

FINAL REPORT

Evaluation of the *Translation, Dissemination, and Implementation of Public Health Preparedness Response Research and Training Project*

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PRESENTED TO:

Association of Schools and Programs
of Public Health (ASPPH)
1900 M Street
Suite 710
Washington, DC 20036

PRESENTED BY:

NORC at the University of Chicago
4350 East-West Highway
Suite 800
Bethesda, Maryland 20814



at the UNIVERSITY *of* CHICAGO

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Executive Summary

The Association of Schools and Programs of Public Health (ASPPH) contracted with NORC at the University of Chicago (NORC) to implement an evaluation of the *Translation, Dissemination and Implementation of Public Health Preparedness and Response Research and Training* project. The goal of the project is to accelerate the implementation and use of public health emergency preparedness and response (PHPR) tools and resources by workers in state, local, tribal, and/or territorial public health departments. ASPPH, through a cooperative agreement with the Department of Health and Human Services (HHS) Centers for Disease Control and Prevention (CDC) Office of Public Health Preparedness and Response (OPHPR), provided funding to nine grantees for the period of January 2016 to August 2017 to implement projects aimed at facilitating the translation, dissemination, and implementation of PHPR outcomes and promising practices into the field. NORC conducted a mixed methods evaluation utilizing the Donabedian conceptual framework to evaluate a) the overall structures, processes, and outcomes of the project; b) the extent to which the grantees effectively translated, disseminated, and supported the implementation of evidence-based PHPR tools and resources among public health practitioners; and c) how the grantees utilized the ISF to develop and implement their projects.

Evaluation methods consisted of semi-structured interviews with grantee project staff and intended users of grantee products; focus groups with grantee project staff and potential knowledge users; and review of grantee project documents, including grantee project applications, quarterly and monthly progress reports, and PowerPoint presentations. Through interviews, focus groups, and document review, NORC explored grantees' programmatic outcomes; grant program and individual grantee structures and how they supported expected and actual program outcomes; grantee evaluation methods; grantee partnerships with public health practitioners and other organizations; the reach of grantees' products; best practices and program models emerging from the initiative; project challenges; and recommendations for CDC and ASPPH in effectively facilitating the dissemination and implementation of grantee products. This report includes an overview of grantee projects; the evaluation methodology, including the evaluation framework, goals, and research questions; major findings and recommendations.

Introduction

The Association of Schools and Programs of Public Health (ASPPH) contracted with NORC at the University of Chicago (NORC) to implement an evaluation of the *Translation, Dissemination and Implementation of Public Health Preparedness and Response Research and Training* project. The project is funded through a cooperative agreement with the Department of Health and Human Services (HHS) Centers for Disease Control and Prevention (CDC) Office of Public Health Preparedness and Response (OPHPR). The goal of the overall project is to accelerate the implementation and use of public health emergency preparedness and response (PHPR) tools and resources by workers in state, local, tribal, and/or territorial public health departments. ASPPH provided funding to nine grantees to implement projects aimed at facilitating the translation, dissemination, and implementation of PHPR outcomes and promising practices into the field. Each grantee's activities fall under one of three categories of objectives:

- Synthesize and disseminate research findings from Preparedness and Emergency Response Research Centers (PERRCs);
- Synthesize and disseminate training products from Preparedness and Emergency Response Learning Centers (PERLCs); and
- Move new knowledge resulting from public health preparedness response research and training into practice and policy.

The intent of the PERRC program was to support applied public health systems research with the goal of strengthening and improving national public health preparedness and emergency response capabilities. The intent of the PERLC program was to meet the preparedness and response training and educational needs of the U.S. public health workforce by providing assistance to U.S. state, tribal, local, and/or territorial public health authorities within applicant-defined service areas. NORC designed an evaluation to assess the overall project's structures, processes, and outcomes, focusing on short-term outcomes related to dissemination and implementation of the selected PERRC and PERLC tools and resources among the public health workforce. To achieve this goal, NORC implemented a mixed methods evaluation that consisted of extensive collection of qualitative data from grantees and other project stakeholders. This report begins by providing an overview of each grantee's project, and then presents details about the evaluation including: methods; findings regarding the project's structures, processes, and outcomes; and recommendations.

Grantee Projects Overview

ASPPH provided funding to nine grantees to implement project activities between January 2016 and August 2017. The nine grantees are presented below (see Table 1), by project type. A short description of each grantee's project follows.

Table 1. Grantees by Project Type

Project	Grantees
Sub-project 1 (SP1): Synthesize and disseminate PERRC research findings	<ul style="list-style-type: none"> Harvard T. H. Chan School of Public Health, <i>The Evidence Based Preparedness Project – Synthesis and Translation of Public Health Preparedness and Response Research</i>
Sub-project 2 (SP2): Synthesize and disseminate PERLC training products	<ul style="list-style-type: none"> University of Washington School of Public Health, <i>University of Washington Preparedness & Emergency Response Learning Center</i>
Sub-project 3 (SP3): Moving PERRC and PERLC products into broader public health practice and policy	<ul style="list-style-type: none"> Emory University Rollins School of Public Health, <i>Emory Public Health Preparedness Translation and Dissemination Initiative</i> Harvard T. H. Chan School of Public Health, <i>Translation, Dissemination and Implementation of Evidence-Based Public Health Preparedness Tools and Trainings</i> University at Albany SUNY School of Public Health, <i>Albany CPHP-PERLC Psychological First Aid Demonstration Project</i> University of Arizona Mel & Enid Zuckerman College of Public Health, <i>Building an Effective Tribal and Multijurisdictional Response Network to Improve Preparedness Response</i> UCLA Jonathan & Karin Fielding School of Public Health, <i>Building Resilient Regions: Workforce Capacity for Translation, Implementation and Evaluation of Promising PERRC Products</i> University of Pittsburgh Graduate School of Public Health, <i>Translation, Application, & Evaluation of the Emergency Law Inventory (ELI): A PHASYS Research Product</i> University of Washington School of Public Health, <i>UW PERRCoLate</i>

Harvard T. H. Chan School of Public Health

The Harvard T.H. Chan School of Public Health was awarded two projects under this grant. Through *The Evidence Based Preparedness Project – Synthesis and Translation of Public Health Preparedness and Response Research* Sub-Project 1 (SP1), Harvard synthesized the literature generated by the PERRCs and developed an inventory of the PERRC research products for dissemination to public health practitioners. Harvard's second project, *Translation, Dissemination and Implementation of Evidence-Based Public Health Preparedness Tools and Trainings*, under Sub-Project 3 (SP3), was comprised of five grantee sub-projects, each of which focused on facilitating the translation, implementation, and dissemination of a PERRC, PERLC, or combination PERRC/PERLC products. The grantee sub-projects were: 1) Using Social Media and Online Communities for Collaborative Translation, Dissemination and Implementation

of Preparedness Trainings and Tools; 2) Guide to the Use of PERRC Products in Rapid Research Mechanisms; 3) Guide to the Use of PERRC Online and Toolkit Products in Exercise and Real-World Event Evaluation; 4) Improving the Practice of Critical Incidence Analysis; and 5) Communication During Public Health Emergencies. The sub-projects fostered collaborative learning for public health practitioners through their focus on social media, rapid research, evaluation, just-in-time critical event methods, and risk communication.

University of Washington School of Public Health

The University of Washington School of Public Health held two projects under this grant. The *University of Washington Preparedness & Emergency Response Learning Center* Sub-Project (SP2) consisted of a review of PERLC online learning tools, tool quality rating and testing, organization of learning products into related bundles, and the creation of a searchable database of the tools. The University of Washington's second project, *UW PERRCoLATE* Sub-Project 3 (SP3), aimed to improve public health agency communications at all phases of emergency events by supporting translation of communications tools developed by the PERRCs and PERLCs. To accomplish this, the University of Washington identified three high priority communication tools, worked with local health jurisdictions to implement them, and conducted an evaluation of the implementation of the tools.

Emory University Rollins School of Public Health

The *Emory Public Health Preparedness Translation and Dissemination Initiative* Sub-Project 3 (SP3) was developed to facilitate access to the research tools and products developed by the Emory PERRC. This project consisted of four grantee sub-projects working to address the preparedness needs of vulnerable populations, including inmates, long-term care residents, and pregnant women, and leveraged partnerships with both public and private sector entities to accomplish its objectives. The grantee sub-projects were: 1) Long Term Care (LTC) Portal Expansion Project; 2) Link to MomVax Project; 3) Preparedness in Jails Project; and 4) ReadyVax App Expansion.

University at Albany SUNY School of Public Health

The *Albany CPHP-PERLC Psychological First Aid Demonstration Project* Sub-Project 3 (SP3) was established to improve access to and sustainability of Psychological First Aid (PFA) training for New York Health Emergency Preparedness Coalition members. To meet this goal, the University at Albany SUNY School of Public Health created a PFA training manual and trained training coordinators on delivering PFA trainings, facilitated collaboration between public health and mental health entities, supported the development of PFA training policies, and provided technical assistance to training coordinators implementing the trainings at their agencies.

University of Arizona Mel & Enid Zuckerman College of Public Health

Through the *Building an Effective Tribal and Multijurisdictional Response Network to Improve Preparedness Response* Sub-Project 3 (SP3), the University of Arizona aimed to strengthen the collaboration, coordination, and communication around emergency preparedness and response practices between state, local, and tribal entities. Project activities consisted of conducting needs assessments for state, local, and tribal entities to better understand their preparedness capabilities and gaps, providing evidence-based interventions to build emergency preparedness and response capacity among tribal partners, and providing evidence-based interventions designed to facilitate the integration of tribal entities in state and local preparedness and response activities. Throughout the project period, the University of Arizona provided technical assistance to state, local, and tribal entities.

UCLA Jonathan & Karin Fielding School of Public Health

Through the *Building Resilient Regions: Workforce Capacity for Translation, Implementation and Evaluation of Promising PERRC Products* Sub-Project 3 (SP3), UCLA supported local health departments in applying a Getting to Outcomes (GTO) framework to the translation and implementation of PERRC products. The GTO process guides agencies through identifying evidence-based practices to fulfill unmet needs, adapting the practices to their unique settings, implementing and evaluating them, and developing plans to facilitate continuous quality improvement and sustainability. During the project period, UCLA trained local health departments on GTO, developed a GTO toolkit for community resilience, and provided technical assistance to the local health departments as they were completing the GTO process steps.

University of Pittsburgh Graduate School of Public Health

The University of Pittsburgh developed the *Translation, Application, & Evaluation of the Emergency Law Inventory (ELI): A Public Health Adaptive Systems Studies (PHASYS) Research Product* Sub-Project 3 (SP3) to meet a previously identified need of emergency volunteers to better understand the legal protections available to them during emergency responses. To accomplish this, the University of Pittsburgh created ELI, a searchable, online repository of emergency statutes and regulations relevant to volunteers. Project activities included working with Medical Reserve Corps (MRC) to identify the jurisdictional scope for the project and legal topics for inclusion in ELI, review and coding of laws for inclusion in ELI, design and testing of the ELI interface, and training MRC stakeholders on ELI.

Methodology

NORC's evaluation followed the Donabedian conceptual framework to assess structures, processes, and outcomes. This section describes the evaluation framework and goals, presents the research questions that guided the evaluation, and details the data sources and methods for data collection and analysis.

