Population Monitoring During Radiological Emergencies

What you need to know about setting up a Community Reception Center (CRC)

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Sponsored by
These projects are supported under a cooperative agreement from the Centers for Disease Control and Prevention (CDC). Grant number 3U90TP2242249-05W1. The contents of this program do not necessarily represent the official views of the CDC.

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Outline

- Background
- What is population monitoring
- Key planning principles
- What is a Community Reception Center (CRC)
- What do you need to know to set up a CRC
- Slide show - CRC during the Empire 09 Radiological Exercise CRC

Potential Nuclear/Radiological Incidents

- Transportation
- Power plant
- Weapons
- Laboratory
- Industrial
- Medical
- Space
- Terrorism

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Potential Nuclear/Radiological Incidents

- Weapons
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Types of Events to Consider when Planning a Response to a Radiological Emergency

- RDD (Radiological Dispersal Device) - This is also known as a “Dirty Bomb”
Types of Events to Consider when Planning a Response to a Radiological Emergency

- **RED** (Radiation Emission Device) – a weapon of terror whereby a high-intensity radiation source is placed in a public area to expose those individuals in close proximity.

- **IND** (Improvised Nuclear Device) - a makeshift form of a nuclear weapon.

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**Learning From Past Experiences**

**Example: Goiânia, Brazil**

September 1987

Junkyard worker opened canisters revealing blue powder

137Cs - 1375 Curies

obsolete radiotherapy machine

Abandoned cancer clinic

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**Goiânia Radiological Accident**

- 249 exposed
- 54 hospitalized
- Eight with ARS
- Four people died
- 3,500 m³ of waste

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**Goiânia Public Health Impacts**

- 249 exposed
- 54 hospitalized
- Eight with ARS
- Four people died
- 3,500 m³ of waste
Goiânia Public Health Impacts

- 112,000 people monitored (>10% of total population)
  - Over a two-month period
  - Psychosocial Impacts

What is Population Monitoring?

Is the process of identifying, screening, and monitoring people for exposure to radiation or contamination from radioactive materials.

Population Monitoring

It's a process. It begins soon after a radiation incident is reported and continues until all potentially affected people have been monitored and evaluated for:

- Needed medical treatment
- The presence of radioactive contamination on the body or clothing
- The intake of radioactive materials into the body
- The removal of external or internal contamination (decontamination)
- The radiation dose received and the resulting health risk from the exposure
- Long-term health effects

Why do we need to plan for population monitoring?

- It is an essential element that is often overlooked in emergency response planning for radiological or nuclear terrorism incidents.
- Many critical components should be put in place in the first few hours after the incident, before the arrival of state and/or federal assets that might be used to assist in the monitoring efforts

Key Planning Principles

- The first priority is to save lives: respond to and treat the injured first
- Contamination with radioactive materials is not immediately life-threatening
- Initial population monitoring activities should focus on preventing acute radiation health effects
- Scalability and flexibility are an important part of the planning process
- Fear of radiation is high, perhaps higher than with other agents of terrorism

Key Planning Principles

- A key resource for implementing population monitoring is the state's lead agency for radiation control (NYSDOH)
- First responders and local officials may not be aware initially that a radiation incident has occurred
- Radiological decontamination recommendations differ from those for chemical agents
- Law enforcement agencies will be involved in response to a radiological terrorism incident
Objectives of Population Monitoring

- Identify individuals whose health is in immediate danger
- Identify people who may need medical treatment
- Recommend (and to the extent possible, facilitate) practical steps to minimize risk of future health consequences (e.g., cancer)
- Register potentially affected populations for long-term health monitoring

But why do we need to be prepared to do Population Monitoring?

- Prevent area hospitals from becoming overburdened
- To address concerns from individuals that were near the event but probably not affected
- To address concerns from individuals that were near the event but probably not affected

Roles and Responsibilities of Federal, State, and Local Public Health Agencies

- Protecting the public’s health and safety
- Monitoring workers’ health and safety
- Ensuring provision of health and medical services
- Ensuring safe shelters for the population
- Ensuring the safety of food and water supplies
- Coordinating sampling and laboratory analysis of biological and environmental samples
- Conducting field investigations

Roles and Responsibilities of Federal, State, and Local Public Health Agencies

- Monitoring people who may have been contaminated with radioactive materials or exposed to radiation (population monitoring)
- Conducting or assisting in decontamination
- Developing criteria for entry and operations within the incident site
- Recommending disease prevention and control measures

Roles of HHS and CDC
(to support the affected state or states)

