐ Has your hospital devoted at least one Full Time Employee (FTE) to oversee the planning aspects of facility-based decontamination and/or response to hazardous materials/CBRNE events?

☐ Has your facility designated one or more Points of Contact (POCs) to coordinate the delivery and/or set up of supplemental decontamination resources such as CHEMPACK, decontamination teams, mobile decontamination units, etc.?

☐ Does your facility's decontamination plan designate one or more non-clinical decontamination team members to oversee the bagging, sealing, and preserving of decontaminated patient belongings?

☐ Does your facility's decontamination plan designate specialists or supplemental personnel such as mental health professionals, interpreters, and respiratory therapists to assist with the decontamination response?

Training and Exercise

☐ Have a sufficient number of hospital personnel with the potential to identify contaminated patients on a 24/7 basis received **OSHA HAZWOPER Hazardous Materials Awareness-Level Training[1]?**

- ☐ Are all personnel provided with the opportunity to either receive ongoing training or attend an annual refresher training in order to maintain proficiency?

☐ Have a sufficient number of hospital decontamination zone (warm zone) personnel required for a 24/7 response received at least eight hours of **OSHA HAZWOPER Hazardous Materials Operations-Level Training[2]?**

- ☐ Are all personnel provided with the opportunity to either receive ongoing training or attend an annual refresher training in order to maintain proficiency?

☐ Has your facility's Decontamination Team Leader received at least 24 content hours of **OSHA HAZWOPER Hazardous Materials Technician-Level Training[3]?**

- ☐ Are all personnel provided with the opportunity to either receive ongoing training or attend an annual refresher training in order to maintain proficiency?

☐ Have all decontamination team personnel assigned to work in the hospital decontamination zone received training on proper use of the hospital's PPE and other decontamination equipment?

As a provision in OSHA 1910.120(q)(4): "Skilled support personnel" are those who are not originally designated to serve on the decontamination team but may be called upon during a decontamination response to provide ancillary or emergency services (e.g. specialized medical procedures, utility connections, etc.) within the hospital decontamination zone. (Hick et al, n.d.)

Does your facility's decontamination plan include just-in-time training material for "skilled support personnel" [4], inclusive of at least the following?

- ☐ Nature of the contaminant
- ☐ Anticipated duties
- ☐ Appropriate use of PPE (assuming medical clearance and fit-testing has occurred)
- ☐ Other health and safety precautions

☐ Does your facility's decontamination plan provide measures to support Just-in-Time skilled support personnel with trained, supervisory decontamination team personnel?

Are all clinical Emergency Department personnel trained to recognize the signs and symptoms of exposure to the following chemical agents?

- ☐ Nerve agents
- ☐ Vesicants/Blister agents
- ☐ Cyanides
- ☐ Pulmonary/Choking agents

☐ Are all clinical Emergency Department personnel trained to implement facility infection control and isolation procedures in order to effectively respond to a biological mass casualty incident?

☐ Is at least one clinical Emergency Department staff member available on a 24/7 basis who understands the basics of radiation contamination and is trained to use a radiation survey meter?

The U.S. Department of Health and Human Services' Radiation Emergency Medical Management has developed a training video on use of dosimeters to screen for radiation. The video, "How to Use Hand-Held Radiation Survey Equipment", along with other resources, is available at:

http://www.remm.nlm.gov/surveymetervideo.htm

Does your facility conduct at least one annual decontamination drill/exercise that tests the following?

- ☐ Ability and time needed to set up the decontamination/shower system
- ☐ Functionality of water system hookups, pressure, and temperature
- ☐ Functionality of lighting and other decontamination system equipment/resources
- ☐ Ability of staff to don, doff, and simulate decontamination procedures while suited in PPE
- ☐ Approximate patient throughput/capacity
- ☐ Incident-specific communication/coordination with local response partners

☐ Are front line personnel trained to use tools such as the R.A.I.N. Acronym to assist in recognizing and handling potentially contaminated patients?

REFERENCES

1. Occupational Health and Safety Administration. OSHA Best Practices for Hospital-Based First Receivers of Victims from Mass Casualty Incidents Involving the Release of Hazardous Substances. (January 2005). 29.
2. OSHA Best Practices, 25.
3. OSHA Hazwoper Standard 29 CFR 1910.120 (q)(6)(ii).
4. Hick et al. Establishing and training healthcare facility decontamination teams. (n.d.). 4.

Decontamination Response

Alert and Notification

Upon receiving initial notification of an incident potentially requiring patient decontamination, what type of information does your plan instruct staff to collect?

- ☐ Type and nature of the incident
- ☐ Contact information of the notifying entity (name, phone number, email address)
- ☐ Approximate number and ages of victims
- ☐ Victim signs and symptoms
- ☐ Nature/degree of victim injury
- ☐ Type of chemical or other agent involved
- ☐ Extent of victim decontamination occurring in the field
- ☐ Approximate time of EMS arrival, if applicable
- ☐ Expected number of self-presenting patients
- ☐ Other:

☐ Does your facility have a method of obtaining immediate access to expertise regarding the potential hazard and response required?

☐ Does your plan specify a protocol for incident confirmation and corresponding reassessment procedures in the event that initial notification comes from victims, bystanders, or another informal source?

