

# Applying Lessons Learned from Past Response Operations to Strengthening National Preparedness

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***Applying Lessons Learned from Past Response  
Operations to Strengthening National Preparedness<sup>2</sup>***

**Before the Committee on Homeland Security  
United States House of Representatives**

**June 18, 2014**

Chairman McCaul, Ranking Member Thompson, and members of the Committee, thank you for inviting me to testify this morning and to be a part of such a distinguished panel.

Today I am going to talk to you about three areas where Congress has a significant role in maintaining the national preparedness and response system that supports first responders to future incidents – and where lessons from past response operations indicate a continuing need for focused attention:

- Developing better ways to assess and measure preparedness to maintain both responders' and public confidence that the national preparedness system will be there when they need it;
- Improving the adaptability and agility of the national response system by more effectively learning lessons from preparedness exercises;
- Continuing to support and improve upon capabilities and programs that protect emergency responders' health and safety at large-scale incidents and disaster responses.

Action in each of these areas – via Congressional support and oversight – can contribute to both better supporting responders to future incidents and to better preparing the country to reduce the human and financial costs of future attacks, incidents, and natural disasters.

The major incidents the country has faced in recent years – including both terrorist attacks and others – clearly demonstrate the critical role played by first responders in containing such events and addressing their consequences. The men and women of the fire service, law enforcement,

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emergency medical services, and the wide range of other government and non-government organizations that are called on for often large and very complex response operations are absolutely central to the nation's ability to deal with a future that will always be uncertain and always hold the risk of terrorist attack, natural disaster, and other damaging incidents. And the responder community plays that role while responding on a daily basis to the much smaller scale, everyday emergencies that affect their jurisdictions and the populations they protect, the demands of which already stretch some of these organizations' available resources.<sup>3</sup>

To enable responders to do their jobs during future large-scale incidents and attacks, it is critical that the national preparedness system – from the federal to the local level – work together and support them effectively. Concerns regarding the performance of that system led to substantial legislative and executive actions in the wake of both the September 11, 2001 attacks and Hurricane Katrina in 2005. Performance at subsequent response operations has demonstrated that those actions have produced significant improvements in national preparedness.<sup>4</sup> The contrast between well-executed recent responses like those in Boston or to Hurricane Sandy and the response to Hurricane Katrina is striking.

However, two trends emphasize the importance of continued focus on the health and functioning of the national response system:

- The first is that responders' tasks and missions are not getting any easier over time. Statistics on large-scale natural disasters requiring substantial response efforts show an increasing trend, requiring more extensive – and more expensive – response operations.<sup>5</sup> Concern about terrorist attacks has also remained prominent in the years since 2001, with cases like the attacks in Boston demonstrating the unique response challenges of such incidents. First responder organizations have also been challenged by other incidents of mass violence, with their own distinct response demands.
- Second, the nation has also just gone through the most serious financial and economic crisis in recent history. During and after the crisis, fiscal austerity at the state and local

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<sup>3</sup> For example, Kellerman, A.L., *What Should We Learn from Boston?* CT-395, Santa Monica, CA: RAND Corporation, 2013.

<sup>4</sup> Department of Homeland Security, Office of the Inspector General, "FEMA's Preparedness for the Next Catastrophic Disaster – An Update," OIG-10-123, September 2010; Dodaro, G.L., "Department of Homeland Security: Progress Made and Work Remaining in Implementing Homeland Security Missions 10 Years after 9/11," GAO-11-940T, September 8, 2011.

<sup>5</sup> Smith, A.B. and R.W. Katz, "US billion-dollar weather and climate disasters: data sources, trends, accuracy and biases," *Natural Hazards*, Volume 67, Issue 2, 2013, pp. 387-410; Department of Homeland Security, Office of the Inspector General, "FEMA's Preparedness for the Next Catastrophic Disaster – An Update," OIG-10-123, September 2010; Kostro, S.S., A. Nichols, A. Temoshchuk, "White Paper on U.S. Disaster Preparedness and Resilience: Recommendations for Reform," Washington, DC: CSIS, August 27, 2013.

level drove reductions in budgets of responder organizations – with predictable effects.<sup>6</sup> In recent years federal spending in this area has also declined,<sup>7</sup> and there is significant concern about controlling federal expenditures going forward. Though a robust debate about the right amount to spend on preparedness efforts is worthwhile and appropriate, resource constraints nonetheless do represent a challenge to maintaining and further strengthening national preparedness.

