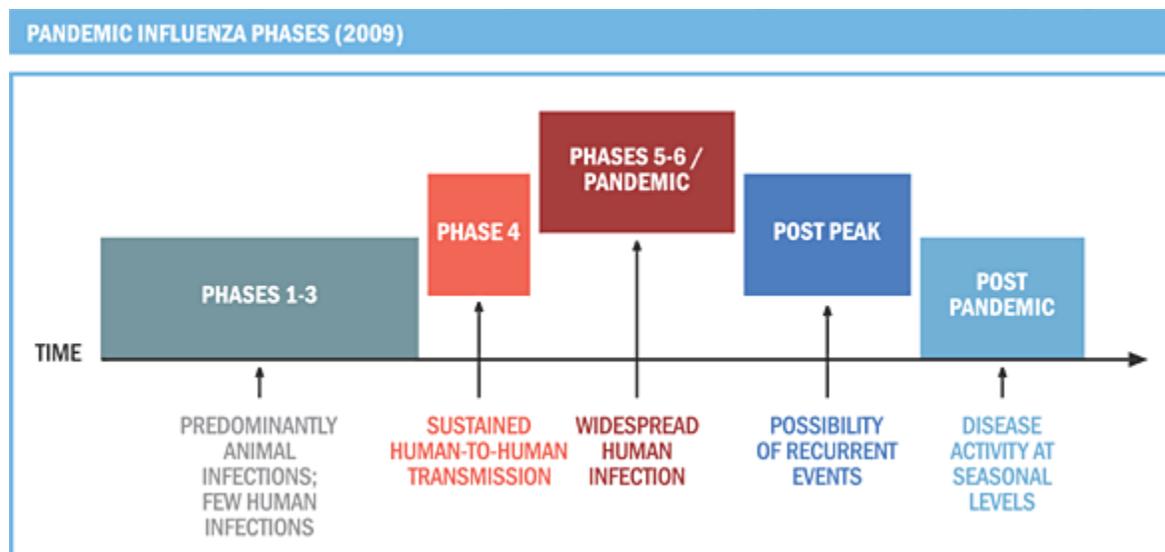


Pandemic Phases and Stages

A **pandemic** is a global disease outbreak. A **flu pandemic occurs when a new influenza virus emerges for which people have little or no immunity and for which there is no vaccine**. The disease spreads easily person-to-person, causes serious illness, and can sweep across the country and around the world in a very short time. In all previous pandemics, the outbreak spread throughout the world within a year of its initial detection. With the increase in global transport, as well as urbanization and overcrowded conditions in some areas, epidemics due to a new influenza virus are likely to take hold around the world, and become a pandemic faster than before. The spread of the 2009 pandemic (H1N1) was very rapid due to the high mobility and interconnectedness of modern societies. Within six weeks of first being described, it had affected all six WHO regions resulting in the declaration of a pandemic. Pandemics can be either mild or severe in the illness and death they cause, and the severity of a pandemic can change over the course of that pandemic.

A new flu virus, which eventually became known as pandemic H1N1 (**pH1N1**), came to the world's attention in March 2009. By April, 2009, initial experience with the unfolding pandemic prompted WHO to redefine their phase descriptions for an influenza pandemic (Figure 1.). The revisions were intended to make phases easier to understand, more precise, and based upon observable phenomena. On June 11, 2009, the WHO raised the H1N1 virus to Phase 6 - which meant that pandemic was underway.

Figure 1.



In the 2009 revision of the phase descriptions, WHO has retained the use of a six-phased approach for easy incorporation of new recommendations and approaches into existing national preparedness and response plans. Phases 1–3 correlate with preparedness in the **pre-pandemic** interval, including capacity development and response planning activities, while Phases 4–6 clearly signal the need for response and mitigation efforts during the **pandemic** interval. For

example, according to the 2009 WHO phases, avian flu H5N1 stands currently at Phase 3 (it has infected people in small clusters with limited human-to-human transmission); whereas, 2009 H1N1 pandemic has moved to post-pandemic phase.

Pre-Pandemic Interval

In nature, influenza viruses circulate continuously among animals, especially birds. Even though such viruses might theoretically develop into pandemic viruses, in **Phase 1** no viruses circulating among animals have been reported to cause infections in humans.

In **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.

In **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.

Pandemic Interval

Phase 4 is 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 is 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.

During the **post-peak period**, pandemic disease levels in most countries with adequate surveillance will have dropped below peak observed levels. The post-peak period signifies that pandemic activity appears to be decreasing; however, it is uncertain if additional waves will occur and countries will need to be prepared for a second wave.

Previous pandemics have been characterized by waves of activity spread over months. Once the level of disease activity drops, a critical communications task will be to balance this information with the possibility of another wave because pandemic waves can be separated by months.

In the **Post-Pandemic period**, influenza disease activity will have returned to levels normally seen for seasonal influenza. It is expected that the pandemic virus will behave as a seasonal influenza A virus. At this stage, it is important to maintain surveillance and update pandemic preparedness and response plans accordingly. An intensive phase of recovery and evaluation may be required.

Seasonal influenza

Influenza is an acute respiratory disease caused by influenza type A or B viruses. The typical features of seasonal influenza include abrupt onset of fever and respiratory symptoms such as cough, sore throat and coryza, as well as headache, muscle ache and fatigue. For seasonal influenza, the incubation period ranges from 1 to 4 days. The clinical severity of infection can range from asymptomatic infection to primary viral pneumonia and death. The symptoms of pandemic (H1N1) 2009 influenza in people were similar to those of seasonal influenza. Illness in most cases was mild but there were cases of severe disease requiring hospitalization and a number of deaths.

Yearly seasonal influenza remains a significant disease in the United States and Missouri and seasonal epidemics can result in high morbidity and mortality, as well as create strains on the health care system and in communities. If a severe seasonal epidemic should occur, parts of the pandemic flu plan, if needed, would be implemented to minimize the outbreak. The parts implemented would depend upon the specifics of the outbreak and would be determined in consultation with The Centers for Disease Control and Prevention (CDC), DHSS experts, LPHAs and state elected officials.

Avian Influenza

Unlike influenza viruses that have achieved ongoing transmission in humans, the sporadic human infections with avian A (H5N1) viruses are far more severe with high mortality. Initial symptoms include a high fever and other influenza-like symptoms. Diarrhea, vomiting, abdominal pain, chest pain, and bleeding from the nose and gums have also been reported. Watery diarrhea without blood appears to be more common in H5N1 influenza than in normal seasonal influenza. The disease often manifests as a rapid progression of pneumonia with respiratory failure ensuing over several days. It also appears that the incubation period in humans may be longer for avian (H5N1) viruses, ranging from 2 to 8 days, and possibly as long as 17 days.