

Disaster Preparedness in Primary Care: Ready or Not?

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ABSTRACT

Purpose: To assess perceptions and attitudes toward disasters and disaster planning among outpatient primary care leaders.

Methods: Written surveys and semi-structured interviews of non-physician clinical managers and physician medical directors were conducted using the 2009 H1N1 pandemic as a case-based scenario at 5 university-affiliated family medicine clinics. Domains assessed included perceived pandemic threat; value, existence, and barriers to creating personal disaster plans; staff absenteeism estimates; barriers to work attendance. Quantitative and qualitative data were analyzed using descriptive statistics and content analysis with identification and coding of common themes, respectively.

Results: All 12 invited leaders participated and believed a personal disaster plan was important but only 2 had plans. None had ever discussed with their staff the importance of having a personal disaster plan. Two common barriers in creating a plan were low threat perception level and never considering the possibility of pandemic influenza. Only half of respondents could list common barriers preventing staff from working. Staff were confident employees would come to work during a disaster.

Conclusion: Outpatient primary care leaders may hold misconceptions regarding future disasters, underestimate their potential impact on clinics, and lack personal preparedness. Further investigation and interventions are needed to ensure clinics can be prepared so they can function and help hospital and emergency services when disasters strike. (*Disaster Med Public Health Preparedness*. 2018;12:644-648)

Key Words: disaster planning, pandemics, influenza, human

Natural and man-made disasters have globally increased in frequency over the past few decades. Government and medical organizations have invested billions of dollars into emergency preparedness by mandating development of comprehensive emergency response plans and compelling accredited hospitals to demonstrate levels of preparedness.^{1,2} The main focus of disaster planning thus far has centered heavily on hospitals and emergency services' abilities to manage surge capacity for hospitals and maintain critical functions.³ A systemic framework for how the outpatient health clinics should respond during a crisis are substantially lacking.¹ Primary care providers (PCPs) often work more autonomously compared with other specialty outpatient clinics, making it a challenge to incorporate this sector into a disaster response.⁴ PCPs are also not routinely included in the development or implementation of disaster plans or drills.^{1,4} For example, a qualitative analysis in 7 countries within the World Health Organization European Region, conducted after the H1N1 pandemic, found consistent lack of primary care input during the planning, implementation, and the eventual response in all countries.⁵ The lack of engagement does not stem from PCPs not wanting to help during a disaster. For example, 80% of surveyed PCPs in 1 study indicated a willingness to

help during emergencies but only 20% felt prepared.⁶ Disaster training is also not emphasized in primary care residencies or commonly discussed within daily medical practice despite public expectations for all physicians to respond in disaster situations.^{3,6,7}

Little is known about whether outpatient primary care leaders, both physicians and non-physicians, have any knowledge of their risks of facing a disaster, how they might be involved in the delivery of disaster care, and what is needed in preparing to work in concert with disaster agencies. The aim of our study was to assess the perception and attitudes toward disasters and disaster planning in an outpatient family medicine clinic setting at an academic university. We used the H1N1 pandemic in 2009 as an illustrative example and hypothesized that non-physician clinical managers and physician medical directors would substantially underestimate the risks and impacts of disasters on their clinics and would not be prepared for disasters due to lack of awareness and involvement in disaster preparedness with their health care organizations.

METHODS

After a review of the literature, pandemic influenza was deemed the most likely disaster to occur in the

near future and was selected as a case study.^{4,5,8} In addition, the H1N1 2009 pandemic influenza occurred approximately 4 years before the interviews and affected all clinics in our study, and we assumed it would be a familiar disaster to discuss. We conducted a qualitative descriptive study to assess the perceptions and attitudes toward pandemic influenza among key family medicine leaders within 5 outpatient family medicine clinics affiliated with a suburban tertiary university health center. Within each clinic, we used purposeful sampling to select 2-3 current and recent non-physician clinical managers and physician medical directors. We identified and invited a total of 12 key informants to participate. Each of the 5 clinical sites were represented by at least 2 people. The Institutional Review Board at the University of Michigan reviewed the study and deemed it to be exempt from regulation.

We conducted written surveys and semi-structured oral interviews in-person or by phone based on participant availability between November 2013 and February 2014. All participants were English-speaking. Informed consent was obtained for both the written survey and interviews. Participants were given a \$20 gift card. In order to ensure confidentiality, leadership role was the only personal data collected. We developed a 7-question written survey based on review of the literature as no validated surveys for this topic existed at the time of the study. The written survey included 3 major themes: (1) perceived threat appraisal of future pandemic influenza; (2) perceived value and existence of a personal disaster plan; and (3) perceived estimates of staff absenteeism during a disaster. Questions were asked using dichotomous (Y/N) formats, 5-point Likert scales (“Unlikely” = 1 to “Very Likely” = 5, “Not prepared” = 1 to “Very prepared” = 5), and 0%-100% scales (0% = “no staff absent” to 100% = “all-staff absent”).

