NCIRS National Centre for Immunisation Research and Surveillance

FactSheet

Influenza vaccines – Frequently Asked Questions

This fact sheet provides responses to common questions about influenza viruses and seasonal influenza vaccines, including the new influenza vaccine programs in 2020. More detailed information about influenza viruses and the available influenza vaccines can be found in the NCIRS factsheet Influenza vaccines for Australians.

Questions about influenza virus and influenza vaccines

Questions about the safety of influenza vaccines

Questions about influenza virus and influenza vaccines

Q1. What's the difference between influenza and the common cold?

Influenza is a respiratory illness that occurs following an infection with influenza viruses.[1] Influenza is often referred to as 'the flu'. Sometimes the term 'the flu' is used incorrectly to describe the common cold, other respiratory viruses or even gastrointestinal illnesses. This is because their symptoms can be similar to those caused by influenza. There are many different viruses and some bacteria that can cause these symptoms. The influenza vaccine will only protect you from the influenza virus.[2] The following table compares symptoms from the common cold and influenza and shows on average how frequently the symptoms affect people. Usually influenza is more severe and lasts longer than a cold or other viral respiratory illness.

Cold	Symptom	Influenza
☹	Fever	☹☹☹
☹	Headache	☹☹☹
☹☹	General aches and pains	☹☹☹
☹☹	Tired and weak	☹☹☹
☹	Extreme fatigue	☹☹☹
☹☹☹	Runny, stuffy nose	☹☹
☹☹☹	Sneezing	☹☹
☹☹☹	Sore throat	☹☹☹
☹☹	Chest discomfort, coughing	☹☹☹

☹ = rarely; ☹☹ = sometimes; ☹☹☹ = often

Table adapted from: Immunize Canada, 2010. Is it a cold or influenza? Available from: www.immunize.ca/sites/default/files/resources/176e.pdf (Accessed March 2020)

Q2. Is it worth getting the influenza vaccine? I'm a healthy person and have heard that influenza isn't serious.

Most Australians who get influenza are quite sick for a few days with fever, aches and pains, and sore throat, and then recover without lasting effects (see Q1). However, influenza can be very serious in some people, causing hospitalisation or even death. It is not possible to predict who will be severely affected by influenza; each year, previously healthy people are hospitalised and die from the virus. Although around 100 deaths and 5,100 hospitalisations due to influenza are reported each year,[3] many cases don't get identified, so the true impact of influenza is much greater.

Even if a person does not get severely ill from influenza, it's still a big inconvenience to their lives. For example, influenza can cause people to miss time from work (and children to miss time from childcare or school) because either they are too sick to attend or they have to take time off to care for a sick child. They may need to buy medications and visit the doctor or even the hospital. One study has shown that parents of children under 3 years missed an average of 3 days of work to stay home and care for their sick child.[4] The estimated cost to the Australian healthcare system

for GP visits and hospitalisations was $115 million per year for each year between April 2000 and March 2006.[5]

In addition to protecting you from influenza, vaccination also helps to protect people around you. If you don't catch influenza, then you can't spread the infection. It is particularly important to protect vulnerable people who can't receive the vaccine themselves, such as young babies less than 6 months old and those who have low immunity.[6,7]

You can think of the influenza vaccine as a seatbelt. When used properly, a seatbelt reduces the likelihood that you'd be injured in a car accident. However, they aren't perfect and won't prevent all injuries. Like a seatbelt, the influenza vaccine isn't perfect because the flu strain chosen to be in the vaccine each year needs to match the one that is circulating in the community. However, the vaccine will reduce the chance of getting influenza and its potentially serious complications, including death.

Given that this year SARS-CoV-2 (the virus that causes COVID-19) will be circulating and potentially peaking at the same time that our influenza season commences, it is even more important to get an influenza vaccine as a precaution against co-infection.

Q3. Why do healthy young children need an influenza vaccine?

Compared with older children and adults, infants and children under 5, including those without pre-existing medical conditions, are more likely to get severe influenza infection, resulting in hospitalisation.[3,8] In 2017, approximately 1 in 400 children were diagnosed with laboratory-confirmed influenza. Previously healthy children can be severely ill and suffer from influenza-associated complication such as pneumonia and encephalitis.[9-11]

Q4. If the influenza vaccine is recommended for everyone then why can only certain people get it for free?

