Swine flu: Early findings about pandemic potential reported in new study

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Early findings about the emerging pandemic of a new strain of influenza A (H1N1) in Mexico are published today in *Science*.

Researchers from the MRC Centre for Outbreak Analysis and Modelling at Imperial College London, working in collaboration with the World Health Organisation and public health agencies in Mexico, have assessed the epidemic using data to the end of April. Their key findings are as follows:

- The data so far is very consistent with what researchers would expect to find in the early stages of a pandemic.
- The researchers' best estimate is that in Mexico, influenza A (H1N1) is fatal in around 4 in 1,000 cases, which would make this strain of influenza as lethal as the one found in the 1957 pandemic. The researchers stress that healthcare has greatly improved in most countries since 1957 and the world is now better prepared.
- The epidemic of influenza A (H1N1) is thought to have started in Mexico on 15 February 2009. The data suggests that by the end of April, around 23,000 people were infected with the virus in Mexico and 91 of these died as a result of infection. However, the figures are uncertain - for example, some mild cases may have gone unreported. The numbers infected could be as low as

6,000 people or as high as 32,000 people.

- The uncertainty around the numbers of people who have been infected with influenza A (H1N1) in Mexico means that the case fatality ratio (CFR) of 0.4% (4 deaths per 1000) cannot be definitely established. The CFR is in the range of 0.3% to 1.5%, but at this stage the researchers believe that 0.4% is the most likely.

- For every person infected, it is likely that there will be between 1.2 and 1.6 secondary cases. This is high compared to normal seasonal influenza, where around 10-15 percent of the population are likely to become infected. However, it is lower than would be expected for pandemic influenza, where 20-30 percent of the population are likely to become infected.

- In an outbreak in an isolated village called La Gloria, Mexico, children were twice as likely to become infected as adults, with 61% of those aged under 15 becoming infected, compared with 29% of those over 15. This may suggest that adults have some degree of immunity against infection, because of having been previously infected with a related strain of influenza, or it may mean that children are more susceptible to infection because they interact much more closely together, for example in school, than adults.

Professor Neil Ferguson, the corresponding author of today's research from the MRC Centre for Outbreak Analysis and Modelling at Imperial College London, said: "Our study shows that this virus is spreading just as we would expect for the early stages of a flu pandemic. So far, it has been following a very similar pattern to the flu pandemic in 1957, in terms of the proportion of people who are becoming infected and the

percentage of potentially fatal cases that we are seeing.

"What we're seeing is not the same as seasonal flu and there is still cause for concern - we would expect this pandemic to at least double the burden on our healthcare systems. However, this initial modelling suggests that the H1N1 virus is not as easily transmitted or as lethal as that found in the flu pandemic in 1918," added Professor Ferguson.

Source: Imperial College London (news : web)