

Fukushima Nuclear Reactor Radiation Crisis: A National Review of the U.S. Domestic Public Health and Medical Response

Prepared by the Association of State and Territorial Health Officials

May 2012

Acknowledgements

The Association of State and Territorial Health Officials (ASTHO) conducted this review with financial support provided by the Centers for Disease Control and Prevention (CDC) National Center for Environmental Health's Radiation Studies Branch as part of the National Alliance for Radiation Readiness (NARR).

ASTHO thanks NARR members for offering their time and expertise in drafting this assessment. Representatives from state health departments, the Conference of Radiation Control Program Directors, ASTHO, the National Association of County and City Health Officials, and CDC collaborated on this project. ASTHO greatly appreciates and acknowledges the thoughtful input provided by all NARR members.

Disclaimer

Although the information in this document may be used by CDC to develop effective public health guidance and guide future actions, any statements made or actions taken in response to this report do not necessarily constitute endorsement or agreement by CDC or NARR of the findings, conclusions, and recommendations contained in this document.

The following member organizations of the NARR have affirmatively declared their associations' acceptance of the findings and views expressed in this report:

- American Association of Poison Control Centers
- American Hospital Association
- American Public Health Association
- Association of Public Health Laboratories
- Association of State and Territorial Health Officials
- Conference of Radiation Control Program Directors
- Council of State and Territorial Epidemiologists
- Health Physics Society
- International Association of Emergency Managers
- National Association of County and City Health Officials
- National Association of State EMS Officials
- National Disaster Life Support Foundation
- National Emergency Management Association
- National Public Health Information Coalition



National Alliance *for* Radiation Readiness

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Executive Summary

In mid-November 2011, the National Alliance for Radiation Readiness (NARR) led a review of the U.S. public health and medical response to domestic concerns arising from the 2011 incident at the Japanese Fukushima Daiichi nuclear power plant. Highlights of the group's discussions included the following key observations:

- Established, legacy radiation surveillance and monitoring systems such as RadNet and those as part of the Nuclear Energy Institute were invaluable in providing reasonably sufficient, near-real-time data to inform response decisions regarding the necessity for protective actions and in communicating the degree of risk to the public. Additionally, the various all-hazards preparedness capabilities developed over the last 10 years made a significant difference for a strong, collective domestic response to this incident.
- States with nuclear power plants had greater radiation-specific capacity and capability and were more experienced and adept at monitoring the situation, interpreting the data and other situational information, and had more impactful communications with the public than those jurisdictions without nuclear generating stations and/or Department of Energy installations.
- Federal agencies' interest in and commitment to communicating and coordinating with their state and local counterparts were quite evident. Difficulties were sometimes encountered in execution, but once identified, were promptly remedied.
- The most notable activity needing improvement was the timely sharing of credible and useful health impact information with the public to allay fears.
- It was strongly felt that if such an event with similar or more serious magnitude and consequences was to happen on U.S. soil, our public health, medical, and emergency management systems would experience significant challenges sustaining adequate response and recovery capacity due to current resource constraints and limitations.

Based on these observations/findings, the NARR respectfully recommends the following in the spirit of applying the lessons learned toward a way forward for continuous improvement of our nation's radiation disaster readiness:

- **Stronger, more visible federal leadership:** The National Response Framework and National Incident Management System should be adapted to guide a domestic radiological response to an international incident impacting U.S. mainland and island jurisdictions (including territories). This would include increased clarity on lead agency designation, unified command, and unity of effort. Federal leaders should also give priority to improving vertical and horizontal interagency sharing of data and information to strengthen future response coordination and put in place necessary policies and procedures for a more expedited clearance and issuance of key time-sensitive guidance documents to state and local agencies.
- **More proactive, timely public information and education:** Designate a trusted, credible national voice and face of public health to properly advise the general public and allay unfounded fears. This would include other effective risk communications strategies and tools such as press “go kits,” message maps, fact sheets, FAQs, etc. to minimize the spreading of misinformation. Attention should be focused on such topics as the limited utility and benefit of potassium iodide (KI) as a protective measure and the safety of the food and water supply found to have minimal/negligible levels of contamination detected.
- **Leverage public and private resources for a more robust “Whole of Community” response:** This would include such actions as creating integrated databases for environmental monitoring data collected by various governmental sectors, industry, and academia for better situation awareness; fostering knowledge and experiential transfer and mutual aid between jurisdictions with nuclear power plants and those without; and expanding volunteer corps around the country to increase the level of resident nuclear and radiological expertise.
- **Continue to invest for a prepared public health enterprise:** Immediate attention should be given to bolstering the capacity of the nation’s Laboratory Response Network for the rapid and accurate detection of radiological contaminants in our air, food, and water and addressing key workforce issues such as designing and implementing new strategies and approaches to develop sufficient expertise in today’s and future generations of public health workforce regarding radiation and nuclear emergency planning, response, and recovery.
- **Improve preparedness and resilience for the future by learning from the past:** We cannot allow the experience of the Fukushima response and lessons learned slip away. The U.S. government and its partners must make every effort and take every opportunity to chronicle and archive the events for future reference; review and revise controlling response doctrines, plans, policies, and procedures for their relevance and utility judged against our collective performance and experiences; conduct future drills and exercises (such as one on the Passenger Screening and Follow-up Protocol); and perform a more expansive national review to catalogue, analyze, and react to the noted strengths, weaknesses, and gaps that may be found in various after-action reviews conducted across the country as one means to inform future policy development and response planning.

