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## Factors Affecting Implementation of Evidence-Based Practices in Public Health Preparedness and Response

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### Abstract

**Context:** There is limited research on what factors are most salient to implementation of evidence-based practices (EBPs) among public health agencies in public health emergency preparedness and response (PHPR) and under what conditions EBP implementation will occur.

**Objective:** This study assessed the conditions, barriers, and enablers affecting EBP implementation among the PHPR practice community and identified opportunities to support EBP implementation.

**Design:** A Web-based survey gathered information from public health agencies. Data obtained from 228 participating agencies were analyzed.

**Setting:** State, local, and territorial public health agencies across the United States.

**Participants:** Preparedness program officials from 228 public health agencies in the United States, including Public Health Emergency Preparedness (PHEP) cooperative agreement awardees (PHEP awardees) and a random sample of local health departments (LHDs).

**Results:** Respondents indicated that EBP is necessary and improves PHPR functions and tasks and that staff are interested in improving skills for EBP implementation. Top system-level barriers to EBP implementation were insufficient funding, lack of EBP, and lack of clarity regarding which practices are evidence based. PHEP awardees were significantly more likely to report a lack of EBP in the field, whereas LHDs were significantly more likely to report a lack of incentives. The top organizational-level barrier was insufficient staff. Most respondents indicated their agency culture supports EBP; however, LHDs were significantly more likely to report a lack of support from supervisors and leadership. Few respondents reported individual barriers to EBP implementation.

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**Conclusions:** Findings indicate an opportunity to improve dissemination strategies, communication efforts, and incentives to support EBP implementation in PHPR. Potential strategies include improving awareness of and accessibility to EBPs through targeted dissemination efforts; building organizational capacity to support EBP implementation, particularly staff capacity, knowledge, and skills; and identifying funding and incentives to promote EBP uptake and sustainment.

### Keywords

emergency preparedness; evidence-based practice; governmental public health; public health

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The governmental public health system—including state, territorial, and local public health agencies—has a critical role in emergency preparedness and response, often leading decision making about efforts to address emergency incidents that threaten states and communities across the United States.<sup>1</sup> According to Brownson et al,<sup>2</sup> scientific evidence should always be used when making public health decisions and is particularly important for the governmental public health system because of its role in identifying and solving community health problems by developing appropriate programs and policies and ensuring their effective implementation. However, the evidence base to support activities in the public health emergency preparedness and response (PHPR) field is inadequate, according to researchers and experts, including a lack of evidence and research; research synthesis; widely accepted standards; evaluations of trainings that provide generalizable findings; ready-to-use models, products, and materials to support implementation; and resources to sustain uptake.<sup>3–8</sup> One challenge is in the preparedness field; there exists a research-to-practice gap, wherein the translation and implementation of knowledge to practice are inconsistent, the interests of academic researchers and the information needs of the PHPR practice community are mismatched, and support for the dissemination of evidence-based practices (EBPs) is inadequate.<sup>3</sup> Furthermore, information needs and knowledge vary between the state/territorial and local levels, with the local practice community reporting greater information needs and knowledge gaps, and less awareness of existing research, than states and territories.<sup>9</sup> While numerous factors are understood to have impeded the development of the evidence base for the PHPR field, no studies have systematically assessed what factors are most salient to EBP implementation among public health agencies specifically and under what conditions EBP implementation will occur. Recent work has called for the identification of key factors—specifically barriers—that affect EBP implementation in PHPR.<sup>10</sup>

In this study, we defined EBP in public health as “the development, implementation, and evaluation of effective programs and policies in public health through application of principles of scientific reasoning, including systematic uses of data and information systems, and appropriate use of behavioral science theory and program planning models.”<sup>11</sup>(p87) We also offered the following clarification to respondents in the survey instrument: *EBP does not include anecdotes or case studies of “best” or “promising” practices. EBP does not include personal experience, professional judgment, or intuition.* On the basis of a review of existing research from PHPR and other fields, we developed a framework to describe the range of system, organizational, and individual factors affecting EBP implementation in

