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Emergency Medical Services Personnel's Pandemic Influenza Training Received and Willingness to Work During a Future Pandemic

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Abstract

Objective—Identify determinants of emergency medical service (EMS) personnel's willingness to work during an influenza pandemic.

Background—Little is known about the willingness of EMS personnel to work during a future influenza pandemic or the extent to which they are receiving pandemic training.

Methods—EMS personnel were surveyed in July 2018 – Feb 2019 using a cross-sectional approach; the survey was available both electronically and on paper. Participants were provided a pandemic scenario and asked about their willingness to respond if requested or required; additional questions assessed their attitudes and beliefs and training received. Chi-square tests assessed differences in attitude/belief questions by willingness to work. Logistic regressions were used to identify significant predictors of response willingness when requested or required, controlling for gender and race.

Results—433 individuals completed the survey (response rate = 82.9%). A quarter (26.8%, n=116) received no pandemic training; 14.3% (n=62) participated in a pandemic exercise. Significantly more EMS personnel were willing to work when required versus when only requested (88.2% vs 76.9%, $X^2 = 164.1$, $p < .001$). Predictors of willingness to work when requested included believing it is their responsibility to work, believing their coworkers were likely to work, receiving prophylaxis for themselves and their family members, and feeling safe working during a pandemic.

Discussion—Many emergency medical services personnel report lacking training or disaster exercises related to influenza pandemics, and a fair percentage are unwilling to work during a future event. This may limit healthcare surge capacity and could contribute to increased morbidity

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Disclosure of Interest

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and mortality. Findings from this study indicate that prehospital staff's attitudes and beliefs about pandemics influence their willingness to work. Pre-event training and planning should address these concerns.

Keywords

Pandemic; Disaster; Prehospital; Emergency Management; Medical Countermeasures; Surge Capacity

Background

An influenza pandemic will greatly challenge healthcare and public health systems, regardless of whether the event is mild, moderate, or severe. Using a Monte Carlo mathematical model based on morbidity and mortality from past pandemics, researchers estimate that a future influenza pandemic would result in 20 – 47 million excess illnesses, requiring 18 – 42 million outpatient visits and 314,000 – 734,000 hospitalizations, and resulting in 89,000 – 207,000 deaths in the U.S. alone (1). A future pandemic is expected to involve at least two waves, each lasting six to eight weeks (2), causing patient surges that will challenge the U.S. healthcare system. Healthcare workers will be essential to respond effectively to this patient surge, including in both prehospital and hospital settings (3–6).

Emergency medical services (EMS) personnel play a vital role in healthcare delivery and will be essential responders during a future pandemic. However, prior research indicates that healthcare and public health professionals may not be available or willing to work during a pandemic (4–9) Some will be unavailable to work due to personal illness or family obligations, such as providing child or elder care. Others will be unwilling to work out of fear of exposure or illness to themselves or their family members, especially early on during a pandemic when a vaccine is unavailable. For example, a 2010 study conducted in the UK found that about a quarter of all physicians reported that they did not believe they were obligated to work during a pandemic that would involve infection risk to their families and themselves (9).

Most research examining willingness to report to work during a disaster has focused on public health professionals, or hospital-based or long term care facility-based healthcare workers (3, 5, 8, 10, 11). Very little of this research has focused on EMS personnel, and even among the existing research, most studies had too small a sample size to specifically examine EMS personnel's attitudes and beliefs (6), focused strictly on terrorist events (12), or extrapolated willingness to work during a pandemic from data collected about willingness to work during a smallpox scenario (4). It is critical that EMS personnel's attitudes and beliefs about willingness to work during a pandemic be examined, because they play a critical role as frontline first responders during a pandemic (13). Furthermore, it is likely that EMS personnel's concerns differ from those of their hospital-based healthcare worker colleagues due to the high-risk nature of their routine duties. The purposes of this study are to assess EMS personnel's willingness to work during an influenza pandemic, their attitudes and beliefs regarding working during a pandemic, and identify training gaps among these workers.

