

Americans' perceptions of and likely responses to the threat of avian influenza in the U.S. food supply

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**Americans' perceptions of and likely responses to the threat
of avian influenza in the U.S. food supply**

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INTRODUCTION

Highly pathogenic avian influenza has affected poultry consumption in all affected countries as well as some countries that have not been affected.¹ If, as some predict, there is an outbreak of avian influenza in poultry in the U.S., there will likely be serious repercussions on the entire food system.

To predict what might happen if avian influenza emerged in poultry or wild birds in the U.S. researchers at the Food Policy Institute at Rutgers, the State University of New Jersey, conducted a national survey of public knowledge, attitudes, intentions, and behaviors related to the threat of avian influenza in the food supply.

METHODOLOGY

A total of 1200 telephone interviews, lasting an average of 22 minutes, were completed between May 3, and June 5, 2006.² The survey sample was selected through a random digit dial list. The sample selection procedures ensure that every household within the United States has an equal chance to be included in the survey. Each selected number was called a maximum of 15 times with calls distributed across days and times to try to reach a member of the household. The data was weighted using appropriate U.S. census weights for gender, age, race, ethnicity, and education. The cooperation rate was 60%.

The project was funded through a National Integrated Food Safety Initiative grant awarded by the US Department of Agriculture (USDA) Cooperative State Research, Education, and Extension Service (CSREES) and the New Jersey Agricultural Experiment Station.

FINDINGS

Are Americans aware of avian influenza?

Most Americans say they have heard of avian influenza.

Most Americans (93%) say they have heard something about avian influenza or “bird flu.” Only seven percent say they have heard “nothing at all.” More than four in ten (44%) say they have

¹ E.g., Directorate General Health and Consumer Protection (June, 2006). Special Eurobarometer 257, Wave 65.2.

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heard “a lot” or “a great deal” about it, while about one-third (32%) say they have heard “some” and 17% say they have heard “a little.”

Most Americans have talked about avian influenza with someone else.

Nearly three-quarters of Americans (71%) report having talked about avian influenza with someone else. Only 29% say they have “never” talked about avian influenza with anyone else, while most (47%) say they have talked about it “once or twice” or “a few times.” Nearly one-fifth (19%) say they have talked about it “occasionally” and 5% report having had “frequent” conversations.

Yet, most Americans say they don’t know much about avian influenza.

Although most people say they have both heard about avian influenza and have talked about it with others, only 13% say they know “a lot” or a “great deal” about it. Instead, the majority say they know only “a little” (36%) or “some” (35%) about avian influenza, and sixteen percent say they know “nothing.”

About 4% of those interviewed (53 respondents) said that they had both *heard* “nothing at all” and *knew* “nothing at all” about avian influenza. With the exception of questions about their demographic information, they would have merely guessed at the answers to subsequent questions. Because of this, they were not asked to participate in the remainder of the survey. A logistic regression analysis suggested that there were no differences in age, gender, ethnicity, marital status, or region of the country, between those excluded from the majority of the survey and those who completed the entire survey. However, those excluded were more likely to be African-American than White³ and to have less education⁴ than those who completed the remainder of the survey.⁵

How much do people know about the global spread of avian influenza?

The majority of Americans know that people have been infected with avian influenza in other countries.

Most of the respondents (87%) said that they knew that people had been infected with avian influenza in some places around the world. Only about 5% said that people hadn’t been infected, and 8% said they did not know.

³ (OR=2.68 [95% CI=1.22, 5.9])

⁴ (OR=0.42 [95% CI=.31, .57])

⁵ Since the remainder of the survey applied only to Americans who said that they had heard or knew something about avian influenza, it is important to note that an additional 4% of the population would likely said that they were unsure about the answers to the questions discussed below.

However, one-fifth of Americans think that people in the United States have also been infected.

Nearly one in five (19%) believe incorrectly, that people in the U.S. have already been infected with avian influenza, and an additional 20% aren't sure. Only 61% of the respondents correctly reported that no one in the U.S. has been infected with avian influenza.

More than half of Americans believe that avian influenza can be spread through contact with other people infected with the virus, and that this is already happening.

More than half (54%) believe that the disease *can* be spread through contact with other people infected with avian influenza, yet, only 53% believe that avian influenza is not *currently* spread easily from person to person.

The majority of Americans know that chickens and wild birds have been infected in places around the world, but many are unsure about the status of infection within the U.S.

The majority (72%) of the respondents said they knew that chickens had been infected with highly pathogenic avian influenza⁶ in some places around the world, 8% said they had not, and 20% said that they didn't know. However, about 10% thought that chickens in the U.S. *have* been infected, and nearly one third (31%) said they weren't sure.

