

Public Health Emergency Response Lessons Learned by Rapid Deployment Force 3, 2006–2016

Following Hurricane Katrina, the uniformed US Public Health Service created an updated system through which its officers participated in emergency responses. The Rapid Deployment Force (RDF) concept, begun in 2006, involved five teams of officers with diverse clinical and public health skill sets organized into an incident command system led by a team commander. Each team can deploy within 12 hours, according to a defined but flexible schedule.

The core RDF mission is to set up and provide care for up to 250 patients, primarily persons with chronic diseases or disabilities, in a temporary federal medical station. Between 2006 and 2016, the RDF 3 team deployed multiple times in response to natural disasters and public health emergencies. Notable responses included Hurricane Sandy in 2012, the unaccompanied children mission in 2014, and the Louisiana floods in 2016.

Lessons learned from the RDF 3 experience include the need for both clinical and public health capacity, the value of having special mental health resources, the benefits of collaboration with other federal medical responders, and recognition of the large burden of chronic disease management issues following natural disasters. (*Am J Public Health*. 2018;108:S179–S182. doi: 10.2105/AJPH.2018.304496)

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The Commissioned Corps of the US Public Health Service (PHS), which traces its origins to 1798, is one of the seven US uniformed services.¹ Under the leadership of the US Surgeon General, the PHS includes approximately 6800 commissioned officers, who span multiple categories of health service professionals and work for various agencies within and outside the Department of Health and Human Services (DHHS).² Officers are required to maintain deployment readiness standards, including passing annual physical fitness testing and maintaining basic life support certification and other professional licensure or certification as appropriate. The PHS officers have long responded to public health emergencies—for example, making notable contributions as part of the responses to Hurricane Katrina and the West African Ebola epidemic.^{3,4}

DEVELOPMENT OF THE RDF CONCEPT

A major post-Katrina after-action report recommended development of new systems through which PHS officers could deploy as part of emergency responses in an organized yet flexible way.⁵ The PHS Rapid Deployment Forces (RDFs) were created in 2006 as part of the National Response Framework for Public Health and Medical Services.⁶ When

activated, the RDFs provide assistance with direct patient care to state, tribal, and local health authorities throughout the United States. There are five RDFs, each composed of approximately 150 PHS responders. The RDF members receive specialized training, including psychological first aid.⁷ Teams can be split to cover missions in different geographic locations or to cover day and night shifts for patient care. An RDF can deploy within 12 hours of activation. Teams are on call every 5 months and deployments typically do not exceed 2 weeks, but may be longer to meet public health needs. Between August 25 and November 9, 2017, more than 1600 PHS officers deployed for up to 30 days in support of the responses to Hurricanes Harvey, Irma, and Maria.⁸

In this commentary, we review the objectives and organization of the RDF system, provide field experience examples from the team (RDF 3) for which the authors served in command and public information officer roles, and summarize lessons learned.

Primary sources include team after-action reports and other unpublished documents.

RDF MISSION, ORGANIZATION, AND CAPABILITIES

Each RDF is capable of responding to public health emergencies and urgent health needs arising from a major natural disaster. The primary mission of the RDF is to set up, staff, and operate a 250-bed federal medical station (FMS). The Veterans Administration can set up additional FMSs as needed. While deployed in the field, RDF teams are under the control of the Office of the Assistant Secretary for Preparedness and Response (ASPR).⁹ The RDFs receive logistical support through the DHHS Incident Response Coordination Team, which works with the requesting state to ensure that the RDF has the capabilities needed to care for both patients and team members. If the response needs exceed the capacity of the assigned RDF, the team can be augmented with

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PHS officers from other RDFs, other specialized PHS teams, and Disaster Medical Assistance Teams (DMATs). Members of DMATs are civilian health care workers who become “intermittent” federal employees when activated. Like RDFs, DMATs are ASPR assets while deployed. Other local and state staff, such as those affiliated with health departments, are typically relieved of duty upon arrival of an RDF so they can attend to family disaster-related needs or other needs of the affected population. The Strategic National Stockpile maintains thirty-two 250-bed FMS caches of supplies and equipment.¹⁰

