
Implications of Public Understanding of Avian Influenza for Fostering Effective Risk Communication

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Avian influenza has three of the four properties necessary to cause a pandemic. However, are we as individuals and communities prepared for a pandemic flu in the United States? To help answer this question, 12 focus groups (N = 60) were conducted in Tulsa, Oklahoma, to determine the level of awareness of avian and pandemic flu for the county health department to develop effective communication messages. The overall findings indicate that the general Tulsa public lacks information about avian influenza or pandemics, does not believe a pandemic will occur, and believes if one does occur the government will take care of it. Finally, the groups agreed that education would be the key to preventing widespread panic if a pandemic occurred. Five themes emerged: confusion about terminology, seriousness of avian influenza, disaster fatigue, appropriate precautions, and credibility of health information. Each should be considered in developing effective risk communication messages.

Keywords: risk communication; avian influenza; pandemic; focus groups

Avian influenza or H5N1 has 3 of the 4 properties necessary to cause a serious pandemic: It can infect people, nearly all people are immunologically naive, and it is highly lethal.

Bartlett, 2006, p. 141

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Despite advances in patient care and biomedical science, infectious diseases including influenza remain a leading cause of death, especially among those who are elderly and very young and those with weakened immune systems (Centers for Disease Control & Prevention, 2007). This underscores the fact that rapid, direct human-to-human transmission of highly pathogenic infectious diseases has the potential to produce localized epidemics or even become pandemics on a regional, national, or global scale (Riley, 2007). With influenza, this happens when a strain of the virus that is highly pathogenic in humans acquires the ability to spread easily between people following genetic reassortment of a zoonotic influenza A virus. The lack of immunity allows the new virus to spread more rapidly and widely than "ordinary" flu viruses because all or most people will not previously have been infected by it, and nobody will have been vaccinated against it. For

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example, there were three major influenza pandemics during the 20th century—the 1918-1919 Spanish flu, the 1957 Asian flu, and the 1958 Hong Kong flu—that became truly global in scale because each of those pathogenic strains acquired the ability to spread easily and rapidly between humans (Potter, 2001). Moreover, the 1918-1919 Spanish flu pandemic was especially lethal and killed an estimated 40 million people. As a result, widespread outbreaks of H5N1 avian influenza, commonly referred to as “bird flu,” in poultry and deaths among humans attributable to the disease since 1997 have generated growing concern within the medical and policy communities over the likelihood of a devastating pandemic causing extensive mortality and morbidity (Gupta et al., 2006; Lanard & Sandman 2005; Park & Glass, 2007; Sandman & Lanard, 2004).

In the U.S. context, state and local public health agencies and the private sector will inevitably play a significant role in providing patient care if a pandemic happens to minimize adverse human health and socioeconomic impacts (*National Strategy for Pandemic Influenza*, 2005; *North American Plan for Avian and Pandemic Influenza*, 2007). This underscores the importance of systematically assessing public understanding of the risks associated with H5N1 avian influenza. In this article, we present the results of a series of focus groups conducted during 2006 that gauged public perceptions and concerns about avian influenza, including the likelihood of rapid human-to-human transmission beyond current “hotspot” areas.

TABLE 1
Focus Group Demographics

Type of Focus Group	Number of Focus Groups
Married couples	2
Income ± \$40,000	2
Heterogeneous, drawn from the community	2
Mothers with school-age children	2
Fathers with school-age children	1
Senior citizens	1
First responders	1
Community leaders	1
Total	12 (N = 60)

Such insights are essential for enhancing the utility of government communications about the potential risk of and preparedness for a pandemic.

► METHOD

The Southwest Center for Public Health Preparedness, 1 of the 27 Centers for Public Health Preparedness funded by the Centers for Disease Control and Prevention, assisted the Tulsa City County Health Department (TCCHD) in securing the services of an independent research company to conduct focus group research regarding citizens' awareness, attitudes, and perceptions related to avian influenza and the outbreak of a pandemic. The goal of the study was to gain a better assessment of Tulsa citizens' knowledge and attitudes regarding their level of preparedness for a pandemic to assist the TCCHD in developing more effective message strategies. The study consisted of 12 focus groups of varying demographic composition (see Table 1).

