Promoting Use of Local Volunteer Radiation Professionals in Emergency Response to Assist in Population Monitoring and Public Shelter Operations

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Abstract. A major nuclear or radiological incident will impact not only the community directly affected but also nearly every community in the country as potentially millions of displaced persons will seek assistance to address their health needs, screen them for radioactive contamination, and provide them with adequate shelter and assistance in relocation. In the United States, state and local agencies are responsible for public health and safety during radiological events. In the aftermath of a radiological accident or terrorist activity, state and local resources would be quickly overwhelmed by the large number of citizens needing to be monitored for contamination. One method of supplementing state and local resources is through the use of local trained and registered volunteer radiation professionals who could perform population monitoring and other assistance at community reception centers as well as support operations at public shelters. Volunteer radiation professionals can include health physicists, medical physicists, radiation protection technologists, nuclear medicine technologists, and others who have training in radiation measurement. During 2010-2011, the Conference of Radiation Control Program Directors coordinated with the Centers for Disease Control and Prevention in a program to evaluate the feasibility of incorporating volunteer radiation professionals into existing volunteer registries (e.g., Emergency System for Advance Registration of Volunteer Health Professionals, Medical Reserve Corps, state volunteer registries, etc.). This program was piloted in seven state and local jurisdictions. CRCPD is providing outreach and further partnering with additional state and local radiation control programs and response agencies, as well as local chapters of radiation professional societies to promote recruitment and training of radiation professionals in additional jurisdictions and building a cadre of radiation professionals that could be used during a major radiological emergency. This presentation will describe the outcomes of the pilot program and the status of the current efforts.

Key Words

Population monitoring
Radiological emergency response
Radiation professionals

1. Background

In the United States, state and local agencies are responsible for public health and safety during any radiological accident or incident. The National Response Framework has identified population monitoring, among other duties, as a state and local responsibility, since it is included as a health and safety function. [1] In most cases, planning for this part of the response falls primarily to state radiation regulatory agencies. Most state and local radiation control programs are staffed and trained to respond to minor localized incidents involving sources of radiation. In the case of those within the 10-mile Emergency Planning Zone of a nuclear power plant, staffing may be adequate to respond, make assessments and provide recommendations to and communicate with local government officials, and provide some assistance in community reception centers. However, in the event of a major radiological incident, state and local radiation control and emergency response program resources for population monitoring would quickly be overwhelmed by the large number of citizens needing evaluation

for contamination, especially in major metropolitan areas. [2] Recent events in Japan following the earthquake, tsunami, and reactor incident at Fukushima Dai-ichi exemplified the need for efficient and timely population monitoring methods and emergency resources for a large number of people.

The Department of Health and Human Services' Centers for Disease Control and Prevention (DHHS/CDC) has the responsibility of coordinating federal resources to assist states in providing population monitoring. [1,3] The Conference of Radiation Control Program Directors (CRCPD) is a national non-profit organization whose primary membership is made up of state and local radiation control officials and staff. Both DHHS/CDC and CRCPD have recognized a need to strengthen local and state capacity to perform population monitoring activities at the local level where federal resources may not be adequate to accommodate large populations spread across many communities.

One method of enhancing the limited resources of state and local response agencies is through the use of local volunteer radiation professionals who could provide assistance at community reception centers and shelters, emergency operations centers, hospitals, and other areas where potentially contaminated persons would gather after a radiological incident.[4] Volunteer radiation professionals can include health physicists, medical physicists, radiation protection technologists, nuclear medicine technologists, and others who have training in radiation measurement. In the United States, there are tens of thousands of radiation professionals who could volunteer to assist state and local public health and emergency management agencies in the event of a large scale nuclear or radiological incident. The Medical Reserve Corps (MRC), a national volunteer organization that is a part of the Citizen Corps program, currently provides an infrastructure for volunteer emergency efforts.[5] There are over 980 MRC units in operation in the U.S. with more than 200,000 professionals and other types of volunteers. The program has demonstrated the ability to be of tremendous benefit for other public health preparedness issues, such as assisting in operation of Points of Dispensing sites for distribution of Strategic National Stockpile assets during a public health emergency.[6]

