A National Survey of Emergency Nurses and Avian Influenza Threat

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Introduction: The purpose of this study was to determine the perceived likelihood of emergency nurses reporting to work during an avian influenza outbreak, to consider options if nurses decided not to report work, and to explore Protection Motivation Theory constructs as predictors of reporting to work.

Methods: A descriptive, nonexperimental, cross-sectional survey of emergency nurses within the United States.

Results: A total of 332 nurses (46%) responded. Most emergency nurses (84%) reported they would report to work (1 in 6 would not). The likelihood of reporting to work differed by education level, nurses' avian influenza information sources, and nurses who had family living with them. Of the nurses who decided not to report to work, the majority were willing to provide health information (90%), administer vaccinations (82%), and triage (74%) neighbors/friends from home. One third of nurses had not attended a disaster-preparedness drill within the past year. Only 20% identified formal training while on the job as a source of avian influenza information. A third of emergency nurses would be worried about getting an avian influenza vaccination because of potential adverse effects. Protection Motivation Theory accounted for almost 40% of the variance of likelihood to report to work, with response costs being the largest predictor.

Discussion: Disaster drills, avian influenza job training, and vaccination education are necessary to prepare emergency nurses for an outbreak. The findings support emergency nurses' willingness to work from home if they are unable to report to work. This finding is new and may have implications for disaster planning, staffing, and ED operations.

Key words: Emergency nurses; Avian influenza; Protection Motivation Theory; Report to work; Duty to work; Absenteeism

Genetically mutated avian influenza (AI) virus, which is transmitted from animals to humans and between humans, has the potential to cause rapid, virulent, and prolific infection with significant mortality.[1] AI infection frequently leads to respiratory distress and organ failure within a few days. Fatality rates range from 50% to 80%.[2] Treatment requires interdisciplinary services ranging from emergency care to public/community health responses. However, research regarding emergency nurses' response to an AI threat is limited.

The World Health Organization and Homeland Security Council have created guidelines to help minimize and contain infectious disease outbreaks.[3] However, during an outbreak, projected absenteeism rates for health care providers range from 30% to 60% nationally.[4] This absentee rate could have a major impact on delivery of health care services and the country's ability to successfully manage an AI pandemic.[5]

Understanding emergency nurses' perceptions regarding the likelihood of reporting to work during a pandemic are essential to maintaining vital health care services during an AI outbreak. The purposes of this study were to determine the likelihood that emergency nurses would report to work during an AI outbreak, consider options if nurses decided not to report work, and explore Protection Motivation Theory (PMT) constructs as predictors of reporting to work.

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Methods

In 2011, the United States had more than 100,000 emergency nurses.[6] A sample size power analysis revealed that 321 survey responses were required for generalizing the results to the ENA population of emergency nurses.[7] A total of 769 emergency nurses were randomly selected after permission was obtained from the University Human Subjects Committee. The survey instrument was developed using the PMT.[8] PMT was developed to explain how individuals cognitively process fear-arousing communications and the effect of fear appeals on health attitudes and health behavior. The message can involve any threat for which there is an effective recommended response that can be carried out by the individual.[9,10] In addition, the Social Responsibility Scale was embedded into the questionnaire to assess emergency nurses' level of social responsibility. The Social Responsibility Scale consisted of 7 items, each with a 5-point Likert-type response format (strongly agree to strongly disagree).[11] The last page of the survey included 18 background and demographic items.

To establish face validity of the items on the questionnaire, the items were created based on previous studies surveying absenteeism and health care providers. Content validity was established by sending the instrument to an expert panel for review (n = 7). The instrument was revised according to the recommendations of the experts. Internal consistency reliability was calculated using Cronbach's α based on responses to the survey from the final mailing. Data collection procedures included a 4-wave mailing. To maximize response rates, multiple techniques were used based on recommendations from a systematic review of postal surveys.[12] The data collection process extended over an 8-week period beginning in July 2011 and ending in September 2011.

The Statistical Package for the Social Sciences (SPSS) version 17.0.1 was used to analyze the data.[13] Descriptive statistics were used to describe the responses to the questionnaire items and the demographic/background characteristics of the respondents. Both parametric and nonparametric statistical tests were used.

Results

DEMOGRAPHIC AND BACKGROUND CHARACTERISTICS

The response rate was 46%. The average age of the emergency nurses was 41 years (Table 1). The majority of emergency nurses obtained a bachelor's degree (55.2%). Although the majority of respondents (88%) indicated they currently worked in the emergency department, 1 in 10

TABLE 1
Demographic characteristics of emergency nurse respondents

Characteristic	*n*[a]	%
Gender		
Female	246	83.0
Male	51	17.0
Age (y)		
18-30	51	20.0
31-40	83	32.0
41-50	59	23.0
51+	63	24.0
Level of education		
Associate degree	84	28.2
Diploma	5	1.7
Bachelor's degree	164	55.0
Master's degree	40	13.4
Doctoral degree	2	.7
Employment setting		
Urban	177	59.4
Suburban	70	23.5
Rural	46	15.4
Pregnancy status		
No	227	76.7
Not applicable	54	18.2
Yes	14	4.7
Unsure	1	.3
Living arrangements		
Spouse/significant other	215	75.0
Live with children	149	52.0
Other relative(s)	20	7.0
Parents	19	7.0
Caring role(s)		
Others living outside of home	53	18.4
Living in home with physical or mental disability	14	4.7
Insurance		
Health insurance	293	98.7
Disability insurance	264	88.9
Health and Human Services pandemic influenza education		
Received training	286	96.3
Pets at home	220	72.6

[a] n = 317. Percentages may not equal 100% because of rounding and/or nonreported answers.