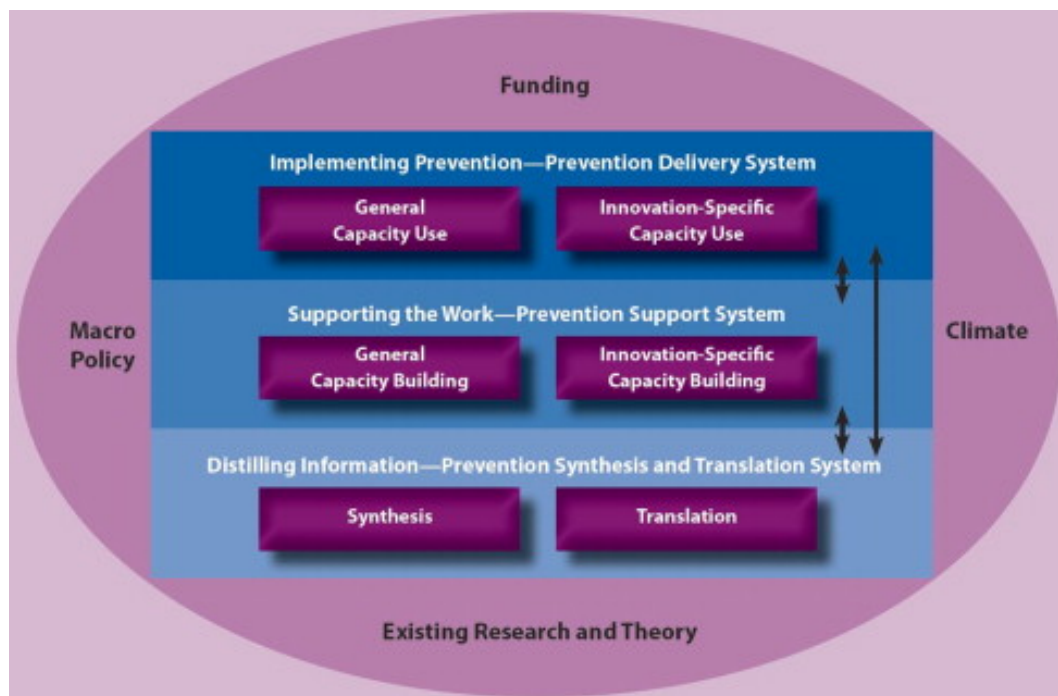
Evaluation Framework and Goals

The evaluation design was based on components of the Donabedian conceptual framework to evaluate a) the overall structures, processes, and outcomes of the project, and b) the extent to which the grantees effectively translated, disseminated, and supported the implementation of evidence-based PHPR tools and resources among public health practitioners. The Donabedian conceptual framework ties outcomes to the structures and processes upon which a program is designed and implemented.¹ The evaluation also sought to assess how the grantees utilized the Interactive Systems Framework (ISF) (see Table 1), which incorporates aspects of both research-to-practice models and community-centered models and presents three systems.² The three systems are the Prevention Synthesis and Translation System (PSTS), the Prevention Support System (PSS) and the Prevention Delivery System (PDS). The PSTS distills information about innovations and translates it to user-friendly formats. The PSS provides training, technical assistance, or other support to practitioners of the tools in the field. Finally, the PDS implements innovations into practice. In the context of this grant program, the ISF served as a guide for designing projects that could best address the research to practice gap at each of the three stages. Grantee projects focused their activities and outcomes at some or all of the different levels of intervention.

¹ Donabedian A. Evaluating the quality of medical care. *Milbank Q.* 2005;83(4):691-729.

² Wandersman A, Duffy J, Flaspohler P, et al. Bridging the gap between prevention research and practice: the interactive systems framework for dissemination and implementation. *Am J Community Psychol.* 2008;41(3-4):171-181.

Figure 1. The Interactive Systems Framework³



NORC examined the structures, process, and outcomes of the overall project and grantees' projects. The evaluation goals were to:

- Assess the extent to which the overall project structure supports the translation, dissemination, and implementation of PHPR tools and promising practices to the field of public health;
- Assess the extent to which implementation processes support the translation, dissemination, and implementation of PHPR tools and promising practices to the field of public health; and
- Assess the extent to which grantees' products have been disseminated among and utilized by intended project knowledge users, and state, tribal, local, and/or territorial public health workforce and programs, and barriers to dissemination and utilization of products

Evaluation Research Questions

The research questions were designed to address the evaluation goals described above and the extent to which the overall project and grantees' projects are meeting their goals and objectives. The research questions are presented in Table below.

³ Dagenais C, Laurendeau MC, Briand-Lamarche M. Knowledge brokering in public health: a critical analysis of the results of a qualitative evaluation. *Eval Program Planning*. 2015;53:10-17.

Table 2. Research Questions

Structure	<ul style="list-style-type: none"> ■ To what extent does the overall project structure support the translation, dissemination, and implementation of PHPR tools and promising practices to the field? ■ To what extent do grantees' project structures support the translation, dissemination, and implementation of PHPR tools and promising practices to the field? ■ Have grantees incorporated structures necessary to support their project implementation and achievement of intended outcomes? ■ What are the characteristics and salient features of grantee sites and projects? ■ What are the characteristics of grantees' partnerships including types, roles, duration, and structures for collaboration? ■ What types of inputs did the Advisory Group/ASPPH/CDC provide for the overall project and to what degree did those impact program implementation and dissemination?
Process	<ul style="list-style-type: none"> ■ To what extent have implementation processes supported the translation, dissemination, and implementation of PHPR tools and promising practices to the field? ■ What strategies have the grantees used to disseminate and accelerate implementation of PHPR tools and promising practices? ■ Do processes align with the project's intended outcomes and needs of intended knowledge users? ■ What are the strategies that best support grantees' project implementation?
Outcomes	<ul style="list-style-type: none"> ■ To what extent have the grantees implemented their project activities as planned? Why or why not? ■ What are grantees' accomplishments since the start of grant funding? What are the benefits of grantees' projects beyond intended outcomes? ■ To what extent have grantees' products been disseminated among knowledge users and public health programs and workforce? How have they utilized grantees' products? ■ What evidence is there of Advisory Group/ASPPH/CDC inputs impacting outcomes? ■ What methods did the grantees use to assess utilization, effectiveness, and replicability of PHPR outcomes and promising practices and what data did they collect? ■ How have best practices or program models been identified through this project? ■ How have knowledge users utilized grantees' products? What are the perceived benefits to use of these products? ■ To what extent do the grantees' products enable knowledge users to increase their effective and efficient use of resources? ■ What are the perceived facilitators and barriers to accessing and utilizing PHPR tools and promising practices among knowledge users? ■ What evidence is there of implementation of grantee tools and promising practices among public health programs and workforce?

Evaluation Methods

We utilized primary and secondary data to assess the program's structures, processes, and outcomes.

Below we describe each of the data sources and the methods for collecting and analyzing primary and secondary data.

Data Sources

NORC gathered data from a range of individuals, representing numerous stakeholder groups, to address the research questions:

- **Grantees.** The project consisted of nine grantees, including one for Sub-Project 1, one for Sub-Project 2, and seven for Sub-Project 3. While two of the Sub-Project 3 grantees were from the same institutions as Sub-Projects 1 and 2, we consider them to be nine unique grantees for the purposes of this evaluation.
- **Intended Knowledge Users (IKU).** IKUs were the entities for whom the tools and resources were developed by grantees. Some IKUs were also project partners and collaborators. IKUs included, for example: public health practitioners; state, local, tribal, and/or territorial health department workers; regional public health research organizations; trainers; educators; decision-makers; and other system partners such as health care delivery systems, hospitals, media, and academia.
- **Potential Knowledge Users.** Potential knowledge users included other federal, state, tribal, local, and territorial public health department officials that were not involved in grantees' projects.
- **National Organizations/Advisory Group Members.** Representatives from national organizations and the ASPPH Public Health Preparedness Advisory Group included individuals from public health schools, health departments, national organizations, associations, foundations, and federal offices and departments.

Primary Data Collection

The evaluation's primary data collection component included two major activities – telephone interviews and focus groups. We conducted interviews with grantees, IKUs, and members of the national organizations/Advisory Group members. We conducted focus groups with grantees and potential knowledge users.

Interviews

Between March and June 2017, we conducted 41 interviews – 8 with grantees, 25 with IKUs, and 8 with members of the national organizations/Advisory Group members. Each interview was conducted via telephone by two members of the NORC evaluation team and was scheduled for 60 minutes. We scheduled one interview for each of the nine grantees; however one of the grantees discussed both of their projects during one interview for a total of eight interviews. Each grantee interview was conducted with the site's Principal Investigator; additional project staff were welcomed to participate in the interview at the discretion of the Principal Investigator.

Each grantee was asked to provide the name and contact information for up to four knowledge users/partners. NORC sent invitations to 32 knowledge users to recruit for participation in interviews and conducted a total of 25 interviews.

Table presents the job categories of grantee interview respondents and the organization types for intended knowledge user respondents. The interviews with the Advisory Group included representatives from the following types of organizations: local emergency management agency, state health department, tribal health department, national public health organizations and associations, federal public health agencies, and ASPPH.

Table 3. Interview Respondents by Grantee

Grantee Name	Grantee Respondents – Job Category	IKUs – Organization Types
Harvard T. H. Chan School of Public Health (SP1 & SP3)	<ul style="list-style-type: none"> Principal Investigator Project Director 	<ul style="list-style-type: none"> State health department Local public health department Medical district National public health association
University of Washington School of Public Health (SP2)	<ul style="list-style-type: none"> Interim Principal Investigator Research Assistant 	<ul style="list-style-type: none"> Local public health department Tribal advisory organization State health department University
Emory University Rollins School of Public Health (SP3)	<ul style="list-style-type: none"> Principal Investigator 	<ul style="list-style-type: none"> State health care advocacy organization
University at Albany SUNY School of Public Health (SP3)	<ul style="list-style-type: none"> Principal Investigator Project Coordinator 	<ul style="list-style-type: none"> Regional medical center State health department State association of county health officials
University of Arizona Mel & Enid Zuckerman College of Public Health (SP3)	<ul style="list-style-type: none"> Principal Investigator Co-Principal Investigator/Director 	<ul style="list-style-type: none"> Tribal health department Local public health department
UCLA Jonathan & Karin Fielding School of Public Health (SP3)	<ul style="list-style-type: none"> Principal Investigator Project Director Graduate Research Student Faculty Member 	<ul style="list-style-type: none"> Local public health department (three)
University of Pittsburgh Graduate School of Public Health (SP3)	<ul style="list-style-type: none"> Principal Investigator Project Coordinator Research Associate 	<ul style="list-style-type: none"> National organization for volunteer emergency responders State health department Local public health department (two)
University of Washington School of Public Health (SP3)	<ul style="list-style-type: none"> Principal Investigator Project Coordinator Research Associate 	<ul style="list-style-type: none"> Local public health department (four)

Focus Groups

In April 2017, we conducted two focus groups – one with grantees and one with potential knowledge users. Both focus groups were convened at the National Association of County and City Health Officials (NACCHO) Preparedness Summit in Atlanta, Georgia. The focus group was led by a senior member of the NORC evaluation team. For the grantee focus group, representatives from eight of the nine projects participated. One of the projects did not have a representative due to a schedule conflict at that time. For the potential knowledge user focus group, we recruited seven participants including PHPR practitioners from five local public health departments, one college of public health, and one federal employee.

Existing Data Sources

In addition to collecting primary data, NORC reviewed the following existing data sources: PHPR peer-reviewed and unpublished literature, reports, and other written materials; and grantee applications and progress report materials. The NORC evaluation team reviewed these materials to inform the development of data collection instruments and to inform the evaluation's assessment of structures, processes, and outcomes.

