

## Common questions about Flu Vaccination...

### Q. How long does it take for the flu vaccine to work in my body?

The flu vaccine takes up to 2 weeks to provide protection following vaccination. Some studies have observed protective levels of antibodies developing as early as 4 - 6 days following vaccination. It is recommended that the flu vaccine be given in April – June, before the flu transmission season begins and prior to peak influenza activity during the Southern Hemisphere winter months. If you are exposed to a flu virus shortly before - or within - 2 weeks of being vaccinated, you may still catch the flu.

### Q. Does flu vaccination work?

YES, the flu vaccine does work. Influenza vaccination reduces hospitalisation and deaths by 20% to 50%.

### Q. What strains does the 2024 flu vaccine protect me from?

The antigen composition and strains for the approaching influenza season are determined by the World Health Organisation (WHO) and the Commission of the European Community. Depending on whether the flu vaccine received is a cell-based or an egg-based (i.e. 'traditional') flu vaccine, the vaccine strains recommended are slightly different - as recommended by WHO.

This years cell-based flu vaccine contain the following strains:

- ~ an A/Wisconsin/67/2022 (H1N1) pdm09 - like virus; (i.e. covering the pandemic (H1N1) 2009 "swine flu" virus);
- ~ an A/Massachusetts/18/2022 (H3N2) - like virus;
- ~ a B/Austria/1359417/2021 - like virus (B/Victoria/2/87 lineage)
- ~ a B/Phuket/3073/2013 - like virus (B/Yamagata/16/88 lineage)

This years egg-based (i.e. 'traditional') flu vaccine contain the following strains:

- ~ an A/Victoria/4897/2022 (H1N1) pdm09 - like virus; (i.e. covering the pandemic (H1N1) 2009 "swine flu" virus);
- ~ an A/Thailand/8/2022 (H3N2) - like virus;
- ~ a B/Austria/1359417/2021 - like virus (B/Victoria/2/87 lineage)
- ~ a B/Phuket/3073/2013 - like virus (B/Yamagata/16/88 lineage)

### Q. Can anyone have a flu vaccination?

If you have a temperature at the time of vaccination, or have had a previous reaction to any vaccination, please discuss this with the Vaccinator prior to receiving your vaccination.

### Q. How long does flu protection last, and, why should I have a flu vaccination every year?

Immunity to the strains in a flu vaccine generally wanes within 6 to 12 months following vaccination, so it is important that annual flu vaccinations be administered. The changing nature of the influenza virus means that new flu strains are constantly appearing. Influenza viruses are capable of evading the body's immune system by undergoing continuous genetic variation and may change from flu season to flu season. In most years, a new flu vaccine is developed to provide protection against the predominant flu strains predicted by the World Health Organisation (WHO) to be circulating in that particular year.

### Q. I don't need a flu vaccination as I am very healthy. Should I still receive a flu vaccination?

Being fit and healthy will not protect you from getting the flu. Healthy individuals are still at risk of influenza and may have flu symptoms for up to 10 days. On average, people with the flu will miss 3 to 5 work days.

Not everyone with the flu displays flu symptoms, or, feels unwell enough to visit their GP. However, these infected individuals can still pass the flu on to others through touch - or in the air - to colleagues or those likely to get sicker than themselves such as; people who are immunocompromised or who have pre-existing medical conditions, pregnant women, the elderly, and infants.

### Q. Are there any side effects?

Pain, swelling, redness, and / or, tenderness around the injection site are the most frequent side effects, but, in general are mild and of short duration. The majority of expected side effects disappear within 1 to 2 days.

### Q. Will receiving a flu vaccination protect me against the common cold?

NO. By vaccinating against the flu, you are providing protection against a serious viral illness - that is, influenza. A flu vaccination may provide some cross protection against an influenza virus not present in the flu vaccine. However, flu vaccination does not protect you against the common cold.

### Q. How effective is a flu vaccination against flu strains not included in the vaccine?

Effectiveness is reduced by the degree of difference between circulating virus strains and vaccine strains. There may be some cross protection against an influenza virus not in the vaccine.

The influenza virus keeps changing and new vaccines are formulated for each Northern and Southern Hemisphere flu season. WHO devotes significant resources to maintaining global surveillance on dominant flu strains each year in the Northern and Southern Hemispheres.