- Coordinating public health and medical information
- Convening subject matter experts
- Assessing medical and public health status and needs
- Assisting in the establishment of a registry for potentially exposed individuals
Roles of HHS and CDC
(to support the affected state or states)
- Performing dose reconstruction and long-term monitoring of populations
- Evaluating requests for deployment of the Strategic National Stockpile
- Sending representatives to serve as members of the federal Advisory Team for Environment, Food, and Health

What is a Community Reception Center (CRC)?
Is a location designated to assess people for exposure, contamination, and the need for decontamination or medical follow-up

Staff at the CRCs should be able to:
- Support contamination detection through beta/gamma portal monitors (if appropriate)
- Support general contamination monitoring via hand-held instruments
- Field questions and address public/media concerns
- Provide information and give instructions, as applicable (multiple languages, if needed)

Factors to Consider When Planning for a CRC
- Size of community
- Available suitable locations
- Decontamination capabilities
- Accommodating special populations
- Biomonitoring
- Pets
- Cultural/religion/language

Factors to consider to select a site for a Community Reception Center
- Size
- Location
- Access and egress control
- Adequate restroom facilities
- Shower (decontamination) rooms or facilities
- Environmental control (against excessive heat or cold)

Considerations for setting up a CRC
- Appropriate facility for the size of the community
- Appropriate radiation survey methodology for the type of incident
- Availability of clothing services (for people who are asked to remove and bag their contaminated outer garments)
Considerations for setting up a CRC

- Availability of transportation services
- Washing/decontamination facilities
- Form to collect basic and critical information such as name, address, phone and contact information as well as incident specific information and need for bioassay and follow-up

Can you think of some sites in your community that meet the criteria?

Planning for these community reception centers can use much of what is already included in your community public health emergency response plans!

Some of these locations have already been identified during the planning for a Pandemic Influenza (Pan Flu) Response:

- Modular Emergency Medical System (MEMS)
- Alternate Care Centers (ACS)
- Neighborhood Emergency Help Centers (NEHC)
- Points of Dispensing (PODs)

Considerations for setting up a CRC

- Availability of clinician(s), nurse(s) and mental health provider(s)
- Availability of law enforcement support
Build on Existing Resources

Make sure you have:
• Sufficient staff,
• Technical staff competent in the use of radiological survey equipment available for monitoring
• One or more clinicians to assess and refer individuals who need medical follow-up or administer pharmaceutical countermeasures

Where to find technical staff competent in the use of radiological survey equipment
• Staff from NYSDOH Bureau of Environmental Radiation Protection
• Staff from Office of Fire Prevention and Control (HAZMAT)
• Local HAZMAT
• Some County DOH have staff with radiation expertise
• State Radiation Volunteers (through the Medical Reserve Corp or similar)
• Etc.

Be prepared for 24-hour operations
(at least the first few days)

Provide a Registration Area
• To manage the registration process and provide support to volunteers and data collectors
• Register and log in those who arrive
• Issue wrist bands or other identification tags
• Control crowds
• Collect vital exposure and health information related to the incident and enter it into a computer database
• Distribute patient information sheets

In Summary
• Plan to screen many people
• Facilities already identified for pan-flu can be used for this purpose
• Use Community groups already identified to provide assistance
• Health physics/radiological support available from NYSDOH

In Summary
• Need people with various types of expertise
• Need to have a plan for storage/delivery of supplies on a short-notice
• Have fact sheets/information sheets prepared in advance
Setting up a Community Reception Center During the Empire 09 Radiological Exercise

Community Reception Center (CRC) Layout
A Bird's Eye View

“Victims” Waiting to be Screened

“Victims” waiting for initial screening survey
Whole body screening using portal monitors (training prior to start-up)

Following Initial Screening – “No need for Decontamination” Path

Initial contamination survey

Initial contamination survey

Instructions for clothing removal and bagging

Changing/Shower Area

Clean clothes provided after shower

Post-decontamination Survey
Area for Data Forms and Information Fact Sheets—accessed after screening and/or decontamination

Medical screening station

“Victims” completing survey forms after screening and/or decontamination

Form drop-off station

Area designated to handle “Special needs population”, pets and people with medical issues

Area designated to handle “Special needs population”, pets and people with medical issues
“Special Needs” victim with hearing-guide dog

Health Commissioner participates in post-decontamination screening

International Visitors Volunteered as “Victims”

Briefing Prior to Start of Operation

Briefing on use of hand-held equipment

“Just in Time” training for CRC staff
Health and Safety Officer advising staff

Medical Reserve Corp (MRC) Volunteers “Ready to Start”

Albany and Rensselaer County Health Department BT-Coordinators

For Additional Information...

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