It is the NARR’s hope that these proceedings will provide valuable insights on the self-assessed strengths and gaps of our collective response as well as opportunities for improvement and serve as a resource for policymakers and emergency planners regarding future actions to be considered to improve the nation’s capabilities to more effectively respond to and manage radiation and nuclear emergencies, especially those emanating from nuclear power plants. This report will also serve as a guide to help focus the interests and future activities of the NARR, which will continue to work as a collective voice and force for improving radiation and nuclear emergency preparedness and response. Member organizations will continue to collaborate with federal partner agencies and other state, local, tribal, and private sector entities to develop strategies and implement incremental steps, with the goal of ultimately realizing the improvements suggested in this report.

Purpose

This document identifies key strengths, shortcomings, lessons learned, and opportunities for improvement based on a candid assessment conducted in the fall of 2011 of the collective U.S. public health and medical response to the 2011 incident at the Japanese Fukushima Daiichi nuclear power plant. This review focuses on the U.S. response to domestic concerns rather than international support for the Japanese response. Identification of high-level strategic, tactical, operational, and policy considerations and subsequent efforts to address those considerations will serve to strengthen the nation's ability to prepare for, respond to, and recover from future incidents.

Methods

This document is based primarily on a discussion convened by the NARR on November 17, 2011, in Arlington, Virginia. Participants included NARR members and federal agency liaisons/participants. The NARR was officially established in March 2011 and currently consists of 17 highly regarded and respected national organizations along with 10 federal agencies/operating divisions serving as nonmember liaisons/partners. Its mission is to enhance radiological preparedness capability and capacity in public health and healthcare 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. Additional federal, state, and local professionals were also invited to participate for a fuller, more robust dialogue. More information about the NARR can be found in Appendix A and also by visiting www.radiationready.org. A participant list can be found in Appendix B.

The stated objective of the after-action review (AAR) was: *"The creation of a consensus document by NARR that identifies key strengths, shortcomings, lessons learned, and future opportunities for improvement based on a candid assessment of the collective response to the Japanese Fukushima nuclear reactor (March 2011) incident to help strengthen the nation's public health and medical response to future incidents/emergencies."* It was designed to focus on high level, strategic, tactical, operational, and policy considerations.

In preparation for this discussion and to assist in framing key discussion tracks, an environmental scan was conducted from September to November 2011 based on existing after-action efforts and other relevant documents in public domain. A background document was developed and shared with participants prior to the meeting. This preparatory document can be found in Appendix C. Following the November 17 discussion, participants were also invited to share any afterthoughts with the Association of State and Territorial Health Officials, the administering organization of the NARR, for consideration in the final report. All after-action review participants were also given the opportunity to comment on the draft report before it was remanded to the NARR membership for review and acceptance.

It is important to state that while the after-action discussion and this report greatly benefited from the insights, professional judgment, and wisdom of the participating federal partners and invited participants, this report should not be construed as meeting their acceptance or receiving their endorsement. This report is a synthesis of the opinions, judgments, and observations of those who openly contributed and is the NARR's best effort to capture and memorialize the major messages conveyed.

Observations/Findings/Recommendations

The after-action review was conducted using a discussion framework, presented in three separate sessions:

1. Strengths of the U.S. Public Health and Medical Response
2. Response Elements
 - 2.1. Historical and Institutional Guidance
 - 2.2. Communications, Coordination, and Leadership
 - 2.3. Data Access and Interpretation
 - 2.4. Public Messaging
 - 2.5. Food Safety and Monitoring, Including Cargo Screening
 - 2.6. Passenger Screening and Traveler Health
 - 2.7. Radiation Control and Laboratory Capacity
3. “What If It Happened (or Happens) Here?”

