

Revised WHO pandemic scale requires higher incidence of disease for most alert levels

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In the midst of global concern about a potential A(H1N1) swine influenza pandemic, the World Health Organization (WHO) has revised its 6-point scale for determining whether a pandemic is a possibility.

Using the revised scale, the WHO's Emergency Committee (which classifies outbreaks as part of its responsibilities under the 2005 International Health Regulations) on Apr. 27 raised the swine influenza pandemic alert level to Phase 4 from Phase 3. The revised scale indicates that Phase 4 is characterized by sustained human-to-human transmission of a virus that is able to cause community-level outbreaks. The new WHO guidance document states that "Phase 4 indicates a significant increase in risk of a pandemic but does not necessarily mean that a pandemic is

a forgone conclusion," (www.who.int/csr/disease/influenza/pipguidance2009/en/index.html).

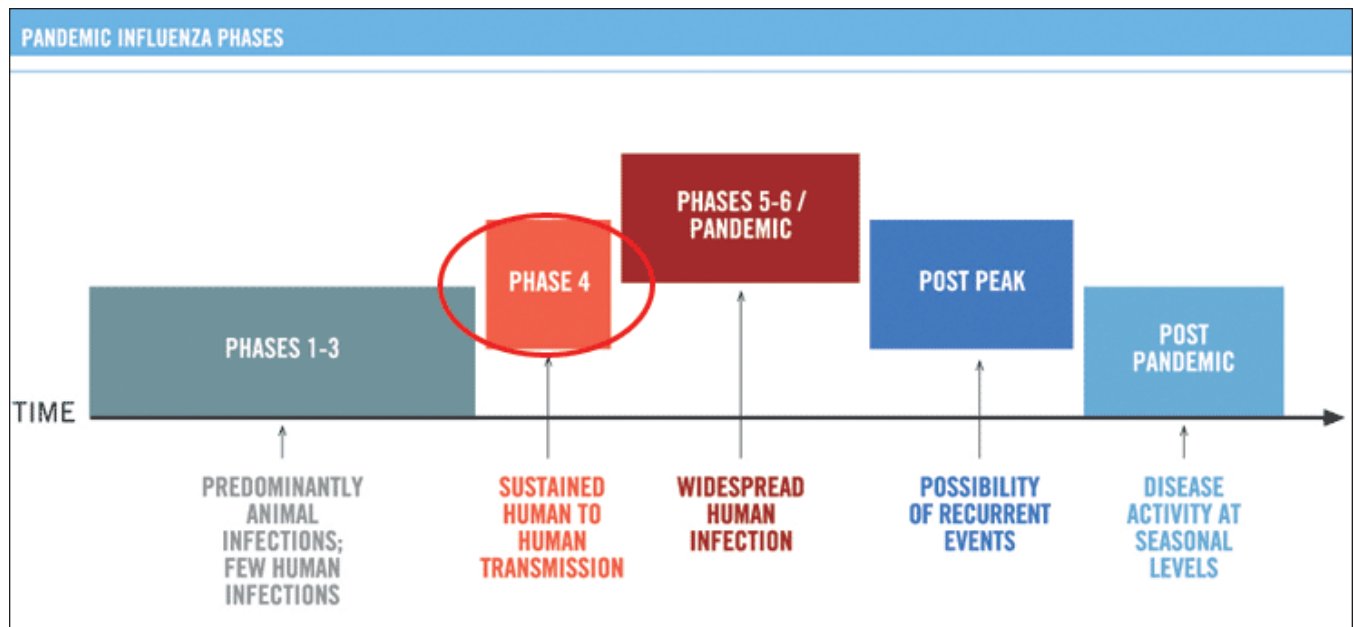
Overall, the revised scale appears to require more cases of human infection for each step up a level. For example, the old guidelines for Phase 3 stated that there could be "at most rare instances" of human-to-human spread, while the new scale (Box 1) says that while the virus may have caused "sporadic cases or small clusters" of disease, that has not been sufficient "to sustain community-level outbreaks." The capacity to cause such community-level outbreaks is now the standard for Phase 4 designation. In the old guidelines, the spread was "highly localized, suggesting that the virus is not well adapted to humans."

The revisions are most pronounced for Phase 5 alerts. The new guidelines state that a Phase 5 alert will be declared when a virus has spread into at least 2

countries in one region. In the old guidelines, the spread was "still localized, suggesting that the virus is becoming increasingly better adapted to humans, but may not yet be fully transmissible."

Whether on the new or old scale, Phase 6 is essentially a global pandemic, in which a virus has caused sustained outbreaks in 2 or more countries in 1 WHO region and a sustained outbreak in at least 1 country in another WHO region.

