Center for Biosecurity of UPMC

Healthcare Facilities Partnership Program and Emergency Care Partnership Program Evaluation Report

Partnership Evaluation Report | January 2010
Acknowledgments

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The Center for Biosecurity project team would like to thank the dedicated and committed healthcare preparedness experts who contributed their time and effort to provide us with information and insight into the Healthcare Facilities Partnership Program and the Emergency Care Partnership Program. For their guidance and support in the development of this report, we would also like to thank the leadership and staff of the ASPR Office of Preparedness and Emergency Operations and its components—the National Healthcare Preparedness Program and State and Local Evaluation Section.
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Executive Summary

Introduction
The Center for Biosecurity of UPMC (the Center) was asked by the Office of the Assistant Secretary for Preparedness and Response (ASPR) of the U.S. Department of Health and Human Services (HHS) to evaluate the Healthcare Facilities Partnership Program (HFPP) and the Emergency Care Partnership Program (ECP), both of which were funded through competitive grants in FY2007–FY2008.\(^1\)\(^2\)

The goal of the evaluation was to assess the effectiveness, efficiency, and impact of the partnership programs for the purpose of informing future funding and support for the development of healthcare partnerships throughout the United States. In so doing, this evaluation identifies key accomplishments of and lessons learned by the partnerships as they worked to improve preparedness and response efforts in their communities.

This *Partnership Evaluation Report: Healthcare Facilities Partnerships & Emergency Care Partnerships (Partnership Evaluation Report)* does not provide a detailed evaluation of the outcome of each individual partnership grant, since site visit reports and evaluations of the project outcomes have already been performed by project officers and ASPR program leadership. Rather, this report is intended primarily for use by ASPR and HHS in assessing the effectiveness of the partnership programs and the direct grant funding mechanism.

Methodology
The Center project team reviewed all relevant documents provided by ASPR leadership and evaluation groups, and by the HFPP and ECP grantees, including the following:

- Original grant guidance
- All successful original applications
- Partnership mid-year self-assessments
- Site visit reports prepared by ASPR project officers
- Grantee program websites.

Following the document review and discussions with ASPR leadership, the Center project team conducted a preliminary evaluation to explore strengths and weaknesses of the direct partnership funding approach. Case studies of the King County Healthcare Coalition and the Healthcare Facilities Partnership of South Central Pennsylvania were conducted, and the resulting report was delivered in February 2008 to provide ASPR leadership with an initial impression of the program overall and the direct grant funding mechanism specifically.

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The Center’s project team then conducted interviews with program leaders at ASPR, principal investigators (PIs) from each of the remaining partnerships, state Hospital Preparedness Program (HPP) coordinators, and other state officials. Site visits were conducted at 8 of the 11 HFPP partnerships and at each of the 5 ECP partnerships. Ahead of each site visit, the project team held conference calls with partnership PIs to exchange information about the evaluation effort and the partnership program and to develop an agenda for the site visit.

Key Questions about the Partnerships
Conversations held during conference calls and site visits focused on a series of questions that addressed the following broad topics:

- Organization and establishment of the partnerships
- Projects funded by the HFPP and ECP grants and resulting accomplishments
- Relationship between partnership grant and the state HPP
- Advantages and/or disadvantages of the direct grant funding approach

However, not all of the key questions were addressed in every discussion, and discussions were not limited to addressing these questions.

Overview of Partnerships
Tables 1 and 2, below, summarize key details about each of the 10 HFPP grantees and the 5 ECP grantees. Noted for each is the name of the partnership, location, lead agency or organization (the grantee), at least 1 unique outcome of the grant program, and 1 or more important lessons learned. (Detailed profiles of each partnership begin on page 13.)
### Table 1: Overview of Healthcare Facilities Partnership Program (HFPP)

<table>
<thead>
<tr>
<th>HFPP Partnership</th>
<th>Lead Agency/Org., Grant Funding, Unique Outcome and Lesson(s) Learned</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alaska Healthcare Facilities Partnership</strong> (Anchorage, AK)</td>
<td><strong>Massachusetts Partnership for Effective Emergency Response [PEER]</strong> (Boston, MA)</td>
</tr>
<tr>
<td><strong>LEAD AGENCY/ORGANIZATION:</strong> Alaska Department of Health and Social Services</td>
<td><strong>LEAD AGENCY/ORGANIZATION:</strong> Massachusetts Emergency Preparedness Regions 4 A, B, C, with the Boston University School of Public Health</td>
</tr>
<tr>
<td><strong>GRANT:</strong> $742,000</td>
<td><strong>GRANT:</strong> $2.4 MILLION</td>
</tr>
<tr>
<td><strong>UNIQUE OUTCOME:</strong> Increased pediatric surge capacity across the state.</td>
<td><strong>UNIQUE OUTCOME:</strong> Strengthened integration and communication in 3 public health regions.</td>
</tr>
<tr>
<td><strong>LESSONS LEARNED:</strong> (1) Focus on priority already identified by state HPP contributed to the success and sustainability of the program. (2) HPP funds to support the program in the future.</td>
<td><strong>LESSONS LEARNED:</strong> HFPP mechanism, time, and scale were not sufficient for developing and completing a new partnership in multiple jurisdictions.</td>
</tr>
<tr>
<td><strong>Broward County Healthcare Coalition [BCHC]</strong> (Fort Lauderdale, FL)</td>
<td><strong>Minnesota Metropolitan Hospital Compact</strong> (Minneapolis, MN)</td>
</tr>
<tr>
<td><strong>LEAD AGENCY/ORGANIZATION:</strong> North Broward Hospital District</td>
<td><strong>LEAD AGENCY/ORGANIZATION:</strong> Hennepin Healthcare System Minneapolis</td>
</tr>
<tr>
<td><strong>GRANT:</strong> $426,000</td>
<td><strong>GRANT:</strong> $2.5 million</td>
</tr>
<tr>
<td><strong>UNIQUE OUTCOME:</strong> Developed Internet-based communication and situational awareness system.</td>
<td><strong>UNIQUE OUTCOME:</strong> Developed mobile medical assets under joint authority with the state.</td>
</tr>
<tr>
<td><strong>LESSONS LEARNED:</strong> (1) HPP funding created a regional gap, the solution for which was an HFPP-funded regional program. (2) New system to be used in daily routine and during emergencies.</td>
<td><strong>LESSONS LEARNED:</strong> (1) Grant programs were facilitated by a preexisting regionalized system. (2) State and local coordination ensures sustainability.</td>
</tr>
<tr>
<td><strong>Charleston-Roper St. Francis Foundation</strong> (Charleston, SC)</td>
<td><strong>New York State-New York Burn Partnership</strong> (New York)</td>
</tr>
<tr>
<td><strong>LEAD AGENCY/ORGANIZATION:</strong> Roper St. Francis Foundation</td>
<td><strong>LEAD AGENCY/ORGANIZATION:</strong> New York State Department of Health</td>
</tr>
<tr>
<td><strong>GRANT:</strong> $2.5 million</td>
<td><strong>GRANT:</strong> $2.5 million</td>
</tr>
<tr>
<td><strong>UNIQUE OUTCOME:</strong> Established caches of supplies and mobile inland shelters.</td>
<td><strong>UNIQUE OUTCOME:</strong> Close integration with state HPP goals enhanced effectiveness.</td>
</tr>
<tr>
<td><strong>LESSONS LEARNED:</strong> (1) The grant mechanism was effective for funding important local project derived from hazard vulnerability analysis (HVA). (2) The program will be sustained through an ongoing regional healthcare council.</td>
<td><strong>LESSONS LEARNED:</strong> Program can be sustained.</td>
</tr>
</tbody>
</table>
**Table 1: Overview of Healthcare Facilities Partnership Program (HFPP) continued**

<table>
<thead>
<tr>
<th>HFPP Partnership: Lead Agency/Org., Grant Funding, Unique Outcome and Lesson(s) Learned</th>
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</thead>
<tbody>
<tr>
<td>City and County of San Francisco Partnership (San Francisco, CA)</td>
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<tr>
<td><strong>LEAD AGENCY/ORGANIZATION:</strong> San Francisco City and County Community Hub Plan</td>
</tr>
<tr>
<td><strong>GRANT:</strong> $787,000</td>
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<tr>
<td><strong>UNIQUE OUTCOME:</strong> Developed innovative disaster response plan based on “hub site” model.</td>
</tr>
<tr>
<td><strong>LESSONS LEARNED:</strong> Review and restructuring of entire response system would not have been possible with HPP funds alone.</td>
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<tr>
<td>Rural Nebraska Medical Response System (Elkhorn, NE)</td>
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<tr>
<td><strong>LEAD AGENCY/ORGANIZATION:</strong> Elkhorn Logan Valley Public Health Department</td>
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<tr>
<td><strong>GRANT:</strong> $868,000</td>
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<tr>
<td><strong>UNIQUE OUTCOME:</strong> Developed partnership covering large geographic area and used telehealth network.</td>
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<tr>
<td><strong>LESSONS LEARNED:</strong> Partnership, state programs, and preexisting infrastructure were closely linked, and made the grant successful and sustainable.</td>
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<tr>
<td>Healthcare Facilities Partnership of South Central Pennsylvania (Hershey, PA)</td>
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<tr>
<td><strong>LEAD AGENCY/ORGANIZATION:</strong> Pennsylvania State University Hershey Medical Center</td>
</tr>
<tr>
<td><strong>GRANT:</strong> $2.5 million</td>
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<tr>
<td><strong>UNIQUE OUTCOME:</strong> Developed webinar system for enhanced communication, situational awareness, education, and training using simulation modules.</td>
</tr>
<tr>
<td><strong>LESSONS LEARNED:</strong> (1) Emergency communications among partnership institutions was significantly enhanced. (2) Need to fully link to jurisdictional emergency response agencies.</td>
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<tr>
<td>WakeMed Project Modeling Via Evacuation Scenarios [MoVES] (Raleigh, NC)</td>
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<tr>
<td><strong>LEAD AGENCY/ORGANIZATION:</strong> WakeMed Health Care System</td>
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<tr>
<td><strong>GRANT:</strong> $1 million</td>
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<tr>
<td><strong>UNIQUE OUTCOME:</strong> Focused on evacuation based on local Hazard Vulnerability Analysis (evaluation in progress).</td>
</tr>
<tr>
<td><strong>LESSONS LEARNED:</strong> The preexisting regional system for HPP and trauma facilitated the HFPP.</td>
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<tr>
<td>King County Healthcare Coalition (Seattle, WA)</td>
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<tr>
<td><strong>LEAD AGENCY/ORGANIZATION:</strong> King County Healthcare Coalition</td>
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<tr>
<td><strong>GRANT:</strong> $1.9 million</td>
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<tr>
<td><strong>UNIQUE OUTCOME:</strong> Added non-hospital agencies and providers to partnership and Emergency Support Function #8 (ESF-8) response.</td>
</tr>
<tr>
<td><strong>LESSONS LEARNED:</strong> (1) Direct grant allowed for more freedom to expand scope of coalition. (2) Sustainability is a consideration.</td>
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<tr>
<td>ECP Partnership: Lead Agency/Org., Grant Funding, Unique Outcome &amp; Lessons(s) Learned</td>
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<td>---------------------------------</td>
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<tr>
<td><strong>Davis California Enhancing Surge Capacity and Partnership Effort (ESCAPE) Partnership</strong> (Davis, CA)</td>
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<tr>
<td><strong>LEAD AGENCY/ORGANIZATION:</strong></td>
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<tr>
<td>Regents of the University of California, Davis</td>
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<tr>
<td><strong>GRANT:</strong></td>
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<tr>
<td>$5 million</td>
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<tr>
<td><strong>UNIQUE OUTCOME:</strong></td>
</tr>
<tr>
<td>Developed telemedicine system for improved daily and surge event emergency and critical care, with a particular focus on rural facilities, and developed crisis care guidelines.</td>
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<tr>
<td><strong>LESSONS LEARNED:</strong></td>
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<tr>
<td>Rural healthcare facilities have unique needs and can greatly benefit from partnership participation and telemedicine systems.</td>
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<td><strong>District of Columbia Emergency Healthcare Coalition (Washington, DC)</strong></td>
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<td><strong>LEAD AGENCY/ORGANIZATION:</strong></td>
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<tr>
<td>MedStar Health, Inc., Washington Hospital Center</td>
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<tr>
<td><strong>GRANT:</strong></td>
</tr>
<tr>
<td>$5 million</td>
</tr>
<tr>
<td><strong>UNIQUE OUTCOME:</strong></td>
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<tr>
<td>Integrated partnership into jurisdictional response system with Healthcare Coalition Response Team.</td>
</tr>
<tr>
<td><strong>LESSONS LEARNED:</strong></td>
</tr>
<tr>
<td>(1) Close integration with DC Department of Health and HPP goals enhance effectiveness. (2) Program to be continued.</td>
</tr>
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<td></td>
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<tr>
<td><strong>Indianapolis Managed Emergency Surge for Healthcare (MESH) Partnership</strong> (Indianapolis, IN)</td>
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<tr>
<td><strong>LEAD AGENCY/ORGANIZATION:</strong></td>
</tr>
<tr>
<td><strong>GRANT:</strong></td>
</tr>
<tr>
<td>$5 million</td>
</tr>
<tr>
<td><strong>UNIQUE OUTCOME:</strong></td>
</tr>
<tr>
<td>Established emergency communications center and training program and held tabletop exercises for region.</td>
</tr>
<tr>
<td><strong>LESSONS LEARNED:</strong></td>
</tr>
<tr>
<td>Direct grant mechanism requires close coordination with state.</td>
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</table>

Partnership Evaluation Report Conclusions and Recommendations

Conclusions: Healthcare coalitions and partnerships recently have emerged across the country, and, in practical application, have proven effective for integrating public health and medical emergency planning and response activities. Most recently, healthcare coalitions have been integral in the response to the 2009 H1N1 pandemic (see page 45).

The project team's discussions with HFPP and ECP grant recipients uncovered several important, recurring themes, many of which are related to the direct grant funding mechanism used for the HFPP and ECP programs. When the grants support the growth and development of preexisting healthcare coalitions, the benefits of the direct funding approach outweigh the disadvantages: direct funding of existing successful partnerships allows for innovation, regional replication of projects, and expansion of healthcare coalitions to include non-hospital entities.

Several caveats were noted: (1) direct grant funding of partnerships must be coordinated with the mission and priorities of a state HPP program, even if a partnership works on projects other than those prioritized by the state; and (2) successful functioning of partnerships and completion of grant deliverables depends on a formal partnership governance structure, or an informal structure backed by memoranda of understanding (MOU) or memoranda of agreement (MOA) among member institutions and agencies.

The direct grant funding mechanism did present significant administrative challenges for both established and emerging partnerships. And sustainability of grant-funded efforts is a challenge for all grantees, although several partnerships factored sustainability into their grant activities and have begun to plan for the continuation of their organization's efforts beyond the grant period.

Recommendations: The success of the HFPP and ECP programs suggests that federal programs that support the development of functional capabilities of healthcare coalitions should continue, but with several changes and additions. For instance, the periods of time between announcements of grants, issuance of guidance, and submission deadlines should be increased significantly. Grant requirements should be expanded to include a specific plan to sustain both the partnership structure and functional capabilities achieved through the grant funding. In addition, sustainability plans should address integration of partnership projects into overall programs for state and local preparedness and response. As well, partnership grant projects should formalize real-time exchange of information and experience through the use of social media, websites, and face-to-face conferences facilitated by ASPR leadership.