PHPR (Figure). *System factors* affect the context and environment for EBPs and include legal and regulatory factors, guidance and support from various levels of government, academia, and professional organizations, including funding, and existence of applicable EBPs and guidelines for their use. *Organizational factors* relate to the characteristics of the setting in which EBP implementation may occur and include organizational culture, leadership support, staffing, training, and access to resources. *Individual factors* refer to personal characteristics, including skills, behaviors, preferences, attitudes, and beliefs. Each factor may encourage (act as an enabler) or inhibit (act as a barrier) EBP implementation, and some can be enablers or barriers, depending on the circumstances.

Based on a review of the literature in other fields, common system factors affecting EBP implementation include, for example, legal and regulatory factors,<sup>12</sup> guidelines for EBP use,<sup>13,14</sup> endorsement from professional organizations,<sup>13</sup> and government support via funding and policy guidance.<sup>15,16</sup> At the organizational level, factors affecting EBP implementation include organizational culture<sup>17–19</sup>; leadership support<sup>19,20</sup>; access to research evidence and information, including online databases<sup>17,21</sup>; training and professional development<sup>22,23</sup>; resources, capacity, staff, and time<sup>22,24,25</sup>; and communication, teamwork, and staff support.<sup>19,20</sup> Individual factors are related to skills and attitudes, including, for example, skills in research, identifying EBPs, incorporating research into practice,<sup>24,26,27</sup> and attitudes toward EBPs and research.<sup>13,23</sup>

This article describes the results of a study designed to assess the factors affecting EBP implementation by the PHPR practice community, including barriers, enablers, and conditions. The goal of the study was to help public health practitioners, policy makers, researchers, and funders better understand and address the barriers to and enablers of EBP implementation in the PHPR field. The study was collaboratively developed and implemented by researchers at NORC at the University of Chicago and the US Centers for Disease Control and Prevention (CDC), in partnership with the Association of State and Territorial Health Officials (ASTHO) and the National Association of County and City Health Officials (NACCHO).

## Methods

We conducted a Web-based survey of preparedness program directors from state, territorial, and local public health agencies to assess barriers to and enablers of EBP implementation in the PHPR practice setting. The survey instrument consisted of 102 questions addressing the following topics: demographics and agency characteristics; factors affecting EBP use, including organizational culture, access to and use of information sources, agency use of EBP, team skills in EBP and research, and training and education; barriers to EBP; and enablers of EBP. Survey questions were developed on the basis of information available in the published literature on EBP implementation in PHPR and other topics, including health care disciplines,<sup>28,29</sup> nursing,<sup>30</sup> alternative medicine,<sup>22,31</sup> and policy research,<sup>32</sup> and with input from experts at CDC, ASTHO, and NACCHO, and tailored to ensure relevance to PHPR.

In collaboration with ASTHO and NACCHO, we pretested the survey instrument with 9 public health agencies to obtain feedback on question content, navigability, and time to respond. Additional revisions to survey questions were made following the pretest. The NORC institutional review board (IRB) determined this research to be exempt from full IRB review, and CDC reviewed and concurred with reliance on NORC IRB's determination. The information collection was reviewed and approved by the Office of Management and Budget (OMB; on December 6, 2018; OMB Control no. 0920–0879) for compliance with the requirements of the Paperwork Reduction Act.