Through facilitated group discussion, the following key themes, observations, and recommendations emerged, presented in no particular order of importance or priority:

1. Strengths of the Response

- 1.1. Surveillance systems, primarily the EPA RadNet, were essential to detecting and describing changes in levels of radiation as a result of the incident. These data added credibility to public messaging.
- 1.2. Other sources of good background environmental data included nuclear power plants. In general, many state and local jurisdictions built on capacities and capabilities developed through existing relationships with nuclear power plants.
- 1.3. The Nuclear Energy Institute provided valuable data on nuclear reactors.
- 1.4. U.S. Department of Health and Human Services (HHS) Regions IX and X jurisdictions immediately convened conference calls that included federal, state, local, and tribal representatives. These calls were forums for sharing information and allowed those jurisdictions without nuclear power plants to benefit from the experience and knowledge of those with nuclear power plants. This was immediately followed by periodic national (all-states calls) convened by the NARR and hosted by ASTHO.
- 1.5. The development of the passenger screening guidelines was a collaborative effort between federal, state, and local agencies, include U.S. Customs and Border Protection (CBP), the Conference of Radiation Control Program Directors (CRCPD), ASTHO, the Council of State and Territorial Epidemiologists (CSTE), the National Association of County and City Health Officials (NACCHO) and CDC.

2. Response Elements

2.1. Historical and Institutional Guidance

2.1.1. Observations/Findings:

- 2.1.1.1. The National Response Framework was not followed due to the international nature of the original incident. The domestic response was based on monitoring for threats and managing fear. The situation did not fit neatly into an established category or system, but nevertheless required coordination, communication, and leadership.
- 2.1.1.2. The response was impeded by lack of institutional memory and knowledge of previous responses to and lessons learned from the Three Mile Island accident and the 1986 incident at the Chernobyl nuclear power plant.
- 2.1.1.3. There was no apparent lead federal agency. Different federal agencies seemed to take the lead on specific issues; the White House also exerted leadership.
- 2.1.1.4. Even though there was no real threat of radiation exposure in the United States, it was perceived as a threat and the public responded accordingly.

2.1.2. Recommendations

- 2.1.2.1. Threats are threats, whether real or only perceived. This type of response should be written into the National Response Framework and companion documents or a separate process should be established to organize efforts and establish clear leadership.
- 2.1.2.2. Lessons learned from the incident should be documented and archived to build institutional memory and be readily available to inform future responses.

2.2. Communications, Coordination, and Leadership

- 2.2.1. Parallel lines of communication (e.g., conversations between the White House and governors) at times created some confusion in the field and hindered coordinated system response.
- 2.2.2. Federal agency release of RadNet data to the media without advance sharing with state and local partners resulted in breakdowns in coordination with state and local jurisdictions. It led to discrepancies between federal and state data referenced in the media, raising issues of credibility. It also created problems for states and localities in responding to inquiries from the press and/or their respective governor's office. Prior knowledge of sampling results before their public release would allow states and localities to interpret the results and prepare the proper messaging.
- 2.2.3. There was some perception that not following the National Response Framework or the Incident Command Structure led to more politically-influenced decisions.
- 2.2.4. The high volume of conference calls (regional, national, technical, etc.) was a function of the maturity of the national system, but the investment of time was not always equal to the utility of information provided during some of the national calls.
- 2.2.5. Some expressed a lack of confidence in federal guidance and information provided on conference calls. Some also expressed concern that their questions addressed to federal participants on the ASTHO calls were not answered during the calls or subsequently, even though federal participants stated they would get the answers.

2.2.6. Recommendations

- 2.2.6.1. Clarity must be achieved regarding which controlling national doctrine guides the incident command and response during events of this type and, to the fullest

extent possible, the National Response Framework, National Incident Management System, and Incident Command Structure should be invoked and adhered to.

2.2.6.2. Emphasis moving forward should be on more timely and efficient bidirectional sharing of information among and between federal, state, and local agencies.

2.3. Data Access and Interpretation

2.3.1. Observations/Findings

2.3.1.1. The difference between radiation units used in the United States and those in other countries as well as differences in protective action guides were sources of confusion.

2.3.1.2. In the early stages, state and local jurisdictions felt disconnected from sources of data and information that would have provided the necessary situational awareness to answer questions from state and local leadership and the public.

2.3.1.3. The EPA RadNet system was a principal source of data. RadNet functioned as intended during the incident and was a good system for providing a broad picture of radiation levels. However, it should be emphasized that RadNet is not designed for targeted or locale-specific monitoring in small geographic areas and the results should be interpreted accordingly (e.g., rain events may alter results, possibly creating hotspots).