Which of the following means of communication does your facility use to internally notify staff of decontamination plan activation?

- ☐ Cellular phones
- ☐ Landline phones
- ☐ Pagers
- ☐ Mass alerting system

- ☐ Email and hospital intranet system
- ☐ Two-way radios
- ☐ Overhead broadcasting system
- ☐ Fax
- ☐ Runners/verbal instruction
- ☐ Other: _____

☐ Does your plan specify a protocol for communicating incident updates to actively mobilized decontamination team members?

☐ Is a hospital Public Information Officer (PIO) available on a 24/7 basis to manage requests for information from the media?

☐ Does your facility have a process to initiate and sustain scene-to-hospital communication in order to obtain information regarding the contaminant and approximate number of casualties?

☐ Does your facility have a means of participating in timely, region-wide, interagency communication in the event of a mass-casualty incident involving patient decontamination?

☐ Does your facility operate on an interoperable radio frequency/channel dedicated for interagency communication during mass casualty incidents?

☐ Has your facility identified an information resource center (such as CHEMTREC[5]) that could be contacted to provide on-demand, expert guidance regarding the properties of chemical, biological, and/or radiological agents?

☐ Has your facility identified an information resource center (such as Poison Control) that could potentially be contacted to provide guidance regarding definitive care procedures?

CHEMTREC is a no-fee, 24/7/365 emergency on-call resource providing information and assistance regarding hazardous materials incidents. Additional information can be accessed at:

http://www.chemtrec.com

Security and Access Control

☐ Have all security personnel with the potential to encounter incoming, potentially contaminated patients been trained and equipped with PPE?

Which of the following security/access control measures are specifically addressed in your facility's decontamination plan?

- ☐ Preliminary and ongoing priority actions for hospital security personnel
- ☐ Method of securing the Emergency Department and/or all other hospital access points that contaminated patients may use
- ☐ Crowd containment procedures
- ☐ Protocol for directing and controlling traffic into and around the hospital campus
- ☐ Whether patient discharge/egress routes will be separate from patient access routes
- ☐ Parking arrangements for a large number of vehicles
- ☐ Protocol for management of contaminated vehicles
- ☐ Method of identifying hospital personnel
- ☐ Method of providing hospital personnel with a separate entrance to the facility
- ☐ Process for maintaining chain of custody of patient belongings

☐ Does your facility have a mechanism for separating contaminated patients from uncontaminated patients and visitors who arrive for care?

How does your facility prevent unauthorized patient/visitor access to the Emergency Department and other entrance points during a decontamination response?

- ☐ Staging of staffed security guards at doors/entrances
- ☐ Use of barriers/blockades
- ☐ Securing/locking hospital entryways
- ☐ Use of keycard systems
- ☐ Other:

Which of the following supplies does your facility stage in easily accessible locations in order to support security/access control procedures during a decontamination response?

- ☐ Traffic cones
- ☐ Barrier tape
- ☐ Rope
- ☐ Traffic control vests
- ☐ Bullhorns or whistles
- ☐ Megaphones
- ☐ Two-way radios
- ☐ Other:

☐ Has your facility established Memorandums of Understanding (MOUs) or made other arrangements with local law enforcement agencies to provide support with traffic and/or crowd control procedures during decontamination response?

Personal Protective Equipment (PPE)

Which of the following OSHA-recommended Level C Personal Protective Equipment (PPE) [6] does your facility maintain in appropriate quantities to protect all responding decontamination team personnel against unknown hazards?

- ☐ Hooded, NIOSH-approved Powered Air-Purifying Respirators (PAPRs) with a 1,000 fold protection factor
- ☐ NIOSH-approved 99.97% high efficiency particulate air (HEPA) filters
  - ☐ Organic vapor cartridges
  - ☐ CBRNE cartridges
- ☐ A chemically protective suit that is tested for [7]:
  - ☐ Resistance to tears
  - ☐ Resistance to liquid and blood-borne pathogens
  - ☐ Performance in cold weather
  - ☐ Evaporative heat transfer
  - ☐ Bursting strength
  - ☐ Seam and closure strength

- ☐ Double-layer of gloves made of two different materials
- ☐ Chemically-protective and water-repellant boots, a minimum of 200 m (8 inches) in height, made out of a similar material as the gloves selected

☐ Does your facility's plan call for the use 2-3 inch tape to cover all open/exposed areas of protective suiting?

☐ As specified in the **OSHA Standard 29 CFR 1910.134** [8] or comparable state plan standard, are all PAPRs and/or other types of respiratory protection designated for use by decontamination team personnel outlined in a formal written respiratory protection program?

☐ Does your facility maintain an inventory of fully charged, routinely tested PAPR batteries?

☐ Does your facility pre-assemble and label decontamination team PPE in easily accessible containers?

☐ Does your facility maintain a separate cache of PPE that is designated for staff training purposes only?

- ☐ Is the equipment in this cache clearly labeled as training material and stored separately from response PPE?

☐ Has your facility established MOUs or made other arrangements with PPE distributors/manufacturers to ensure quick access to additional resources?

Staff Safety/Medical Monitoring

☐ Has your facility appointed at least two clinical personnel to conduct medical monitoring of suited decontamination team personnel?

