



## **Preparing for the second wave: lessons from current outbreaks Pandemic (H1N1) 2009 briefing note 9**

28 AUGUST 2009 | GENEVA -- Monitoring of outbreaks from different parts of the world provides sufficient information to make some tentative conclusions about how the influenza pandemic might evolve in the coming months.

WHO is advising countries in the northern hemisphere to prepare for a second wave of pandemic spread. Countries with tropical climates, where the pandemic virus arrived later than elsewhere, also need to prepare for an increasing number of cases.

Countries in temperate parts of the southern hemisphere should remain vigilant. As experience has shown, localized "hot spots" of increasing transmission can continue to occur even when the pandemic has peaked at the national level.

### **H1N1 now the dominant virus strain**

Evidence from multiple outbreak sites demonstrates that the H1N1 pandemic virus has rapidly established itself and is now the dominant influenza strain in most parts of the world. The pandemic will persist in the coming months as the virus continues to move through susceptible populations.

Close monitoring of viruses by a WHO network of laboratories shows that viruses from all outbreaks remain virtually identical. Studies have detected no signs that the virus has mutated to a more virulent or lethal form.

Likewise, the clinical picture of pandemic influenza is largely consistent across all countries. The overwhelming majority of patients continue to experience mild illness. Although the virus can cause very severe and fatal illness, also in young and healthy people, the number of such cases remains small.

### **Large populations susceptible to infection**

While these trends are encouraging, large numbers of people in all countries remain susceptible to infection. Even if the current pattern of usually mild illness continues, the impact of the pandemic during the second wave could worsen as larger numbers of people become infected.

Larger numbers of severely ill patients requiring intensive care are likely to be the most urgent burden on health services, creating pressures that could overwhelm intensive care units and possibly disrupt the provision of care for other diseases.

### **Monitoring for drug resistance**

At present, only a handful of pandemic viruses resistant to oseltamivir have been detected worldwide, despite the administration of many millions of treatment courses of antiviral drugs. All of these cases have been extensively investigated, and no instances of onward transmission of drug-resistant virus have been documented to date. Intense monitoring continues, also through the WHO network of laboratories.

### **Not the same as seasonal influenza**

Current evidence points to some important differences between patterns of illness reported during the pandemic and those seen during seasonal epidemics of influenza.

The age groups affected by the pandemic are generally younger. This is true for those most frequently infected, and especially so for those experiencing severe or fatal illness.

To date, most severe cases and deaths have occurred in adults under the age of 50 years, with deaths in the elderly comparatively rare. This age distribution is in stark contrast with seasonal influenza, where around 90% of severe and fatal cases occur in people 65 years of age or older.

## Severe respiratory failure

Perhaps most significantly, clinicians from around the world are reporting a very severe form of disease, also in young and otherwise healthy people, which is rarely seen during seasonal influenza infections. In these patients, the virus directly infects the lung, causing severe respiratory failure. Saving these lives depends on highly specialized and demanding care in intensive care units, usually with long and costly stays.

During the winter season in the southern hemisphere, several countries have viewed the need for intensive care as the greatest burden on health services. Some cities in these countries report that nearly 15 percent of hospitalized cases have required intensive care.

Preparedness measures need to anticipate this increased demand on intensive care units, which could be overwhelmed by a sudden surge in the number of severe cases.

## Vulnerable groups

An increased risk during pregnancy is now consistently well-documented across countries. This risk takes on added significance for a virus, like this one, that preferentially infects younger people.

Data continue to show that certain medical conditions increase the risk of severe and fatal illness. These include respiratory disease, notably asthma, cardiovascular disease, diabetes and immunosuppression.

When anticipating the impact of the pandemic as more people become infected, health officials need to be aware that many of these predisposing conditions have become much more widespread in recent decades, thus increasing the pool of vulnerable people.

Obesity, which is frequently present in severe and fatal cases, is now a global epidemic. WHO estimates that, worldwide, more than 230 million people suffer from asthma, and more than 220 million people have diabetes.

Moreover, conditions such as asthma and diabetes are not usually considered killer diseases, especially in children and young adults. Young deaths from such conditions, precipitated by infection with the H1N1 virus, can be another dimension of the pandemic's impact.

## Higher risk of hospitalization and death

Several early studies show a higher risk of hospitalization and death among certain subgroups, including minority groups and indigenous populations. In some studies, the risk in these groups is four to five times higher than in the general population.

Although the reasons are not fully understood, possible explanations include lower standards of living and poor overall health status, including a high prevalence of conditions such as asthma, diabetes and hypertension.

## Implications for the developing world

Such findings are likely to have growing relevance as the pandemic gains ground in the developing world, where many millions of people live under deprived conditions and have multiple health problems, with little access to basic health care.

As much current data about the pandemic come from wealthy and middle-income countries, the situation in developing countries will need to be very closely watched. The same virus that causes manageable disruption in affluent countries could have a devastating impact in many parts of the developing world.

## Co-infection with HIV

The 2009 influenza pandemic is the first to occur since the emergence of HIV/AIDS. Early data from two countries suggest that people co-infected with H1N1 and HIV are not at increased risk of severe or fatal illness, provided these patients are receiving antiretroviral therapy. In most of these patients, illness caused by H1N1 has been mild, with full recovery.

If these preliminary findings are confirmed, this will be reassuring news for countries where infection with HIV is prevalent and treatment coverage with antiretroviral drugs is good.

On current estimates, around 33 million people are living with HIV/AIDS worldwide. Of these, WHO estimates that around 4 million were receiving antiretroviral therapy at the end of 2008.

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