

# **CBRNE PLAN CHECKLIST:**

## **A TEMPLATE FOR HEALTHCARE FACILITIES**

## PREAMBLE

“Disasters and emergencies include a variety of hazardous situations that may occur inside or outside the organization. These include, but are not limited to, fires, natural disasters, biochemical and bomb threats, chemical spills, radiation exposure, threats of personal violence and power failures.” (*CCHSA Standard 5.0*). In addition, new and emerging infections and industrial accidents such as train derailments or explosions/fires at nuclear plants may be threats to health care providers.

Healthcare facilities play a vital role in the response to emergencies. Emergency Preparedness for healthcare facilities includes elements of mitigation, preparedness, response, and recovery. Facility plans should take into account such factors as the appropriateness and adequacy of physical facilities, organizational structures, human resources, and communication systems; and as such, need a tool to assess their readiness.

The purpose of this document is to allow Healthcare Facilities to assess their readiness to deal with disasters. This is not a planning tool per se, but, once the Facility’s plan is in place, it will provide a means to review the plan and identify gaps.

This Checklist makes liberal use of a variety of resources either freely available on the Internet or provided by co-workers. In particular, we have made use of the checklist provided by Denys J. Carrier, RN, Leader, Emergency Preparedness Program, Providence Health Care, BC and that developed by Booz-Allen and Associates for the Agency for Healthcare Research and Quality.

Every facility is different and the nature of threats to specific facilities varies over time. For this reason, the document MUST, to some degree, remain general. Users must refer to their risk-assessment process and the current standards of care. A variety of references are appendices to this document, to be of use to the reader in this regard.

Assessment items should be answered as follows: Y = yes; N = No; N/A = Not applicable; U= Unsure (*for every ‘U’, the Facility must identify someone who will clarify the response*). In some cases numerical information was felt to be more useful.

The majority of the questions are in the Yes/No/Not Applicable (N/A) format. While it is assumed that a ‘yes’ answer means the issue raised by the question has been addressed, the converse is not true. A ‘No’ or ‘N/A’ answer may mean that the Facility has a gap in its readiness or it may be that the answer was a product of an active decision. This document is not meant to be proscriptive but rather one that is thought-provoking and generates discussion.

The term ‘Healthcare Facility’ or ‘facility’ is used throughout this document. The definition of facilities, clinics, rehabilitation or extended care facilities, retirement homes, long-term care home, and other healthcare institutions may vary from region to region, and it is the intention of the authors of this document to provide a reference tool that can be generalized across multiple platforms of healthcare delivery. The primary target audience is traditional facilities with in-patient units, particularly those that have an Emergency Department; as such, not all sections of this document are applicable to all facilities. An institution may choose not to address a specific issue in their disaster plan because their risk analysis reveals a very low occurrence or a negative impact, or other

considerations. Planners in each facility should decide which aspects of their disaster plan they choose to prepare for and those they choose to assess using this tool.

The checklist is designed to provide facilities with questions that stimulate assessment and dialogue with key stakeholders within the facilities as well as at the local level and beyond. The checklist divides the assessment into sections, however many of them overlap and may be grouped in differing manners according to the organization and operation of individual facilities. Although comprehensive, the facility assessment will undoubtedly identify new questions and considerations.

There are episodic redundancies in this questionnaire. These redundancies are intentional so as to: (a) provide for internal validation; and (b) provide for sections of the tool to stand-alone and be given to separate individuals within the facility's organization. Redundant questions are cross-referenced in the document.

This document has 24 sections, each of which may be filled in by a different individual, however, one lead person should be designated to provide overall responsibility for ensuring that all information is complete. The completion of this form and the development and implementation of a full plan is a facility-wide activity, requiring co-operation from many areas or departments.

The term 'Incident Command System' is used referring to Incident Management Systems (IMS), Incident Command Systems (ICS), Hospital Emergency Incident Command System (HEICS), and other similar terms. For more information please see References.