HPP guidance should continue to emphasize the importance of functional healthcare coalitions and should address requirements, criteria, and essential features of healthcare coalitions. In regions where there is no experience with basic, functional healthcare coalitions, the 1-year direct partnership grants should not be used to stimulate development of new coalitions. Finally, other models that support the development and expansion of functional capacities of healthcare coalitions should be considered, including the Advance Practice Center (APC) model (Centers for Disease Control and Prevention [CDC]) and a healthcare coalition “mentorship” program.

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Partnership Evaluation Report: Healthcare Facilities Partnerships and Emergency Care Partnerships

Introduction

The Center for Biosecurity of UPMC (the Center) was asked by the Office of the Assistant Secretary for Preparedness and Response (ASPR) of the U.S. Department of Health and Human Services (HHS) to evaluate the Healthcare Facilities Partnership Program (HFPP) and the Emergency Care Partnership Program (ECP), both of which were funded through competitive grants in FY2007–FY2008. The goal of the evaluation was to assess the effectiveness, efficiency, and impact of the programs for the purpose of informing future funding and support for the development of healthcare partnerships throughout the United States. In so doing, this evaluation identifies the key accomplishments of and lessons learned by the partnerships as they worked to improve preparedness and response efforts in their communities.

This evaluation is one component of the Center's hospital preparedness assessment project for HHS, which also has included a review of the first 5 years of the Hospital Preparedness Program (HPP) and proposed goals for ongoing efforts to promote healthcare preparedness. Deliverables to date have included 2 reports: *Hospitals Rising to the Challenge: The First 5 Years of the U.S. Hospital Preparedness Program and Priorities going Forward* (delivered March 2009) and *The Next Challenge in Healthcare Preparedness: Catastrophic Health Events* (delivered January 2010).

This *Partnership Evaluation Report* does not provide a detailed evaluation of the outcome of each individual partnership grant, since site visit reports and evaluations of the project outcomes have already been performed by HFPP project officers and ASPR program leadership. Rather, this report is intended primarily for use by ASPR and HHS in assessing the effectiveness of the partnership programs and the direct grant funding mechanism.

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6 All work has been conducted by the Center for Biosecurity for HHS under Contract #HHSO100200700038.


Methodology

Document review: The project team at the Center for Biosecurity of UPMC (the Center) reviewed all relevant documents provided by ASPR leadership and evaluation groups and by HFPP and ECP grantees. Documents included the original grant guidance, all successful original applications, partnership mid-year self-assessments, site visit reports prepared by ASPR project officers, and information available on grantee program websites.

Initial evaluation: Following the review of materials and discussions with ASPR leadership, the Center’s project team conducted a preliminary evaluation, the purpose of which was to explore strengths and weaknesses of the direct partnership funding approach by assessing 2 partnerships funded at different stages of development. After identifying common characteristics of the partnerships and categorizing them based on type of lead agency (see page 5), stage of development (mature vs. developing), and project focus and scope, 2 HFPP programs were selected for initial case studies and site visits: King County Healthcare Coalition—a mature program—and Healthcare Facilities Partnership of South Central Pennsylvania,—a developing program. To provide ASPR leadership with a preliminary impression of the program overall and the funding mechanism specifically, a preliminary evaluation report was presented in February 2009.

Interviews: The Center’s project team then conducted interviews with program leaders at ASPR, principal investigators (PIs) from each of the remaining partnerships, state HPP coordinators, and other state officials. Interviews with state officials were arranged through HFPP and ECP leadership and state HPP project officers and, in most instances, were conducted separately from the interviews with partnership PIs and participants.9

Site visits: Site visits were conducted at 8 of the 11 HFPP partnerships and at each of the 5 ECP partnerships. Evaluations of the HFPP sites in Nebraska, New York State, and Alaska were conducted by conference call. Ahead of each site visit, the project team held conference calls with partnership PIs to exchange information about the evaluation effort and the partnership program and to develop an agenda for the site visit. A Center project team PI, Co-PI, or a senior member attended all site visits and conducted conference calls, accompanied by at least 1 other project team member.

The 6 subsequent HFPP site visits and 3 conference calls were scheduled in consideration of convenience for the grantee and travel logistics. All ECP site visits and conference calls were conducted after completion of the HFPP activities. Like the HFPP evaluation, the order of the ECP site visits and conference calls was based on scheduling convenience for the sites and travel considerations.

Key questions: Conversations held during conference calls and site visits focused on questions organized in the following categories. However, not all of the questions listed below were addressed in every discussion, and discussions were not limited to addressing these questions.

9 State HPP representatives were present at the site visits in Minnesota, WakeMed, and New York State; a separate call was not arranged.
I. Organization and establishment

• Prior to the grant award, did a partnership infrastructure exist? If so, how was it established and funded? If not, did the grant fund the establishment of a new partnership?
• Who were the key partners and how did they interact?
• How was the partnership staffed?
• What was the partnership’s governance mechanism?
• How did the partnership define the region or community it served?
• How was the partnership integrated into the incident command system (ICS), multiagency coordination, state and local emergency operations centers (EOCs), and the Medical Surge Capacity and Capability (MSCC) tiered structure\(^\text{10}\) for state, intrastate, and national surge capacity?

II. Projects and accomplishments

• What were the partnership’s most significant accomplishments during the project period?
• What mechanisms and programs were put into place to increase participant preparedness?
• Did partnerships establish or promote coordination of private medical care, public health, and emergency management into a functioning healthcare coalition?
• Did partnerships demonstrate capabilities during actual events or through rigorous drills and exercises, and were performance measures derived from subsequent analysis of these events?

III. Relationship between partnership grant and state HPP program

• How did the partnership coordinate with states and state HPP programs?
• Were state hospital preparedness activities affected by the partnership and its funding mechanism? If so, how?
• When was funding received, allocated, and spent in the budget cycle of the project? How does this compare with the funding cycle of the HPP program?

IV. Advantages and/or disadvantages of the direct grant funding approach

• What were the advantages and disadvantages of the partnership direct grant funding approach?
• Was this grant program an effective use of funds?
• Is expansion of programs that fund coalitions on a national level advisable and feasible? What are the policy implications of such an expansion?
• What other funding sources support the activities of the partnership or its components?
• What is necessary to sustain achievements and activities of partnerships?

Overview of Partnership Programs: Funding, Leadership, Intent, and Challenges

The 11 HFPP and 5 ECP partnership grants were awarded to members of a diverse group of healthcare coalitions from urban, suburban, and rural areas in 13 states and the District of Columbia (DC). Partnerships differed not just in their geography, but also in their organizational structure, lead agency or organization, degree of integration with state or other jurisdictional preparedness systems, and stage of development and maturity.

The maturity and functional capabilities of the healthcare coalitions vary, and, in some locations, coalitions are still newly developing. New coalitions do not necessarily have the benefit of leveraging a previous history or tradition of cooperation and coordination among healthcare institutions, public health, and emergency management agencies.

The HFPP and ECP grant programs were instituted to support both existing healthcare coalitions (which were positioned to make significant progress) and new coalitions or those in very early stages of development (to promote early regional collaboration in emergency planning and response). Unlike the HPP, where all funding is distributed first to the states (with the exception of the directly funded cities), the HFPP and ECP grants were awarded directly to partnerships. While this funding mechanism created some unique advantages, it also created some challenges for grantee and their state partners. Common themes, unique outcomes, key accomplishments, and lessons learned for future steps of these funded partnerships are summarized in Table 5 (page 11) and Table 6 (page 34).

Funding

Table 3: HFPP and ECP Grantees and Funding Amount

<table>
<thead>
<tr>
<th>Grantee</th>
<th>Funding</th>
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</thead>
<tbody>
<tr>
<td><strong>HFPP Grantees</strong></td>
<td></td>
</tr>
<tr>
<td>North Broward Hospital District</td>
<td>$426,000</td>
</tr>
<tr>
<td>Alaska Department of Health and Social Services</td>
<td>$742,000</td>
</tr>
<tr>
<td>San Francisco City and County Community Hub Plan</td>
<td>$787,000</td>
</tr>
<tr>
<td>Elkhorn Logan Valley Public Health Department</td>
<td>$868,000</td>
</tr>
<tr>
<td>WakeMed Health Care System</td>
<td>$1 million</td>
</tr>
<tr>
<td>King County Healthcare Coalition</td>
<td>$1.9 million</td>
</tr>
<tr>
<td>Mass. Partnership for Effective Emergency Response</td>
<td>$2.4 million</td>
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<td>Hennepin Healthcare System Minneapolis</td>
<td>$2.5 million</td>
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<td>New York State Department of Health</td>
<td>$2.5 million</td>
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<td>Pennsylvania State University Hershey Medical Center</td>
<td>$2.5 million</td>
</tr>
<tr>
<td>Roper St. Francis Foundation</td>
<td>$2.5 million</td>
</tr>
<tr>
<td><strong>ECP Grantees</strong></td>
<td></td>
</tr>
<tr>
<td>Children's Hospital Los Angeles</td>
<td>$5 million</td>
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<tr>
<td>Health and Hospital Corporation of Marion County</td>
<td>$5 million</td>
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<tr>
<td>MedStar Health, Inc., Washington Hospital Center</td>
<td>$5 million</td>
</tr>
<tr>
<td>Regents of the University of California</td>
<td>$5 million</td>
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<tr>
<td>Rhode Island Hospital</td>
<td>$5 million</td>
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</tbody>
</table>
### Grant Program Leadership

#### Table 4. Categorization of Partnerships by Type of Lead Agency or Organization

<table>
<thead>
<tr>
<th>Type</th>
<th>HFPP Partnership Lead Agency/Organization</th>
<th>ECP Partnership Lead Agency/Organization</th>
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</thead>
<tbody>
<tr>
<td><strong>State</strong></td>
<td></td>
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<tr>
<td></td>
<td>Alaska Healthcare Facilities Partnership/Alaska Department of Health and Social Services</td>
<td>Rhode Island Partnership/Rhode Island Hospital</td>
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<td></td>
<td>New York State-New York Burn Partnership/New York State Department of Health</td>
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<tr>
<td><strong>County/ City</strong></td>
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<tr>
<td></td>
<td>Broward County Healthcare Coalition/North Broward Hospital District</td>
<td>District of Columbia Emergency Healthcare Coalition/Medstar Health, Inc., Washington Hospital Center, Washington, DC</td>
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<td></td>
<td>King County Healthcare Coalition/King County Healthcare Coalition</td>
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<tr>
<td></td>
<td>City and County of San Francisco Partnership/San Francisco City and County Community Hub Plan</td>
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<td><strong>Sub-state Regional</strong></td>
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<td></td>
<td>Charleston-Roper St. Francis Foundation/Roper St. Francis Foundation</td>
<td>Los Angeles Partnership-Pediatric Disaster Resource and Training Center/Children's Hospital of Los Angeles</td>
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<td></td>
<td>Minnesota-Metropolitan Hospital Compact/Hennepin Healthcare System Minneapolis</td>
<td>Indianapolis MESH Partnership/Health and Hospital Corporation of Marion County</td>
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<td>WakeMed Project MoVES/WakeMed Healthcare System</td>
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<td></td>
<td>Rural Nebraska Medical Response System/Elkhorn Logan Valley Public Health Department</td>
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<td></td>
<td>Healthcare Facilities Partnership of South Central Pennsylvania/Pennsylvania State University Hershey Medical Center</td>
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<tr>
<td><strong>Academic/ University</strong></td>
<td>Massachusetts Partnership for Effective Emergency Response [PEER]/Massachusetts Emergency Preparedness Regions 4 A,B,C with the Boston University School of Public Health</td>
<td>Davis California ESCAPE Partnership/Regents of the University of California, Davis</td>
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</tbody>
</table>
Legislative Authorization and Intent

Both the Healthcare Facilities Partnership Program (HFPP) and the Emergency Care Partnership (ECP) Program were authorized by the Pandemic and All-Hazards Preparedness Act (PAHPA) of 2006. These competitive grant opportunities were made available to eligible healthcare partnerships to promote surge capacity and enhance community and hospital preparedness for public health emergencies in defined geographic areas.

HFPP grant program: HFPP project proposals were to be guided by a gap analysis of the state HPP program. The grant announcement called for “innovative and creative” projects that could be replicated across the country to advance situational awareness, advanced planning and exercising of plans, medical mutual aid agreements, and the development and strengthening of relationships among partnership entities.

ECP grant program: By focusing on the following goals, the ECP grants were designed to enhance the emergency care system’s ability to respond to public health emergencies:

- Integrate public and private emergency care systems with public health and other first responder systems.
- Improve overall efficiency, effectiveness, and expandability of emergency care systems and response capabilities in hospitals, other healthcare facilities, and trauma care and emergency medical service systems with regard to public health emergencies.
- Develop plans for strengthening public health emergency medical management and the provision of emergency care and treatment capabilities.

Grant guidance: The HFPP and ECP grant guidance emphasized that regional coordination among healthcare entities, public health agencies, and other response partners is central to mounting an effective response to a major public health emergency. Thus, the guidance required grant applicants to provide a Letter of Assurance from their state hospital preparedness coordinator/state health official to ensure that the “application, work plan and budget [were] in agreement with [the] State/Territorial and local emergency response plan.” An evaluation plan for grant projects and deliverables was also required.

To be eligible for an HFPP or ECP grant, applicants were required to be a member of a partnership that consisted of the following:

- One or more hospitals or trauma centers
- One or more local non-hospital healthcare facilities such as clinics, health centers, primary care facilities, mental health facilities, mobile medical assets, or nursing homes and
- One or more political subdivisions
- One or more states or
- One or more states and 1 or more political subdivisions.

Both HFPP and ECP partnerships were required to conduct 2 specific activities:

- Further develop National Incident Management System (NIMS) compliance in partnership hospitals.
- Develop a concept of operations for Emergency Systems for Advance Registration of Volunteer Health Professionals (ESAR-VHP) at the facilities level.

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HFPP and ECP grant guidance included the following optional activities:

- Integrating public health, private medical, and first responder capabilities
- Increasing medical surge capacity of hospitals and other healthcare facilities
- Preparing for medical needs of at-risk individuals in a public health emergency
- Coordinating federal, state, local, and tribal planning, response, and recovery
- Ensuring continuity of operations of public health and medical services in a public health emergency.

Challenges: Timeline, Funding, and Grant Mechanism

**Timeline:** Eleven HFPP grants were awarded on September 27, 2007, and were funded for a total of $18.1 million (see Table 3, page 5). ECP grants were awarded at the same time to 5 programs that were selected and funded for a total of $25 million (see Table 3). The time between the announcement of these funding opportunities, when program guidance was made available to applicants, and when applications were due to be submitted was tight. For example, the ECP initially was announced on August 10, 2007, and grant application submissions were due by September 7, which gave applicants less than a month from the initial announcement to submit their proposals. This short timeline may have resulted in fewer applications, may have favored applicants with well-established and flexible grant-writing mechanisms in place, and may have influenced the quality of the proposals that were submitted.

