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**OFFICE OF
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**LOCAL PUBLIC HEALTH
PREPAREDNESS FOR
RADIOLOGICAL AND
NUCLEAR INCIDENTS**



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WHY WE DID THIS STUDY

According to the 2010 National Security Strategy, the American people face no greater or more urgent danger than a terrorist attack with a nuclear weapon. If State and local public health officials do not plan for such incidents, local public health departments will not be adequately prepared to quickly respond and protect the public. Although the Nuclear Regulatory Commission requires nuclear powerplants to have emergency plans for their facilities and the immediate surrounding area, no Federal entity requires States or localities to have public health emergency plans for nonpowerplant radiological and/or nuclear (RN) incidents, such as a terrorist attack.

HOW WE DID THIS STUDY

Using information requests and conducting document reviews, we determined the extent to which 40 localities from the Nation's most populous metropolitan statistical areas (referred to as the "selected localities") used local risk assessments to prioritize planning for RN incidents. We also determined whether the selected localities planned for RN incidents by engaging in five RN-specific public health planning areas; coordinating with Federal, State, and local partners; and using Federal guidance sources.

WHAT WE FOUND

Thirty-six of the forty selected localities had conducted risk assessments, but RN-specific public health planning did not always correspond to localities' prioritized threats. For example, of the four localities that categorized RN incidents as a high-priority threat, only one had RN-specific plans. Twenty-one of the forty selected localities conducted RN-specific public health planning in at least one of the five public health areas of responsibility we examined, but planning in the five areas varied. Localities also varied in the extent to which they coordinated with Federal, State, and local partners for RN-specific public health planning. Most State and local officials were aware of Federal guidance sources available to aid RN-specific public health planning, but requested more comprehensive and specific planning tools.

WHAT WE RECOMMEND

Our report made four recommendations to the Centers for Disease Control and Prevention (CDC). First, work with selected localities to more closely align their incident-specific planning with risk assessments. Second, provide more specific guidance outlining the public health areas of responsibility to include in RN-incident planning. Third, provide more guidance on coordination with other entities for RN-incident planning. Finally, provide more training to selected localities about the unique aspects of an RN incident not addressed in all-hazards planning. CDC agreed with all four of our recommendations.

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OBJECTIVES

To determine the extent to which selected localities prepared for a public health response to a radiological and/or nuclear (RN) incident by:

1. using their risk assessments to prioritize planning;
2. engaging in planning activities for five public health areas of responsibility;
3. coordinating with Federal, State, and local partners; and
4. using Federal guidance sources.

BACKGROUND

According to the 2010 National Security Strategy, the American people face no greater or more urgent danger than a terrorist attack with a nuclear weapon.¹ An attack, or RN incident, may come in several forms: a “dirty bomb,” detonation of an improvised nuclear device (IND; nuclear weapon), a radioactive source placed in a public place, or contamination of the food and water supply with radioactive materials.^{2, 3}

In March 2011, an earthquake and a tsunami caused the release of radiation from the Fukushima Daiichi nuclear powerplant in Japan. The public health concerns resulting from this incident emphasize the importance of emergency planning for all types of RN incidents.

Without planning for such incidents, including how to monitor radiological contamination, identify and treat contaminated patients, and disseminate critical public health information, public health officials will not be adequately prepared to quickly respond to an RN incident and protect the public. The Department of Homeland Security (DHS), the lead Federal department for emergency preparedness and response, notes that proper planning for RN incidents can save tens of thousands of lives.⁴ DHS also states that while Federal assistance may be needed in an emergency, the initial response will come from the local level.⁵ Therefore, localities need to be prepared to respond quickly to various emergency scenarios.

¹ *National Security Strategy* (May 2010), p. 4. Accessed at http://www.whitehouse.gov/sites/default/files/rss_viewer/national_security_strategy.pdf on October 17, 2011.

² A dirty bomb is an explosive device that uses conventional explosives, such as dynamite, to spread radioactive material into the environment. The Centers for Disease Control and Prevention (CDC), *Types of Radiation Emergencies*. Accessed at <http://www.bt.cdc.gov/radiation/typesofemergencies.asp> on October 17, 2011.

³ A list of acronyms used in this report can be found in Appendix E.

⁴ DHS, *IND Response Strategy* (March 2010), p. 3. Accessed at <http://publicintelligence.info/DHS-INDResponse.pdf> on October 17, 2011.

⁵ DHS, *National Response Framework* (January 2008), which superseded the National Response Plan, 2004. Accessed at <http://www.fema.gov/pdf/emergency/nrf/nrf-core.pdf> on October 17, 2011.

Nuclear Powerplant Incidents Versus Other Types of RN Incidents

In the United States, the Nuclear Regulatory Commission (NRC) regulates all persons and organizations that receive a license to use nuclear materials or operate nuclear facilities.⁶ The NRC requires that nuclear powerplants have emergency plans for their facilities and the area within a 50-mile radius. These emergency plans include coordinating medical and public health support from State and local entities.⁷ However, neither NRC nor any other Federal entity requires States or localities to have public health emergency plans for nonpowerplant RN incidents, such as a terrorist attack with a dirty bomb or an IND.

Emergency planning for nuclear powerplants differs from emergency planning for other types of RN incidents. For example, in a nuclear powerplant incident, there is usually leadtime before radioactive release occurs (e.g., personnel can detect a reactor getting too hot). Further, there are known factors in a nuclear powerplant emergency, such as the type of isotopes involved, the number and identity of people present at the facility, the areas that will likely be affected, and facility personnel awareness of emergency response procedures. Additionally, nuclear powerplants must develop emergency response plans and must exercise these plans with Federal, State, and local authorities once every 2 years.⁸ NRC and the Federal Emergency Management Agency (FEMA) oversee and evaluate these exercises.⁹

A nonpowerplant RN incident is unexpected and almost all circumstances are unknown. For example, the isotope is unknown until samples are collected and analyzed, the population and area affected are initially unknown, and the affected population may not know how to respond. Nuclear powerplant emergency plans do not address these unique circumstances that characterize nonpowerplant RN incidents.

The National Response Framework

In 2003, *Homeland Security Presidential Directive-8* was issued to “strengthen the preparedness of the United States to prevent and respond to threatened or actual domestic terrorist attacks, major disasters, and other

⁶ 10 CFR pts. 1–199.

⁷ NRC, *Fact Sheet on Emergency Planning and Preparedness* (March 2002). Accessed at <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/emer-plan-prep.html> on October 17, 2011.

⁸ NRC, *Fact Sheet on Emergency Planning and Preparedness*, loc. cit.

⁹ NRC, *Frequently Asked Questions About Emergency Preparedness and Response*. Accessed at <http://www.nrc.gov/about-nrc/emerg-preparedness/faq.html#3> on October 17, 2011.

emergencies ...”¹⁰ From this directive, DHS developed planning guidance to assist in preparing the Nation for potential threats. The *National Preparedness Guidelines* provide an overarching guide to national emergency preparedness.¹¹ In addition, the *National Response Framework* (NRF) provides more specific guidance regarding various responsibilities and incident-specific planning. The NRF is designed to be flexible and scalable so that it can be applied to Federal, State, and local planning and to allow coordination among the various levels.¹²

Specifically, the NRF outlines each Federal department’s responsibilities during an incident through its 15 Emergency Support Functions (ESF).¹³ ESF #8 (Public Health and Medical Services) outlines public health roles and responsibilities, ranging from public health and medical needs assessment to mass fatality management.¹⁴ Although HHS’s Office of the Assistant Secretary for Preparedness and Response (ASPR) is designated as the lead Federal agency for ESF #8, the initial public health response will be at the local level, with HHS supporting the local response as needed.¹⁵

The NRF also includes annexes to aid planning for specific types of incidents. The *Nuclear/Radiological Incident Annex* outlines the various roles of the Federal departments and agencies involved in the response to an RN incident.¹⁶ Additionally, the *Nuclear/Radiological Incident Annex* emphasizes that specific planning for an RN incident is necessary to supplement all-hazards planning because of the unique challenges this type of incident poses.

All-Hazards and Risk-Based Planning

Both the *National Preparedness Guidelines* and the NRF support the development of all-hazards emergency response planning.¹⁷ All-hazards

¹⁰ *Homeland Security Presidential Directive/HSPD-8* (December 2003). HSPD-8 was rescinded and replaced by *Presidential Policy Directive/PPD-8: National Preparedness* on March 30, 2011. However, the preparedness guidance from HSPD-8 remained in effect.

¹¹ DHS, *National Preparedness Guidelines* (September 2007). Accessed at http://www.dhs.gov/xlibrary/assets/National_Preparedness_Guidelines.pdf on October 17, 2011.

¹² DHS, *NRF*, loc. cit.

¹³ Section 2801(a) of the Public Health Service Act (PHSA) (42 U.S.C. § 300hh(a)) provides that the Secretary of the Department of Health and Human Services (HHS) lead all Federal public health and medical response to public health emergencies and incidents covered by the National Response Plan or any successor plan. In addition, section 2802(b)(5) of the PHSA (42 U.S.C. § 300hh-1(b)(5)) states that planning should minimize duplication and ensure coordination between Federal, State, local, and tribal governments. These all-hazards planning and response activities must also be consistent with the NRF.

¹⁴ DHS, *National Response Framework: Emergency Support Functions #8 Annex* (January 2008). Accessed at <http://www.fema.gov/pdf/emergency/nrf/nrf-esf-08.pdf> on October 17, 2011.

¹⁵ *Ibid.*

¹⁶ DHS, *Nuclear/Radiological Incident Annex* (June 2008). Accessed at http://www.fema.gov/pdf/emergency/nrf/nrf_nuclearradiologicalincidentannex.pdf on October 17, 2011.