Analysis

NORC analyzed qualitative data from the interviews and focus groups using NVivo, a qualitative data analysis software package, to code and group findings by thematic topic. This approach enabled NORC to identify trends in qualitative feedback and group recommendations by topic. Three researchers worked collaboratively to develop coding themes and complete the coding process. In order to identify themes and ensure consistency across coders, the coders first reviewed a subset of interviews for each respondent group and then discussed as a group the themes identified and how those themes related to the evaluation research questions. The researchers created a codebook, which contained the code definition, examples of inclusion, and association to research questions and evaluation framework, which was referenced throughout the process. Each researcher was assigned a portion of interviews to code, including a mix of different respondent groups, and the researchers met twice weekly to discuss progress.

Findings

These findings are a synthesis of data collected through interviews, focus groups, and document review of grantee progress reports. The sources of the information were grantees, national organizations/Advisory Group members, and intended and potential knowledge users. Aggregate data are presented in six main categories: grantees' programmatic outcomes, program structures, grantee partnerships, reach of grantee products, challenges, and best practices and promising models.

Grantees' Programmatic Outcomes

At the time of the evaluation, most grantees had completed their main project deliverables and were in the process of disseminating them more broadly to IKUs as well as a broader audience. For SP1, Harvard completed and posted online their inventory of PERRC tools.⁴ For Sub-Project 2, University of Washington completed the PERLC training catalog⁵. Among Sub-Project 3 grantees:

- Emory completed their “Preparedness in Jails” toolkit and held four education dissemination meetings with Georgia local health districts. They published an article related to their Link to MomVax project entitled “Use of Obstetric Practice Websites to Distribute Zika Virus Information to Pregnant Women During a Zika Virus Outbreak”. For the ReadyVax grantee sub-project, Emory finalized iOS, Android, and HTML test versions of the updated ReadyVax app and developed a dissemination plan for the ReadyVax app. Staff felt an additional outcome of their project was their raising questions and generating conversations regarding providers as important conduits of public health information.
- Harvard's SP3 staff have developed the social media learning collaborative website framework and have completed beta-testing of the website. They created an online warehouse of data on public health governance, jurisdictional, and cultural structural components and created preparedness scores for public health departments represented. They have also drafted the “Guide to the Use of PERRC Products in Rapid Research Mechanisms”, completed the “Guide to the Use of PERRC Online Toolkit Products in Exercise and Real-World Event Evaluation”, and collaborated with partners to utilize the exercise evaluation toolkit in planning, conducting, and evaluating several emergency-related exercises, including statewide exercises. For the Improving

⁴ <https://cdn1.sph.harvard.edu/wp-content/uploads/sites/1609/2017/03/PERRC-Toolkit-Inventory.pdf>

⁵ <http://perlc.nwcphp.org/>

the Practice of Critical Incident Analysis project, Harvard conducted critical incident analyses and developed case studies, and have developed and presented a discussion of methods for learning from the experience of public health system responses to emergencies. For the Communication During Public Health Emergencies project, project staff developed and implemented a capacity building curriculum on crisis and emergency risk communication for practitioners, and were working to refine the curriculum.

- University at Albany developed a Psychological First Aid (PFA) Training Coordinator Guide⁶, which includes a section on PFA policies and practices, and overview of the Getting to Outcomes (GTO) approach, evaluation components, and additional PFA resources. This guide was posted on the University at Albany Center for Public Health Practice – Preparedness and Emergency Response Learning Center website and the center held several trainings for public health and health care partners. They also developed a database of online PFA trainings and resources.
- The University of Arizona’s accomplishments included developing a “Strategies for Effectively Working with American Indians and Alaska Native (AI/AN) Communities⁷” guide for state and local partners and providing technical assistance and support to state, local, and tribal partners for emergency preparedness exercises. Technical assistance resources included multijurisdictional partnership templates and workshops about point of dispensing (POD) operations and medical counter measures (MCM). They also completed a comprehensive needs assessment of both state and tribal public health preparedness.
- UCLA completed - GTO trainings for three local health departments, developed a new “Development of Getting to Outcomes – Community Resilience” manual, and helped develop evidence-based programs at three health departments. UCLA project staff reported that a major outcome of their project was they increased program implementation capacity of LHD staff and created and maintained effective partnerships.
- The University of Pittsburgh completed the online Emergency Law Inventory (ELI)⁸, which is now available for use on their website. University of Pittsburgh project staff also published four papers on the use of ELI and reported that Medical Reserve Corps (MRC) volunteers they worked with felt more confident volunteering and participating in emergency response due to their improved knowledge of the laws.

⁶ http://www.albany.edu/sph/images/PFA_Training_Coordinator_Guide_August_14_2017.pdf

⁷ https://mwperlc.arizona.edu/sites/default/files/Strategies_for_Effectively_Working_with_American_Indian_and_Alaskan_Native_Communities.pdf

⁸ <https://legalinventory.pitt.edu/>

- The University of Washington's SP3 completed the inventory of evidence-based PHPR communication tools and trainings, and provided technical assistance for implementing evidence-based PHPR communication tools and trainings at their six local public health agency implementation support sites. In June 2017, the University of Washington PERRCOLATE team hosted a national virtual Synthesis Symposium to present findings, lessons learned and experiences from their project. A representative from each implementation site as well as subject matter expert collaborative members participated in discussion panels about the implementation site experience and barriers and facilitators to incorporating evidence-based emergency communication tools and trainings in public health agencies.

Table 4. Grantee Programmatic Outcomes

Grantee Name	Selected Programmatic Outcomes
Emory University Rollins School of Public Health (SP3)	<ul style="list-style-type: none"> ■ Completed online survey to assess nursing home long term care emergency preparedness policies and capabilities, as well as resource needs ■ Preparedness in Jails toolkit ■ Preparedness in Jails education dissemination meetings ■ Use of Obstetric Practice Websites to Distribute Zika Virus Information to Pregnant Women During a Zika Virus Outbreak ■ Finalized iOS, Android, and HTML test versions of the updated ReadyVax app ■ Developed a dissemination plan for the ReadyVax app
Harvard T. H. Chan School of Public Health (SP1)	<ul style="list-style-type: none"> ■ Online inventory of PERRC tools
Harvard T. H. Chan School of Public Health (SP3)	<ul style="list-style-type: none"> ■ Formed relationships with health departments to conduct prospective analysis of public health response to the Zika virus (critical incident analysis) ■ Process maps for the Guide to the Use of PERRC Products in Rapid Research Mechanisms ■ Guide to the Use of PERRC Online Toolkit Products in Exercise and Real-World Event Evaluation ■ Collaborated with practice partners to implement toolkits ■ Design of evaluation instruments for toolkit partners ■ Exercise evaluation with Partners HealthCare ■ Risk communication workshops ■ Development of the Social Media Learning Collaborative for the translation and dissemination of preparedness trainings and tools ■ Communication during Public Health Emergencies training
University at Albany SUNY School of Public Health (SP3)	<ul style="list-style-type: none"> ■ Implementation of PFA training at health care entities ■ Appreciation of PFA at health care entities

Grantee Name	Selected Programmatic Outcomes
University of Arizona Mel & Enid Zuckerman College of Public Health (SP3)	<ul style="list-style-type: none"> ■ Strategies for Effectively Working with AI/AN Communities guide ■ Technical assistance for emergency preparedness exercises for state, local and tribal partners ■ Comprehensive needs assessment report ■ Tribal Advisory Board and State and Local Advisory Board meetings and summary reports ■ Development of a Memorandum of Understanding (MOU) template and checklist for regional partners ■ Building Block Approach (BBA) Medical Counter Measures (MCM) workshop ■ Process Flow Mapping (PFM) for Point of Dispensing (POD) Operations ■ Multijurisdictional Plan Development workshop ■ Collected regional case studies to capture lessons learned, best practices, and identify further gaps in preparedness and response efforts
UCLA Jonathan & Karin Fielding School of Public Health (SP3)	<ul style="list-style-type: none"> ■ Completed GTO trainings for three local health departments ■ Development of Getting to Outcomes – Community Resilience manual
University of Pittsburgh Graduate School of Public Health (SP3)	<ul style="list-style-type: none"> ■ Developed ELI: Emergency Law Inventory
University of Washington School of Public Health (SP2)	<ul style="list-style-type: none"> ■ Online catalog of PERRC and PERLC training resources
University of Washington School of Public Health (SP3)	<ul style="list-style-type: none"> ■ Inventory of evidence-based PHPR communication tools and trainings ■ Implementation of evidence-based PHPR communication tools and trainings at six demonstration sites ■ Outcomes of the demonstration site project included identification of communication break-downs during public health emergency situations and strategies for incorporating evidence-based practices to address communication challenges in public health agencies ■ Dissemination of outcomes from the implementation demonstration site projects in a national virtual Synthesis Symposium

Structures

We examined overarching grant program and individual grantee program structures to determine in what ways they relate to and support expected and actual program outcomes. Grant program structures were influenced by ASPPH program coordination efforts, CDC resources and support, and previous CDC funded research opportunities. Individual grantee project structures included a core project team and

local, regional, and national partnerships. In this section we also discuss findings related to grantees' projects intended audiences, utilization of the ISF in their program design, and evaluation methods.

Structure of the Grant Program

The Translation, Dissemination and Implementation of Public Health Preparedness and Response Research and Training program consisted of three projects. The three projects were:

- **Sub-Project 1 (SP1):** Synthesis and dissemination of PERRC research findings to knowledge users (researchers, decision-makers, practitioners, public health departments' workforce, and public health system partners).
- **Sub-Project 2 (SP2):** Synthesis and dissemination of PERLC training products to knowledge users (researchers, decision-makers, practitioners, public health departments' workforce, trainers, and educators).
- **Sub-Project 3 (SP3):** Translation, application, and evaluation of promising PERRC and PERLC research, training, and technical assistance products into broader public health practice and policy, including ensuring the widespread use of evidence-based practices and products, identifying and engaging stakeholders who can mobilize resources and influence delivery systems, and increasing the capacity to effectively implement and sustain evidence-based practices and products.

Eligibility for receiving one of the nine awards was limited to the 18 ASPPH-member schools of public health that hosted a PERRC and/or a PERLC. One grantee felt that the decision to limit eligibility to the 18 PERRCs and PERLCs was "smart" because "they were intimately involved in the development" of the research and tools that were the focus of this translation and dissemination project. Another grantee said that this grant project "gave the PERRC and PERLC products an afterlife" because it provided the time and funding to not only showcase the value of the PERRC and PERLC accomplishments but also to transform it into a sustainable format.

CDC provided program funding through a cooperative agreement between CDC and ASPPH with the goal of improving public health practice and enhanced health security by providing workforce development opportunities in public health practice settings. CDC supported these efforts by providing technical, programmatic and scientific assistance through CDC OPHPR project officers (POs). The POs had previous experience working with the PERRCs and PERLCs and some even had close working relationships with the grantees in this program. Three POs were associated with this project and each one was assigned to oversee and collaborate on three of the projects. One of the POs was working on the

closeout of the PERLCs and moving many PERLC products to CDC TRAIN, and was able to connect one grantee to the CDC TRAIN to determine which training links were still active and up to date. The POs worked closely with a subset of the three grantees each.

ASPPH served as the Coordinating Center to convene meetings, coordinate information sharing amongst grantees, coordinate dissemination opportunities for project outcomes, and monitor performance. ASPPH convened a Public Health Preparedness Advisory Group, which was comprised of 20 state, local, tribal, and federal public health and emergency preparedness professionals. The Advisory Group was assembled later during the implementation of the program than was originally planned and therefore did not have direct contact with the grantees during the planning and implementation phases of their projects. The Advisory Group members described their role as minimal and had little knowledge about specific grantee projects. Both the grantees and the Advisory Group felt that this relationship was not fully realized. The Advisory Group convened twice via teleconference to discuss the program. When asked about their experience as Advisory Group members, most of them stated that they were involved to the extent that was requested of them but that there was little opportunity to participate. One member said he appreciated being involved in the Advisory Group due to the opportunity it provided to contribute his knowledge and experience with bridging the gap between various entities and organizations and the importance of forming partnerships. Many of the members felt that their role was not clearly defined, but they noted that they understood the value that they potentially brought to the group, which included participation in initial program development, expertise in communication between state, local, tribal and territorial health departments, and experience coordinating public health trainings. ASPPH project staff felt the Advisory Group members' sentiments were due to the fact the Advisory Group members were not involved with the program from the very beginning.