The influenza vaccine is available free of charge via the government-funded National Immunisation Program (NIP) for certain groups of people who are at the highest risk of severe influenza or more likely to get complications from influenza than the general population.[12] This includes children aged 6 months to under 5 years, all Aboriginal and Torres Strait Islander people, all adults aged 65 years and older, pregnant women and people with certain underlying medical conditions.

Since 2005, decisions on what vaccines are provided for free, and for whom, are made following a process that involves the Pharmaceutical Benefits Advisory Committee.[13] This ensures any government spending on a health intervention is cost-effective. This is important as there is a limited amount of money that is available for healthcare in Australia and these funds need to be used to bring about the greatest benefit for the whole population.

However, people who are not eligible for influenza vaccine on the NIP will still benefit from vaccination (see Q2). The Australian Immunisation Handbook, the national clinical guideline advising on the safest and most effective use of vaccines in Australia, recommends the influenza vaccine from 6 months of age.[14] Influenza vaccines can be purchased for around $10–$20 each.

Q5. I'm travelling to the northern hemisphere and it is influenza season at my destination. How do I protect myself from influenza while travelling? What should I do if I have been travelling/living overseas and am coming back to Australia?

Depending on the time of year and destination, travellers may be exposed to the influenza virus at any time throughout the year. The influenza season in the southern hemisphere is mostly during the months of April to September; in the northern hemisphere, influenza activity occurs during October to April. Influenza activity has been reported throughout the year in the tropics.

Travellers may be exposed to the influenza virus while travelling regardless of their destination. Travellers in large tourist groups or involving travel in confined circumstances for days to weeks, such as on a cruise ship, are at particular risk of influenza.[15,16] Infection can be acquired either before departure or from travel to areas of the world where influenza is currently circulating.

Influenza vaccination is recommended if travelling, especially if it is known before travel that influenza is circulating in the destination region. Some brands of current southern hemisphere influenza vaccine are available from March through to February the following year (when the vaccine expires). A northern hemisphere formulation of influenza vaccine may be preferred if travelling in the northern hemisphere during their influenza season (usually October to May), but is generally unavailable in Australia. The southern hemisphere formulation is considered as an acceptable alternative and a second dose late in the season may be given even if the person has previously received this vaccine earlier in the current season.

Q6. Does the influenza vaccine work? I've had the vaccine before and I still got sick that year.

There have been many research studies that have shown the effectiveness of the influenza vaccine. It takes 2 weeks for the vaccine to become effective and for immunity to develop after vaccination. However, how well the influenza vaccine works can vary among different people and in different years, as it depends on several factors.

For example, the age and health of the person receiving the influenza vaccine can impact how effective it is. Influenza vaccination can prevent illness in about 50–60% of healthy adults under the age of 65 years, although this figure varies year by year.[17] Similar levels of protection occur in young children.[18] However, people with an underlying medical condition, such as those with low immunity or the elderly, may not respond as well to the influenza vaccine as healthy adults do and so the level of protection they get from the vaccine may be less. Importantly, among high-risk individuals such as nursing home residents, the vaccine prevents pneumonia and hospitalisation due to influenza.[19] Because of the higher risk of severe influenza in the elderly, any protection provided by vaccination against influenza is worthwhile.

Because the vaccine is not 100% effective, it means a small proportion of people may catch the virus after getting the vaccine. However, in many instances, people may think they have caught influenza after being vaccinated but that is not the case. For example, often people catch influenza before getting the influenza vaccine but their symptoms don't appear until shortly after being vaccinated, making them think the vaccine didn't work, or even (mistakenly) that the vaccine made them sick (see Q8).

Similarly, a person who is vaccinated against influenza may catch a different virus that is mistaken for influenza (see Q1). For instance, respiratory syncytial virus (RSV) and parainfluenza are viruses that cause symptoms similar to those of influenza, spread in the community at the same time influenza does and can cause severe illness and complications just like influenza.[20]

Q7. What is an 'enhanced' influenza vaccine and how is it different from other influenza vaccines? Who should receive it?