2.3.1.4. Release of updated, state-specific RadNet data without advance notice to state radiation control programs resulted in an unexpected increase in public inquiry and concern.

2.3.1.5. More education is needed on interpreting RadNet data.

2.3.1.6. There was confusion on the adequate number of samples, count time, and methods used for environmental sampling. Further work is needed on laboratory methods and standards for counting samples and count time. Both EPA and state jurisdictions reported adding or moving monitors to provide more comprehensive surveillance data.

2.3.1.7. Monitoring across jurisdictional lines can be driven by political decisions (e.g., if one state is monitoring at a certain location, then a border state may feel political pressure to monitor at a similar level, which may not necessarily be supported by the science).

2.3.1.8. Some jurisdictions used radiation data routinely collected by their nuclear power plants and their own state environmental monitoring and surveillance programs and found that data more timely and useful than RadNet.

2.3.1.9. The Federal Radiological Monitoring and Assessment Center maintains aggregate environmental monitoring data. Combining data sets remains a challenge, requiring data sharing agreements and permissions from individual jurisdictions.

2.3.2. Recommendations

2.3.2.1. Standards need to be set for counting radiation in samples. There is no need to set the bar for detection as low as it was during this event.

- 2.3.2.2. States generated their own data, which was useful and could have contributed significantly to increasing the robustness of the data generated through RadNet. There is a need to explore the opportunity to combine data streams, once standardized, into a national database to improve nationwide situational awareness.
- 2.3.2.3. The Integrated Consortium of Laboratory Networks might be a place to aggregate laboratory data across federal agencies (and data sent to them through state and local labs).
- 2.3.2.4. Clear messaging around recommended actions needs to accompany protective action guides.

2.4. Public Messaging

2.4.1. Observations/Findings

- 2.4.1.1. Federal, local, and state government agencies fielded many inquiries from the public on the health impact of the event, including concerns about contamination of water, milk, crops, livestock, and imported products; the use of potassium iodide; and traveler safety.
- 2.4.1.2. Anecdotally, it was observed that populations that had had experience with nuclear reactor incidents (e.g., those around the Three Mile Island reactor), showed fewer fear-driven behaviors than other communities.
- 2.4.1.3. Public health officials did communicate with the public, but the lack of a single national spokesperson for the incident was a source of confusion.
- 2.4.1.4. Messaging was delayed relative to the incident timeline; some perceived as a missed opportunity to educate the public.
- 2.4.1.5. Inquiries revealed gaps in understanding of radiation by the public.
- 2.4.1.6. There was significant demand by the public for potassium iodide (KI) despite messaging against the need for such measures.
- 2.4.1.7. Some misinformation being distributed by the media was corrected through collaboration with medical and public health community.
- 2.4.1.8. Poison control centers tracked calls related to the incident and worked with CDC to provide consistent messaging.
- 2.4.1.9. Some challenges were mentioned regarding delays in obtaining clearance to use FAQ documents.

2.4.2. Recommendations

- 2.4.2.1. As was done during the H1N1 pandemic, a trusted, credible public health and medical national spokesperson (e.g. HHS Secretary, U.S. Surgeon General) is needed to be visible, more effectively discuss the true public health risks and concerns, and allay public fears.
- 2.4.2.2. Enhanced collaboration with the media is needed to ensure consistent, science-based messaging.
- 2.4.2.3. A two-pronged messaging strategy is needed: long term, to pre-script messages as much as possible and short term, to prepare customized messages quickly to meet the needs of the incident. Also central is facilitating timely release of messages.

- 2.4.2.4. Messaging efforts are made easier by educated populations. Sustained efforts are needed to educate and re-educate clinicians and first responders. To maximize public awareness, radiation education, as part of an all-hazards awareness and community resilience program, should be considered in secondary school curricula.
- 2.4.2.5. Education—including participation in drills and exercises—should be extended to non-nuclear-reactor jurisdictions, as these jurisdictions have had less experience and investment in this area than their reactor state counterparts and could benefit from increased exposure and orientation to nuclear reactor emergency planning and response.
- 2.4.2.6. Pre-scripted messages should be developed by federal agencies, to be prepared for the next radiation incident.