At various points in this document references are made to other documents from the library of the Centre for Excellence in Emergency Preparedness (CEEP). Those documents that are ready, are available free of charge on the CEEP website ([www.ceep.ca](http://www.ceep.ca)).

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The Process of developing this document was as follows:

1. Needs assessment/identifying the absence of a Canadian Healthcare Facility tool for readiness (2003).
2. Literature search (2004).
3. First draft (2004).
4. First draft reviewed and compilation of feedback (2004).
5. Second literature review and extraction of relevant documents (2005).
6. Panel review of literature search results and of edited initial tool (2006).
7. Compilation of panel's feedback and final draft (2006).
8. Final draft review by the panel (2006).
9. Trial of tool at test sites (PENDING).
10. Incorporation of feedback from test sites (PENDING).
11. Release of final document (PENDING).

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The *National Framework for Health Emergency Management* (NFHEM) was prepared by F/P/T Network on Emergency Preparedness and Response with the support of the Centre for Emergency Preparedness and Response (Health Canada / Public Health Agency of Canada) in 2004. Its goal is "to set principles and elements of a comprehensive integrated framework that will provide a context for leadership and coordination through Federal/Provincial/Territorial emergency management systems in the health and social services sectors" (F/P/T Network 2004 p.3). This General Readiness Checklist is part of a larger strategy to develop emergency management tools and processes consistent with the NFHEM's principles and provides a means to achieving several of its elements.

**This checklist is an appendix to the  
General Readiness Checklist  
and should only be used  
in conjunction with that document.**

In making CBRNE preparations, facilities must consider key assumptions regarding communication, resources, and victims. When developing plans, facilities should anticipate:

- \* Victims will arrive with little or no warning to the facility.
- \* Information regarding the hazardous agent(s) will not be available immediately.
- \* A large number of victims will be self-referred (as many as 80 percent of the total number of victims).
- \* Victims will not necessarily have been decontaminated prior to arriving at the facility.
- \* A high percentage of people arriving at the facility will have little or no actual exposure and this eventuality should be considered in decontamination plans.
- \* Most victims will go to the healthcare facility closest to the site where the emergency occurred.
- \* Victims will attempt to use other entrances in addition to the emergency department (ED).

**CBRNE PLAN CHECKLIST**  
**A Template for**  
**Healthcare Facilities**

**Name of Healthcare Facility:** \_\_\_\_\_

**Facility Address:** \_\_\_\_\_

**Name and Title of Person(s) Completing Form:** \_\_\_\_\_

**Contact Information:**

**Phone:** ( ) \_\_\_\_\_

**Pager:** ( ) \_\_\_\_\_

**Fax:** ( ) \_\_\_\_\_

**Email:** \_\_\_\_\_

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## 1. DEFINITIONS

**CBRNE:** A chemical, biological, radiological, nuclear or explosive event.

**Dirty Bomb: A mix of explosives, such as dynamite, with radioactive powder or pellets.**  
When the dynamite or other explosives are set off, the blast carries radioactive material into the surrounding area. (<http://www.bt.cdc.gov/radiation/dirtybombs.asp>)

**Incident Command System (ICS) or Incident Management System (IMS):** A command and control system used by military, fire fighters and other agencies to manage critical incidents such as large fires or natural disasters.

**Hospital Emergency Incident Command System:** The ICS as adapted to hospitals. This is sometimes abbreviated HEICS.

**Nuclear Incident:** An incident whereby individuals are exposed to or contaminated with nuclear material. Also used to describe the detonation of a nuclear device.

**Radiological Incident:** an incident whereby individuals are exposed to ionizing radiation, not exposed to or contaminated with nuclear material itself.

**Surge Capacity:** The ability to quickly and with little warning, increase the capacity to respond to an incident; in the case of healthcare facilities this refers to increase in capacity to care for patients.