Given such concerns about both the future risk and fiscal environment, there are areas where Congressional focus on the national preparedness system would be valuable. I will highlight three that have been the subject of significant RAND research:

- ***Improved evaluation and preparedness assessment*** – To support first responders to major incidents, there needs to be a clear picture of the capabilities of the national preparedness system. Department of Homeland Security (DHS) and Department of Health and Human Services (DHHS) have made significant strides in preparedness measurement since 2001, including the development of the *National Preparedness Report* and the *National Health Security Preparedness Index*.<sup>8</sup> Efforts by non-governmental organizations and analysts have also contributed.<sup>9</sup> Nonetheless, recent reviews by the Government Accountability Office have identified areas where improvement is needed.<sup>10</sup> That this is not yet a fully solved problem should not be a surprise, given the complexity of evaluating the ability of diverse sets of response organizations across the country to come together and effectively respond to incidents as varied as floods, active shooter incidents, and bioterrorist attacks. Work at RAND on these challenges has argued that evaluations must distinguish between response systems' *theoretical capacity to respond* (based on the resources that have been put in

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<sup>6</sup> Department of Justice, Office of Community Oriented Policing Services, "The Impact of the Economic Downturn on American Police Agencies," October 2011; Police Executive Research Forum, "Policing and the Economic Downturn: Striving for Efficiency Is the New Normal," February 2013; Cooper, M., "Struggling Cities Shut Firehouses in Budget Crisis," *New York Times*, August 26, 2010.

<sup>7</sup> Pines, J.M. et al., "Value Based Models for Sustaining Emergency Preparedness Capacity and Capability in the United States," The Institute of Medicine Forum on Medical and Public Health Preparedness for Catastrophic Events, January 2014.

<sup>8</sup> Maurer, D.C., "National Preparedness: FEMA Has Made Progress, But Additional Steps Are Needed to Improve Grant Management and Assess Capabilities," GAO-13-637T, June 25, 2013; Department of Homeland Security, "National Preparedness Report," March 30, 2013; Centers for Disease Control and Prevention, "Public Health Preparedness: Mobilizing State by State," February 2008; "National Health Security Preparedness Index," online at <http://www.nhspi.org/>.

<sup>9</sup> For example, National Association of County and City Health Officials, "Indicators of Progress in Local Public Health Preparedness," May 2008.

<sup>10</sup> Jenkins, Jr., W.O., "Measuring Disaster Preparedness: FEMA Has Made Limited Progress in Assessing National Capabilities," GAO-11-260T, March 17, 2011; Caldwell, S., "Homeland Security: Performance Measures and Comprehensive Funding Data Could Enhance Management of National Capital Region Preparedness Resources," GAO-13-116R, January 25, 2013; Maurer, D.C., "National Preparedness: FEMA Has Made Progress, But Additional Steps Are Needed to Improve Grant Management and Assess Capabilities," GAO-13-637T, June 25, 2013.

place) and whether they will be able to *reliably deliver capabilities* in the uncertain post-disaster environment.<sup>11</sup> Though much more difficult to measure, it is the ability to reliably deliver capability that is the true measure of preparedness.

The need for measurement is tied to good government goals, including the effective management of federal investments in preparedness.<sup>12</sup> But the need for preparedness measurement goes beyond questions of management and accountability. Measures are necessary to have confidence that the national preparedness system will be able to support first responders in the future, and to educate the public about what it should – and should not – reasonably expect when disaster strikes. Measurement becomes even more critical under fiscal austerity, since without good measures it is difficult to have an educated public debate about preparedness and make tradeoffs with a clear understanding of the implications of funding allocation choices.

- **Supporting agility and continuous improvement in the preparedness system** – Maintaining preparedness in the face of evolving risks requires mechanisms for identifying lessons from past response operations and applying them to improve preparedness nationwide. However, just relying on what we can learn from actual response operations is not enough to adequately prepare for uncertain future threats.