ASPPH used the Online Community, a web-based platform for distributing information and storing grantee progress information, and the NORC team also had access to the Online Community. Information shared on the forum included monthly meeting schedules and updates, products produced by other grantees, outside funding announcements, HHS and CDC preparedness reports, articles of interest, general announcements, grantee meetings, grantee products, progress reports, project background information, and project updates.

Grantee Project Structures

The grantees built off of their existing PERRC and PERLC structures to accomplish the goals of this project. While similar in nature, PERRCs conducted research to evaluate the structure, capabilities, and performance of public health systems for preparedness and emergency response, while PERLCs provided

training to state, local, and tribal public health authorities within self-defined service areas to and meet partners' unique workforce development needs in the area of public health preparedness and response. Three of the grantees were PERRCs (Emory, UCLA, and the University of Pittsburgh), two of the grantees were PERLCs (the University at Albany and the University of Arizona), and two of the grantees were both PERRCs and PERLCs (Harvard and the University of Washington). To a great extent, most grantees maintained continuity of staff from the PERRCs and the PERLCs to this project, which was seen as a major strength, according to evaluation respondents. One grantee noted that it was beneficial to be able to carry out a translational research project where they had "an opportunity to see whether, and how, the work that [they] developed ... was and wasn't actually getting used," and the reasons for their use or lack of use. Without this grant project they would not have had the opportunity to conduct a study on the effectiveness of the product in this way.

Project Team

For each grantee project, staffing followed a basic organizational structure that included principal investigator, project director, project manager, project support, and consultants/subject matter experts (SMEs). Depending on the project goals and expertise of the core team, consultants and SMEs that were included across grantee projects were: information technology (IT), website design, curriculum design, tribal liaison, communication specialists, evaluation specialists, and legal specialists. Drawing on their academic resources, all of the grantees incorporated student researchers in some capacity and one partnered with another academic institution with which they had collaborated with prior. Two of the grantees changed their Principal Investigator during the course of the project but were able to successfully transition responsibilities due to strong programmatic support and a well-informed successor. Grantees established partnerships with state, local, and tribal health departments, research organization, public health service organizations, and health care providers. Some of these partnerships were established prior to the implementation of this project and some were newly formed as a result of the funding. According to grantees, all partners were crucial in supporting components of translating and disseminating the tools and resources produced by the grantees. A detailed description of the grantees' partnerships can be found in the *Partnerships* section of this report.

Grantee Sub-Project Structure

Two grantees used a grantee sub-project structure to carry out their activities. They both had an overarching Principal Investigator that worked with Project Directors (PDs) that managed each separate sub-project. The grantee sub-projects were all extensions of research projects that had been previously funded under the PERRC and PERLC. For one of the grantees, the PDs of the grantee sub-projects came from various divisions across the university's School of Public Health, including Policy and Management,

Epidemiology, and Global Health, and all of these grantee sub-projects were extensions of the work these individuals accomplished during the PERRC years. Similarly, the grantee sub-project PDs of other grantee were faculty and research fellows from different disciplines including Public Health, Emergency Preparedness, Mathematics, Biostatistics, and Medicine.

Intended Audience

In addition to grantees' direct knowledge users, with whom they collaborated, the grantees identified intended audiences of their tools and resources in the wider public health and emergency preparedness field. Across all of the various tools and resources produced, the following potential knowledge users were mentioned:

- Administrators, managers, and/or health directors of facilities;
- Both new and veteran staff;
- County/district level nurses;
- Emergency preparedness leadership at state, local, tribal and federal level;
- Health care and emergency preparedness coalition members;
- Health care providers;
- National emergency response associations;
- Patients;
- Pharmacists;
- PHEP (public health emergency preparedness) and HPP (hospital preparedness program) grantees;
- Public health training center staff and leaders;
- Researchers who want to assess and modify practice; and
- Social service providers.

ISF Utilization

All of the grantees incorporated the Interactive Systems Framework (ISF)⁹ into their program design in some capacity. Grantees described their programs in the context of the ISF in their proposals and demonstrated how their program activities followed the framework to guide their objectives of improving research to practice. Two grantees did not focus their original project design on impacts to the Prevention Delivery System (the ultimate goal within the ISF framework) and instead focused their projects on other levels of the ISF, the Prevention Synthesis and Translation System and the Prevention Support System.

⁹ Wandersman A, Duffy J, Flaspohler P, et al. Bridging the gap between prevention research and practice: the interactive systems framework for dissemination and implementation. *Am J Community Psychol*. 2008;41(3-4):171-181.

Due to the time frame of this project, a total of 18 months for Sub-Project 3, and the goals of each project, assessment of impact on the Prevention Delivery System level was limited across all grantees. Grantee implementation and dissemination strategies are described in detail later in this report.

Outcomes at the Prevention Synthesis and Translation System level encompass activities to distill research and evidence in meaningful ways and to disseminate the synthesis to practitioners in the field (Wandersman, 2008). A strength of this project is that it was a continuation of research efforts that were conducted under the PERRC and PERLC funding. This aspect is considered a part of the synthesis and translation system. The commencement of this current project continued to refine and distill some outcomes that had been previously identified. For the first phase of their projects, grantees engaged in literature reviews of evidence-based and promising practices, needs assessments of the target communities, and a reviews of tools and trainings. Some of the SP3 grantees mentioned that they felt this step would have been streamlined if the Projects 1 and 2 inventories had already been completed prior to the beginning of this program. Projects 1 and 2 developed evidence-based methods for reviewing, evaluating, and cataloging PERRC and PERLC products for inclusion in the resource inventories.

Outcomes at the Prevention Support System level function to provide both general capacity building and innovation-specific capacity building (Wandersman, 2008). Many grantees spent a significant portion of their projects identifying, building, and engaging with the Prevention Support System. Building relationships and collaborating with partner organizations and individuals was a key component of these efforts, and is detailed in a later section of this report. Activities employed by the grantees in this domain included conducting needs assessments, providing technical assistance and training, developing users guides, utilization of the GTO process, meeting with advisory groups, rapid prototyping, conducting usability and feasibility testing, and building a public health stakeholder and partner forum.

Finally, outcomes at the Prevention Delivery System level consist of individuals, organizations, and communities that have varying capacities to implement emergency preparedness programs and policies (Wandersman, 2008). Five of the grantees implemented project activities that related to this system. Agents in the delivery system of these five grantee projects included training coordinators, organizational leadership, district health coordinators, health care providers, and local, state and federal PHPR workers. Assessment at this level required some form of need assessment or baseline data collection followed by an assessment after implementation in order to evaluate impact of the products and resources on agents. With the grantee projects currently in their close-out periods, it is too soon to assess medium-term and long-term impact on the Prevention Delivery System.

The ISF is an important framework for researchers to understand, but it is not always visible to the practice group or end-users. As many of the grantees described, the framework provided a template upon which to structure their program and frame the outcomes of their projects. One of the grantees said that allowing demonstration sites to develop their own definition of success was important to designing an effective program. UCLA explained that the GTO process aligns with the ISF and is a product of ISF theories. Two grantees specifically mentioned a focus on organizational leadership as an effective method of disseminating trainings and building capacity across the organization. Many grantees explained that while the ISF was used in the design phase of their projects, it was not referenced on a regular basis once program implementation began because the concepts were built into programmatic activities. One grantee said that the biggest takeaway was the importance of communicating and gathering input from end-users and partners throughout the development process to ensure that the end product addresses concerns. Another said “the ISF and translational science are very helpful for this [translation to practice] because it builds a structure around how you do this, otherwise people are...reinventing the wheel.” Conversely, one grantee felt that using the ISF “was a bit of a stretch for this particular grant” because it was based on the assumption that their intended audience had the capabilities to implement PHPR strategies to practice. However, this grantee found that their community has a larger need for continued training and technical assistance for establishing regional partnerships.

Evaluation Methods

Grantees used a variety of methods to assess utilization, effectiveness, and replicability of PHPR outcomes and promising practices. Four grantees utilized surveys. Most commonly, these surveys assessed knowledge, perceived self-efficacy, and views and/or behaviors related to emergency preparedness and PERRC and PERLC tools, as well as changes related to these items after using or becoming aware of PERRC/PERLC tools. For example, one grantee conducted pre-and post-evaluation surveys to assess self-reported self-efficacy in understanding and delivering the training they conducted, and also conducted pre- and post-surveys of Health Emergency Preparedness Coalition partners to assess changes in views on the topic, experiences with the training, policies and barriers to implementing the training. Another grantee conducted pre- and post-participant surveys of attitudes, knowledge, and behaviors of staff related to translation and implementation of evidence-based products at their local health department partner agencies. Additionally, one grantee utilized a partnership self-assessment survey to assess partnership functioning among project staff and their partners. Two grantees used interviews to assess anticipated facilitators and barriers to tool implementation and changes in organizational plans or documents as a result of training. Google Analytics were used by two grantees to track usage of online tools, such as websites, portals/forums, and applications.

Partnerships

Grantee partnerships were a main component of this project and played a crucial role in the development of the products and resources that the grantees produced. Partners are loosely defined as any individual or organization that collaborated with the grantees through needs assessments, piloting and feedback, product or resource end user, or demonstration/implementation site. In this evaluation we collected information about partnerships through interviews with IKUs.

Grantees were required to conduct their projects in collaboration with state, tribal, local, and/or territorial PHPR practice partners. These partners included: public health practitioners; workers from state, local, tribal, and/or territorial health departments; and other system partners such as health care delivery systems, hospitals, media, and academia (see Table 5 for a complete listing of project partners by grantee).

Table 5. Grantee Project Partners

Grantee	Project Partners						
	State HDs ¹⁰	Local/ Territorial/ Tribal HDs	Tribe/ Tribal Organization	Professional Association	Other Not-for-Profit	Health Care Organization	Academic
Emory University (SP3)	X	X		X		X	
Harvard (SP1)	X			X		X	
Harvard (SP3)	X	X		X		X	X
University at Albany (SP3)	X	X		X	X	X	X
University of Arizona (SP3)	X	X	X				
UCLA (SP3)		X			X		
University of Pittsburgh (SP3)		X	X	X	X		
University of Washington (SP2)	X	X					
University of Washington (SP3)		X					X

Of the nine projects, all involved health department partners, four involved association partners, two involved academic partners, two involved a nonprofit organization that was not a professional association,

¹⁰ State HD= State Health Department

one involved a health care emergency preparedness coalition partner, one involved a stand-alone emergency management agency, and one involved a state office of mental health. In this section, we describe how grantees' partners became involved in grantees' projects, the extent to which grantees had previous relationships with their partners, the types of agreements grantees had with their partners, typical roles and responsibilities assumed by grantee partners, and other salient characteristics and factors of the partnerships.