The highest disease burden from influenza occurs in the elderly in terms of serious complications and death rates.[3] The elderly do not respond as well to the influenza vaccine as healthy adults do, as the immune system weakens with age. The level of protection they get from the influenza vaccine is usually less than that of a younger person. This underpins the need for 'enhanced' influenza vaccines for people aged ≥65 years to better protect them from influenza infection.

One 'enhanced' influenza vaccine (Fluad Quad) is available for people aged ≥65 years. Fluad Quad is specifically designed to increase the immune system's response to the vaccine. Fluad

Quad contains the standard amount of antigen but with an adjuvant – a compound that stimulates a higher immune response to a vaccine. Fluad Quad has been shown to be as immunogenic as Fluad (adjuvanted trivalent inactivated influenza vaccine) but the addition of the additional B strain means that it provides broader protection to older adults.[21] Fluad Quad is only licensed for use in people aged ≥65 years, as the effectiveness and safety of this vaccine in younger populations has not been adequately examined. Studies have shown that people aged ≥65 years who receive an adjuvanted vaccine may experience higher rates of injection site reactions than those who receive standard influenza vaccine.[22]

Q8. When should I get the influenza vaccine and when is it too late in the season to get it?

Annual influenza vaccination is recommended before the influenza season starts.

The peak of influenza activity in Australia can vary from season to season. Typically it occurs between June and September, but infections can occur year round. The influenza vaccine can therefore be effective in preventing infection whenever it is given. However, evidence suggests optimal protection occurs in the 3–4 months following vaccination and so vaccination before the expected winter peak is advisable.[23,24]

Influenza vaccine is recommended in every pregnancy and at any stage of pregnancy. For pregnant women who received an influenza vaccine in 2019, revaccinate if the 2020 influenza vaccine becomes available before the end of pregnancy. For women who received an influenza vaccine before becoming pregnant, revaccinate during pregnancy to protect the unborn infant. Influenza vaccine can safely be given at the same time as pertussis vaccine.

There is no time when it is considered too late to be vaccinated against influenza. Vaccination should continue to be offered throughout the influenza season, as long as unexpired vaccine is available.

Q9. Is the influenza vaccine available all year round?

The influenza vaccine is available from March through to February the following year (when the vaccine expires). This means there is a gap of about 1 month where no influenza vaccine may be available.

Questions about the safety of influenza vaccines

Q10. I've heard one of the side effects after having the vaccine is getting sick with influenza. Is that true?

It is not possible for the influenza vaccine to give you influenza. This is because all influenza vaccines in use in Australia are 'inactivated' which means the vaccine is only made with the outside 'shell' of the influenza virus, and it is not alive or functioning like a whole virus.[25] Think of it as like the outside shell of a car without the motor – it looks like a car but doesn't actually run.

Sometimes the normal responses the body has to getting the vaccine (i.e. side effects) are similar to the early signs of influenza which can make people think they have gotten influenza from the vaccine. For example, the expected side effects of the vaccine are swelling, redness and pain at the injection site but also fever, tiredness and muscle aches which also occur when you get influenza (see Q1, Q6). However, these side effects are a sign that the vaccine is triggering an immune response, which is what it is designed to do. The symptoms can start within a few hours of being vaccinated, last 1–2 days, and are generally much milder than an actual influenza infection. These symptoms go away on their own once your body has successfully made an immune response to the vaccine which will protect you from influenza virus.[26]

Q11. I've heard influenza vaccine causes seizures in young children. Is that true?

