

Identification of the First Chinese Cases of H1N1 Flu

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[Ted Pistorius] Hello. I'm Ted Pistorius. And I'm here today with Dr. Scott Dowell, the Director of the Division of Global Disease Detection and Emergency Response in CDC's Coordinating Office of Global Health. Today, we're talking about a paper in the September 2009 issue of CDC's journal, *Emerging Infectious Diseases*. The article describes the identification of the first three cases of pandemic influenza H1N1 in China and the following investigation by Chinese health authorities.

Dr. Dowell, let's start by setting the stage for this paper. Can you tell us a little bit about what was going on in April 2009 when these first cases emerged?

[Scott Dowell] Mid-April of 2009 was when the first cases emerged in Mexico. They were identified as severe unexplained pneumonia and clusters of them were identified in the Mexico City area and several other parts of the country. At about the same time, in southern California, a surveillance system that CDC was assisting with identified two children who had a new strain of influenza; it was a variation of swine flu, and it wasn't until the latter part of April when those two events were linked together and it became clear that this new influenza virus was causing widespread disease in Mexico. It was quickly apparent that this was an efficiently transmitted human pathogen, which was something that other flu viruses, like the avian flu H5N1 virus, wasn't able to do.

[Ted Pistorius] This has gotta be a concerning time from the public health standpoint. I mean, we've got a brand new virus that's spreading quickly and, at that time, we really don't know how severe it's gonna turn out to be. So, as I understand it, in early May, China began a new surveillance network to track potential cases. Can you tell us a little bit about how that worked?

[Scott Dowell] China has an impressive ability to bring together public health surveillance. They really ramped up these efforts in the wake of the SARS epidemic and their experience with H5N1 virus. So beginning May 7 of 2009, China set up a national network which included the Ministry of Health, the China CDC, and various hospitals around the country. They looked for suspect cases which were defined as people who had a syndrome consistent with influenza and had either traveled or had contact with travelers.

[Ted Pistorius] And, I guess through that they identified the first three cases in China, who happened to be students who'd been studying here in the United States and in Canada and returned home to visit family and friends. Can you tell us a bit more about the specific cases?

[Scott Dowell] As you say, the first identified cases in China – and this was true in many other countries as well – were all in travelers. These were three healthy, young Chinese students who had been studying abroad – two in the U.S. and one in Canada - and all three of them returned home to visit their family and friends sometime between May 7th and 10th. The first patient got sick while on a flight from Beijing to Chengdu, another while on a train from Beijing to Jinan,

and the third got sick three days after arriving in Beijing. All three of them had flu-like symptoms, similar to seasonal influenza, and each of them tested positive for the new strain of H1N1 influenza and recovered fairly quickly.

[Ted Pestorius] Since all of these cases involved travel, which can obviously put ill people in very close contact with a large number of well people, how did China go about investigating to see if the three cases made other people sick?

[Scott Dowell] They looked for contacts of these patients and it's impressive the varied number of contacts in the three cases. One hundred and forty four contacts were identified from the first patient, mostly who rode on the plane from Beijing and Chengdu. The second patient had 40 contacts, mainly on that train. And the third case only had two close contacts identified. One was her mother and the other was a taxi driver.

[Ted Pestorius] Then once the contacts were identified, what did the Chinese health officials do? Did they test the contacts to see if they were also infected and, if so, what were the results?

[Scott Dowell] The health officials in China were aggressive in this case, as they have been throughout this epidemic. They quarantined the contacts for seven days for medical observation and they tested them to see if they were infected. Of all of those contacts, only one tested positive. That was the mother of the third patient, who was asymptomatic but probably caught the H1N1 because she was in very close proximity to her daughter while she was ill.

[Ted Pestorius] Was it surprising that none of the other contacts got sick, especially given the considerations of travel?

[Scott Dowell] It's an interesting question about the transmissibility of this virus to other travelers. We do know a great deal now about the transmissibility of the new H1N1 virus and we have a variety of estimates, primarily from household attack rates, which average about 10 percent, overall. But there's a wide variation in the proportion of household contacts who become infected as a result of their contact with an ill patient. Travelers are a little bit of a different story and there's an even wider variation in attack rates among travelers. And of course one assumes that it depends on the degree of close contact between the ill person and the traveler, as well as the stage of illness while the person was traveling.

[Ted Pestorius] Some experts are predicting that this virus is going to come back stronger in the fall, during the Northern Hemisphere's regular flu season. What should people know about that?

[Scott Dowell] It is likely that the H1N1 will continue to spread and will return in the fall of 2009. It isn't clear what the severity will be. It may be the same or different, more severe or less severe than what we saw in the spring. But regardless of the severity in the coming wave, this is a pathogen that deserves respect. It's clearly an efficient human pathogen. It generally causes mild disease but it does have the potential in rare cases to cause severe disease among young persons.

[Ted Pestorius] And I assume that we're on the lookout for that?

[Scott Dowell] We're continuing to experience H1N1 disease in the U.S. throughout the summer, which is highly unusual. So as a consequence, we are preparing for the return of this pathogen, anticipated in the fall of 2009, by ramping up our surveillance, by moving ahead with vaccine development work, and by moving ahead with communicating with the public on what they can do to protect themselves.

[Ted Pistorius] Thanks so much for discussing this issue with us, Dr. Dowell. We've been talking today about a paper in the September 2009 issue of CDC's journal, Emerging Infectious Diseases. You can see the whole article online at www.cdc.gov/eid. If you'd like to comment on our podcast, please send us an email to eideditor@cdc.gov. I'm Ted Pistorius, for Emerging Infectious Diseases. Thank you for listening and have a healthy day.

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