



Updated September 2011
Seasonal influenza (Winter 2011/12)

Introduction

Influenza is an acute viral infection of the respiratory tract. In healthy individuals influenza is usually self-limiting, with recovery within one to two weeks [1, 2].

Influenza viruses belong to the *Orthomyxoviridae* family. They are enveloped viruses, with segmented RNA genomes [3]. Influenza virus type A is responsible for most epidemics and type B generally causes regional outbreaks [4].

In April 2009, an influenza A/H1N1 virus of swine origin was the cause of a global pandemic [5]. In August 2010, the World Health Organization (WHO) declared that pandemic influenza A/H1N1 (2009) had entered the post pandemic phase [6], however, influenza A/H1N1 (2009) will continue to circulate for many years.

Epidemiology

Global epidemiology

Seasonal influenza occurs throughout the world. In temperate regions of the northern hemisphere most influenza activity is from November to March and in the southern hemisphere, from April to September. In the tropics, influenza viruses can circulate throughout the year.

Up to date worldwide information on seasonal flu activity is available from the [World Health Organization \(WHO\)](#). Data on influenza activity in Europe is available from the [European Influenza Surveillance Network](#).

Seasonal influenza in travellers from the United Kingdom

The peak time for influenza activity in the United Kingdom (UK) is usually between the months of December and March.

There is limited data on foreign travel-related cases of influenza in the UK, as travel history is not routinely collected for seasonal flu cases. One indicator of a travel-related case would be the isolation of an influenza virus not known to be circulating in the UK or the isolation of a novel virus subtype.

Risk for travellers

The risk of exposure to influenza during travel depends on time of year, type of travel, destination and duration.

Travellers can be at risk during the summer months at their destination, particularly if travelling in large groups that include tourists from regions of the world where influenza viruses are currently circulating, such as on cruise ships [7].

Crowded conditions accelerate the spread of infection (e.g. Hajj or Umrah pilgrimages or cruise travel). Influenza has been described as the most frequent vaccine preventable infection among travellers to tropical and subtropical countries [8,9].



Transmission

Influenza virus is mainly spread from person to person via respiratory droplets produced by coughing and sneezing. Crowded, enclosed environments facilitate transmission. Hand contamination via mucosal membrane contact is another potential route of infection [1, 4].

Signs and symptoms

Classic symptoms of influenza are the sudden onset of fever, chills, headache, cough, extreme fatigue, blocked nose and muscular pain [1, 4].

Influenza can affect all age groups, and the burden of disease on each age group can vary from season to season, depending on the strains circulating. Although infection is usually self-limiting, it can lead to complications, secondary infections and exacerbation of underlying medical conditions, which can be fatal. The elderly, the very young and those with serious medical issues (e.g. cardiac disease, chronic respiratory conditions and immunosuppression), are particularly at risk. Very rare complications of influenza can be encephalitis and meningitis [1].

Pandemic influenza A/H1N1 (2009) generally caused a mild disease in children and young adults, however, severe cases and deaths did occur in these age groups. In the UK, most deaths were in those younger than 65 years old, the majority of whom suffered from an underlying illness, although a number of deaths in previous healthy individuals were documented [10]. Pregnant women were also at higher risk of severe illness [11].

Treatment

In the UK there are licensed antiviral drugs that can be taken to prevent or treat influenza [1].

According to UK guidance, once influenza is circulating in the community the antiviral drugs oseltamivir (Tamiflu®) and zanamivir (Relenza®) can be used to treat influenza-like illness in those considered to be at risk of developing complications, provided they are started within 36-48 hours of symptoms [1,12].

Prevention

Vaccination against influenza is the most effective way of preventing illness [1]. All travellers aged 65 years and older or in clinical risk groups should be vaccinated [according to UK guidelines](#). Travel medicine practitioners might also make an individual decision to vaccinate healthy individuals travelling to tropical and subtropical regions during the influenza season at the destination [9], (see [indications for use of vaccine](#)).

While vaccination is the mainstay of prevention, oseltamivir and zanamivir can be used as prophylaxis in certain at risk groups who have been exposed to someone with influenza.

In addition to vaccination, travellers are advised to take the following precautions to reduce their risk of exposure or spreading respiratory infections:

- Avoid close contact with symptomatic individuals and crowded conditions.
- Frequent hand washing.
- Practise 'cough hygiene': sneezing or coughing into a tissue and promptly discarding it safely, and frequent hand washing.
- Avoid travel if unwell with influenza-like symptoms.