### Study sample and data collection

We sent the survey to the preparedness director or coordinator from a sample of state, local, and territorial public health agencies. This sample included the universe of agencies directly funded by CDC via the Public Health Emergency Preparedness (PHEP) cooperative agreement (PHEP awardees), along with a random sample of local health departments (LHDs). The PHEP awardees ( $n = 62$ ) represented the 50 states, 4 directly funded localities (Washington, District of Columbia; Los Angeles; Chicago; and New York City), and 8 US territories and insular areas (American Samoa, Guam, US Virgin Islands, Northern Mariana Island, Puerto Rico, Federal States of Micronesia, Republic of the Marshall Islands, and Republic of Palau). NACCHO developed the LHD sample ( $n = 500$ ), drawing from its membership database by oversampling large agencies, undersampling small agencies, excluding the 4 large cities in the PHEP awardee sample, and excluding LHDs serving jurisdictions with fewer than 10 000 individuals. The sampling frame of 2083 LHDs was stratified by population served (<50000; 50000–499000; and 500 000+) and geographic region (Northeast, Midwest, South, West). We removed LHDs with missing or duplicated staff contact information. We fielded the survey to the final sample of 529 public health agencies (62 PHEP awardees and 467 LHDs) during January and February 2019. We sent a total of 4 communications to the sample, including the initial invitation, which included a Web link to access the survey and background information and instructions, and 3 reminders. ASTHO leadership also sent 1 reminder to the PHEP awardee sample. The survey instructions indicated that the public health preparedness director or coordinator should complete the assessment. If the agency did not employ such an individual, we requested they designate a staff person with direct knowledge and/or primary responsibility for preparedness activities to complete the assessment.

### Data analysis

NORC researchers reviewed and cleaned the raw data, created one clean data file containing quantitative data and verbatim responses, and created a corresponding codebook. We conducted univariate analyses to calculate frequency distributions of the variables and response options. We applied Mann-Whitney  $U$  tests to assess differences between PHEP awardee and LHD respondents. All analyses were tested for significance at the .05 and .005 levels. We used a consensus-building process to reach agreement on categorizing questions as system, organizational, and individual factors, as described in the framework (Figure); 2 members of the research team categorized each question independently and then met to adjudicate discrepancies.

## Results

### Sample characteristics

We received 228 responses to the survey (45 PHEP awardees and 183 LHDs), including complete responses and partial responses from agencies that started but did not complete the assessment, resulting in an overall response rate of 43.5%. The response rate denominator excludes 5 unreachable LHD respondents. Nearly all respondents reported holding a leadership position in their agency's PHPR program (95.9%;  $n = 215$ ). The distribution of responding agencies' population sizes served and regions was similar to the overall sample (see Table, Supplemental Digital Content 1, available at <http://links.lww.com/JPHMP/A658>, which presents characteristics of responding agencies compared with the sample). Among LHD respondents, approximately one-third (33.3%;  $n = 61$ ) served a population of less than 50 000, about half (44.3%;  $n = 81$ ) served a population of between 50 000 and 499 999, and less than a quarter (22.4%;  $n = 41$ ) served a population of 500 000 or greater, compared with 41.2% ( $n = 197$ ), 37% ( $n = 173$ ), and 20.8% ( $n = 97$ ), respectively, of the LHD overall sample. Among PHEP awardee respondents, 37.8% ( $n = 17$ ) served a population of less than 2 100 000, 31.1% ( $n = 14$ ) served a population of between 2 100 001 and 6 100 000, and 28.9% ( $n = 13$ ) served a population of 6 100 001 or more, compared with 37.1% ( $n = 23$ ), 30.7% ( $n = 19$ ), and 30.7% ( $n = 19$ ), respectively, of the overall PHEP awardee sample. By Census region, approximately a quarter of study respondents and the overall sample were in each region (Northeast, Midwest, South, and West) among both LHDs and PHEP awardees. Approximately 13% of study respondents ( $n = 6$ ) and the overall sample of PHEP awardees ( $n = 8$ ) were from other regions.

### EBP conditions within the agency

Respondents were asked several questions related to EBP conditions within the agency. More than three-fourths of all respondents "strongly agreed" or "agreed" with the following statements (Table 1): EBP improves the quality of PHPR functions and tasks (86.2%;  $n = 175$ ); our health department and staff are interested in learning or improving the skills necessary to incorporate EBP into day-to-day PHPR activities (79.1%;  $n = 159$ ); and EBP is necessary to carry out PHPR functions and tasks (75.8%;  $n = 153$ ). LHD respondents were significantly more likely than PHEP awardee respondents to agree that the adoption of EBP places an unreasonable demand on PHPR functions and tasks ( $P = .04$ ).

