

## Influenza vaccines in Australia Information for immunisation providers

There are many questions raised about the need for influenza (“flu”) vaccine, who should receive the influenza vaccine, how often you should receive the influenza vaccine and what the side effects from the flu vaccine are.

This fact sheet aims to provide answers to the frequently asked questions regarding influenza vaccination. It should be read together with the companion NCIRS fact sheet “[Influenza – the disease](#)” which provides additional information.

The following questions are answered below:

1. [How can someone prevent influenza?](#)
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### 1. How can someone prevent influenza?

The best way to avoid getting influenza is to be vaccinated each year before the flu season begins. Each year, a new vaccine formulation is produced that contains antigens (or components) of the three most common circulating strains of influenza viruses. The strains that are included in the vaccine are based on what are predicted to be the circulating strains in the upcoming flu season.

Other precautions can also help to further reduce exposure to influenza, such as covering the nose and mouth with a tissue when coughing or sneezing, washing hands before eating or drinking, and avoiding close contact with people who are sick. If someone is unwell with influenza, they should stay home from work, school and social gatherings. More information on influenza illness is provided in the NCIRS fact sheet “[Influenza – the disease](#)”.

### 2. How are influenza vaccines manufactured?

Each year, laboratories from around the world collect influenza viruses and send these to the World Health Organization reference laboratories for characterisation. This information is used to determine how well the current annual vaccine formulation matches the circulating influenza viral strains. A committee examines the results of this sampling, and selects which three strains, two subtypes of influenza A (H1N1 and H3N2) and one influenza B strain, will be used in the vaccine formulation for the upcoming winter season of the respective (Northern or Southern) hemisphere.

Vaccine manufacturers need to commence production of influenza vaccine at least six months before the vaccine is needed. This is because the viruses to be included in the vaccine need to be grown in hens' eggs, purified, killed (or ‘inactivated’) and then further processed. On average, it takes between one and two eggs to produce one dose of annual flu vaccine. Inactivated whole viruses, or parts or ‘subunits’ of the killed virus, go into the vaccine. In Australia, only influenza vaccines with subunits of inactivated viruses are used, as these generally produce fewer side-effects than the whole virus vaccines.



### 3. What is in influenza vaccines?

In addition to the killed influenza virus strains, all flu vaccines used in Australia contain traces of egg protein. Most influenza vaccines also contain a trace amount of antibiotic (s) but the specific antibiotic type varies from manufacturer to manufacturer. The product information (PI) sheet of each vaccine brand lists all the ingredients included in that vaccine formulation. More general information on vaccine ingredients can be found in the NCIRS fact sheet "[Vaccine components](#)".

### 4. When should someone receive influenza vaccine?

People should receive their annual influenza vaccination before the start of the influenza season. Generally, influenza vaccines are available in Australia from the beginning of March of each year. This ensures people are protected during Australia's peak influenza season which is generally between June and September.

### 5. Does the influenza vaccine work straight away?

No, it generally takes between 7 and 14 days for an immune response to the vaccine to develop and for a person to be protected from influenza. Getting the influenza vaccine will not stop you from getting influenza if you are already infected at, or shortly after, the time of vaccination.

### 6. How effective is the influenza vaccine?

Influenza vaccine provides varying levels of protection against influenza. This can vary depending on the age of the person being vaccinated and the degree to which the vaccine 'matches' with circulating strains. For example, in older people influenza vaccine is about 30–40% effective in preventing symptoms of the flu, 50–60% effective against hospitalisation due to influenza and 70–80% effective against death from complications of influenza. Influenza vaccination also appears to reduce the risk of heart attacks and strokes. When there is a good match between the influenza strains in the vaccine and those causing current disease, the vaccine can prevent illness in about 70–90% of healthy children and adults. The vaccine is less effective in those with an impaired immune system.

### 7. Who should be vaccinated?

The 9<sup>th</sup> edition of *The Australian Immunisation Handbook* states that, unless there is a medical condition or a contraindication that precludes a person from receiving influenza vaccine (see Question 10), annual influenza vaccination is recommended for any person  $\geq 6$  months of age who wishes to reduce the likelihood of becoming ill with influenza. Most importantly, there are certain people who should definitely be vaccinated each year. This includes the following groups:

- a) all people aged  $\geq 65$  years;
- b) all Aboriginal and Torres Strait Islander people aged  $\geq 15$  years;
- c) those who have a medical condition or 'risk factor' which puts them at higher risk of severe influenza (this includes chronic lung disease, including severe asthma; heart disease; chronic neurologic conditions that may cause breathing difficulties; other chronic illnesses, such as diabetes; and pregnant women);
- d) people who frequently come into contact with at-risk persons (including contacts in occupational or residential settings, such as health professionals).

