World Health Organization
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Current major events

Human to Human transmission of H5N1 virus in a family cluster in Pakistan

This is an update of a previous report on an outbreak of avian influenza in humans reported from Peshawar, Pakistan in December 2007 (*Weekly Epidemiological Monitor, 1: (2), 13 January 2008).* The index case, a 29-year old male, was an employee of an agricultural project and was involved in culling of infected poultry in Kakool, Abbottabad, Peshwar, Pakistan. The diagnosis was confirmed by micro-neutralization test conducted by the Virology and Zoonotic Disease Research Program, U.S. Naval Medical Research Unit No. 3 (NAMRU-3), and CDC, Atlanta, WHO reference laboratories for diagnosis of influenza A/H5 infection.

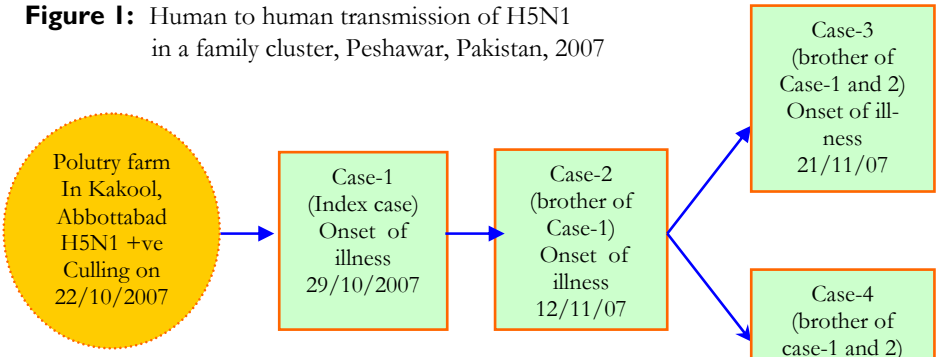
Laboratory results of additional serologic tests on contact family members, made available in March 2008, indicated that two brothers of the index case were positive for H5N1 infection. These two brothers most likely acquired H5N1 infection from a fourth brother (Case-2 in Figure 1), other than the index case.

Only the first case had direct exposure to sick or dead poultry.

Editorial note

The recent laboratory confirmation of limited human-to-human transmission of influenza-A(H5N1) infection in a family cluster of Peshawar, Pakistan is the first ever reported human-to-human (H2H) transmission of H5N1 infection in the Eastern Mediterranean Region. A joint investigation led by CSR/EMRO documented this evidence through intensive field investigation. This limited H2H transmission of H5N1 in the setting of very close and prolonged contact is consistent with similar events reported elsewhere. This outbreak in Pakistan was not sustained; no more human cases were detected despite active case-searching.

Figure 1: Human to human transmission of H5N1 in a family cluster, Peshawar, Pakistan, 2007



The incubation period for H5N1 avian influenza may be longer than that for normal seasonal influenza, which is around two to three days. Current data for H5N1 infection indicate an incubation period ranging from two to eight days and possibly as long as 17 days.

The four human Cases: *(see Figure 1)*

- Case-1 *(index case)*: H5N1 confirmed by micro-neutralization;
- Case-2: No samples were available; died before obtaining a biological specimen
- Case–3 (confirmed by PCR) and Case-4 (confirmed by micro-neutralization) had close contact with Case-1 and Case-2. No known direct contact with sick or dead poultry.
- Case-2 and Case-3 died; Case-1 and Case-4 fully recovered.
- Strong epidemiological link between Case-1 and Case-2 *(not shown in this report).*

WHO criteria for confirmation of a case of H5N1 infection:

- Isolation of H5N1 virus
- Positive H5 PCR from tests using two different PCR targets
- 4-fold rise in neutralization antibody titer
- A microneutralization antibody titer of 1:80 or greater on a single specimen collected after day 13 plus a positive test using another serological assay

Of all laboratory tests for diagnosis of H5N1 infections, PCR test is the most expedient, reliable and relatively less technically demanding. However, clinical specimens must be collected soon after onset of illness. If this is not possible, as was the case in Pakistan, the case may be confirmed by microneutralization test. But, there may be delay in obtaining final results as in this case.

Update on outbreaks
in the Eastern Mediterranean Region

Avian Influenza: (Egypt) reported case no. 48; (Pakistan) 2 more serological confirmed cases; **Cholera** (Sudan) New outbreak reported in Central Equatoria; **AJS:** in Afghanistan

Current public health events of international concern
[cumulative N° of cases (deaths), **CFR %**]

Avian influenza	
Egypt	[48 (21), **43.8%**]
Indonesia	[132 (107), **81.1%**]
Cholera	
Sudan	[194 (5), **2.6%**]
Kenya	[701 (42), **5.9%**]*
Namibia	[533 (3), **0.6%**]
Angola	[3,949 (130), **3.3%**]
AJS: (Prozolidine Poisoning)	
Afghanistan	[106 (52), **49.1%**]
Yellow Fever	
Argentina	[5 (1), **20%**]
Dengue fever	
Brazil	[43,523 (54), **0.1%**]

(=Unofficial figures)*
CFR=Case-Fatality Rate