CRCPD, as well as the state and local radiation control programs and public health preparedness programs have, during several national meetings and workshops, indicated the need for bridging gaps in state and local agencies' ability to respond to a major radiological or nuclear incident, such as the explosion of a radiological dispersion device ("dirty bomb") or an improvised nuclear device, or a major incident at a nuclear power plant. Only a few states had initiated efforts to mobilize non-state workers to assist in radiological incident response. Examples included Massachusetts' Nuclear Incident Advisory Team, Pennsylvania's Radiological Assistance Program, and Florida's Radiation Response Volunteer Corps, a sub-specialty of the existing MRC. At a Volunteer Radiation Professionals Roundtable at CDC headquarters in Atlanta in February 2009, these gaps in capabilities and solutions were discussed. The roundtable participants and CDC's Radiation Studies Branch representatives supported the need for a project that would evaluate the achievability and sustainability of using radiation volunteers to enhance radiation preparedness.

2. Description and Scope of the Radiation Response Volunteer Program

With funding from CDC, CRCPD established a pilot program that would incorporate radiation professionals into existing volunteer registries and programs and assess the feasibility of developing self-sustaining volunteer emergency response programs that include radiation protection professionals. Proposed projects for the establishment of radiation volunteer corps were solicited from state radiation control agencies through a request for proposal process. As a result of the screening process by a Task Force for Volunteer Development, made up of several CRCPD members, sub-contracts were established and funded with one local and five state radiation control agencies to:

- Pilot a process for recruiting, managing and training volunteer radiation professionals;

- Promote a volunteer registry of radiation professions within existing registries and/or programs;
- Develop a publishable plan for effective deployment and utilization of the trained volunteers that would align with existing state and local emergency response plans; and
- Develop an action plan for continued and expanded use of the program.

In addition to providing oversight of the projects performed by the sub-contracting agencies, members of the CRCPD's Task Force for Volunteer Development and staff of the CRCPD Office of the Executive Director provided information and outreach to radiation professionals at national and local chapter meeting of professional organizations on the radiation response volunteer effort. Although each of the sub-contracts with the six participating radiation control programs varied in approach, each of the programs developed a system of planning, recruitment, training and potential deployment of radiation response volunteers for population monitoring and other related activities. Funding for the pilot program in the six agencies was used for recruitment activities, including brochures, travel for outreach and training, and logistics for the training sessions. Volunteers were provided with information on notification, locations for population monitoring centers in their area, and efficient monitoring techniques, using both portal monitors and hand-held instruments with appropriate probes. Several of the states also were able to incorporate the radiation volunteer program into their state emergency response plan.[7]

3. Outcomes of Pilot Program

The radiation response volunteer corps development project resulted in several successful accomplishments and provided a foundation for continued efforts in incorporation of radiation volunteers into emergency preparedness plans. As CRCPD and the sub-contracting entities completed the pilot, several lessons and recommendations for improvement were also identified and noted in the final report.[7]

The key accomplishments and best practices identified for the project included the following:

a) The project increased awareness of the need to develop a system for population monitoring among the radiation control community. Discussions, exhibits and other networking opportunities at the local, state, and national level brought the regulatory community and the radiation professional societies to a greater understanding of the need for radiation volunteers in emergency preparedness and response.

b) A large potential pool of volunteers from radiation professionals and individuals with existing skills in the medical, industrial, and academic areas were identified. These persons and groups could be targeted for recruitment and training for use in population monitoring and reception center assistance.

c) Various methodologies for mobilization of radiation volunteers were identified. The implementation approaches taken by each of the participating programs differed somewhat but were consistent with the jurisdictional needs and emergency response plans of each agency. Since the project allowed for flexibility, the projects were more innovative and may result in greater sustainability over time.