The general organization of an RDF is shown in Figure 1. The team commander is responsible for overall command and control of the team and bears primary responsibility for mission success. When a team is split for operational reasons, deputy commanders can serve as a team commander for half of the team in the field. The safety officer is primarily responsible for the physical safety of the team. The public information officer/liaison officer serves as the team’s primary point of communications with the media, governmental officials, and the public. The RDF 3 team is organized per incident command system requirements into Operations, Administration, Logistics, and Planning sections.¹¹

The Operations Section conducts tactical medical and public health operations to support the mission assignment, and to care for medical needs of RDF members. Operations Section staff include doctors, nurses, midlevel providers, pharmacists, environmental health specialists, rehabilitation specialists, mental health specialists, nutritionists, laboratory technicians, medical

record staff, and veterinarians. This section is divided into Medical Services, Preventive Medicine, Pharmacy, and Ancillary Services Branches. These officers have considerable experience in providing care to patients. For acute care, RDFs are supplemented by either a co-located DMAT or local and regional health care providers. The Preventive Medicine Branch conducts assessments of environmental health, food safety, and sanitation.

The Administration Section is primarily responsible for maintaining accurate team rosters and ensuring that all team members are accounted for. The Administration Section can also conduct or coordinate FMS patient discharge and discharge planning as needed, in addition to coordinating with other deployed PHS officers for follow-up support.

The Logistics Section ensures that patients, caregivers, the RDF, and other supporting staff receive food, water, housing, transportation, and other resources needed to conduct operations from the time the team arrives on site until the team

departs. The Logistics Section also ensures that a minimum of 2 days of medical supplies are available at all times, tracks rates of consumption, and organizes distribution of supplies. In addition, the Logistics Section provides information technology and communications support to the RDF and ensures connectivity with the Incident Response Coordination Team. Logistics officers are capable of setting up communications and electronic medical record systems,¹² as well as working with local or state agencies to ensure food delivery, portable toilet availability, and biohazardous waste removal.

The Planning Section is responsible for team planning before deployments. Planning Section staff develop tactical and strategic planning, conduct contingency planning, and provide ongoing situational awareness to the team commander and the team as soon as an RDF is activated to deploy. In addition, the Planning Section is responsible for developing and issuing the daily incident action plan and any required situation reports. The Planning Section also is responsible for documenting team

activities, including preparing after-action reports following deployments.

Rapid Deployment Force 3 brings considerable experience and capabilities to any mission. The primary capabilities of an RDF include primary care, mental health, and public health services for populations sheltered in an FMS; point-of-distribution operations (mass prophylaxis and vaccination); medical surge capacity, isolation, and quarantine; prehospital triage and treatment; community outreach and assessment, including public health needs assessment; medical supplies management and distribution; worker health and safety; and companion animal health emergency support.

SUMMARIES OF KEY DEPLOYMENTS

Following its creation in 2006, RDF 3 had its first field deployment in 2008 after Hurricanes Gustav and Ike. The following summaries of missions are intended to convey the range of responses an RDF is capable of

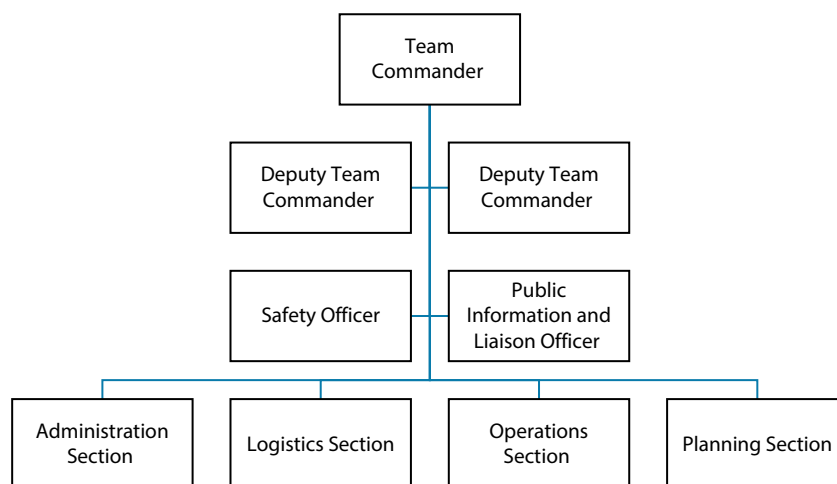


FIGURE 1—Command and Organizational Structure of a Rapid Deployment Force Team

supporting, but do not constitute a complete listing of all responses.

