

Outbreak of a New Strain of Flu at a Fair

[Announcer] This program is presented by the Centers for Disease Control and Prevention.

[Mike Miller] Hello, I'm Dr. Mike Miller and today I'm talking with Dr. Karen Wong, an EIS officer with the Centers for Disease Control and Prevention. Our conversation is based on her study about flu outbreaks at agricultural fairs, which appeared in CDC's journal, *Emerging Infectious Diseases*. Welcome, Dr. Wong.

[Karen Wong] Thanks so much for having me here.

[Mike Miller] There was an outbreak of a new flu strain called H3N2 Variant Virus during an agricultural fair in Pennsylvania in 2011. How did this happen and how many attendees were infected by this new virus?

[Karen Wong] When an influenza virus that normally circulates in swine infects a person, we call it a variant influenza virus. At this fair in Pennsylvania, it's likely that a flu virus in the pigs at the fair spread to people when they had contact with infectious pigs at places like the swine barn, the swine show, and the livestock auction.

We found 89 people who had flu-like symptoms after going to the fair; three of those people had a lab test confirming infection with variant influenza virus, and four had lab tests showing they probably had variant influenza virus infection. The rest weren't tested, but we suspect that for most of them, their symptoms were caused by the same virus.

[Mike Miller] In your article you say that H3N2 variant is a "re-assortment of flu" virus? What does that mean?

[Karen Wong] Well, when an animal or human gets infected with more than one flu virus at the same time, those viruses can swap genetic material and create a new, different flu virus. This process is called re-assortment, and it can produce viruses that have never been seen before. The H3N2 variant virus from this outbreak was a swine influenza virus that picked up genetic material from a flu virus that commonly infects people, the 2009 H1N1 pandemic virus. We think this re-assortment took place in pigs.

[Mike Miller] Well, how is this virus different from seasonal flus or the Pandemic flu, H1N1?

[Karen Wong] The H3N2 variant virus from this outbreak differs from the seasonal H3N2 virus and the 2009 H1N1 pandemic virus in a few important ways. First, the H3N2 variant virus does not spread easily from person-to-person, unlike those other viruses. Most people who have gotten this variant virus picked it up from contact with swine and agricultural fairs, not from other sick people. Second, because the H3N2 variant virus is not a seasonal virus, some people, especially children, don't have any immunity against it. And third, the annual seasonal flu vaccine does not protect against the H3N2 variant virus as it does against seasonal viruses. So, it's really good that this variant virus doesn't spread easily between people, because if a virus is contagious among people, and people don't have immunity against it, it can cause a large-scale epidemic or even a pandemic.

[Mike Miller] What are the symptoms of H3N2 variant influenza and are they different from other flu viruses?

[Karen Wong] Variant influenza causes flu-like symptoms similar to those caused by seasonal flu viruses, such as cough, fever, and fatigue. Like with seasonal flu, most people with variant influenza get better on their own, but also like seasonal flu, variant influenza can cause hospitalizations and other complications, even death. Although data are limited, the same people who are at higher risk for seasonal flu-related complications, based on their age or medical history, also seem to be at higher risk for complications from variant influenza virus infection.

[Mike Miller] How long was it after exposure at the fair before people starting getting sick?

[Karen Wong] Most people started getting sick within four days after attending the fair. This interval is similar to what you'd see if someone were exposed to seasonal influenza.

[Mike Miller] Well, since pigs seem to be a source of human flu, were they inspected for illnesses before they were allowed to be exhibited?

[Karen Wong] Yes, swine at this fair were checked by a veterinarian for any signs of illness, and all the swine were reported to be healthy on inspection day. However, it is possible for swine to be infected with flu but show little to no signs of illness. Also, when we talked to the swine exhibitors, we learned that at least one pig was sick at the very beginning of the fair, and this pig had been taken home before the inspection occurred.

[Mike Miller] Well, once the outbreak began, were the pigs at the fair tested for any flu strains?

[Karen Wong] None of the pigs at this fair were tested for flu, but in other fairs with H3N2 variant outbreaks among attendees, there have been swine that tested positive for flu. At some of these, we know that the same H3N2 virus was infecting both pigs and humans.

[Mike Miller] Were there any cases of person-to-person spread, as opposed to pig-to-human?

[Karen Wong] We looked really hard for any person-to-person spread, because that could mean the virus might be contagious enough to cause an epidemic or even a pandemic. So, for every sick person we found, we investigated whether any of their contacts could have passed the virus to them or if they could have passed it on to anyone else, and we found no definite proof of person-to-person spread. We also looked at flu tests sent from clinics and hospitals in the area to see if the virus was spreading in the community, and we found no proof of person-to-person spread. So, while we can't be 100 percent sure that a pig infected a person in every single case, we know that this virus wasn't able to spread easily between people. After this outbreak, we didn't see a single variant flu case in Pennsylvania until the following year's fair season.

However, while it's far more common to see pig-to-person spread with this virus, other investigations of this virus have found rare instances of limited person-to-person spread.

[Mike Miller] Can this virus be transmitted back from human to pig?

[Karen Wong] Well, we know flu viruses in general can spread from pigs to humans and from humans to pigs. That's why it's important for people who have flu symptoms to stay away from their pigs; they want to avoid infecting them.

[Mike Miller] Are there any recommendations that will help reduce the risk of this virus spreading?

[Karen Wong] Certainly, there are several steps people can take. People should not bring pigs to an exhibition that have signs of respiratory illness or who are “off their feed.” Once at the fair, exhibitors should watch their animals closely for any signs of illness, and if they think their pig is sick, it’s very important that they speak with a veterinarian or an animal health official quickly. Removing sick pigs from the exhibit immediately can reduce the chances of it spreading illness to other pigs or to people at the fair. People should stay away from sick pigs, and, for those who must have contact with a sick pig, they should take protective measures, like wearing protective clothing, gloves, and masks.

[Mike Miller] Well, this seems to be a new way for people to catch the flu. What can people do to keep themselves safe?

[Karen Wong] People can reduce their risk by minimizing contact with pigs at fairs, especially sick pigs. This is *really* key for people at higher risk for serious flu complications, such as young children, seniors, pregnant women, and those with chronic medical conditions. In fact, during the most recent fair season, we recommended that people in those high-risk groups avoid swine and swine barns at fairs altogether.

There are also some everyday preventive actions people can take at fairs, like not eating, drinking, or putting anything in their mouth while in swine areas, and washing hands before and after touching pigs. People should avoid taking things like pacifiers, strollers, and wheelchairs into the pig areas.

Finally, if someone gets flu symptoms after attending a fair, antiviral drugs can be used to treat variant influenza, so it would be important to contact your doctor right away to see if this is a good option for you.

On our website, cdc.gov/flu, we have a lot of information about variant influenza, as well as tips for staying safe around fairs and pigs, so listeners can check that out if they’d like to learn more.

[Mike Miller] Well, thank you, Dr. Wong. I’ve been talking with Dr. Karen Wong about her study, *Outbreak of Influenza A (H3N2) Variant Virus Infection among Attendees of an Agricultural fair, Pennsylvania, USA, 2011*, which appears in the December 2012 issue of CDC’s journal, *Emerging Infectious Diseases*. The article is available at cdc.gov/eid.

If you’d like to comment on this podcast, send an email to eideditor@cdc.gov. I’m Dr. Mike Miller, for *Emerging Infectious Diseases*.

[Announcer] For the most accurate health information, visit www.cdc.gov or call 1-800-CDC-INFO.