Vaccine information

In the UK, influenza vaccines are prepared using virus strains recommended annually by WHO. Most vaccines are grown in embryonated hen's eggs. No currently administered vaccine offers protection against highly pathogenic H5N1 avian influenza.

The vaccine formulation is changed to provide protection against strains of influenza viruses that are predicted to circulate in a given season. Information on epidemiological trends and circulating influenza viruses are gathered by WHO, to ensure the closest possible match between prevalent influenza viruses and influenza vaccines [13].

In the UK, influenza vaccines are prepared in advance of the northern hemisphere winter season. Most people at risk of complications of influenza during the 2011-12 flu season will be offered trivalent vaccine, containing two subtypes of inactivated influenza A (A/California/7/2009 (A/H1N1) and A/Perth/16/2009 (A/H3N2)) and one of influenza B virus (B/Brisbane/60/2008) [13]. Monovalent A/H1N1 virus vaccine will remain available for certain risk groups [1].

All influenza vaccines currently used in the UK are inactivated and do not contain live viruses, cannot cause influenza and are thought to be equivalent in efficacy and adverse reactions [1]. Live attenuated influenza vaccines are used in other countries such as Canada and the United States [14].

Vaccine is administered by intramuscular injection, either in the upper arm or anterolateral thigh. Individuals with bleeding disorders should be given the vaccine by deep subcutaneous injection to minimise the risk of bleeding [1].

Currently available vaccines give 70% to 80% protection against the influenza virus strains matched with those in the vaccine. Protection is thought to last for approximately one year, although this may be less for the elderly. After vaccination, antibody levels take 10 to 14 days to reach protective levels [1].

Indications for use of vaccine

The aim of the UK's influenza programme is to protect those most vulnerable to serious illness or death if they develop influenza [1]. Influenza vaccine becomes available annually in the UK in September and is offered to [1]:

- All those aged 65 years and older

All those aged six months and older in the clinical risk groups listed below:

- Chronic respiratory disease
- Chronic heart disease
- Chronic renal disease
- Chronic liver disease
- Chronic neurological disease
- Diabetes
- Immunosuppression, including asplenia or hyposplenia
- Pregnant women
- Poultry workers are also offered vaccine in the UK [15]



See *Immunisation against infectious disease* (Green Book) for further information on indications for influenza vaccine.

In the UK, the vaccine is not routinely recommended for travellers unless they are in an “at risk” category. Health professionals should carefully assess a traveller’s risk of influenza [8].

Vaccine schedules

Refer to the manufacturer’s Summary of Product Characteristics (SPC) for detailed vaccine information.

Age	Dose
Children aged 6 months to 35 months	0.25ml or 0.5ml (depending on manufacturer’s SPC) repeated after 4 to 6 weeks, if the child is receiving the vaccine for the first time.
Children aged between 3 to 12 years	0.5 ml, repeated after 4 to 6 weeks, if the child is receiving the vaccine for the first time.
Adults and children from 13 years	A single injection of 0.5ml annually.

Contraindications

Very few individuals are unable to receive the influenza vaccine. The vaccine should not be given to anyone with a confirmed anaphylactic reaction to a previous dose of the vaccine, or to any component of the vaccine [1].

Patients who have confirmed anaphylaxis to egg or egg allergy with uncontrolled asthma (BTS SIGN step 4 or above) can be immunised with an egg-free influenza vaccine (if available) as a single dose in primary care [1]. Practitioners should refer to the ‘Green Book’ for further guidance and seek specialist advice if appropriate. All other egg allergic individuals can be given egg-free vaccine or influenza vaccine with an ovalbumin content less than 0.12 µg/ml [1, 16]. The ovalbumin content of available influenza vaccines can be found in the ‘Green Book’.

As with all vaccines, anyone with a moderate to severe acute febrile illness should delay vaccination until they have recovered.

Adverse events

Transient reactions such as soreness, swelling or redness at the site of injection can occur. Fever, malaise and other systemic symptoms are also reported [1].

Anaphylaxis, angioedema, bronchospasm and urticaria can rarely occur, usually due to hypersensitivity to egg protein [1].

Convulsions, neuralgia, paraesthesiae and transient thrombocytopenia have been rarely reported [1]. A recent study in the UK found that there was no association between Guillain- Barré syndrome (GBS) and seasonal influenza vaccines [17].

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Links

- [Health Protection Agency](#)
- [NHS Clinical Knowledge Summaries](#)



- World Health Organization