Which of the following do clinical personnel responsible for medical monitoring routinely assess and document for each suited decontamination team member:

- ☐ Vital signs inclusive of temperature, blood pressure, pulse, respirations
- ☐ Weight
- ☐ List of current medications
- ☐ Basic medical history (chronic and/or recent illnesses, current symptoms)
- ☐ Absence of any upper respiratory tract infection, chronic obstructive pulmonary disease, sinusitis, or gastrointestinal illness
- ☐ Mental status, noting presence of fatigue, stress, and/or psychological distress
- ☐ Other:

☐ Do these clinical personnel perform medical monitoring of suited decontamination response personnel before and immediately following each work shift?

☐ Has your facility appointed at least one non-clinical decontamination team member to assist decontamination response personnel don and doff PPE?

☐ Do decontamination team personnel follow an established PPE donning/doffing sequence?

☐ Have maximum shift durations been pre-determined for all decontamination team personnel?

☐ Does your facility specify maximum in-suit operation time?

- ☐ Does this time change with evolving conditions such as heat stress, level of PPE required, etc.?

How does your facility track and document the shift duration of decontamination team members?

- ☐ Time-in-PPE written on the back of team member's suit
- ☐ Log sheets/White boards
- ☐ Timers
- ☐ One or more staff members assigned to monitor

☐ Has your facility made arrangements for a decontamination team rest/rehydration area that is within close proximity to, yet out of immediate sight of the decontamination zone?

☐ How do decontamination personnel communicate with each other when suited in PPE?

- ☐ Temple-transducer headset radios, worn under PAPR hoods
- ☐ Hand held radios
- ☐ Pre-established safety hand signals
- ☐ Whiteboards
- ☐ Signs/flashcards
- ☐ Other:

Which of the following medical countermeasures does your facility maintain onsite to treat personnel against CBRNE agents:

Chemical Agents:

- ☐ Mark 1 kits (Atropine and Pralidoxime in dual-dose injections)
- ☐ DuoDote Auto-Injectors (Atropine and Pralidoxime in a single-dose injection)

Biological Agents:

- ☐ Ciprofloxacin
- ☐ Doxycycline

Radiological Agents:

- ☐ DPTA
- ☐ Prussian Blue
- ☐ Sodium thiosulfate
- ☐ Other:

☐ Is at least one clinical Emergency Department staff member trained to don PPE and rapidly administer CBRNE medical countermeasures to staff present on a 24/7 basis?

Decontamination Zone (Warm Zone) Setup

Decontamination Zone:

- ☐ Has your facility established decontamination zone locations that will enable response to both small and large-scale hazardous materials incidents?
- ☐ Are hot, warm, and cold zone boundaries clearly demarcated?
- ☐ Is the hospital decontamination zone located in an area that is accessible to fire hydrants/hook-up to a water supply?
- ☐ Does your decontamination plan specify procedures for waste water runoff and collection for disposal in both small and large scale decontamination incidents?
- ☐ Is the hospital decontamination zone set-up in a manner that will accommodate incoming EMS and/or Fire Service equipment and personnel?
- ☐ Does the hospital decontamination zone provide ample space for the movement of multiple casualties?
- ☐ Has your facility designated a 24/7/365 holding area for patients in the event that decontamination must be conducted during periods of cold/severe weather?
- ☐ If your facility has indoor decontamination capacity, is the area separately ventilated from the rest of the hospital?
  - ☐ Does a Certified Industrial Hygienist or Ventilation Engineer conduct an annual inspection of the indoor decontamination facility?

- ☐ Is the hospital decontamination zone that is used in a large scale response located at least 50 yards from the Emergency Department and the rest of the hospital post-decontamination zone [9]?

☐ Has your facility identified an easily accessible staging area for the storage of decontamination equipment?

☐ Has your facility identified a staging area for the arrival of CHEMPACK and other supplemental resources?

☐ Have personnel responsible for the setup of the hospital decontamination zone been trained to establish electrical connections, hot/cold water hook-ups, and outdoor lighting required for use of decontamination systems in a large-scale incident?

☐ Is the hospital decontamination zone clearly denoted on facility planning maps?

☐ How will your facility physically demarcate the hospital decontamination zone:

- ☐ Ropes
- ☐ Engineer tape
- ☐ Caution tape
- ☐ Paint
- ☐ Traffic cones
- ☐ Barriers/blockades/posts
- ☐ Hazard signs
- ☐ Color-coding system
- ☐ Other:

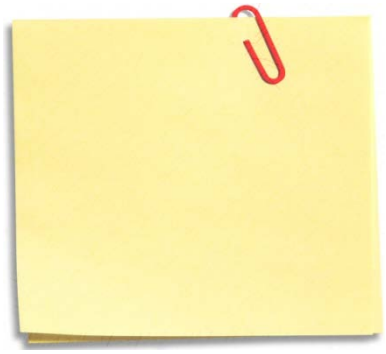
Decontamination System:

Which type of decontamination system does your facility maintain on-site:

- ☐ Fixed (permanent)
- ☐ Portable (temporary)
- ☐ Rapid Access Mass Decontamination (RAM) capability via use of fire hydrants equipped with special adaptors hoses, etc.

☐ If your facility maintains a portable decontamination shower system, can it be fully activated and operational within approximately 10-15 minutes of initial notification [10]?

