The Need to Prepare for Population Monitoring

Kevin Yeskey, M.D.
Principal Deputy Assistant Secretary for Preparedness and Response
Office of the Assistant Secretary for Preparedness and Response

March 12, 2019
Disclosure

The views and opinions expressed in this presentation are strictly that of the presenter and are not necessarily the views of ASPR, the Department of Health and Human Services, or the United States Government. No endorsement of products is implied. I have no conflicts of interest.
Public Health and Medical Services

Under the National Response Framework, HHS is the coordinating agency for ESF #8 – Public Health and Medical Services.

We often focus on the response functions following a major disaster...

- Assessment of public health/medical needs
- Medical care personnel
- Medical equipment and supplies
- Patient movement
- Hospital care
- Outpatient services
- Victim decontamination
- Safety and security of drugs, biologics, and medical devices
- Blood and blood products
- Food safety and security
- Agriculture safety and security
ESF #8 Functions

- Worker health and safety
- Public health surveillance
- All-hazard consultation, technical assistance, and support
- Mental health and substance abuse care
- Public health and medical information
- Vector control
- Potable water/wastewater and solid waste disposal
- Victim identification/mortuary services
- Veterinary services

… but, this case may be different.

“HHS provides the following capabilities in support of a nuclear/radiological incident:

… Manages long-term public monitoring and supports follow-on personal data collection, collecting and processing of blood samples and bodily fluids/matter samples, and advice concerning medical assessment and triage of victims. Tracks patient treatment and long-term health effects. …”
Where are the Injured?

Light Damage Zone (1 to 3 miles)
- Dead: 6%
- Expectant: 5%
- Recover: 37%
- Uninjured: 57%

Moderate Damage Zone (1/2 to 1 mile)
- Dead: 14%
- Expectant: 29%
- Recover: 37%
- Uninjured: 14%

Severe Damage Zone (< 0.8km)
- Dead: 0%
- Expectant: 0%
- Recover: 0%
- Uninjured: 100%

Total Population
- Light Damage Zone: 500,000
- Moderate Damage Zone: 200,000
- Severe Damage Zone: 150,000

we can save 26,000 people with medical assistance
Where are the Impacted or Exposed?
# Health Effects from Radiation Exposure

<table>
<thead>
<tr>
<th>Short-Term(^a) Whole Body Dose (rad)/(Gy)</th>
<th>Acute Death(^b) From Radiation Without Medical Treatment (%)</th>
<th>Acute Death From Radiation With Medical Treatment (%)</th>
<th>Acute Symptoms (Nausea and Vomiting Within Four Hours) (%)</th>
<th>Excess Lifetime Risk of Fatal Cancer Due to Short-Term Radiation Exposure(^c) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (0.01)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.06</td>
</tr>
<tr>
<td>10 (0.1)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.6</td>
</tr>
<tr>
<td>25 (0.25)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1.8</td>
</tr>
<tr>
<td>50(^d) (0.5)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>100 (1)</td>
<td>&lt;5</td>
<td>0</td>
<td>5-30</td>
<td>8</td>
</tr>
<tr>
<td>150 (1.5)</td>
<td>&lt;5</td>
<td>&lt;5</td>
<td>40</td>
<td>9</td>
</tr>
<tr>
<td>200 (2)</td>
<td>5</td>
<td>&lt;5</td>
<td>60</td>
<td>16</td>
</tr>
<tr>
<td>300 (3)</td>
<td>30-50</td>
<td>15-30</td>
<td>75</td>
<td>24(^e)</td>
</tr>
<tr>
<td>600 (6)</td>
<td>95-100</td>
<td>50</td>
<td>100</td>
<td>&gt;40(^e)</td>
</tr>
<tr>
<td>1,000 (10)</td>
<td>100</td>
<td>&gt;90</td>
<td>100</td>
<td>&gt;50(^e)</td>
</tr>
</tbody>
</table>

(adapted from AFRRI, 2003; Goans and Wasalenko, 2005; IAEA, 1998; ICRP, 1991; Mettler and Upton, 1995)
Partnerships are Essential
Radiation Response Volunteer Corps (RRVC)

