Perceived Facilitators and Barriers to Local Health Department Workers' Participation in Infectious Disease Emergency Responses

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Abstract

Context—Local health departments play a key role in emergency preparedness and respond to a wide range of threats including infectious diseases such as seasonal influenza, tuberculosis, H1N1, Ebola, and Zika. To successfully respond to an infectious disease outbreak, local health departments depend upon the participation of their workforce yet studies indicate that sizable numbers of workers would not participate in such a response. The reasons why local health department workers participate, or fail to participate, in infectious disease responses are not well understood.

Objective—To understand why local health department workers are willing, or not willing, to report to work during an infectious disease response.

Design—From April 2015 to January 2016 we conducted 28 semi-structured interviews with local health department directors, preparedness staff, and non-preparedness staff.

Setting—Interviews were conducted with individuals throughout the U.S.

Participants—We interviewed 28 individuals across three groups: local health department directors (n=8), preparedness staff (n=10), and non-preparedness staff (n=10).

Main Outcome Measures—Individuals' descriptions of why local health department workers are willing, or not willing, to report to work during an infectious disease response.

Results—Factors that facilitate willingness to respond to an infectious disease emergency included: availability of vaccinations and personal protective equipment; flexible work schedule and childcare arrangements; information sharing via local health department trainings; and perceived commitments to one's job and community. Factors that hinder willingness to respond to

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an infectious disease emergency included: potential disease exposure for oneself and one's family; logistical considerations for care of children, the elderly, and pets; and perceptions about one's role during an infectious disease response.

Conclusions—Our findings highlight opportunities for local health departments to revisit their internal policies and engage in strategies likely to promote willingness to respond among their staff.

Introduction

Local health departments (LHDs) implement programs and services to protect and promote the public's health, such as providing vaccines to children and adults and inspecting food service establishments and daycare facilities.[1] In addition to these day-to-day functions, LHDs play a key role in emergency preparedness and respond to a range of threats including natural and human-generated disasters[2]: they develop and execute emergency plans, conduct preparedness drills and exercises for staff, coordinate volunteers to participate in responses, liaise with other governmental agencies, and communicate with the public as events unfold.[3]

The last decade has underscored the critical need for and challenge to LHDs' institutional agility and responsiveness to a broadening array of infectious disease threats. From pandemics including H1N1 in 2009 and Ebola in 2014 to on-going responses to Zika to more routine responses to tuberculosis and seasonal influenza, LHDs are on the front lines of infectious disease responses.[1] To successfully respond to an infectious disease outbreak, LHDs rely on their workforce. While willingness to respond during infectious disease emergencies has been studied among health care professionals, less is known about response willingness toward such events among the LHD workforce.[4,5,6] The relatively small number of studies focused on this population have found that response willingness is scenario-specific, with approximately 91% of LHD workers willing to respond to pandemic influenza compared to 80% for an anthrax bioterrorism incident.[7,8,9] In addition, LHD workers' roles influence their response willingness, with clinical staff more likely to indicate willingness to respond in an influenza outbreak.[10]

It is important to note that a successful LHD response often requires an all-hands-on-deck approach and LHDs have limited means to compel staff to participate. Thus, if ten percent of the workforce does not participate, the success of the response will be compromised. Given this realization, LHDs would benefit from understanding the factors that facilitate or hinder their employees' participation in infectious disease responses. One survey found that essential workers – which includes LHD workers – considered options for child, elder, and pet care to be facilitators of response willingness; family obligations were viewed as the greatest barrier.[11] Another survey concluded that LHD workers were most concerned about their family's health and safety, followed by their own health and safety during a hypothetical influenza response.[9]

While extant studies provide helpful contextual information, they do not offer an in-depth understanding of the reasons why LHD workers participate in infectious disease responses. More information is needed to clarify why LHD staff would or would not respond, thus enabling LHDs to potentially make changes that would facilitate response willingness. To address this gap, we conducted semi-structured interviews with directors, emergency preparedness staff, and non-emergency preparedness staff from LHDs throughout the United States. Interviews focused on individuals' perceptions of factors that facilitate or deter participation in an infectious disease response for themselves and their co-workers. Common themes within and across groups are presented, followed by a discussion of how these findings might assist LHDs to develop policies that promote the willingness of staff to respond to an infectious disease emergency.