☐ Is the decontamination system large enough to facilitate decontamination of more than one patient at a time?



Which of the following does your plan call for to support the decontamination system?

- ☐ High capacity, low pressure showerheads or hoses, connected to a high capacity, temperature-controlled water source
- ☐ Capability to heat ambient air
- ☐ Permanent and/or portable lighting fixtures
- ☐ Portable generators, capable of providing power to the area in the event of a loss of power
- ☐ PA speaker system for communication purposes
- ☐ Other:

Decontamination Triage

☐ Has your facility identified a patient reception area located away from the Emergency Department, where incoming patients will be triaged for decontamination?

☐ Does your facility use the *Simple Triage and Rapid Treatment* (START)[11] principle or other process for prioritizing patient decontamination?

☐ Has your facility trained and appointed at least two dedicated, skilled, clinical decontamination team members to perform decontamination triage while wearing PPE?

☐ Are decontamination triage personnel capable of conducting an initial patient assessment at a rate of 30 seconds or less per patient while wearing Level C PPE?

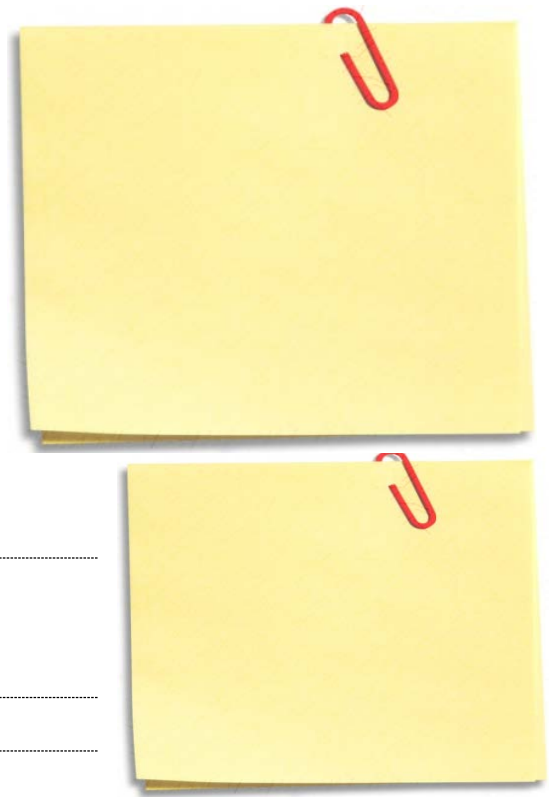
☐ Does your facility use waterproof patient tags (such as SMART [12] Triage Tags) to document each patient's triage status?

☐ Which of the following does your facility implement in order to conduct decontamination triage?

- ☐ An expedited decontamination line for individuals presenting with serious or life-threatening symptoms
- ☐ A separate lane for individuals who arrive by EMS and have been decontaminated at the incident scene
- ☐ Separate triage lanes for ambulatory and non-ambulatory patients
- ☐ Separate triage lane for "worried well" or psychogenic patients
- ☐ Separate triage lane/area for infants and children
- ☐ Separate triage lane/area for those with cognitive impairments
- ☐ Separate area for decontamination of service animals and pets
- ☐ Other:

☐ Does your facility prioritize non-ambulatory patient decontamination?

Patient Decontamination



Which of the following supplies does your facility utilize to perform patient decontamination?

- ☐ Tepid water, capable of being held at a constant temperature
- ☐ Mild liquid soap, with good surfactant [13] properties
- ☐ Sterile saline for wound irrigation purposes
- ☐ Sterile sponges/sterile gauze
- ☐ Soft cloths
- ☐ Long handled brushes with soft bristles
- ☐ Dry decontamination supplies
  - ☐ Brushes
  - ☐ Baking powder, Fuller's earth, diatomaceous earth, etc.
  - ☐ Baby wipes
- ☐ Other:

Which of the following supplies does your facility use to address patients' concerns of privacy during decontamination procedures?

- ☐ Gender-specific decontamination lanes, stalls, or screens (not necessary for smaller children)
- ☐ Patient replacement clothing (ponchos, coveralls, gowns, scrubs, booties)
- ☐ Towels
- ☐ Blankets
- ☐ Other:

Which of the following supplies does your facility use to assist with patient tracking purposes throughout the decontamination process?

- ☐ Waterproof patient triage tags
- ☐ Waterproof wrist bands/bracelets
- ☐ Wax pens and/or waterproof permanent markers
- ☐ Small and large sealable plastic bags (one of each recommended per patient)
- ☐ Waterproof labels to affix to bagged patient belongings
- ☐ Biohazard bags and/or large sealable drums for storage and/or disposal of patient belongings
- ☐ Polaroid camera with film, digital camera, or smartphone with photo capability
- ☐ Other:

How do decontamination team personnel provide instruction to patients regarding decontamination procedures?

- ☐ Pictorial/illustrated signage
- ☐ Multilingual signage
- ☐ Scripted, looped audio messaging
- ☐ Scripted, looped video messaging
- ☐ Verbal instruction, using megaphones or other amplified device
- ☐ Other:

☐ Does your facility institute minimum/maximum per-patient shower times, scalable to the specific hazard and/or other decontamination considerations?