¹⁷ DHS, *National Preparedness Guidelines*, loc. cit.; DHS, *NRF*, loc. cit.

planning focuses on developing certain general emergency response capabilities that can be applied to a variety of emergency scenarios.¹⁸ These capabilities cover broad areas of preparedness, such as mass medical care or emergency public safety, which apply to a variety of incidents.

In addition to supporting all-hazards planning, the *National Preparedness Guidelines* establish a risk-based approach to planning.¹⁹ The *National Preparedness Guidelines* recommend, but do not require, that local incident-specific planning supplement all-hazards planning according to each jurisdiction's risk assessment. This allows emergency planning to be tailored to a jurisdiction's specific needs and identified risks.²⁰ Using risk assessments to determine planning priorities also allows States and localities to focus their limited resources on the risks that are of greatest concern to them instead of incidents that may be low-priority threats to their areas. Once risks are identified, Federal, State, and local governments can use documents such as the NRF's incident-specific annexes to develop plans for these risks.

Public Health Emergency Preparedness Cooperative Agreements

HHS is authorized to award cooperative agreements to States, territories, and selected localities (grantees) to “enhance the security of the United States with respect to public health emergencies.”²¹ Through CDC and pursuant to this authority, HHS awards Public Health Emergency Preparedness (PHEP) cooperative agreement funding. Since 2002, CDC has provided \$7 billion in PHEP funding to 62 grantees to help them prepare for public health emergencies.^{22, 23} In 2010, CDC awarded grantees nearly \$700 million.²⁴

Emergency preparedness efforts conducted through the PHEP cooperative agreement are intended to support national preparedness as outlined in the NRF.²⁵ Specifically, grantees use PHEP funding to support public health

¹⁸ DHS, *National Preparedness Guidelines*, loc. cit.

¹⁹ Ibid.

²⁰ Ibid.

²¹ PHS § 319C-1(a) (42 U.S.C. § 247d-3a(a)).

²² PHEP grantees include all 50 States, 8 territories (Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, Commonwealth of Northern Mariana Islands, Guam, Republic of the Marshall Islands, Republic of Palau, and Federated States of Micronesia), and 4 metropolitan areas (Washington, D.C., Chicago, Los Angeles County, and New York City).

²³ CDC, *Press Release*. Accessed at <http://www.cdc.gov/media/pressrel/2010/r100819c.htm> on October 17, 2011.

²⁴ CDC, *Instructions for Preparing and Submitting Budget Period 10 Extension Funding Applications*.

Accessed at http://www.bt.cdc.gov/cdcpreparedness/coopagreement/10/PHEP%20BP10%20Extension%20Guidance_Instructions_Appendices_05-13-2010_FINAL.pdf on October 17, 2011.

²⁵ PHS § 319C-1(b)(2)(A) (42 U.S.C. § 247d-3a (b)(2)(A)); CDC, *Instructions for Preparing and Submitting Budget Period 10 Extension Funding Applications*, loc. cit.

departments' efforts to build all-hazards capabilities and capacity to effectively respond to the public health consequences of various types of incidents. These incidents can include terrorist threats; infectious disease outbreaks; natural disasters; and biological, chemical, nuclear, and radiological emergencies.²⁶

In March 2011, CDC released new public health preparedness guidance, *Public Health Preparedness Capabilities: National Standards for State and Local Planning*. This guidance outlines how grantees should conduct their public health planning, beginning with a new 5-year PHEP cooperative agreement that became effective in August 2011.²⁷ This new guidance breaks down planning elements by 15 capabilities and identifies planning priorities for each.

Although the 2011 PHEP guidance references resources and training related to specific threats in several of the 15 capabilities, these references are interspersed throughout the document and often refer to other sources for more comprehensive planning information. For example, for each capability, there is a "suggested resources" section that lists various guidance sources grantees can access, such as CDC's Radiation Emergencies Web site. CDC also provides technical guidance resources that can be used to aid specific incident planning that are not contained within this new PHEP capabilities guidance. For example, CDC provides online technical resources that States and localities can access to guide their RN-specific public health planning.

CDC's 2011 PHEP guidance encourages grantees to conduct and use risk assessments to help prioritize their all-hazards public health planning. The guidance discusses risk assessments in terms of identifying public health threats to their jurisdictions, as well as vulnerabilities in their public health planning. For example, the guidance notes that grantees should "identify the potential hazards, vulnerabilities, and risks in the community that relate to the jurisdiction's public health, medical, and mental/behavioral health systems ..."²⁸ The guidance further notes that grantees should consider the impact the identified risks pose to humans through interruption of public

²⁶ CDC, *Funding, Guidance, and Technical Assistance to States, Localities and Territories*. Accessed at <http://www.bt.cdc.gov/cdcpreparedness/coopagreement/index.asp#phep> on October 17, 2011.

²⁷ CDC, *Public Health Preparedness Capabilities: National Standards for State and Local Planning* (March 2011). Accessed at <http://www.cdc.gov/phpr/capabilities/index.htm> on October 17, 2011; *Homeland Security Grants: Public Health Emergency Preparedness (PHEP)*. Accessed at <http://www.homelandsecurityfunding.info/GrantDetails.aspx?Grant=22347> on October 17, 2011.

²⁸ CDC, *Public Health Preparedness Capabilities: National Standards for State and Local Planning*, p. 16.

health services and the impact of the risks to public health, medical, and behavioral health infrastructure.²⁹

However, these all-hazards public health risk assessments do not identify the specific incidents of greatest threat to the jurisdictions (e.g., RN incidents, hurricanes). Identifying the highest priority threats can determine what incident-specific planning the locality should engage in beyond all-hazards planning. However, States and localities are not required to use risk assessments to determine how to plan for their jurisdictions.

Grantee distribution of PHEP funds. Grantees have discretion to distribute PHEP funds in their jurisdictions as they deem appropriate and within PHEP guidance parameters. Differences among States' governmental structures can affect the distribution of these funds and determine whether the responsibility to create public health emergency preparedness plans lies primarily with the State or local public health departments. For example, a centralized State may use PHEP funds at the State level and lead public health emergency preparedness planning efforts, whereas a decentralized State may distribute PHEP funds and public health emergency planning responsibilities to localities. In some cases, the State and locality may share responsibility for public health emergency planning.

Grantee PHEP planning activities. To receive PHEP funding, grantees are required to prepare all-hazards emergency response plans.³⁰ Grantees can, but are not required to, develop incident-specific emergency response plans (e.g., hurricane, biological incident, RN).³¹

The NRF discusses several planning activities that States and localities can engage in to prepare for emergencies.³² These activities include creating written plans, holding training, conducting exercises, and purchasing equipment. Written plans can outline the specific roles and responsibilities of the entities in a locality's jurisdiction, outline the aspects of a response that should be prepared, and establish how to conduct response actions. Training can address response actions that may be unfamiliar to emergency personnel (such as radiation decontamination) or serve as practice for the functions emergency personnel need to perform during an incident response. Exercises can be opportunities to test and improve response plans or to practice the response functions of various personnel. Finally, purchasing

²⁹ Ibid.

³⁰ PHS § 319C-1 (b)(2)(A) (42 U.S.C. §247d-3a(b)(2)(A)).

³¹ In some years, a public health threat may cause CDC to distribute additional funding to grantees to plan for a specific preparedness area. For example, in 2008, CDC distributed additional funding to grantees for planning in light of the impending influenza pandemic.

³² DHS, *National Preparedness Guidelines*, loc. cit.

equipment can help localities ensure that personnel are properly equipped to perform their roles in the event of an incident.

Public Health Responsibilities During an RN Incident

The *Nuclear/Radiological Incident Annex* of the NRF and other HHS documents identify five RN-specific public health areas of responsibility: population monitoring, decontamination, laboratory analysis, fatality management, and communications.³³ Although States and localities are not required to engage in RN planning, if they choose to do so, their activities should include these five areas.³⁴ For each, the Office of Inspector General used the NRF, CDC planning guidance, and input from ASPR and CDC subject matter experts to determine key components within each area. See Appendix C for a detailed list of the key components for each area of responsibility.

Population monitoring. Population monitoring refers to identifying, screening, measuring, and monitoring people for exposure to or contamination from radioactive materials.³⁵ Population monitoring can include establishing community reception centers (CRC) and population registries.³⁶ CRCs are population monitoring sites (e.g., sports arenas, convention centers, and schools) where individuals are assessed for radiation exposure, contamination, and medical followup.³⁷ At CRCs, localities can establish population registries that local public health officials can use to monitor and track affected individuals to study long-term radiological and psychological effects of an RN incident.

Another important aspect of population monitoring is managing the behavioral health effects of an RN incident. CDC recommends that a behavioral health professional be stationed at each CRC and be prepared to treat the psychological effects of an RN incident, such as posttraumatic stress, anxiety, depression, and concerns about exposure.³⁸

Population-monitoring activities are often the beginning stages of other RN-specific public health areas of responsibility (e.g., decontamination, laboratory analysis, and communications). For example, at CRCs, public health officials can decontaminate individuals, collect biological samples for

³³ DHS, *Nuclear/Radiological Incident Annex*, loc. cit.; CDC, *Population Monitoring in Radiation Emergencies: A Guide for State and Local Public Health Planners (Population Monitoring*, August 2007). Accessed at <http://www.bt.cdc.gov/radiation/pdf/population-monitoring-guide.pdf> on October 17, 2011.

³⁴ The response to an RN incident will require other aspects of response outside public health, such as environmental assessments and security concerns.

³⁵ CDC, *Roundtable on Population Monitoring Following a Nuclear/Radiological Incident* (January 2005), p. 4. Accessed at <http://www.bt.cdc.gov/radiation/pdf/population-monitoring-roundtable.pdf> on October 17, 2011.

³⁶ CDC, *Population Monitoring*, p. 18.

³⁷ *Ibid.*, p. 18.

³⁸ *Ibid.*, p. 27.

laboratory analyses, and disseminate information to the public regarding the RN incident.