The 12 focus groups were conducted between July 31 and August 11, 2006. Each focus group ranged from 4 to 6 participants with a total of 60 participants. Participants were recruited from Tulsa County with varying demographics. The intent was to find a cross-section of Tulsa County residents representing senior citizens, married couples, mothers and fathers with children in the home, emergency medical personnel, community leaders, the general population of Tulsa County, and families with household incomes both above and below \$40,000 per year. Each participant received a \$100 incentive. Half of the participants were recruited by TCCHD, and half were recruited by the independent research company. Each focus group was 1-1.5 hr in length and led according to a discussion guide. Each focus group was led by an experienced facilitator, video recorded, and later transcribed for the

TABLE 2
Exercises in Discussion Guide

<i>Exercise</i>	<i>Type</i>
1. Complete a questionnaire to determine overall knowledge of avian flu and belief in the preparedness of federal, state, city government, Tulsa County Health Department, area hospitals, and personal physicians to handle a pandemic.	Individual activity/group discussion
2. List the top five health concerns for you and your family over the next 2 years.	Group discussion
3. What preparations have you made to get ready for an outbreak of pandemic flu?	Group discussion
4. Participants were asked if they were aware of any preparations for a possible avian flu pandemic that had been made at schools or workplaces	Group discussion
5. Listen to a press release that states that the first human case of avian flu has been discovered in Tulsa County and list the first three things that you would do following hearing this news	Scenario/group discussion
6. Listen to a press release that states that there are three confirmed human cases in Tulsa County AND proven human-to-human transmission.	Scenario/group discussion

identification of key concepts. The findings from the focus groups were presented to staff of the TCCHD and the Southwest Center for Public Health Preparedness in December 2006 with follow-up recommendations.

The discussion guide was developed to determine the general level of awareness and knowledge of avian and pandemic flu, the public's level of concern regarding a pandemic, and the level of preparedness for a pandemic. Six exercises (Table 2) designed to keep the group interactive were presented by the facilitator to each focus group and consisted of three sections beginning with a questionnaire and followed by group discussion and discussion/reaction to specific scenarios.

The questionnaire (Table 3) generated by the independent research company had two sections, beginning with general information about avian flu and proceeding to trust in preparedness of the government and local officials.

The scenarios were designed to observe the participants' reactions given specific messages and information. The first scenario was presented as a single local case scenario with the infected person isolated, no evidence of human-to-human transmission, no vaccine available, explanation of symptoms, and advice to wear a mask and seek medical attention if symptoms were present. The second scenario was presented as having three people in Tulsa infected with human-to-human transmission verified and strong suggestions to stockpile food and supplies for a possible quarantine. Responses and reactions are presented in the Results section.

► RESULTS

The overall findings of the focus groups indicate that the general public in Tulsa, Oklahoma, lacks information

TABLE 3
Questionnaire

1. What is the avian flu?
2. Where is the avian flu now?
3. Is the avian flu infecting people?
4. How is the avian flu transmitted?
5. Can the avian flu be transmitted between people?
6. Is the avian flu in the United States? If so, where?
7. If not, is it expected to come to the United States? If yes, when?
8. If you get the avian flu, what are your odds of dying from it?
9. What are the symptoms of the avian flu?
10. On a scale of 1 to 10, with 1 representing *totally unprepared* and 10 representing *totally prepared*, rate your perceptions of the avian flu outbreak preparedness of the following:
 - U.S. government
 - Oklahoma state government
 - Tulsa city government
 - Tulsa County Health Department
 - Tulsa area hospitals
 - Your doctor
 - Yourself

about avian influenza or pandemics, does not believe a pandemic will occur, and believes that if one does occur, the government will take care of it. Finally, the groups agreed that education would be the key to preventing widespread panic if a pandemic were to occur.