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## Common questions about Flu Vaccination (cont)...

### Q. Will having the seasonal flu vaccine protect me from getting “swine flu”?

YES, the 2024 vaccine contains an A/Sydney/5/2021 (H1N1) - like virus strain that covers pandemic (H1N1) 2009 “swine flu”.

### Q. Does the 2024 flu vaccine contain protection against COVID-19?

NO. There are presently clinical trials underway worldwide to study the effectiveness of a combined vaccine for both seasonal flu and COVID-19. However, there are currently no combined seasonal flu and COVID-19 vaccines available outside of these clinical trials. Consequently, flu vaccine in 2024 has been manufactured in the same way that flu vaccines have traditionally been manufactured. At present, vaccines against each of flu and COVID-19 need to be administered separately - ie 2 vaccinations.

### Q. Can I receive a flu vaccination if I have received, or I am scheduled to receive, a COVID-19 vaccination?

All vaccines can now be given at the same time or immediately before or after receiving the COVID-19 vaccine. Vaccines that can be given at the same time as the COVID-19 vaccine include; influenza, measles-mumps-rubella (MMR), human papillomavirus (HPV, Gardasil 9), tetanus and whooping cough vaccine (Tdap, Boostrix) and meningococcal vaccines.

The exception is for receiving a shingles vaccine - where a gap of 7 days is recommended between receiving a COVID-19 vaccine and the shingles vaccine in order to ensure a good immune response to each individual vaccine in older adults.

Pregnant women are recommended to receive influenza vaccine and COVID-19 vaccine at any stage of pregnancy. Whooping cough vaccine can be received from 16 weeks gestation. These vaccines can be given at the same time or separately.

### Q. Can you get influenza (“the flu”) from having the flu vaccine?

NO. Flu vaccines do not contain the whole virus - only the part of the virus that triggers your body to produce antibodies.

### Q. Will an anti-viral prevent me developing influenza?

NO. Antivirals will only help relieve symptoms but not prevent infection from the influenza virus.

### Q. I am (or could be) pregnant. Can I have the flu vaccine?

YES. The seasonal flu vaccine is strongly recommended for women who will be pregnant during the flu season. Refer to;

- page 314 of the Immunisation Handbook 2020 (version 23, 27th June 2023 update) entitled “Pregnant women, the fetus and neonates”, and,
- pages 320 of the Immunisation Handbook 2020 (version 23, 27th June 2023 update) entitled “Pregnancy and breastfeeding”.

Because there is no registered or effective flu vaccine for children aged under 6 months, flu vaccination during pregnancy is highly recommended to improve maternal foetal passive antibody transfer. Influenza vaccination of pregnant women has been shown to significantly decrease influenza in their newborn babies. Breastfeeding is also recommended, to deliver passive immunity to the infant. In a 2016 Australian study, influenza immunisation during pregnancy showed that stillbirth was 51% less likely among vaccinated mothers compared to unvaccinated mothers. There is no evidence that influenza vaccine prepared from inactivated virus causes damage to the fetus.

### Q. Who supplies the flu vaccine?

PHARMAC has the contract in New Zealand to source supply for “funded” flu vaccines from global flu vaccine manufacturers.

**FluQuadri®** is produced by Sanofi Pasteur (the vaccines division of Sanofi-Aventis Group). Sanofi Pasteur is one of the world’s largest pharmaceutical company’s and produces approximately 1.4 billion doses of vaccine yearly, of which 120 million doses are influenza vaccine.

**Afluria® Quad** is produced by Seqirus (formerly bioCSL) who are the only vaccine manufacturers in the Southern Hemisphere. Seqirus is the second largest influenza vaccine company in the world.

**Flucelvax® Quad** is produced by Seqirus (formerly bioCSL). Flucelvax® Quad is a cell (vs egg) based flu vaccine which provided consistently (i.e. 10 - 15%) better protection against flu over 3 consecutive US flu seasons.

**Influvac® Tetra** is supplied by Viatrix (formerly Mylan) who are global pharmaceutical and healthcare company.

### In Summary...

There are obvious advantages to influenza vaccination:

- ~ **less** time off work – less loss of income
- ~ **less** burden on your family, relatives and work colleagues
- ~ **less** strain on medical resources
- ~ **reduced** absenteeism at work
- ~ **YOU** don’t feel miserable!