Hurricane Sandy

Hurricane Sandy made landfall in the northeastern United States on October 29, 2012. The hurricane affected areas in Connecticut, New York, and New Jersey, causing residents to lose power, water, and, in some cases, their homes. On October 27, RDF 3 was placed on alert, and on November 3 it was deployed. In total, 69 team members and 10 additional officers were sent to Middlesex County College, in New Jersey, to staff a 250-bed FMS. Following the 2-week deployment, a survey of team members conducted by the Planning Section revealed overall themes of teamwork and high morale. The team encountered multiple challenges related to the use of a newly deployed electronic medical record. During the storm recovery period, a limited number of RDF 3 officers worked with DMATs, National Guard units, and other federal emergency responders to assess community health care needs, perform clinical services such as refilling prescriptions, and protect responder health.¹³

Unaccompanied Children

In May 2014, the Commissioned Corps was authorized to deploy officers in support of the response to the influx of unaccompanied children from Central American countries who were crossing the southern US border. The RDF mission was to assist US Customs and Border Protection by providing medical screenings and immunizations to the children at the Customs and Border Protection facility in Nogales, Arizona. Some RDF 3 officers also assisted ASPR with logistics in Washington, DC.

Rapid Deployment Force 3 coordinated their efforts with teams of PHS officers specializing in applied public health, mental health, and social work. The PHS officers worked closely with officers from Customs and Border Protection and Immigration and Customs Enforcement, as well as staff from the Federal Emergency Management Agency, the Administration for Children and Families, and the Centers for Disease Control and Prevention.¹⁴

In July 2014, 83 RDF 3 officers deployed for the UAC mission. The team split into two rosters to accommodate space restrictions at the lodging sites and the Nogales facility. The first team deployed for 2 weeks and was relieved by a second wave of RDF 3 members. The second team, after completing the mission in Nogales, established a similar mission in McAllen, Texas. A post-deployment survey of all officers raised concerns about how the political sensitivity of the mission may have resulted in lack of situational awareness, but noted the team's professionalism in completing this high-profile assignment.

2016 Major Flooding in Louisiana

In August 2016, Louisiana experienced catastrophic flooding following prolonged, heavy rains. The flooding damaged approximately 40% of homes in the affected areas and affected more than 100 000 people. Thousands of individuals and families were displaced from their homes and many were forced to relocate to public shelters.

The Louisiana Department of Health established and staffed a special-needs medical shelter located on a local university

campus. As more individuals were admitted into the shelter, the Louisiana Department of Health requested federal assistance. In response, ASPR deployed DMAT teams from Alabama, New Mexico, and Puerto Rico, as well as 102 officers from RDF 3. For 2 weeks, RDF 3 and DMAT staff jointly provided around-the-clock medical and behavioral health care for special-needs medical shelter residents, in addition to coordinating higher-level care needs (e.g., dialysis) with local providers. Officers also provided medical and public health support for other local shelters; offered mental health services to officers, patients, and caregivers; successfully incorporated medical records into the electronic medical record; and coordinated patient transport activities with military personnel. A Services Access Team, comprised of PHS officers skilled in case management, worked in coordination with RDF 3 clinical staff and local staff to find appropriate placements for patients. Some patients required discharge to a relatively high level of care such as a skilled nursing facility, and others could be discharged into the care of relatives or to other appropriate community settings. According to surveyed patient and caregiver satisfaction, this was viewed as a successful mission for RDF 3.