Methods

Between July, 2018 and February, 2019, first responders working in two emergency response agencies in a Midwestern greater metropolitan region were recruited to complete an anonymous survey regarding their willingness to respond during an influenza pandemic, as well as pandemic training they had received. One of the participating first responder agencies provides all of the emergency medical services for an entire urban area of a large major Midwestern metropolitan region, spanning more than 60 square miles from 30 stations. Staff at this agency consisted of paramedics and firefighters who are all emergency medical technicians (EMTs). The second agency was a large suburban-based agency from the same metropolitan region, spanning over 590 square miles from 18 stations. All participants at the second agency were EMS professionals consisting of paramedics. Both agencies have both 911 and transportation capabilities and are employed by municipalities (versus being a private entity). These agencies were selected due to their extensive coverage within the involved metropolitan region in terms of miles covered and number of citizens within those districts. For the purposes of this study, all participating first responders will be referred to as *EMS personnel*. Recruitment was conducted face-to-face at educational workshops and during on-site recruitment sessions at the two participating agencies; one agency also used email recruitment. The instrument was administered via Qualtrics, an online survey platform, and was also available on paper.

Instrument

The questionnaire was based on existing studies examining willingness to report to work, influenza pandemic training, and risk perceptions related to pandemics, bioterrorism, and emerging pathogens (5, 8, 10, 11, 14–24). Twelve U.S. pandemic preparedness researchers provided feedback on instrument content validity. The content validity index (CVI) was computed for each item (25). All items had a CVI above 0.80, so all were kept; revisions to questions were made based on CVI panel feedback (25). Ten first responders then pilot tested the instrument, and feedback was incorporated into the questionnaire. The final survey contained 25 questions plus demographic items.

The survey presented respondents with the following scenario: *A widespread outbreak of influenza (flu) is occurring in the United States and around the globe, called a "pandemic". This has been going on for several weeks, but is just affecting your area now. An increasing number of people in the community are becoming sick with cough, fever, weakness, and trouble breathing. Many of them are seeking care or a medical evaluation at local hospitals. The mortality rate is around 2% and many more are requiring intensive care. Some of your co-workers have become ill.* The participants were then asked about their willingness to respond if requested or if required. There were 17 attitudinal and belief questions related to risk perceptions, self-efficacy, perceived severity and susceptibility, normative beliefs, institutional support, and role importance. Four questions assessed perceived protection provided by medication or pandemic vaccine and its impact on willingness to work. All attitude/belief questions were measured on a 5-point Likert-type scale (i.e., strongly agree to strongly disagree). Four questions assessed their prior training related to an influenza

pandemic and participation in a disaster exercise using a pandemic scenario, earthquake or natural disaster, and a radiological event/dirty bomb.

Data Analysis

All analyses were conducted using Statistical Package for the Social Sciences (SPSS) 25 (26). All Likert-scale questions were dichotomized, with “strongly agree” and “agree somewhat” representing “yes” and all other answers representing “no.” Descriptive statistics were performed on all variables. Chi-square tests were used to determine if there were differences in attitude/belief questions by willingness to work when requested, and to compare participation in the three types of exercises by agency. Predictors of willingness to work when requested or required were assessed using a hierarchical multivariate logistic regression, controlling for gender and race. Univariate analysis was first used to identify significant predictor variables; all demographic variables, attitude/belief items, and training/exercise questions were assessed. Next, variables that were significant on univariate analysis were entered into the multivariate model using a hierarchical approach. Although they were not predictors in this study, gender and race were used as control variables because they had been found to be associated with willingness to work in previous studies. Only final models are reported. A critical p value of .05 was used for all analyses.

Results

From 522 who were approached, 433 individuals completed the survey (overall response rate = 82.9%); three-quarters (74.6%, n=323) were from Agency A (response rate for Agency A = 97.5%) and a quarter (25.4%, n=110) were from Agency B (response rate for Agency B = 70.7%). Participant demographics are provided in Table 1. Most respondents were EMTs (64.2%, n=278), male (89.6%, n=386) and worked full-time (99.1%, n=429; Table 1). Three-quarters were white (76.8%, n=318), 16.7% (n=69) were black, and 6.4% (n=27) were all other races/ethnicities (Table 1). Most (66.7%, n=289) reported having received some college or an Associate’s degree; about a quarter (23.3%, n=101) had at least a Bachelor’s degree (Table 1). Almost two-thirds had 11 or more years’ of work experience (63.5%, n=275); about 20% had 5 – 10 years’ experience (18.9%, n=82) or 4 years of experience or less (17.6%, n=76; Table 1).