Intended Knowledge User (IKU) Introductions to Grantee Projects

IKUs learned of grantees' projects through diverse mechanisms. Nearly half of IKUs had relationships with their grantee partners prior to the project, and described learning about grantee's projects by means of these previous relationships. A subset of IKUs worked with their grantee partners on previous projects—some of which focused on preparedness and some of which focused on other, non-preparedness topics—while other partners reported participating in steering committees associated with the grantee's institution, having faculty appointments at the grantee's institution, and participating in grantees' trainings and other activities. One IKU was working on a project similar to the grantee's and connected with the grantee about their project activities, and several other IKUs became involved in their grantee partners' projects upon being contacted directly by the grantees. Several other IKUs reported that their roles on the grantee's project were delegated to them by their supervisors or passed down from their predecessors. Other mechanisms by which IKUs became involved in grantees' projects included referrals by NACCHO, informal discussions with others at the IKU's organization, and notification through the "statewide public health infrastructure". One-fifth of IKUs interviewed reported having a formal agreement with the grantee, and referenced having an MOU, contract, formal scope of work, or letter of agreement with the grantee's organization. Other IKUs were unsure whether they had a formal agreement with the grantee's organization, and described likely having a formalized an agreement with the grantee at the start of the project, or participating less formally as part of in the grantee's project steering committee, serving primarily as the grantee's "audience", and/or having a relationship with the grantee that became less formal as the project progressed.

Partnership Characteristics

Overall, IKUs described their work with grantees as exceedingly positive. Nearly one-third of IKU respondents described their working relationships as "excellent", "wonderful", or "great". One respondent stated, "I thoroughly enjoyed the project and hope I get the opportunity to do something like that again", while another commented on the value of the lessons learned from the grantee's project in terms of further dissemination of the tool to the public health field. Other terms IKUs used to describe their relationships with grantees included "collegial", "productive", "professional", and "cordial". IKUs also

stated that grantees were valuable resources both before and during the project period, and noted that they frequently seek out the grantee's subject matter expertise, facilities, trainings, and assistance in developing their own trainings. However, several IKUs also described challenges with their partnerships and provided constructive criticism. Specifically, one IKU noted that their project progressed slower than necessary and that some of the grantee staff were overly theory-based and "condescending" in explaining their tool, while another stated "I feel like I never got answers to my questions... I remain confused about my main question, which was how does this work that they're doing actually tie in with public health practice."

Grantees and IKUs also described having partnerships that predated their work on the project, and noted that these preexisting partnerships—and new partnerships formed during this project—will likely continue after the project's close. Speaking to the strength of their partnerships, one grantee noted they would continue to provide their partners with technical assistance but only in a much more limited capacity as resources allowed. Due to the high quality of grantees' partnerships and the assistance they provide to their partners, one grantee expressed concern about the potential negative impact of the lack of funding to continue project activities. They noted that their partners are "really worried and concerned about what's going to happen with our trainings and who is going to be able to meet their needs when this training is gone".

Partner Role

Grantees engaged in multiple partnerships with diverse types of organizations, each serving a unique purpose in achieving project goals. Respondents described the following categories of project collaborators:

- Demonstration sites;
- Steering committee/advisory group members;
- SMEs;
- Grantee resource testers and end-users; and
- Other partners.

Due to the wide range of grantee project activities and structures, grantee partners did not necessarily assume the same roles across projects. While respondents did not always utilize consistent language to describe the roles of their partners and there was some overlap between partner roles (e.g., some SMEs also served on steering committees/advisory boards) we have summarized the general roles and responsibilities associated with each type of partner below.

Demonstration Sites

Demonstration Sites were the sites at which grantees implemented their project activities. These sites included state and local health departments, medical provider offices, and tribal health organizations.

Respondents described a vast range of demonstration site activities, including:

- Serving as audiences or participants in grantee project activities and processes (e.g., exercises, trainings, after-action reports, improvement planning processes);
- Testing the grantee's tools/resources;
- Serving as a case study site to inform development of the grantee's tools/resources;
- Maintaining regular communication with grantee staff;
- Providing the grantee with feedback on the tool/resource they were developing;
- Identifying barriers to implementation of the grantee's tool/resource;
- Assisting with tool/resource adaptation to local settings; and
- Providing the grantee with progress reports and evaluation data.

Steering Committee/Advisory Group Members

Steering Committee/Advisory Group Members provided general direction for grantees' overall projects, as well as more specific guidance for grantees' tools and resources. These groups were comprised of representatives from health departments, health boards, academic institutions, humanitarian organizations, medical center preparedness programs, professional associations, and federal agencies, among other entities. Some of the steering committees/advisory groups were in existence prior to the award notification and have provided guidance on many projects undertaken by the grantees and their institutions, while some grantees established them specifically for this project. A subset of steering committee/advisory group members were also involved in the previous PERRC/PERLC work.

Respondents described the following steering committee/advisory group committee activities, among others:

- Approving project activities, methodologies, and strategies;
- Providing general feedback on the tools and resources developed by grantees;
- Assisting with recruitment of demonstration sites;
- Publicizing grantees' project efforts during the project period (e.g., authorizing grantee use of their organization's newsletters and mailing lists); and
- Assisting with the eventual dissemination of grantee project tools to end-users.

Subject Matter Experts (SMEs)

SMEs came from a variety of settings and organizations and served in advisory capacities for grantees' projects. There exists considerable overlap between this group and the steering committee/advisory group members. For some grantee projects, SMEs were also members of the steering committee/advisory group, while for other projects, SMEs were engaged separate from the steering committee/advisory group and only during specific grantee activities. In some cases, SMEs were also end-users. SME relationships with grantees were also varied in their levels of formality—one grantee described a formal partnership with its SMEs that included stipends and required the SMEs to adhere to firm timelines. In general, this group leveraged their expertise in PHPR-related areas to provide specific feedback on grantee tools and resources. SMEs assisted grantees in determining the content of their tools and resources, recommending the PERRC/PERLC products on which to focus, assessing the utility of the grantees' tools/resources, assisting grantees with developing consistent and clear definitions for use in their tools/resources, providing input on grantees' approaches, and in some cases, reviewing the tools themselves and providing feedback on non-content aspects of the tool, including user-friendliness and appearance.

Grantee Resource Testers and End-Users

Grantee resource testers and end-users also performed a variety of tasks. In some cases, these individuals helped test a number of aspects of grantees' tools/resources. They and other members of their organizations assessed tool/resource functionality, content, utility, user-friendliness, packaging, and presentation, and provided other feedback to the grantees to inform refinement of the tools/resources. In other cases, the testers and end-users helped identify best practices for inclusion in the grantee tools and resources, conducted gap analyses among their organizations to identify areas on which tools/resources should focus, and helped develop the tools/resources themselves. In some cases, demonstration sites also performed some of these duties.

Relationship Factors

In addition to describing the general characteristics of their partnerships with grantees, IKUs also reflected upon the facilitators of their positive working relationships and factors that will lead to continued successes for their grantee partners.

Strong Communication

The most commonly cited factor to which IKUs attributed their successful relationships with grantees was strong communication, cited by nearly half of IKUs. IKUs described grantees as clear communicators, enjoyed regular and open communication with grantees, commended grantees' flexibility in terms of scheduling and communication modes (e.g., willingness to conduct conference calls or participate in in-

person meetings), and appreciated grantees’ clear statement of expectations and delineation of project responsibilities from the outset. IKUs also stated that they prized grantees’ responsiveness and accessibility, noting that they received timely responses from grantees and were able to get in touch with grantee staff easily. One IKU noted that this responsiveness was a product of the grantee’s team being “high-functioning”.

Understanding Diverse Local Context and Settings

Additionally, nearly one-third of IKUs described the importance of their grantee partners’ understanding of diverse, local contexts. They emphasized that the grantees allowed them to select the tools and resources best suited for their organizations and to scale and adapt the tools and resources to their unique settings. Illustrative of this theme, one IKU appreciated that their grantee partner was not “trying to shove some new best practice down on [them]”. In researching best practices and presenting them to the IKUs with recommendations for which to implement, grantees respected the diversity across IKU organizations while allowing the IKUs to capitalize on their expertise.

Receptiveness to Input

IKUs commended grantees on their receptiveness to feedback, input and constructive criticism. One IKU appreciated the grantee team’s “willingness to have good conversations around what was working and what wasn’t and their desire to have a nuanced understanding of the challenges we ended up having”.

Credibility and Expertise

In enumerating the factors that have contributed to the success of both their projects and their partnerships, IKUs also described grantees’ strong regional reputations, credibility, “deep partnerships”, and expertise—both in PHSR and in public health topics in general.

Other Factors

IKUs also identified the following factors as integral to their successful working relationships with grantees:

- Stability and continuity of both grantee and IKU staff;
- Commitment to the project topic on behalf of both the grantee and IKU teams;
- Preexisting relationships between the IKU and grantee organizations;
- Positivity, productivity, and collegiality of the grantee’s team;
- Grantee team’s “organized approach”;
- Grantee’s close relationship with IKU organization’s funder and understanding of its priorities;
- Grantee’s awareness of “what is going on in public health”;

- Mutual understanding between the IKU and grantee teams of each other's capabilities, perspectives, strengths, and expertise; and
- Having sufficient time to complete the project.

Reach of Grantees' Products

Grantee implemented their products and resources with their IKUs. In this section, products refers to any toolkits, trainings, guides, inventories, websites/portals/applications, document templates, and other information resources. We summarize findings related to implementation activities, dissemination activities, utilization of products, and plans for broader dissemination to public health workers.

Project Implementation Activities

Several strategies were described as key to better facilitating the implementation of grantee projects and facilitating sustainability of the use of their PHPR products.

Collaboration with PHPR Partners and Practitioners

A key requirement of the project structure was that grantees collaborate with public health practice and public health system partners to facilitate the implementation of innovations in PHPR practice. All grantees worked closely with practice partners throughout the project period, which largely facilitated the development of practical, useful, and user-friendly products, resources, and trainings for public health practitioners.

All grantees engaged closely with practitioners throughout the project process, and this appeared to be a key strategy for developing tools and resources that were accessible to practitioners. For example, one grantee project staff noted that close engagement throughout the project with their end-users, who participated in piloting and feedback of the tool, was key to developing a user-friendly product. In fact, user testing was mentioned as a key component to three of the projects in order to assess how the tool looked for end-users, and to ensure that tools would be user-friendly. One of the grantees discussed the importance of integrating end-user experiences into the development of their guide tool, noting that they “worked with practitioners to go back and better understand the factors that contributed to the integration of evaluation data during the response.” Another grantee took advantage of public health practitioners serving on their regional network advisory committee to solicit feedback on the inventory that they created. Two grantees took advantage of the NACCHO Preparedness Summit to further engage with end-users beyond their formal partners and elicit feedback. Lastly, one grantee conducted a comprehensive needs assessment to better understand the needs of their state, local, and tribal partners, and thus tailor project activities to their specific needs. As a result, they learned that the highest needs were among their

tribal partners, which led to a focus on providing tailored training and technical assistance to tribal partners.

Funding

It was clear that the project funding was vital to accomplish the translation and dissemination of grantee projects, as all grantees reported that they could not have accomplished their projects without the ASPPH and CDC funding. However, because of the relationships that had been built through the PERRC and PERLC projects in the previous years, several grantees said they would still have found a way to provide some technical assistance to local and state health departments even if the funding had not been available.

Grantee project staff largely reported that they did not work very much with the Advisory Group outside of making one-time presentations on their projects and providing one-page write-ups of their projects. Overall, they did not feel the Advisory Group had a significant impact on the projects. However, staff of two grantee projects reported that their CDC POs were helpful in guiding and supporting the projects.

Project Dissemination Activities

Some grantees utilized specific strategies to facilitate sustainability of PERRC and PERLC resource utilization. One of the training guides was focused at an organizational level that could have long-term impacts. The training guide was developed for the training coordinator level as well as technical assistance regarding PFA. This guide instructed organizations how to develop and/or improve policies and procedures related to PFA training, in order to facilitate long-term sustainability of PFA.

