

Pandemics and Antivirals

For residents of the US please go to www.tamiflu.com for information

Influenza pandemics

- Influenza, commonly called the 'flu', is caused by influenza A and B viruses, which usually occur seasonally in the autumn and winter months. According to the World Health Organization (WHO), these annual epidemics result in about 3 to 5 million cases of severe illness, and about 250,000 to 500,000 deaths.
- According to the WHO an influenza pandemic occurs when a new strain of influenza A virus appears, against which the human population has no immunity, resulting in widespread illness and death. Influenza pandemics have occurred around 3 times in each century, when a new strain of the influenza virus has caused simultaneous deaths worldwide.

For further information on the pandemic (H1N1) 2009 virus (swine flu), please visit the WHO website: www.who.int/csr/disease/swineflu/en/index.html

Influenza pandemics and antivirals

- The WHO, US Centers for Disease Control and Prevention (CDC) and the European Centre for Disease Prevention and Control (ECDC) have reported that the antivirals Tamiflu and Relenza are active against the pandemic (H1N1) 2009 virus.
- The WHO has issued guidance that recommends the use of Tamiflu to treat pandemic (H1N1) 2009 infection:
 - Strong recommendation for the use of Tamiflu to treat severe cases of illness in all patient groups (healthy and 'at risk')
 - Tamiflu and Relenza are recommended for the treatment of mild cases of influenza in 'at risk' patients
 - Tamiflu should be initiated as soon as possible, with most benefit seen within 48 hours of symptom onset. Evidence suggests that even if Tamiflu is started later, treatment may be beneficial

- Higher doses and longer duration of Tamiflu treatment may be considered in patients with severe illness that are not responding to normal doses of treatment.
- The WHO, European Medicines Agency and CDC have recommended that during a pandemic, children under the age of 1 and pregnant women may benefit from Tamiflu.
- New data are emerging that support the clinical benefit of Tamiflu in treating patients infected with the pandemic (H1N1) 2009 virus.
- Roche is supporting additional clinical studies to obtain information regarding the optimal use of Tamiflu against this new virus. Roche is also in discussions with the WHO and other groups on clinical studies which may provide additional clinical data.

For further information on pandemic (H1N1) 2009 influenza and antivirals, please visit the WHO, EMEA or CDC websites:

www.who.int/csr/resources/publications/swineflu/h1n1_use_antivirals_20090820/en/index.html / www.cdc.gov/h1n1flu/recommendations.htm / www.emea.europa.eu/

Roche's action to respond to heightened demand for Tamiflu

- Roche has already fulfilled government pandemic orders amounting to 270 million treatment courses of Tamiflu to 96 governments.
- Roche has been ramping up production output at multiple points in the supply chain and this will continue over time resulting in a continuous and increasing flow of Tamiflu. By early 2010 the production output of Tamiflu capsules will have increased to a maximum of 33 million treatment courses (330 million capsules) per month (annual output of 400 million treatment courses per year), if required.
- Roche's global network for the manufacture of Tamiflu includes several Roche sites and more than 19 external contractors located in 10 different countries around the world. These production partners have been selected primarily on the basis of their ability to produce substantial quantities of intermediates and finished materials according to Roche's quality standards over a relatively short time frame.
- The shelf life for Tamiflu capsules for government stockpiling was originally 5 years but this has been extended to 7 years in a number of countries including the US, Europe, Australia, Canada and Hong Kong. Roche is working with health authorities to extend the shelf life to 7 years in other countries.

Tamiflu donations for rapid deployment

- In 2005 and 2006, Roche made a donation of 5 million packs of Tamiflu to WHO – consisting of 3 million courses for a rapid response stockpile, intended for use as a ‘fire-blanket’ to contain or slow a pandemic at its site of outbreak and 2 million treatments to be used for regional stockpiles in those developing countries that are unable to purchase the drug for economic reasons. These packs are now being distributed to developing countries determined by WHO to be most in need.
- In May 2009, Roche announced a further donation of 5.65 million packs to:
 - replenish the regional stockpile of 2 million packs of Tamiflu
 - replenish the rapid response stockpile of 3 million packs of Tamiflu
 - establish a new paediatric stockpile of 650,000 treatment courses of Tamiflu small (30mg and 45mg) capsules.
- Roche has also initiated the Tamiflu Reserves Program to provide Tamiflu and storage of pandemic stockpiles at significantly reduced prices for developing economies (GAVI countries minus India).

Tamiflu in brief

- Tamiflu (also known as oseltamivir) is a prescription drug. It is an oral antiviral treatment for flu (not a vaccine!), and belongs to a class of medicines called neuraminidase inhibitors. These medicines prevent the flu virus from spreading inside the body and are designed to be active against clinically relevant flu viruses.
- Tamiflu is proven to be effective in the treatment and prevention of flu in adults and children 1 year and older.
- The most commonly reported adverse drug reactions in Tamiflu clinical studies were nausea and vomiting. The majority of these events occurred on a single occasion on either the first or second treatment day and resolved spontaneously in 1-2 days.

For further information on Tamiflu, please refer to the patient information leaflet approved in your local country or speak with a healthcare provider. An example of the European approved patient information leaflet can be found here: www.roche.com/tamiflu_PIL_EU.pdf

Frequently asked questions

1. What are the symptoms of flu?

Flu is a viral infection that affects mainly the nose, throat, airways and, occasionally, lungs. Infection usually lasts for about a week, and is characterised by sudden onset of high fever, aching muscles, headache, severe tiredness, dry cough, sore throat and rhinitis.

The virus is transmitted easily from person to person via droplets and small particles produced when infected people cough or sneeze. Flu tends to spread rapidly in seasonal epidemics.

2. What should I do if I get flu symptoms?

If you get the symptoms of flu, which is characterised by sudden onset of high fever, aching muscles, headache, severe tiredness, dry cough, sore throat and rhinitis, you should seek medical help and advice from a doctor as soon as possible.

3. Is Tamiflu active against the pandemic (H1N1) 2009 virus (swine flu)?

The WHO, CDC and the ECDC have reported that Tamiflu is active against this virus.

4. What is the difference between flu antivirals and a flu vaccine?

A flu vaccine is given to prevent a person from developing flu if they come into contact with the virus. Vaccines work by triggering the body's immune response to fight off infection. Each vaccine is developed to offer protection from specific types of flu. The first vaccines against the pandemic (H1N1) 2009 virus are expected in autumn 2009.

Antivirals prevent the flu virus from spreading within the body. They can be used to treat people who have been infected by the flu virus or used to prevent infection when given before or shortly after exposure to a virus.

5. Where can I get Tamiflu for myself and my family?

Tamiflu is a prescription only medicine and is only available through a consultation with a healthcare provider. If you think you have symptoms of flu you should discuss this with your healthcare provider.

6. Is there a chance that Tamiflu resistance could occur to this new strain?

The WHO, CDC and ECDC have reported that Tamiflu is active against this new virus. Between the start of the outbreak of the current pandemic and September 3rd 2009, there were 13 reports of Tamiflu resistant virus. The number of reported cases of resistance appears very infrequent in relation to the usage of the drug over this period, consistent with the low rate of resistance observed in Phase III clinical trials. At this stage, there is nothing to suggest that widespread resistance to either Tamiflu or Relenza is likely to occur. Roche and the authorities have steps in place to monitor for antiviral resistance during the pandemic.