- ASPR
- Medical Reserve Corps
- CDC Grant
- CRCPD
- Jurisdictions

RRVC Toolkit
Radiation Response Volunteer Corps (RRVC)

Building capacity for population monitoring

What is the radiation response volunteer corps?
Find out how radiation volunteers function to augment local resources for population monitoring in a radiation emergency

Recruitment and Training
Access practical recruitment strategies and download customizable training modules

Tools and Resources
Links to Federal guidance documents, standards, and radiological websites

Templates and Forms
Standard Operating Guidance, Community Reception Center, Homeland Security Exercise Evaluation Program, and more

Acknowledgement, citation and/or disclaimer. The work products available through the RRVC Toolkit were developed as part of the grant deliverables for a Centers for Disease Control and Prevention (CDC) grant program administered through the Conference of Radiation Control Program Directors (CRCPD). Links to external sites are provided for informational purposes. The user is responsible for verification of accuracy and proper citation of resources used from this toolkit. Other legal language as necessary for liability.
Realities Relevant to Long-term Health Monitoring
We Have Been Here Before

• There are precedents in prior major responses and toxic exposures requiring long-term monitoring
  ▪ **World Trade Center** – 2001 – many programs initially, now CDC/NIOSH WTC Health Program – 74,107 responders, 18,921 survivors
  ▪ **Deepwater Horizon** – 2010 – NIOSH – Voluntary Roster of Deepwater Horizon Response Workers – 55,512 workers
  ▪ Other examples
    ✓ **Asbestos workers** – long-term monitoring required by regulation for increased lifetime cancer risk
    ✓ **Coal miners** – 1970 – the “Black Lung” Program – DOL, NIOSH, MSHA – $47 billion
Hospital Preparedness Program
Health Care Coalitions (HCCs)

• HPP grants to support individual healthcare and response organizations working in a defined geographic location to prepare for and respond to disasters and emergencies
  ▪ Hospitals, EMS providers, emergency management organizations, public health agencies, and more
  ▪ 300+ Coalitions, Regions, Networks, Districts, Areas, etc. nationwide

• 2017 – 2022 Healthcare Preparedness and Response Capabilities – Capability 2. Health Care and Medical Response Coordination; Objective 2: Utilize Information Sharing Procedures and Platforms

• HCC’s could provide an integrated basis to capture and share HIPPA-compliant patient information for long-term

• Significant challenges in interoperability in various patient record systems
Regional Disaster Health Response System (RDHRS)

• RDHRS draws on the existing U.S. healthcare infrastructure, pulling together private sector and federal resources and builds on local health care coalitions and trauma centers, creating a tiered system of disaster care.

• Will integrate local medical response capabilities with emergency medical services, burn centers, pediatric hospitals, labs, and outpatient services, to meet the overwhelming health care needs created by disasters.

• ASPR has funded 2 pilots which are underway. “Information sharing” is a chief enabler.
Radiation Injury Treatment Network (RITN)

- Collaborative MOU with ASPR since 2007 to provide care and expertise for radiation and bone marrow toxic injury.
- 80 Cancer centers, blood donor centers and cord blood banks.
- RITN is a demonstration of a Center of Excellence under the RDHRS
  - 90% HPP and 77% NDMS

- National Marrow Donor Program (NMDP) – large database for HLA-typing and information sharing across all BMT facilities.

- NMDP – also tracks recipients long-term for outcomes.
Considerations for the Way Forward

• We must leverage and enhance existing …
  ▪ **Capabilities**, as discussed above – NIOSH, RRVC, etc.
  ▪ **Organizations** - HCCs, RDHRS, etc.
  ▪ **Programs** – e.g. BARDA and FDA monitor for MCM adverse health effects and efficacy

• As a National preparedness effort, clarify **roles and responsibilities** at all levels.

• **Authorities** must be specifically designated to support the implementation of the system from the field through the IT and program levels.

• **Appropriations**? We must accept that this function will be generational and will likely impact the entire Nation.

• **Infrastructure** – this must be a fully public-private collaboration that will span public health and healthcare from the local level through to the Federal level.