Similar to the development of the tools themselves, grantees were at various stages of disseminating tools and resources beyond project partners and IKUs at the time of their interviews. Grantees discussed a variety of strategies for disseminating products beyond their project partners and IKUs. One strategy frequently discussed was working with other grantees to distribute their products more broadly. For example, including the products and resources in the PERRC and PERLC Inventories where appropriate.

Several grantees discussed utilizing various national or regional public health communication channels and newsletters to disseminate their products more broadly. Some of the methods of communication include public health practice listservs, regional steering committees, and the university's School of Public Health newsletter. Grantees also discussed additional options such as dissemination to NACCHO and Association of State and Territorial Health Officials (ASTHO) workforce development and emergency preparedness groups, as well as other public health training centers. Two IKUs said that they would utilize their position in the national organization to promote the tool that is targeted specifically at their member audience by including a link to the tool in an electronic newsletter.

Other grantees either planned to or already had posted a link to their product or resource on websites, including both university websites and websites of their partner organizations. At the time of data collection, three of the grantees reported that they had presented some of their products at conferences. One of the grantees said that they were exploring submitting their toolkit to the Technical Resources, Assistance Center, and Information Exchange (TRACIE) database supported by the Office of the Assistant Secretary for Preparedness and Response (ASPR). Multiple grantees, IKUs, and national organization/Advisory Group members discussed disseminating materials through ASTHO, NACCHO, and other national organizations, through mechanisms such as the online NACCHO Toolbox.

Lastly, all grantees will be submitting manuscripts about their projects for an *American Journal of Public Health* supplement organized by ASPPH. Grantees can submit up to four manuscripts, and will submit them by October 2017 through the ASPPH online portal, with the aim of having the supplement published in September 2018 to coincide with National Preparedness Month.

Utilization of Grantee Products

Product Utilization

At the time of data collection, grantee projects had not been completed in their entirety and therefore IKU reflections on their utilization of the products were in various stages. Products and resources that had not yet been completed or released to the public still have positive reviews but the IKUs that we interview had not had the opportunity to see the final version. For example, one of the grantees had recently launched their online tool to the public at various conference presentations. While the IKU that we spoke with had not interacted with the final version of the tool, their impressions of the tool—formed through their experience working with the grantee—were very favorable. Based on their piloting experience, two IKUs of that online tool said it would be useful for both leadership and PHPR workers alike because the user is able to locate information that is specific to their needs. One of the IKUs of an online inventory said that it was a critical translation piece for the public health preparedness community and that “the availability of easily accessible, up to date, high quality, training materials is extremely important” because the rate of staff turnover is typically high. The inventory will enable health department to train new staff in an efficient. However, utilization of the inventory and the trainings themselves could not be assessed at the time of the interview. Similarly, another inventory was well received by those who had worked with the grantee team and had viewed it, however it was too early at the time of data collection to evaluate utilization of the inventory or the toolkits included in the inventory. One of the IKUs that participated in the development of a guide had not used the final product but felt that their health department had benefited through the experience. The user said that while the public health emergency

that they had experienced was devastating, the lessons learned that they gained through this experience will not only help their planning efforts in the future but could also be useful to other communities if they encounter a similar emergency.

The IKUs that we interviewed for another grantee were in two different stages of completion. One of the IKUs spoke positively of the information they learned in their training experience but noted it was challenging for their department to implement. The user said that a benefit of the training is that it encourages “the individual to take ownership of their personal preparedness” and that it helps to highlight gaps in program planning while providing tools and resources to fill the gaps. Unfortunately, this department experienced staff challenges during the implementation process that hindered their progress. Reflecting on the experience, the user concluded that “the prize is strong, so maybe if you want something that strong, you have to put in a lot of work.” Alternatively, the other end-user that we spoke to said that they gained a lot from the training and plan on incorporating the training into programs for health emergency operations center, MRC, and the Emergency Medical Services staff at their health department.

IKUs from one of the grantees that we interviewed had recently completed their demonstration project, which enable them to reflect on their experience as a whole. All of the IKUs we interviewed said that they gained a lot from the experience. One of the respondents noted that at the end of the exercise, their agency decided not to implement the strategy but that did not mean that the project was not valuable. The respondent said that “in the end, it gave us great information to work from in the future that we might not have had had we not had these conversations” that were initiated by the exercise. One of the IKUs from a different demonstration site said that the staff that participated in the project were very engaged and after they left the training they commented that they were eager to practice what they had learned. Another IKU said that as a result of their participation their department developed and internalized processes to improve risk communication among their stakeholders. For one of the online-based grantee sub-projects the IKU described how useful the tool was because of the large amount of resources that are housed in one place but noted that the interactive question and answer featured was underutilized.

One of the grantees produced multiple resource documents and tools that were implemented within the timeframe of this project. One of the IKUs said that one of the document templates was helpful because it ensured that the organization addressed consistency issues with their partners before response starts. One IKU said that their participation in the development of the guide occurred at an ideal time because the department needed to review their processes for communicating with their regional partners and they were glad to have the opportunity to reflect on that and improve it. Overall, the resources provided by this

grantee to their partners were seen as more than just the tools or products themselves. The multijurisdictional approach to providing technical assistance “connects the dots” between hospital preparedness programs, health care coalitions, tribal entities, and everyone in between.

Product Benefits

Ease of Use. One of the most common benefits mentioned about the tools and resources was that they were easy to use, saved time and effort, and were accessible to multiple audiences. One of the IKUs said that a key benefit of the product was that it targeted organizational leadership. This is an important factor in affecting preparedness planning and training policies and improving organizational capacity to implement those policies. Another IKU was especially impressed with the search function on the online tool that they used saying that it was “easy and quick to find the resources that you’re looking for.” Another consideration when implementing a new tool or training is how easily it fits into staff schedules. One of the IKUs of a risk communication training said that it was appropriate for their department because it was self-led and the “the amount of time it took to complete was manageable.”

Information Centrally Located. The Sub-Project 1 and Sub-Project 2 inventories were lauded for being one-stop-shops for preparedness resources. One of the greatest challenges for PHPR practitioners is the time it takes to locate a training resource that not only fits your needs but is also of high quality. For the PERLC inventory, one IKU said that the training bundles are helpful because the user can easily find which trainings are the highest quality for that topic. For the PERRC inventory, the one-page description of the toolkit was described as being very helpful because the user could understand within a few minutes what the toolkit was for and whether it met their needs.

Tailored for Tribal Audience. One of the grantees, through their work as a PERLC and through this project, provides an important resource in the region for tribal organizations and entities. They work closely with their tribal partners to provide guides, toolkits, trainings, templates, and activities that meet their specific needs” so that they can implement them easily in their organization that often has limited time and resources to devote to preparedness activities. The online learning portal that they established is a vital resource for tribes in the region who don’t have the resources to develop or sustain a portal like that themselves.

Collaboration. One of the benefits of developing and using the products and resources was the relationship building and strengthening between the researchers and the practice community. One of the IKUs said, “We have already benefitted from the standpoint of, the [professional organization] has felt valued by having researchers pay attention to their legal preparedness and what they felt they needed.”

Another IKU we spoke to, who works at a health department, said that working with the grantee fulfilled one of their essential services of engaging in research to discover solutions to health problems and they reported it in their annual report to the public. Not only did these efforts foster collaboration between research and practice but it also helped to bring people together within the practice community and within health departments themselves that do not often have the opportunity to do so. One of the IKUs for a risk communication exercise said that the experience brought staff members together to introduce themselves, their roles and responsibilities, and their perspectives. Incorporating individuals that do not work with one another on a daily basis ultimately increased awareness of the risk communication plan across the health department.

Broader Implementation

Grantees were concerned about the future of the resources and support that the PERRCs and PERLCs offered, which are directly linked to the products of this project. Training and providing resources to public health practitioners is an ongoing mission and challenge because tools and trainings have to be updated, new staff have to be trained, and emergency preparedness priorities change. At the time of data collection, three of the grantees were in the process of establishing partnerships to ensure sustainability of their products and resources after the funding period ended. This would ensure that the website links to the resources remained accessible because University of Washington was unsure if they would have the funding to continue upkeep of the website. Emory also had web-based applications that require funding for continued maintenance. At the time they were unsure how they would continue to support the ReadyVax application for future use by public health workforce. The Long-Term Care Portal for Florida was in discussions with the Florida Health Care Association to potentially sustain the portal after this funding period ended. University of Pittsburgh was also in the process of searching for resources support the need to maintain, review, and update the web-based tool.

Four grantees had formalized a plan for sustaining access to at least some of their products and resources after the funding period. Two of them will be able to maintain access to their tools that are ready to use, such as toolkits, guides, and templates, through their university supported websites. The other two grantees will be able to host their products through a collaboration with their partners. To the extent possible, keeping the tools available and accessible is a major step towards broader dissemination and implementation in public health workforce. However, without the funding or resources to provide technical assistance, support, or other dissemination efforts, it remains unknown the extent to which these products may spread to a wider audience.

Best Practices and Program Models

A best practice in public health may refer to an approach, intervention, policy, or program component that is effective in achieving its intended goals and is likely to be replicable in other settings.¹¹ NORC's evaluation identified best practices for the translation, dissemination, and implementation of PHPR tools and resources, as identified by grantees, partners, IKUs (intended and potential), and members of the Advisory Committee. This section summarizes the best practices and models that may be applicable to other PHPR initiatives and the broader field of public health.

Grantee Models

Several IKUs and grantees felt that the tools and products developed through the grant program are appropriate models for future use in PHPR practice. These products are mentioned previously in this report and include, for example, the detailed processes established for creating inventories of existing tools and resources; the rating tool used to assess PHPR communications tools and trainings; the strategies document for working with Tribal entities; the coding methodology for PHPR-related laws; and the PFA training program.

Translation Best Practices

Several grantees identified best practices for translating research into usable tools and products for the public health practice community. These included:

- Engaging the end-user (i.e., public health practice community) from the start, to ensure that tools and products are appropriate and relevant;
- Using inter-rater reliability to review and assess existing tools and products;
- Creating training webinars to acquaint PHPR staff with new skills or processes to improve performance; and
- Including real-world and local community scenarios and examples to demonstrate how to use practices, processes, tools, and resources.

Dissemination Best Practices

Dissemination strategies that have been successful for grantees and knowledge users, or that were recommended by grantees, knowledge users, and the Advisory Group, include:

- Word of mouth/personal recommendation;

¹¹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4693338/>

- Conferences and national meetings, which provide an opportunity for networking;
- Radio stations, to present and translate important information (especially for Tribes);
- In-person meetings, which provide an opportunity for direct communication;
- Internet, including websites, blog posts, e-mail newsletters, gaming techniques, listservs, distribution lists, and social media;
- Trusted public health agencies and organizations, including: CDC, American Public Health Association (APHA), ASPR, National Network of Public Health Institutes (NNPHI), ASTHO, and NACCHO;
- Peer-to-peer learning through existing networks (for example, the NACCHO Public Health Preparedness Committee and other Workgroups);
- State health departments, who receive information and resources from CDC and share them with local health departments; and
- Health care coalitions that exist within various states and localities.

When discussing strategies to facilitate communication, respondents provided the following feedback.

When an existing agency or organization disseminates resources, it is important for them to have an existing relationship with the target audience. Having an established relationship improves credibility, helps to target appropriate tools to the specific user audience, and improves dissemination, according to one Advisory Group member. Several respondents also noted the importance of messages and materials being brief and timely; and described that developing short and targeted messages about existing tools and resources will help facilitate dissemination. They noted that messages about resources and tools should be tailored differently depending on the primary, secondary, and tertiary audiences. Finally, several respondents noted the need to improve federal government communication, both across and within agencies, to improve dissemination.