TRAINING AND SERVICE MISSIONS

The RDF teams may be called upon to serve as a training asset to state and local governments. These training exercises allow RDF teams to practice setting up an FMS and allow the state or other requesting organization to see what an FMS looks like and

what assets a RDF can provide. Locations for RDF 3 training missions have included Camp Bullis, in San Antonio, Texas (August 2007); Fort A. P. Hill, in Bowling Green, Virginia (August 2009); Myrtle Beach, South Carolina (April 2009); and Paducah, Kentucky (May 2011). The Paducah training included a daylong mock FMS exercise done in coordination with the state department of health, during which trained community members served as simulated patients.

A service-oriented mission is a nonemergency mission, typically a few days to 1 week in duration, in which RDF teams provide direct services or training to a government or non-governmental organization. Unlike emergency deployments, a service-oriented mission allows a predeployment site survey to be conducted to address potential safety issues and logistical concerns. The service-oriented mission may focus on clinical or public health needs.

As an example of a clinically oriented service mission, in December 2016, the PHS and Remote Area Medical Inc (RAM) signed a memorandum of understanding to provide direct care to individuals in underserved communities. Remote Area Medical is a nonprofit volunteer relief corps dedicated to providing free health, dental, and eye care; veterinary services; and technical and educational assistance to people in remote areas.¹⁵ It normally focuses on vision and dental care, with limited medical services. With this partnership, RAM gained access to PHS staff who were willing to volunteer their professional skills, thus increasing the ability of RAM to meet the broader needs of vulnerable populations. The partnership was also beneficial to the

PHS as it provided officers with the opportunity to train for field deployments while providing quality health care to those who would not otherwise be able to receive it.

Rapid Deployment Force 3 participated in the first service-oriented RAM mission under the memorandum of understanding, held in Chattanooga, Tennessee, in June 2017. Personnel from RAM and PHS worked together to field a temporary outpatient clinic capable of providing services for 200 to 300 patients in a 12-hour period. This outpatient clinic included numerous care stations, including vision, dental, medical, women's health, pharmacy, physical and occupational therapy, and mental health and substance abuse counseling. Over a 2-day period, the Chattanooga clinic provided care to 641 patients. For its efforts, the Chattanooga RAM team received the 2017 Humanitarian Award from the Association of Military Surgeons of the United States.

LESSONS LEARNED

Following 10 years of emergency response, training, and service-oriented missions, several broad patterns have emerged. The primary strength of the RDF model is the ability of its personnel to meet diverse clinical and public health emergency response needs, drawing on the multidisciplinary nature of the team. Patient populations served have ranged from pediatric to adults with special medical needs. Chronic disease management issues have featured prominently in multiple deployments, ranging from providing chronic medications to ensuring patient transport to higher-level treatment

facilities. Teaming with acute care providers, such as those who staff DMATs, strengthens overall clinical service provision. Across multiple deployments, DMATs' experience with urgent clinical scenarios and the expertise of RDF 3 in chronic disease management and community service access complement and strengthen our ability to respond. This partnership has strengthened the federal health care response to disasters.

All populations served, whether displaced by natural disasters or presenting for services at a RAM event, have shown evidence of mental health needs, which RDF team members are able to address by using trained mental health professionals as well as psychological first aid.⁷ The RDF experience of the importance of chronic disease and mental health issues likely reflects documented health care trends following natural disasters.^{16,17}

The RDF 3 team experience has demonstrated the advantages of using field-tested, preset public health emergency response teams. Although RDFs do not have supplies and equipment directly attached to the team and are not consistently able to undertake field training because of resource constraints, this is somewhat counterbalanced by the flexible way in which team members can be deployed.¹⁸ On the basis of their past engagements, RDF teams can be positioned in advance of anticipated natural disasters and can work effectively with governmental and nongovernmental partners. **AJPH**

CONTRIBUTORS

J. Iskander conceptualized and drafted the article. E. McLanahan and H. Williams contributed to the drafting of the article. J. D. Thomas, J. B. Henry, and D. Byrne reviewed the article for important

intellectual content. All authors were involved in performing the underlying work upon which the article is based.

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HUMAN PARTICIPANT PROTECTION

Institutional review board approval was not required for this work because it did not involve human participant research.

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