Exercises and drills – for example, those carried out under the DHS’ Homeland Security Exercise and Evaluation Program<sup>13</sup> or DHHS’ public health preparedness cooperative agreements<sup>14</sup> – are held as part of individual jurisdictions’ preparedness programs.<sup>15</sup>

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<sup>11</sup> Jackson, B.A., *The Problem of Measuring Emergency Preparedness: The Need for Assessing ‘Response Reliability’ as Part of Homeland Security Planning*, OP-234-RC, Santa Monica, CA: RAND Corporation, 2008; Nelson, C. et al., “Conceptualizing and Defining Public Health Emergency Preparedness,” *Am J Public Health*, Volume 97(Suppl 1), 2007, pp.S9–S11; Jackson, B.A., K.S. Faith, H.H. Willis, “Are We Prepared? Using Reliability Analysis to Evaluate Emergency Response Systems,” *Journal of Contingencies and Crisis Management*, Volume 19, Issue 3, 2011, pp. 147-157; Jackson, B.A., K.S. Faith, H.H. Willis, *Evaluating the Reliability of Emergency Response Systems for Large-Scale Incident Operations*, MG-994-FEMA, Santa Monica, CA: RAND Corporation, 2010; Jackson, B.A., K.S. Faith, “The Challenge of Measuring Emergency Preparedness: Integrating Component Metrics to Build System-Level Measures for Strategic National Stockpile Operations,” *Disaster Medicine and Public Health Preparedness*, Volume 7, Issue 1, 2013, pp. 96-104.

<sup>12</sup> “Are We Prepared? Measuring the Impact of Preparedness Grants Since 9/11,” Hearing Before the Senate Committee on Homeland Security and Governmental Affairs, Subcommittee on Emergency Management, Intergovernmental Relations, and the District of Columbia, June 25, 2013, online at <http://www.hsgac.senate.gov/subcommittees/emdc/hearings/are-we-prepared-measuring-the-impact-of-preparedness-grants-since-9/11>

<sup>13</sup> “Homeland Security Exercise and Evaluation Program,” <https://www.llis.dhs.gov/hseep>.

<sup>14</sup> “Funding and Guidance for State and Local Public Health Departments,” <http://www.cdc.gov/phpr/coopagreement.htm>.

<sup>15</sup> For example, Dausey, D.J., J.W. Buehler, N. Lurie, “Designing and conducting tabletop exercises to assess public health preparedness for manmade and naturally occurring biological threats,” *BMC Public*

Beyond just contributing to bolstering preparedness where they are held, such exercises can be a source of insight into preparedness more broadly to guide national improvement efforts. In past RAND work examining exercise design, we have developed and recommended approaches to make it possible for exercises to produce more useful information to inform assessment and improvement efforts.<sup>16</sup> Similarly, our research analyzing the after action reports from both exercises and incident response operations has demonstrated they too can be a source of insights – a source which to date has not been fully utilized – on the health of the national preparedness system.<sup>17</sup> Measuring the effectiveness of efforts to disseminate lessons learned to the many organizations within the national response system (e.g., DHS’s *Lessons Learned Information Sharing* system<sup>18</sup>) also merits attention – since lessons not effectively disseminated and applied are not actually lessons learned from a system perspective.

- **Protecting the safety of emergency responders** – Lessons learned from past response operations have also demonstrated the importance of providing first responders at major incidents the protection they need to fulfill their critical roles. Responders clearly take risks as they assist others, and the nation relies on them to do so. Providing the necessary equipment and safety management structure to minimize risks to them is not just the right thing to do, it is in the nation’s interest as well. The experience of September 11, 2001 and the extensive health impacts on many responders to those attacks have demonstrated the significant personal, organizational, and financial costs that can result from the risks involved in some response operations.

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*Health*, Volume 7, 2007, pp. 92-101; Biddinger, P.D. et al., “Public Health Emergency Preparedness Exercises: Lessons Learned,” *Public Health Reports*, Volume 125(Suppl 5), 2010, pp.100–106.