**Internal Disaster:** An event occurring within a facility affecting the ability of the facility to provide care to its usual capacity.

**External Disaster:** An event occurring outside the facility that overwhelms the capacity of the facility to safely care for victims.

**Person Responsible for Completing Section 2:** \_\_\_\_\_

<b>2. Foundational Considerations:</b> (see CEEP general readiness & risk assessment documents)	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>U</b>	<b>Required Action (s)</b>	<b>Person Responsible</b>
2.1 Has a risk assessment been performed that specifically considers CBRNE incidents?						
2.2 Does the facility disaster plan include specific consideration of CBRNE incidents?						
2.3 Is there a CBRNE planning committee?						
2.4 Is there currently a collaborative relationship with the local Emergency Response Agencies and Public Health regarding CBRNE incidents?						
2.5 Does the plan detail actions to be taken for both internal and external disasters?						
2.6 Does the CBRNE plan detail how it links with local Emergency Response Agencies?						
2.7 Is the plan widely distributed and readily available throughout the hospital/healthcare facility? (Distribution should include hard copies of the plan or an automated method that is readily available to all staff members)						
2.8 Does your hospital's CBRNE preparedness plan address requesting appropriate local, provincial, or federal resources for assistance?						
2.9 Does the plan specify the number and location of isolation or protective environment rooms?						
2.9.1 Are these locations clearly identified in a document readily available to the disaster coordinator or command team?						
2.9.2 Are isolation facilities monitored to ensure adequate airflow?						

**Person Responsible for Completing Section 3:** \_\_\_\_\_

<b>3. Planning</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>U</b>	<b>Required Action (s)</b>	<b>Person Responsible</b>
3.1 Does your facility have a coordinator designated to oversee all CBRNE preparedness efforts?						
3.2 Does your facility have a medical director who oversees all training and preparedness efforts as it relates to your facility's CBRNE preparedness efforts?						

**Person Responsible for Completing Section 4:** \_\_\_\_\_

<b>4. Training and Awareness</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>U</b>	<b>Required Action (s)</b>	<b>Person Responsible</b>
4.1 Does every person working in your facility know how to identify signs and symptoms of exposure to CBRNE agents?						
4.2 Does every person working in the facility know whom to contact internally upon identification of exposure/symptoms related to CBRNE agents?						
4.3 Is there specific ongoing training for personnel assigned to the facility's CBRN response?						
4.4 Does your facility plan include identification of roles and responsibilities specific to a CBRN event, to include:						
Security						
Identification, chain of custody, and storage of contaminated items						
Analysis of contaminated specimens						
Transport of contaminated items						
Transport of contaminated deceased persons						
Triage personnel						
Decontamination team						
Patient care teams						

<b>4. Training and Awareness... <i>continued</i></b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>U</b>	<b>Required Action (s)</b>	<b>Person Responsible</b>
4.5 Does your facility's plan identify positions/individuals to fill roles/responsibilities required for CBRNE response?						
4.6 Does every person who is part of the CBRNE response team know where the equipment is/how to access it?						
4.7 Have all members of the CBRNE response team including Emergency Department (ED) personnel been trained in CBRNE Preparedness?						

**Person Responsible for Completing Section 5:** \_\_\_\_\_

<b>5. Procedures</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>U</b>	<b>Required Action (s)</b>	<b>Person Responsible</b>
5.1 Has a method of communication been developed which allows staff to communicate easily with each other with and without PPE?						
5.2 Has a method of communication been developed that will allow staff to communicate while wearing PPE with a large number of people simultaneously?						
5.3 Does the facility currently have a baseline established for numbers of patients seen in the facility Emergency Department, outpatient clinics, or via direct admission, stratified according to clinical symptoms?						
5.4 Is there a process available to gather and evaluate clinical information when conducting surveillance for disease secondary to a CBRNE emergency?						
5.5 Does your agency have an internal Point of Contact (POC) for <b>CBRNE</b> incidents?						