Febrile seizures can be triggered by fever of any cause. A small proportion of children (2–4%) are susceptible to febrile seizures until they are 6 years old.[27] The seizures themselves usually last around 1 or 2 minutes with loss of consciousness. Nearly all children who have a febrile seizure, regardless of the cause, will recover quickly. Studies have shown that academic outcomes and behaviour in children who have febrile seizures are the same as in children without seizures.[28] The risk of epilepsy in children who have a simple febrile seizure is only slightly higher than in the general population and likely related to underlying genetic predisposition.[29]

Influenza infection itself can cause fever and results in many more febrile seizures than vaccination. Influenza is one of the most common infectious causes of febrile seizures in children hospitalised in the winter in Australia.[30] In one study 6% of children hospitalised with influenza suffered a febrile seizure.[31] Compare this with febrile seizures related to fever after influenza vaccination which occurred in approximately 1 in every 20,000 children who receive the vaccine.[32]

In Australia in 2010, higher than expected numbers of fever and febrile seizures following influenza vaccination were detected in children under 5 years of age, particularly in children under 3 years of age.[33] Upon investigation, the reports were linked to only one manufacturer's influenza vaccine (Seqirus [previously bioCSL] Fluvax and Fluvax Junior). The use of this vaccine in Australia was suspended while further investigations by the Therapeutic Goods Administration (TGA) were undertaken. The investigations revealed that the issue was likely caused by the manufacturing process used by bioCSL at the time.[34-36] This vaccine is no longer available in Australia.

Enhanced safety monitoring systems for influenza vaccines introduced in recent years, such as AusVaxSafety (see Q12), have confirmed that influenza vaccine is safe in children younger than 5 years, reporting low rates of fever and medical attendance after vaccination.[27]

Q12. What is being done in Australia to make sure vaccines are safe to give to the public?

Reviewing and monitoring the safety of vaccines is included at all stages of the vaccine development process, from initial lab-based research, vaccine registration including authorities for use, recommendations on the use of the vaccine to ongoing surveillance once the vaccine is being used in the population.

The Therapeutic Goods Administration (TGA) is responsible for registering vaccines for use in Australia. To ensure their safety and efficacy, vaccines are evaluated using the most up-to-date research and testing information available. Independent medical and scientific advice on the safety, quality and efficacy of vaccines is provided by experts who make up the Advisory Committee on Vaccines (ACV).[37] Once vaccines are registered and in use, the TGA continues to monitor their safety and effectiveness through a national monitoring system. The system includes reporting of adverse events by health authorities, immunisation providers, doctors, consumers and vaccine manufacturers. If the TGA receives information that there are safety concerns about a vaccine, the issue is investigated immediately. As part of the investigation, the TGA seeks vaccine safety advice from the ACV.[38]

Another important vaccine safety initiative in Australia is AusVaxSafety, a national, active sentinel-based vaccine safety surveillance program. AusVaxSafety collects patient-reported outcomes following a vaccination encounter via an SMS-based survey. Data are collected in near real-time and collated for analysis and monitoring for safety signals.

Another important body is the Australian Technical Advisory Group on Immunisation (ATAGI).[39] This group advises the government on existing, new and emerging vaccines in relation to their effectiveness and use in Australian populations. ATAGI produces The Australian Immunisation

Handbook, the national clinical guideline advising on the safest and most effective use of vaccines in Australia. ATAGI and the ACV work together with other bodies on matters relating to the implementation of immunisation policies, procedures and vaccine safety.

Q13. I've been told to get the influenza vaccine when pregnant to protect me and my baby. Is this safe?

Influenza can cause severe disease in pregnant women and young babies. Getting sick with influenza while pregnant can lead to complications such as premature delivery and even perinatal death.[40] Young children, especially those younger than 6 months, are more likely to be hospitalised or die from influenza than older children.

Influenza vaccine is recommended with every pregnancy and at any stage of pregnancy to protect both the mother and her unborn child against complications from influenza. Babies born to women vaccinated against influenza while pregnant are less likely to be born prematurely or have a low birth weight.[41,42]

Influenza vaccination protects babies after birth. During pregnancy, protective antibodies are transferred through the placenta from the mother to the baby. Maternal vaccination is estimated to reduce the risk of influenza in infants <6 months of age by 48%.[43-45] However, the protection wears off as babies get to 6 months of age, at which time babies can start to receive the vaccine themselves.[46]

Influenza vaccine is safe during pregnancy. A systematic review combining data from multiple studies found no increase in fetal death, spontaneous abortion or congenital malformation after maternal influenza vaccination in pregnancy.[41] Expected adverse events after vaccination, like injection site reactions, do not occur any more frequently in pregnant women than in non-pregnant women. Influenza vaccine is also safe when given to mothers who are breastfeeding, and can provide protection to the baby through antibodies that are transferred to the baby in breastmilk.[47]

For pregnant women who received an influenza vaccine in 2019, revaccinate if the 2020 influenza vaccine becomes available before the end of pregnancy. For women who received an influenza vaccine before becoming pregnant, revaccinate during pregnancy to protect the unborn infant. Influenza vaccine can safely be given at the same time as pertussis vaccine.

