BRIEF REPORT

Engaging Local Health Departments in Disaster Research: A Washington State Survey

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ABSTRACT

Objective: Disaster research can inform effective, efficient, and evidence-based public health practices and decision making; identify and address knowledge gaps in current disaster preparedness and response efforts; and evaluate disaster response strategies. This study aimed to identify challenges and opportunities experienced by Washington State local health departments (LHDs) regarding engagement in disaster research activities.

Methods: An online survey was disseminated to the emergency preparedness representative for the 35 LHDs in Washington State. Survey questions sought to assess familiarity and experience with disaster research, as well as identify facilitators and barriers to their involvement. The survey was first piloted with 7 local and state public health emergency preparedness practitioners.

Results: A total of 82.9% of Washington's 35 LHDs responded to our survey. Only 17.2% of respondents had previous experience with disaster research. Frequently reported barriers to engaging in disaster research included funding availability, competing everyday priorities, staff capacity, and competing priorities during disaster response.

Conclusions: These findings can inform efforts to support disaster research partnerships with Washington State LHDs and facilitate future collaboration. Researchers and public health practitioners should develop relationships and work to incorporate disaster research into LHD planning, training, and exercises to foster practice-based disaster research capacity.

Key Words: local health departments, disaster research response, public health preparedness

Disasters can be catastrophic events that cause wide-ranging health effects. Research in the immediate aftermath plays a critical role in answering questions about the health impacts disasters impose, as well as examines the most efficient ways to prepare for future disasters and implement response and recovery efforts.[1]

The conduct of disaster research provides an opportunity to enhance knowledge of short- and long-term health effects and address knowledge gaps in current disaster preparedness and response. However, it requires rapid mobilization of researchers and coordination with community partners to collect "perishable data" that may no longer be available once recovery is underway. Moreover, research efforts must be well-integrated into the response plan to not impede response priorities or interfere with the safety, speed, or effectiveness of responders.[2]

The lack of established disaster research infrastructure and networks has previously led to missed opportunities to conduct such research that improves understanding of disaster health impacts and public health disaster management strategies. For example, following the Deepwater Horizon oil spill, there was a 10-month delay in the initiation of data collection in a longitudinal study of relief workers.[1] Following H1N1, delays in site-level institutional review board approval of data collection protocol modifications prevented study findings from being applied in the context of the pandemic and from collecting data about severe or fatal cases.[1]

Promoting collaboration between academic researchers and public health practitioners can enhance researcher capacity to conduct disaster research, as well as promote research that yields actionable, translatable, and implementable results. Yet, establishing "relationships, coordination, and engagement" has been identified as 1 of the 4 main challenges to disaster research.[2] In response, we surveyed Washington State local health departments (LHDs) to understand their interests, experiences, and challenges related to partnering with academics on disaster research. Insight from these findings can inform the development of academic-practice partnerships that enhance disaster science and public health emergency preparedness and response in Washington State and beyond.

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METHODS

An online survey was created and distributed through SurveyMonkey (San Mateo, CA) to the emergency preparedness director or representative for each of the 35 LHDs in Washington State. Each survey was distributed on April 4, 2018, using a link provided through email to the identified emergency preparedness director, and was open for 3 weeks. For LHDs that did not have an emergency preparedness director, the email was sent to the environmental health director or equivalent role that could answer questions on behalf of the department.

Respondents initially had 2 weeks to complete the survey and then received follow-up reminders by email and/or phone. One survey response per LHD was requested; invited respondents were encouraged to coordinate with other department personnel to complete the survey on behalf of the LHD.

The survey included 24 questions that sought to assess respondents' familiarity and experience with disaster research, identify perceived facilitators and barriers to their engagement in disaster-related research activities, and their interest in future collaboration on disaster-related research. One survey question was adapted from a national survey on emergency preparedness conducted by the NORC at the University of Chicago.[3] The survey was piloted with 7 local and state public health preparedness practitioners from across the United States. They provided written feedback on the survey using SurveyMonkey's commenting feature or by means of email response, which was incorporated to improve question salience and clarity before distribution. Summary statistics were calculated using Microsoft Excel. Missing responses (i.e., item nonresponse) were excluded at the question level, and summary statistics were calculated using only the actual responses for each individual survey question.

The study was determined to be exempt by the University of Washington Human Subjects Division.

RESULTS

There was an 82.9% ($n = 29$) response rate among the surveyed Washington State LHDs. Among respondents, 17.2% had previous experience with disaster research. Additionally, 41.4% had an existing relationship with researchers on disaster preparedness and emergency response.

Washington State LHDs had the greatest interest in research on infectious diseases (62.1%), wildfires (44.8%), severe weather (41.4%), earthquakes (41.4%), flooding (31.0%), water contamination (31.0%), landslides (27.6%), and critical infrastructure damage (27.6%) (data not shown).