Implementation Best Practices

Respondents provided the following suggestions as best practices for implementation include:

- Ensuring that products and tools can be implemented by different agency and organization types (i.e., health care, public health, emergency management agencies, and others);
- Providing implementation support for a new tool or resource, as it can be challenging for public health agencies to gain momentum for implementation;
- Identifying an advocate within the health department who will ensure that the tool remains a priority during planning and implementation;

- Providing support to bring staff together to review and practice using tools and resources;
- Developing products and tools that are clear and concise (i.e., one- or two-page checklists, rather than dense reports or binders);
- Creating products that are ready-to-use, because health department staff have limited time to review, modify, and adapt resources for local use;
- Building in-person trainings into existing grant structures;
- Holding in-person trainings on back-to-back days, to improve participation; and
- Creating tools and products that are part of staff everyday workflow and integrate easily into existing processes.

To facilitate implementation, it is also important that tools and resources align with the language and priorities of the federal government, according to one Advisory Group member. It may also be important to provide strategies for collaboration between public health agencies and academia. According to one potential knowledge user, academia tends to move at a more relaxed pace, which can be a challenge for those working in public health practice.

Finally, several respondents emphasized the importance of federal funding to support the continued translation, dissemination, and implementation of PPHR resources and tools. Without funding to sustain accessibility, many tools created in the past by PERRCs and PERLCs are no longer available (i.e., existing web links to access the resources are broken), according to one grantee and one knowledge user. One Advisory Member emphasized this point by noting that continued funding for IT is essential to disseminate resources online and sustain access to those resources.

Challenges

Respondents also provided information on the challenges they experienced during the project period, as well as potential and anticipated challenges to accessing, translating, disseminating, and implementing PPHR tools and resources. Below, we describe grantees' changes in priorities and project implementation challenges, followed by a discussion of barriers to enacting the project's agenda in the future.

Changes in Activities and Priorities

In general, grantees and IKUs reported few changes in activities and priorities. A small subset of grantees reported underestimating the amount of engagement they would have with IKUs throughout the project. Grantees initially envisioned providing less—and less time-consuming—technical assistance, as well as conducting less outreach and presentations during the project period. Respondents also described changing project activities in response to the realities of the demonstration sites. In one case, project

activities changed due to a change in the demonstration site's project target population, scale, and partners. One respondent reported changing project activities and scope due to the emergence of Zika Virus.

Implementation Challenges

In this section, we describe challenges that occurred during project implementation. While several IKUs did not report observing any of their grantee partners' challenges, many grantee and IKU respondents were able to describe challenges. Respondents described challenges experienced by grantees, challenges due to the grant requirements and structure or, challenges that occurred at practitioner agencies, as well as technological issues.

Grantee Challenges

Grantees and IKUs described implementation challenges grantees experienced. Specifically, respondents reported that several grantees garnered both more and less interest from demonstration sites than initially anticipated, and also experienced issues recruiting and engaging different types of stakeholders to participate in the project. Respondents also commented on the difficulty of grantees' tasks, noting that some of the projects themselves were complex, laborious, attempted the difficult task of inducing practitioner behavior change, and required changes in project timelines.

Challenges with the Grant

Several respondents detailed issues they had with the grant structure and requirements. In particular, one grantee stated that the grant lacked flexibility, and that in requiring the grantee to recommend previously developed trainings to their IKUs, they felt the grant was not enabling them to fully meet the needs of their IKUs. Another grantee identified the abbreviated grant period as a challenge and noted that this brief timeline forced them to limit their project scope and activities. Similarly, another grantee noted that while their project required their IKUs to have certain capacities and capabilities in place before translation activities could occur, they had to dedicate time for capacity- and capability-building among their IKUs, which was challenging given the short timeline. One grantee also mentioned that it would have been helpful for Projects 1 and 2 to have been completed prior to the other projects so that the other projects could have drawn from these syntheses of PERRC and PERLC resources. Lastly, one grantee felt that the grant required tasks that had not previously been undertaken in the field of public health, and noted that this required creativity and flexibility on the part of the grantees.

Practitioner Challenges

Respondents also described challenges practitioners experienced when participating in grantees' projects. Several respondents identified lack of time, resources, and supplies, as well as busy schedules and competing demands at practitioner agencies as challenges that affected project implementation. Turnover at the practitioner's agency also constituted a challenge and had negative impacts on project momentum, timeline, and evaluation. Additionally, IKUs for one grantee's project misunderstood the project's activities and goals, and the grantee encountered difficulty in clearly explaining the project.

Technological Challenges

A number of respondents described technological challenges they faced during the project. Grantee respondents noted that their inability to create a centralized repository of all trainings, tools, and resources from a variety of sources detracted from their projects, and that some of their partners had difficulty accessing their resources. Additionally, respondents reported experiencing broken website links and addresses, and said it was necessary for grantee staff to consistently perform checks to ensure the links and website information were working and updated. Finally, one IKU reported broad challenges with the grantee's technology, but noted that this challenge was resolved when they received technical assistance to troubleshoot their issues.

Barriers to Public Health Preparedness and Response

In addition to asking the grantees and IKUs to identify their perceived barriers to translation, dissemination, and implementation of grantees' tools and resources, NORC asked Advisory Group members to describe the overarching barriers to accessing and utilizing PPHR tools and promising practices. The most commonly identified barrier among this group was a lack of IKU awareness of which tools exist and which organizations to contact for PPHR resources and tools. Several Advisory Group respondents also noted that IKUs are overwhelmed by the number of PPHR resources available from different entities, and stated that these resources are not well organized and that IKUs do not know which tools have been sufficiently vetted. Additionally, respondents described IKU organizations as lacking the time and staff to search for and evaluate resources and the capacity to implement PPHR best practices. One respondent stated that due to a lack of funding at many IKU organizations has forced these organizations to prioritize, and that "often, training falls low on the list" of organizational priorities, while another supported this sentiment, pointing to the lack of a culture of learning and training opportunities at IKU organizations. Respondents also identified IKU agency turnover and lack of knowledge of how to "adapt, implement, and evaluate" PPHR tools as barriers to PPHR best practice implementation. Finally, one respondent described the cost barriers pointed to the cost associated with making training courses available as prohibitive in terms of barriers to disseminating PPHR resources.

Despite these numerous challenges, respondents also provided solutions for some of these problems. Advisory Group members noted that it would be prudent to create a centralized repository or “access point” for PHPR materials to help IKUs locate resources. One respondent also noted that IKUs should develop relationships with schools of public health in order to be better connected to PHPR resources and tools and for assistance in finding “meaningful information streams”.

Barriers to Translation

Respondents described changes in translating PHPR research into practice. While two respondents were unable to identify barriers to translation, others were able to identify both barriers to translation and solutions to some of the barriers they identified. In some cases, respondents solely commented on the difficulty of the translation process due to a lack of communication between researchers and practitioners. One respondent noted that one grantee’s project reflected a lack of awareness of how local public health operates and another respondent stated that the practice community doesn’t “understand the value of research”, while the research community doesn’t “understand the contribution the practice community can provide”. Several respondents also noted that they struggle to find relevant PHPR information and tools for specific topics, including mortuary affairs, long-term care facility preparedness, and PHPR trainings for public health nurses. Additionally, one respondent identified time as a barrier to translation activities, as it is time-consuming to continue translating new research products into practice, a process that consists of “identifying new resources, vetting them, cataloguing them, uploading them to the website, and promoting them”. Another respondent commented that not enough research has been done to evaluate existing tools, while another stated that one grantee tool does not contain enough guidance on adapting evidence-based programs to local implementation settings.

Solutions

Respondents offered the following recommendations to bolster translation activities:

- Engage in more capacity-building with IKUs around how to adapt evidence-based practices to local contexts;
- Ensure PHPR research products are “responsive directly to the training and resource needs” of IKUs;
- Ensure tools are scalable to smaller and rural settings;
- Place tools on longstanding sites that will always be available;
- Create more opportunities for interaction between the research and practice communities;

- Develop versions of the tools for different audiences (e.g., message developers, legal counsel, etc.);
- Fund a project to evaluate existing tools rather than focus on developing new tools; and
- Incorporate interactive and in-person practice elements into PHPR trainings, tools, and resources.

Barriers to Dissemination

While the majority of respondents easily identified barriers to dissemination of PHPR tools and resources, a small number of respondents felt that there are no barriers to dissemination of grantees' tools and resources. One of these respondents noted, "I don't think there are any limitations, this particular project just kind of lends itself to broad use and broad dissemination because it's [online], and it's flexible", and highlighted the electronic nature of the tool and stakeholder commitment to maintain the site as the tool's key features in terms of eliminating barriers to dissemination. The other respondent that felt there were no barriers to dissemination stated that there is "no excuse for why [other entities in the grantee's region] shouldn't be aware" of the grantee's website as a resource for PHPR information and tools.

Sustainability

Barriers to dissemination of PHPR materials identified by respondents were numerous, with the main barrier identified to be the sustainability of future dissemination efforts. One respondent noted that future dissemination will be difficult if the electronic tools developed by grantees are not housed on a website that is "accessible nationally". Respondents also identified as barriers the time and capacity of grantee staff to continue updating and promoting their resources, engaging IKUs, and educating IKUs on how to use their resources. One respondent stated that the "continuing education process is always a challenge when you develop any product...you have to make sure it doesn't get lost".

Traditional Dissemination Methods

Respondents also commented on the ineffectiveness of traditional dissemination methods and challenges. They noted that disseminating PHPR information through journal articles and meta-analyses is unproductive, as members of the practice community rarely read journal articles due to competing demands and organizational cultures that do not support dissemination through these channels. One respondent offered anecdotal evidence to support this claim, stating "I hear health departments where if a person is reading a journal article, their supervisor thinks they just don't have enough to do".

Economic Factors

The economic realities facing the public health field were also identified by respondents as barriers to dissemination for several reasons. One respondent remarked, "the current environment—the economic

concerns—are making education and innovation much more difficult to come by. I think people are just trying to keep their head above water right now and there just is not enough opportunity to innovate and to learn”, while another noted that some health departments are focused on “keeping the doors open” and cannot prioritize participating in PPHR dissemination efforts.

Other Barriers

Respondents also described other barriers to dissemination, which included:

- A lack of awareness of PPHR resources among practitioners resulting from minimal interaction between the practice and research communities;
- The overwhelming amount and redundancy of PPHR information available that keeps practitioners from identifying valuable resources;
- The amount of time it takes end-users to locate, access, and review PPHR resources;
- The lack of familiarity with sources of PPHR information among practitioners;
- The lack of a mechanism for transmitting information from sources of PPHR information to end-users;
- A hesitancy among some jurisdictions/policymakers to utilize resources developed by outside entities;
- Policy changes “that can make some of the dissemination of even the best materials problematic”;
- Difficulties in disseminating resources to smaller health departments specifically;
- The lack of a simple dissemination mechanism that is widely accessible and not costly; and
- Concerns around information security and data governance that prevent information-sharing.

Solutions

In addition to describing the barriers to dissemination of PPHR best practices and tools, in some cases, respondents also offered solutions to some of these issues. To facilitate sustainability, electronic resources must be kept updated and accessible, and practice audiences must be kept engaged and be continually educated on non-electronic resources. This could be accomplished if grantees were permitted to set aside or apply for additional funding for sustainability efforts. One respondent noted that it would be beneficial to appoint an advocate for each grantee’s tool or preparedness topic to ensure that their tools, resources, and topics of interest are consistently integrated into preparedness planning efforts. In terms of dissemination methods, respondents recommended the following dissemination practices: involving CDC in dissemination efforts; utilizing “practice communication outlets” for dissemination (e.g., newsletters and nationwide practice communication channels); ensuring that grantee materials are housed on

nationally accessible websites; and posting grantees' resources on practice-based organization websites, such as NACCHO. Additionally, to reduce the overwhelming nature of PHPR information and help practitioners with limited time identify PHPR resources relevant to their organizations, one respondent suggested that research centers and other entities "curate" some of the available resources. Finally, one respondent noted that professional organizations have a role in helping "bridge" the gap between the practice and research communities by facilitating more interaction between the two.