2.5. Food Safety and Monitoring, Including Cargo Screening

2.5.1. Observations/Findings

- 2.5.1.1. The chief themes related to food safety were: maintain surveillance systems that provide background data necessary to detect and monitor threats; prepare for and execute careful and consistent public messaging around public health threats to the U.S. food supply; and support existing networks, such as the Food Emergency Response Network, that increase capacity through regionalization and sharing of resources.
- 2.5.1.2. The initial focus of the U.S. Food and Drug Administration (FDA) was on safety of imported foods, with the first strategy being that foods banned in Japan were also banned for import into the United States. Allowable imported products also had to be sampled and certified as safe by the importer. The strategy considered what posed the greatest risk among FDA-regulated products, given both import volumes and consumption rates. (No screening criteria exist for other products, such as drugs and biologics.)
- 2.5.1.3. FDA sampling continues; precedent for long-term monitoring exists in that sampling and analysis that is still occurring related to the Chernobyl incident.
- 2.5.1.4. Some concern was expressed for residents of the Pacific Islands, as their diet is similar to the Japanese diet and involves higher consumption of Japanese products than in the mainland United States.
- 2.5.1.5. Federal, state, and local coordination occurred at ports of entry related to cargo screening. For example, in Washington State, imported car parts were found to have detectable levels of contamination.
- 2.5.1.6. The Food Emergency Response Network was stood up to assist FDA laboratories in the event that FDA sample testing capacity was exceeded.
- 2.5.1.7. Concerns about levels of radiation in the milk supply resulted in a very brief drop in consumption by the public, but levels soon returned to normal.
- 2.5.1.8. Monitoring of cistern water systems did not reveal radiation levels of concern.
- 2.5.1.9. Messaging was required regarding elevated levels of radiation in the milk supply as a result of cows eating contaminated grass. Levels were not of public health concern, but, nevertheless, some perceived a health risk. Relatedly, there is a need for guidance around whether to allow dairy cattle to graze outdoors or to

move them indoors to eat hay to avoid exposure. This is a decision with economic consequences for dairy cattle farmers.

2.5.2. Recommendation

2.5.2.1. Some contingency planning is needed to prepare for the event that garbage from Japan begins to wash up on U.S. shores as a result of the initiating event of the tsunami. The public may have ill-founded fears that the debris may be radioactive.

2.6. Passenger Screening

2.6.1. Observations/Findings

2.6.1.1. CDC, ASTHO, CSTE, CRCPD, NACCHO, and CBP collaborated in the development of the screening guidelines for travelers, which were released on April 19, 2011.

2.6.1.2. Development of guidelines was an example of successful cross-discipline coordination; however, significant delays in the federal clearance of guidelines reduced their immediate value.

2.6.1.3. Screening protocol recommendations were coordinated in at least one state. Although they did not need to be executed, the process of putting the procedures in place was invaluable in establishing relationships and ensuring better preparedness to handle future airport passenger-related radiation contamination issues.

2.6.2. Recommendations

2.6.2.1. Guidelines would benefit from being exercised to test feasibility and application strengths and limitations.

2.6.2.2. Federal agencies need to have a more streamlined process for clearance in emergency situations like this.

2.7. Radiation Control and Laboratory Capacity

2.7.1. Observations/Findings

2.7.1.1. Chief themes were the challenge of effective training and the need for workforce development and succession planning.

2.7.1.2. One critical gap in capacity is workforce.

2.7.1.3. Laboratory scientists are often double- or triple-counted when it comes to estimating response capacity.

2.7.1.4. In addition to general laboratory skill requirements, many individual pieces of laboratory equipment require specialized training. Cross-training of personnel can aid in building capacity.

2.7.1.5. Capacity depends on leveraging existing resources and relationships, such as those with nuclear power plants and National Guard units.

2.7.1.6. Operationalizing the radiation module of the Laboratory Response Network would aid national laboratory capacity (this capacity does not yet exist).

2.7.1.7. A regionalized approach to sharing resources is another way to improve capacity, but relationships and agreements need to be in place prior to an event.

2.7.2. Recommendations

2.7.2.1. For strong planning, response, and recovery efforts, the waning level of radiation subject matter expertise and competency needs to be addressed with familiarity among staff at all levels being increased and succession planning efforts supported. Currently, there is limited “depth on the bench” and too few workers to replace those coming to retirement age.

2.7.2.2. Education and training should include pre-hospital personnel (i.e., emergency medical/ambulance services).

2.7.2.3. Examples exist where medical staff acted inappropriately in an actual response to a radiological incident despite recent training to the contrary. These examples demonstrate a need to be more strategic and creative about education and training efforts for clinicians.

3. “What If It Happened (or Happens) Here?”

