



ECDC Threat Assessment

Influenza of possible swine origin in human in Spain

SOURCE AND DATE

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PUBLIC HEALTH ISSUE

Influenza of swine origin detected retrospectively in a human with illness in November 2008

CONSULTED EXPERTS

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DISEASE BACKGROUND INFORMATION

Animal infection and disease

Swine influenza (SI) is an acute viral infection of the respiratory tract in pigs. Sub-clinical infections are also common. The mortality is low and recovery usually occurs within 7-10 days [1]. A typical swine flu outbreak is characterized by a rapid onset of high fever, dullness, loss of appetite, laboured abdominal breathing and coughing but there can also be inapparent outbreaks [1]. In Europe, infection is common in many countries [2] but it is not a notifiable disease in the European Union (hence there are no routine EU data available). Influenza viruses in pigs have been detected for many years and circulating subtypes include H1N1, H3N2, H1N2 and H2N3 [3]. There have been more studies of the infection in North America of late than in Europe but the origin and nature of swine-like influenza viruses differ somewhat between Europe and the United States [1]. Swine origin influenza viruses also occur in wild birds, poultry, horses and humans, but interspecies transmission is considered a rare event [3].

Human infection and disease

Infection with swine influenza virus has been detected occasionally in humans since the 1950s and the human disease is usually clinically similar to disease caused by infections with human influenza viruses [4-9]. Complications that include pneumonia and death have been reported in the literature in otherwise healthy adults without underlying disease [1]. Single generation person to person transmission has been reported but appears to be rare and chains of transmission have not been observed. Serological surveys undertaken in North America among persons working with pigs have shown that they quite often have evidence of prior infection with swine influenza viruses [8, 10]. But interpretation of sero-prevalence data can be difficult due to cross-reactivity (i.e.. infection with an ordinary influenza virus might be misinterpreted as indicating prior swine influenza infection). There are no contemporary serological data for Europe.

EVENT BACKGROUND INFORMATION

The case:

- 46 year old female from Aragon Autonomous region
- Flu like symptom onset 08/11/2008, throat swab collected on 12/11/2008
- No specific treatment, fully recovered and no hospitalization
- Laboratory findings indicate that case was infected with a swine influenza virus.

The virology:

The National Influenza Centre and Reference Laboratory has detected an influenza virus A/H1 (Influenza virus A/Aragon/RR-3218/08) of swine origin in a human case of influenza infection. Based on the phylogenetic analysis of the HA gene, the strain is close to swine H1 (almost identical to the isolate), A/Switzerland/8808/2002). The lab has yet to complete the study of the virus and to study other genes.

Exposure: the case worked on the family farm in the section of the pig farm. No pigs at the farm had any respiratory symptoms

Contacts: no family or co-workers reported any flu-like symptoms following the case. The physician that took the throat swab reported mild flu symptoms after having had contact with the patient. There is no virological information available for the doctor.

Measures: active surveillance for flu-like symptoms in household and work contacts was implemented at the farm and additional serological and laboratory studies are stated to be planned or ongoing respectively.

Spain reported in week 46/2008 through their sentinel influenza surveillance system to ECDC a low level of intensity of influenza activity with no activity for the geographical spread indicator. Sporadic laboratory confirmed cases of influenza were reported since week 43/2008.

ECDC THREAT ASSESSMENT FOR THE EU

Sporadic human infection with swine influenza virus has been documented in the literature with cases mostly confined to persons that have occupational exposure to pigs. It is for this reason that some scientists advocate to recommend seasonal influenza vaccination campaigns to persons working with pigs [11, 12].

While avian influenza genes are considered an important factor in the emergence of a human pandemic influenza strain pigs continue to be considered a potential "mixing

vessel” for influenza viruses from avian and human origin, thereby potentially leading to new influenza viruses [6, 13].

Human to human transmission certainly occurs and has been recorded in other events of swine influenza transmission to humans in Europe and the United States [6]. However it must be noted that in these instances the transmission was not efficient enough for sustaining the viruses in the human population.

In Spain there is currently no convincing evidence to suggest that a single generation of human to human transmission of swine influenza has occurred as no close family and work contacts have developed influenza like illness and diagnosis of influenza in the treating physician is unconfirmed. The event also took place more than two months ago and the investigations suggest that this event is closed. Further laboratory and serological investigations are still planned in this event. ECDC emphasises the importance of the virus being shared with a WHO Collaborating Centre for full characterisation and that serological testing should be undertaken jointly between the National Reference Laboratory and a laboratory experienced in investigating human exposures to animal influenza viruses.

Conclusion

- This sporadic case is not an unexpected event in persons occupationally exposed to pigs
- European countries can expect similar events in the future
- There is no increased risk for further human to human transmission of swine influenza viruses in Europe in the light of this case
- Further investigation and information on the virus is needed and serological studies would be helpful to eventually determine whether human to human transmission has taken place
- The risk to humans of swine influenza virus in Europe may be an area of further surveillance and study
- **This event is not considered a public health risk to countries in the European Union (EU).**

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