Willingness to Work during an Influenza Pandemic

Participants were asked if they would report to work during an influenza pandemic when requested or when required. Significantly more EMS personnel were willing to work when required versus when only requested (88.2% vs 76.9%, $X^2 = 164.1$, $p < .001$). Participants were asked if they would be more willing to work if they and/or their families were offered pharmaceutical measures, such as pre-exposure prophylaxis (PrEP) or pandemic vaccine. EMS personnel were significantly more willing to report to work when requested if they were offered PrEP (86.1% vs 76.9%, $X^2 = 48.7$, $p < .001$) or pandemic vaccine (86.8% vs 76.9%, $X^2 = 54.2$, $p < .001$) versus when these measures when not offered. Providing PrEP (85.0% vs 76.9%, $X^2 = 40.7$, $p < .001$) or pandemic vaccine (86.1% vs 76.9%, $X^2 = 53.4$, $p < .001$) to their family members and themselves was also associated with significantly higher willingness to work when requested versus when these measures were not offered.

Among those who would not report to work when requested when pharmaceutical measures were not offered (n=100), 65% (n=65) indicated that they would work if they or their family members were provided PrEP or they were given vaccine; 64% (n=64) would work if their family members and they were given vaccine.

Predictors of willingness to work when requested included believing it is their responsibility to work (OR=5.8, CI=2.8–11.9, p < .001), believing their coworkers were likely to work (OR=3.1, CI=1.6–6.2, p =.001), receiving PrEP for themselves and their family members (OR=2.7, CI=1.3–5.7, p < .01), and feeling safe working during a pandemic (OR=2.4, CI=1.3–4.7, p = .01; Table 2). Predictors of willingness to work when required were almost identical; predictors included believing it is their responsibility to work (OR=9.5, CI=4.0–22.4, p < .001) feeling safe working during a pandemic (OR=5.6, CI=1.9–16.1, p < .01), believing a pandemic would have serious negative health effects (OR=3.5, CI=1.2–10.0, p < .05), and receiving PrEP for themselves and their family members (OR=2.9, CI=1.1–7.6, p < .05; Table 2). No other demographic variable, attitude or belief question, training received, or exercise participation were a significant predictor of willingness to work when requested or required, including being an EMT versus paramedic, having a child, or having a spouse/significant other who was a first responder who would be expected to work during a disaster.

Attitudes and Beliefs Regarding Working during an Influenza Pandemic

Almost all respondents agreed that a pandemic would cause serious negative effects on peoples' health (89.4%, n=387), their employer expects them to work during an influenza pandemic (87.8%, n=380), and they would be able to perform their job during an influenza pandemic (86.4%, n=364; Table 3). Significantly fewer believed that their employer would take precautions to protect them or provide personal protective equipment (PPE) to them during a pandemic (64.4% and 63.7%, respectively), would feel safe working during a pandemic (61.4%), or believed that it would be ethical for an EMS professional to refuse to work during a pandemic (29.6%; p < .001 for all comparisons; Table 3). In univariate analysis, all attitude and belief questions were associated with willingness to work during a pandemic, except for the belief that it would be ethical for an EMS professional to refuse to work during a pandemic (Table 3).

Risk Perceptions Related to Biological Disasters/Events

Participants were asked if they believed that an influenza pandemic, outbreak of an emerging infectious disease, or bioterrorism attack would occur in their community in the next five years. A third (33.3%, n=144) believed an emerging infectious disease outbreak would occur in their city in the next five years (Table 3). Significantly fewer believed a pandemic or bioterrorism attack would occur in their city in the next five years (28.4% and 25.9%, respectively; p < .001 for both comparisons; Table 3). There were no associations between biological disaster risk perceptions and EMS personnel's willingness to work during a pandemic when requested or required (Table 3).

Pandemic Influenza Training and Disaster Exercise Participation

Participants were asked how much influenza pandemic training they had received. About a quarter (26.8%, n=116) had not received any training. A third (32.8%, n=142) had received

one hour or less, 22.4% (n=97) had received two to three hours, and 18.0% (n=78) had received at least four hours of training. There were no associations between amount of influenza pandemic training received and willingness to work when requested or required. Participants were asked whether they had participated in a disaster exercise in the last three years that involved an influenza pandemic, earthquake or natural disaster, or radiological terrorism attack/dirty bomb scenario. Respondents were more likely to report participating in a natural disaster exercise (27.9%, n=121) than in a pandemic (14.3%, n=62) or radiological terrorism exercise (13.9%, n=60; $p < .001$ for both comparisons; Table 4). They were also significantly more likely to participate in an influenza pandemic exercise than a radiological terrorism exercise (14.9% vs 13.9%, $X^2 = 47.8$, $p < .001$; Table 4).