For further information regarding who should receive influenza vaccination, please refer to the 9<sup>th</sup> edition of *The Australian Immunisation Handbook*, available at <http://immunise.health.gov.au>.

## 8. Can babies and children be vaccinated with influenza vaccine?

Children aged  $\geq 6$  months can receive influenza vaccination annually (unless they have a medical contraindication to vaccination – see Question 10). Children aged  $\leq 9$  years who are receiving influenza vaccine for the first time need to be given two doses of influenza vaccine. These doses are administered at least four weeks apart. If a child  $\leq 9$  years of age being vaccinated *for the first time* did not receive the second dose (within the same year), then he/she should have two doses administered the following year. Children aged 6 months to  $< 3$  years receive a smaller dose of influenza vaccine than older children and adults. Children aged  $< 6$  months of age must not be vaccinated with the currently available influenza vaccines. Since the 1970s, influenza vaccination of children aged  $< 6$  months has not been recommended in Australia nor any other country. For more details about the current recommendations for influenza vaccination, please refer to the 9<sup>th</sup> edition of *The Australian Immunisation Handbook* available at <http://immunise.health.gov.au>.

## 9. Should a pregnant woman receive influenza vaccine?

It is recommended that influenza vaccine be offered in advance to women planning a pregnancy, and to pregnant women who will be in the second or third trimester during the influenza season, including those in the first trimester at the time of vaccination. Influenza vaccination is estimated to prevent 1–2 hospitalisations per 1000 women vaccinated during the second or third trimester. The rate of side-effects from vaccinating pregnant or breastfeeding women is no different compared to other individuals.

## 10. Who shouldn't be vaccinated with influenza vaccine?

The following people should not be vaccinated with influenza vaccine (that is, the vaccine is contraindicated):

- a person who has experienced anaphylaxis (a severe form of a generalised allergic reaction) following a previous dose of any influenza vaccine;
- a person who has experienced anaphylaxis following any vaccine component;
- a child  $< 6$  months of age; and

a person with anaphylactic sensitivity to eggs. This includes persons who, soon after ingesting eggs, develop swelling of the lips or tongue, or experience acute respiratory distress or collapse.

Patients with a history of Guillain-Barré Syndrome (GBS) have an increased likelihood of developing the syndrome again and the chance of them coincidentally developing the syndrome following influenza vaccination may be higher than in individuals with no history of GBS. Therefore, the risk from influenza vaccination should be weighed against the benefits to the individual patient of influenza prevention.

Influenza vaccination should be delayed when a person has a high fever or other moderately severe illness, but can generally be given once the illness is resolved.

## 11. Can someone still get influenza even though they have been vaccinated?

The influenza vaccine does not cause influenza, and cannot do so because it is a killed or inactivated vaccine. However, since the vaccine is not 100% protective against influenza, some people who are given the vaccine can still get influenza. If they get the flu despite being vaccinated, the disease is usually milder. Rarely, a new strain of influenza can emerge and, if the vaccine strain is a poor match, there will be more cases of influenza among the vaccinated population than usually expected. The vaccine will not protect against colds and other respiratory illnesses that may be mistaken for influenza.

## 12. Where can someone get the influenza vaccine from?

All persons aged  $\geq 65$  years can receive the influenza vaccine free-of-charge from their doctor or other immunisation service provider. People who identify themselves as Indigenous persons and are aged  $\geq 50$  years can also obtain the vaccine free-of-charge from their doctor or immunisation service provider.

Influenza vaccination is also recommended for Indigenous persons aged 15–64 years and people with a chronic condition that predisposes them to a higher risk of complications from influenza (see Question 7). These groups can currently access the vaccine at reduced cost via the Pharmaceutical Benefits Scheme, as of March 2008.

Some workplaces provide influenza vaccine free-of-charge to their employees as part of their workplace occupational health and safety program.

Other persons wishing to receive influenza vaccine will need to get a prescription from the doctor and purchase the vaccine from a pharmacy. Children aged between 6 months and 9 years, receiving the influenza vaccine for the first time, will need two doses of vaccine given four weeks apart. Infants aged 6 months to 35 months receive a smaller dose of the influenza vaccine but still need two doses if they have never received an influenza vaccine before.