The written survey was followed by a 10-question, semi-structured verbal interview that directly probed specific responses to the initial written survey, such as: (1) beliefs regarding a personal disaster plan and barriers in its creation; (2) feelings about possible exposure and infection to influenza; and (3) barriers to work attendance. All interviews were recorded and transcribed verbatim by a professional transcription service. Quantitative data were analyzed using descriptive statistics. Qualitative data were analyzed by qualitative description and content analysis by identifying common themes and codifying these themes. Although we analyzed the data to identify recurrent issues and commonalities and differences among the interviews, we sought to do this in a descriptive way, which provides more “data-near” analysis rather than more transformed data seen with grounded theory.⁹ The 2 authors reviewed the transcripts and revised the codes until general consensus for coding was met. One author (MH) applied the codes to the transcripts. We jointly evaluated the themes and used consensus decision-making to reach conclusions about the results.

RESULTS

Participants

All 12 invited study subjects agreed to participate in the study for a response rate of 100%. Subjects included 5 current physician medical directors, 2 recent physician medical directors, and 5 non-physician clinical managers. There were a total of 2 males and 10 females. All 12 were working in a medical setting at the time of the H1N1 pandemic but 4 of 12 were working in a different job or role during the H1N1 pandemic. All 12 completed the written survey, but 1 of the 12 interviews failed to be recorded and data from that interview was lost for analysis.

Threat Appraisal

Participants had mixed perceptions of experiencing pandemic influenza in their working community. Four participants predicted there could be a pandemic in the near or distant future, 4 answered that it would never occur, and 4 predicted equal risk for a pandemic in the near future, distant future, and never.

Both non-physician clinical managers and physician medical directors who thought pandemic influenza would never occur justified their answers by citing the rarity of previous influenza pandemics, increased knowledge regarding influenza virus, trust toward health organizations to intervene early to prevent pandemics, and even prevention of pandemics by giving routine influenza vaccines:

“I feel we have good coverage with the new quadrivalent vaccine.”

“I feel that patients are being made well aware of influenza and the importance of getting the injection.”

We also asked our participants to share with us any other disasters they thought were more likely to occur other than pandemic influenza. Subjects mentioned a number of other disaster categories, with the top 2 being terrorism followed by natural disasters.

Personal Disaster Planning

All respondents thought it was important or very important to have their own individualized disaster plan, which includes basic resources for physical survival; alternatives for child, elder, and pet care; and transportation options to ensure work attendance. Only 2 respondents had ever made a personal plan. Minimization of risk and self-security were common themes mentioned during the interview, as summarized by the following 2 statements:

“I don’t necessarily feel like we’re going to have this big, huge flu epidemic or anything ... I got other things to worry about.”

“I feel like in the backs of our minds we have a semi-plan, but it is not like a written down plan.”

We asked respondents to share specific barriers to creating and maintaining a personal disaster plan. The most common barriers were low level of perceived threat and never having considered making a plan. We also asked if participants ever recommended their own staff to have a personal disaster plan, but none had ever done so. One interviewee explained,

“[it’s] not one of the things that is a general topic of conversation.”

Barriers to Work Attendance

Participants described a range of barriers they believed would prevent work attendance, with fear of infection from personal exposure and family care cited most commonly.

Only half of the respondents mentioned any barriers at all. No one mentioned fear of being pressured not to work by concerned family members or fear of public shunning as barriers to work. Optimistic responses were made by respondents that staff would not shirk from duty due to non-illness related reasons:

“People just know that that’s an expected part of the job.”

“So I would think in this type of disaster, they would even step up even more knowing that we are in disaster mode.”

Moreover, familiarity with infections was mentioned as a strength.

“I think most of our staff are used to being around sick people and you know, even with this flu, they were not overly worried.”

We asked participants to rate the likelihood that their own staff would encounter pressure by family members or other social contacts to not work due to fears of contagion. Approximately half of all respondents (6 out of 12) chose either “Very Unlikely” or “Unlikely”. Ten out of 12 (83%) denied ever talking with their staff about the possibility of being pressured by others not to go to work. We asked respondents who never addressed the question of family pressure with their staff if whether having a discussion in advance would improve how staff react and increase the likelihood of work attendance. Those who did not feel a discussion would be helpful commented:

“You know, most people know about flu ... I do not think at least with flu specifically that people alter what they do because of it so much.”