d) A significant number of volunteers were trained to assist with population monitoring and shelter needs through workshops and seminars. The training, much of which included hands-on activities and awareness of the roles and responsibilities of radiation professional volunteers, enhanced the interest and enthusiasm of the volunteers to stay involved. Some of the volunteers

have also been used in exercises. One such group of volunteers are participating in a national-level exercise involving a radiological dispersal device (RDD) in 2012.

e) A large collection of training material and programs that can be used by other states has been developed. A secure site within the CRCPD's web site was established to share resources developed by other pilot agencies. These included training resources, presentations, flyers, and promotional ideas. Since the completion of the pilot program, these materials are available to others.

f) A process for registering trained volunteers who could be called upon to respond in a national radiological emergency was initiated with the Medical Reserve Corps. Prior to the project, most state radiation control programs and the radiation professionals with whom they interact were not aware that volunteer programs such as MRC exist and how MRC's infrastructure could assist them in emergency planning. Additionally, most MRC leaders were not aware of the role their units could play in helping communities respond in a radiation emergency and the assets that could be incorporated to assist in that effort. In areas where MRC units did not exist, chapters of radiation professional organizations (e.g.., the Health Physics Society) have taken on the responsibility for maintaining a registry of trained volunteers.

g) Outreach at all levels of radiation professional societies was accomplished efficiently and effectively. Exhibits and presentations were provided at national meetings of CRCPD, the Health Physics Society, the American Association of Physics in Medicine, the American Society for Radiation Oncology and MRC. A brochure explaining the program and methods for volunteering was developed and disseminated at those conferences as well. CRCPD members also interacted with local emergency management agencies to include volunteers in local plans.

h) A very important aspect of a radiation volunteer registry is the establishment of qualifications and the credentialing of volunteers. In some states, the "Good Samaritan Laws" only protect credentialed volunteers from liability when carrying out their assigned responsibilities. CDC, CRCPD, and the Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP) need to develop the qualifications for radiation professionals acting in volunteer capacities.

The pilot project also provided challenges and other lessons learned from the experience. Some of the major lessons gleaned from the project included:

a) Electronic reference material provides instant resources. In several individual state programs, each participant in the population monitoring course receives a flash drive that contained the PowerPoint presentations from the training, useful links to resources and contacts, e.g., those established by CDC online for a virtual community reception center and methods for conducting population monitoring, [2,8] information on the use of instruments, a template for gathering population monitoring information, and other useful reference material.

b) There is a need for increased communication between the MRC coordinators and the radiation control programs for better collaboration in incorporating radiation professionals into MRC programs.

c) In order for the volunteer programs to be sustainable in state emergency preparedness programs, radiation control programs need to continue to be creative in finding long-term funding mechanisms for provision of follow-up training, exercising and maintaining interest among the volunteers. An alternative option that has been suggested is to transfer this responsibility to local MRCs, professional organizations, or local emergency management offices.

d) Some of the radiation control programs were constrained by contracting requirements, limitations on logistical capabilities, such as space rental, and other duties. Future opportunities to carry out radiation volunteer corps development should be expanded to non-profit professional organizations.

e) Triage and instructions are needed for non-removable contamination. The primary focus of the training provided to radiation volunteers during the pilot was to be able to identify and remove external contamination. Some persons in a radiological event may be affected by internal contamination. Instructions on identifying internal contamination and providing follow-up information to persons affected by it have not been developed.

4. Future Activities

The pilot project demonstrated that development of a volunteer emergency response program is feasible in state and local agencies. The evaluation of the pilot project revealed several technical and logistical issues that need to be addressed in order for the program to be sustainable and for it to be expanded to other states across the country.