Topics of interest for future collaboration were provided and are outlined in Table 1. From the provided topics of interest, the top 3 selected topics were: determination and evaluation of "at-risk populations" (59.3%), reach and impact of public health messaging and risk communication techniques (55.6%), and social connectedness and community recovery (51.9%). Most (70.4%) respondents expressed interest in attending a regional/statewide workshop to develop disaster research priorities and processes (data not shown, $n = 27$ question responses).

Table 1 also describes the most common relationships held between LHDs and researchers related to disaster research and other issues not related to disasters. While only 27.6% of respondents reporting having no relationship with researchers on issues other than disaster preparedness and emergency response, over half (51.7%) reported having no prior relationships with researchers on issues related to disaster preparedness and emergency response.

Respondents reported high rates of collaboration related to designing, conducting, analyzing, and interpreting disaster research with state health departments (62.1%) and other LHDs (55.2%). Only 37.9% of respondents reported collaborating with academics on disaster research (data not shown).

Table 2 outlines Washington State LHDs' barriers and considerations when engaging with researchers on disaster research. Considerations include: the communities that will be the subject of research will be able to give their full consent to participation, the health department leadership will support the research, the researchers will share their results in a useful format, and there will be low/no costs to participation. Frequently reported barriers impacting LHD disaster research engagement included funding availability, competing priorities during disaster response, competing everyday priorities, and staff capacity.

DISCUSSION

Our findings indicate that there are existing collaborations among Washington State LHDs and researchers on a variety of topics, and that there is an interest in pursuing collaborative disaster research activities.

Only 17.2% of Washington State LHDs reported engagement in disaster research. The low participation rate may be attributed to the reported barriers to disaster research involvement that prohibit LHDs from engaging in disaster research; addressing these barriers could make disaster research involvement more relevant and feasible.

The frequently reported barriers impacting LHD engagement in disaster research include funding, competing everyday and disaster priorities, and lack of staff capacity (Table 2). Yet, interest in disaster research, and identification of research issues and academic partners were rarely reported as barriers. Many disaster research activities may provide mutual benefit to the LHD's operational focus before and after a disaster (e.g., collection of data by researchers in the immediate aftermath of a disaster can inform LHD response or recovery priorities and/or help to evaluate response strategies). As such, researchers and LHDs should focus on collaboratively identifying and planning for

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TABLE 1

Washington State Local Health Department Disaster Topics of Interest and Relationships With Researchers on Disaster and Non-disaster Topics

Topics of Interest for Future Research Collaboration ($n = 27$)[a]	
Determination and evaluation of "at-risk" populations	59.3%
Assessment of the reach and impact of public messaging and risk communication techniques	55.6%
Social connectedness and community recovery	51.9%
Social connectedness and community preparedness	44.4%
Incorporation of community and non-traditional members in recovery efforts	40.7%
Effectiveness and timeliness of response strategies	37.0%
Impact of internal preparedness activities on response abilities	37.0%
Allocation and provision of resources (e.g., medical countermeasures, personal protective equipment) during a response	37.0%
Effectiveness of response structures/models	33.3%
Evaluation of system's capacity to support medical surges and mass care post-disaster	33.3%
Incorporation of community and non-traditional members in preparedness efforts	33.3%
Evaluation of system's capacity to support medical surges and mass care during a response	33.3%

Type of Relationship With Researchers	Related to Disaster Preparedness and Emergency Response ($n = 29$)[a]	On Issues Other Than Disaster Preparedness and Emergency Response ($n = 29$)[a]
They provide subject matter expertise as needed	20.7%	37.9%
They serve as part of our planning or other standing committees	3.5%	10.3%
We support their research (e.g., as participants)	13.8%	17.2%
We work on community-based participatory research together (i.e., we work alongside researchers to collaboratively design and implement research projects)	13.8%	31.0%
We collaborate on the design of practice-based tools and resources (e.g., training and exercise plans)	10.3%	10.3%
We host student research projects	3.5%	20.7%
They evaluate our programs	6.9%	10.3%
No relationship	51.7%	27.6%
I don't know	6.9%	17.2%

[a] Missing responses (i.e., item nonresponse) were excluded at the question level, and summary statistics were calculated using only the actual responses for each individual survey question. The total number of responses for each question is indicated as (n = number of responses).

disaster research activities that enhance, rather than detract from, everyday and disaster response priorities.

Planning and practicing how to integrate disaster research into responses through the use of trainings and exercises can help to identify synergistic disaster research opportunities. A tabletop exercise hosted by the National Institute of Environmental Health Sciences (NIEHS) found that disaster research should be integrated into existing incident management structures to promote organized and coordinated disaster response.[4] Our findings demonstrate interest among the LHD community in participating in similar workshops. Locally driven exercises in Washington State and beyond may be able to identify and clarify disaster research projects and partners and develop a strategy for integration of researchers into preparedness, response and recovery activities.