Q14. Can I get the influenza vaccine if I have an egg or latex allergy?

Reactions such as hives, angioedema (a skin reaction with swelling similar to hives) or anaphylaxis (severe allergic reaction) are rare side effects following vaccination for influenza. They can be due to an allergic response to something in the vaccines, such as egg protein.

Although influenza vaccines in Australia are grown in eggs, because of new vaccine manufacturing methods, the amount of material from the egg in the influenza vaccine is small (usually less than 1 microgram of egg protein per dose). Recent studies have shown that people with egg allergy, including egg-induced anaphylaxis, have safely received the influenza vaccine.[48,49] Although the risk of anaphylaxis or an adverse event is very low, people with this type of allergy should be vaccinated by healthcare providers experienced in recognising and treating anaphylaxis.

The Australasian Society of Clinical Immunology and Allergy (ASCIA) guidelines should be referred to for additional information on influenza vaccination of individuals with an allergy to eggs, including risk, dosage and observation period.[50]

Influenza vaccines used in Australia are latex-free and safe for use by people with a latex allergy or sensitivity. Although the product information for Fluarix Tetra states that some presentations of the vaccine cannot be considered latex-free, these presentations are not supplied in Australia.

Q15. Can the influenza vaccine be given to someone who has had Guillain-Barré syndrome?

Guillain-Barré syndrome (GBS) is a rare disorder in which the immune system damages nerve cells, causing muscle weakness and sometimes paralysis. The symptoms usually last for a few weeks followed by a full or partial recovery. In very rare cases people have died of GBS. The risk of the syndrome increases with age and is greatest for those aged 50 years or older. Diagnosis of GBS is complex and must be made by a doctor.

A small increased risk of GBS was found in people given a specific influenza vaccine in the United States in 1976.[51] Since then, close monitoring has shown that GBS has occurred at a very low rate of less than 1 in 1 million doses of influenza vaccine.[52] Studies suggest that a person is more likely to get GBS from infection with the influenza virus than from the influenza vaccine.[53]

People with a history of GBS whose first episode was not after vaccination have an extremely low risk of recurrence of GBS after vaccination.[54-56] Vaccination is recommended for these people.

Vaccination is generally not recommended for people with a history of GBS whose first episode occurred within 6 weeks of influenza vaccination. There are limited data in people where the first episode occurred within 6 weeks of influenza vaccination (i.e. the first episode was possibly triggered by the vaccine). In these people, discuss the potential for GBS recurrence if vaccinated, the potential for exacerbation following influenza infection, and other protective strategies (e.g. vaccination of household members). Vaccination can be considered in special circumstances.

Q16. Can the influenza vaccine be given to someone taking immune checkpoint inhibitors?

Immune checkpoint inhibitors are a class of monoclonal antibodies currently used in the treatment of a number of cancers, including metastatic melanoma, renal clear cell carcinoma, non-Hodgkin lymphoma, non-small cell lung cancer and other solid organ tumours.

Checkpoint inhibitors include:

- CTLA-4 inhibitors (such as ipilimumab)
- PD-1 and PD-L1 inhibitors (such as nivolumab or pembrolizumab)

People taking checkpoint inhibitors may have a higher risk of immune-related adverse events following immunisation with influenza vaccine.[57] Consult the person's treating oncologist about the risks and benefits of influenza vaccination in people taking treatments.

Additional resources for primary medical care/vaccination providers

- NCIRS influenza fact sheet
- Australian Technical Advisory Group on Immunisation (ATAGI) advice for immunisation providers regarding the administration of seasonal influenza vaccines in 2020
- Australian Government Department of Health immunisation website
- National Immunisation Program schedule

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