Methods

Recruitment

In 2014, in an earlier stage of this project (results reported elsewhere),[12,13] we collaborated with NACCHO to identify potential participants for two focus groups we conducted at the 2014 NACCHO Preparedness Summit. One hundred twenty-nine individuals responded to an email sent to those registered to attend the Summit. After identifying 24 individuals to participate in our focus groups, we offered to keep the names of those interested to be contacted in the future about participating in an in-depth interview. From this group, we created a purposive sample for the present study of directors/managers (i.e., responsible for overseeing at least two employees); emergency preparedness staff (i.e., did not hold a supervisory role and whose job title indicated that they focused on emergency preparedness and response); and non-emergency preparedness staff (i.e., did not hold a supervisory role and whose job title indicated they did not focus on emergency preparedness, such as clerical and information technology staff). We supplemented this sample by asking LHD directors referred to us by NACCHO to forward an email on our behalf to their staff. All potential participants were contacted via email with a letter explaining the purpose of the study.

Interview Guide

All interviews were conducted in accordance with a common interview guide. The guide was developed to further explore issues that arose during a set of focus group discussions conducted in 2014. The guide was also informed by a review of the literature and the study team's prior work. The interview guide included the following key domains: roles and responsibilities during an infectious disease outbreak; concerns and values relative to reporting to work for an infectious disease emergency response; personal commitments; and barriers and facilitators to participation in an infectious disease response. After piloting, the interview guide was slightly revised and reorganized to improve interview flow and reduce redundancy.

Data Collection

We conducted semi-structured interviews by telephone with LHD employees between April 2015 and January 2016. Interviews were conducted by three members of the study team (LR, HAT, AP). Prior to each interview, a disclosure statement was reviewed with the

participant. At the interview's conclusion, participants were asked a series of demographic questions. All interviews were digitally recorded and transcribed. Members of the study team reviewed all transcripts, validated them against the digital recording, and redacted identifying information. Each interviewee received a $35 Amazon gift card following completion of the interview. Interviews ranged from 25 to 56 minutes.

Data Analysis

Following each interview, members of the study team created a content summary sheet in which emerging themes and patterns were noted. The summary sheets informed the development of a codebook, which captured key themes and findings.[14] Two members of the study team (AP, LR) piloted the codebook on a 20% sub-sample of transcripts (two transcripts from each of our three employee groups). Any inconsistencies were resolved through discussion, and the codebook was subsequently refined and finalized. To organize our data and facilitate interpretation of our findings, all transcripts were coded in QSR Nvivo v11 (Burlington, MA, U.S.). Coded data were then repeatedly reviewed to identify common themes and sub-themes. This study was categorized as exempt from review by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board.

Results

We conducted 28 interviews with 8 directors, 10 emergency preparedness staff, and 10 non-preparedness staff from across the U.S. (Table 1). Of the 34 individuals we contacted, four no longer worked at an LHD, three did not respond, and one declined due to limited availability. Below we describe common themes that emerged within and among these groups. While some interviewees drew on prior experience with infectious disease responses, others lacked direct experience and responded based on a hypothetical infectious disease emergency.

Factors that deter participation in an infectious disease response

Interviewees identified three broad areas of concern that might hinder the willingness of LHD workers to respond to an infectious disease emergency: 1) potential disease exposure for oneself and one's family; 2) logistical considerations for care of children, the elderly, and pets; and 3) perceptions about one's role during an infectious disease response. (Table 2).

Across all three groups, risk of personal exposure to an infectious disease was frequently viewed as a reason that individuals might not be willing to participate in a response. As one director stated, "Number one is just actually your own personal risk…how communicable is that disease or how would it be communicated…. [T]here's a difference between things that are airborne, you know, fluid-borne, that kind of thing." (Director-3). Several directors mentioned that absence of a vaccine or effective treatment may further hinder willingness to respond. In the words of one director, "It's just a different ball of wax when you're dealing with an infectious disease where there's no vaccine and no cure." (Director-3).