### **13. Are there side-effects from the influenza vaccine?**

Local side-effects, such as swelling, redness and pain at the injection site, are common after receiving flu vaccine and occur in more than 10% of people who receive the vaccine. Fever, tiredness and myalgia (muscle aches) also occur commonly (1–10%). These side-effects may commence within a few hours of vaccination and can last for 1–2 days. In children <5 years of age, these adverse events may be more pronounced. Post-vaccination symptoms may mimic influenza infection but none of the currently licensed influenza vaccines contain live virus, so they cannot 'cause' influenza.

Immediate more severe adverse effects, such as hives, angioedema or anaphylaxis, are very rare consequences of influenza vaccination. They probably represent an allergic response to a residual component of the manufacturing process, most likely egg protein. Persons with a history of anaphylaxis after eating eggs, or a history of a severe allergic reaction following occupational exposure to egg protein, must not be given influenza vaccine.

### **14. Does someone need an influenza vaccine this year if they had one last year?**

Influenza vaccination is recommended yearly. This is because the influenza virus has proteins on the outside that frequently change. The vaccine composition changes every year to match these changes in the circulating influenza virus surface proteins. The other reason to be vaccinated each year is that, unlike many other viral illnesses, influenza has a very short incubation period, so a high level of circulating antibody is necessary to enable a swift immune response.

### **15. Should young and healthy people receive annual influenza vaccine?**

Even young and healthy people can become seriously ill with influenza. Any person who wishes to protect themselves from influenza should be encouraged to receive the vaccine. Another reason to get vaccinated is to protect those people around you who are vulnerable to complications, such as the elderly, the very young, or those persons with an impaired immune system.



## Further reading

- National Health and Medical Research Council. The Australian Immunisation Handbook. 9<sup>th</sup> edition. Canberra; Australian Government Department of Health and Ageing, 2008. <http://immunise.health.gov.au>
- Belshe RB. The burden of influenza and strategies for prevention. *Managed Care* 2007;16:2-6.
- Poole PJ, Chacko E, Wood-Baker RW, Cates CJ. Influenza vaccine for patients with chronic obstructive pulmonary disease. *Cochrane Database of Systematic Reviews* 2006;(1):CD002733.
- Thomas RE, Jefferson TO, Demicheli V, Rivetti D. Influenza vaccination for health-care workers who work with elderly people in institutions: a systematic review. *The Lancet Infectious Diseases* 2006;6:273-9.
- Australian Government Department of Health and Ageing. Avian influenza (bird flu). 2008. [http://www.health.gov.au/internet/main/Publishing.nsf/Content/health-avian\\_influenza-index.htm](http://www.health.gov.au/internet/main/Publishing.nsf/Content/health-avian_influenza-index.htm)
- Irving WL, James DK, Stephenson T, et al. Influenza virus infection in the second and third trimesters of pregnancy: a clinical and seroepidemiological study. *British Journal of Obstetrics & Gynaecology* 2000;107:1282-9.
- Block SL. Role of influenza vaccine for healthy children in the US. *Paediatric Drugs* 2004;6:199-209.
- Bren L. Influenza: vaccination still the best protection. *FDA Consumer* 2006;40:12-9.
- Nichol KL. Improving influenza vaccination rates among adults. *Cleveland Clinic Journal of Medicine* 2006;73:1009-15.
- Weinstein ND, Kwitel A, McCaul KD, et al. Risk perceptions: assessment and relationship to influenza vaccination. *Health Psychology* 2007;26:146-51.

## Useful websites

- National Institute of Clinical Studies  
<http://www.fightflu.gov.au/asp/index.asp>
- Immunise Australia Program  
<http://immunise.health.gov.au/internet/immunise/publishing.nsf/Content/flu>
- Health Insite  
[http://www.healthinsite.gov.au/topics/Influenza\\_Vaccine](http://www.healthinsite.gov.au/topics/Influenza_Vaccine)
- The Australian WHO Collaborating Centre for Reference and Research on Influenza  
<http://www.influenzacentre.org/>
- Better Health Victoria [http://www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Flu\\_and\\_pneumococcal\\_pneumonia\\_immunisation?OpenDocument](http://www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Flu_and_pneumococcal_pneumonia_immunisation?OpenDocument)