Decontamination. Decontamination consists of two steps: screening and treatment. Emergency response personnel first use screening criteria to determine whether an individual has been contaminated and, if so, the type of contamination (i.e., internal or external).³⁹ This can be done by using portable scanning devices for external contamination and by collecting clinical samples for laboratory analysis to detect internal contamination. Medical personnel can then determine the most appropriate treatment based on the type of contamination.

Medical treatment for internal contamination varies based on the type of radioactive material involved. Contamination by certain radioactive materials can be treated using pharmaceutical countermeasures, such as those stored in the Strategic National Stockpile.⁴⁰ To treat external contamination, washing facilities can be set up near the site of the RN incident or at a CRC.⁴¹ Washing facilities should include a place for washing in warm water with soap, plastic bags for holding contaminated clothing, and new clothing for individuals to wear after decontamination.⁴² In some cases, individuals may decontaminate themselves at home if they have minimal external contamination.⁴³ Public health officials can prepare instructions on the proper procedures for self-decontamination.

Laboratory analysis. Laboratory analysis consists of collecting and processing clinical samples from individuals suspected of being internally contaminated.⁴⁴ Localities should have a plan to collect clinical samples and to conduct laboratory analyses of them to determine the type and amount of radiation contamination. For example, analysis of urine can show the type and quantity of radioactive materials in an individual's body.⁴⁵ Samples may be collected at CRCs or medical facilities and sent to laboratories for analysis. Because many laboratories are equipped to analyze environmental samples, not clinical samples, public health planners should identify in advance the laboratories within their jurisdictions that can

³⁹ National Security Staff Interagency Policy Coordination Subcommittee for Preparedness and Response to Radiological and Nuclear Threats (NSSIPCS), *Planning Guidance for Response to a Nuclear Detonation*, p. 105. Accessed at http://hps.org/hsc/documents/Planning_Guidance_for_Response_to_a_Nuclear_Detonation-2nd_Edition_FINAL.pdf on October 17, 2011.

⁴⁰ The Strategic National Stockpile is managed by CDC's Office of Public Health Preparedness and Response. It stores and provides medicine and medical supplies to States in the event of a public health emergency. Accessed at <http://www.bt.cdc.gov/stockpile/> on October 17, 2011.

⁴¹ CDC, *Population Monitoring*, p. 16.

⁴² *Ibid.*, p. 16.

⁴³ NSSIPCS, *op. cit.*, p. 83.

⁴⁴ CDC, *Population Monitoring*, p. 26.

⁴⁵ *Ibid.*, p. 17.

perform these analyses. If assistance from State or Federal resources will be needed, localities can involve them in planning, such as establishing when and how assistance will be requested.⁴⁶

Fatality management. Fatality management consists of properly handling human remains that may be contaminated.⁴⁷ An RN incident may result in fatalities from an initial blast or as a result of long-term exposure to radioactive materials. Medical examiners, coroners, and morticians should properly handle human remains, which may be externally or internally contaminated, to prevent the spread of radioactive contamination to themselves, to other individuals, or to the environment.⁴⁸ Localities can ensure that fatality management personnel have appropriate equipment and procedures to limit their radiation exposure.

Communications. An RN incident will require strategic, rapid communication to health care providers and the public.⁴⁹ Public health officials can develop a communications strategy for quick information dissemination, such as establishing procedures for contacting other Federal, State, and local officials; identifying, establishing, and training a network of credible communications staff; and developing public messages about radiation exposure.⁵⁰

Messages to the public on how people should respond (e.g., evacuate or shelter in place) and messages to public health officials on incident details and response efforts can have a significant effect on the health and safety of a large number of people.⁵¹ Preincident messaging (e.g., public service announcements or other informational material) is critical to ensure that people know how to minimize their exposure in the event of an RN incident.⁵²

Coordinating the Response to a Radiological and Nuclear Incident

According to the *National Preparedness Guidelines* and the NRF, State and local public health departments should plan to coordinate with entities at all levels (Federal, State, and local) that are able to assist in an RN response.⁵³

⁴⁶ Ibid., pp. 25–26.

⁴⁷ CDC, *Information for Medical Examiners, Coroners, and Funeral Home Personnel*. Accessed at <http://www.bt.cdc.gov/radiation/medicalexaminers.asp> on October 17, 2011.

⁴⁸ CDC, *Guidelines for Handling Contaminated Decedents*, pp. 6-7. Accessed at <http://www.bt.cdc.gov/radiation/pdf/radiation-decedent-guidelines.pdf> on October 17, 2011.

⁴⁹ CDC, *Population Monitoring*, p. 31.

⁵⁰ Ibid.

⁵¹ Ibid.

⁵² NSSIPCS, op. cit., p. 120.

⁵³ DHS, *National Preparedness Guidelines*, loc. cit.; DHS, *NRF*, loc. cit.

However, there are no requirements that States and localities coordinate with any entity for emergency planning.

If Federal assistance is required by the locality, a large part of the response to an RN incident can be handled by HHS, DHS, and the Department of Energy (DOE). Within HHS, ASPR will lead the public health and medical support response to any incident, including RN incidents. CDC can provide additional support and technical expertise to States and localities in response to RN incidents. For example, CDC may assist States and localities with setting up CRCs and conducting laboratory analysis.

Other Federal departments can provide support for RN incident planning and response. For example, DOE can provide expert radiation assistance through its National Nuclear Security Administration (NNSA).⁵⁴ NNSA sources of assistance include the Radiation Emergency Assistance Center/Training Site program (REAC/TS), the Federal Radiological Monitoring and Assessment Center (FRMAC), and the Nuclear Emergency Support Team (NEST).⁵⁵ DHS offers online training through FEMA, covering topics such as the regulations regarding radiation and how to handle hazardous (e.g., radioactive) material.⁵⁶ States and localities are not required to take this training; however, it is available to assist with RN-incident planning.

Localities can also coordinate with their States' Radiation Control Programs (RCP) as a source of expertise on radiation.⁵⁷ The RCP in each State is designed to ensure the safe and effective handling of radiation, radioactive materials, and environmental radioactive materials (e.g., mammography machines, nuclear powerplants).⁵⁸ RCPs may be housed in various departments within each State depending on how a State is structured (e.g., some may be within a public health department and others may be in emergency management). RCPs include trained staff who can respond to RN incidents. RCP staff can also help local health departments conduct training and preparedness exercises, in addition to providing input on RN public health response plans. In the event of an RN incident, RCP staff can provide just-in-time training, identify the type of radioactive material

⁵⁴ DHS, *Nuclear/Radiological Incident Annex*, p. 18.

⁵⁵ Seven radiological emergency programs can provide immediate expert assistance in the event of an RN incident: Aerial Measuring System, Accident Response Group, National Atmospheric Release Advisory Center, Radiological Assistance Program, REAC/TS, FRMAC, and NEST. Accessed at <http://nnsa.energy.gov/aboutus/ourprograms/emergencyoperationscounterterrorism/respondingtoemergencies> on October 17, 2011.

⁵⁶ DHS, *Regulations and Guides for Radiation Protection and Response*. Accessed at <http://training.fema.gov/emiweb/downloads/301unt01.pdf> on October 17, 2011.

⁵⁷ CDC, *Population Monitoring*, p. 4.

⁵⁸ RCPs exist in each State but often go by various titles. "RCP" is used in this report to refer to any State entity responsible for the safety and use of radiological materials.

present, and provide guidance on appropriate treatment methods.^{59, 60} Locally, the medical community (e.g., hospitals, emergency medical services, clinicians) should be prepared to respond to an RN incident. If a radiological agent is released through the water or food supply, clinicians will likely be the first to identify symptoms of radiation exposure when they treat contaminated individuals. If an active release occurs, such as use of a dirty bomb, the medical community will be tasked with triaging, treating, and transporting affected individuals to treatment facilities.⁶¹

To coordinate the public health response to RN incidents, localities can create Memorandums of Understanding (MOU) between various government sectors (e.g., police departments and public health departments) or between governmental and nongovernmental entities (e.g., public health departments and hospitals). Such MOUs typically outline the agreed-upon roles and responsibilities in the event of an RN incident.

HHS Radiological and Nuclear Incident Planning Guidance

Within HHS, CDC and ASPR provide technical guidance to States and localities in developing RN-specific public health plans that are consistent with the NRF. CDC and ASPR have online resources covering a variety of public health RN preparedness topics to educate State and local officials on types of RN incidents and ways to develop response plans that address local public health responsibilities. In addition, the online resources can be downloaded in advance so that they are readily available when an incident occurs.

CDC provides technical guidance and assistance to States and localities through its Web site and through toolkits and other guidance documents to facilitate the creation of emergency preparedness plans. These include CDC's Radiation Emergency Preparedness Web site, *Population Monitoring Toolkit*, *Medical Management Toolkit*, and *Laboratory Analytical Methods*.⁶² Through these resources, CDC sets broad goals and priorities, giving grantees flexibility in how to create their emergency response plans. For RN

⁵⁹ ASPR, *Radiation Emergency Medical Management (REMM), Developing a Radiation Response Plan*. Accessed at <http://www.remm.nlm.gov/responseplan.htm#team> on October 17, 2011.

⁶⁰ Just-in-time training is delivered quickly when it is needed in response to an incident that requires certain skills and is given where it is needed and to the appropriate individuals (e.g., decontamination training in a hospital, after an RN incident, to emergency department personnel).

⁶¹ C. M. Hrdina, N.C. Coleman, et al., "The 'RTR' Medical Response System for Nuclear and Radiological Mass-Casualty Incidents: A Functional Triage-Treatment-Transport Medical Response Model," *Prehospital and Disaster Medicine*, vol. 24, no. 3, June 22, 2009.