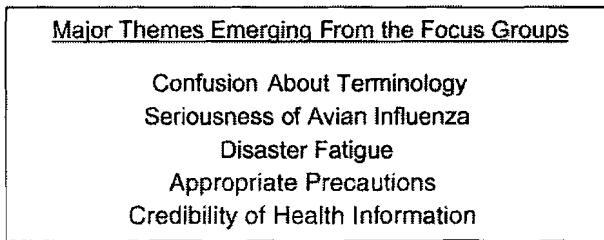


FIGURE 1 Emerging Themes

Specifically, five themes emerged from the focus groups (see Figure 1).

First, most participants were confused on terminology. A number of participants confused avian flu with Asian flu. Many respondents indicated they had never heard the word *pandemic* and associated the word *pandemic* with panic, Pandora's box, and pandemonium. Overall, this population does not know much about avian or pandemic flu and generally does not believe a pandemic will occur.

A second theme from the focus group data was related to top health concerns and the seriousness of avian influenza. None of the groups listed avian or pandemic influenza as one of the top health concerns facing Americans today. The top health concerns revealed within this study were cancer, diabetes, heart disease, and the cost of health care and prescriptions. Participants indicated they did not believe avian influenza was deadly and believed a person could manage the disease much like one would manage a sexually transmitted disease, chicken pox, or the common cold. Few participants believed avian influenza could result in death, and a major finding was the concept that it is no longer a concern because the media has stopped covering it.

The third theme emerging from the groups' discussion centered around what was identified as "disaster fatigue." Many believed that public health concerns about avian influenza resembled "the boy who cried wolf." They reported that they had heard this before with severe acute respiratory syndrome, mad cow disease, and the Y2K scare. One group member reported, "It is hard to be concerned about something that isn't affecting us. . . Katrina wasn't us, 9/11 wasn't us, and the Oklahoma City bombing wasn't us either."

The fourth major theme emerging from the groups' discussions regarded the appropriate precautions to take regarding avian influenza. Many participants indicated that avian influenza was "just like the regular flu . . . it's nasty when you get it, but doesn't last long." The group

agreed that handwashing, disinfecting, and cooking chicken thoroughly would prevent the spread of avian influenza. Other misperceptions included "if you live a healthy lifestyle, it won't be dangerous to you" or "it is only a danger for children and the elderly." Participants were unable to accurately estimate the avian influenza mortality rate; estimates ranged from 1% to 95%. Most participants indicated that they knew very little about how to prepare or respond to an outbreak or pandemic. Focus group members reported they were not more concerned and had not purposefully prepared for a pandemic like avian influenza because "I don't believe it will actually happen; we live in the United States—we're immune to catastrophe; the government will help us—they must have a plan" and "By the time it's a problem, we'll have a vaccine." However, participants did indicate a willingness to become better prepared if they were to receive information from what they considered a "credible source."

The fifth theme emerging from the focus groups' discussion had to do with the credibility of health information. Two contrasts emerged. At one end of the spectrum was a distrust of traditional media outlets; as 1 participant indicated, "The media sensationalizes everything for ratings, even when there is nothing to worry about." At the other end of the spectrum was a distrust of the government; as 1 respondent reported, "When the government uses the media to disseminate information, they sugarcoat it so that we don't worry as much as we should." Focus group participants did perceive their local health department to be credible and prepared, indicating that the health department was "more prepared than hospitals, personal physicians, and the state government." Focus group members indicated the TCCHD was both knowledgeable and trustworthy. Finally, focus group members indicated that they wanted health information that was "specific and told them what to do and why they need to do it" in the event of an outbreak of avian influenza, pandemic, or any other health emergency.

► CONCLUSIONS

The need for pandemic influenza preparedness as demonstrated in this study is extensive. Preparing to meet this need requires major effort at the level of local and regional planning and should include alerting the public to the risk associated with a pandemic influenza and including the public in the preparedness effort.

