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Call for clarity on pandemics

False alarms likely unless WHO refines pandemic criteria, says expert



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Changes in the criteria for declaring a pandemic, made by the World Health Organization (WHO) earlier this year, could re-label seasonal flu epidemics, according to an editorial published this month in the *British Medical Journal Clinical Evidence*.

The guidelines, updated in April, specify that any part-animal part-human flu virus that has undergone even small genetic changes has pandemic potential. The 2005 version of the guidelines gives that status only to new virus subtypes that infect people for the first time.

Flu viruses regularly undergo small genetic changes, known as genetic drift. It is these newly evolved versions of circulating viruses that every few years cause seasonal flu epidemics with higher-than-average death rates.

"The WHO need to redefine what they mean, otherwise they will be calling a pandemic every couple of years," Peter Gross, of Hackensack University Medical Center in New Jersey, tells EHTF News. "For the public it will be like crying wolf and the public perception of a pandemic will change."

Past pandemics occurred when an entirely new virus subtype, which is marked by a new haemagglutinin protein on the virus surface, jumped from animals to humans and circulated widely. These new strains are able to infect large numbers of people as the immune system cannot recognise or mount an effective response to them. Prior to 2009, the 1968 pandemic was sparked by a new 'H3' virus and the 1957 pandemic by a new 'H2' virus.

But new flu strains that arise through genetic drift usually have relatively minor changes to the haemagglutinin protein, with 95–98% of the drifted virus's genome remaining identical to that of the original strain.

Although the 2009 H1N1 pandemic virus is of the same subtype as seasonal H1N1, it has a significant number of changes compared with the seasonal strain, explains Gross: their genomes are only 71–73% identical. But it could still "potentially qualify" as a drifted strain of seasonal H1N1, not a pandemic strain, he says.

Gross believes that scientists looking back on the 2009 pandemic in coming years may see a flu virus that was no more deadly than the seasonal strain.

"The use of phrasing [in the WHO guidelines] to dictate the differences is very hazy," says Gross. "It is likely to cause confusion in the future." Without quantifying the degree of genetic change that creates a pandemic virus, any part-human part-animal strain could find its way into the pandemic alert scale.

Andrew Rambaut, from the University of Edinburgh, UK, says that the WHO should probably devise a pandemic scale that takes into account the epidemiology of the virus, not its genetic origins. Changing the pandemic criteria by considering only genetics will be difficult, he adds.

Gross suggests that the WHO's original pandemic criteria would not have included the 2009 H1N1 strain, according to Rambaut. This is because it is the same subtype as a seasonal flu strain. The updated criteria may be seen as too inclusive, but Rambaut believes that refining the new guidelines by defining the extent of genetic drift needed for a virus to qualify as a pandemic strain is equally troublesome.

"In my opinion, 'pandemic' is not a very useful label," explains Rambaut. It is very difficult to define in a way that sets it apart from the nature of seasonal flu or the current epidemic of novel H1N1, he adds.

For Rambaut, a pandemic can be separated from a seasonal-flu epidemic by the proportion of the population affected. But this may not be a practical way to define pandemics in reality, he says, because estimating this proportion would take retrospective testing. "This would be difficult to use during an actual outbreak unless the pathology is very severe," he explains.

Reference and links

1. Gross PA. Does every new influenza reassortant virus qualify as a pandemic virus? *BMJ Clinical Evidence* 2009. [Article](#)
World Health Organization. Pandemic influenza preparedness and response. [Report](#)
[World Health Organization information](#) about the 2009 H1N1 pandemic

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