**Funding:** The HFPP and ECP programs were funded at different levels: the ECP’s $25 million was divided equally among 5 partnerships ($5 million for each), while the HFPP’s $18.1 million was divided (unequally) among 11 partnerships, with grant amounts ranging from $426,000 to $2.5 million. These grants were not supported with a novel funding stream. Instead, the $43 million that funded the HFPP and the ECP was taken from the annual funding for the Hospital Preparedness Program (HPP). As a result, some HPP participants viewed the partnership grant programs negatively because those programs appeared to reduce funding for the HPP. At the outset, some consideration was given to creating a system in which the grants would be funded through pooled withholding of HPP funds from states that were unable to meet all HPP requirements, but this was never implemented.

**Grant mechanism:** The HFPP and ECP grants were contracted directly with healthcare partnerships, in most cases bypassing the usual grant mechanism employed by the HPP, which contracts directly with state departments of health. Some HPP participants expressed negative views of the partnership programs because of this direct funding mechanism, because, it was argued, this approach would take money and oversight away from states and would, ultimately, be detrimental to preparedness efforts.

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Partnership Profiles

This section provides a brief summary of the Center's findings on each of the HFPP and ECP partnerships; findings are based on the program document review, interviews with partnership members, and site visits. This section is not intended to be a comprehensive assessment of the projects and outcomes associated with each partnership. Rather, it is intended to provide an overview of the partnerships' goals, accomplishments, and challenges, as well as partnership input into the larger successes and challenges of the HFPP and ECP grant programs as a whole.

Within each partnership profile, a text box summarizes the partnership's key accomplishments and lessons learned. Profiles also include a brief summary of the history, membership, goals, and key deliverables of the partnership. Finally, each profile summarizes advantages and challenges of the HFPP and ECP direct grant funding mechanism as experienced by each partnership.
## Profiles of Healthcare Facilities Partnership Program (HFPP)

Table 5. Overview of HFPP Unique Outcomes, Lessons, and Future Steps

<table>
<thead>
<tr>
<th>Partnership</th>
<th>Unique Outcome</th>
<th>Lessons Learned and/or Future Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska Healthcare Facilities Partnership</td>
<td>Increased pediatric surge capacity across the state.</td>
<td>Focus on priority already identified by state HPP contributed to the success and sustainability of the program.</td>
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<tr>
<td></td>
<td></td>
<td>HPP funds to support the program in the future.</td>
</tr>
<tr>
<td>Broward County Healthcare Coalition (BCHC)</td>
<td>Developed Internet-based communication and situational awareness system.</td>
<td>HPP funding created a regional gap, the solution for which was an HFPP-funded regional program.</td>
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<tr>
<td></td>
<td></td>
<td>New system to be used as part of daily routine and during emergencies.</td>
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<tr>
<td>Charleston-Roper St. Francis Foundation</td>
<td>Established caches of supplies and mobile inland shelters.</td>
<td>The grant mechanism was effective for funding important local project derived from hazard vulnerability analysis (HVA).</td>
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<tr>
<td></td>
<td></td>
<td>The program will be sustained through an ongoing regional healthcare council.</td>
</tr>
<tr>
<td>City and County of San Francisco Partnership</td>
<td>Developed innovative disaster response plan based on “hub site” model.</td>
<td>Review and restructuring of entire response system would not have been possible with HPP funds alone.</td>
</tr>
<tr>
<td>Healthcare Facilities Partnership of South Central PA</td>
<td>Developed webinar system for enhanced communication, situational awareness, education, and training using simulation modules.</td>
<td>Emergency communications among partnership institutions was significantly enhanced. Need to fully link to jurisdictional emergency response agencies.</td>
</tr>
<tr>
<td>Massachusetts PEER</td>
<td>Strengthened integration and communication in 3 public health regions.</td>
<td>HFPP mechanism, time and scale were not sufficient for developing a complete preparedness and response partnership in multiple jurisdictions.</td>
</tr>
<tr>
<td>Minnesota Metropolitan Hospital Compact</td>
<td>Developed mobile medical assets under joint authority with the state.</td>
<td>Grant programs were facilitated by a preexisting regionalized system. State and local coordination ensures sustainability.</td>
</tr>
<tr>
<td>NYS-NY Burn Partnership</td>
<td>Developed burn surge capacity and common protocols across state and city.</td>
<td>Close integration with state HPP goals enhanced effectiveness. Program can be sustained.</td>
</tr>
<tr>
<td>Rural Nebraska Medical Response System</td>
<td>Developed partnership covering large geographic area and used telehealth network.</td>
<td>Partnership, state programs, and pre-existing infrastructure were closely linked and made the grant successful and sustainable.</td>
</tr>
<tr>
<td>King County Healthcare Coalition</td>
<td>Added non-hospital agencies and providers to partnership and ESF-8 response.</td>
<td>Direct grant allowed for more freedom to expand scope of coalition. Sustainability is a consideration.</td>
</tr>
<tr>
<td>WakeMed Project MoVES</td>
<td>Focused on evacuation based on local HVA.</td>
<td>The preexisting regional system for HPP and trauma facilitated the HFPP. Outcome evaluation is in progress.</td>
</tr>
</tbody>
</table>
The Alaska Department of Health and Social Services wrote both the HFPP and the HPP grant applications. Both grants are managed by the same person at the state level, which ensures coordination between the 2 programs.

Goals and Key Deliverables

The impetus for the Alaska Healthcare Facilities Partnership’s focus on pediatric care was a severe outbreak of respiratory syncytial virus (RSV) in Barrow, Alaska, in 2007. During that event, 28 children and infants were transferred to Anchorage, and 19 required mechanical ventilation. This event raised awareness about limited capabilities at the 2 pediatric facilities in Anchorage. Therefore, the goal of the partnership was to increase pediatric surge capacity across the state. A second goal was to alleviate the surge burden on Anchorage hospitals that receive transfers from small remote facilities across the state. In those remote sites, the operational default for more serious pediatric cases is to transfer them to Anchorage. The partnership worked with those local facilities to increase their ability to handle more complicated cases.

The partnership established the goal of reaching 100% surge capacity. Achievement of that goal was demonstrated through an exercise in which partners worked closely with Anchorage General Hospital to bring 100 children through that facility’s emergency department. Some patients were transferred by ambulance to a facility on Elmendorf Air Force Base as well. One part of the exercise was based on a scenario involving a respiratory illness, to mimic pandemic flu. The second part of the exercise was based on a scenario involving RSV, a disease that Alaska deals with annually. The partnership established teams of healthcare professionals and assembled supply kits that were sent to isolated rural hospitals. The ultimate goal was to support local hospitals in managing surge, which kept patients in their communities and prevented surges in Anchorage hospitals.

Advantages and Challenges of the Direct Grant Funding Mechanism

Without the HFPP funds, partnership activities would have been funded through the HPP, although at a lower level, because the partnership’s goals reflected priorities already identified by the state. The additional funding received through the HFPP was significant—it increased the state’s overall HPP funding by 50%. This increased funding allowed the partners to focus on the needs of a special population and to make accelerated progress toward their goals.
The members attributed their success, in part, to a strong partnership that was in place prior to the grant, and to preexisting working relationships. Also contributing to this partnership’s success was the identification of specific needs within the state, which allowed them to focus on addressing real gaps and needs. The partnership did not create work in response to the grant requirements.

The partnership also committed itself to continuing the HFPP work after the grant period and funding ended, and the state of Alaska intends to continue funding the partnership’s activities by dedicating some HPP funding to the partnership.

Some individual members described waits of 6 months or more for reimbursement from the state for HFPP-related activities. Although these partners continued to conduct HFPP work, they noted that the contracting at the state level caused delays in the distribution of funds.
Broward County Healthcare Coalition (Ft. Lauderdale, FL)

**Award Amount:** $426,000

**Key Accomplishment:**
- Purchased and implemented an Internet-based communication and situational awareness system for daily and emergency use for this large partnership of hospitals, health departments, EMS agencies, and tribal nations.

**Lead Agency/Organization:**
- North Broward Hospital District

**Lessons Learned:**
- Direct funding to hospitals in state HPP program can create a regional gap, because HPP program structure and guidance makes it difficult to fund regional programs.
- With direct grant monies, the regional healthcare coalition had funds and flexibility sufficient to fill gaps in preparedness.
- Preexisting partnership structure and relationships facilitated successful implementation of the program.

**History**
The Broward County Healthcare Coalition (BCHC) is a preparedness and response partnership located in South Florida Region VII. The South Florida region covers an area larger than the state of Connecticut—6,122 square miles from Palm Beach County south to Key West. The partnership includes more than 45 hospitals (with 7 trauma centers), 4 health departments, 4 emergency management agencies, and 2 tribal nations (Seminole and Miccosukee) and covers a population of more than 5.6 million people.

The BCHC, which was formed prior to the events of September 11, 2001, was well organized prior to the HFPP award. The partnership was formalized after the anthrax attacks in October 2001, when hospital CEOs identified the need for greater coordination of healthcare response to a disaster in South Florida. Healthcare coalitions have since been established in each of the 4 counties represented in this partnership. The Palm Beach, Broward, Miami-Dade, and Monroe coalitions plan together, and North Broward Hospital District acts as the lead agency for the region. This partnership has been tested frequently by hurricanes, disease outbreaks, flooding, and other disasters.

**Membership**
Partnership members include 4 counties (Broward, Miami-Dade, Monroe, and Palm Beach), with representation from hospitals, health departments, the Seminole Tribe of Florida, clinics, medical associations, the medical examiner’s office, funeral home directors, veterinarians, emergency management agencies, fire rescue services, law enforcement agencies, and other public and private agencies that have a role in providing healthcare to the community.

**Goals and Key Deliverables**
North Broward Hospital District was also the lead agency for the HFPP grant, the main goal of which was to address preparedness gaps in the South Florida region. The main deliverable was the purchase and integration of a standardized, Internet-based system to coordinate the region’s hospitals during a disaster. By the end of the grant period, the partnership had purchased and implemented CommandAware, an Internet-based system that provides real-time communication capability, bed and resource status, and transport status to more than 45 hospitals, 4 health departments, 4 emergency management agencies (EMAs), and both tribal nations in the South Florida region. The system provides regional, county, and facility level views of healthcare resources and response needs on a daily basis and during an emergency.

**Advantages and Challenges of the Direct Grant Funding Mechanism**
In Region VII, HPP funds are distributed directly to the hospitals. While not all hospitals receive funding every year, none of the hospitals receives HPP funding sufficient to enable the purchase of a system like CommandAware. For the BCHC HFPP, direct grant funding conferred significant advantages; among them was the opportunity to carry out a special project that clearly would advance disaster preparedness and healthcare response for the entire region and that would not have been possible under the HPP grant. In addition to purchasing CommandAware, Region VII was able to dedicate additional funds to other regional projects, whereas HPP grant funds were for hospital preparedness only and could not be used for regional projects.

This is a recurrent theme: HPP direct funding to hospitals can create a regional gap in that expensive regional programs that are of high priority to the preparedness professional on
the ground may be difficult to fund through the HPP because of the state's HPP structure and guidance priorities. The HFPP grants provide solutions that fill such gaps.

The North Broward Hospital District found it easy to administer the HFPP grant because the district administers the HPP funds and because a solid preparedness and response infrastructure was already in place. This partnership had the support of the state department of health; however, Florida is unique in that it has a distributed state health department system. There is a central health department office in Tallahassee, but resources are spread throughout offices distributed across the state.
Award Amount: $2.5 million

Key Accomplishments:
- Placement of caches of basic medical supplies and mobile inland shelters within the tri-county region in operational zones that may be isolated.
- Trained and exercised workforce using the RHCC and operational procedures (workforce included ESAR-VHP/MRC and CERT volunteers).

Lead Agency/Organization:
- The Roper St. Francis Foundation

Lessons Learned
- Success of the partnership was attributed to preexisting healthcare coalition, commitment of hospital CEOs, and key role of health department serving as an honest broker.
- Direct grant mechanism was effective for funding an important local project derived from HVA; while goals were consistent with HPP priorities, it would have been difficult for the state HPP to fund the project.

History
The 3-county, “low country” region around Charleston, designated as South Carolina Department of Health and Environmental Control Region 7, is vulnerable to a variety of potential disasters, including hurricanes and terrorism targeting the region’s many military facilities. However, the greatest concern is an earthquake: an active fault line runs through the region. In 1886, it produced an earthquake of magnitude 7.3 that caused extensive damage.16 Today, the region consists of 18 islands of habitation, separated by swamps and rivers, which are interconnected by approximately 700 bridges. An earthquake that damaged these bridges would isolate communities for a prolonged period of time. The partnership’s Regional Healthcare Coordinating Council (RHCC) was organized after September 11, 2001, in response to federal preparedness grants.

Membership
Members include all hospitals, regional public health departments, and county public and private emergency management services, as well as the 3 county EMAs.

it did not fall within the parameters of the HPP guidance. The state HPP coordinator indicated that diverting a greater percentage of the state's HPP grant to Region 7 for this purpose would not have been politically feasible. Even if the state had been given extra funds earmarked specifically for this project, the state reported that it would have been an awkward political position.

A major challenge associated with this project is sustainability: each of the 18 communities was given the materiel along with some initial operating funds, but the long-term maintenance of the caches is the responsibility of the recipients. Many of the communities have expressed concern about this financial burden. Another disadvantage of this funding approach was a lack of a suitable entity to administer the funds; a partner hospital volunteered its charitable foundation to serve as administrator. All thought this an imperfect solution, but no better solution was apparent.
The City and County of San Francisco Partnership (San Francisco, CA)

Award Amount: $787,000

Key Accomplishment
- Developed and exercised innovative community disaster response plan based on “hub-site” model that used libraries and neighborhood health centers.
- Engaged community medical providers in preparedness programs.

Lead Agency/Organization:
- San Francisco Department of Public Health

Lessons Learned
- Direct grant mechanism permitted review and restructure of entire response system that would not have been possible with HPP funding and guidance.
- This unique project may be difficult to replicate in another community.

History
The City and County of San Francisco (CCSF) is a unique geographic area that is at risk for a number of potential disasters, including earthquakes, fires, floods, and terrorism. San Francisco is expected to experience a severe earthquake at some time within the next 30 years, and in 2007, the city was identified by the U.S. Department of Homeland Security (DHS) as 1 of the 6 urban areas at highest risk for a terrorist incident. The city’s dense population of 800,000 increases to approximately 1.6 million on a typical work day. All roads leading into and out of the city go over bridges or under elevated roads that are at risk of collapse or shut down in an earthquake or another type of major disaster. Therefore, it is possible that the city could be cut off from highway transport. In addition, there are no helipads in the city, so no medical helicopters are able to land at hospitals. Because San Francisco is vulnerable to isolation, the city is preparing to respond to a disaster with the medical, public health, and human services resources that exist within city boundaries.

CCSF has made progress in disaster preparedness by working with area medical providers to train staff, purchase and maintain disaster equipment, and conduct exercises. However, even with all of these planning efforts, a mass casualty event could still quickly overwhelm San Francisco’s healthcare system. The limitations of the healthcare system and the region led CCSF to form its HFPP partnership to develop creative and innovative approaches to medical surge associated with disasters.

Membership
The San Francisco Department of Public Health (DPH) was the lead entity for the partnership and was the recipient of the HFPP grant funds. The CCSF partnership includes hospital facilities, the DPH, EMAs, and neighborhood health centers, which have collaborated to produce a Community Disaster Response Plan, also referred to as the Community Hub Plan. The plan specifies the operations of neighborhood health centers that will act as coordination centers for health and human services. Immediately following a disaster, these hubs will self-deploy to provide non-acute and “worried-well” patients with a place to receive services. This is intended to reduce patient surge at acute care facilities.

