

# Explainer: What strains does the 2014 flu vaccine protect against?

March 17 2014, by Raina Macintyre

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H1N1, one of the flu strains circulating this season, disproportionately affects people aged 24 to 64 years. Credit: fractalworld/Flickr, CC BY-NC

Influenza [affects up to](#) 15% of adults and 30% of children each flu season and [early indications suggest](#) we could be facing a severe season. The 2014 seasonal influenza vaccination is [available from today](#). So, what strains does it protect against and who should be vaccinated?

## What is influenza?

Influenza is a serious viral illness that [causes](#) 1,500 to 3,500 deaths in Australia each year [from complications](#) such as pneumonia and secondary bacterial infections.

There are two major types in humans – [influenza](#) A and influenza B, with the A strain causing more severe disease. Influenza B, however, causes a disproportionate amount of illness in children.

The virus also has many animal hosts including birds, pigs and horses. Genetic mixing between human and animal strains can cause new pandemic strains, to which humans have little or no pre-existing immunity. This susceptibility gives rise to rapid spread, high rates of illness and more severe disease.

Once new strains emerge in humans, they become established as seasonal variants in the population and tend to cycle over the years, with different strains dominating each year. The seasonal flu viruses we see now were once pandemic strains.

## Seasonal vaccination

Seasonal influenza viruses mutate continually, so the vaccine needs to be updated annually to match the expected strains.

The commonly used vaccine ([trivalent, inactivated influenza vaccine](#) or TIV) covers three strains: two types of influenza A and a single influenza B strain. Protection is strain-specific, so the vaccine will generally only provide good protection against the included strains.

Each year the World Health Organization [evaluates the data](#) on

circulating viruses and decides on which strains should be covered in the vaccine. Influenza is, however, unpredictable, and sometimes a strain which is not covered in the vaccine can emerge during the [flu season](#).

In 2014 the vaccine includes:

- an A/California/7/2009 ([H1N1](#)) pandemic 2009-like strain (similar to swine flu)
- an A/Texas/50/2012 ([H3N2](#))-like strain
- and a B/Massachusetts/2/2012-like strain.

Influenza vaccine is an inactivated product, so it cannot cause the flu. The vaccines are safe and effective, although one brand, Fluvax, is [not approved for children under the age of five](#) years because of an increased risk of febrile seizures.

There is now a [quadrivalent influenza vaccine](#) (QIV) available, which has the same strains as the trivalent plus protection against an additional influenza B strain. There are two major circulating lineages of influenza B, and [research shows](#) that the TIV matches the circulating B strain only 50% of the time. As such, the QIV offers greater protection against influenza B.

## Should I get vaccinated?

The [government recommends](#) – and funds – the influenza vaccination for all people aged 65 years and older, Aboriginal and Torres Strait Islander people aged 15 years or older, pregnant women and anyone over six months of age with a medical condition that predisposes to complications of influenza.

These conditions include heart disease, respiratory disease, chronic illnesses including diabetes, kidney disease, asthma, immunosuppression

and chronic neurological conditions. Children on long-term aspirin therapy should also be vaccinated.

Pneumonia is a common complication of influenza, so people in these at-risk groups, along with infants and over-65s, are [also recommended](#) to have the pneumococcal vaccine.

The [rates of influenza vaccination](#) for people aged 65 years and over are high, but people aged less than 65 years with medical risk factors are less likely to be vaccinated. Only 30-50% of people with risk factors get vaccinated each year.

[Research shows](#) the [influenza vaccine](#) can also protect against heart attacks. Given that ischaemic heart disease is the [leading cause of illness and death](#) in the world, the impact of influenza [vaccine](#) in preventing heart attacks could be significant on a population level.

## **The 2014 flu season**

We often see the strain that dominated in the northern hemisphere in December-January appear in our winter. The major circulating strain in the United States this past winter was the pandemic H1N1 (swine flu) strain, which has a different pattern to usual seasonal influenza, in that it affects people aged 24 to 64 years more than people at the extremes of age.

Usually, other strains of seasonal influenza affect the extremes of age most – the very young and the very old. Others who are more at risk with the pandemic H1N1 are pregnant women, people who are obese, and Aboriginal and Torres Strait Islander people.

Flu seasons typically cycle between mild and severe epidemic years. The last severe influenza season in Australia was in 2009, the year of the

pandemic swine flu, and we've have had mild to moderate flu seasons since.

This, coupled with the fact we've had an early start to the flu season in 2014 (with higher case numbers compared to the same time in previous years) suggests we could have a severe season in 2014.

Anyone in the groups recommended for vaccination on the [National Immunisation Program schedule](#) should get vaccinated as soon as possible.

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