<b>5. Procedures... <i>continued</i></b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>U</b>	<b>Required Action (s)</b>	<b>Person Responsible</b>
5.6 If the <b>CBRNE</b> event was <b>criminal</b> , is there a procedure in place to collect and protect evidence?						
5.7 Does your agency have procedures to receive patients who are exposed to CBRNE agents and require medical care?						
5.8 Is there a plan to segregate/isolate disaster victims from the rest of the hospital if those victims are contaminated? (e.g. hazardous materials?)						
5.9 Is there a separate entry to the Emergency Department for contaminated patients, if necessary?						
5.10 Is there a dedicated facility, area, or portable device for decontamination, if necessary?						
5.11 Has staff assigned to prepare the facility/portable device for use been trained on how to do this?						
5.12 Does the dedicated decontamination area have a "hot" and "cold" zone?						
5.13 Is there a hot and cold water supply to the decontamination area?						
5.14 Is the decontamination area separate (ie. outside) from the Emergency Department?						
5.15 Can water run-off from the decontamination area be contained?						
5.16 Is the necessary equipment readily available to the ED staff?						
5.17 Can the ventilation system in the ED be isolated from the rest of the facility, if necessary?						
5.18 Does the facility have the ability to shut down air intakes?						

<b>5. Procedures... <i>continued</i></b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>U</b>	<b>Required Action (s)</b>	<b>Person Responsible</b>
5.19 Have arrangements been made for police or other appropriate support in maintaining order in the vicinity of the facility, including control of vehicular and pedestrian traffic adjacent to the decontamination site?						
5.20 Are there standard orders developed for various defined CBRNE events?						
5.21 Does your agency have access to dosage requirements for antidotes and therapies for patients (adults and pediatric) who are exposed to CBRNE agents?						
5.22 Is the necessary drug administering equipment available for the on-hand quantities of antidotes and therapies?						
5.23 Does your agency have a staff member designated to accept deliveries from the National Pharmaceutical Stockpile in the event of a CBRNE event?						
5.24 Has your facility ascertained the regulatory requirements for Personal Protective Equipment (PPE) for employees in the workplace in this type of incident?						
5.25 Have PPE requirements been identified for each group above?						

**Person Responsible for Completing Section 6:** \_\_\_\_\_

<b>6. Module for Preparing for a Biological Incident</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>U</b>	<b>Required Action (s)</b>	<b>Person Responsible</b>
6.1 In addition to Class A agents (see appendix A), the range of significant, reportable infections varies with time. It is important to maintain current knowledge of relevant infections. For all Class A Agents as a minimum does your hospital have policies and procedures for:						
Clinical Presentation						
Laboratory Diagnosis						
Infection Control Procedures						
Treatment						
Prophylaxis						
Vaccination, and						
Public Health Requirements						
6.2 Do you train staff in these Policies and Procedures?						
6.3 Have all clinical staff and physicians been trained to recognize the signs and symptoms of Class A agents?						
6.4 In the event of a Class A agent being identified, is there a process to advise Public Health Authorities?						
6.5 Are the facility's policies and procedures congruent with the local Public Health Unit and mutually supportive?						
6.6 Is there a process to rapidly follow up on all abnormal or unusual laboratory results from samples collected in your facility?						
6.7 Is there a process for timely notification of infection control?						
6.8 Does your facility's emergency preparedness plan address stockpiling medications necessary for response to biologic incidents?						