Many interviewees from all three groups also noted that concerns about exposing one's family to an infectious disease could hinder response participation. One non-preparedness staff member summarized this sentiment as follows: "Well the first thing would definitely be

family and if there were dangers to my family that would be big." (Non-preparedness-8). A preparedness staff member further explained that LHD workers may "just have too high of a concern that even if they could protect themselves that there's that possibility that they could give something to their family." (Preparedness-7). This concern was described as particularly strong for parents: "You're not going to get the young people who have children at home; you won't get them, because they're afraid of taking it home to their family." (Director-5).

Across all three groups, most interviewees raised logistical considerations for care of children and the elderly as potential barriers to response participation. According to one director, "It isn't just that they might be spreading the disease, but the fact that…who's going to take care of their kids?" (Director-3). A non-preparedness staff member echoed this point stating, "I think the only thing that would keep people away is if they truly did not have anyone else to care for their children or elderly parents or something like that…." (Non-preparedness-3).

Pet care also poses challenges to LHD worker participation in infectious disease responses. As one director noted, "Believe it or not people, their concern about their pets can sometimes be more than for their own family members." (Director-5). A preparedness staff member explained, "So the biggest thing that we have been asked to do…is look for a place to put people's pets, to board pets, like at the SPCA to temporarily board pets." (Preparedness-9).

Finally, several preparedness and non-preparedness staff mentioned that perceptions about one's role during an infectious disease response might deter some individuals from participating. According to one preparedness staff member, "I would say it would be either people that feel like their role is not important so it doesn't matter that they're not there. Or individuals that feel like they wouldn't be able to do what's asked of them…." (Preparedness-7). A few interviewees noted that this sentiment might be more common among clerical staff.

Factors that facilitate participation in an infectious disease response

Interviewees identified four factors that may facilitate LHD workers' willingness to respond to an infectious disease outbreak: 1) availability of vaccinations and personal protective equipment; 2) flexible work schedule and childcare arrangements; 3) information sharing via LHD trainings; and 4) perceived commitments to one's job and community. (Table 3).

A majority of interviewees in the director and preparedness staff groups viewed the availability of vaccinations and PPE for staff as facilitators of response willingness. One director explained that staff are told, "We're not going to put you in harm's way until you have PPE, vaccines, medications or any combination of the like." (Director-6). Across all three groups, some interviewees noted availability of vaccinations and countermeasures for LHD workers' families as a factor that may improve response willingness. A preparedness staff member similarly stated, "We have a plan to provide medication to first responders and their families…so that their families are okay and they're willing to come help us." (Preparedness-7). A non-preparedness staff member mentioned the efficacy of this approach:

"[E]ven if you're vaccinated, if my wife and mother-in-law both got the flu in my household, I'm at a greater risk of contracting it…. So, it would make more sense on a public health basis as emergency responders to have our entire family vaccinated." (Non-preparedness-5).

Preparedness and non-preparedness staff discussed the importance of flexible work schedule arrangements to promote willingness to respond. One preparedness staff member stated about the option to work from home, "I think that that's really a good idea because it just offers that flexibility." (Preparedness-5). A non-preparedness staff member confirmed this sentiment, explaining, "The flexibility of being able to work from home is in that arena of helping out in the family, yeah, definitely." (Non-preparedness-3).

Both groups also mentioned the potential for flexible workplace childcare policies to facilitate response willingness (i.e., allowing children to accompany their parents to work or providing childcare on site on an ad hoc basis). According to one preparedness staff member, "We have had some staff say they would be more willing if they could bring their kids with them…." (Preparedness-9). A non-preparedness staff member explained that workplace childcare during emergency responses would be beneficial if "you knew the staff at that facility and what they had for your child or children…." (Non-preparedness-7).

Several directors and preparedness staff identified different trainings that may improve response willingness. According to one director, using trainings to provide information about the relevant science is critical: "[W]e did a training on Ebola…what are the real facts. Because a lot of times what people imagine is much worse than reality and so if you can educate people about their risk factors and what the real risks to them are…they're more willing to take on the responsibility…." (Director-5). A preparedness staff member mentioned the importance of training to mitigate concerns about PPE: "I think the PPE exercise helped with that, because it was…said to them if you are sensible about how you handle this PPE, there's no particular reason to be concerned." (Preparedness-10).