⁶² CDC, Radiation Emergencies Web site. Links can be found at the following Web sites to order the toolkits: *Population Monitoring Toolkit*, accessed at <http://emergency.cdc.gov/radiation/publichealthtoolkit.asp> on June 29, 2011; *Medical Management Toolkit*, accessed at <http://emergency.cdc.gov/radiation/clinicians.asp> on June 29, 2011; and *Laboratory Analytical Methods*, accessed at <http://emergency.cdc.gov/radiation/labinfo.asp> on June 29, 2011.

incidents, this CDC technical guidance addresses public health responsibilities outlined in the NRF. For example, CDC has provided toolkits and Web-based training for population monitoring and videos on how to use handheld radiation monitoring devices.⁶³

ASPR published the *Radiological Dispersal Device Playbook* in April 2010, which provides guidance for Federal decisionmakers in coordinating with other Federal and local emergency support agencies “in the event of an actual radiological terrorist attack in a U.S. city.”⁶⁴ While not intended as a guide for State and local planning, this playbook provides information about RN incidents and the scenarios surrounding various RN incidents that can assist planning. For example, this playbook covers different radiological incident scenarios (e.g., radiological dispersal device or dirty bomb, radioactive source placed in a public area, contamination of the food and/or water supply) and includes information about radiological events, initial steps in response efforts, and Federal ESF #8 responsibilities.

Additionally, ASPR maintains the REMM Web site, which has information on various types of RN scenarios, as well as information for first responders, hospitals, mental health professionals, and others.⁶⁵ It includes information regarding the various aspects of planning for and response to an RN incident, such as developing a radiological response plan, population monitoring, decontamination, and fatality management.

METHODOLOGY

We reviewed selected localities’ preparedness for the public health aspects of planning and response for nonpowerplant RN incidents as of February 2011. We determined whether selected localities used a locally developed risk assessment to prioritize their public health planning for the response to an RN incident.

We also determined the extent to which selected localities that engaged in RN incident planning included five RN-specific public health areas of responsibility (i.e., population monitoring, decontamination, laboratory analysis, fatality management, and communications) in their plans. We determined whether these RN-specific planning activities included coordination with Federal, State, and local partners. Finally, we determined what Federal guidance sources localities were aware of and have used to plan for an RN incident.

⁶³ CDC, *Radiological Terrorism: A Toolkit for Public Health Officials*. Accessed at www.bt.cdc.gov/radiation/publichealthtoolkit.asp on October 17, 2011.

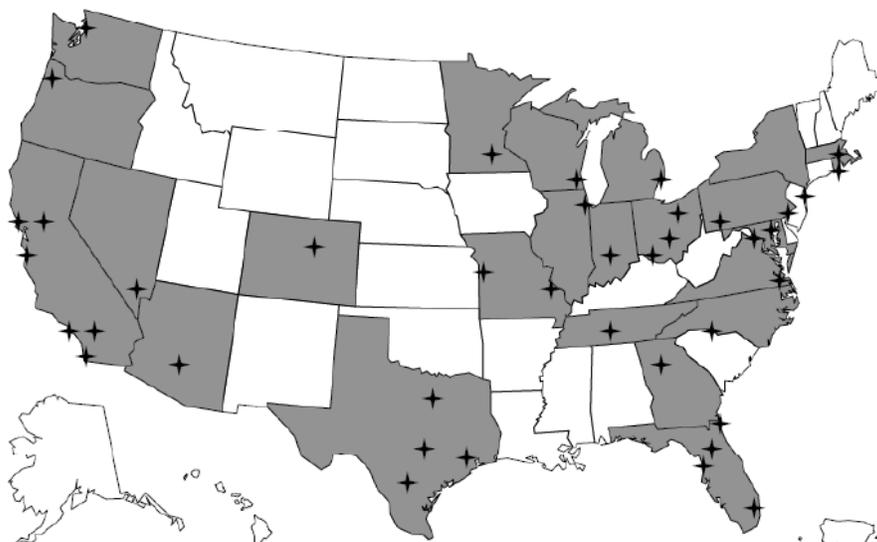
⁶⁴ ASPR, *Radiological Dispersal Device Playbook* (April 2010). Accessed at <http://www.phe.gov/preparedness/planning/playbooks/rdd/pages/default.aspx> on October 17, 2011.

⁶⁵ ASPR, *REMM*. Accessed at <http://www.remm.nlm.gov/index.html> on October 17, 2011.

Sample Selection

Using U.S. Census Bureau data, we identified 40 of the most populous Metropolitan Statistical Areas (MSA). From each of the 40 MSAs, we selected the most populous city (referred to as the “selected locality”) as the source of information about RN public health planning for that locality. See Appendix A for the 40 most populous MSAs, populations, percentage of U.S. population, and selected localities. See Figure 1 for a map showing the 40 selected localities.

Figure 1: Map of Selected Localities and Respective States



Data Collection

We coordinated with CDC to identify the appropriate State officials for each selected locality. We contacted these officials to find out whether the State or the locality was responsible for the locality’s RN public health emergency planning. If State officials indicated that the State was responsible, we collected data from the State only. If State officials indicated that the locality was responsible, we collected data from only the local official they identified. Finally, if State officials indicated that the State and locality were jointly responsible, we collected data from both.

After we identified the individuals responsible for RN public health planning in the selected localities, we sent them an information request. Respondents were asked to coordinate their responses among those entities within their jurisdictions that participated in this type of planning.

Respondents were from various departments, such as public health departments, emergency management, radiation control programs, and environmental health.

One hundred percent of our sample responded to our request. The request included open- and closed-ended questions concerning RN risk assessments, the planning activities for five RN-specific public health areas of responsibility, coordination with other entities, and awareness and use of available Federal guidance sources. We incorporated CDC and ASPR input into the request, as appropriate. We obtained documentation (e.g., planning documents, MOUs, after-action reports of exercises) that States and localities had completed as of February 2011 to determine the extent to which localities have engaged in public health planning for RN incidents.

Data Analysis

We analyzed the documentation for each of the 40 selected localities. If the State had sole responsibility for preparedness in a selected locality, we counted the State's responses as the locality's responses (i.e., four localities in four States). Seventeen localities were responsible for their own preparedness. For the 19 localities that held joint responsibility for preparedness with the State, we combined the responses when appropriate. For example, we first determined whether the locality had conducted planning for each of the five areas of responsibility; if not, we determined whether the State had conducted planning for that area that could supplement the locality's overall planning. If the State had done such planning, we counted the locality as having planned for that area. Responses from States and localities are hereinafter referred to as localities' responses.

Risk assessments. We determined whether localities had identified and prioritized threats for their jurisdictions. If they had, we determined whether they identified RN incidents as one of their potential threats.⁶⁶ We then assessed localities' ranking or scoring of RN incidents as potential threats. We classified the various rankings and scores as low-, moderate-, or high-priority threats. We then determined whether the localities with and without planning had identified RN incidents as low-, moderate-, or high-priority threats.

RN public health planning. We determined what, if any, RN-specific public health planning activities localities engaged in by analyzing information request responses and preparedness documents. We examined

⁶⁶ Localities used various methods to conduct their risk assessments and had different ways of prioritizing threats (e.g., scoring methods, rankings, tiers).

the documented types of RN-specific preparedness activities by the five public health areas of responsibility. For laboratory analysis, we focused on laboratory analysis of clinical samples, not environmental samples.⁶⁷ We did not assess the technical aspects of a laboratory response. We focused on more general planning for coordinating the laboratory analysis needs that would likely arise from an RN incident.

To determine whether a locality had conducted planning in each of the five public health areas, we collected documentation showing whether the localities had created written plans, held training, conducted exercises, and purchased equipment. Localities were counted as having planned for the five RN-specific public health areas of responsibility if they had documentation of any one of these four activities. For example, if a locality had a written plan that addressed population monitoring and provided documentation of training, that locality was counted as having planned for population monitoring and as engaging in two of the four planning activities. If a locality indicated it had no RN-specific planning, it was not included in the subsequent analyses of planning activities for the five public health areas. We report the frequency of planning activities in each of these five areas.

We determined whether planning addressed 30 key components for the 5 RN-specific public health areas of responsibility. We compiled these key components from the NRF, the *Nuclear/Radiological Incident Annex*, CDC guidance documents, and components identified by subject matter experts from ASPR and CDC. Specifically, we identified 12 components for population monitoring, 4 for decontamination, 4 for laboratory analysis, 6 for fatality management, and 4 for communications.

We also determined whether localities were in proximity to (i.e., 50 miles or less from) a nuclear powerplant and whether this proximity corresponded to their public health planning for nonpowerplant RN incidents. Finally, for those localities that had not conducted RN-specific public health planning, we determined whether they planned to use their all-hazards plans if an RN incident were to occur.

Coordination with other entities. To determine whether and how localities have partnered with Federal, State, and local entities, we analyzed documentation of coordination. We considered localities to have coordinated with an entity if they had engaged in one or more of the following activities: jointly conducted training or held exercises, developed MOUs, helped develop written RN public health plans, outlined

⁶⁷ In the event of an RN incident, public health departments have the responsibility for clinical sampling and analysis, while other departments handle environmental sampling and analysis.

the entity's role in their RN public health plans, or served as a source of expertise for RN public health planning. We provided localities with a list of possible entities that they may have coordinated with at the Federal, State, and local levels. We also asked them to provide any additional entities with which they may have coordinated that were not on our list. We report the frequency of this coordination among the localities with RN-specific public health planning.

Use of Federal guidance sources. To determine whether State and local respondents were aware of or had used Federal guidance sources, we analyzed their responses to our information request. We did not combine responses from local health departments that shared responsibility for planning with their States because we were interested in whether all entities involved in planning for the 40 selected localities were aware of or had used the available Federal guidance sources. Specifically, if both the State and local health department were responsible for planning, each entity's response was counted separately. Therefore, these analyses included 51 respondents (19 State respondents and 32 local respondents).