- 3.1. Existing communications structure and volunteer management systems would be relied upon but are considered inadequate to manage a significant radiation event and must be enhanced.
- 3.2. Engaging partners from all relevant sectors in executing successful, coordinated evacuation plans as well as clearance of geographically impacted areas for reentry and repatriation would be a priority. Caring for special needs populations is another area requiring partnership and planning.
- 3.3. Response would reveal serious shortcomings in capacity and capability related to long-term recovery and population monitoring.
- 3.4. Leadership and responding agencies would face extreme scrutiny by the media.
- 3.5. Present emphasis on federal, state, and local participation in radiological exercises would help prepare for potential incidents, as the way FEMA and NRC coordinate with state and local agencies on nuclear power plant exercises now. Exercises should include all levels of personnel.
- 3.6. Attention should be given to improving radiation preparedness in states that do not have nuclear power plants.
- 3.7. More consistency across jurisdictions is needed in the actual decisions made using protective action guides.
- 3.8. Better coordination between public health agencies and law enforcement would be needed.
- 3.9. Exercises help build relationships for a stronger response to all actual incidents (both radiological and non-radiological). Conversely, responding to incidents, including natural disasters, tests and validates systems that could often play a role in radiological response. An example of this is Alabama’s ingestion pathway exercise that occurred simultaneous with tornado response. Future drills and exercises should consider design features that would benefit all-hazards planning and response while at the same time addressing those capacities and capabilities necessary for specific hazards, threats, and risks such as radiation.

Epilogue

Subsequent to this national review, in March 2012 the Center for Biosecurity of UPMC issued a report entitled “After Fukushima: Managing the Consequences of a Radiological Release” (http://www.upmc-biosecurity.org/website/resources/publications/2012/2012-03-07-after_fukushima.html). This report was informed, in part, by a workshop conducted on December 13, 2011, which was attended by several NARR members. NARR commends the Center for its work in this area and supports the six recommendations proffered in the report, especially the following four, which are very consistent with those surfaced during the NARR national review:

- “U.S. federal policy should downplay use of KI and emphasize evacuation.”
- “The U.S. government should expand pre-event education and improve post-event communication.”
- “The U.S. should articulate a clear plan for recovery after a large-scale accident.”
- “The U.S. should take steps to sustain professional radiological expertise in the public sector.”

APPENDICES:

- A. National Alliance for Radiation Readiness Fact Sheet
- B. NARR Fukushima National After-Action Review Participants
- C. Discussion Framework for NARR Fukushima After-Action Review

Appendix A: National Alliance for Radiation Readiness Fact Sheet



National Alliance for Radiation Readiness

Vision

To become a more protected, resilient nation through a comprehensive and integrated approach to radiological emergencies

Mission

Enhancing 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

Purpose

To serve as the collective "voice of health" in radiological preparedness through the:

- Participation in national dialogues on radiological emergency issues
- Provision of thoughtful feedback on documents, policies, and guidelines
- Convening of partners to raise awareness of and resolve radiological emergency issues

To build radiological emergency preparedness, response and recovery capacity and capabilities by supporting the:

- Development of mechanisms for sharing resources and tools, including technical methods and information
- Identification and dissemination of best practices
- Definition of and education on the roles and responsibilities of different levels of government and different governmental agencies in radiological emergencies
- Establishment of performance measures and guidelines
- Building and sustaining of long-term competencies

Membership

- American Association of Poison Control Centers (AAPCC)
- American Hospital Association (AHA)
- American Medical Association (AMA)
- American Public Health Association (APHA)
- Association of Public Health Laboratories (APHL)
- Association of Schools of Public Health (ASPH)
- Association of State and Territorial Health Officials (ASTHO)
- Conference of Radiation Control Program Directors (CRCPD)
- Council of State and Territorial Epidemiologists (CSTE)
- Health Physics Society (HPS)
- International Association of Emergency Managers (IAEM)
- National Association of County and City Health Officials (NACCHO)
- National Association of State EMS Officials (NASEMSO)
- National Disaster Life Support Foundation (NDSLIF)
- National Emergency Management Association (NEMA)
- National Public Health Information Coalition (NPHIC)

2011-2012 Priorities

- Japan nuclear crisis after-action white paper
- Sharing, marketing and evaluation of radiological readiness tools

Appendix B: NARR Fukushima National After-action Review Participants



National Alliance for Radiation Readiness

Business Meeting and Fukushima After Action Meetings

November 15-17, 2011

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National Alliance for Radiation Readiness

Business Meeting and Fukushima After Action Meetings

November 15-17, 2011

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Appendix C: Discussion Framework for NARR Fukushima After-Action Review



National Alliance for Radiation Readiness

Discussion Framework for Fukushima After Action Meeting November 17, 2011

Historical/Institutional Guidance

- The National Response Framework (NRF) was not activated due to the international nature of the event. The NRF has no contingency plan for a foreign incident that creates a public reaction of fear in the United States.