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## Common questions about cell based flu vaccination...

### Q. What is a 'cell based' flu vaccine?

'Cell based' flu vaccine refers to how the influenza vaccine is made. Cell based influenza vaccines are prepared in cultured cells of mammalian origin - that is, Madin-Darby canine kidney (MDCK) cells (no animals are harmed by this process). Madin-Darby canine kidney (MDCK) cells date to 1958 and are a model mammalian renewable cell line used in vaccine production, biomedical research, and a wide variety of cell biology studies. Consequently, cell based influenza vaccines are completely egg free as cell based influenza vaccines eliminate the need for using chicken eggs in the flu vaccine manufacturing process.

### Q. Why was a cell based flu vaccine developed?

The traditional method of producing influenza vaccine - that has been used successfully for more than 70 years - involves using fertilised (or embryonated) chicken eggs to grow flu viruses in. This traditional method of producing influenza vaccine creates a large demand for eggs which must be grown in strictly controlled growing environments and produces a large amount of waste.

In recent years, additional concerns have been raised that using fertilised (or embryonated) chicken eggs to grow flu viruses;

- 1) can mean that the replication of influenza viruses in fertilised (or embryonated) chicken eggs during vaccine production results in antigenic changes - as human influenza sometimes grow poorly in eggs - that could make the influenza viruses less closely related to the circulating influenza strains. This 'antigenic mismatch' has been a particular challenge for influenza A/H3N2 subtypes and is thought to have contributed to lower influenza vaccine effectiveness in some years (particularly when A/H3N2 was the predominant flu strain in circulation), and also,
- 2) raises a logistical concern that supply of influenza vaccines could be compromised if there was a worldwide shortage of fertilised (or embryonated) chicken eggs, or if rapid increases in vaccines are needed (e.g. in an influenza pandemic).

Cell based influenza vaccine eliminates the need for using chicken eggs in the flu vaccine manufacturing process as renewable cell based influenza vaccines are prepared in cultured cells of mammalian origin (no animals are harmed by this process).

As cell based flu vaccine production does not use flu viruses grown in fertilised (or embryonated) chicken eggs, cell based flu vaccine production is not dependent on a large supply of chicken eggs.

### Q. What are the possible benefits of using cell based flu vaccines?

- 1) Significantly reduced environmental impact as renewable cell based flu vaccines do not require the production and disposal of large amounts of chicken eggs - and associated manufacturing waste - that are used in the manufacturing of traditional flu vaccines
- 2) Studies show that greater protection (i.e. 10.0% - 19.3% from 3 consecutive US flu seasons) against flu or flu like illness amongst people who have received cell based flu vaccines vs those people who received standard egg based vaccines. This result is primarily because the use of cell based candidate vaccine viruses (i.e. the strains recommended by WHO to be in each year's annual influenza vaccination) in flu vaccine production has the potential to offer better protection against influenza compared to traditional egg based flu vaccines as the viruses used to make cell based flu vaccines more similarly replicate circulating 'wild' flu viruses than the viruses grown in fertilised (or embryonated) chicken eggs
- 3) Cell based vaccine technology has been successfully used to produce other licensed vaccines including for rotavirus, polio, smallpox, hepatitis, rubella and chickenpox
- 4) Eggs, antibiotics and preservatives are not used in the production process of cell based flu vaccines as these are not needed
- 5) Cell based vaccine technology may contribute to more consistent vaccine production in addition to permitting a faster start up of the vaccine manufacturing process in the event of a pandemic

### Q. Is the cell based flu vaccine safe?

YES - and is licensed for those 6 months of age and older. Post vaccination symptoms from those receiving Flucelvax® Quad are similar to those seen with other flu vaccines. Cell based vaccine technology has been successfully used to produce other licensed vaccines including for rotavirus, polio, smallpox, hepatitis, rubella and chickenpox.

### Q. Are cell based flu vaccines successfully used overseas?

YES. Cell culture based production process for flu vaccines was approved by FDA the US in 2012.

Flucelvax® Quad was approved for use in the US in May 2016 and has been used annually since. Cell based flu vaccines have been approved for use in many European countries. Flucelvax® Quad has been used in Australia for the past 2 years.

As of July 2023, 213 million doses of Flucelvax® Quad have been distributed worldwide.

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