### System factors

More than half of respondents rated the following system factors as a "moderate" or "major" barrier (Table 2): insufficient funding for EBP implementation in PHPR, including federal, state, local, and other sources (74.3%;  $n = 130$ ); lack of clarity regarding which PHPR practices are evidence based (60.3%;  $n = 105$ ); and lack of EBP in the field (54.6%;  $n = 96$ ). Fewer respondents rated the following as a "moderate" or "major" barrier: lack of incentive to participate in EBP in PHPR (44.3%;  $n = 78$ ); the range of adverse public health events is too wide for EBPs to be realistic (38.8%;  $n = 68$ ); lack of regulatory/federal agency requirements (35.3%;  $n = 62$ ); and lack of professional organization support (34.2%;  $n = 60$ ). PHEP awardee respondents were significantly more likely than LHD respondents to report a lack of EBP in the field of PHPR as a barrier ( $P = .005$ ), whereas LHD respondents

were significantly more likely to report a lack of incentive to participate in EBP in PHPR ( $P = .04$ ) as a barrier.

### Organizational factors

Organizational factors affecting EBP implementation in PHPR from the survey included questions related to organizational culture; barriers related to staffing, resources, and leadership support; and enablers related to access to materials, training, time, and rewards (Table 3). More than half of respondents “strongly agreed” or “agreed” their agency’s culture is one that values use of research evidence in decision making in PHPR (81.4%;  $n = 175$ ); the agency has a person who is a strong advocate for EBP in PHPR (65.2%;  $n = 140$ ); and research evidence is consistently included in the decision-making process related to PHPR planning, implementation, and evaluation (58.9%;  $n = 126$ ). Nearly three-fourths of respondents rated insufficient staff to support EBP implementation in PHPR as a “moderate” or “major” barrier (69.1%;  $n = 121$ ), whereas fewer reported the following: lack of resources (eg, access to a computer, the Internet, or online databases) for EBP in PHPR (25.2%;  $n = 44$ ); lack of buy-in/support from senior leadership (23%;  $n = 40$ ); and lack of buy-in/support from immediate supervisor (17.8%;  $n = 31$ ). The majority of respondents identified the following factors as “moderately” or “very” useful: access to online education materials (92.9%;  $n = 157$ ); having EBP training offered at your health department in PHPR (88.2%;  $n = 149$ ); paid time at work to review PHPR research and EBPs (85.2%;  $n = 143$ ); and rewards for evidence-based innovation (70.2%;  $n = 118$ ). LHD respondents were significantly more likely to report lack of buy-in/support from immediate supervisor ( $P = .02$ ) and from senior leadership ( $P = .04$ ) as barriers.

### Individual factors

Individual factors related to EBP implementation in PHPR included barriers related to skills, personal preference, and personal interest (Table 4). Overall, less than half of respondents rated the following individual factors as a “moderate” or “major” barrier: insufficient skills among staff for interpreting, critically appraising, and/or evaluating the literature (41.2%;  $n = 72$ ); insufficient skills among staff to apply research findings to PHPR activities (37%;  $n = 64$ ); preference to use own experience rather than research evidence when making decisions in PHPR (27%;  $n = 47$ ); and lack of personal interest in EBP in PHPR (22.9%;  $n = 40$ ). We did not find statistically significant differences between PHEP awardee and LHD respondents with respect to their perceptions of individual factors related to EBP use in PHPR.