Discussion

This study found that approximately a quarter of EMS personnel would not be willing to work during a future influenza pandemic if only requested versus being required. Even if required by their employer, only 88% would be willing to respond. These findings are similar, though lower, than previous studies examining emergency responders' willingness to work during a pandemic (13). A previous study (13) found that only about 12% of EMS personnel would refuse to work during an influenza pandemic if requested while the current study found that almost 25% would not work when requested but not required. The reason for this difference is unclear, but might have to do with the timing of data collection and the specific scenarios involved in the two studies. Barnett et al.'s study (13) was conducted in the midst of the 2009 H1N1 pandemic, while this study collected data ten years after the last pandemic. EMS professionals' low willingness to work identified in the current study reflect previous research examining other worker groups' (such as public health professionals and hospital employees) willingness to work during a pandemic (7, 8).

This study found that more than ten percent of EMS personnel would not be willing to work during an influenza pandemic even if their employer required it. This finding has critical implications for healthcare surge capacity during a pandemic. Large and prolonged patient surges are anticipated during a future influenza pandemic, including high numbers of emergency department visits and hospital admissions occurring in waves lasting six to eight weeks (27). For example, during the 2009 H1N1 pandemic, emergency department visits in U.S. hospitals doubled (28). EMS personnel will play an essential role in responding to and managing this patient surge as frontline workers providing prehospital healthcare services to those with urgent medical needs (29). Their willingness to work during an influenza pandemic would have significant implications for healthcare surge capacity in a community, including limiting prehospital care, extending wait times for emergency services, or forcing ill individuals to use public transportation—all of which could increase morbidity and mortality rates.

This study found that two of the most important predictors of EMS personnel's willingness to work were feeling safe working during a pandemic and being offered pre-exposure prophylaxis (PrEP) for themselves and their family members. Previous studies examining willingness to work during disasters among other responder groups had similar findings (7, 8, 30). Having the ability to provide PReP to EMS personnel and their family members

during a pandemic requires pre-event stockpiling of anti-viral medications by the EMS agency because the Strategic National Stockpile's anti-virals are prioritized for treatment of infected individuals and post-exposure prophylaxis (31). Although it is not known how many EMS agencies are currently stockpiling antivirals for their employee PrEP use during a pandemic, previous mathematical modeling research indicates that it would cost a hospital with 5,000 employees more than $7 million to stockpile sufficient PrEP for a pandemic (32). These exorbitant costs limit the feasibility of healthcare agency stockpiling and make it highly unlikely that EMS agencies are investing in this approach. In addition, the use of PrEP may actually hinder pandemic response; research indicates that PrEP can lead to antimicrobial resistance and increase morbidity and mortality during a pandemic (33).

It is probably more prudent for EMS agencies to invest in other protective measures for their staff during a pandemic to help them feel safe, such as encouraging vaccination with a pandemic vaccine, making post-exposure prophylaxis (PEP) available, and having adequate PPE (30). PEP and pandemic vaccine are provided through the Strategic National Stockpile, and healthcare personnel are prioritized to receive it (2). In addition, a nationwide study found that most states have existing processes for administering PEP and pandemic vaccine to high-risk healthcare personnel, including EMS personnel (29). It would be prudent for EMS administrators to make an effort to also secure PEP and pandemic vaccine for their employees' family members, perhaps by partnering with local public health planners. Having available PPE for EMS personnel will prove more challenging. Local, regional, and federal stockpiles of PPE exist, but research and past events demonstrate that there are insufficient supplies for a future pandemic (34, 35). This may require EMS agencies to invest in a PPE stockpile (36), purchase re-usable respirators, and/or implement a respirator extended use or re-use policy (37). An interesting finding from this study is that about a quarter of the EMS personnel did not believe their employer would take precautions to protect them during an influenza pandemic. Those who believed their employer would protect them were significantly more willing to work than those who did not believe their employer would take precautions to protect them. EMS agency administrators should share their pandemic plans with staff, including making them aware of the protective measures that will be offered to them during an event.