Which of the following supplies does your facility maintain onsite in order to assist with non-ambulatory patient decontamination procedures?

- ☐ Litter conveyor system/rollers
- ☐ Sawhorses
- ☐ Spine boards/backboards
- ☐ Wheelchairs
- ☐ Backpack sprayers
- ☐ Snub-nosed trauma scissors
- ☐ Plastic chairs
- ☐ Other:

Has your facility developed specific decontamination procedures to address the needs of the following patient populations and scenarios?

- ☐ Individuals with physical and/or cognitive impairments
- ☐ Non-English speaking individuals or Limited English Proficiency (LEP) individuals
- ☐ Individuals with prosthetic devices or other medical aids (e.g. hearing aids)
- ☐ Individual with service animals and/or pets
- ☐ Law enforcement personnel or other individuals carrying weapons
- ☐ "Worried well" Individuals, and those displaying signs of psychological distress
- ☐ Noncompliant Individuals, refusing to disrobe and/or participate in the decontamination process
- ☐ The contaminated deceased

☐ Has your facility developed specific plans and procedures regarding decontamination of infants and small children?

☐ Does your facility maintain a list of items that cannot be decontaminated, such as hearing aids?

☐ Has your facility established a policy for the return of valuables to patients following decontamination?

Which of the following resources does your facility use to perform patient decontamination in instances of extreme cold (temperature of 35 degrees Fahrenheit and below)? [14]

- ☐ Decontamination trailers
- ☐ Indoor shower facilities
- ☐ Indoor swimming pools
- ☐ Dry decontamination only
- ☐ Other:

☐ Do decontamination team personnel medically monitor patients before, during, and following the decontamination process?

☐ Does your plan specify how patients will be inspected for thorough decontamination prior to leaving the hospital decontamination zone?

☐ In a small-scale incident, is your facility able to decontaminate the resulting number of patients per hour, using the algorithm below?

Annual Number of ED Visits/1000 = Patient per Hour Capacity [15]

☐ In a large-scale incident, is your facility capable of decontaminating approximately 12 patients per showerhead, per hour? [16]

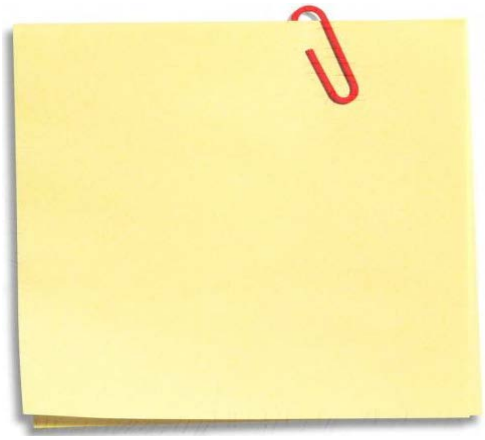
REFERENCES

5. CHEMTREC. Emergency Responders. (2013).
6. OSHA Best Practices. 13-19
7. Burdge, G. Summary of NFPA 1994 Protective Ensembles for First Responders to CBRN Terrorism Incidents, 2007 Edition. (2007).
8. OSHA Regulations, Standards 29-CFR. Respiratory Protection.
9. Ramesh, A.C and Kumar, S. Triage, monitoring, and treatment of mass casualty events involving chemical, biological, radiological, or nuclear agents. (2010).
10. OSHA Best Practices, A-25.
11. Ramesh and Kumar, 3.
12. TSG Associates. Smart Tag. (2013).
13. OSHA Best Practices, A-29.
14. Capitol Region Metropolitan Medical Response System. Rapid access mass decontamination protocol. (2003).
15. Capitol Region Metropolitan Medical Response System, 13.
16. Agency for Healthcare Research and Quality and The Children's Hospital Boston. Decontamination of Children. (2005).

This page intentionally left blank

Decontamination Recovery

Has your facility appointed at least one dedicated, skilled decontamination team member to perform and/or oversee contracted vendor technical decontamination of the following?



- ☐ Suited decontamination team personnel
- ☐ Decontamination equipment
- ☐ Hospital decontamination zone /warm zone
- ☐ Contaminated vehicles

☐ Has your facility established a MOA/MOU or other agreement with a local hazardous waste company or municipal wastewater treatment facility to provide assistance with waste and waste water removal following a decontamination incident?

☐ Has your facility developed discharge plans/follow-up procedures for decontaminated patients?

☐ Does your facility follow an established process for returning all decontamination equipment and supplies to a centralized location?

☐ Does your facility have a method of determining whether equipment used in conjunction with decontamination operations is able to be decontaminated and reused?

☐ Does your facility have a process for timely replacement of disposed-of decontamination equipment and resources?

☐ Does your facility's decontamination plan demobilize resources and personnel by priority levels or phases?

☐ Does your facility have a method of determining the approximate time it will take to fully restore decontamination capability following a decontamination response?

☐ Does your plan specify procedures for storage and analysis of collected patient belongings in the event of a suspected terrorist or intentional hazardous material release?

An intentional hazardous materials release is considered a criminal offense and requires investigation by law enforcement personnel. (OSHA, 2005)

☐ Does your facility provide post-event counseling and/or other mental health services for staff involved in the decontamination response?

☐ Does your plan specify whether patients will be billed for decontamination services in both small and large-scale incidents?