<sup>16</sup> Jackson, B.A., and S. McKay, “Preparedness Exercises 2.0: Alternative Approaches to Exercise Design That Could Make Them More Useful for Evaluating — and Strengthening — Preparedness,” *Homeland Security Affairs*, Volume VII, 2011; Nelson, C. et al., *New Tools for Assessing State and Local Capabilities for Countermeasure Delivery*, TR-665-DHHS, Santa Monica, CA: RAND Corporation, 2009; Jones, J.R., et al., “Results of Medical Countermeasure Drills Among 72 Cities Readiness Initiative Metropolitan Statistical Areas, 2008-2009,” *Disaster Medicine and Public Health Preparedness*, Volume 6, Issue 4, 2012, pp. 357-362; Jackson, B.A., K.S. Faith, “The Challenge of Measuring Emergency Preparedness: Integrating Component Metrics to Build System-Level Measures for Strategic National Stockpile Operations,” *Disaster Medicine and Public Health Preparedness*, Volume 7, Issue 1, 2013, pp. 96-104 (and references therein).

<sup>17</sup> Faith, K.S., B.A. Jackson, and H. Willis, “Text Analysis of After Action Reports to Support Improved Emergency Response Planning,” *Journal of Homeland Security and Emergency Management*, Volume 8, Issue 1, December 2011 (see also more recent similar work by others in Savoia, E., F. Agboola, P.D. Biddinger, “Use of After Action Reports (AARs) to Promote Organizational and Systems Learning in Emergency Preparedness,” *Int. J. Environ. Res. Public Health*, Volume 9, 2012, pp. 2949-2963.)

<sup>18</sup> “Lessons Learned Information Sharing,” <https://www.llis.dhs.gov/>.

Since 2001, there has been significant progress on improving safety management for response operations, coming out of focused effort to learn from past responses. RAND, in collaboration and with the support of the National Institute for Occupational Safety and Health, facilitated a set of research projects to gather responder safety lessons from those and previous response operations.<sup>19</sup> The resulting products have contributed to broader efforts involving many organizations and agencies to significantly improve responder safety management doctrine and practice,<sup>20</sup> including processes for monitoring the health and safety of responders before, during and after deployment at large-scale response operations.<sup>21</sup> However, the experience at incidents such as the *Deepwater Horizon* oil spill response and cleanup<sup>22</sup> has shown that challenges remain in effectively protecting responders at large-scale incidents.

The nation relies on first responders to act, and act effectively, when major incidents and terrorist attacks occur – and to do so while simultaneously responding to the much smaller-scale emergencies and crises that occur on a daily basis. For the nation to be prepared for large-scale events, the national preparedness system – made up of agencies and individuals from the federal to the local level, inside and outside government – needs to effectively support the initially local responders who will always be the first on the scene.

Congress, through its oversight role, can contribute to strengthening both the efficiency and effectiveness of the national preparedness system by continuing to support and to encourage agency programs focused on improved preparedness measurement and evaluation, increasing focus on improving the value and effectiveness of preparedness exercises, and supporting ongoing efforts to improve protection of responders at large-scale response operations.

Again, Chairman McCaul, Ranking Member Thompson, and members of the Committee, thank you for inviting me to submit testimony on this very important national issue.

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<sup>19</sup> Jackson, B.A., et al., *Protecting Emergency Responders: Lessons Learned from Terrorist Attacks*, CF-176-OSTP/NIOSH, Santa Monica, CA: RAND Corporation, 2002; Jackson, B.A., et al., *Protecting Emergency Responders, Volume 3: Safety Management in Disaster and Terrorism Response*, MG-170-NIOSH, Santa Monica, CA: RAND Corporation, 2004.

<sup>20</sup> For example, “National Response Framework,” <http://www.fema.gov/national-response-framework>; “Emergency Response Resources,” <http://www.cdc.gov/niosh/topics/emres/responders.html>; “Emergency Preparedness and Response,” <https://www.osha.gov/SLTC/emergencypreparedness/>; National Response Team, “Health and Safety,” <http://www.nrt.org/>.

<sup>21</sup> “Emergency Responder Health Monitoring and Surveillance,” <http://www.cdc.gov/niosh/topics/erhms/>.

<sup>22</sup> Kitt, M.M. et al., “Protecting Workers in Large-Scale Emergency Responses: NIOSH Experience in the Deepwater Horizon Response,” *Journal of Occupational and Environmental Medicine*, Volume 53, Number 7, July 2011, pp. 711-715; Michaels, D. and J. Howard, “Review of the OSHA-NIOSH Response to the Deepwater Horizon Oil Spill: Protecting the Health and Safety of Cleanup Workers,” *PLoS Currents*, July 18, 2012.