We determined whether State and local respondents were aware of eight available Federal guidance sources: CDC's Radiation Emergency Preparedness Web site, CDC's *Population Monitoring Toolkit*, CDC's *Medical Management Toolkit*, CDC's *Laboratory Analytical Methods*, ASPR's *Radiological Dispersal Device Playbook*, the REMM Web site, the NNSA Web site, and the REAC/TS Web site.

We then determined which of these sources State and local respondents had used. We asked respondents to rate each source's usefulness on a scale from 1 to 5, with 1 indicating "not at all useful" and 5 indicating "very useful." We calculated the average rating for each source.

Finally, we asked whether and what additional guidance sources or materials would be helpful for localities' RN planning. We received 80 open-ended responses from the 51 State and local officials and identified 5 themes. We report the frequency of guidance sources used, ratings of the usefulness of the sources, and additional guidance materials that localities reported would be useful.

Limitations

This evaluation was based on a purposive sample of the 40 most populous MSAs in the United States. These findings cannot be projected to other localities.

We assessed localities' public health planning for RN incidents based on self-reported data. If localities indicated they had not done any planning, we did not ask for documentation or support for this response. However,

we checked for documentation to support all responses from localities that indicated that they had done planning.

Standards

This study was conducted in accordance with the *Quality Standards for Inspection and Evaluation* issued by the Council of the Inspectors General on Integrity and Efficiency.

FINDINGS

Thirty-six of the forty selected localities had conducted risk assessments, but RN-specific public health planning did not always correspond to localities' prioritized threats

The *National Preparedness Guidelines* and the NRF encourage, but do not require, the use of a locally developed risk assessment to prioritize a jurisdiction's incident-specific emergency planning. Additionally, CDC released new PHEP guidance in March 2011 that recommends grantees conduct all-hazards public health risk assessments. However, such assessments do not identify the specific incidents of greatest risk to the localities. Prioritizing incident-specific risks allows localities to use their limited resources to plan for the incidents that present the highest level of risk to them.

As of February 2011, 36 of the 40 selected localities indicated that risk assessments had been conducted to prioritize threats in their jurisdictions. Four localities indicated that they had not conducted risk assessments. Of the 36 localities that conducted risk assessments, 30 stated that RN incidents were identified among their threats. Of those 30 localities, 24 indicated that they had prioritized RN incidents among the other threats to their jurisdictions.⁶⁸ See Table 1 for the number of localities that provided information regarding their risk assessments.

Table 1: Localities' Risk Assessment Information

	Conducted Risk Assessment	Identified RN Incidents as a Threat	Determined RN Threat Level
Yes	36	30	24
No	4	6	6
Total	40	36	30

Source: OIG analysis of data from selected localities, 2011.

⁶⁸ Five of the twenty-four localities did not provide additional information regarding where RN incidents ranked among potential threats. Four localities did not have this information available to them, and one did not provide a response about the specific ranking.

Nineteen localities had prioritized threats, but rankings did not always correspond to RN-specific public health planning

Of the 24 localities that determined their RN threat level, 19 provided information regarding where RN incidents ranked relative to other potential threats to their jurisdictions. Four localities ranked RN as a high-priority threat, eight as a moderate-priority threat, and seven as a low-priority threat.

Whether RN incidents were identified as high-, moderate-, or low-priority threats did not correspond to whether they had prepared RN-specific plans. Three of the four localities that identified an RN incident as a high-priority threat did not have RN-specific plans. Conversely, five of the seven localities that ranked an RN incident as a low-priority threat had RN-specific plans.

Twenty-one of the forty selected localities conducted RN-specific public health planning

The 2010 National Security Strategy identified a terrorist attack with a nuclear weapon as one of our Nation's greatest and most urgent dangers. However, there are no requirements for localities to conduct RN-specific public health planning. As of February 2011, 21 of the 40 localities had conducted public health planning activities in at least 1 of 5 public health areas of responsibility for RN incidents (e.g., population monitoring, decontamination, laboratory analysis, fatality management, and communications). Planning in these five areas consisted of one or more of the four activities we reviewed: creating written plans, holding training, conducting exercises, and purchasing equipment.

The remaining 19 localities had not conducted planning in any of these 5 areas. Of these, four had not conducted risk assessments to identify incident-specific threats. Three had conducted risk assessments but did not identify RN incidents as a threat to their jurisdictions, and two indicated an RN incident was a low-priority threat.⁶⁹

The NRC requires that nuclear powerplants have emergency plans for their facilities and the surrounding area in case of a powerplant RN incident. However, neither NRC nor any other Federal entity requires localities to have public health emergency plans for nonpowerplant RN incidents. Localities' nonpowerplant RN-specific public health planning did not correspond to their proximity to a nuclear powerplant. That is, of the 21 localities that conducted RN-specific planning, 9 were in proximity

⁶⁹ The remaining 10 of these localities had identified an RN incident as either high- (3) or moderate-priority (4) threat or identified an RN incident as a potential threat but did not rank or score any of their jurisdictional threats (3).

(i.e., 50 miles or less) to a nuclear powerplant. Of the 19 localities without RN-specific plans, 8 were in proximity to a nuclear powerplant. Appendix B notes whether each of the 21 localities with RN plans is in proximity to a nuclear powerplant.

Of the 21 localities that had conducted RN-specific public health planning, population monitoring and decontamination were the 2 areas in which localities had most often planned, with 19 and 18 localities planning in these areas, respectively. Fewer than half of the 21 localities had conducted RN-specific planning for laboratory analysis (7 localities) or fatality management (8 localities), while 12 localities had conducted planning for communications.

Two localities had conducted planning for all five of the public health areas. Seven had conducted planning for four of the areas, and four had conducted planning for three areas. See Appendix B for a list of the areas of planning that the 21 localities addressed.

Of the 19 localities that had not conducted RN-specific planning in any area, 11 indicated they would use their all-hazards plans to respond to an RN incident. Of the remaining eight localities, five indicated they would rely on other plans, such as general emergency management plans, hazardous materials plans, or State support. The remaining three localities did not indicate what planning they would use to guide an RN incident response.

Nineteen of the twenty-one localities with RN-specific public health plans addressed population monitoring

To address population monitoring in an RN incident, 19 localities had engaged in 1 or more of the 4 planning activities. Specifically:

- Thirteen localities created written plans.
- Ten localities held training (e.g., how to set up CRCs, how to determine contamination levels).
- Seven localities conducted exercises.
- Thirteen localities indicated they purchased equipment or supplies (e.g., cots, medicines, population registry materials).

However, these activities did not consistently address each of the 12 key components of population-monitoring planning we reviewed. See Table C-1 in Appendix C for the number of localities with plans for the 12 key components of population monitoring for RN incidents.

Eighteen of the twenty-one localities with RN-specific public health plans addressed decontamination

To address decontamination in an RN incident, 18 localities had engaged in 1 or more of the 4 planning activities. Specifically:

- Twelve localities created written plans.
- Seven localities held training (e.g., how to help individuals wash off and seal belongings, how to use scanning meters).
- Five localities conducted exercises.
- Ten localities purchased equipment (e.g., meters for measuring contamination levels in individuals).

However, these activities did not consistently address each of the four key components of decontamination planning we reviewed. See Table C-2 in Appendix C for the number of localities with plans for the four key components of decontamination for RN incidents.

Seven of twenty-one localities with RN-specific public health plans addressed laboratory analysis

To address laboratory analysis in an RN incident, seven localities had engaged in one or more of the four planning activities. Specifically:

- Five localities created written plans.
- One locality held training (e.g., how to properly collect and handle clinical samples).
- Two localities conducted exercises.
- Two localities purchased equipment.

However, these activities did not consistently address each of the four key components of laboratory analysis planning we reviewed. See Table C-3 in Appendix C for the number of localities with plans for the four key components of laboratory analysis for RN incidents.

Eight of twenty-one selected localities with RN-specific public health plans addressed fatality management

To address fatality management in an RN incident, eight localities had engaged in one or more of the four planning activities. Specifically:

- Seven localities created written plans.
- No locality held training (e.g., how to set up control points).
- One locality conducted exercises.
- Two localities purchased equipment (e.g., field morgue equipment).

However, these activities did not consistently address each of the six key components of fatality management planning we reviewed. See Table C-4 in Appendix C for the number of localities with plans for the six key components of fatality management for RN incidents.

Twelve of twenty-one localities with RN-specific public health plans addressed communications

To address communications in an RN incident, 12 localities had engaged in 1 or more of the 4 planning activities. Specifically:

- Eleven localities created written plans.
- One locality held training (e.g., the chain of command and/or entity to contact for information).
- Three localities conducted exercises.
- Two localities purchased equipment (e.g., cell phones or radios).

However, these activities did not consistently address each of the four key components of communications planning we reviewed. See Table C-5 in Appendix C for the number of localities with plans for the four key components of communications for RN incidents.

Localities varied in the extent to which they coordinated with Federal, State, and local partners for RN-specific public health planning

The *National Preparedness Guidelines* and the NRF encourage coordination among all levels of government and nongovernmental entities in developing and executing emergency planning. However, there are no requirements for such coordination. The 21 localities with RN-specific public health plans varied in the extent to which they coordinated their RN planning with Federal, State, and local partners. Nineteen localities coordinated with several Federal departments and agencies, their State RCPs, and local medical community members, but these 19 localities varied in the level of documented coordination.

Six localities coordinated with all three groups of partners (Federal, State, and local). Nine localities coordinated with two groups, and four coordinated with one. Examples of coordination include working with partners to develop plans; holding exercises involving Federal, State, or local entities; or creating written plans to coordinate with or rely on these entities during a response to an RN incident.

Two localities did not coordinate with any of the groups. Five localities did not coordinate with Federal partners, 11 did not coordinate with State partners, and 7 did not coordinate with local partners. Table 2 lists the

number of localities that coordinated, and did not coordinate, with entities in each of the three groups.