### Discussion and Conclusion

This study describes the conditions, barriers, and enablers affecting EBP implementation within public health agencies in PHPR according to the practice community. At the system level, a perceived lack of evidence in the field was a top barrier to EBP implementation, and it is unclear to practitioners which practices are evidence based. These findings were consistent with prior work highlighting the deficiencies in the PHPR evidence base.<sup>3-8</sup> Differences between PHEP awardees and LHD respondents’ perceived system barriers—namely, lack of EBP and lack of incentives to participate in EBP—indicate variation across

the practice community by agency type in terms of EBP awareness and incentives for use. It is clear that targeted strategies are needed to improve the accessibility of the PHPR evidence base among public health agencies and to clearly identify those PHPR practices for which evidence currently exists at a level of quality acceptable to the field. While there also remains a need to build the PHPR evidence base by conducting additional, high-quality research, there are, perhaps more importantly, opportunities for wider dissemination, improved communication, and stronger incentives for EBP implementation, as well as tailored strategies that address differences in state and local needs. For example, professional organizations, academia, or funding agencies might target education and dissemination products by audience type or they may consider making EBP-related information and tools available in settings where PHEP awardees are likely to congregate, such as meetings or webinars targeting state/territorial health agencies or PHEP awardees, specifically. Similarly, funding agencies or professional organizations may consider developing funding opportunities for LHDs to implement or build capacity for EBP implementation. In addition, existing resources and repositories of evidence-based recommendations and practices in public health, including *The Community Guide* and the Cochrane Library, may be leveraged to support EBP dissemination in PHPR.

At the organizational level, findings suggest public health agency readiness to support the implementation of EBP in PHPR, regardless of the perceived lack of EBP and clarity regarding which PHPR practices are evidence based. Most respondents reported having supportive leadership, an EBP advocate, nonstaff resources, and a culture that values and uses research evidence in decision making. Notably, there were differences by agency type in perceived buy-in and support at the organizational level, with LHDs being more likely than PHEP awardees to cite leadership and supervisor support as a barrier. Despite the presence of organizational supports, respondents reported insufficient staff as a barrier to EBP implementation. Future efforts to strengthen organizational supports for EBP implementation should focus on workforce, including reinforcing and retaining existing staff and hiring staff with the appropriate skills and knowledge for identifying and implementing EBP in PHPR. It may also be beneficial to develop supports to facilitate management of staff workload and the provision of paid time for EBP research and implementation.

At the individual level, our findings suggest that staff have the skills and interest to implement EBP in PHPR. We found no significant differences between PHEP awardees and LHD respondents for any of the individual-level factors. These findings indicate that within both types of agencies, PHPR programs are not experiencing barriers related to individuals' skills, interests, or preferences for EBP implementation and that this is true for both LHDs and PHEP awardee agencies. However, there are still opportunities to address individual factors affecting EBP implementation in PHPR. For example, a sizable minority of respondents described lacking staff skills for EBP in PHPR and highlighted barriers related to personal interest and preference for using EBP in PHPR. As such, continued investments to bolster skills and provide education in the area of EBP among the PHPR workforce will support EBP implementation.

Taken together, study findings make the case for exerting the greatest focus on supporting EBP in PHPR at the system level. Individuals and organizations appear to have the skills,

culture, and interest to support EBP in PHPR, but limited understanding and awareness of EBP in the field hinder implementation. Described by researchers, such as Kreuter and Wang,<sup>33</sup> as the “push” (eg, evidence) and “pull” (eg, demand) of dissemination, our study indicates that the “pull” factors are present among potential adopters of EBP in PHPR whereas the “push” factors are lacking or insufficiently communicated to potential adopters by researchers or other EBP developers. Prior work from Baseman et al<sup>10</sup> illuminated the characteristics of innovations that may improve the likelihood of implementation in PHPR programs, including the value of innovation to the adopter, fit with the adopter’s mission and needs, ability to address PHPR and non-PHPR needs, and ability to address funder requirements. These characteristics should be considered by researchers seeking to develop EBP that will appeal to PHPR practitioners.

Even with this focus on system-level factors, there remain opportunities to improve supports and remove barriers at the individual and organizational levels in order to maintain agencies’ culture, skills, and interest that provide the necessary environment for the implementation and sustainment of EBP in PHPR.