Barriers to Implementation

Similar to the barriers to dissemination, while most respondents were able to easily identify barriers to implementation, some respondents believed there to be no barriers to implementation of grantees' tools and resources. One respondent noted that the emergency events described in the grantee's trainings were relevant, and thus likely to resonate in diverse settings, while another noted that due to similarities between PHEP programs across jurisdictions, the grantee's particular product would be able to be implemented anywhere. A subset of respondents noted that IKUs experience significant barriers in implementing PHPR resources, but did not state specific barriers. For example, one respondent noted, "we have huge barriers right now in the public health system to implementing new evidence-based tools and trainings in the area of emergency preparedness and response, and if that sector of the public health system is going to improve and innovate with changes that are going on anywhere in the world of systems and technology and new knowledge, there is a lot of work to be done".

Organizational Factors, Political Climate, and Cost

However, other respondents were able to describe specific barriers to implementation of PHPR products, including lack of funding, practitioner time, staff, supplies, technological support, and resources, as well as competing priorities. Turnover was also described as a barrier that can stall PHPR projects and slow momentum. Two respondents said that the costs associated with implementing and sustaining some PHPR tools and resources are prohibitive, and one stated that the "social/political context" dictates how much funding legislatures are willing to allocate to public health, so free, online resources are the only viable PHPR tools in some areas. Additionally, one respondent stated that some agencies might not see the value in PHPR tools because emergencies don't occur every day, while another noted that PHPR tools that cannot be integrated into daily agency operations are likely to experience barriers to implementation.

Adaptation for Implementation

Respondents also commonly identified adapting implementation processes and evidence-based practices to local settings and contexts as a barrier to implementation. One respondent noted that some IKUs might not understand how grantees' tools are applicable to their organizations. Respondents also noted that

some of grantees' tools and resources were not readily adaptable, scalable, or applicable to varying IKU contexts, and noted that it is challenging to adapt tools and resources to local settings while “maintain[ing] the evidence core to ensure outcomes are actually occurring”. In particular, several respondents anticipated issues in implementing PPHR tools and resources in small and/or rural areas, as entities in these settings the might not see the value of the resources and/or might lack the infrastructure to implement it. Respondents also mentioned the following barriers to implementation:

- Tools or materials that are not maintained, updated, or use outdated terminology;
- Tools that are not translated into multiple languages;
- Lack of clarity around how grantee tools will integrate with existing tools;
- Tools that are exceedingly dense, academic, or theory-based;
- Unnecessarily slow tool/resource implementation processes;
- Uncertainty about “how the trainings fit into their larger training picture with so many other competing trainings;
- The perception among the practice community that researchers do not “have anything to offer”;
- IKUs having to register for multiple accounts on different websites where different PPHR trainings are hosted; and
- Difficulty stimulating interest in PPHR topics from lay staff to leadership.

Solutions

Respondents also presented solutions aimed at addressing some of the barriers described above. These solutions included:

- Making tools/resources simpler, less paperwork intensive, and are more concise, and streamlined;
- Breaking up tools/ resources into smaller sections tailored to specific responsibilities or roles of IKU staff;
- Ensuring tools/ resources are “useful for people in their day-to-day” and can be used throughout IKU organizations in non-emergency capacities;
- Ensuring tools/resources are easily adaptable and applicable to many emergency events;
- Updating materials frequently to ensure they are current;
- Ensuring the IT elements of electronic resources are maintained;
- Making tools/resources accessible via smartphone for use during emergency response (in addition to planning);

- Clearly demonstrating the effectiveness and value the tools/resources will bring to the practice community by better connecting the research and practice communities;
- Incorporating practitioner input into tool/resource development;
- Ensuring there is technical assistance and support available to help IKUs understand how to use the tools/resources;
- Incorporating workshops into future NACCHO meetings workshops that teach IKUs how to utilize grantees' tools/resources;
- Describing the time commitment required for implementation upfront; and
- Having a credible entity review PPHR resources and recommend them to practitioners.

Limitations

This evaluation was implemented in a specific timeframe, October 2017—July 2017, which ran parallel to grantees' funding to implement their projects, January 2016—August 2017. This limited the ability of NORC researchers to fully assess the outcomes achieved by each grantee. As such, our results presented related to grantee outcomes should be considered preliminary. Each grantee was required to complete evaluations of their projects. Many of these evaluations are still underway. As such, NORC did not access nor report data from individual grantee evaluations. Furthermore, due to the timeframe with which data collection occurred, only a subset of IKUs were included in the interview process. While we attempted to obtain a variety of viewpoints to include in this evaluation, we acknowledge that the number of IKUs per grantee ranged from one to four.

Recommendations

Recommendations for CDC

During the focus group, grantees discussed several recommendations for CDC OPHPR. Two grantees emphasized the potential importance of their work in influencing OPHPR policy and activities. For example, one of them suggested that grantees make a presentation for OPHPR on the emergency preparedness research and practice gaps addressed by the *Translation, Dissemination, and Implementation of Public Health Preparedness and Response Research and Training* project. Two grantees also suggested that the outcomes of this project could influence PHEP guidance. PIs and staff from three projects discussed the benefits of formalized academic–public health practice partnerships, including the academic–health department partnership model, in which a formal collaboration is established between a health department and an academic institution that trains future health professionals.¹² They felt that CDC could encourage these types of relationships by requiring or encouraging health departments to establish partnerships with health-related academic institutions. One grantee cited the CDC Building Resilience Against Climate Effects (BRACE) program as good example of an academic and practice partnership, wherein health departments funded by CDC have built collaborations with academic partners to combat the negative effects of climate change. Similarly, one intended knowledge user noted that CDC was in the process of revising the Public Health Preparedness Capabilities, and that this was an opportunity for CDC to integrate the grantees’ products into the official guidance on these capabilities. Specifically, they noted that CDC could align the toolkits in the PERRC inventory with each of the Public Health Preparedness capabilities. The respondent also suggested that CDC invite the Harvard University–SP1 team to provide input on the revised capabilities through participation in the capabilities stakeholder workgroup or through opportunity for public comment based on their work on the PERRC inventory.

Recommendations for ASPPH

Grantees, IKUs, and potential knowledge users also suggested several strategies for ASPPH to use to disseminate grantees’ products. Many respondents agreed that the tools and resources should be placed in a central online location, and the NACCHO Toolbox and the ASPR TRACIE website were the most commonly suggested locations by respondents. One respondent thought that the toolkit that they worked with should be included in the PERRC inventory to encourage broader dissemination.

¹² http://www.phf.org/programs/AHDL/Programs/Academic_Health_Departments.aspx

Another commonly suggested strategy for disseminating the grantees' products further was in-person presentations of the products at conferences like the NACCHO Preparedness Summit or through other face-to-face opportunities. Similarly, two IKUs suggested providing interactive, hands-on workshops or trainings for potential end-users with the resources to allow practitioners opportunities to learn about and use the tool at the same time. One respondent described a CDC workshop he attended at a conference where attendees rotated among ten-minute high-level overview presentations of various different tools, and thought this was good way to learn about the tools. Other IKUs suggested conducting brief webinars or five-minute overview videos for each tool or resource.

Future Evaluation

This project had many positive outcomes. Grantees and IKUs universally reported forming positive and mutually beneficial partnerships as a result of this project, and all IKUs with whom we spoke felt that assistance and information they received from grantees would improve their emergency preparedness capacity and activities in the future. However, given the time frame of both the grantee-specific and cross-site evaluations, it will be important for both ASPPH and grantees to conduct a longer-term follow-up evaluation in order to assess the long-term impact of the projects on the emergency preparedness Prevention Delivery System, or the actual sustained use of grantees' tools and resources. Below, we outline recommendations for both ASPPH and grantees for future evaluation of implementation of evidence-based products.

ASPPH

It will be important to track usage of grantees' tools and products and the effectiveness of their dissemination efforts in order to assess whether this project had a significant impact on PPHR capacity and utilization of evidence-based tools and resources among public health practitioners. However, as discussed above, the projects are not at an appropriate stage to truly evaluate the project's long-term impact on the Prevention Delivery System. A longer period of time will be required to assess the impact of the grantees' activities and products on practitioners' implementation of evidence-based tools and resources. One method to evaluate this longer term impact on the Prevention Delivery System would be for ASPPH to collaborate with national membership organizations that serve public health practitioners like ASTHO and NACCHO to disseminate a survey to their members. This survey could contain descriptions of the grantees' projects, where to find them, and both close-ended and open-ended questions regarding members' awareness and utilization of the tools, as well as opinions regarding the accessibility, usability, and suitability of the tools for their organization and context. The survey could also contain questions regarding barriers and facilitators to utilizing the resources and potential technical assistance

needs for using the tools. The survey could be supplemented by more in-depth key informant interviews of survey respondents if feasible given any time and resource constraints. As NORC conducted key informant interviews with project IKUs as part of our evaluation, we would recommend that these interviews be conducted with public health practitioners who were not project partners, to assess whether use and awareness of products has spread beyond project IKUs.

Grantees

As most grantees have posted their products online, project staff may have the ability through Google Analytics and similar mechanisms to monitor utilization of products through views of content over time. Two of the grantees indicated that they are already using these strategies and other grantees said they are looking into similar methods. Measuring usage through website analytics will help grantees assess whether their products seem to be relevant for practitioners over time, or whether use is decreasing, and thus determine whether products need to be updated or tailored to changing contextual factors and/or emergency preparedness needs. However, grantees discussed in interviews that tracking views of products is not always possible because the products are housed in various websites. Housing all tools and resources in a central location such as ASPR TRACIE, the NACCHO toolbox, or TRAIN could potentially help address this issue, as grantees could consider collaborating with ASPR, NACCHO, or the Public Health Foundation as relevant to collect and analyze data on views of the products.

Grantees were all required to develop comprehensive evaluation plans for this project and some of their data collection tools and measures may be appropriate to assess the long-term impact of their projects at some point in the future. Some grantees collected baseline data and follow-up data on measures such as organizational readiness and climate and knowledge, attitudes, and behaviors related to use of evidence-based products that they could use to measure change over time. Grantees could work to measure PHPR-related capacities and other relevant outcomes a year to two years after the termination of this project on August 2017, to assess whether IKUs have built emergency preparedness capacity in relevant areas in the long term. They could also disseminate a survey to project partners and/or other practitioners with whom they have relations to assess similar outcomes to those suggested above for a national survey driven by ASPPH. As capacity may have a different meaning for each project and IKUs, grantees should select measures of capacity that are most relevant to their project and end-users.

Conclusion

Over the course of the *Translation, Dissemination, and Implementation of Public Health Preparedness Response Research and Training* Project, the nine grantee projects accomplished their goals of synthesizing and disseminating research findings from the PERRCs and PERLCs resources and moving new knowledge resulting from public health preparedness response research and training into practice and policy. The grantees produced a collection of over 30 products, tools, and resources that were developed through collaboration with local, state, federal, and tribal public health preparedness and response partners and with support from the research community established by this project and previous PERRC and PERLC funding opportunities. The partners and intended users of the products and resources included state, local, territorial, and tribal health departments, tribes and tribal organization, professional association, academia, and health care organizations. This project served a crucial role in carrying select PHPR research outcomes to a community of practitioners that were appreciative of this collaboration and excited about the skills and lessons they had gained through the experience. Broader awareness of these products will be an important next step for increased implementation.