<b>6. Module for Preparing for a Biological Incident... <i>continued</i></b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>U</b>	<b>Required Action (s)</b>	<b>Person Responsible</b>
6.9 Does your facility's emergency preparedness plan address stockpiling supplies?						
6.10 Does your healthcare facility currently maintain a separate stockpile of medications to treat or prophylax facility staff in the event of a biological incident?						
6.11 Does your facility have a plan to access the following government stockpiles if required:						
Municipal						
Regional						
Provincial/National						
6.12 Which of the following medications are stockpiled in the facility?						
Doxycycline						
Tetracycline						
Ciprofloxacin						
Levofloxacin						
Oseltamivir						
Zanamivir						
Penicillin						
6.13 Does your facility have a plan to access C. botulinum antitoxin?						
6.14 Does your healthcare facility vaccinate staff/Physicians annually against Influenza?						
6.15 Does your facility have a plan for mass vaccination of Staff and Physicians if required after a biologic incident?						
6.16 Does your facility have a plan for mass prophylaxis of Staff and Physicians if required after a biologic incident?						

<b>6. Module for Preparing for a Biological Incident... <i>continued</i></b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>U</b>	<b>Required Action (s)</b>	<b>Person Responsible</b>
6.17 Does your facility have an internal surveillance system in place that identifies abnormal patterns of specific syndromes, including:						
Gastrointestinal illness						
Influenza-like illness monitoring						
Febrile Respiratory illness						
Increased use of specific antibiotics						
6.18 Can your Emergency Department identify trends and changes in frequency of specific discharge diagnoses?						
6.19 Is there a policy that identifies when the Emergency Department should notify any/all of the following in the event of unusual clusters of illnesses or unusual presentations:						
Hospital infection control personnel						
Other designated in-house personnel						
Local Public Health Authority						
Provincial Health Agency						
6. 20 Does your facility have a plan to test for biologic agents 24 hours a day/7 days per week if needed?						

6. Module for Preparing for a Biological Incident... <i>continued</i>	Yes	No	N/A	U	Required Action (s)	Person Responsible
6.21 Does your laboratory have the ability to process, or appropriately refer specimens from patients suspected to have any of the following:						
Anthrax						
Plague						
Smallpox						
Brucellosis						
Botulism						
Ricin toxicity						
Tularemia						
SARS						
Viral Hemorrhagic fever						
Unknown agent						
6.22 The highest Biosafety Level capacity of your in-patient laboratory is <b>(Yes or No)</b> :						
BSL 1						
BSL 2						
BLS 3						
6.23 Does your facility have protocols and procedures for processing of potentially highly infectious specimens, which address the following:						
Collection						
Labelling						
Chain of custody						
Secure Storage						
Processing						
Transportation to a secondary laboratory						
Referral to Public Health Laboratory						
Use of Personal Protective Clothing						
Contacting local law enforcement						
Decontamination of biohazardous waste						
Safe disposal of waste						

<b>6. Module for Preparing for a Biological Incident... <i>continued</i></b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>U</b>	<b>Required Action (s)</b>	<b>Person Responsible</b>
6. 24 Does your healthcare facility's emergency preparedness plan address mass casualty incidents involving biological agents?						
6.25 Does your facility have a plan to provide pharmacy services 24 hours a day/7 days per week if needed?						
6.26 Does your pharmacy have a protocol to <u>identify</u> increased consumption of:						
Antidiarrheals						
Antibiotics						
Antivirals						
6.27 Does your pharmacy have a protocol to <u>report</u> increased consumption of:						
Antidiarrheals						
Antibiotics						
Antivirals						
6.28 Does your facility have an ongoing fit testing program for those staff who require respiratory protection?						
6.29 Does your facility have a supply of PPE on site and available, including:						
Head covering						
Gowns						
Aprons						
Gloves						
Eye protection (goggles, face shields)						
Respiratory protection (Masks, Respirators [N95 or equivalent])						
<i>(as per the guidelines of your local Health Authority)</i>						

<b>6. Module for Preparing for a Biological Incident... <i>continued</i></b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>U</b>	<b>Required Action (s)</b>	<b>Person Responsible</b>
6.30 Does your facility have a plan to obtain additional PPE if required, including:						
Head covering						
Gowns						
Aprons						
Gloves						
Eye protection (goggles, face shields)						
Respiratory protection (Masks, Respirators [N95 or equivalent])						
<i>(as per the guidelines of your local Health Authority)</i>						
6.31 Does the facility have a policy & procedure for managing deceased persons who have died from biologic agents?						