Goals and Key Deliverables
The San Francisco HFPP project had 3 primary goals:

- Apply a hub model to solidify the community disaster response: This model employs libraries (natural gathering places) as hub sites for community members in an emergency. Libraries have been retrofitted for earthquakes, their communications capacity has been enhanced, and staff have been trained. Triage would occur at library hub sites, with DPH personnel staffing the hubs during a disaster and using library computers to link to incident command. Neighborhood health centers would then be used as patient treatment sites, and acute patients would be sent to hospitals. The community hub plan has been exercised and is well integrated into other response plans for the city, county, and state.

- Engage community medical providers in preparedness: As pilot projects, healthcare providers in the communities of Chinatown and Bayview Hunters Point were targeted. Chinatown is a tightly knit community with interest and experience in preparedness efforts; Bayview Hunters Point has little history of community involvement in preparedness activities and proved more difficult to engage. The Chinatown project was successful in that relationships were established
with providers and community leaders, and the city was able to engage the community in preparedness planning. The Bayview Hunters Point project was more challenging due to a lack of provider connections within the community. However, the partnership has made some progress in engaging providers in this ongoing project.

- Plan for use of alternate care facilities: The project evaluated the San Francisco community’s needs in accommodating a healthcare surge and concluded that, in a large surge event, the city will plan to use alternate care facilities to provide basic first aid and human services to the population. The partnership also concluded that continuity of care for existing medical conditions is essential in any disaster, and this care has to been provided in a culturally competent manner. As a next step, the city is working on a project to provide services to the homeless population during a disaster through Project Homeless Connect.

The CCSF HFPP partnership was based on preexisting collaborations between the healthcare system and public health and emergency management agencies. The HFPP grant provided additional funding that allowed these partners to propose and implement a new preparedness and response system that centered on nonmedical hub sites. Such a system allows for better utilization of all resources within the city in response to a disaster, particularly one that may isolate San Francisco from outside assistance. San Francisco has a great tradition of collaboration among response partners, as well as great success in community engagement. The public health and hospital leadership built on the foundation of this culture and these traditions to accomplish their project goals. However, because San Francisco is unique in its geography and public health and preparedness history, this project could prove difficult to replicate in another community. Nonetheless, aspects of the hub model, the community engagement project, and planning for alternate care sites could provide valuable lessons for other locations around the country.

Advantages and Challenges of the Direct Grant Funding Mechanism

The CCSF partnership found the HFPP direct grant mechanism to be very helpful because the grant provided an opportunity to carry out special projects, improve processes, and meet goals that could not have been achieved under the HPP grant. Having the Department of Public Health administer the grant and having a solid preparedness and response infrastructure already in place facilitated the HFPP process.

There were significant advantages to the direct grant funding of this partnership. It provided San Francisco with an opportunity to both examine and improve its response structure as a whole and to review problems systematically. The HFPP grant allowed SFCC to propose and implement the Community Hub Plan, which had not previously been pursued because the more structured and goal/metrics-oriented HPP did not allow for it.

Because the DPH was the lead for the partnership and the recipient of the grant funds, the HFPP grant was not difficult to administer. DPH is accustomed to administering the HPP grant and found the HFPP grant less arduous to administer than the HPP grant. The California State Department of Public Health was supportive of the partnership project and has a very positive working relationship with the San Francisco DPH. The state was included in the grant process from the beginning, but the grant was administered by San Francisco DPH alone.
Healthcare Facilities Partnership of South Central Pennsylvania
Hershey Medical Center (Hershey, PA)

Award Amount: $2.5 million

Key Accomplishment:
- Developed and implemented webinar system for enhanced communication, situational awareness, education, and training.
- Developed pandemic influenza and blast injury simulation modules used for training at partnership institutions.
- Increased volunteer registration with State Emergency Registry of Volunteers in Pennsylvania (SERVPA).

Lead Agency/Organization:
- Pennsylvania State University Hershey Medical Center

Lessons Learned:
- Developing partnerships should be linked closely to state public health and emergency management agencies to ensure coordination of mission, goals, and projects of partnership with those of state HPP, CDC, and DHS grant programs.
- Effective communication among partnership institutions during emergency events is a significant necessary advance, but partnerships should also be linked to jurisdictional emergency response agencies for transfer of healthcare information.

History
The Healthcare Facilities Partnership of South Central Pennsylvania was built on 10 years of experience and work of the South Central Pennsylvania Counterterrorism Task Force (SCTF).

Membership
The SCTF coalition consists of 8 county EMAs that included a Healthcare Subcommittee and the Emergency Health System Federation, which represents 137 Emergency Management Services (EMS) agencies linked to 16 hospitals and 2 outlying health clinics. Based on a gap analysis of the work of the SCTF and an HVA, the grant focused on developing surge capacity and increasing planning and coordination with community agencies.

Goals and Key Deliverables
The specific goals of the partnership were to improve situational awareness and communication through the development and use of a webinar-based communications tool that also could be used for planning, education, and training. An initial inventory of assets and resources and their availability was performed to provide a baseline for assessment of progress in surge capacity. Other goals included developing a program of enhanced emergency preparedness training through simulation exercises, strengthening relationships among partners through the use of mutual aid agreements, ensuring NIMS compliance through the creation of a hospital-specific NIMS training curriculum, and improving ESAR-VHP implementation.

The partnership successfully developed and implemented a webinar system for communication among partners. The tool has been used for planning meetings, education, training, and as a mechanism to improve situational awareness for hospital response during an event. Sophisticated computerized simulations for pandemic influenza and overwhelming blast injury scenarios have been developed and used for education and training at partnership institutions. Coalition efforts have resulted in increased volunteer registration with SERVPA, Pennsylvania's online registry for medical and nonmedical volunteers. Communication among partners in the coalition has also improved through more widespread implementation of 800 MHz radios and use of the Facilities Resource Emergency Database (FRED) and Health Alert Network (HAN) alerting systems. The partnership has also begun to work on alternative care site planning.

Advantages and Challenges of the Direct Grant Funding Mechanism
The direct grant funding mechanism supported the development of a healthcare coalition in a large region of Pennsylvania. This would not have been possible with funding from the state HPP. There was a preexisting linkage of hospitals to emergency management and emergency services during the 10 years of work by the SCTF, but collaboration among healthcare institutions in emergency preparedness and response had not progressed significantly. The direct grant funding mechanism and partnership projects have accelerated information sharing, training, NIMS compliance, and ESAR-VHP registration. The partnership has also served as a laboratory for the development of training and communication tools that have potential utility at the state and national levels.

Direct funding of the partnership also presented challenges. Despite the existence of the SCTF and a plan to build upon it in the HFPP application, the partnership was established...
as a structure separate from the preexisting Healthcare Subcommittee of the SCTF. The governance structure of the partnership and the relationship of the partnership to county, state, and municipal governing structures were not clearly defined. Communication among partnership members during emergency events was enhanced by the partnership, but a system has not yet been fully developed for transfer of healthcare facility information to state public health and emergency management agencies. Integration of partnership mission, goals, and projects with those of the HPP, the Centers for Disease Control and Prevention (CDC), or state-level DHS grant program was a challenge identified by this developing partnership.
Massachusetts Emergency Partnership for Effective Emergency Response (Boston, MA)

Award Amount: $2.4 million

Key Accomplishments
- Strengthened integration of hospitals, public health, community health centers, long-term care facilities, and EMS in 3 public health regions.
- Evaluated and tested progress in communication policies, protocols, and skills development through a functional exercise.

Lead Agency/Organization:
- Boston University School of Public Health

Lessons Learned
- With an academic institution as lead, the partnership was uniquely positioned to bring together multiple disciplines and jurisdictions, but is not itself tied into response system of any jurisdiction.
- The direct grant funding mechanism was not sufficient for building and completing a new, multidisciplinary partnership for both preparedness and response in a large, complex region with multiple jurisdictions.

History
Massachusetts is a complex state in which to develop multidisciplinary, cross-jurisdictional healthcare coalitions. The state has 351 towns and cities and 7 public health districts. The geographical boundaries for counties, Emergency Management Services (EMS), and fire and public health agencies are different, but they overlap. The densely populated area around the city of Boston consists of 3 subregions (A, B, and C) within Region 4 and was a logical place to attempt to create a functional partnership with enhanced communication protocols and procedures.

PEER is a new regional partnership, the mission of which is to enhance the capacity of the 3 subregions in the greater Boston metropolitan area, which include the city of Boston and 61 surrounding cities and towns. For hospital and public health preparedness planning purposes, the Massachusetts Department of Public Health has designated the area these communities comprise as Regions 4A, 4B, and 4C. Together, these 3 subregions have a resident population of nearly 2.2 million people.

Membership
Region 4C corresponds to the city of Boston, and healthcare organizations, public health departments, and EMS in this region worked collaboratively before receiving HFPP funding.

The major Boston teaching hospitals, EMS, and public health agencies have worked together under the Conference of Boston Teaching Hospitals (COBTH), a coalition of 14 Boston-area teaching hospitals that has had an Emergency Preparedness Committee in place since the 1980s. Region 4B encompasses the first ring of towns and cities outside of Boston; working relationships between public health agencies and hospitals were developed during the response to a West Nile outbreak in this region. Region 4A is the outermost ring around Boston, and it has had some experience working with Region 4B on pandemic planning.

The partnership seeks to strengthen regional coordination through the development of communication protocols and systems, expansion of mutual aid agreements, and training to increase response capacity for an emergency. PEER partners include the Massachusetts Department of Public Health and partners from the 5 health and medical disciplines (hospitals, public health, community health centers, long-term care facilities, and EMS) across Regions 4A, 4B, and 4C. The partners include 27 acute care hospitals, 57 community health centers, 70 ambulance services, 62 local health departments and boards of health, 132 nursing homes or long-term care facilities, and 7 federally recognized MRC units. Boston University School of Public Health is the fiscal point of contact and coordinating entity for the HFPP projects.

Goals and Key Deliverables
The partnership’s scope of work focused on strengthening the integration of the 5 disciplines in the 3 public health regions in the Boston metropolitan area, with an emphasis on developing communication policies and protocols. This work included expanding access to available technologies and training partners from all 5 disciplines on communications protocols, technology, and equipment. This work also supported the Massachusetts Department of Public Health in implementing NIMS compliance activities for communication.

Evaluation of progress in communication policies, protocols, and skills development was conducted through a functional exercise with 33 of the agencies representing all 5 disciplines within a defined geographic area spanning Regions 4A, B, and C. The functional exercise demonstrated an enhanced ability for notification of an event, but it also highlighted

confusion with regard to command and control and the protocol for information flow from hospitals back to public health and other jurisdictional agencies.

Other work of the partnership, in conjunction with the Massachusetts Department of Public Health, was to revise and expand the ESAR-VHP plan for deploying volunteers within hospitals. An evaluation team from the Institute for Community Health conducted a comprehensive evaluation of all aspects of the PEER project activities. The team collected baseline data about existing response protocols and collaborative planning efforts, satisfaction surveys, and evaluations of the communication processes.

The key finding of that evaluation was that the previously distinct 5 disciplines of public health, hospitals, long-term care facilities, community health centers, and EMS had developed collaborative relationships that were facilitated by communication protocols and procedures. This was most significant in Region 4B, where, in addition to strengthening preexisting relationships among public health agencies, hospitals, and EMS, communication channels to municipal EOCs were established.

Advantages and Challenges of the Direct Grant Funding Mechanism

The advantage of this direct partnership grant mechanism, led by an academic center that is well connected to the region’s public health and hospital communities, was that it allowed the state and a key public health region to tackle an ambitious and necessary project to enhance collaboration and communication among key agencies and across disciplines. The academic center played the role of a neutral entity and was uniquely positioned to bring together representatives from multiple jurisdictions and disciplines. This mechanism also posed a challenge in that the directly funded project and lead agency was not itself tied into the response system in any of the jurisdictions.

The grantees acknowledged that, in retrospect, it was clear that the scope of the project was tremendously ambitious; for a partnership starting from the beginning, the work should have focused exclusively on preparedness activities and response within the new coalition. The partners also suggested that a smaller geographic area, or a partnership that included fewer disciplines, might have been more appropriate for a directly funded partnership grant. Additionally, the duration of the grant period was insufficient for the extensive work required to build a healthcare coalition of such scope. Participants suggested that despite the challenges of developing healthcare partnerships in regions without preexisting coalitions, there is a role for HFPP grants for “pilot” studies to test strategies for partnership development. For example, a smaller scale project focused on communication protocols for hospitals, public health, and EMS in a single public health region could facilitate growth and development of larger, more comprehensive coalitions in the future.
Award Amount: $2.5 million

Key Accomplishments:
- Developed mobile medical asset and multi-patient transport capability in conjunction with state DOH.
- Established joint authority agreement and protocols with state for use, training, and maintenance of mobile medical assets.

Lead Agency/Organization:
- Hennepin Healthcare System

Lessons Learned:
- Preexisting regionalized hospital preparedness and response programs based on local Regional Hospital Resources Centers (RHRCs) made direct grant approach successful.
- Partnership grant replaced HPP allocation to the region; HPP funds were redistributed to other 7 RHRCs, thus increasing funding for many local and state programs in that year.
- Planning for program sustainability to be included in work of coalition.

History
The MHC was established in 2002 as a substate regional partnership coalition of the 29 healthcare facilities in the Twin Cities region. Hennepin County Medical Center (HCMC), the region’s Regional Hospital Resources Center (RHRC), oversees the MHC and allocates HPP funding from the Minnesota Department of Health (MDH) to 29 hospitals. The geographical area for this partnership is the 7-county Twin Cities metropolitan area, as defined by prior MDH planning efforts. It includes the cities of Minneapolis and St. Paul and surrounding suburban communities. Approximately 2.6 million people (more than 50% of the state’s population) live in the region, and they are served by 29 healthcare facilities that include approximately 6,600 beds, 3 Level 1 trauma centers, and 2 children’s hospitals. Key regional hazards include natural disasters (tornadoes, windstorms, flooding, and cold-related emergencies) and terrorist and technological threats; the local FBI office has an extremely high terrorism case volume for the size of the population.

The MDH uses a tiered approach to response that is based on local coalitions (compacts) of hospitals and healthcare institutions that work with 8 RHRCs. With the HPP, MDH required all hospitals to develop compacts by January 2003; to date, every hospital in each of the state’s regions has signed a compact. MDH awards HPP funds regionally to each of the RHRCs, which are aligned with the state’s public health regions. These regions differ from the state’s 6 emergency management regions. Each RHRC develops a budget and divides HPP funds among its partners.

Membership
The MHC organizes its projects into 8-12 workgroups based on grant deliverables and guidance. MHC partners include MDH, Metropolitan Medical Response System (MMRS), Urban Area Security Initiative (UASI), American Red Cross, Information Sharing and Analysis Center, Metropolitan Emergency Services Board, Homeland Security and Emergency Management, University of Minnesota, Hennepin County MRC, and the Metropolitan Local Public Health Association. Nineteen of the 29 healthcare facilities also participate in National Disaster Medical System (NDMS). The compact is highly collaborative and has engaged in numerous joint training, planning, and response activities, including the Snowball Exercise series, the Minnesota bridge collapse in 2007, and planning for alternate care sites and disaster standards of care. For example, the compact’s partners view alternate care sites as the responsibility of the entire MHC rather than of a single partner facility.