☐ For potential reimbursement purposes, does your facility utilize a cost-tracking system to document all expenses associated with the decontamination response?

☐ Does your facility conduct a hotwash following decontamination demobilization in order to capture key response actions, forming the basis of an Improvement Plan?

☐ Does your facility follow an established process for timely implementation of recommendations/lessons learned from either real-world decontamination events or simulated decontaminated exercises?

☐ Does your facility have a method of sharing lessons learned from decontamination exercises and real world events with community partners?

Appendices

Appendix A: Planning Matrices

Appendix B: Acronym List

Appendix C: List of References

Appendix A: Planning Matrices

Figure 1. Hospital Decontamination Planning Matrix

The following matrix provides an overview of essential decontamination planning considerations regarding collaboration with local response agencies. Select the boxes that are applicable to your facility.

HOSPITAL DECONTAMINATION PLANNING MATRIX

	FIRE SERVICES	EMS	LAW ENFORCEMENT	PUBLIC HEATLH	EMERGENCY MANAGEMENT	OTHER: _____
OBJECTIVE:						
Does your facility work collaboratively with a Planning Point of Contact (POC) from the agency, at least twice per year?	☐	☐	☐	☐	☐	☐
Is a representative from the agency routinely present at Local Emergency Planning Committee (LEPC) meetings?	☐	☐	☐	☐	☐	☐
Does your facility have contact information for at least one POC from the agency that can be reached on a 24/7 basis?	☐	☐	☐	☐	☐	☐
Is your facility able to initiate and sustain redundant, two-way communication with the agency during an incident?	☐	☐	☐	☐	☐	☐
Does your facility conduct training and exericses focused on or inclusive of hospital decontamination operations with the agency at least once annually?	☐	☐	☐	☐	☐	☐
Has your facility established MOUs/MOAs with the agency to provide assistance with decontamination operations?	☐	☐	☐	☐	☐	☐

Figure 2. Hospital Decontamination Team Matrix

The following matrices provide an overview of essential decontamination team planning considerations. Select the boxes that are applicable to your facility.

DECONTAMINATION TEAM PERSONNEL CONSIDERATIONS

	ED PHYSICIANS	ED NURSES	ED NURSING ASSISTANTS	SECURITY	MAINTENANCE/ FACILITIES	ENVIRONMENTAL HEALTH	RECORD KEEPER
Which positions are represented on your hospital's decontamination team?	☐	☐	☐	☐	☐	☐	☐
Which positions are taffed on a 24/7 basis?	☐	☐	☐	☐	☐	☐	☐
Does your plan include up-to-date contact information for each staff member assigned to the position?	☐	☐	☐	☐	☐	☐	☐
Which positions require use of PPE?	☐	☐	☐	☐	☐	☐	☐
Which positions have received training on PPE?	☐	☐	☐	☐	☐	☐	☐
Which positions have received medical clearance to use PPE?	☐	☐	☐	☐	☐	☐	☐

OSHA HAZWOPER HAZARDOUS MATERIALS TRAINING

	ED PHYSICIANS	ED NURSES	ED NURSING ASSISTANTS	SECURITY	MAINTENANCE/ FACILITIES	ENVIRONMENTAL HEALTH	RECORD KEEPER
OSHA HAZWOPER TRAINING:							
Which positions have received **Hazwoper Awareness-Level Training**?	☐	☐	☐	☐	☐	☐	☐
Number of trained staff:							
Which positions have received **Hazwoper Operations-Level Training**?	☐	☐	☐	☐	☐	☐	☐
Number of trained staff:							
Which positions have received **Hazwoper Technician-Level Training**?	☐	☐	☐	☐	☐	☐	☐
Number of trained staff:							

DECONTAMINATION TEAM CAPACITY

	ED PHYSICIAN	ED NURSE	ED NURSING ASSISTANT	SECURITY	MAINTENANCE/ FACILITIES	ENVIRONMENTAL HEALTH	RECORD KEEPER
DECONTAMINATION TEAM CAPACITY:							
Which position(s) have the capacity to serve as the **Decontamination Team Leader**?	☐	☐	☐	☐	☐	☐	☐
Which position(s) have the capacity to serve as **Decontamination Safety Officers**?	☐	☐	☐	☐	☐	☐	☐
Which positions have the capacity and have received training to perform decontamination triage?	☐	☐	☐	☐	☐	☐	☐
Which positions have the capacity and have received training to conduct medical monitoring of suited decontamination response personnel?	☐	☐	☐	☐	☐	☐	☐
Which positions have the capacity and have been trained to peform **technical decontamination** (decontamination of personnel, equipment, and/or surface areas)?	☐	☐	☐	☐	☐	☐	☐

Appendix B: Acronym List

CBRNE: Chemical, Biological, Radiological, Nuclear, and Explosives

EMS: Emergency Medical Services

EOP: Emergency Operations Plan

HEPA: High Efficiency Particulate Air

HVA: Hazard Vulnerability Analysis

JAS: Job Action Sheets

LEPC: Local Emergency Planning Committee

MOA: Memorandum of Agreement

MOU: Memorandum of Understanding

NIOSH: National Institute for Occupational Safety and Health

OSHA: Occupational Safety and Health Administration

PAPR: Powered Air Purifying Respirator

PIO: Public Information Officer

PPE: Personal Protective Equipment

REPC: Regional Emergency Planning Committee

SLUDGEM: Salivation, Lacrimation, Urination, Defecation, Gastrointestinal upset, Emesis, Miosis