The WHO indicated on its website that the revisions to the pandemic alert scale were prompted by a greater understanding of what a pandemic is and how to respond to one. That understanding was garnered from responding to the avian flu outbreak, which began in 2003, and to an "increased understanding of past pandemics, strengthened outbreak communications, greater insight into disease spread and approaches to control, and development of increasingly sophis-



On Apr. 27, the WHO raised the swine influenza pandemic alert level to Phase 4, which indicates sustained human-to-human transmission able to cause community-level outbreaks. The WHO revised its 6-phase alert scale the same day. A post-peak period declaration signifies that flu activity has decreased but a second wave is possible. A post-pandemic period declaration means flu activity has returned to normal seasonal levels.

Box 1: The World Health Organization's Pandemic Alert Scale

Phase 1: no viruses circulating among animals have been reported to cause infections in humans.

Phase 2: an animal influenza virus circulating among domesticated or wild animals is known to have caused infection in humans, and is therefore considered a potential pandemic threat.

Phase 3: an animal or human-animal influenza reassortant virus has caused sporadic cases or small clusters of disease in people, but has not resulted in human-to-human transmission sufficient to sustain community-level outbreaks. Limited human-to-human transmission may occur under some circumstances, for example, when there is close contact between an infected person and an unprotected caregiver. However, limited transmission under such restricted circumstances does not indicate that the virus has gained the level of transmissibility among humans necessary to cause a pandemic.

Phase 4: characterized by verified human-to-human transmission of an animal or human-animal influenza reassortant virus able to cause "community-level outbreaks." The ability to cause sustained disease outbreaks in a community marks a significant upwards shift in the risk for a pandemic. Any country that suspects or has verified such an event should urgently consult with WHO so that the situation can be jointly assessed and a decision made by the affected country if implementation of a rapid pandemic containment operation is warranted. Phase 4 indicates a significant increase in risk of a pandemic but does not necessarily mean that a pandemic is a forgone conclusion.

Phase 5: characterized by human-to-human spread of the virus into at least two countries in one WHO region. While most countries will not be affected at this stage, the declaration of Phase 5 is a strong signal that a pandemic is imminent and that the time to finalize the organization, communication, and implementation of the planned mitigation measures is short.

Phase 6: the pandemic phase, is characterized by community level outbreaks in at least one other country in a different WHO region in addition to the criteria defined in Phase 5. Designation of this phase will indicate that a global pandemic is under way.

Source: World Health Organization

ticated statistical modeling techniques," the WHO states in a document dated April 2009 and entitled *Pandemic Influenza Preparedness and Response*.

The revisions to the scale were accompanied by recommendations that when dealing with pandemics, nations should protect human rights, integrate pandemic preparedness and response into national emergency frameworks, and use a "whole-of-society" approach that emphasizes the roles of businesses, families and communities in responding to pandemics.

The revised WHO pandemic scale essentially maintains the same 6-phases, which range from Phase 1 ("No animal influenza virus circulating among animals has been reported to cause infection in humans") to Phase 6.

But some health experts claim that to understand what "pandemic" means requires an understanding of what the term "epidemic" means, though the definition of that word can be ambiguous.

In 2002, several Israeli doctors analyzed the use of the terms "epidemic"

and "outbreak" in medical dictionaries, epidemiology texts and other medical and legal literature (*IMAJ* 2002;4:3-6). They recommended that "outbreak" be used to identify more limited types of epidemics, but found that the terms were often used interchangeably. They concluded that the "interpretation of the term epidemic may vary according to the context in which it is used. For risk assessment, we suggest that every effort be made to add descriptive terms that characterize the epidemic."

In common parlance, an epidemic is defined as a greater than normal occurrence of a health-related event in a specific region during a specific time frame. The word is commonly used to refer to infectious and noninfectious diseases, as well as physical conditions like obesity. There is no set minimum number of cases to justify using the term, and the time frame could range from several hours to several years. The region could be a community or a country, but when borders are crossed the term "pandemic" comes into play.

Similarly, a "pandemic" is commonly defined as an epidemic of an infectious disease that has spread across a large region, such as a continent or even the entire world. According to the WHO's Epidemic and Pandemic Alert and Response programme, 3 conditions must be met before a global flu outbreak can be called a pandemic: "a new influenza subtype emerges; it infects humans, causing serious illness; and it spreads easily and sustainably among humans."

In an attempt to provide better pandemic risk assessment information to the public, the United States Department of Health and Human Services in 2007 introduced its Pandemic Severity Index, designed to mimic hurricane designations. The index has 5 categories based on a "case-fatality ratio," which is the percentage of deaths out of total number of cases. A ratio of less than 0.1% is in Category 1. A ratio of 2% or higher indicates a Category-5 pandemic. — Roger Collier, *CMAJ*

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