“People often are dedicated to the work. I just do not think they would back from the work because they understand they are in healthcare. They have chosen to be in the healthcare setting and not an office setting.”

One respondent who believed having a discussion before a disaster would be helpful commented:

“I think if something is a known potential, not a surprise, you take some of the uncertainty out of it, that then it goes a lot more smoothly.”

DISCUSSION

Threat Appraisal

The purpose of asking respondents to rate the likelihood of experiencing pandemic influenza was to gauge their thoughts on potential threats in the workplace and not to see if they could make accurate forecasts compared with published data. Physician medical directors and non-physician clinical managers who did not believe a future pandemic influenza was likely to occur were both equally found to hold the misconception that vaccinations would prevent and/or protect against a future pandemic influenza. This raises concerns of inaccurate knowledge leading to a false sense of security and low threat perception levels toward future disasters. Pre-planning efforts in the outpatient medical community in partnership with local public and private health care organizations should include a review of fundamental disaster facts to raise awareness, support, and cooperation from outpatient clinics.

It was interesting to observe that terrorism was considered a more likely disaster category than either natural disasters or pandemic influenza during a time period before a general increase in national and international terrorist attacks.¹⁰ Future disaster planning will also need to consider terrorist attacks, which is beyond the scope of this current study.

Personal Disaster Planning

Findings that our study subjects did not have personal disaster plans are consistent with previous studies, including a survey of emergency responders where only 17% had a plan.¹¹ Barriers cited in creating and maintaining plans in our study were also consistent with previous studies that showed lack of concern and knowledge in addition to other barriers including lack of time or finances.¹¹

Creation of national, regional, or local disaster plans are no substitute for individualized planning to improve odds that medical personnel are able to work during a disaster. Federal disaster workers and volunteers may not be able to immediately provide care after a sudden catastrophe or protracted endemic, placing major responsibilities on local health care workers.¹² Outpatient primary care workers will become essential staff, especially in an infectious pandemic, to extend the surge capacity of hospital and emergency departments by operating outpatient health clinics.^{1,3}

Having a personal disaster plan does not guarantee work attendance but lack thereof can reduce the chance and have

significant public and personal consequences. During Hurricane Katrina when law enforcement was lacking, 250 New Orleans police officers failed to report to work because they were ensuring their own family's safety.^{11,13} Also, over 200 were charged with desertion including 1 officer who was absent due to evacuating a sick family member, which took longer than expected from lack of pre-planning. A local hospital in New Orleans fired or suspended 25 nurses for leaving early, coming late, or not coming to work.¹⁴ A hospital spokesperson noted it was their policy that all critical care workers were required to work during a disaster and caregivers' number 1 priority should be patient care.¹⁵

Currently 2 states—Maryland and South Carolina—can revoke licenses, fine, or imprison health care workers for disobeying public health officials by refusing to work during a public health emergency.¹⁶ Health care leaders should avoid threatening employees into preparing and working during disasters by only mentioning punitive actions held against those who refuse to work. Rather, emphasis should be placed on the benefits of having a basic disaster plan—to ensure personal safety and continue their duty as a health care worker—while informing them of the expectations to work during a disaster. Such employment expectation policy reviews can occur at the time of hire and be reviewed yearly at an all-staff meeting.

Barriers to Work Attendance

Our study shows that family medicine leaders may underestimate potential staff absences during a disaster due to employee concerns about personal safety. Review of literature shows that fear for one's personal safety is a major barrier in disaster response. One study evaluating the willingness of health care workers to report to work during disasters noted lower willingness in the case of untreatable infectious disease outbreaks such as Severe Acute Respiratory Syndrome (SARS) or smallpox but more willingness in the case of weather disasters or mass casualty events.¹⁴

We were surprised that no respondent in our study mentioned the fear of infecting other family or social contacts as a barrier to work attendance during an influenza pandemic, as this is a serious potential threat. For example, fear of infecting others through exposure to health care workers was a real concern during the SARS infection, when ~1 in 5 infections worldwide were due to health care workers contracting the disease while caring for SARS patients, with a case fatality rate of 1 in 10.¹⁷ One study of health care workers in Singapore after the SARS epidemic found 82% feared inadvertently infecting their families, friends, and colleagues and ~49% and 31% thought people avoided them or their family members, respectively, due to their work.¹⁷ Singapore media reported acts of social stigmatization and ostracism, such as taxi drivers refusing to drive health care workers to work, and public shunning of uniformed health care workers and their children.¹⁷