Finally, across some interviewees in all three groups, perceived commitments to one's job were viewed as facilitating response willingness. A preparedness staff member stated, "I mean just purely being dedicated to your job I think is the main reason why people would come to work." (Preparedness-1). A non-preparedness staff member supported this sentiment, saying, "So, here I feel like…that's part of my job is to assist in any health emergency. I'm public health." (Non-preparedness-5).

Perceived commitments to one's community were also identified by a few interviewees as facilitating response willingness across the three groups. According to one director, "Our community is counting on us when something like this happens…." (Director-2). A non-preparedness staff member similarly stated, "But as a whole, the Health Department… everybody knows that you really, really need to report to work, because, you know, this place, you know, the community kind of depends on you." (Non-preparedness-6).

Discussion

Threats posed by infectious disease outbreaks are constant and challenging, and LHDs must be prepared to respond.[15] Our results, while generally consistent with limited prior research about response willingness among LHD workers, expand on these findings and provide new insights into steps LHDs can take to bolster infectious disease response participation.[9,11]

Across all three groups, potential disease exposure for oneself and one's family was viewed as a barrier to infectious disease response willingness. Conversely, availability of vaccines and/or countermeasures for staff and their families was viewed as a facilitator of response willingness. This suggests that, whenever possible, LHDs should devote resources to securing vaccines and/or countermeasures for staff and their families.[16] Plans for providing vaccines to staff and families during a more common infectious disease response (e.g., seasonal influenza) may differ from those for emerging infectious diseases.[17] Once LHDs commit to protecting staff and their families with vaccines and countermeasures, they should consider how different infectious disease scenarios might impact access and distribution of these materials.

Logistical considerations for care of children, the elderly, and pets were identified as a barrier to infectious disease response willingness by all three groups. Yet, only the preparedness and non-preparedness staff mentioned potential solutions to this challenge, including flexible work schedules and childcare arrangements. LHD directors can learn from these recommendations. While temporary or emergency work-based childcare may be expensive or logistically challenging, it has been found to facilitate response willingness and participation among hospital-based workers.[18,19,20] LHDs should also take measures to allow as many staff as possible to participate in an infectious disease response from a remote location. This flexibility addresses staff concerns about disease exposure and may allow staff to respond while simultaneously respecting caregiving arrangements for children, the elderly, and pets.

A final area of consensus among all three groups concerned perceived commitments to one's job and community as a facilitator of response willingness. While these commitments are ultimately determined by individuals themselves, LHDs should find ways to support these perceptions among staff who share them and foster them among staff who may not. For example, preparedness and non-preparedness staff noted that non-clinical staff may be less willing to participate in an infectious disease response because their response role is unclear or appears to lack value. If these staff have a role during a response then, through trainings and exercises, LHDs can help them understand the importance of their role within the LHD and for the larger community. Prior research has found that LHD workers' response willingness increases when their sense of efficacy (i.e., ability to understand and execute their response role) improves.[21]

Despite multiple strengths, our study also has several limitations. First, we used purposive sampling to identify possible interviewees. Individuals in the sample had expressed interest in the topic of our study or were identified as likely having an interest, meaning that may have been more likely to participate in an interview than other LHD staff. Second, although

we included three distinct types of LHD employees, our findings may not be broadly generalizable as they reflect interviewees' personal experiences and the unique context of their LHD.

Implications for Policy and Practice

LHD responses to infectious disease emergencies depend upon the willingness of staff to participate. After conducting interviews with LHD directors, preparedness staff, and non-preparedness staff, we identified key facilitators and barriers to response willingness. As LHDs face the persistent threat of infectious diseases, they must account for response willingness when planning for and fielding emergency responses. Our findings highlight opportunities for LHDs to revisit their internal policies and engage in strategies likely to promote response willingness to infectious disease emergencies among their staff.