Goals and Key Deliverables
HCMC applied for and received the HFPP grant in 2008 on behalf of the MHC. During that year, HCMC did not receive any HPP funds from the state, but it still coordinated several projects (eg, the mobile medical unit) with them as part of the HFPP grant. The rest of the regions received a portion of the metro region’s share of the HPP funds, since HCMC was receiving the HFPP grant (this is how they interpreted the HFPP grant; it also incentivized the other regions to assist in the HFPP grant application). The major goals of the HFPP grant were:

- To develop a mobile medical asset to provide on-site emergency stabilization care at large special events and to provide healthcare facility replacement capacity for smaller community hospitals (ie, if they should require surge or replacement capacity due to facility

evacuation, special events, or other contingencies, such as part of Minneapolis being isolated due to flooding). The MHC decided to apply for HFPP funding primarily for mobile medical assets.

- To further develop multiple Level 1 Capabilities, including education and training (eg, NIMS/ Hospital Incident Command System, MNTrac), management of medical volunteers (MNResponds), medical components (eg, mobile medical assets, pharmaceutical caches), and coordination of, for example, alternate care sites, planning for at-risk populations, EMS, Multi-Agency Coordinating Center, interoperable communications, bed tracking, etc.

The partnership’s successes are due largely to an unusually high and unique level of collaboration. The partners stated that “everything was different after Anniston,” referring to the 2005 MMRS Integrated Emergency Management Course (IEMC) that gathered approximately 75 public health, hospital, public safety, and emergency management officials from Minnesota for exercise-based training at the federal Noble Training Center in Anniston, AL. During this training, which was provided by the Federal Emergency Management Agency’s (FEMA) Emergency Management Institute, the partners shared plans, networked, developed a better understanding of the need for coordination, and established personal and professional relationships. Members attribute the continued collaborative spirit to multiple factors, including “Minnesota nice,” strong leadership, accessibility of members, adherence to the grant guidance, and an environment that is accepting of each type of healthcare system.

Advantages and Challenges of the Direct Grant Funding Mechanism

The HFPP grant activities were successful due to the collaborative nature of the MHC and because of the already established and organized healthcare coalition. The funding was relatively easy to administer because it was managed by the existing RHRC structure through the HCMC, which is the RHRC for the Minneapolis metropolitan region.

In addition, even though the MHC partners report that they work well together and the MHC is solidly established in the community, the availability of funding is critical to the compact’s work. MHC partners agree that the mobile medical assets, for example, would not have been possible without the HFPP funding. Before the HFPP grant became available, the need for multi-patient transport was identified, so the MHC applied for HFPP funding primarily to acquire mobile medical assets that would be available for the entire region. They also have 6 portable ventilators with monitoring capability for all of the beds with a central monitoring system (staffing depends on acuity of patients being transported) and developed a joint powers agreement with MDH for the transportation units.

Disadvantages of this funding approach included a very short application timeframe and the compact’s interpretation of the HFPP grant guidance—they understood that they would have to forgo HPP funding during the term of the HFPP grant. However, forgoing the HPP funding did not appear to have a negative effect on the MHC and might even have fostered greater acceptance among other regions about the MHC receiving the HFPP funding.

In addition, when the HFPP application was made, some did not see the rationale for a mobile medical asset and questioned how as a state asset it would benefit the metro region hospitals. Some of these partners now see the value of the asset and have used it recently. The MHC clearly communicated that it is not solely a metropolitan resource and that it was placed in the region only for reasons that have to do with maintenance, need, and so forth.

Finally, it is not clear how the momentum that was established through the HFPP and the work that was completed will be maintained if funding does not continue. While the MHC works hard to plan for sustainability, and partners have started looking at ways to meet their obligation to continue this work, such as through establishment of a nonprofit organization, sustainability beyond the HFPP grant cycle will have to be addressed.
New York State New York Burn Partnership (New York)

Award Amount: $2.5 million

Key Accomplishments:
- Created framework for timely burn care surge capacity.
- Worked on transportation surge capacity protocols.

Lead Agency/Organization:
- New York State Department of Health

Lessons Learned:
- Direct, focused supplemental funding resulted in significant progress in a short period of time.
- Close integration with HPP program goals and priorities enhanced effectiveness of the partnership grant.

Membership

Two regions within New York State—the Borough of Manhattan in New York City and the Rochester, New York, Regional Resource Center (RRC) area—comprise this partnership. Both regions have burn centers, trauma centers, hospitals, long-term care facilities, and Federally Qualified Health Centers. Both regions also identified gaps in burn surge capacity planning and, therefore, decided to propose a collaborative effort for the HFPPP grant program.

Goals and Key Deliverables

The overall goal of the New York Burn Partnership was to develop and test a model system of burn care integration among multiple partners, for the purpose of increasing surge capacity in response to a mass casualty incident that overwhelms current local, regional, and/or statewide burn care resources. Deliverables included development and implementation of Virtual Burn Coordination Centers, a Central Burn Triage Coordination Team, an Enhanced Burn Disaster Receiving Hospital (BDRH) Matrix, and a communications coordination plan and protocol for the quick and effective transfer of patients to the most appropriate burn facility. The partnership, which links this planning effort with the existing incident management structure, cooperates closely with state and local EOCs and the Health Emergency Response Data System (HERDS). Through the development and application of new technologies and procedures, the partnership developed a plan that meets the goal of the grant.

Advantages and Challenges of the Direct Grant Funding Mechanism

This partnership is unique because both members also are funded directly by the HPP (ie, the grants are distributed outside of the state HPP allocation). The Strong Memorial/Rochester area is not a geographically contiguous region that typically would be included in the New York City healthcare coalition. However, for the purposes of developing plans and protocols for burn care and applying them across the state and region, it was practical to include an upstate partner. The direct grant funding to the partnership was, essentially, a shared supplement to HPP funds allocated to both the city and the state. This additional, focused funding was advantageous for both regions and allowed them to make significant progress in a relatively short period of time. Because of this partnership's unique membership, it is not necessarily the best illustration of the advantages and challenges of direct funding versus funding provided through the state HPP.
Rural Nebraska Medical Response System (Elkhorn, NE)

**Award Amount:** $868,000

**Key Accomplishments:**
- Created a partnership that covers a large area using a telehealth network to provide specialized care to rural areas.
- Developed and exercised a protocol for use of mobile medical assets in regional response.
- Improved ESAR-VHP and MRC capabilities.
- Brought participating hospitals into compliance with NIMS.

**Lead Agency/Organization:**
- Elkhorn Logan Valley Public Health Department

**Lessons Learned:**
- Strong relationship among partnership, state, and preexisting MRS system infrastructure made grant mechanism successful.
- Projects and programs are sustainable because they were integrated into existing, ongoing response system.

**History**

Nebraska built its partnership around an existing structure that was modeled on the MMRS. Nebraska is divided into 7 Medical Response Systems (MRSs), 2 of which are explicitly supported by DHS funding. The remaining 5 are rural, and 4 decided to collaborate on the HFPP. Each rural MRS includes hospitals, health departments, EMAs, behavioral health agencies, EMS, government entities, Federally Qualified Health Centers, and other response agencies that plan together for disaster response. The 4 MRSs that collaborated on the grant have a history of working together to develop best practices, plan, and train. This preexisting structure typically is used to distribute HPP funding, and the MRSs are responsible for distributing HPP funds to participating hospitals.

**Membership**

The grant brought rural MRSs together with the Elkhorn Public Health Department (PHD), which acts as the fiscal agent. Altogether, 51 hospitals participated in the HFPP partnership, which was staffed through independent contracts with the Elkhorn PHD.

**Goals and Key Deliverables**

The goals of the partnership were to improve MRC and ESAR-VHP capabilities and to bring participating hospitals into compliance with NIMS. The partnership also acquired mobile medical assets for alternate care sites and developed protocols for their use. The protocols were tested in full-scale exercises and then refined, and the use of mobile medical assets has been incorporated into regional response plans as part of medical cache protocols.

The partnership also identified the need to bring specialized care to its rural partners. Because distance can confound transport of patients in such a large state, the partnership explored the use of the Nebraska Statewide Telehealth Network. Through this system, the partnership used videoconferencing to connect 25 hospitals to trauma and burn centers that could help provide specialized care during an emergency. As this capability is developed further, the partnership intends to use videoconferencing to deliver burn, stroke, and cardiac care, as well as mental health services, and education and training.

**Advantages and Challenges of the Direct Grant Funding Mechanism**

Although the Rural Nebraska MRS had difficulties with the short grant period, it benefited from 2 no-cost extensions. The direct grant mechanism allowed partners to address specific problems that they were not able to focus on using general HPP funds. Partners indicated that establishing a fiscal agent was challenging for the administration of this regional grant.

This was a unique partnership because it focused primarily on rural areas, where distance rather than population was the biggest obstacle. Like other successful partnerships, this one was based on a preexisting structure in which each of the 4 MRSs had an established relationship with the state. The partnership collaborated closely with the state on the ESAR-VHP and MRC components of its grant. In addition, the HFPP did not conflict with other HPP activities and did not cause any resentment in the nonparticipating (ie, MMRS) regions in the state.

The partnership considers its efforts to be sustainable because it was part of existing response structures (ie, the partnership did not exist in a vacuum), and its activities and accomplishments are not thought to be dependent on continued funding. The focus on projects that met members’ existing needs, including the tele-trauma and videoconferencing systems, was also identified as an important factor in sustainability.
History
The King County Healthcare Coalition developed in a community with a long tradition of collaboration between the public health and medical care systems, and the coalition had several years of experience as a formal entity prior to the HFPP application process and grant award. The public health and hospital leadership built on this tradition and leveraged this culture of collaboration, while also exhibiting political sensitivity to the inherent conflicts that result from overlapping state, county, municipal, and private sector activities and responsibilities. This experience and leadership resulted in a successful application and execution of the partnership grant goals and objectives. Results of the gap analysis led to selection of projects designed to exceed what had been and could be accomplished under the HPP and that would be of use to the rest of the state and the nation.

Membership
The King County Department of Public Health is the lead agency in the King County Healthcare Coalition. Since 2005, the coalition has been the county’s mechanism for coordinating regional public health and hospital preparedness activities. The history of cooperation and coordination of preparedness activities in Seattle predates the early establishment of this healthcare coalition. After the 1999 World Trade Organization meeting protests in Seattle, hospitals in the area and the public health department began engaging in significant efforts focused on joint preparedness drills and exercises. Harborview Hospital, a large academic medical and trauma center, had developed and organized a bed tracking and situational awareness tool that helped coordinate many of the area hospitals.

Currently, the coalition includes 25 hospitals, more than 100 other healthcare organizations (including large outpatient medical groups, home care, long-term care, mental health care, pediatric providers, safety net clinics, specialty providers such as dialysis centers, and tribal clinics), and more than 30 other agencies and professional organizations. The healthcare coalition, represented by its executive council, is a key participant, along with the EMS medical directors, the medical examiner, and the local health officer, in a multiagency coordination group for ESF-8 functions.

Goals and Key Deliverables
The King County Healthcare Coalition HFPP grant and scope of work was guided by a gap analysis and an effort to enhance coalition structure and function. The Regional Medical Resource Center, which later became the Area Command, served as a single coordination point for medical resources and information for all healthcare organizations in King County, but it lacked a dedicated facility from which to coordinate response. The volunteer management system was inadequate to track all medical volunteers. The region also had only limited capacity for moving and tracking patients during an evacuation.

The goals of the HFPP grant, which were derived from a gap analysis, were to enhance participation of non-hospital agencies and providers in the coalition and ESF-8 response, with a specific focus on integrating pediatric and obstetrics providers into regional coordination efforts. A medical evacuation and patient tracking plan is being developed, and a medical volunteer management system is being instituted. The coalition also has successfully developed and implemented the Washington System for Tracking Resources, Alerts, and Communication (WATrac), a bed and resource tracking system for situational awareness. The system extends work previously completed by Harborview Hospital to all hospitals and facilities in the coalition, and it has been adopted by the state of Washington for statewide implementation.
Advantages and Challenges of the Direct Grant Funding Mechanism

This competitive grant mechanism provided more immediate funding for capital-intensive projects that would be difficult for the coalition and its partners to fund through the limited state HPP allocation. According to coalition leadership, direct grant funding through the HFPP afforded the partnership more freedom to focus on non-hospital aspects of the healthcare system, thereby significantly expanding the scope of the coalition and regional preparedness. The grant program promoted innovative projects applicable to the rest of the state and nation, such as the WATrac situational awareness system that is currently being implemented statewide. Because of its effectiveness, the county-based local healthcare coalition had established itself early in response efforts as the “one to call,” so funding this trusted entity directly made it easier to coordinate complicated overlapping jurisdictions (ie, city, state, county, and private sector) and programs.

The challenges presented by this direct grant funding approach are related to the diversity of the state’s regions, which vary greatly in size and population density, making it difficult to generalize partnership experiences and projects statewide. The state is supportive of the healthcare coalition and partnership grant. Some concern was expressed by coalition members about how the coalition’s progress and activities, funded by the HFPP, can be sustained in the future.
WakeMed Project MoVES (Raleigh, NC)

**Award Amount:** $1 million

**Key Accomplishments:**
- Focused on evacuation planning and exercises based on local HVA as a means of assessing and improving hospital preparedness.
- Identified challenges in staffing and communication at receiving hospitals in evacuation exercises.

**Lead Agency/Organization:** WakeMed Health Care System

**Lessons Learned:**
- Preexisting regional system for trauma referrals, already in use in HPP grant activities (CapRAC), facilitated partnership development and projects.
- Close and beneficial coordination between the partnership and ASPR project officer was made possible by direct grant mechanism.

**History**

WakeMed Health and Hospitals is the lead agency for the Capital Area Regional Advisory Committee (CapRAC) Project MoVES (Modeling Via Evacuation Scenarios), a coalition of members in the CapRAC, a region in central North Carolina defined by a preexisting referral structure to Level 1 or Level 2 trauma centers within the state. The region consists of 6 hospitals, 2 free-standing emergency departments, 104 nursing homes, and 243 mental health homes. CapRAC is one of several RACs assigned to WakeMed (as the trauma center hub for the region).

**Membership**

The Project MoVES coalition includes all hospitals and EMS systems within the CapRAC region, as well as 2 geographically close hospitals that are not part of the CapRAC. For response, the state of North Carolina provides State Medical Assessment Teams (SMATs), which are comparable to the federal Disaster Medical Assistance Teams (DMATs) and have 3 levels of functionality. The state of North Carolina began using the RACs as HPP grant recipients after initially contracting out to each individual hospital. The RACs have since been responsible for the HPP subcontracts to each hospital. Using this foundation, the CapRAC built the Project MoVES partnership.

**Goals and Key Deliverables**

The Project MoVES partnership conducted 3 evacuation exercises to gauge and improve hospital preparedness. The partnership identified an expanded knowledge base regarding evacuation, practice of plans for evacuation, and use of human patient simulators as significant coalition accomplishments. The focus on evacuation was based on a local HVA that identified tornadoes as one of the major evacuation threats to hospitals.