One potential obstacle to protecting EMS personnel through a pandemic vaccination intervention is the low reported uptake of influenza vaccine in this group. Although the Advisory Committee on Immunization Practices (ACIP) recommends that all healthcare personnel receive influenza vaccine annually (38), previous studies indicate that EMS personnel seasonal influenza vaccine uptake rates range from only 21% - 75.6% (39–41). In addition, EMS personnel's uptake of H1N1 pandemic influenza vaccine was found to be significantly lower than their acceptance of seasonal influenza vaccine in 2009 (40). Researchers indicate that predictors of EMS personnel's uptake of seasonal and pandemic influenza vaccines include past vaccination, belief that EMS personnel should be vaccinated annually, perceived immunization importance, and perception that the vaccine is safe with few side effects (39–41). Having vaccine made available on-site and free of charge have also been found to be associated with intent to receive seasonal influenza vaccine among EMS personnel (40). It is essential that EMS agency administrators and/or occupational health professionals aim to increase seasonal influenza vaccine uptake among EMS personnel. This

will not only protect the EMS personnel from illness, but has been found to decrease healthcare-associated morbidity and mortality (42). It is also likely to increase their willingness to accept a pandemic influenza vaccine (40).

Another way that EMS employers can prepare their staff for an influenza pandemic is to provide training and exercises that incorporate a pandemic scenario (5, 43). Pre-event training can increase confidence in responding during an event, limit occupational exposure and illness, and has been associated with willingness to work among other healthcare professionals (5, 44). Findings from this study indicate that a quarter of participating EMS personnel received no training and another third received one hour or less of influenza pandemic training. In addition, very few had participated in an exercise involving a pandemic scenario in the last three years. Suggested pandemic preparedness training for EMS personnel includes protocols describing how to triage and release patients who do not require transfer to a hospital (29), infection prevention procedures (29, 44), disease transmission, proper PPE selection, donning, and doffing, and respiratory precautions (44). Findings from this study indicate that pandemic training should also include a description of EMS personnel's responsibility to work and the expectation that they will respond during a pandemic, as these were found to be associated with an increased willingness to work. Scenario-based exercises can also help identify gaps in pandemic preparedness among EMS personnel and improve workers' appropriate use of triage protocols and PPE (43).

Strengths of this study include that it is one of very few studies to examine EMS personnel's willingness to work during an influenza pandemic and the first to assess their pandemic training and exercise experience in relation to willingness to work. Some limitations must also be noted. The attitudes and beliefs of participating EMS personnel may not reflect those outside of the metropolitan area assessed or even other EMS personnel in the assessed region. In addition, EMS personnel's reported willingness to work may not reflect their actual behavior in a future event.

Conclusion

Many emergency medical services personnel report lacking training or disaster exercises related to influenza pandemics, and a fair percentage are unwilling to work during a future event. This may limit healthcare surge capacity and could contribute to increased morbidity and mortality. Findings from this study indicate that prehospital staff's attitudes and beliefs about pandemics influence their willingness to work. Pre-event training and planning should address these concerns, including having personal protective equipment available and describing other protective measures available to emergency medical services personnel during a pandemic. Providing targeted training and outlining the expectation that they will respond to the event should result in increased willingness to work during a future influenza pandemic for these vital healthcare personnel.

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Table 1:

Participant Demographics

Characteristic	All Respondents N=433* % (n)
Occupation	
EMT	64.2 (278)
Paramedic	35.8 (155)
Gender	
Male	89.6 (386)
Female	10.4 (45)
Age	
18 – 30 years	14.5 (63)
31 – 40 years	32.8 (142)
41 – 50 years	27.0 (117)
≥ 51 years	25.6 (111)
Race	
White	76.8 (318)
Black	16.7 (69)
Asian	1.4 (6)
Hispanic	1.4 (6)
Other/mixed	3.6 (15)
Education	
High school or less	9.9 (43)
Some college/2-year degree	66.7 (289)
Bachelor's degree or more	23.3 (101)
Marital Status	
Married/committed	69.3 (300)
Single or widowed	30.7 (133)
Spouse/Significant Other a First Responder	7.2 (31)
Spouse/Significant Expected to Work During a Disaster	19.6 (85)
Have Child ≤ 18 years in Household	51.3 (222)
Employment Status	
Full-time	99.1 (429)
Part-time	.9 (4)
Years of Work Experience in Field	
≤ 4 years	17.6 (76)
5 – 10 years	18.9 (82)
≥ 11 years	63.5 (275)
Region in Which They Live	
Urban	51.0 (221)

Characteristic	All Respondents N=433* % (n)
Suburban	39.7 (172)
Rural	9.2 (40)

* Denominator varies due to missing/incomplete data.