It is important to note that some of these recommended strategies are already being undertaken or have been suggested by experts in the field since the start of our study. For example, in 2018, CDC charged the National Academies of Science, Engineering and Medicine with conducting an extensive national, systematic review and grading the process of PHPR evidence published from September 11, 2001, to the present.<sup>34</sup> In addition, preparedness experts have recommended that funders use language in their grants and cooperative agreements to promote or require use of EBPs and that funding agencies also collaborate with local and state “implementation champions” to encourage EBP implementation.<sup>3(pS386)</sup>

## Limitations

The following limitations should be considered when interpreting findings from the current study. First, while we sought to collect data on factors affecting EBP in PHPR at the organizational level, we fielded the survey to public health agency preparedness directors and coordinators. Thus, responses to the survey and our findings represent individual perspectives shared by PHPR program leaders, rather than agency-wide perspectives culled from staff at all levels. The second limitation concerns the sampling approach employed for the study. To bolster representativeness of the sample, our sampling approach did not include LHDs serving 10 000 or fewer individuals in their jurisdictions and stratified the sample by geographic region and population size. While less than half (39.6%) of the LHDs contacted completed the assessment, our analyses of sampling characteristics indicate that the respondents to the survey were fairly similar to the sample in terms of population size served and geographic region. Consequently, the generalizability of study findings is limited and the findings may not be representative of all LHDs in the United States.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.



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**Implications for Policy & Practice**

- Develop resources and ensure equal access to new and existing resources to support EBP in PHPR, such as high-quality materials that describe which practices are evidence based, and for what scenarios and populations; resources that describe outcomes of EBP implementation in a way that is easily understood by the target audience; and practice guidelines.
- Support the practice community in developing skills relevant to EBP in PHPR and employing and retaining staff with the necessary skills and time to implement EBP.
- For funding agencies, develop grant and cooperative agreement terms, funding opportunities, and incentives that promote the use of EBP in PHPR.
- For agency leaders, champion innovation and foster a culture emphasizing uptake and use of EBP in PHPR.

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**FIGURE.**

Framework of System, Organizational, and Individual Factors Affecting Implementation of Evidence-Based Practices in Public Health Emergency Preparedness and Response

TABLE 1

Percentage of Respondents Who Strongly Agreed or Agreed With Statements About EBP Conditions in PHPR<sup>a</sup>

	PHEP Awardees		LHDs		Overall	
	N	%	n	%	N	%
EBP improves the quality of PHPR functions and tasks	34	85	141	86.5	175	86.2
Our health department and staff are interested in learning or improving the skills necessary to incorporate EBP into day-to-day PHPR activities	32	80	127	78.9	159	79.1
EBP is necessary to carry out PHPR functions and tasks	30	75	123	76	153	75.8
EBP assists our health department in making decisions in PHPR	26	65	118	72.4	144	71
EBP in PHPR takes into account the needs and preferences of at-risk communities	27	67.5	111	68.1	138	68
Prioritizing EBP within PHPR is fundamental to the advancement of the field	26	65	110	67.5	136	67
Professional literature (ie, journals; textbooks) and research findings are useful in our organization's day-to-day work in PHPR	24	60	94	58	118	58.4
There is a lack of evidence to support most of the activities our health department carries out in PHPR work	16	40	39	23.9	55	27.1
The adoption of EBP places an unreasonable demand on PHPR functions and tasks <sup>b</sup>	3	7.5	35	21.7	38	18.8

Abbreviations: EBP, evidence-based practice; LHD, local health department; PHEP, Public Health Emergency Preparedness cooperative agreement; PHPR, public health emergency preparedness and response.

<sup>a</sup>Missing data vary by variable; present results overall (N = 201–203), for PHEP awardees (N = 40), and for LHDs (N = 161–163).

<sup>b</sup>Indicates statistical significance at the .05 level.