To support the development of a disaster research infrastructure in Washington State, we propose the establishment of a workgroup comprised of interested and engaged public health professionals, emergency response partners, academics, and scientific agencies to: identify specific disaster research projects, develop and validate disaster research protocols, secure advance human subjects review and approval, develop and administer disaster research training, incorporate disaster research into community-level exercises, and conduct outreach about the importance of disaster research and opportunities for community-level engagement.

Limitations

The survey was only disseminated in Washington State, and the results may not be generalizable to other states. The major hazards of interest in Washington State are not hazards that are likely to be experienced in all regions of the United States. In addition, only one survey response per health department was requested. While invited respondents were encouraged to coordinate with other knowledgeable department personnel, the survey responses may not be reflective of the activities or opinions of the entire health department. Finally, non-respondents at the unit or item level may be systematically different than respondents.

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TABLE 2

Experienced or Perceived Barriers and Factors Considered by Washington Local Health Departments When Engaging With Researchers on Disaster Research

Experienced or Perceived Barriers to Washington Local Health Departments Engagement in Disaster Research

	n[a]	Not a Barrier	Minor Barrier	Neutral	Moderate Barrier	Extreme Barrier	Average
Funding availability	27	3.7%	3.7%	7.4%	25.9%	59.3%	4.33
Other priorities during disaster response (e.g., life safety)	27	0.0%	3.7%	14.8%	44.4%	37.0%	4.15
Other everyday priorities	27	0.0%	7.4%	7.4%	48.2%	37.0%	4.15
Staff capacity	27	11.1%	0.0%	7.4%	33.3%	48.2%	4.07
Clear advantages/benefits	27	18.5%	11.1%	14.8%	29.6%	25.9%	3.33
Physical proximity to relevant researchers	27	14.8%	11.1%	22.2%	40.7%	11.1%	3.22
Legal and administrative regulations	27	7.4%	22.2%	29.6%	25.9%	14.8%	3.19
Identification of appropriate academic partner	27	25.9%	3.7%	29.6%	25.9%	14.8%	3.00
Identification of research issues	26	19.2%	7.7%	42.3%	26.9%	3.9%	2.88
Interest in research	26	26.9%	15.4%	30.8%	19.2%	7.7%	2.65

Factors Considered by Washington Local Health Departments When Engaging With Researchers on Disaster Research

	n[a]	Not Important	Low Importance	Neutral	Moderate Importance	High Importance	Average
The communities that will be the subject of research will be able to give their full consent to participation	28	0.0%	0.0%	10.7%	10.7%	78.6%	4.68
The researchers will share their results in a useful format	29	0.0%	0.0%	3.5%	44.8%	51.7%	4.48
There will be low or no costs to our participation	29	0.0%	0.0%	13.8%	24.1%	62.1%	4.48
The health department leadership will support the research	29	0.0%	0.0%	13.8%	24.1%	62.1%	4.48
The research activities will not place undue burden on the communities served by the health department	28	0.0%	0.0%	10.7%	32.1%	57.1%	4.46
The research findings will have a clear benefit for the community	29	0.0%	0.0%	6.9%	41.4%	51.7%	4.45
The research topic is relevant and/or based on recent events	29	0.0%	0.0%	10.3%	37.9%	51.7%	4.41
The research findings will have a clear benefit for the program/department	29	3.5%	3.5%	6.9%	24.1%	62.1%	4.38
The researchers will share their results in a timely manner	29	0.0%	0.0%	10.3%	55.2%	34.5%	4.24
The research findings will be practical and easy to implement	29	0.0%	3.5%	13.8%	37.9%	44.8%	4.24
The researchers will make an active effort to build trust in the communities served by the health department	29	0.0%	3.5%	17.2%	34.5%	44.8%	4.21
The researchers will make an active effort to build trust with health department staff	29	0.0%	3.5%	27.6%	34.5%	34.5%	4.00
The development of working relationships with researchers today will lead to future collaboration	29	0.0%	6.9%	37.9%	34.5%	20.7%	3.69
The research findings will have a clear benefit for the research community	29	0.0%	10.3%	48.3%	34.5%	6.9%	3.38

[a]Missing responses (i.e., item nonresponse) were excluded at the question level, and summary statistics were calculated using only the actual responses for each individual survey question. The total number of responses for each question is indicated in the "*n*" column.

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CONCLUSION

There is an interest in disaster research among LHDs in Washington State. Working to build disaster research infrastructure, both in Washington State and beyond, can improve understanding of the public health consequences of disasters. Public health practitioners, emergency response partners, academics and scientific agencies can build disaster research infrastructure by incorporating disaster research into plans, training, exercises, and outreach efforts.

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