The findings from these focus group responses support the literature on community and personal preparedness and risk communication. Unfortunately, many citizens do not believe they are adequately prepared for

a catastrophic event (Lasker, 2004; Redliner, Markensen, & Grant, 2003). Although citizens are concerned about the likely occurrence of a disastrous event, they have concerns about the ability of local, state, and federal governments' ability to respond effectively. Furthermore, citizens are not aware of the plans that are in place, resulting in a lack of confidence in public officials and agencies. However, as the focus groups indicate, citizens continue to believe the government will be able to care for them in event of a major disaster. As demonstrated by the participants from the Tulsa County area, local, credible trustworthy information from local, credible sources is highly desired. Finally, as demonstrated by the focus groups in this study, citizens want to be involved in disaster planning. These findings support the literature that suggests that citizens want to have direct input into community planning (Fischhoff, 2002; Perry & Lindell, 2003). Huddy, Feldman, Capelos, and Provost (2002) suggested that citizens' adequate understanding of threats is what motivates them to participate in preparedness planning. Fischhoff (2002) and others have indicated that it is a general lack of knowledge and input from citizens that undermines effective disaster response at the individual and local levels (Lasker, 2004; Redliner et al., 2003). This appears to be evident, considering that there has been prolific media coverage of the avian flu, with approximately 90 articles a month in major national newspapers (Dudo, Dahlstrom, & Brossard, 2007). It is a safe assumption that many American citizens have been exposed to information about avian flu; however, accurate communication of risk has been faulty.

As a part of emergency preparedness and response, risk communication principles need to be integrated fully into the plans and training of communities and responders. Making informed decisions about risky situations requires quality information for individuals to make individual-level risk judgments to be prepared to respond and recover appropriately. Using a comprehensive approach such as the crisis and emergency risk communication integrative model combines elements of risk communication and crisis communication into a hybrid form (Reynolds & Seeger, 2005). The crisis and emergency risk communication model allows public health professionals and organizations to work together to develop messages that address the possibility of harm from an event, combined with strategies for disaster management. This blended form, as indicated by Reynolds and Seeger (2005, p. 51), accounts for the "evolution of a risk factor into a crisis event and on through the clean-up and recovery phase."

In support of the crisis and emergency risk communication model, a summary report prepared for the Risk Management Directorate of the Treasury Board of Canada (Hill, 2005) detailed the differences between risk communication and crisis communication and emphasized the need for public health professionals to be proactive and fill the information vacuum between the scientific assessment of risk and the public's understanding. It is not unusual for public perception of risk to fail to match scientific facts (Ropeik & Gray, 2002), and professionals should become comfortable with having to reduce fear and overcome denial (Sandman, 2007).

As published by the Pan American Health Organization, Sandman and Lanard (2005) depict the core area of concern related to risk perception to be in the perceived definitions of risk. Morbidity and mortality are the outcomes associated with risk for experts and are typically the focus of risk communication messages; for the general public, it is more the outrage associated with an event that drives the perceived risk and brings importance to the issue. Sandman and Lanard (2004, p. 2) stated that "flu is a perfect paradigm of the high hazard low outrage risk" that does not grip the public's emotions. It is natural, familiar, chronic, and not dreaded and has no issues with fairness, morality, trust, or responsibility (Sandman & Lanard, 2004, 2005). In effect, as evidenced by the results of this study, pandemic flu is a flu like any other that will come and go and, if need be, will be taken care of by officials in charge.

Arousing public concern around the concept of a pandemic flu will not be easy. As evidenced by the focus groups conducted by TCCHD, education is the key component of awareness, preparedness, and response for all concerned. Developing risk communication messages that quantify the risk, address the outrage, and educate the public with information that fills gaps in knowledge is the challenge placed before public health professionals. Historical events and lessons learned regarding pandemic flu will be of little use without the proper organizational process that involves not only the opinions and concerns of experts in the fields of public health and health care, but also the opinions and concerns of the general public and risk communication specialists (Fischhoff, 2005).

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