Acknowledgments

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Table 1

Demographic Factors by Interviewee Staff Type

Staff Type	Gender		Age			Race/Ethnicity[+]				Level of Education		
	Male	Female	25–39	40–59	60	White	Black	Hispanic	Other	Some College	College	Graduate
Director/Manager[*]	2	6		4	3	8		1			3	5
Emergency Preparedness	2	8	5	4	1	6	1	2	1	1	2	7
Non-emergency preparedness	3	7	2	5	3	6	1	3	2	1	3	6

[*] One director/manager declined to provide their age

[+] Some interviewees identified as multiple categories within race/ethnicity

Table 2

Factors that deter U.S. local health department workers' participation in an infectious disease response, April 2015 to January 2016

Factors that deter participation in an infectious disease response	Representative Quotation
Potential disease exposure for oneself and one's family	"So with H1N1 almost everybody in our health department participated in those clinics but the risk wasn't super high…. But if it were something like that was scarier or at a higher risk like Ebola if we had to do actual direct monitoring of people that could be sick I think we would see less people willing to participate." (Preparedness-7) "I truly think the biggest barrier is fear of the unknown and lack of willingness to learn about it because they just don't want to put themselves in harm's way. I'm not going to bring something to my family." (Preparedness-2)
Logistical considerations for care of children, the elderly, and pets	"You know, I mean, I've got people who are single parents or as good as and that they, you know, they're going to take care of their family first, which, you know, you can't blame them. So, but if that wasn't the case, if they didn't have children or it they had an equal partner or something like that, then that wouldn't be a problem. But those barriers that are in place, there's nothing we can do about that, you know." (Preparedness-8). "I have the four-footed ones, and so I have to make arrangements, because sometimes when we respond at the Emergency Operations Center or here it's for a long time period…. I think those are real concerns that we have to address in a meaningful way." (Director-2)
Perceptions about one's role during an infectious disease response	"A lot of things that I hear is, 'It's not my job.' 'I'm not worried about anybody but me.' I mean it's not uncommon for staff to have a fairly egocentric perspective. I would say that is much less so among the so-called professional staff, the licensed staff, the sanitarians and nurses and health educators." (Preparedness-11) "I mean, you know, a city worker who sits at a desk and answers the phone for 24 years, you know, she might object to being, you know, thrown in a very chaotic situation at a, in our case, you know, an elementary school with 1,400 students streaming through and trying to keep track of consent forms or whatever we were asking her to do." (Preparedness-10)

Table 3

Factors that facilitate U.S. local health department workers' participation in an infectious disease response, April 2015 to January 2016

Factors that facilitate participation in an infectious disease response	Representative Quotations
Availability of vaccinations and personal protective equipment	"Yeah, one of the things that we've done with some of our regional dollars and assets and local dollars is try to create our own cache of prophylaxis for our staff and for their families…. If they're still worried about their family becoming sick, they're not going to be 100 percent focused on what we're asking them to do." (Director-1). "[W]e're going over how would we give the medication first to our health department responders and to any other people who work at the PODs and whatnot, to their families, so that they can come in and so they don't have to worry so much about getting that for their family. Because we understand, and we really do, everybody here completely understands the whole family thing." (Preparedness-6).
Flexible work schedule and childcare arrangements	"See, I feel like I could do my job from home, so if for some reason I wasn't able to make it in for whatever reason, whatever the emergency is, I really feel like I could – well, except if we didn't have electricity. That would be hard." (Non-preparedness-3) "But one thing we did consider – well, and we have considered with our like our POD planning for, you know, bioterrorism, is if someone was asked to work, then like providing daycare at the place where they were going to be working or open it up so we had some room for their family members there, not necessarily during their whole shift, but so that they knew they were safe." (Preparedness-10)
Information sharing via local health department trainings	"I do think that they would look to me to say, 'What are my risks, and what do we need for PPE? What do I need to know for protection?' And then as long as I think their questions were answered, they would be comfortable responding." (Director-7) "Yeah, I think it's just always ensuring that they have the right either prophylaxis or PPE or training to deal with it and just general knowledge of the disease…." (Preparedness-1)
Perceived commitments to one's job and community	"And I just told them if I'm needed I'll be here. I'll worry about the details later. And that's how I feel about my job. I'm passionate about the work that I do. And one of the things that I love about the job is being able to help people." (Preparedness-5) "I would say first tier it's sort of what is your professional obligation, which is what's in line with your job, reasonable, and clearly defined, and then there is sort of the community obligation and wanting to help and do what's right for the community." (Non-preparedness-8).