The goal of the partnership was to improve, exercise, and assess hospital preparedness in 3 major areas: evacuation, medical surge, and communication. Key deliverables were development of a Vertical Evaluation Simulation Training program that was tested and maintained by WakeMed and identification of problems with inter-hospital transportation (these problems included EMS unfamiliarity with intensive care unit [ICU] apparatus, to the unavoidable decline of patient condition during transport). The partnership identified communication as a significant ongoing challenge. Development of a communications center along with hands-on disaster response training for personnel helped fill many of the gaps identified during the exercises.

The Project MoVES partnership was built on a preexisting system—the RAC, which made trauma referrals and distributed and administered the HPP funding. The preexisting relationships and strong relationship with the North Carolina Office of EMS allowed Project MoVES to accomplish its goals more quickly and effectively. The gaps that were identified and the lessons learned have been useful for improving evacuation and medical surge preparedness within the partnership region, and the state of North Carolina hopes to apply those lessons across the state.

**Advantages and Challenges of the Direct Grant Funding Mechanism**

The state had a good working relationship with WakeMed and the CapRAC Project MoVES partnership. The partnership was organized prior to the grant under the trauma referral system and was able to leverage that existing structure. The grant recipients favored the direct grant mechanism because of the greater and more immediate access to funds it affords. The HFPP grant provided a simplified process for addressing legal and contractual obligations by eliminating 1 level of contracting for the partnership. Furthermore,
the partnership benefited from the direct communication between the partnership and the ASPR project officer, who was particularly helpful in building the relationship between the partnership and the federal government.

The partnership’s accomplishments would not have been possible with the HPP funding it received from the state. However, with state support, the partnership’s efforts and lessons learned are being used and applied throughout the state.

The grantees identified the duration of the grant as the major challenge to the HFPP process. The partnership was not able to hire personnel for a 1-year grant period and had difficulty accomplishing all of its goals in a single year. However, both the grantees and the North Carolina Office of EMS acknowledged that something beyond the usual HPP efforts was needed to identify best practices and share lessons. The HFPP mechanism allowed for a creative project at regional and local levels to identify best practices and remaining problems, which might contribute to changing the state’s HPP guidance and priorities. The direct grant mechanism was also effective in promoting partnership development among local leaders who were most familiar with key issues such as local geography, practice and referral patterns, personalities, and the preexisting relationships that were important for successful coalitions.
### Profiles of Emergency Care Partnership Programs (ECP)

#### Table 6. Overview of ECP Unique Outcomes, Lessons, and Future Steps

<table>
<thead>
<tr>
<th>Partnership</th>
<th>Unique Outcome</th>
<th>Lessons Learned and/or Future Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>District of Columbia Emergency Healthcare Coalition</strong></td>
<td>Integrated partnership into jurisdictional response system with Healthcare Coalition Response Team.</td>
<td>Close integration with DC Department of Health (DOH) and HPP goals enhance effectiveness. Program to be continued.</td>
</tr>
<tr>
<td><strong>Davis California ESCAPE Partnership</strong></td>
<td>Developed telemedicine system for improved daily and surge event emergency and critical care, with a particular focus on rural facilities, and developed crisis care guidelines.</td>
<td>Rural healthcare facilities have unique needs and can greatly benefit from partnership participation and telemedicine systems.</td>
</tr>
<tr>
<td><strong>Los Angeles Partnership– Pediatric Disaster Resource and Training Center</strong></td>
<td>Developed pediatric disaster courses (in-person and online), training, and drills/exercises; developed family reunification recommendations; and established telemedicine system using robots.</td>
<td>System or network should be developed by HHS for dissemination of key ECP deliverables.</td>
</tr>
<tr>
<td><strong>Indianapolis MESH Partnership</strong></td>
<td>Established emergency communications center and training program and held tabletop exercises for region.</td>
<td>Direct grant mechanism requires close coordination with state.</td>
</tr>
<tr>
<td><strong>Rhode Island Partnership</strong></td>
<td>Developed novel interoperable communication system.</td>
<td>Direct funding of the partnership through the largest institution as grant administrator created some concern from state’s smaller hospitals</td>
</tr>
</tbody>
</table>
District of Columbia Emergency Healthcare Coalition (Washington, DC)

**Award Amount:** $5 million

**Key Accomplishments:**
- Developed first citywide HVA and emergency operations plan for the healthcare system, which was activated in exercises, the presidential inauguration, and the H1N1 response.
- Developed ED IT connectivity for family reunification during emergencies.
- Organized ECP summary conference with representatives from all 5 grantees and HHS.

**Lead Agency/Organization:**
- Medstar Health, Inc., Washington Hospital Center

**Lessons Learned:**
- Use of grant funding was essential for salary support to develop strategic plan and translate it into operational plan.
- Close working relationship with DC DOH helped leverage ECP investments.
- Becoming a 501(c)(3) or LLC could help sustain advances of ECP.

**History**

The District of Columbia Emergency Healthcare Coalition (DCEHC) was established as a result of the ECP grant. Hospitals in the DC area had a long history of working together during mass casualty events, including the Air Florida Flight 90 crash in 1982, the events of September 11, 2001, and the anthrax attacks in October 2001. However, even though DC’s hospitals had developed a mutual aid agreement and a Hospital Mutual Aid Radio System (HMARS), no formal mechanism existed to provide rapid situational assessments and coordinated responses during disasters. The goal of the coalition is to support healthcare system resiliency and the collective medical surge capacity and capability for DC in response to mass casualty or mass effect incidents.


**Membership**

DCEHC’s core membership consists of 11 acute care and specialty care hospitals, the Visiting Nurses Association, the DC Primary Care Association (DCPCA), long-term care facilities, the poison control center, and mental health facilities and clinics. Additional critical partners include the DC Department of Health (DCDOH), DC Fire and EMS, the DC Homeland Security and Emergency Management Agency (HSEMA), and the DC Office of the Chief Medical Examiner. Washington Hospital Center’s EROne was the lead for the grant.

The DCEHC grant steering committee, which includes CEOs from select hospitals and HSEMA and DCPCA representation, provides overall strategic guidance for the grant, meets every other month, and has authority to approve expenses over $10,000 and reprogramming funds. The Emergency Management Committee, which meets biweekly, includes representatives from all partner healthcare organizations. Most work is accomplished through work groups, which are facilitated by one of the Emergency Management Committee’s co-chairs. The grant management team was led by a director, who reported to the Washington Hospital Center and the grant steering committee. The team included administrative and financial personnel who met regularly to address all aspects of grant management.

**Goals and Key Deliverables**

The DCEHC accomplished all of its objectives. It developed an emergency operations plan based on an HVA; the plan was distributed within the coalition and to state health departments and selected hospitals in neighboring jurisdictions. The coalition also developed the Healthcare Information System (HIS) to facilitate situational awareness and to serve as a repository for key documents. A system called emergency department information technology (“ED IT”) was developed to capture emergency department registration data to support family reunification during a disaster. In developing ED IT, the coalition worked with the DCPCA’s Regional Health Information Organization (RHIO) project, a health information network that links clinicians and institutions using interoperable technology that provides instant access to patient health histories. (RHIO had a 3-year license from Microsoft that saved the DCEHC licensing fees). Just-in-time training on emergency preparedness was developed using a learning management system platform, but it was discontinued because it was not used enough to warrant maintaining it.
The Hospital Mutual Aid Radio System (HMARS) was also updated, and radios were provided for the first time to the DCPCA and long-term care facilities. To improve coordination and situational awareness among DC and its collar communities, HMARSs were also purchased for Suburban Hospital in Montgomery County, MD, and for Doctor’s Hospital in Prince Georges County, MD.

The DCEHC achieved several other project goals as well. It funded a standardized security risk assessment for 8 hospitals and held a forum on hospital security best practices. It conducted 2 city-wide exercises that provided the opportunity to examine DCEHC improvements instituted under the grant. The project also included a formal evaluation component. Finally, the DCEHC hosted an ECP summary conference to provide a forum for all 5 project partnerships to share what was learned through their ECP grant activities.

Advantages and Challenges of the Direct Grant Funding Mechanism

It would not have been possible to form the DCEHC healthcare coalition without the ECP grant. The grant provided the salary support necessary to develop a strategic healthcare response plan for DC and translate it into operational plans and training. The funding also enabled better integration of primary care clinics and nursing homes into the coalition and emergency response. However, having a history of regional hospital emergency collaboration and an academic medical center with expertise in grant management were critical to the partnership’s success.

The coalition also benefited from a close working relationship with the DC DOH, which assisted in leveraging the ECP investments. The partnership between DCEHC and the DOH has been so productive that the DOH is considering using the coalition to administer other hospital preparedness grants in the future. DOH also gave additional funds to the DCEHC in 2009 to fund N95 respirator fit-testing for clinic and nursing home staff and to certify staff to perform fit-testing in their facilities.

Because of its unique federal status (the “state” is a city), the extent to which the DC experience with grant funding can be generalized is limited. Nevertheless, there were central components of this coalition that mirrored similar successful efforts in other jurisdictions. First, there was a history of regional hospital emergency collaboration that served as the foundation for enhancement and expanded. The coalition ensured that each partner’s perspectives and resource needs were addressed throughout the process, which minimized conflict on the allocation of funds. Second, an academic medical center with expertise in grant writing and management was able to develop a proposal quickly and administer the grant effectively (eg, ensuring that hospitals were reimbursed expeditiously for staff salary support). Third, the DCEHC enjoyed a strong working relationship with the DC DOH, and there was no evidence of contentious issues or serious conflicts. On the contrary, there seemed to be strong satisfaction with the DCEHC’s governance process and achievements.

Sustainability remains a challenge, but DCEHC took steps to address it by, for example, electing to avoid use of proprietary software systems whenever possible to avoid licensing fees that would make them more difficult to sustain (eg, it developed and owns HIS). In addition, the DC DOH covers the costs of the HMARS licenses, and the teleconferencing capability is donated by coalition hospitals. DCEHC is also exploring obtaining 501(c)(3) status or establishing an LLC. Partners are hopeful about the coalition’s ability to sustain the advances achieved through the ECP work.
Davis, California Partnership—Enhancing Surge Capacity and Partnership Effort (Davis, CA)

**Award Amount:** $5 million

**Key Accomplishments**
- Developed telemedicine “robots” and system for improved daily and surge event emergency and critical care.
- Developed crisis care guidelines for critical care, trauma, burn, and acute mental health care.
- Developed and tested patient and resource tracking system integrating WiFi, cellular, RFID, and GPS technologies.

**Lead:**
- University of California Davis School of Medicine (UC Davis)

**Lessons Learned**
- Among competitors in the healthcare marketplace, cooperation for the common purpose of enhanced emergency care is possible.
- Rural healthcare facilities have unique needs that must be integrated into the work of partnerships.
- Despite a close working relationship between the state and the lead institution for the HPP program, the direct funding mechanism can pose challenges; therefore, collaboration and information sharing should be emphasized and encouraged by HHS.
- Sustainability will be a challenge because of ongoing issues with maintenance and questions about billing and liability associated with the telemedicine system.

**History**
The Enhancing Surge Capacity and Partnership Effort (ESCAPE), led by the University of California Davis School of Medicine (UC Davis), was established under the ECP grant to provide equal and ethical delivery of health care during a disaster—across the partnership region and at all levels of healthcare response—and to develop flexible systems that support treatment optimization under routine and surge conditions.

**Membership**
The partnership, which consisted of approximately 20 urban and rural sites from Regions III and IV in California, is separate from the larger HPP group of facilities (some members were the same, some were new).

**Goals and Key Deliverables**
The partnership’s ECP projects, which were developed to address disaster planning gaps and challenges—especially in rural areas—included the following:

- Developing a telemedicine system for a surge environment,
- Developing crisis care guidelines,
- Creating a computational modeling tool to plan and prepare for healthcare surge events.

Intended to improve both daily emergency care and surge care, ESCAPE’s telemedicine effort was the partnership’s cornerstone. It provided facilities with access to specialists and helped equalize care at each partner site. The UC Davis School of Veterinary Medicine was one of the sites (it also has the unique capacity to be used as an alternate care site). Nearly 30 units (similar to telemedicine “robots”) were deployed, with a plan to deploy 30 additional units at partner facilities, each of which was required to be NIMS-compliant. The goal is to integrate these units into daily or routine use; eventually, the system will become part of the California Telehealth Network.

The partnership developed crisis care guidelines for the provision of specialized care in a population-based care environment and to address gaps in the state surge plan. The guidelines include an overall response framework (eg, ethical approach, triggers, triage). They focus on adult critical care, pediatric critical care, trauma and burn care, and acute mental health care. They incorporate technology (eg, telemedicine, tracking, and medical records) to support the delivery of specified care. At the time of the ECP evaluation,

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20 Region III is a 33,000 square mile (22% of the state’s area) rural region that consists of 13 counties, 2% of the state’s population, 20 hospitals (some as small as 4 beds), and 2 Level-2 trauma centers. Ground transport from some rural areas in this region to Sacramento could take as long as 5 hours.

21 The state requires HPP awardees to build partnerships of healthcare organizations.
the partners were in the process of determining the best way to test these guidelines.

The informatics component of the grant included computational modeling to evaluate a regional telemedicine hub by predicting outcomes in a surge event and optimizing resources. It also included the development of “use cases” to address disaster mental health needs and development of best practices for disaster medical records. Using existing WiFi and cellular infrastructures, the patient and resource tracking system employed Radio Frequency Identification (RFID) tags, which use GPS technology and can be integrated into other systems. This system can determine in real time the availability and location of resources such as ventilators, infusion pumps, and wheelchairs. The system can also track patients and resources in transport as well as vaccine and medicine temperatures. During a recent drill, UC Davis identified all resources requested within 14 seconds.

ESCAPE applied the concept of force multiplication to make the most of what they had, particularly in rural areas. For example, telemedicine allowed for care of patients at rural sites, obviating the need for transport to facilities in urban areas. Telemedicine also allowed in-demand specialists, such as burn surgeons, to deliver care at multiple sites without leaving their home facilities. Finally, it facilitated language translation and family communication, as was the case when, during the recent daycare fire in Mexico, 7 victims were transported to UC Davis, where telemedicine units allowed the children to communicate with family members.

Advantages and Challenges of the Direct Grant Funding Mechanism

The ESCAPE partnership demonstrated the benefits and challenges associated with the direct funding mechanism. The funding did allow the group to address the unique needs of rural healthcare facilities and practitioners, but the state expected a greater degree of collaboration and involvement than it perceived to have occurred given the close relationship between the state and UC Davis for the HPP. The state did acknowledge that the HPP funding mechanism does not provide an easy way to fund special projects. It also noted that leadership, collaboration, and information sharing are key factors for ASPR to encourage in these types of grants. ECP best practices should be shared locally, regionally, and broadly across the country so that all hospitals can benefit.

While partners intended to continue their relationships after the grant ended, they also recognized challenges with sustainability, such as maintenance of telemedicine assets. Plans for sustainability included integrating the telemedicine units into daily use, such as for grand rounds and emergency calls; having hospitals cover some of the telemedicine costs with UC Davis assuming responsibility for training and maintenance; and cooperatively purchasing tracking tags to reduce costs. However, even with ESCAPE providing free equipment, once the recession hit, many of the original partners could not continue their participation.
Los Angeles Partnership—Pediatric Disaster Resource and Training Center (Los Angeles, CA)

Award Amount: $5 million
Key Accomplishments:
- Focused on unmet disaster needs of a specific population: pediatrics
- Developed education, training, drills/exercises, and drill evaluation resources, pediatric disaster course manual, and in-person and online training programs.
- Developed recommendations on family reunification.
- Conducted outreach to other national pediatric center networks to encourage replication of ECP work.
- Established telemedicine system using robots.