**TABLE 2**  
 Percentage of Respondents Who Reported System Factors as Moderate or Major Barriers to EBP in PHPR<sup>a</sup>

	PHEP Awardees		LHDs		Overall	
	n	%	n	%	N	%
Insufficient funding for EBP implementation in PHPR (including federal, state, local, and other sources)	25	73.5	105	74.5	130	74.3
Lack of clarity regarding which PHPR practices are evidence based	24	70.6	81	57.8	105	60.3
Lack of EBP in the field of PHPR <sup>b</sup>	23	67.7	73	51.4	96	54.6
Lack of incentive to participate in EBP in PHPR <sup>c</sup>	8	23.6	70	49.3	78	44.3
The range of adverse public health events is too wide for EBPs to be realistic	16	47.1	52	36.8	68	38.8
Lack of regulatory/federal agency requirements for EBP in PHPR	11	32.4	51	36	62	35.3
Lack of professional organization support for EBP in PHPR	10	29.4	50	35.5	60	34.2

Abbreviations: EBP, evidence-based practice; LHD, local health department; PHEP, Public Health Emergency Preparedness cooperative agreement; PHPR, public health emergency preparedness and response.

<sup>a</sup>Missing data vary by variable; present results overall (N = 174–176), for PHEP awardees (N = 34), and for LHDs (N = 140–142).

<sup>b</sup>Indicates statistical significance at the .005 level.

<sup>c</sup>Indicates statistical significance at the .05 level.

**TABLE 3**  
 Percentage of Respondents Who Reported Organizational Factors Related to EBP in PHPR<sup>a</sup>

	PHEP Awardee		LHD		Overall	
	n	%	n	%	N	%
Percentage reporting “strongly agreed” or “agreed”	37	90.2	138	79.3	175	81.4
The culture in our health department is one that values use of research evidence in decision making in PHPR	28	68.3	112	64.4	140	65.2
Our health department has a person who is a strong advocate for EBP in PHPR	23	56.1	103	59.5	126	58.9
Research evidence is consistently included in the decision-making process related to PHPR planning, implementation, and evaluation	23	67.7	98	69.5	121	69.1
Percentage reporting “moderate” or “major” barrier	10	29.4	34	24.1	44	25.2
Insufficient staff to support EBP implementation in PHPR	4	12.2	36	25.6	40	23
Lack of resources (eg, access to a computer, the Internet, or online databases) for EBP in PHPR	3	9.1	28	19.8	31	17.8
Lack of buy-in/support from senior leadership for EBP use in PHPR <sup>b</sup>						
Lack of buy-in/support from immediate supervisor for EBP use in PHPR <sup>b</sup>						
Percentage reporting “moderately” or “very” useful	32	94.1	125	92.6	157	92.9
Access to online education materials related to EBP in PHPR	32	94.1	117	86.7	149	88.2
Having EBP training offered at your health department in PHPR	26	78.8	117	86.7	143	85.2
Paid time at work to review PHPR research/EBPs	22	64.7	96	71.7	118	70.2
Rewards for evidence-based innovation in PHPR at your health department						

Abbreviations: EBP, evidence-based practice; LHD, local health department; PHEP, Public Health Emergency Preparedness cooperative agreement; PHPR, public health emergency preparedness and response.

<sup>a</sup>Missing data vary by variable; present results overall (N = 168–215), for PHEP awardees (N = 33–41), and for LHDs (N = 134–174).

<sup>b</sup>Indicates statistical significance at the .05 level.

**Percentage of Respondents Who Reported Individual Factors as Moderate or Major Barriers to EBP in PHPR<sup>a</sup>**

**TABLE 4**

	PHEP Awardees		LHDs		Overall	
	N	%	n	%	N	%
Insufficient skills among staff for interpreting, critically appraising, and/or evaluating the literature	19	55.8	53	37.6	72	41.2
Insufficient skills among staff to apply research findings to PHPR activities	14	43.7	50	35.4	64	37.0
Preference to use own experience rather than research evidence when making decisions in PHPR	11	32.3	36	25.8	47	27.0
Lack of personal interest in EBP in PHPR	6	17.7	34	24.1	40	22.9

Abbreviations: EBP, evidence-based practice; LHD, local health department; PHEP, Public Health Emergency Preparedness cooperative agreement; PHPR, public health emergency preparedness and response.

<sup>a</sup>Missing data vary by variable; present results overall (N = 173–175), for PHEP awardees (N = 32–34), and for LHDs (N = 140–141).