**Person Responsible for Completing Section 7:** \_\_\_\_\_

<b>7. Module for Preparing for a Chemical Incident</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>U</b>	<b>Required Action (s)</b>	<b>Person Responsible</b>
7.1 Does your hospital have policies and procedures which address the Clinical Presentation, Laboratory Diagnosis, Infection Control Procedures, Treatment, Prophylaxis, Vaccination, and Public Health Requirements for each of the following agents:						
Nerve gases (e.g Sarin, Tabun, Soman, VX)						
Pesticides						
Blood agent (e.g Cyanides)						
Vesicants (e.g Sulfur Mustard, Lewisite, Phosgene)						
Oxime???						
Pulmonary Agents (e.g chlorine, phosgene, diphosgene, ammonia)						
Riot Control Agents (e.g Tear gas, vomiting gas, pepper spray)						
7.2 Does your facility have immediate access to the following antidotes/prophylactics as required in the context of the hazard assessment:						
Atropine						
Pralidoxime (2 PAM) or equivalent						
Diazepam						
Tropicamide (Mydracyl)						
Pyridostigmine (for pre-treatment)						
Cyanide antidote kit (including amyl nitrite, sodium nitrite, and sodium thiosulfate)						
Dimercaprol (antidote to Lewisite)						
Acetylcysteine aerosol (antidote against phosgene; effective in animal studies)						

7. Module for Preparing for a Chemical Incident... <i>continued</i>	Yes	No	N/A	U	Required Action (s)	Person Responsible
7.3 Does your facility have access to a stockpile of the following antidotes/prophylactics as required in the context of the hazard assessment? :						
Atropine						
Pralidoxime (2 PAM) or equivalent						
Diazepam						
Tropicamide (Mydracil)						
Pyridostigmine (for pre-treatment)						
Cyanide antidote kit (including amyl nitrite, sodium nitrite, and sodium thiosulfate)						
Dimercaprol (antidote to Lewisite)						
Acetylcysteine aerosol (antidote against phosgene; effective in animal studies)						
7.4 Is there a defined mechanism for rapid access to the stockpile?						
7.5 Is there provision for tracking antidote inventories?						
7.6 Is there provision for maintaining antidote inventories?						
7.7 Is there a plan for containment and remediation, in the event of contamination reaching designated clean areas?						
7.8 Does the facility have equipment for monitoring chemical contamination?						
7.9 Is there a specific policy that addresses the issue of decontaminating pregnant patients?						
7.10 Are there sufficient chemically resistant/vapour-tight plastic bags and containers for waste?						

7. Module for Preparing for a Chemical Incident... <i>continued</i>	Yes	No	N/A	U	Required Action (s)	Person Responsible
7.11 Does the facility have the appropriate respirators on site subject to regulatory requirements, including:						
Supplied air respirators (full mask and airline from hospital air system)						
Powered air chemical cartridge air purifying respirators						
Native pressure chemical cartridge air purifying respirators						
7.12 Does the facility have the appropriate protective clothing on site based on risk assessment and regulatory requirements?						
7.13 Has staff been trained in the use of this equipment?						
7.14 Does the facility have a plan to respond to an internal chemical release?						
7.15 Does the plan involve an internal response team?						
7.16 Does the facility have a procedure for accessing assistance from trained responders, e.g hazmat team with higher level PPE, if an internal event occurs?						
7.17 Is there a respiratory protection program in place?						
7.18 Does this program include regular respirator fit testing if required?						
7.19 Is there provision for tracking PPE inventories?						
7.20 Is required size distribution regularly updated based on personnel requirements?						
7.21 Does the facility have a procedure for handling chemically contaminated deceased persons?						