Similarly, 65% reported that wild birds have been found to have been infected with avian influenza in places around the globe 11% reported that they had not, and 24% said that they didn't know. However, about one in six (17%) thought that there had been cases in the U.S. and more than one-third (35%) were not sure.

Do Americans believe that avian influenza is currently a threat to them?

Most Americans (58%) agree that the risk of getting sick with avian influenza from eating chicken is increasing. More than two-thirds (69%) agree that chickens infected with the avian influenza in the U.S. food supply could kill many people in a short period of time.

Further, two-thirds (67%) agree that getting sick with avian influenza from eating chicken is a risk that could threaten future generations of people and more than half (59%) agree that if chickens were infected with avian influenza in the U.S. food supply, it would cause a global catastrophe.

⁶ Low pathogenic strains of avian influenza are known to be endemic in poultry and wild birds in the United States. As such, to clarify our questions the respondents were told that we were only asking about the "type of bird flu caused by H₅N₁, also known as highly pathogenic bird flu".

Nearly one-quarter believe it is certain they would die if they became sick with avian influenza from eating infected chicken.

Nearly one-quarter (23%) agreed that if they got sick with avian influenza as the result of eating chicken, it is certain that they would die (another 9% weren't sure), and more than one in ten (11%) agreed that if they got sick with avian influenza from eating chicken, they would die immediately (8% weren't sure).

BUT, Most Americans view their own risk of infection from avian influenza as very low.

The respondents were asked to indicate how much of a risk they thought they had for becoming infected with avian influenza within the next year using a scale of 0 to 10, where 0 represented "no risk at all" and 10 "absolute risk." The mean response was 2.6 (SD=2.5) and median response was 2. In fact, more than one quarter (26%) reported that they felt that they were at no risk at all⁷.

Most see the risks of infection from avian influenza as much greater for other Americans than for themselves.

In contrast, the respondents rated the risk of infection with avian influenza for other Americans as significantly greater than their own⁸. Using the same 0 to 10 scale, the mean risk of infection for others was judged to be 4.1 (SD=2.5) and the median 4.0. Only 7% of participants reported that other Americans were at "no risk at all" from becoming infected with avian influenza.

Most Americans are not worried about infection from avian influenza.

On a scale of 0 to 10, where 0 represented "not at all worried" and 10 represented "extremely worried," most respondents indicated little worry about avian influenza (mean = 2.9, SD=2.9, median=2.00). More than one-quarter (28%) reported that they were not worried at all.

Similarly, few believe that they are *personally* at risk of getting avian influenza as the result of eating chicken.

Fewer than one-third of Americans (31%) agree that they are personally at risk from getting sick with avian influenza from eating chicken. Nearly two thirds (63%) agree that they can think calmly about getting sick with avian influenza from eating chicken and more than half (53%) agree that the risk of getting sick with avian influenza from eating chicken is something they have learned to live with.

⁷ About 6% said they were unsure.

⁸ $t(1045) = -21.980, p < .001$

How do Americans believe avian influenza is spread to humans?

Most Americans believe it is possible to get avian influenza through contact with infected birds.

Most (76%) know that it is possible to get avian influenza through contact with feces from an infected bird⁹ or through touching live birds infected with the avian influenza virus (70%). More than half (59%) also believe that it is possible to get avian influenza by touching raw meat from an infected chicken. Yet, less than half (48%) correctly reject the idea that one can get avian influenza through mosquito bites.

The majority of Americans believe that it is possible to get avian influenza through eating undercooked chicken.

Most Americans (78%) believe that it is possible to get avian influenza through eating undercooked meat from an infected chicken and only about 4 in 10 reject the idea that one could get avian influenza through eating fully cooked meat (39%) or eggs (39%) from an infected chicken. Moreover, most Americans (61%) also agree that if they ate chicken infected with the avian influenza virus it is *certain* that they would get sick.

Do Americans think they could avoid the avian influenza virus in the food supply?

Fewer than half believe that cooking chicken to recommended temperature kills the avian influenza virus.

Nearly two-thirds (63%) of respondents knew that it was true that the avian influenza virus is present in the uncooked meat of an infected chicken (24% weren't sure), and 62% correctly indicated that freezing chicken does not kill the virus (30% weren't sure). However, fewer than half (42%) correctly indicated that cooking chicken to recommended temperatures kills the avian influenza virus (31% weren't sure), and 21% thought incorrectly that irradiating raw chicken kills the virus (nearly half (48%) weren't sure).

Only one-in-eight believe that live chickens with avian influenza are easy to identify, while one-in-four believe that safety inspectors could visibly identify raw chicken with the virus.