Table 2: Selected Localities' Documented Coordination in Planning for RN Public Health Incidents

Coordination Group	Number of Localities Coordinating With Partner
<i>Federal Partners</i>	
CDC	12
DOE	12
FRMAC	11
DHS	10
NRC	10
RAP	9
REAC/TS	9
NEST	2
Environmental Protection Agency (EPA)*	2
Food and Drug Administration (FDA)*	1
United States Department of Agriculture (USDA)*	1
Total number of localities coordinating with Federal partners	16**
No Federal coordination	5
<i>State Partners</i>	
State RCP	
Total number of localities coordinating with State partners	10
No RCP coordination	11
<i>Local Partners</i>	
Hospitals	13
Emergency medical services	12
County health department	8
Clinicians	2
Total number of localities coordinating with local partners	14**
No local coordination	7

* These Federal agencies were provided by two localities and were not included in our original list.

** Totals exceed sum of preceding rows because localities coordinated with more than one partner.

Source: OIG analysis of data from selected localities, 2011.

Sixteen of the twenty-one localities with RN-specific plans had coordinated with Federal partners

The 16 localities that coordinated with Federal partners coordinated most often with CDC and DOE, with 12 localities coordinating with each. Ten localities coordinated with DHS and NRC. Nearly half of the 21 localities had coordinated with three DOE programs: FRMAC, RAP, and REAC/TS. Only two localities had coordinated with NEST. Five of the twenty-one localities had not coordinated with the Federal partners we

examined. Two localities provided additional Federal partners with which they had coordinated. One locality listed FDA, USDA, and EPA; the other locality listed only EPA.

Ten of the twenty-one localities with RN-specific plans had coordinated with their State partners

All 10 localities that coordinated with the State RCPs indicated that they had defined their State RCPs' role within their written plans. Eight localities indicated they had worked with the State RCPs to write public health RN-specific emergency plans. Seven localities reported that the State RCPs served as sources of expertise in their planning efforts. Fewer localities reported they had held training (three) and conducted exercises (two) involving their State RCPs. Eleven localities had not coordinated with the State RCPs.

Fourteen of the twenty-one localities with RN-specific plans had coordinated with local partners

Of the 14 localities that coordinated with local medical community members, 9 defined medical community members' roles in their written plans. All nine defined the roles of hospitals. Seven defined Emergency Management Services' roles in their written plans. County health departments' roles were defined in five localities' written plans, and two localities had defined the role of clinicians.

In addition to defining the roles of medical community members, these 14 localities had engaged with them in other ways. Eight held exercises, four developed MOUs, and three conducted training. One locality worked with medical community members to help write its local public health RN plans. Seven localities had not coordinated with local medical community members.

Most State and local officials are aware of Federal guidance sources available to aid RN-specific public health planning but requested more comprehensive and specific planning tools

Most of the 51 State and local officials involved in planning for the 40 selected localities were aware of the majority of the 8 guidance sources included in our information request.⁷⁰ These sources included guidance from CDC, ASPR, and DOE. Fewer respondents had used these sources

⁷⁰ We did not combine responses from local public health departments that shared planning responsibility with their States because we were interested in whether all entities involved in planning for the 40 selected localities were aware of or had used the available Federal guidance sources. These analyses included 19 State and 32 local respondents.

in their planning. Respondents generally rated the sources as useful but stated that more comprehensive and specific planning tools were needed.

Between 12 and 38 State and local respondents reported using each of the Federal guidance sources

The most frequently used source was CDC’s Radiation Emergency Preparedness Web site; 38 respondents indicated they had used it. The source used the least was ASPR’s Radiological Dispersal Device Playbook (12 respondents). However, the playbook had been released only approximately 6 months prior to our data collection. Additionally, it is intended for Federal decisionmakers, not as a guide for State and local planning. However, this playbook provides useful information about RN incidents that can assist local planning. The remaining sources were used by 16 to 27 respondents. See Table 3 for the number of respondents aware of each source, the average ratings of usefulness for each source, and the number of respondents that were unaware of each source.

Table 3: State and Local Awareness and Use of Federal Guidance Sources

Federal Guidance Sources	Number of Respondents Aware of Guidance Source (out of 51)	Number of Respondents Using Guidance Source	Average Rating*	Number of Respondents Not Aware of Guidance Source
CDC’s Radiation Emergency Preparedness Web site	48	38	4.1	3
CDC’s <i>Medical Management Toolkit</i>	39	26	4.2	12
CDC’s <i>Population Monitoring Toolkit</i>	37	27	4.3	14
DOE’s REAC/TS Web site	35	23	4.4	16
ASPR’s REMM Web site	33	22	4.2	18
DOE’s NNSA Web site	32	18	3.7	19
CDC’s <i>Laboratory Analytical Methods</i>	27	16	3.5	24
ASPR’s <i>Radiological Dispersal Device Playbook</i>	21	12	3.9	30

* 1 = not at all useful, 2 = somewhat useful, 3 = neutral, 4 = useful, 5 = very useful.
Source: OIG analysis of data from selected localities, 2011.

State and local respondents requested additional guidance materials

State and local officials provided comments regarding available guidance and the need for more. These comments fell into five categories:

- Fifty-three percent of comments discussed the need for more specific guidance materials, templates for planning, best practices, and standards for planning and coordination.

- Fourteen percent discussed the need to train State and local public health officials on the unique aspects of RN incident public health response.
- Nine percent identified a need for a consolidated list or Web site list of resources.
- Eight percent identified a need for more promotion of the current resources.
- Eighteen percent were classified as “other” and did not fall into any of the above categories. Examples of these comments include:
 - requesting more funding at the local level;
 - naming other resources found helpful;
 - stating that if HHS required it, States and localities would plan for RN incidents;
 - suggesting that RN tools to estimate mass casualty and mass illness be made similar to pandemic influenza-medical surge materials;
 - suggesting that planners need assistance in understanding the need for coordination; and
 - requesting guidance that is easier to understand.

RECOMMENDATIONS

The 2010 National Security Strategy identifies a terrorist attack with a nuclear weapon as one of the greatest and most urgent dangers facing the American people. In Japan, the release of radiation from a nuclear powerplant after an earthquake and tsunami on March 11, 2011, further underscores the importance of preparedness for all radiological incidents. Although NRC regulates nuclear powerplants and requires them to have emergency planning, no requirements exist for localities to have public health emergency plans for nonpowerplant RN incidents, such as terrorist attacks. However, localities may not need an RN-specific public health plan if an RN incident is not identified as a high-risk threat for their areas.

The *National Preparedness Guidelines* recommend incident-specific planning based on a jurisdiction's risk assessment. CDC provides 62 grantees with PHEP funding to develop all-hazards plans, which can also be used for incident-specific planning. In March 2011, after data collection for this report was completed, CDC released new guidelines for the next 5-year cycle of the PHEP cooperative agreement. However, there are no requirements that PHEP grantees conduct RN-specific planning or use their jurisdictions' risk assessments to prioritize their public health emergency planning. Using risk assessments to prioritize incident-specific planning is one way localities can be strategic in the use of their limited resources.

Our report focused only on State and local preparedness for the public health aspects of planning and response for nonpowerplant incidents. We found that 36 of the 40 selected localities conducted risk assessments to identify threats to their jurisdictions. However, localities that rated an RN incident as a high-priority threat did not always conduct RN-specific planning. Conversely, over half of those that rated RN incidents as low priority had RN-specific planning.

We also found that 21 of the 40 selected localities had conducted RN-specific public health planning. These 21 localities varied in which of the 5 public health areas their planning addressed, as well as the types of planning activities they had engaged in within each area. A locality's proximity to a nuclear powerplant did not correspond to its public health planning for nonpowerplant RN incidents.

Further, we found that coordination between localities and Federal, State, and local partners varied. Finally, most of the State and local respondents were aware of the Federal guidance sources in our review but expressed a need for more comprehensive and specific planning tools.

Therefore, we recommend that CDC:

Work with grantees to more closely align incident-specific public health planning with their jurisdictions' prioritized threats

The 2011 PHEP guidance encourages grantees to conduct all-hazards public health risk assessments. However, CDC should provide additional guidance on the use of incident-specific risk assessments. Specifically, CDC should work with grantees to ensure that incident-specific risk assessments are considered in their jurisdictions' public health emergency priorities and subsequent planning. CDC should work with grantees to tie PHEP-funded planning activities to specific local threats.

Provide more specific guidance that outlines the public health areas of responsibility and the key components of each area to include in RN-specific public health planning

Although 21 localities had conducted RN-specific public health planning, the public health areas of responsibility addressed in this planning varied and only 2 localities addressed all 5 areas. Therefore, CDC, in coordination with grantees, could improve RN incident planning by taking the following actions:

- Prioritize the planning areas in which grantees should focus their efforts and resources to improve public health preparedness to respond to an RN incident.
- Provide a comprehensive list of the components of an RN-specific public health plan that may not be included in a general all-hazards plan.
- Encourage sharing of RN incident public health planning strategies among States, localities, and other health care providers (e.g., hospitals, EMS) so that promising practices and creative ideas can be identified.
- Provide grantees with information on guidance materials available from HHS and other Federal departments.

Provide more guidance on coordination with other entities for RN-specific public health planning

CDC should continue to provide information to grantees regarding the entities that they should coordinate with for RN-specific public health planning. Grantees should know about available resources in their jurisdictions as well as at the Federal level so they can consider incorporating these partners into their RN-specific public health planning.

Provide more training to grantees about the unique aspects of an RN incident

CDC should continue to work with grantees to develop training that addresses the unique public health scenarios that result from RN incidents. Grantees may not be aware that these unique scenarios could require planning beyond an all-hazards plan. This training could be conducted by CDC, or CDC could develop training materials that grantees could use to conduct their own training.