**Person Responsible for Completing Section 8:** \_\_\_\_\_

<b>8. Module for a Radiological or Nuclear Incident</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>U</b>	<b>Required Action (s)</b>	<b>Person Responsible</b>
8.1 Does the facility have a Radiation Safety officer?						
8.2 Does the facility have a plan for an Internal Radiation incident?						
8.3 Does the facility have a plan to manage victims from a radiological event?						
8.4 Does your plan include identification of irradiated victims vs. patients contaminated with a radioactive material?						
8.5 Does your facility have a process to provide emergency resuscitative care to potentially radiologically contaminated patients?						
8.6 Is there an acute care evaluation and treatment protocol for radiation victims?						
8.7 Is there a specific policy that excludes pregnant women from decontaminating/treating potentially radiologically contaminated patients?						
8.8 Does the facility have a radiation detection instrumentation to measure radioactive contamination on a patient?						
8.9 Do a sufficient number of staff know how to use the instruments and interpret the data?						
8.10 Is there a plan to document the radiation monitoring results for patients?						
8.11 Are there sufficient dosimeters on-site for those staff responsible for decontaminating patients and caring for patients who may have ingested or inhaled radioactive materials?						
8.12 Is there a program for monitoring the dosimeters?						
8.13 Is there a contact list for all facility radiation experts, including Radiation Safety Officer, Nuclear Medicine Specialist, and Radiation Oncology Staff, and Radiologists?						

<b>8. Module for a Radiological or Nuclear Incident... <i>continued</i></b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>U</b>	<b>Required Action (s)</b>	<b>Person Responsible</b>
8.14 Is there a contact list for radiation experts external to the facility? Including:						
Regional nuclear facility						
Regional designated radiation treatment facilities						
Relevant government organizations						
Local universities						
8.15 Are these contact lists readily available to the front-line receivers?						
8.16 Does the facility have the appropriate protective clothing on site based on risk assessment and regulatory requirements? e.g.						
Tyvek suits						
Head covering						
Respiratory protection						
Eye protections						
Boots/shoe covers						
Plastic gloves						
8.17 Are there sufficient anti-emetics available (based on risk assessment?) including:						
Ondansetron						
Granisetron						
Other 5HT3 Receptor Antagonists						
8.18 Are there sufficient anti-diarrheal agents available (based on risk assessment?) including:						
Loperamide HCl						
Diphenoxylate/atropine						
8.19 Is there sufficient Potassium iodide (KI) available for immediate administration to large numbers of individuals?						
8.20 Are there sufficient supplies to maintain fluid and electrolyte balance for severely affected victims?						

8. Module for a Radiological or Nuclear Incident... <i>continued</i>	Yes	No	N/A	U	Required Action (s)	Person Responsible
8.21 Are there sufficient plastic bags and containers for waste?						
8.22 Is there an area/room that is lead lined or concrete,that could be used for storing contaminated clothing and waste?						
8.23 Are there sufficient urine containers to collect 24 hour urines for measurement of radioactivity?						
8.24 Are there sufficient containers to collect feces for measurement of radioactivity?						
8.25 Has arrangement been made for safe transportation of potentially contaminated specimens within the facility?						
8.26 Is there an arrangement with appropriate laboratory facilities for specimen analysis?						
8.27 Has a method of communication been developed which allows staff to communicate easily with each other with and without PPE?						
8.28 Is there a provision for mitigation, in the event of a breach in the decontamination process?						

**Appendix A:****Categories of Biological Agents as designated by the US CDC and the Public Health Agency of Canada:****1. Category A Diseases/Agents**

The public health system and primary healthcare providers must be prepared to address various biological agents, including pathogens that are rarely seen in North America. High-priority agents include organisms that pose a risk to national security because they

- can be easily disseminated or transmitted from person to person;
- result in high mortality rates and have the potential for major public health impact;
- might cause public panic and social disruption; and
- require special action for public health preparedness.