While only 22% agree that they know a lot about how chickens can become infected with avian influenza, 62% are convinced that *scientists* know a lot about it. Only 12% agree that it is easy to tell when live chickens are infected with avian influenza by looking at them. In contrast, one-quarter incorrectly (26%) believe that when raw chicken is infected with avian influenza, safety inspectors can visibly see that it should not be consumed.

⁹ The respondents were asked to evaluate a series of statements about possible ways of getting sick with avian influenza indicating whether they thought each was definitely true, likely true, likely false, or definitely false; or to indicate that they didn't know.

Yet, seven in ten (71%) agree that the risk of getting sick with avian influenza from eating chicken can be easily reduced.

More than three quarters (78%) agree that “there are things I can do to protect myself from getting sick with avian influenza.” More than half (57%) agree that if chickens in the U.S. became infected with avian influenza, widespread cases of infections in people could be controlled.

Do Americans feel that chicken in the U.S. is currently safe to eat?

The respondents were asked to rate the safety of consuming chicken in various forms in the United States using a scale of 0 to 10, where 0 represents “not at all safe” and 10 represents “completely safe.” Not surprisingly, respondents rated “chicken that was cooked to the recommended internal temperature” (m=7.5, SD=2.3) and “fresh chicken you cook at home” safest (m=7.4, SD=2.5). “Chicken that had a label certifying it as free from avian influenza”¹⁰ (m=7.2, SD=2.7) was ranked nearly as safe. In the third tier of rankings were: “chicken that was a familiar brand” (m=6.9, SD=2.5); “cooked chicken prepared from chickens certified as organic” (m=6.8, SD=2.6); “cooked chicken that had been frozen first” (m=6.8, SD=2.7); “chicken in canned soup” (m=6.7, SD=2.8); and “chicken that’s been vaccinated against the avian influenza”¹¹ (m=6.6, SD=2.8). Rated as least safe were “chicken that’s been irradiated”¹², (m=5.9, SD=3.0) and “chicken from a fast food restaurant” (m=5.9, SD=2.8).

What would happen if the avian influenza virus got closer to the United States?

The results suggest that the closer avian influenza comes in terms of geography, the less likely Americans are to eat chicken.

However, the results also suggest that avian influenza does not necessarily have to emerge in the United States to have an effect on poultry consumption. After imagining that avian influenza was found in chickens on farms in England, respondents rated the mean likelihood that they would eat chicken in the U.S. as 6.7 (SD=3.1) and 8% said they would definitely not eat chicken. Americans were even less likely to eat chicken in the U.S. if avian influenza were found in chickens on Canadian farms (m=5.2, SD=3.3) (16% would definitely not eat chicken), or if it were found on Mexican farms (m= 5.0, SD=3.5) (21% would definitely not eat chicken). Americans were also less likely to eat chicken in the U.S. if avian influenza was found in wild birds in the U.S. (m=4.5, SD=3.4) (24% would definitely not eat chicken).

¹⁰ This is a hypothetical question. While the industry has an extensive avian influenza testing program, no such products were on the market certified as avian influenza-free.

¹¹ This is a hypothetical question. While an avian influenza vaccination for poultry exists, chickens in the United States have not routinely been vaccinated against the H₅N₁ virus.

¹² Many Americans know little about food irradiation, so it was not surprising that 160 respondents were unable to give a rating of safety for irradiated chicken.

How would poultry sales be affected if the avian influenza virus was found INSIDE the United States?

The respondents were assured that the highly pathogenic form of avian influenza, known as H₅N₁ has NOT been found in the United States. They were then asked to imagine several scenarios and after each, to rate how likely they would be to eat chicken in the U.S. They were asked to use a scale of 0 to 10, where 0 meant “definitely would *not* eat chicken” and 10 meant “definitely *would* eat chicken”. Not surprisingly, Americans reported being least likely to eat chicken in the U.S. if avian influenza was found in chickens on farms in the U.S. (m=3.1, SD=3.2) or if it were found that someone got sick with avian influenza from eating chicken in the U.S. (m=3.6, SD=3.3). Indeed, if found on U.S. farms 39% reported that they would definitely not eat chicken and 32% gave similar ratings if someone got sick with avian influenza in the United States.

If avian influenza is found in U.S. chickens, would consumers eat chicken products?

Most chicken products would be rejected by consumers if avian influenza were found in U.S. chickens.