AGENCY COMMENTS AND OFFICE OF INSPECTOR GENERAL RESPONSE

CDC concurred with all four of our recommendations and provided additional information about its current efforts in the 2011 PHEP guidance. Specifically, CDC noted that it is working with States and localities to tie their PHEP-funded planning activities to the threats identified as priorities in their jurisdictions. CDC also notes that the 2011 PHEP guidance encourages grantees to assess their preparedness status and to determine their priorities. CDC plans to provide more explicit guidance regarding the jurisdictional risk assessment process and how to use the outcomes to identify and prioritize specific threats and to develop strategies and planning activities to mitigate those risks. Finally, CDC will require, rather than strongly encourage, grantees to conduct risk assessments to identify hazards, vulnerabilities, and risks for their jurisdictions' public health systems.

In response to our second recommendation, CDC noted that in the 2011 PHEP guidance, RN incidents are well represented in 9 of the 15 capabilities. CDC emphasized that public health planning is only one component of RN incident planning and that State and local public health agencies must coordinate planning with State and local Emergency Management as well as RCPs. CDC plans to incorporate more specific planning guidance for RN incidents when developing individual technical assistance plans for jurisdictions that have identified RN incidents as a high-priority threat.

In response to our third recommendation, CDC plans to continue to provide guidance and technical assistance to grantees that have identified RN incidents as a high-priority threat. CDC noted that it should work with other Federal agencies to share information on available RN incident guidance and resources with State and local partners.

Finally, in response to our fourth recommendation, CDC will continue to work with grantees to identify training resources and technical assistance for grantees using its existing training resources.

We support CDC's efforts to address these issues and encourage it to continue making progress in these areas. For the full text of CDC's comments, see Appendix D.

APPENDIX A

Forty Most Populous Metropolitan Statistical Areas and the Selected Localities

Metropolitan Statistical Area	Population	Percentage of U.S. Population (Cumulative)	Selected Locality
New York–Northern New Jersey–Long Island	19,069,796	6.2	New York City, NY
Los Angeles–Long Beach–Santa Ana	12,874,797	10.4	Los Angeles, CA
Chicago–Naperville–Joliet	9,580,567	13.5	Chicago, IL
Dallas–Fort Worth–Arlington	6,447,615	15.6	Dallas, TX
Philadelphia–Camden–Wilmington	5,968,252	17.6	Philadelphia, PA
Houston–Sugar Land–Baytown	5,867,489	19.5	Houston, TX
Miami–Fort Lauderdale–Pompano Beach	5,547,051	21.3	Miami, FL
Washington–Arlington–Alexandria	5,476,241	23.1	Washington, DC
Atlanta–Sandy Springs–Marietta	5,475,213	24.9	Atlanta, GA
Boston–Cambridge–Quincy	4,588,680	26.3	Boston, MA
Detroit–Warren–Livonia	4,403,437	27.8	Detroit, MI
Phoenix–Mesa–Scottsdale	4,364,094	29.2	Phoenix, AZ
San Francisco–Oakland–Fremont	4,317,853	30.6	San Francisco, CA
Riverside–San Bernardino–Ontario	4,143,113	32.0	Riverside, CA
Seattle–Tacoma–Bellevue	3,407,848	33.1	Seattle, WA
Minneapolis–St. Paul–Bloomington	3,269,814	34.1	Minneapolis, MN
San Diego–Carlsbad–San Marcos	3,053,793	35.1	San Diego, CA
St. Louis	2,828,990	36.1	St. Louis, MO
Tampa–St. Petersburg–Clearwater	2,747,272	36.9	Tampa, FL
Baltimore–Towson	2,690,886	37.8	Baltimore, MD
Denver–Aurora–Broomfield	2,552,195	38.7	Denver, CO
Pittsburgh	2,354,957	39.4	Pittsburg, PA
Portland–Vancouver–Beaverton	2,241,841	40.2	Portland, OR
Cincinnati–Middletown	2,171,896	40.9	Cincinnati, OH
Sacramento–Arden–Arcade–Roseville	2,127,355	41.6	Sacramento, CA
Cleveland–Elyria–Mentor	2,091,286	42.2	Cleveland, OH
Orlando–Kissimmee	2,082,421	42.9	Orlando, FL
San Antonio	2,072,128	43.6	San Antonio, TX
Kansas City	2,067,585	44.3	Kansas City, MO
Las Vegas–Paradise	1,902,834	44.9	Las Vegas, NV
San Jose–Sunnyvale–Santa Clara	1,839,700	45.5	San Jose, CA
Columbus	1,801,848	46.1	Columbus, OH
Charlotte–Gastonia–Concord	1,745,524	46.6	Charlotte, NC
Indianapolis–Carmel	1,743,658	47.2	Indianapolis, IN
Austin–Round Rock	1,705,075	47.8	Austin, TX
Virginia Beach–Norfolk–Newport News	1,674,498	48.3	Virginia Beach, VA
Providence–New Bedford–Fall River	1,600,642	48.8	Providence, RI
Nashville–Davidson–Murfreesboro–Franklin	1,582,264	49.3	Nashville, TN
Milwaukee–Waukesha–West Allis	1,559,667	49.8	Milwaukee, WI
Jacksonville	1,328,144	50.3	Jacksonville, FL

APPENDIX B

Planning for 5 Radiological/Nuclear-Specific Public Health Areas Among the 21 Localities With Radiological/Nuclear-Specific Planning and Proximity to Nuclear Powerplants

Locality Code	Population Monitoring	Decontamination	Laboratory Analysis*	Fatality Management	Communications	Total Number of Areas Addressed	Is Locality Within 50 Miles of a Nuclear Power-plant?
1	X	X	X	X	X	5	Yes
2	X	X	X	X	X	5	No
3	X	X	X		X	4	No
4	X	X	X		X	4	No
5	X	X		X	X	4	Yes
6	X	X	X		X	4	Yes
7	X	X		X	X	4	No
8	X	X	X	X		4	Yes
9	X	X	X		X	4	No
10	X	X			X	3	No
11	X	X			X	3	No
12	X	X		X		3	Yes
13	X	X			X	3	Yes
14		X		X		2	Yes
15	X			X		2	No
16	X	X				2	No
17	X	X				2	No
18	X	X				2	No
19	X	X				2	Yes
20	X					1	Yes
21					X	1	No
Total Number of Localities	19	18	7	8	12		

Source: Office of Inspector General analysis of data from selected localities, 2011.

* "Laboratory Analysis" refers to whether localities had a plan for laboratory analysis; it does not indicate that the locality has the capability to perform the analyses required in a radiological or nuclear incident.

APPENDIX C

Localities' Planning for the Key Components for Each of the Five Radiological/Nuclear-Specific Public Health Areas of Responsibility

Table C-1: Population Monitoring

	Number of Localities With Plans
Establishing contamination screening criteria (e.g., level of contamination that requires treatment)	13
Developing radiation survey methods (e.g., procedures to properly screen population using various methods)	13
Identifying radiation dose or risk estimation (e.g., guidelines to determine level of risk from contamination or exposure)	12
Developing plans to establish community reception centers (CRC; e.g., locations to house a large number of individuals)	10
Developing a system for population registry (e.g., tracking system to monitor contaminated individuals)	8
Developing a system for epidemiological investigations (e.g., monitoring the effects of radiation on public health)	6
Developing plans for handling special populations (e.g., disabled, elderly, children)	6
Establishing protocols and procedures for clothing services (e.g., providing fresh clothes for individuals who have external contamination)	5
Transporting the public away from the incident site and/or to the CRCs	7
Establishing washing facilities (e.g., facilities for external decontamination washing)	5
Establishing procedures for handling psychosocial issues (e.g., effects of stress resulting from the incident)	4
Developing procedures for collecting human clinical biomarkers/lab samples (e.g., procedures for how and when to collect)	2

Note: Total does not add to 19 because localities planned for more than 1 of the 12 components.
Source: Office of Inspector General (OIG) analysis of data from selected localities, 2011.

Table C-2: Decontamination

	Number of Localities With Plans
Identifying individuals in need of decontamination and/or treatment (e.g., measuring levels of contamination)	12
Developing plans to communicate decontamination guidelines (e.g., instructions to the public on how to wash)	11
Establishing decontamination centers (e.g., facilities where the public can wash off external decontamination)	6
Identifying radioactive isotopes in individuals (e.g., properly using and reading equipment)	4

Note: Total does not add to 18 because localities planned for more than 1 of the 4 components.
Source: OIG analysis of data from selected localities, 2011.

Table C-3: Laboratory Analysis

	Number of Localities With Plans
Developing a sample prioritization plan	2
Determining throughput (e.g., number of samples analyzed per hour, per day)	4
Determining analytic capability (e.g., types of analyses that can be performed on specific radionuclides)	2
Determining analytic capacity (e.g., maximum number of samples that can be analyzed)	2

Note: Total does not add to seven because localities planned for more than one of the four components.
Source: OIG analysis of data from selected localities, 2011.

Table C-4: Fatality Management

	Number of Localities With Plans
Establishing procedures for morgues (e.g., procedures to house contaminated human remains)	4
Establishing procedures for burial of contaminated remains (e.g., special caskets, sealing of gravesites)	3
Establishing procedures for autopsies (e.g., minimizing exposure from autopsy on contaminated human remains)	2
Establishing procedures for funeral homes (e.g., guidelines for handling contaminated remains)	2
Establishing procedures for setting up control points (e.g., monitoring responders entering a mass casualty site containing contaminated human remains)	2
Establishing procedures for transport of contaminated remains (e.g., implementing Department of Transportation regulations on transporting radioactive materials)	2

Note: Total does not add to eight because localities planned for more than one of the six components.
Source: OIG analysis of data from selected localities, 2011.

Table C-5: Communications

	Number of Localities With Plans
Drafting messages that can be immediately communicated to the public if a radiological or nuclear (RN) incident occurs	10
Establishing a communications strategy (e.g., identifying points of contact)	7
Identifying credible sources to deliver messages to the public	4
Conducting preincident messaging (e.g., making public service announcements about how to respond to an RN incident)	3

Note: Total does not add to 12 because localities planned for more than 1 of the 4 components.
Source: OIG analysis of data from selected localities, 2011.