Appendix C: List of References

Agency for Healthcare Research and Quality. (October 2005). Decontamination of Children. Retrieved from http://www.remm.nlm.gov/deconvideo.htm

Agency for Healthcare Research and Quality. (n.d.). Public Health Emergency Preparedness: Chapter 3. Decontamination. Retrieved from http://archive.ahrq.gov/research/devmodels/devmodel3.htm

Braue, E.H., Boardman, C.H., & Hurst, C.G. (n.d.). Decontamination of chemical casualties. Retrieved from http://www.bordeninstitute.army.mil/published_volumes/chemwarfare/Chem-ch16_pg527-558.pdf

Bulson, J.(n.d.) Hospital based special needs patient decontamination: Lessons from the shower. Retrieved from http://www.ehcca.com/presentations/emsummit5/bulson_ms3.pdf

Burdge, G. Summary of NFPA 1994 Protective Ensembles for First Responders to CBRN Terrorism Incidents, 2007 Edition. (2007). Retrieved from http://media.bmt.org/bmt_media/resources/39/NFPA1994.pdf

California Emergency Medical Services Authority. (July 2005). Patient decontamination recommendations for hospitals. Retrieved from http://www.emsa.ca.gov/pubs/pdf/emsa233.pdf

California Emergency Medical Services Authority. (June 2003). Recommendations for hospitals addressing water containment and run off during decontamination operations. Retrieved fromhttp://www.calhospitalprepare.org/post/recommendations-_hospitals-water-containment-and-run-during-decon-operations

Capitol Region Metropolitan Medical Response System. (January 2003). Rapid access mass decontamination protocol. Retrieved from http://www.au.af.mil/au/awc/awcgate/mmrs/mass_decon.pdf

Center for Excellence in Emergency Preparedness. (2009). CBRNE plan checklist. Retrieved from http://www.ceep.ca/publications/tools/cbrneplanchecklist.pdf

Chemical Transportation Emergency Center. (2013). Retrieved from http://www.chemtrec.com/

Chicago Healthcare System Coalition for Planning and Response. (June 21, 2012). Special considerations for hospital decontamination. Retrieved from http://www.ipha.com/Documents/EventAttachments/07172012024937-Special%20Consideration%20for%20Hospital%20Decontamination.pdf

Committee for Disaster Medicine Studies. (September 2007). The terror attacks in Madrid, Spain, 2004. Retrieved from http://www.dhs.vic.gov.au/__data/assets/pdf_file/0004/613777/decon_guidance_for_hospitals.pdf

Continuum Health Partners Center for Bioterrorism Preparedness and Planning. (Draft August 2006). Hospital decontamination of exposed casualties policy and procedure. Retrieved from http://www.nyc.gov/html/doh/downloads/pdf/bhpp/bhpp-focus-hosp-chpprot-decon.pdf

Cosgrove, S.E., Jenckes, M.W., Wilson, L.M., Bass, E.B, & Hsu, E.B. (June 2008). Agency for Healthcare Research and Quality. Tool for evaluating core elements of hospital disaster drills. Retrieved from http://archive.ahrq.gov/prep/drillelements/

Dinsmore, M. Hospital medical decon: mitigating the mandates. Susan B. Allen Memorial Hospital. PowerPoint. (n.d.) Retrieved from http://www.kansastag.gov/AdvHTML_doc_upload/5.%20Medical%20Decontamination--Mitigating%20the%20Mandates.pdf

Florida Division of Emergency Management. (n.d.). Module 4, Unit 1: Decontamination instructor guide. Retrieved from http://www.floridadisaster.org/hazmat/serc/Hazaware/IG%20Mod%204%20U1.pdf

Hick et al. (n.d.) Establishing and training healthcare facility decontamination teams. Retrieved from http://www.health.state.mn.us/oep/healthcare/deconteam.pdf

Institute of Medicine. (1999). Chemical and biological terrorism: Research and development to improve civilian medical response. Retrieved from http://www.nap.edu/openbook.php?record_id=6364&page=100

Koenig, K.L., Boatright, C.J., Hancock, J.A. et al. (2008). Health care facility-based decontamination of victims exposed to chemical, biological, and radiological materials. The American Journal of Emergency Medicine, v.26. Retrieved from http://www.sciencedirect.com/science/article/pii/S0735675707004287

Koenig, K.L. (2003). Strip and shower: The duck and cover for the 21st century. *Annals of Emergency Medicine, Vol. 42: 391-394.* Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/12944892

Massachusetts Hospital Association. (October 3, 2002). Hospital draft checklist for decontamination units. Retrieved from http://www.mhalink.org/Content/ContentFolders/HealthcareIssues2/HospitalPreparedness/HospitalPreparednessAdvisories/2002/PREPAREDNESS4.pdf

National Institute for Occupational Safety and Health. (n.d.). NIOSH-Approved particulate filtering facepiece respirators. Retrieved from http://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/