Recommendation

- Consider re-authorizing national guidance that President Kennedy signed and published in a 1961 Federal Register Notice for I-131, with a 500 millirem guide for atmospheric fallout. This guide could be used regardless of the origin of the I-131 released to the environment.

Discussion Question

- Is there a mechanism to activate the National Response Framework (or similar plan) during a potential future event? What are the advantages and disadvantages?

Communication, coordination and leadership

- Conference calls: HHS Region X; EPA Region 9 Multi-agency Coordination Group; national ASTHO-led conference calls; APHL-led calls for laboratorians
- Sharing of information: CDC talking points; EPA talking points; EPA fact sheet on Drinking Water
- Activation of the National Response Framework would have led to the declaration of a lead federal agency and the establishment of a federal, interagency Joint Information Center.
 - Lack of declaration of lead federal agency led to delays in issuing of health messages.
 - Interagency Joint Information Center would have reduced inconsistencies, delays, and communication by varied channels.
- Lack of federal pre-approved, releasable information to share with states and local partners.
- US Senate Committee on Appropriations: “The Fukushima Daiichi disaster in Japan is an opportunity to learn about the impacts of the disaster on human health and apply lessons learned to make more informed decisions on protection if a similar accident occurs in the future, including dose trip points for evacuation and shelter-in-place orders” (September 7, 2011; 92).

Recommendations

- Interjurisdictional communication needs to be sensitive to differences in regional needs (e.g., West Coast vs. East Coast).
- Improved federal, state, and local information sharing around potassium iodide stockpiles and planning would facilitate concerns from interested parties, e.g., state legislators. Key questions included ownership of the stockpile.

Discussion Questions

- How can information demands for timely situational awareness at the federal, state, and local level be met?

- What can be learned from positive regional collaborations?
- What steps can be taken to improve overall federal, state, and local communication and collaboration?

Data access and interpretation

- RadNet data were a key data source. “In response to the Japanese nuclear incident, EPA accelerated and increased sampling frequency and analysis to confirm that there were no harmful levels of radiation reaching the U.S. from Japan and to inform the public about any level of radiation detected....EPA's nationwide radiation monitoring system, RadNet, detects radiation in air monitoring and sample analysis...More than 100 air monitors measure radiation 24 hours a day, 7 days a week... During normal operations, EPA analyzes precipitation samples every month, and drinking water and milk samples every three months.”
- Release of updated, state-specific RadNet data without advanced notice to state radiation control programs resulted in an unexpected increase in public inquiry and concern.
- Federal Radiological Monitoring Assistance Center’s National Atmospheric Release Advisory Center (NARAC) flyover data initially available to current account holders from the US Department of Energy was terminated in the early days of the emergency. State requests to the NARAC for plume projections were denied; states used plume projections from foreign government sources.
- Access to and discussion of Protective Action Guides [PAG] or Derived Intervention Levels (DIL) corresponding levels from federal agencies (EPA, FDA and CDC) took 3-4 weeks.
- The media misapplied the Drinking Water Standard for iodine 131 to rainwater.
- The difference in radiation units used in the US and other countries was a source of confusion.
- Findings of the Fukushima Residents’ Health Management Survey will inform planning and understanding of the health effects of a radiological event.

Recommendations

- State and local partners need improved access to federal data as well as technical assistance in data interpretation and comparison.
- Further develop protocols for training state and local partners on the use and limitations of EPA RadNet data, and consider providing more narrative to help members of the public better understand expected fluctuations in natural background radiation.
 - Nationwide dissemination plan for RadNet data should be developed.

Discussion Questions

- What data are most important during a radiological event (plume tracking, anticipated concentrations, anticipated contaminant arrival, release data, and ingestion issues)?
- What steps can be taken to improve timely access to important data by state and local partners?

Public messaging

- Government agencies fielded many inquiries from the US public on the health impact of the event, including concerns about contamination of water, milk, crops, livestock, and imported products; the use of potassium iodide; and traveler safety.
- Market supplies of potassium iodide ran low due to consumer demand despite messaging against such measures.
 - US Nuclear Regulatory Commission (NRC): “Recent events have shown a continued gap in the public knowledge with respect to KI. Based on the observed gaps in public awareness following the accident at Fukushima, an effort to increase education and

outreach in the vicinity of each nuclear power plant is warranted...In addition to public participation, the NRC should make extra effort to involve local response personnel, health officials, decisionmakers, media, and local politicians.” (64).