Table 2:

Factors Related to Emergency Medical Services Personnel's Willingness to Work During an Influenza Pandemic When Requested or Required*

Variable	Willing to Work When Requested		Willing to Work When Required	
	OR (95% CI)	p	OR (95% CI)	p
It is my responsibility to work during this pandemic **	5.8 (2.8 – 11.9)	**< .001**	9.5 (4.0 – 22.4)	**< .001**
My coworkers are likely to work during this pandemic **	3.1 (1.6 – 6.2)	**= .001**	NIM	NA
I would be more willing to work if my family and I received prophylaxis to take during this pandemic	2.7 (1.3 – 5.7)	**< .01**	2.9 (1.1 – 7.6)	**< .01**
I would feel safe working during this pandemic **	2.4 (1.3 – 4.5)	**= .01**	5.6 (1.9 – 16.1)	**< .05**
This pandemic could have serious negative effects on people's health	NIM	NA	3.5 (1.1 – 7.6)	**< .05**

* Logistic regression controlling for gender and race

** In response to this pandemic scenario: *A widespread outbreak of influenza (flu) is occurring in the United States and around the globe, called a "pandemic". This has been going on for several weeks, but is just affecting your area now. An increasing number of people in the community are becoming sick with cough, fever, weakness, and trouble breathing. Many of them are seeking care or a medical evaluation at local hospitals. The mortality rate is around 2% and many more are requiring intensive care. Some of your co-workers have become ill.*

OR = odds ratio; CI = Confidence interval; NS = non-significant; NA = not applicable; NIM = not included in model because it was NS

Table 3:

Emergency Medical Services Personnel's Attitudes and Beliefs of Regarding Working during an Influenza Pandemic When Requested

Attitude and Belief Statement	All Respondents N=433	Willing vs Unwilling N=433		
	Strongly Agreed or Agreed % (n)	Willing N=333	Unwilling N=100	Willing vs Unwilling
		Strongly Agreed or Agreed % (n)	Strongly Agreed or Agreed % (n)	p value*
The pandemic could have negative effects on peoples' health	89.4 (387)	94.0 (313)	74.0 (74)	< **.001**
My employer would expect me to work in an influenza pandemic	87.8 (380)	94.6 (315)	65.0 (65)	< **.001**
I would be able to do my job during an influenza pandemic	86.4 (374)	94.9 (316)	58.0 (58)	< **.001**
My job/role would be important in an influenza pandemic	84.1 (364)	91.0 (303)	61.0 (61)	< **.001**
I know how to do my job during an influenza pandemic	83.4 (361)	90.7 (302)	59.0 (59)	< **.001**
I believe it is my responsibility to work during an influenza pandemic	81.5 (353)	93.1 (310)	43.0 (43)	< **.001**
My coworkers would work in an influenza pandemic	73.2 (317)	84.1 (280)	37.0 (37)	< **.001**
My family is prepared to function without me during an influenza pandemic	67.2 (291)	76.6 (255)	36.0 (36)	< **.001**
My employer would take precautions to protect me in an influenza pandemic	64.4 (279)	70.6 (235)	44.0 (44)	< **.001**
My employer would provide me with PPE in an influenza pandemic	63.7 (276)	70.3 (234)	42.0 (42)	< **.001**
I would feel safe doing my normal duties in an influenza pandemic	61.4 (266)	72.1 (240)	26.0 (26)	< **.001**
An outbreak of an emerging infectious disease is likely to occur in my city in the next 5 years	33.3 (144)	35.1 (117)	27.0 (27)	NS
It would be ethical for an EMS professional to refuse to work during a pandemic	29.6 (128)	30.3 (101)	27.0 (27)	NS
A pandemic is likely to occur in my city in the next 5 years	28.4 (123)	29.4 (98)	25.0 (25)	NS
A bioterrorism attack is likely to occur in my city in the next 5 years	25.9 (112)	26.1 (87)	25.0 (25)	NS

*Determined by the X^2 test

EMS = emergency medical services personnel; NS = Non-significant; PPE = personal protective equipment

Table 4:

Disaster Exercise Participation During the Past Three Years

Disaster Exercise Scenario Used	All Respondents N=433 % (n)
Earthquake or natural disaster	27.9 (121)
Influenza pandemic	14.3 (62)
Radiological terrorism event/ dirty bomb	13.9 (60)

NS = not significant