In September 2011, CRCPD entered a five-year cooperative agreement with DHHS/CDC for development and enhancement of the process for recruiting, managing and training volunteer radiation professionals. The project will include identifying and engaging state and local preparedness and response partners, including radiation control authorities, public health departments, emergency management agencies, professional societies and volunteer associations, and partnering with them in project activities. CRCPD plans to carry out this partnership through a system of sub-awards provided to state radiation control programs, public health preparedness programs, and/or local non-government organizations partnering with radiation control programs to incorporate volunteer radiation professionals into existing health volunteer response programs. Each state and local project for which CRCPD will provide sub-awards must present proposals and sign agreements that ensure that:

- There is a practical process for recruiting, managing and training volunteer radiation professionals;
- Radiation professionals are recruited into existing volunteer response organizations, such as the Medical Reserve Corps;
- Recruited radiation professionals are provided training in roles and responsibilities, population monitoring and addressing shelter needs during a radiological emergency, and other emergency response training required by the jurisdiction (such as Incident Command System training);
- The sub-recipient agrees to partner with CRCPD in outreach to radiation professionals in the community; and
- A sustainable plan for continued and expanded use of the radiation volunteer program is outlined for the state or local area.

The sub-awards (sub-grants or contracts) may be used for outreach, recruitment and registration, training, drills and exercises, and communication methods to enhance the volunteer response program. A system of web-based communication is being established among state and local programs that partner with CRCPD to implement a volunteer radiation professional program in their areas. The communication site can be used to maintain engagement and to share experiences, training programs and drill procedures. The response to the initial Request for Proposals for the sub-awards has been enthusiastic, and it is anticipated that up to 10 sub-awards will be granted under this agreement in the near future.

CRCPD will continue to outreach to radiation protection professionals at the national, regional, state and local levels (i.e. health physicists, medical physicists, radiologic technologists, and nuclear medicine technologists) by email distribution, mail distribution, newsletter announcements, and/or making presentations and/or exhibiting at national and local professional meetings or conferences. CRCPD has established relationships with several national radiation professional societies, and plans to maintain communication through the national organizations and through the partnerships established at the state and local level. Members and staff of CRCPD will also make presentations at professional conferences to present an overview of the project and findings from the project, including promising practices, lessons learned and future activities.

Based on the feedback and reports from the participating state agencies and organizations, CRCPD plans to develop a sustainable action plan for continued and expanded use of the program by exploring methods for developing self-sufficient activities to ensure that volunteer radiation professionals remain engaged, such as participating in planning, training, drills and exercises.

References

1. U.S. Department of Homeland Security, Federal Emergency Management Agency. National response framework [online]. 2008a. www.fema.gov/emergency/nrf/

2. U.S. Centers for Disease Control and Prevention. Population monitoring in radiation emergencies: a guide for state and local public health planners [online]. 2007. http://emergency.cdc.gov/radiation/pdf/population-monitoring-guide.pdf

3. U.S. Department of Homeland Security/Federal Emergency Management Agency. Nuclear/Radiological Incident Annex [online]. 2008b. www.fema.gov/emergency/nrf/incidentannexes.htm

4. National Security Staff, Interagency Policy Coordination Subcommittee for Preparedness and Response to Radiological and Nuclear Threats. Planning Guidance for Response to a Nuclear Detonation, Second Edition. [online]. 2010. http://www.remm.nlm.gov/PlanningGuidanceNuclearDetonation.pdf

5. Office of the Surgeon General, Division of the Civilian Volunteer Medical Reserve Corps. https://medicalreservecorps.gov/HomePage

6. U.S. Centers for Disease Control and Prevention (CDC), Office of Public Health Preparedness and Response, Strategic National Stockpile (SNS). http://www.cdc.gov/phpr/stockpile/stockpile.htm

7. Conference of Radiation Control Program Directors, Inc. (CRCPD), Plan for Incorporating Local Volunteer Radiation Professionals into Existing Health Volunteer Programs to Assist in Population Monitoring. 2011. http://www.crcpd.org/Homeland_Security/RRVC_FinalReport.pdf

8. U.S. Centers for Disease Control and Prevention (CDC), Virtual Community Reception Center (vCRC). http://emergency.cdc.gov/radiation/crc/vcrc.asp