APPENDIX D

List of Abbreviations and Acronyms

ASPR.....	Assistant Secretary for Preparedness and Response
CDC	Centers for Disease Control and Prevention
CRC.....	community reception center
DHS.....	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
ESF.....	Emergency Support Function
FDA.....	Food and Drug Administration
FEMA	Federal Emergency Management Agency
FRMAC.....	Federal Radiation Monitoring and Assessment Center
HHS.....	Department of Health and Human Services
IND	improvised nuclear device
MOU	Memorandums of Understanding
MSA.....	Metropolitan Statistical Area
NEST.....	Nuclear Emergency Support Team
NNSA.....	National Nuclear Security Administration
NRC	Nuclear Regulatory Commission
NRF.....	National Response Framework
PHEP.....	Public Health Emergency Preparedness
PHSA	Public Health Service Act
RCP.....	Radiation Control Program
REAC/TS	Radiation Emergency Assistance Center and Training Site
REMM	Radiation Emergency Medical Management
RN.....	radiological and/or nuclear
USDA.....	U.S. Department of Agriculture

APPENDIX E

Agency Comments



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Agency for Toxic Substances
and Disease Registry
Atlanta GA 30333

TO: Daniel R. Levinson, Inspector General
Department of Health and Human Services (HHS)

FROM: Thomas R. Frieden, M.D., M.P.H., Director
Centers for Disease Control and Prevention

SUBJECT: OIG Draft Report: Local Public Health Preparedness for Radiological and Nuclear
Incidents, OEI-04-10-00250

The Centers for Disease Control and Prevention (CDC), Division of State and Local Readiness (DSLRL), appreciates the opportunity to review and comment on the Office of Inspector General's draft report, "Local Public Health Preparedness for Radiological and Nuclear Incidents." Thank you for your review of this important issue.

As stated in the draft report, the objective of this review was to determine the extent to which selected localities were prepared for a public health response to a radiological and/or nuclear (RN) incident by 1) using their risk assessments to prioritize planning; 2) engaging in planning activities for five public health areas of responsibility; 3) coordinating with federal, state, and local partners; and 4) using federal guidance sources. The draft report identified four findings regarding local public health preparedness for radiological and nuclear incidents, and also provided recommendations to CDC to address these findings. Please see the attached for the OIG recommendations and CDC's related responses.

Thank you for your review of local public health preparedness for radiological and nuclear accidents. Please ask your staff to direct any questions or comments to Mr. Shaun Ratliff, CDC's OIG Liaison, by telephone at (404) 639-2809, or by e-mail at iggao@cdc.gov.

/S/

Thomas R. Frieden, M.D., M.P.H.

Attachment

1

OIG Recommendations and CDC Responses

Office of Inspector General (OIG) Recommendation: CDC should work with grantees to more closely align incident-specific public health planning to their jurisdictions' prioritized threats.

DSLIR Response: DSLIR concurs in principle with this recommendation. CDC is working with states and localities to tie PHEP-funded planning activities to the threats or risks jurisdictions have identified as priorities. In April 2011, CDC released a new funding opportunity announcement (FOA) for the Public Health Emergency Preparedness (PHEP) cooperative agreement that included guidance to assist its 62 state, local, and territorial awardees in demonstrating measurable and sustainable progress toward achieving 15 specifically developed public health preparedness capabilities. These capabilities, described in CDC's *Public Health Preparedness Capabilities: National Standards for State and Local Planning*, (<http://www.cdc.gov/phpr/capabilities/index.htm>) are designed to assist state and local public health departments in identifying gaps in preparedness, determining specific jurisdictional priorities, and developing plans for building and sustaining capabilities. These national standards support an integrated, all-of-nation, capabilities-based approach to planning as advocated in Presidential Policy Directive-8: National Preparedness. The need to prepare for RN incidents is well-represented within the national standards, as nine of the 15 capabilities explicitly reference radiological preparedness and include specific information for RN planning at the state and local levels. Although threat prioritizations differ among jurisdictions, public health agencies are expected to factor RN threats into their individual prioritization methods.

CDC's 2011 PHEP cooperative agreement guidance included a planning process that public health departments could use to help determine their preparedness priorities, plan appropriate preparedness activities and develop associated budgets, and demonstrate and evaluate achievement of capabilities. In releasing the PHEP guidance, CDC strongly recommended that awardees assess their current preparedness state, determine jurisdictional priorities, and develop short- and long-term plans based on their jurisdictional risk assessments and other jurisdictional inputs such as hazards and vulnerability analyses, emergency management plans, after-action reports/improvement plans, and previous performance measurement results. Awardees were then expected to develop appropriate budgets for the incident-specific, PHEP-funded activities they planned to conduct to address specific jurisdictional risks.

CDC supports having state and local public health jurisdictions perform risk assessments. Such risk assessments currently are recommended in the *Public Health Preparedness Capabilities: National Standards for State and Local Planning* document. In developing the next PHEP funding opportunity announcement in 2012 and subsequent continuation guidance documents, CDC plans to provide more explicit guidance describing the jurisdictional risk assessment process and how to use the outcomes of that process to identify and prioritize specific incidents of greatest threat to jurisdictions and to develop strategies and PHEP-funded activities designed to reduce/mitigate the threats and risks. In the future, CDC also will require, rather than strongly encourage, that awardees conduct risk assessments that identify the potential hazards,

vulnerabilities, and risks in the community that relate to the jurisdiction's public health, medical, and mental/behavioral health systems.

CDC will use the results of its current risk-based funding pilot to help inform the improved guidance it provides to awardees. CDC awarded \$10 million in FY 2011 funding to 10 major urban areas (includes 14 states and the four directly funded localities) for an all-hazards public health risk reduction funding initiative. This funding is intended to promote and accelerate the development of strategies that mitigate the public health risks associated with higher population areas. It is expected that through risk-based funding, awardees will accelerate their work on conducting and utilizing risk assessments, resulting in useful practices from the field that will help to better align incident-specific public health planning with jurisdictions' identified and prioritized threats.

Office of Inspector General (OIG) Recommendation: CDC should provide more specific guidance that outlines the public health areas of responsibility and the key components of each area to include in RN-specific public health planning and improve RN incident planning.

DSL R Response: DSLR concurs in principle with this recommendation. The need to prepare for RN incidents is well-represented within CDC's *Public Health Preparedness Capabilities: National Standards for State and Local Planning*, as nine of the 15 capabilities explicitly reference radiological preparedness. Public health areas of responsibility and the key components of each area regarding RN-specific public health planning that can improve RN incident planning are covered in the following capabilities: community preparedness, public health laboratory testing, community recovery, emergency operations coordination, fatality management, mass care, medical countermeasure dispensing, non-pharmaceutical interventions, and responder safety and health. Each of these capabilities includes RN preparedness guidance with various level of detail and identifies the role of public health during RN incidents.

Public health is a single component of a comprehensive RN plan. State and local public health agencies must coordinate their plans and conduct planning with their state and local emergency management agencies and radiation control programs. Although public health has a significant role in this planning, such planning is a shared responsibility with other sectors. It should also be noted that given the variations in how states/localities operate, their public health structure, and responsibilities (EMS, fire department, how they work with other state and local governments, etc.), states and localities must have the flexibility to determine how they plan to coordinate such activities.

To further support this recommendation, DSLR plans to incorporate more specific guidance regarding RN-specific public health planning when developing individual technical assistance strategies and plans for those jurisdictions that identify RN incidents as a high-priority threat for their jurisdictions. This guidance could include:

- Information on the components of an RN-specific public health plan (population monitoring, decontamination, laboratory analysis, fatality management, and communications) that may not be included in a general all-hazards plan.
- Information on guidance materials, toolkits, and other resources available from HHS and other federal departments.

- Sharing of public health planning strategies for RN incidents among states, localities, and other healthcare providers (e.g., hospitals, EMS) so that promising practices and creative ideas can be identified.

Office of Inspector General (OIG) Recommendation: CDC should provide more guidance on coordination with other entities for RN-specific public health planning.

DSLIR Response: DSLIR concurs in principle with this recommendation. CDC, along with other federal departments and agencies, should share information on available RN guidance and other resources with state and local partners.

CDC emphasizes to its awardees that RN preparedness remains a key component within nine public health preparedness capabilities. Additionally, CDC and other federal agencies and organizations are active members of and participating in ASTHO's National Alliance for Radiation Readiness (NARR), a new and growing organization whose mission is to enhance radiological preparedness capability and capacity in public health and health care systems through a coalition of organizations committed to improving the nation's ability to prepare, respond, and recover from radiological emergencies at the local, state, and national levels.

CDC will continue to provide guidance and technical assistance to awardees that highlight the importance of RN-specific public health planning for those jurisdictions that identify RN incidents as a high-priority threat for their jurisdictions using the many helpful resources provided in CDC's *Public Health Preparedness Capabilities: National Standards for State and Local Planning* document.

Office of Inspector General (OIG) Recommendation: CDC should provide more training to grantees about the unique aspects of an RN incident. CDC should continue to work with grantees to develop training that addresses the unique public health scenarios that result from RN incidents.

DSLIR Response: DSLIR concurs in principle with this recommendation. CDC will continue to identify training resources for awardees and provide and coordinate technical assistance using existing training resources.

ACKNOWLEDGMENTS

This report was prepared under the direction of Dwayne Grant, Regional Inspector General for Evaluation and Inspections in the Atlanta regional office, and Jaime Durley, Deputy Regional Inspector General.

Hannah Burk served as the lead analyst for this study. Other principal Office of Evaluation and Inspections staff from the Atlanta regional office who contributed to the report include Sarah McLaulin; central office staff who contributed include Kevin Farber and Talisha Searcy.

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