Lead: Children's Hospital Los Angeles (CHLA)

Lessons Learned:
- Preexisting leadership role as pediatric DRC and 8-year history of collaboration with LA EMS agency contributed to success of partnership.
- Despite acknowledgment of effective collaboration and overall regional benefits of partnership, some thought that directing funding to the HPP program would have resulted in better accountability and global use of funds.
- HHS file-sharing system or network was suggested for dissemination of key ECP deliverables throughout the U.S.

History
Children's Hospital Los Angeles (CHLA) was the lead for the Los Angeles ECP partnership. Building on its preexisting role as the region's pediatric Disaster Resource Center (DRC), CHLA applied for ECP funding to address unmet disaster needs of the 2.8 million children in the 4,000 square-mile Los Angeles County region, which has experienced severe earthquakes, coastal flooding, wildfires, and civil unrest. In 2006, a statewide consortium was formed to identify pediatric disaster gaps in California; CHLA was involved in addressing them. The stimulus for the ECP project was to close remaining gaps in planning for the special clinical, psychological, physical space, nonclinical, safety, and security needs of the pediatric population.

Membership
CHLA's primary partner was the Los Angeles Emergency Medical Services Agency, the HPP grant manager for the county, with which CHLA has worked for more than 8 years. Other key partners included the City of Los Angeles, the American Red Cross, the Hospital Association of Southern California, and the Emergency Network of Los Angeles (which operates the county's VOAD—Voluntary Organizations Active in Disasters), as well as state-level organizations (eg, the California Hospital Association). The partnership formed a steering committee, an executive leadership team, and a national advisory board. Officials from Los Angeles County were actively involved in the steering committee, grant decision making, and maximizing funds in coordination with the HPP. The subpartnership structure that CHLA formed allowed for greater connection to the partner groups. The Pediatric Disaster Resource and Training Center (PDRTC) for Los Angeles County focused on progress in 5 core areas: education and training, drill evaluation, virtual pediatric disaster, informatics, and administration for communicating and coordinating planning.

Goals and Key Deliverables
PDRTC developed multiple education, training, and drill evaluation resources to improve disaster education and to train experts to deliver courses. The goal of Surge World (an education and training session) was to address pediatric surge and triage issues in a fun and simple way. Because the partnership hypothesized that previous preparedness experience would increase healthcare workers' willingness and ability to respond to a disaster, they developed Disaster Olympix as a new way to drill and train for disasters. In addition, to address child and family reunification needs, PDRTC sponsored 2 conferences to raise awareness, identify areas in need of further research, and develop national pediatric reunification recommendations. They developed a pediatric disaster course manual, an in-person pediatric disaster course to train staff, and an online course.

For the virtual pediatric disaster and informatics cores, PDRTC purchased 5 tele-presence robots for use in the pediatric intensive care unit at CHLA and another hospital. The partnership also surveyed DRC and hospital assets in the county to develop the Pediatric Emergency Decision Support System (PEDSS) with partners at the University of Southern California's Information Sciences Institute.

22 The state’s medical and health systems are organized around DRCs and are coordinated in every county. This provided for a solid, preexisting foundation of partnership and collaboration for the grant work. At the time of the grant award, CHLA was already serving as the Pediatric DRC for Los Angeles County and providing pediatric education and some coaching for other facilities in the region.
Projects were focused on making “smarter wheels” rather than new wheels and on ensuring sustainability (eg, posting materials online for public use; negotiating a better robot maintenance contract; using sand bags rather than costly mannequins to mimic the weight of children for the Olympix, which the Joint Commission identified as a best practice). The group documented its processes and reached out to national pediatric center networks to encourage replication of this work. The county has already benefited from ECP work during the H1N1 pandemic. For example, other facilities now have a much better understanding of CHLA’s capacity during emergencies and view them as a community resource. PDRTC partners plan to continue their work without the grant.

Advantages and Challenges of the Direct Grant Funding Mechanism

Overall, the CHLA partnership had a favorable view of the funding mechanism, because it provided a level of flexibility not characteristic of other grants (eg, a streamlined vetting process), which enabled them to address unmet needs quickly and to expand on pediatric preparedness activities already in the works. For example, before the ECP, limited resources and staffing presented challenges to offering pediatric disaster courses to all hospitals in the region, but after the ECP, 30-40 practitioners from various facilities (some as far away as San Diego) were trained as trainers, which greatly extended the reach of the courses. There were other benefits as well: in serving as the pediatric DRC, CHLA learned more about critical components of pediatric disaster preparedness, and the county was able to share the work associated with grant administration.

This partnership was unique because its activities focused on a specific patient population with unmet disaster needs. CHLA was already viewed by other hospitals as the county’s pediatric leader, and these facilities were supportive of CHLA in addressing preparedness gaps. In addition, CHLA and the county had a long history of collaboration. CHLA also recognized the benefit of collaborating and sharing resources, because it is not in the best interest of the hospital for all facilities to send pediatric patients to CHLA. Despite the benefits afforded by the funding, all partners did not view the funding mechanism as ideal. For example, concern was expressed about accountability to the HPP and other regional efforts, particularly in locales in which there was less collaboration. There was wide agreement that the PDRTC demonstrated a high level of collaboration and provided regional benefits, but some believed that it would have been more beneficial for funds to have gone directly to the HPP to ensure accountability, a more global use of funds, and that a single hospital is not the sole beneficiary of the funding.

The partnership noted that there were challenges associated with balancing the added workload of partnership activities with existing priorities and routine responsibilities. Sustainability was also perceived as a concern, particularly with regard to updating partnership-developed software and continuing the courses. Another challenge was the short turnaround time for the grant application, which made it impossible for some CHLA partners to apply. Also, the 1-year grant period was too short to effectively balance doing things the right way while addressing issues that arise during a program’s first year and ensuring that the right people were involved. A minimum of 3 years would have been ideal. The lack of correlation between the ECP and HPP timelines meant that the grants had to be managed separately, which complicated intentions to coordinate efforts. A further challenge was deciding how best to share PDRTC’s deliverables nationally after the grant ended. Recommendations for sharing the materials include having HHS develop a file-sharing system or network to disseminate key ECP deliverables, creating incentives for sharing information, and having national and regional meetings that emphasize collaboration.
Indianapolis Partnership—Managed Emergency Surge for Healthcare (Indianapolis, IN)

**Goals and Key Deliverables**

The MESH partnership had 5 main project goals for the ECP grant:

1. Build on the infrastructure of the existing District 5 Hospital Group to establish regional policies for preparedness, response, reimbursement, and recovery.
2. Invest in technology to create systems to support seamless management and sharing of data throughout central Indiana.
3. Provide standardized training and education to healthcare professionals, including community health center staff.
4. Establish a cache of resources accessible to all participating entities.
5. Leverage, pursue, and secure continued funding for the partnership.

Toward these 5 goals, the major accomplishments of MESH include establishing an emergency communications center, creating communications redundancy and coordinating data systems, developing standardized training curricula for the partners, and implementing tabletop exercises on legal and mass-fatality issues.

The partnership also used the grant funds to establish a core-managed inventory system housed at the MESH emergency communications center that includes information on hospital bed availability, ambulance diversion, staff availability, material inventory in individual hospitals, and influenzalike illness in hospitals. Via this system, alerts and warnings can be issued to disseminate public health information to health centers and hospitals. In addition, the partnership worked to provide standardized training and education curricula for hospital staff and other healthcare professionals, which included courses on NIMS, incident command system (ICS), and hospital-based hazardous materials awareness and decontamination. In 2008, MESH conducted 21 training sessions without cost to District 5 hospitals.

MESH worked with the Marion County Health Department (MCHD) and the Marion County Emergency Management Agency to develop plans and implement tabletop and functional exercises involving central Indiana hospitals.

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**Award Amount:** $5 million

**Key Accomplishments:**

- Established emergency communications center to share information on bed status, ambulance diversion, staff availability, material inventory, and influenzalike illness (ILI) in hospitals.
- Developed standardized training and educational curricula, including courses on NIMS, ICS, and hazardous materials and decontamination.
- Conducted exercises on mass fatalities and on legal challenges in a disaster.

**Lead:**

Indiana University–Purdue University

**Lessons Learned:**

- Communication and cooperation with state HPP requires consultation in planning phase and throughout the project.
- Sustaining the partnership may require contributions from partners to maintain programs and services.

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**History**

The Indianapolis partnership, MESH, was established as a result of the ECP grant to enhance the capacity of healthcare providers to respond to a disaster. Before the ECP grant, Central Indiana (District 5) maintained a less-formalized partnership among hospitals, first responders, and emergency management representatives through the Indianapolis MMRS.

**Membership**

MESH is a healthcare coalition representing Indiana’s Healthcare District 5; members include representatives from 33 hospitals, businesses, other healthcare entities, public health agencies, and response organizations. The lead agency for MESH is Indiana University–Purdue University.

The coalition is both a preparedness and response entity, in that it coordinates and provides strategic planning, training and education, and exercise planning, and it coordinates communication and situational awareness during an emergency. MESH serves as a multi-agency coordination center (MACC) to manage information flow and other needs among healthcare entities, businesses, and response agencies during an emergency. It coordinates with the local ESF-8 representative during emergencies, and ESF-8 representatives sit on the MESH board of directors.
partnership conducted a mass fatality exercise, an exercise on the legal challenges faced by healthcare entities and government agencies in a disaster, and a point-of-dispensing (POD) exercise in coordination with MCHD. MESH is working to develop a board of executive staff from District 5 hospitals to address regional surge policies and crisis standards of care. The partnership is also seeking continued funding sources and is soliciting partners for contributions to sustain its efforts.

Advantages and Challenges of the Direct Grant Funding Mechanism

The MESH partnership is an example of a new partnership that developed as a result of the ECP grant mechanism. The partnership had a number of successes, including the development of a system for data management and the delivery of free training for healthcare providers. The partnership’s projects can be replicated by other partnerships around the country.

MESH faced some challenges associated with the direct grant funding mechanism. There were approximately 2 weeks between the time of the funding announcement and the application deadline, which made consultation between the MESH partners and the Indiana State Department of Health (ISDH) representatives difficult. MESH moved ahead with its 5 project goals, which when completed, resulted in separate state and partnership systems that perform similar tasks, such as bed-tracking and management of material and staff. The partnership also expressed concerns about sustainability. MESH offered its systems and services without charge to the partners while grant funding remained available. However, now that the grant has been exhausted, MESH is searching for sustainable funding and is soliciting its partners for monthly contributions to cover costs.

Overall, the MESH experience illustrates that, while the competitive grant mechanism can result in innovative and positive work, an important program requirement is that partnerships work closely with the state public health agency to promote collaboration and avoid duplication of HPP-funded systems and projects and other state public health initiatives. In addition, sustainability must be a key focus of future grant programs.
Rhode Island Partnership (Providence, RI)

Award Amount: $5 million

Key Accomplishments:
- Developed novel emergency communications system using off-the-shelf components to provide phone, radio, and wireless internet connections from a single satellite dish, allowing for communication between radio systems on different frequencies.
- Developed web-based patient tracking system using bar-coded wrist bands.
- Hired staff to implement higher level ICS training specifically for hospital personnel.

Lead
- Rhode Island Hospital

Lessons Learned:
- Innovative projects that could not have been completed with HPP funding alone can now be replicated in new locations in the state or nation without development costs and time.
- Direct funding of partnership through largest institution as grant administrator created some concerns for among the state’s smaller hospitals.

History
The impetus for many of Rhode Island’s preparedness efforts, including the projects funded by the ECP partnership, was the February 2003 Station nightclub fire that killed 100 people and seriously injured more than 200.23 After-action analysis of this disaster highlighted gaps in communications, situational awareness, incident command, and patient transportation.

Membership
The Rhode Island ECP partnership comprised all 16 hospitals in the state, the Hospital Association of Rhode Island, the Rhode Island Department of Health (RIDOH), and EMS providers. It is administered by Rhode Island Hospital, a 719-bed academic medical center located in Providence. Rhode Island Hospital, southeastern New England’s only Level-1 trauma center, is part of Lifespan, a hospital network that includes Hasbro Children’s Hospital, Miriam Hospital, Newport Hospital, and Emma Pendleton Bradley Hospital.

Goals and Key Deliverables
To address some of the response gaps identified through the experience with the nightclub fire, the 3 projects funded by this grant focused on the following:
- Creating and implementing a back-up communication system for hospitals and emergency responders that is completely self-contained, reliable, and independent of local infrastructure;
- Developing a patient tracking system that would start at the scene of an event and follow patients wherever they went within the healthcare system; and
- Designing and teaching a healthcare-specific NIMS/ICS training course for hospital executives.

The backup communication system developed by the partnership is the Rapid Emergency Satellite Communications (RESCQ) system, which uses off-the-shelf components in a novel configuration to provide multiple phone, radio, and wireless internet connections using a single satellite dish. The system allows for communications between radio systems on different frequencies, and the system can run on wall power, a generator, or battery back-up. The entire system is packaged into a custom-made, modified hospital linen cart that can be transported in a pickup truck. Twenty-two systems have been assembled and delivered to hospitals and emergency response agencies. Each system currently costs approximately $100,000, but this cost is expected to decrease if additional units are constructed.

The Patient Tracking System (PTS) is a web-based system that uses bar-coded wristbands that are attached to patients in the field. Patient information is entered using portable barcode readers and rugged, touch-screen laptop computers that have been installed in ambulances and can be used in the field to enter and transmit information to the receiving hospital prior to a patient’s arrival. Through the unique bar-code number, the patient and his/her information can be tracked through all locations. The system is intended for everyday use as part of the daily healthcare routine.

The Rhode Island partnership also hired staff to develop and implement a classroom program for ICS-300 and -400 designed specifically for hospital personnel. The Station nightclub fire highlighted the need to train healthcare

professionals in NIMS and incident management. However, prior to the ECP, many hospitals were reluctant to send executives to NIMS/ICS 300 and 400 courses because these multiday, off-site courses are time-intensive and are not specifically designed for, or suited to, healthcare executives. However, the 2009 H1N1 influenza pandemic has been a catalyst for engaging hospital personnel in this training effort.

Advantages and Challenges of the Direct Grant Funding Mechanism

The Rhode Island partnership benefited from this grant mechanism, which funded innovative programs that were identified through hazard/vulnerability analyses. These efforts never would have been undertaken with state HPP funding alone, because states are required to address program guidance priorities first. Even though these 3 projects addressed some of the HPP priorities, the project costs were equivalent to several years’ worth of Rhode Island’s HPP funding.24

These projects are widely replicable. Each could be imported, copied, or built on elsewhere in the country without reinvesting in development, which would significantly reduce the cost and implementation time for new locations. However, this would require an effective means of sharing information, which does not yet exist.

Rhode Island’s experience also illustrates a challenge in the way the ECP program was implemented. The 2-week period between the funding announcement and the application deadline imposed restrictions on the proposal content and on those who could apply. The partnership could not have been created and could not have proposed entirely new projects during that timeframe. Participating hospitals and agencies were already working together on preparedness, had already identified gaps and outlined projects, and were looking for a funding source before the grant opportunity was announced. The partnership also benefited from having access to personnel who were dedicated to emergency preparedness and experienced in grant writing.