**Category A agents include:**

- Anthrax
- Plague
- Smallpox
- Botulism
- Viral hemorrhagic fevers (filoviruses [e.g., Ebola, Marburg] and arenaviruses [e.g., Lassa, Machupo])
- Tularemia

**2. Category B Diseases/Agents**

Second highest priority agents include those that

- are moderately easy to disseminate;
- result in moderate morbidity rates and low mortality rates; and
- require specific enhancements of CDC's diagnostic capacity and enhanced disease surveillance.

**These include:**

- Brucellosis (*Brucella species*)
- *Epsilon toxin of Clostridium perfringens*
- *Food safety threats* (e.g., *Salmonella species*, *Escherichia coli O157:H7*, *Shigella*)
- *Glanders* (*Burkholderia mallei*)
- *Melioidosis* (*Burkholderia pseudomallei*)
- *Psittacosis* (*Chlamydia psittaci*)
- *Q fever* (*Coxiella burnetii*)
- *Ricin toxin from Ricinus communis* (*castor beans*)
- *Staphylococcal enterotoxin B*
- *Typhus fever* (*Rickettsia prowazekii*)
- *Viral encephalitis* (*alphaviruses* [e.g., *Venezuelan equine encephalitis*, *eastern equine encephalitis*, *western equine encephalitis*])
- *Water safety threats* (e.g., *Vibrio cholerae*, *Cryptosporidium parvum*)

### **3. Category C Diseases/Agents**

Third highest priority agents include emerging pathogens that could be engineered for mass dissemination in the future because of

- availability;
- ease of production and dissemination; and
- potential for high morbidity and mortality rates and major health impact.

These include:

- Emerging infectious diseases such as Nipah virus and hantavirus

## **REFERENCES**

- 1) OSHA BEST PRACTICES For HOSPITAL-BASED FIRST RECEIVERS OF VICTIMS From Mass Casualty Incidents Involving The Release Of Hazardous Substances - January 2005  
<[http://www.osha.gov/dts/osta/bestpractices/html/hospital\\_firstreceivers.html#appa10](http://www.osha.gov/dts/osta/bestpractices/html/hospital_firstreceivers.html#appa10)> Accessed 21/1/06
- 2) Centers for Disease Control and Prevention. Local Public Health Preparedness and Response Capacity Inventory. December 2002; Version 1.1: Focus Area A: Preparedness Planning and Readiness Assessment, Part I: Strategic Direction, Assessment, and Coordination
- 3) Bioterrorism and Other Public Health Emergencies - Tools and Models for Planning and Preparedness Evaluation of Hospital Disaster Drills: A Module-Based Approach Prepared for: Agency for Healthcare Research and Quality U.S. Department of Health and Human Services 540 Gaither Rd. Rockville, MD 20850 [www.ahrq.gov](http://www.ahrq.gov)  
<http://www.ahrq.gov/> AHRQ Publication No. 04-0032 April 2004
- 4) Auf der Heide, 2002; Barbera and Macintyre, 2003; Vogt, 2002; Okumura et al., 1996. as referenced in OSHA BEST PRACTICES For HOSPITAL-BASED FIRST RECEIVERS OF VICTIMS From Mass Casualty Incidents Involving The Release Of Hazardous Substances - January 2005  
<[http://www.osha.gov/dts/osta/bestpractices/html/hospital\\_firstreceivers.html#appa10](http://www.osha.gov/dts/osta/bestpractices/html/hospital_firstreceivers.html#appa10)> (Accessed 21/1/06)
- 5) Bioterrorism Emergency Planning and Preparedness Questionnaire for Healthcare Facilities, developed by Booz-Allen & Hamilton under US Department of health and Human Services Agency for Healthcare Research and Quality Contract No. 290-00-0019 ("Understanding Needs for Health System Preparedness and Capacity")  
<<http://www.ahrq.gov/about/cpcr/bioterr.pdf>> (accessed 14/3/06)

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