Occupational Safety and Health Administration. (January 2005). OSHA best practices for hospital- based first receivers of victims from mass casualty incidents involving the release of hazardous substances. Retrieved from http://www.osha.gov/dts/osta/bestpractices/html/hospital_firstreceivers.html

Occupational Safety and Health Administration. Standard 29 CFR 1910.120. Hazardous waste operations and emergency response. Retrieved from http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=9765

Okumura, S. Okumura, T. Ishimatsu, S. et al. (February 17, 2005). Clinical review: Tokyo – protecting the health care worker during a chemical mass casualty event: an important issue of continuing relevance. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/16137390

Okumura, T., Suzuki, K., Fukuda, A. et al. (June 1998). The Tokyo subway sarin attack: disaster management, Part 2: hospital response. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/9660290

Pangi, R. (2002). Consequence management in the 1995 sarin attacks on the Japanese subway system. *Studies in Conflict & Terrorism, Vol 25:* 421-448. Retrieved from http://www.tandfonline.com/doi/abs/10.1080/10576100290101296#preview

Penn, P. Hospital hazardous materials emergency response: the devil is in the details. Environmental Hazards Management Institute. Powerpoint. April 14, 2002. Retrieved from http://www.enmagine.com/index.cfm?Section=1

Pye, S. (n.d.) Mass Casualty Decontamination for Hospitals: Instructor's Guide. Retrieved from http://ems.dhs.lacounty.gov/Disaster/LAInstructorGuideFINAL.pdf

Ramesh, A.C. & Kumar, S. (July-September 2010). Triage, monitoring, and treatment of mass casualty events involving chemical, biological, radiological, or nuclear agents. The Journal of Pharmacy and Bioallied Sciences. Vol.2(3). Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3148628/?tool=pubmed

St. Vincent Healthcare, Mansfield Health Education Center. Hazmat awareness for first receivers. Powerpoint. March 2012. Retrieved from http://www.docslide.com/hazmat-awareness-for-first-receivers/

Saint Barnabas Health Care System. (n.d.). Hospital Decon Operations. Retrieved from http://www.nj-ptc.org/training/materials/SBHCS/HospitalDeconOp.pdf

Stone, F.P. (2007). The "Worried Well" Response to CBRN Events: Analysis and Solutions. Retrieved from http://www.fas.org/irp/threat/cbw/worried.pdf

Taylor, K.M., Balfanz-Vertiz, K., Humrickhouse, R., Jurik, C. Decontamination with at-risk populations: lessons learned. The Internet Journal of Rescue and Disaster Medicine. (2009). Volume 9, No.1. Retrieved from: http://www.ispub.com/journal/the-internet-journal-of-rescue-and-disaster-medicine/volume-9-number-1/decontamination-with-at-risk-populations-lessons-learned.html#sthash.xlu6NVmX.dpbs

TSG Associates. SMART Tag. (2013). Retrieved from http://www.smartmci.com/

U.S. Army Chemical Biological, Radiological and Nuclear School and U.S. Army Edgewood Chemical /Biological Center. (November 2008). Guidelines for mass casualty decontamination during a HAZMAT/Weapon of mass destruction incident, Volume II. Retrieved from http://hps.org/hsc/documents/MassCasualtyDeconGuideUpdateVol2.pdf

U.S. Army Soldier and Biological Chemical Command (SBCCOM). (January 2000). Guidelines for mass casualty decontamination during a terrorist chemical agent incident. Retrieved from http://www.au.af.mil/au/awc/awcgate/army/sbccom_decon.pdf

U.S. Centers for Disease Control and Prevention. National Institute for Occupational Safety and Health. (September 2011). NIOSH-approved particulate filtering facepiece respirators. Retrieved from http://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/

U.S. Department of Energy, Hanford Site. (June 1, 2012). Emergency shower, eyewash, and decontamination facility operation standard. Retrieved from http://www.hanford.gov/tocpmm/files.cfm/PMM_ESHQ-S-STD-19.pdf

U.S. Department of Energy Office of Transportation and Emergency Management. (October 1, 2003). TEPP planning products model procedure for radioactive material or multiple hazardous materials decontamination. Retrieved from http://www.em.doe.gov/PDFs/transPDFs/Decon_Procedure.pdf

U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry. (2001). (Volume II). Managing hazardous materials incidents, hospital emergency departments: A planning guide for the management of contaminated patients. Retrieved from http://www.atsdr.cdc.gov/mhmi/index.asp

U.S. Department of Homeland Security and the U.S. Department of Health and Human Services. (2012). Patient decontamination in a mass chemical exposure incident: National planning guidance for communities.

Victorian Government, Emergency Management Branch. (April 2007). Decontamination guidance for hospitals. Retrieved from http://www.dhs.vic.gov.au/__data/assets/pdf_file/0004/613777/decon_guidance_for_hospitals.pdf

Vogt, B.M. and Sorensen, J.H. (October 2002). How clean is safe? Improving the effectiveness of decontamination of structures and people following chemical and biological incidents. Retrieved from http://emc.ornl.gov/publications/PDF/How_Clean_is_Safe.pdf

Wetter et al. (May 2001). Hospital Preparedness for Victims of chemical or biological terrorism. *American Journal of Public Health, Vol. 91, No. 5.* Retrieved from http://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.91.5.710

End Document