- US Surgeon General calls purchasing potassium iodide “a precaution”; later clarifies recommendation not to purchase potassium iodide and to listen to advice of state and local health authorities.
- Access to timely data and information, leading to lack situational awareness, especially in the initial phase of the event, inhibited messaging.
- US Nuclear Regulatory Commission issued a 50 mile evacuation recommendation for American citizens around Fukushima, which is not consistent with US Emergency Planning Zones.
 - Senator Murkowski: “Do you think that it was confusing the fact that the evacuation order from the Japanese government that it be 12 1/2 miles initially and then the United States coming in and saying 50-mile radius. What does that message say that Americans are more worried about the radiation than the Japanese are to those that are living there?” (March 29, 2011; 35)

Recommendation

- Develop a mechanism for establishing improved communication in this type of event, i.e., a domestic response to an international event.
- Federal, state, and local entities should collaborate to create timely, simple, clear, consistent messages for target audiences, such as pharmacies, health care providers, and the public, around the need for and use of potassium iodide.
- Pre-scripted messaging would improve timeliness of communication, such as using a “what-if” approach to message requirements that anticipates public concerns at the beginning of an incident and create message maps accordingly.
- Changes to laboratory methods, counting times, etc., should be made with a plan for how positive results will be interpreted and explained to the public.
- Overall, public messaging describing threats to health based on data interpretation need to be simpler and timelier.

Discussion Question

- What lessons can be learned from the experience of public messaging around the use of potassium iodide?

Food safety and monitoring, including cargo screening

- FDA, EPA, and NOAA collaborated on seafood safety fact sheet
- Timely FDA bulletins on Japanese food imports shared with state and local partners.
- Processes, screening methods, and thresholds for cargo screening were shared among US Customs and Border Protection, the Centers for Disease Control and Prevention, and state radiation control programs.

Recommendations

- Collaboration was a success and should be continued among federal, state, and local partners.
- Greater federal, state, and local planning for a radiation release that affects US agriculture and food production is indicated.

Discussion Questions

- What steps could facilitate greater collaboration among federal, state, and local jurisdictions on cargo screening?
- What are some first steps that can be taken to plan across jurisdictions for a radiation release that affects US agriculture and food production?

Passenger screening

- CDC, ASTHO, CSTE, CRCPD collaborated in the development of the screening guidelines for travelers.
- Traveler screening guidelines were released on April 19, 2011, thirty-nine days after precipitating event.
- Recommended screening protocols were coordinated in at least one state. Although they did not need to be executed, the process of putting the procedures in place was invaluable in establishing relationships and ensuring better preparedness to handle future airport passenger-related radiation contamination issues.

Recommendation

- Test guidelines through table top or functional exercise.

Radiation control capacity

- IAEA recommends “A suitable and timely follow-up programme on public and worker exposures and health monitoring would be beneficial” for Japan (4).
- States with limited radiation control capacity rely more heavily on federal expertise; this increases the need for good communication, coordination, and transparency.

Recommendation

- Supplement state and local resources with local volunteer radiation professionals, such as are available through the Medical Reserve Corps.

Discussion Questions

- What is needed to improve monitoring capacity in the US?
- What kind of capacity is needed immediately following an event? What type of long-term capacity is needed?

Laboratory capacity

- US laboratory capabilities are deficient; the current analytical capabilities are time intensive; and only a few samples can be run per day.
- At both the national and state level, there seemed to be an overall shift away from standard protocols and methods for analyzing radiological samples in an effort to “find a real number”. As a result, count times, sample size and preparation methods were altered from the “standard” in order to find real numbers for the analysis.

Recommendations

- More investment in laboratory capacity is needed, including in new instrumentation.
- Laboratories would benefit from technical assistance from the national uniform radiation laboratory including on uniform sample collection and data.

Discussion Questions

- What differences in state regulatory requirements impact federal policy? What steps can be taken to mitigate negative impact(s)?
- What is specifically needed in terms of equipment & supplies to increase levels of preparedness? Personnel? Standards, guidelines, protocols?
- Can the information gathered from Japan incident be used to project needed lab capacity for a similar US event?
- What information on laboratory response would be useful for future planning, [e.g., How many labs responded (from local, state and federal levels)]?

- Ex. Washington State Public Health Laboratory was able to process 138 samples and perform 179 tests looking for 388 analytes.
- What was the extent of clinical testing needed for this event? Are US labs CLIA- and bioassay-ready for clinical specimen screening?