Many barriers to work attendance could potentially be prevented or mitigated by pre-planning. For example, identifying alternative child/elder/pet care sites and car-pooling options could address family obligations and transportation barriers. Fear of contagion can be minimized by open communication, education, providing personal protective equipment, and guaranteeing medications for employees and immediate close family contacts.¹⁴ To sustain a cultural atmosphere of preparedness for disaster response, all employees can be reminded at the time of hire and once yearly during routine staff meetings of potential local disasters led by their appointed "disaster leader," who can be asked to coordinate disaster responses.^{14,18} All staff should be asked to create and maintain a personal home disaster plan including a workplace disaster kit as they may be at work when disaster strikes.¹⁹

CONCLUSION

This study raises the concern that outpatient primary care leaders may not be prepared to effectively manage clinics during a disaster situation due to holding misconceptions, underestimating disaster threats, and lack of personal disaster planning. Our study is small and all results may not be generalizable and future research is needed in this area. However, we suggest disaster preparedness leaders focus efforts on educating, training, and supporting outpatient primary care leaders in addition to bolstering inpatient and emergency services so concerted responses can be made by both hospitals and clinics during a crisis.

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Conflicts of Interest

The authors have no conflicts of interest to declare.

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REFERENCES

1. Patel MS, Phillips CB, Pearce C, Kljakovic M, Dugdale P, Glasgow N. General practice and pandemic influenza: a framework for planning and comparison of plans in five countries. *PLoS One*. 2008;3:e2269.

- Hodge JG Jr, Brown EF. Assessing liability for health care entities that insufficiently prepare for catastrophic emergencies. *JAMA*. 2011;306:308-309.
- Hanfling D. When the bells toll: engaging healthcare providers in catastrophic disaster response planning. *South Med J*. 2013;106:7-12.
- Lauer J, Kastner J, Nutsch A. Primary care physicians and pandemic influenza: an appraisal of the 1918 experience and an assessment of contemporary planning. *J Public Health Manag Pract*. 2008;14:379-386.
- Hashim A, Jean-Gilles L, Hegermann-Lindencrone M, Shaw I, Brown C, Nguyen-Van-Tam J. Did pandemic preparedness aid the response to pandemic (H1N1) 2009? A qualitative analysis in seven countries within the WHO European region. *J Infect Public Health*. 2012;5:286-296.
- Hughes RT, Trantham P. When disaster strikes, humanity becomes our patient. *Perm J*. 2011;15:e118-e122.
- Huntington MK, Gavagan TF. Disaster medicine training in family medicine: a review of the evidence. *Fam Med*. 2011;43:13-20.
- World Health Organization. Epidemic alert and response: WHO checklist for influenza pandemic preparedness planning. <http://www.who.int/csr/resources/publications/influenza/FluCheck6web.pdf>. Accessed December 20, 2016.
- Sandelowski M. What's in a name? Qualitative description revisited. *Res Nurs Health*. 2010;33:77-84.
- National Consortium for the Study of Terrorism and Responses to Terrorism (START). Global Terrorism Database. <http://www.start.umd.edu/gtd/>. Accessed August 23, 2017.
- Blessman J, Skupski J, Jamil M, et al. Barriers to at-home-preparedness in public health employees: implications for disaster preparedness training. *J Occup Environ Med*. 2007;49:318-326.
- Freedly JR, Simpson WM Jr. Disaster-related physical and mental health: a role for the family physician. *Am Fam Physician*. 2007;75:841-846.
- Johnson K. Katrina made police choose between duty and loved ones. *USA Today*. 2006. http://usatoday30.usatoday.com/news/nation/2006-02-20-neworleanspolice_x.htm Accessed December 20, 2016.
- Qureshi K, Gershon RR, Sherman MF, et al. Health care workers' ability and willingness to report to duty during catastrophic disasters. *J Urban Health*. 2005;82:378-388.
- The Associated Press. About 25 nurses fired for not working during Hurricane Frances. *The Florida Times-Union, Jacksonville.com*. <http://jacksonville.com/apnews/stories/090904/D8500GT80.shtml>. Accessed December 20, 2016.
- Martin SD. Nurses' ability and willingness to work during pandemic flu. *J Nurs Manag*. 2011;19:98-108.
- Koh D, Lim MK, Chia SE, et al. Risk perception and impact of Severe Acute Respiratory Syndrome (SARS) on work and personal lives of healthcare workers in Singapore: what can we learn? *Med Care*. 2005;43:676-682.
- Collins N, Litt J, Moore M, Winzenberg T, Shaw K. General practice: professional preparation for a pandemic. *Med J Aust*. 2006;185:S66-S69.
- American Public Health Association. How to get ready for an emergency at work. <http://www.getreadyforflu.org/workemergency.htm>. Accessed December 20, 2016.