In a hypothetical scenario, the respondents were then asked to imagine that they had heard that the United States Department of Agriculture had announced that avian influenza had been found in chickens on U.S. farms. They were then asked to rate how likely they would be to eat various chicken products in the U.S. in this situation, using the same 0 to 10 scale, where 0 meant “definitely would *not* eat chicken” and 10 meant “definitely *would* eat chicken”. The results suggest that most Americans would be reluctant to eat *any* chicken products under this scenario, rating each significantly below a mean of 5. The respondents indicated that they would be most likely to consume chicken that had a label certifying it as free from avian influenza (m=4.4, SD=3.5). They indicated that they were less likely to eat: “chicken that was cooked to the recommended internal temperature” (m=4.0, SD=3.5); “fresh chicken cooked at home” (m=4.0, SD=3.5); “fresh eggs cooked at home” (m=4.0, SD=3.6); or chicken that had been vaccinated against the avian influenza (m=3.8, SD=3.3). Rated in a third tier were: “chicken that was a familiar brand” (m=3.4, SD=3.3); “chicken in canned soup” (m=3.4, SD=3.4); and, “cooked chicken prepared from chickens certified as organic” (m=3.4, SD=3.3). Participants were least likely to eat cooked chicken that had been frozen first (m=3.3, SD=3.3); chicken that had been irradiated (m=3.1, SD=3.2); or chicken from a fast food restaurant (m=2.5, SD=3.0).

USDA assurances of the safety of eating chicken may not immediately restore confidence in the poultry supply.

Those respondents who reported that in the event that avian influenza were found in chickens on U.S. farms they would be relatively unlikely to eat chicken (less than or equal to 4 on the 0-10 scale; n=700), were told that while still “imagining that avian influenza had been found in chickens in the U.S., please imagine that you later heard the USDA had done an investigation, and found that no chickens with avian influenza had entered the food supply and no other

chickens had become infected. Based on this information, and using the same scale where 0 means definitely would not eat and 10 means definitely would eat, how likely would you say you would be to start eating chicken?" Participants reported that they would be significantly more likely to eat chicken ($m=4.5$, $SD=3.2$) given that no additional chickens were found¹³ and only 20% of participants said they definitely would not eat it even in this scenario. Twenty percent said they would never eat chicken again. Those who said they would go back to eating chicken were asked how long it would take for them to do so, and responses ranged from 1 day to 10 years. The median response was 42 days (6 weeks). The mean response was 146 days (about 5 months; $SD=340$).¹⁴

The CDC is the source most trusted by Americans to give advice about avian influenza.

The respondents were asked to rate ten institutions according to how much they would trust the advice each would give about avian influenza. On a scale of 0 to 10, where 0 corresponded to "no trust at all" and 10 "complete trust" the U.S. Centers for Disease Control and Prevention was rated as most trustworthy ($m=7.2$, $SD=2.5$). The World Health Organization ($m=6.5$, $SD=2.7$), and the U.S. Department of Agriculture ($m=6.4$, $SD=2.6$) were also rated highly and slightly (but significantly) above the U.S. Food and Drug Administration ($m=6.2$, $SD=2.8$). U.S. chicken farmers were given a mean rating of 5.2 ($SD=2.6$), higher than that of chicken processors ($m=4.6$, $SD=2.8$), and the U.S. Department of Homeland Security ($m=4.6$, $SD=3.1$). Least trusted to give advice about avian influenza were the news media ($m=4.3$, $SD=2.7$), President Bush ($m=4.3$, $SD=3.5$), and supermarkets ($m=4.2$, $SD=2.7$).

CONCLUSIONS

Avian influenza is on the national agenda. Most Americans have heard about it and have talked about it, but don't know much about it. Most are aware of the presence of avian influenza in people, birds, and poultry globally, but many are confused about the status of avian influenza in the U.S.

Most Americans see their current risks as low and aren't particularly worried about avian influenza. They see the current supply of chicken products as relatively safe, and they continue to eat it. However, the belief that others are at greater risk (optimistic bias) may be a problem in getting messages across, in influencing perceived susceptibility, and in persuading appropriate behaviors.

Significant work must be devoted to key messages. Most believe it possible to become infected through contact with infected birds and through eating undercooked chicken. But, many do not believe that proper cooking kills the virus and many think that infected poultry meat is easy to spot.

¹³ $t(699) = -29.191$, $p < .001$

¹⁴ One case of "20 years" (7,300 days) was considered "never" for the analysis.

If cases of avian influenza emerge in the United States, poultry sales will suffer as many consumers stop eating all poultry products and substitute other food products. Moreover, if avian influenza emerges in either Canada or Mexico, there will likely be effects on U.S. poultry consumption. Even after reassurances that the food supply is safe, it will take many months for the industry to recover, and messages even from trusted organizations may not be sufficient to restore confidence.