Representatives from the Rhode Island Department of Public Health and the Hospital Association of Rhode Island were generally supportive of the program because it funded projects that addressed 3 pre-identified gaps (particularly the patient tracking system, which was the state’s highest priority) within the state’s preparedness infrastructure. One aspect of the mechanism that produced some tension within the hospital association was the provision of federal funds directly to a single hospital. Some of the state’s smaller hospitals were wary of housing, maintaining, and operating communication equipment developed by a competitor. Although these reservations did not ultimately impede the deployment of the RESCQ system, in the state’s view, it may have been preferable to have the RIDOH administer the grant.

This project also demonstrates the challenge of sustainability. The Rhode Island partnership had sufficient funding to deploy the communication systems in many—but not all—hospitals. The partners also created the infrastructure for the tracking system but were unable to fully implement it. Without a comprehensive sustainability plan, the partnership had concerns about the lasting impact of their ECP investments.

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24 In the period 2007-2009, Rhode Island received an average of $1.7 million annually through the HPP (personal communication with member of the RI Partnership, August 28, 2009).
Conclusions

Practical Applications of HFPP and ECP Partnership Efforts

Healthcare coalitions and partnerships recently have emerged across the country and have proven to be effective organizations for integrating public health and medical emergency planning and response activities. Preliminary evidence of the effectiveness of coalitions includes instances in which healthcare coalitions have responded successfully to mass casualty events that would otherwise have overwhelmed an individual hospital. The HPP Working Group and conversations with partnership members provided the following examples of events in which disaster response was improved because of healthcare coalitions (for each, the event is followed by the responding coalition or partnership):

- Virginia Tech shooting (2007)—Southwest Virginia Healthcare Coalition
- Minnesota bridge collapse (2007)—Regional Hospital Resource Center
- Oklahoma tornado outbreak (1999)—Tulsa Medical Emergency Response Center
- Seattle snow storm (2008)—King County Healthcare Coalition
- Hurricanes Gustav & Ike (2008)—Galveston, Texas
- Alaska RSV outbreak (2008)—All-Alaska Pediatric Partnership
- Southern California wildfires (2005)—Disaster Resource Centers
- Florida hurricanes, wildfires, & race horse poisoning (2009)—Palm Beach, FL, Healthcare Emergency Response Coalition

Most recently, it has been observed that several healthcare coalitions were integral to the response to the 2009 H1N1 influenza pandemic:

- In Seattle, northern Virginia, NYC, Los Angeles, and Connecticut, coalitions or partnerships activated medical coordination centers to: collect healthcare situational awareness data; coordinate plans for distributing and/or dispensing stockpiled antivirals; translate, coordinate, and distribute clinical guidance; and coordinate messages to media.
- The UC Davis ESCAPE Coalition initiated rural telemedicine connection to coalition hospitals to support care of critically ill H1N1 patients.

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Advantages, Disadvantages, and Sustainability of the Direct Grant Funding Approach

The most important conclusions to be derived from this evaluation are apparent in the recurring themes apparent in the experiences of the HFPP and ECP partnerships, detailed below:

1. The benefits of direct grant funding of partnerships outweigh the disadvantages of this approach when the grants are used to support the growth and development of existing healthcare coalitions.
   - Direct funding of healthcare partnerships is an effective mechanism only when a basic healthcare coalition infrastructure is already in place to provide links among city, county, and/or state public health and emergency management agencies and on which programs and capabilities can be established and expanded.
   - In the absence of such a structure, the task of building a new preparedness and response coalition cannot be accomplished within a 1-year grant period.
   - Grant funding to partnerships can provide the opportunity and flexibility to fund an important but expensive local project, derived from a well-considered local HVA, that might otherwise be difficult to fund through the HPP. The structure of the state HPP and/or constraints imposed by HPP guidance priorities may prohibit such funding. The partnership grants provide a solution that fills such gaps.

2. Direct funding of existing successful partnerships is particularly effective and allows for innovation, replication of projects in other regions, and expansion of healthcare coalitions to further include non-hospital entities.

3. Direct grant funding of partnerships must be coordinated with the overall mission and priorities of the state HPP program, even if the partnership works on projects distinct from those prioritized by the state.
   - Although the partnership grant guidance and application process required a letter of support from the state, the extent of linkage to and involvement with state HPP programs and priorities varied. Preexisting partnerships with tight links to state programs were among the most successful grantees.
   - Coordination and linkage with state programs helped partnerships reach their deliverable goals and supported improved integration into overall emergency response and planning.

4. A formal partnership governance structure, or an informal structure backed by memoranda of understanding (MOUs) or memoranda of agreement (MOAs) among member institutions and agencies, is essential for successful completion of grant deliverables and functioning of the partnership for planning and response activities.
   - The identification of a single lead agency, such as a health department, to serve as an honest broker to promote cooperation among normally competitive healthcare institutions is essential for an effective partnership.
   - The presence of an effective and identifiable governance structure also helps in the effort to link the work of healthcare coalitions to the jurisdictional emergency response structure, such as the EOC and incident command system in the state or locality. This linkage is essential because, without it, information from the healthcare coalition will not flow to overall response authorities to inform decisions, and situational awareness will not be available to the healthcare coalition.
5. The direct grant funding mechanism presented significant administrative challenges for both established and emerging partnerships.

- The tight timeline between the issuance of the grant guidance and the application deadline was identified by every partnership as an obstacle to submitting an application at all or to submitting a substantive and well-planned application. This was especially true for partnerships that were responding to real emergencies at the time, or for those lacking an easily identifiable and experienced contracting office or agent.

- Administration of partnership grants was easy for some grantees but a challenge for others. This largely depended on whether the lead agency had experience with, infrastructure for, and a defined fiscal entity for grant management.

6. Sustainability of grant-funded partnership progress is a challenge for all grantees, although several partnerships factored sustainability into their grant activities and have begun to plan for the continuation of their organization’s work efforts beyond the grant period.

- Awardees reported that the maintenance of gains made and the continuation of partnership activities depended in large part on close coordination of partnership programs and structures with overall state and local preparedness and response system priorities and activities, as well as incorporation of grant activities into daily or routine use.
Recommendations

1. Federal programs to support the development of functional capabilities of healthcare coalitions should continue.

• Evidence from the HPP Evaluation Report\(^{26}\) and analysis of the performance of communities and regions in recent mass casualty events and in the early stages of the H1N1 outbreak in the spring of 2009 suggest that healthcare coalitions are the most effective entities for developing community surge capacity and linking the medical system to public health and emergency management agencies. Programs to support the development of healthcare coalitions will advance overall healthcare preparedness and should continue.

2. The development of basic functional healthcare coalitions should continue to be emphasized in the HPP guidance; requirements and detailed criteria on the essential features of healthcare coalitions should also be included in the guidance.

• This is in support of recommendations—present since the 2005-2006 HPP guidance—calling for the establishment and development of coalitions for planning and response. Proposed assessment criteria for healthcare coalitions are included in the Center's Preparedness Report (Appendix B).\(^{27}\)

3. One-year direct partnership grants should not be used to stimulate the development of new healthcare coalitions in regions where there is no experience with basic, functional healthcare coalitions.

4. A significantly longer time period between the announcements of grants, issuance of grant guidance, and the deadline for grant submission is necessary.

• The current extremely short intervals tend to favor institutions with grant experience and with pre-identified regional planning gaps, and may unintentionally exclude healthcare coalitions that are doing good work but are not affiliated with experienced grant writing and response systems.

• A longer time period will also likely result in more substantive and carefully planned grant proposals.

5. Sharing of experience and outcomes of partnership grant projects should be formalized in real time through the use of social media, websites, and face-to-face conferences facilitated by ASPR leadership.

• Several partnerships were working on similar problems and could have benefited from consultation with others early and often during the grant cycle.

• This would also allow for healthcare coalitions and facilities throughout the country to benefit from the unique work of the grantees.

6. A specific plan for sustainability of partnership structure and functional capabilities gained through the funding award should be required in the grant application and project design. In addition, sustainability plans should include integration of partnership projects into overall state and local preparedness and response programs.

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7. Other models to consider for supporting the development and increase in functional capacities of healthcare coalitions include the CDC Advance Practice Center (APC) model and a healthcare coalition “mentorship” program.

- With the APC approach, a group of programs could be supported to accomplish specific projects over a longer period of time, such as 2-3 years, and to broadly share their experiences and tools.
- Another possible approach would be to link emerging coalitions receiving grant funding to established, “mentor” coalitions, and to provide technical assistance to new partnerships.
### Appendix A: Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>APC</td>
<td>Advance Practice Center</td>
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<td>ASPR</td>
<td>Assistant Secretary for Preparedness and Response</td>
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<td>BDRH</td>
<td>Enhanced Burn Disaster Receiving Hospital</td>
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<td>CCSS</td>
<td>City and County of San Francisco Partnership</td>
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<td>CERT</td>
<td>Community Emergency Response Teams</td>
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<td>COBTH</td>
<td>Conference of Boston Teaching Hospitals</td>
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<td>DCPCA</td>
<td>DC Primary Care Association</td>
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<td>DMAT</td>
<td>Disaster Medical Assistance Teams</td>
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<td>DPH</td>
<td>Department of Public Health</td>
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<td>ECP</td>
<td>Emergency Care Partnership</td>
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<td>EMAs</td>
<td>Emergency Management Agencies</td>
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<td>EOCs</td>
<td>Emergency Operations Centers</td>
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<td>ESCAPE</td>
<td>Enhancing Surge Capacity and Partnership Effort (Davis California ESCAPE Partnership)</td>
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<tr>
<td>FEMA</td>
<td>Federal Emergency Management Agency</td>
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<td>HMARS</td>
<td>Hospital Mutual Aid Radio System</td>
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<td>HCMC</td>
<td>Hennepin County Medical Center</td>
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<td>HFPP</td>
<td>Healthcare Facilities Partnership Program</td>
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<td>HPP</td>
<td>Hospital Preparedness Program</td>
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<td>HVA</td>
<td>Hazard Vulnerability Analysis</td>
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<td>ILI</td>
<td>Influenzalike Illness</td>
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<td>IT</td>
<td>Information Technology</td>
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<tr>
<td>MACC</td>
<td>Multi-Agency Coordination Center</td>
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<td>MDH</td>
<td>Minnesota Department of Health</td>
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<td>MMRS</td>
<td>Metropolitan Medical Response System</td>
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<td>MOU</td>
<td>Memoranda of Understanding</td>
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<td>MRC</td>
<td>Medical Reserve Corps</td>
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<tr>
<td>MSCC</td>
<td>Medical Surge Capacity and Capability</td>
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<td>NIMS</td>
<td>National Incident Management System</td>
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<tr>
<td>PDRT</td>
<td>Pediatric Disaster Resource and Training Center</td>
</tr>
<tr>
<td>PEER</td>
<td>Partnership for Effective Emergency Response</td>
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<tr>
<td>PIs</td>
<td>Principal Investigators</td>
</tr>
<tr>
<td>PTS</td>
<td>Patient Tracking System</td>
</tr>
<tr>
<td>RESCQ</td>
<td>Rapid Emergency Satellite Communications</td>
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<tr>
<td>RHCC</td>
<td>Regional Healthcare Coordinating Council</td>
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<tr>
<td>RHRC</td>
<td>Regional Hospital Resources Center</td>
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<tr>
<td>RRC</td>
<td>Regional Resource Center</td>
</tr>
<tr>
<td>SCTF</td>
<td>South Central Pennsylvania Counterterrorism Task Force</td>
</tr>
<tr>
<td>SMAT</td>
<td>State Medical Assessments Team</td>
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<tr>
<td>VA</td>
<td>Veterans Administration</td>
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<tr>
<td>WATrac</td>
<td>Washington System for Tracking Resources, Alerts, and Communication</td>
</tr>
<tr>
<td>BCHC</td>
<td>Broward County Healthcare Coalition</td>
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<tr>
<td>CapRAC</td>
<td>Capital Area Regional Advisory Committee</td>
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<tr>
<td>CDC</td>
<td>Centers for Disease Control and Prevention</td>
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<tr>
<td>CHLA</td>
<td>Children’s Hospital of Los Angeles</td>
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<tr>
<td>DCEHC</td>
<td>District of Columbia Emergency Healthcare Coalition</td>
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<tr>
<td>DOH</td>
<td>Department of Health</td>
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<tr>
<td>DRC</td>
<td>Disaster Resource Center</td>
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<tr>
<td>ED</td>
<td>Emergency Department</td>
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<td>EMS</td>
<td>Emergency Medical Services</td>
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<td>ESAR-VHP</td>
<td>Emergency System for Advance Registration of Volunteer Health Professionals</td>
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<td>FRED</td>
<td>Facilities Resource Emergency Database</td>
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<td>HAN</td>
<td>Health Alert Network</td>
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<td>HERDS</td>
<td>Health Emergency Response Data System</td>
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<tr>
<td>HHS</td>
<td>Department of Health and Human Services</td>
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<tr>
<td>HSEMA</td>
<td>Homeland Security and Emergency Management Agency</td>
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<tr>
<td>ICS</td>
<td>Incident Command System</td>
</tr>
<tr>
<td>ISDH</td>
<td>Indiana State Department of Health</td>
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<tr>
<td>LA EMS</td>
<td>Los Angeles Emergency Medical Services</td>
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<tr>
<td>MCHD</td>
<td>Marion County Health Department</td>
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<tr>
<td>MESH</td>
<td>Managed Emergency Surge for Healthcare (Indianapolis Partnership)</td>
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<td>MOA</td>
<td>Memoranda of Agreement</td>
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<td>MoVES</td>
<td>Modeling Via Evacuation Scenarios</td>
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<td>MRS</td>
<td>Medical Response Systems</td>
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<td>NDMS</td>
<td>National Disaster Medical System</td>
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<td>PAHFA</td>
<td>Pandemic and All-Hazards Preparedness Act</td>
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<tr>
<td>PEDSS</td>
<td>Pediatric Decision Support System</td>
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<tr>
<td>PHD</td>
<td>Public Health Department</td>
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<td>POD</td>
<td>Point of Dispensing</td>
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<td>RAC</td>
<td>Regional Advisory Committee</td>
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<tr>
<td>RFID</td>
<td>Radio Frequency Identification</td>
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<tr>
<td>RHIO</td>
<td>Regional Health Information Organization</td>
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<tr>
<td>RIDOH</td>
<td>Rhode Island Department of Health</td>
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<tr>
<td>RSV</td>
<td>Respiratory Syncytial Virus</td>
</tr>
<tr>
<td>SERVPA</td>
<td>State Emergency Registry of Volunteers in Pennsylvania</td>
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<tr>
<td>UC Davis</td>
<td>University of California Davis School of Medicine</td>
</tr>
<tr>
<td>VOAD</td>
<td>Voluntary Organizations Active in Disasters</td>
</tr>
</tbody>
</table>
Center for Biosecurity of UPMC

The Center for Biosecurity is an independent, nonprofit organization of UPMC. The Center’s multidisciplinary professional staff, with experience in government, medicine, public health, bioscience, law, and the social sciences, works to affect policy and practice in ways that lessen the illness, death, and civil disruption that would follow large-scale epidemics, whether they occur naturally or result from the use of a biological weapon. Experts at the Center publish research findings regularly and are consulted by government agencies, businesses, academia, and the media for independent analyses of issues pertaining to national and global epidemic preparedness and response.

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