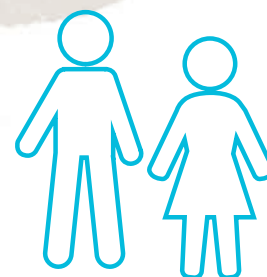
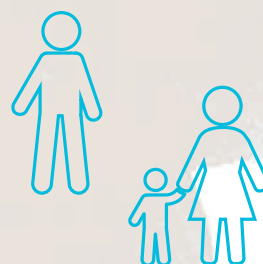


**Influenza.**  
Don't get it.  
Don't give it.

Everything you  
need to know about

FLU



**2018**



The Immunisation  
Advisory Centre



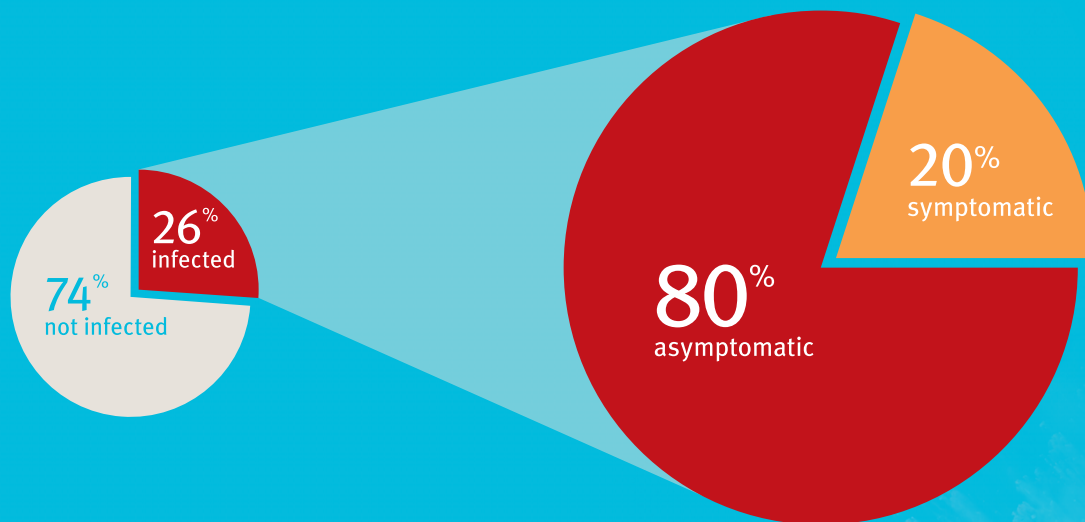
MINISTRY OF  
HEALTH

MANATŪ HAUORA

# 4 out of 5 people infected show no symptoms of influenza

The Southern Hemisphere Influenza and Vaccine Effectiveness, Research and Surveillance (SHIVERS) Serosurvey, in 2015, provided information about the immunity that people in the community have against influenza.

The results showed that 26% of people were infected with influenza and **4 out of 5 of these people (80%) were asymptomatic carriers**.<sup>1</sup> These carriers could have spread the virus among their family, co-workers, classmates and patients without ever realising it.



## And once spread, influenza has a serious effect on our community

Other SHIVERS data showed that when applied to the New Zealand population:

- 31,850 sought help from their GP
- 2,209 were hospitalised

## Help prevent the potentially devastating effects of influenza in your community

## Recommend annual influenza vaccination to your patients

## Please make sure you get vaccinated every year

### The SHIVERS Serosurvey

The purpose of this study was to contribute to knowledge about influenza infection in the community and identify if participants:

- developed immunity to influenza by the end of the winter and
- had influenza during the winter

**Study Overview:** The study took place between February and November 2015 and involved about 1,500 adults and children randomly selected from general practices in Auckland.

After a short health survey, a blood sample was taken before the influenza season, and from May to September, weekly contact was used to check for cold or influenza symptoms. For those meeting the influenza-like illness case definition, and who hadn't visited a GP, a nose or throat swab was taken to test for viruses or bacteria that cause influenza, colds or sore throats. At the end of winter, a longer questionnaire was completed and a second blood sample was collected. Detection of influenza RNA or antibody against haemagglutinin was used to estimate influenza infection rates.

# Contents

## Key reference material

Introduction with important information for 2018	1
Key messages	1
Influenza disease	3
Should healthcare workers be vaccinated?	4
New Zealand immunisation strategy	5
Eligibility for funded influenza vaccine	5
Eligible medical conditions for funded influenza vaccine	6
Vaccine ordering, delivery and storage	7
2018 funded influenza vaccine order form	8
Recording influenza vaccinations on the National Immunisation Register	9
Influenza vaccination consent form	10
Useful contact information	11

## Clinical information

Summary table for 2018 funded influenza vaccines	12
Questions and answers about the 2018 funded influenza vaccines	13
Safety of inactivated influenza vaccines	15
Effectiveness of inactivated influenza vaccines	17

## Influenza and special groups

Influenza and older people	18
Influenza and pregnancy	19
Influenza and children	23
Influenza and other special groups	24

**The list of references is available in a separate document in the *Resources* section on the [www.influenza.org.nz](http://www.influenza.org.nz) website.**

# Introduction with important information for 2018

This resource is for use by healthcare professionals supporting and/or providing influenza vaccinations in a variety of settings.

## Influenza Immunisation Programme goals

- Vaccinate 75% of the population aged 65 years or older against influenza annually
- Improve influenza immunisation coverage for people aged under 65 years with certain medical conditions, and pregnant women
- Improve influenza immunisation uptake for healthcare workers
- 80% of District Health Board-based healthcare workers are vaccinated against influenza annually
- Distribute more than 1.2 million influenza vaccine doses annually, i.e. protect more than 25% of the community
- People aged 65 years or older,
- People aged under 65 years with certain medical conditions,
- Children aged 4 years or under who have been hospitalised for respiratory illness or have a history of significant respiratory illness and
- People aged under 18 years living in the:
  - Seddon/Ward and rural Eastern Marlborough region (within the Nelson Marlborough District Health Board), or
  - Kaikoura and Hurunui areas (within the Canterbury District Health Board) or
  - who have been displaced from their homes in Edgumbe and the surrounding region

The best protection against influenza is provided if people are vaccinated before winter. However, eligible people will continue to have access to funded influenza vaccinations until 31 December each year.

## Eligibility for funded influenza vaccination

Funded influenza vaccinations are available for those who meet PHARMAC's eligibility criteria:

- Pregnant women (any trimester),

## Key messages

Your regular use and support of the following messages will play an essential role in increasing influenza vaccination and lowering infection rates.

▶ **Immunisation is the best protection against influenza. Get a 'flu shot' each year, before winter.**

▶ **Even a mild case of influenza can disrupt your everyday activities with family, friends, community and work.**

▶ **Many people don't know they have influenza as they do not feel unwell. But they can still pass it on and make other people very sick.**

▶ **Get immunised to stop the spread of influenza around your community.**

▶ **Influenza immunisation is recommended and FREE for people who are most likely to get very sick, be hospitalised or even die if they catch influenza:**

- pregnant women,
- people aged 65 years old or older,
- people aged under 65 years with diabetes, most heart or lung conditions and some other illnesses and
- children aged 4 years or under who have had a stay in hospital for asthma or other breathing problems

## Two funded quadrivalent influenza vaccines for 2018

### 1 INFLUVAC® TETRA

For adults and children aged 3 years or older. This vaccine is expected to be available in early-April 2018.

### 2 FLUARIX® TETRA

For children aged under 3 years, i.e. 6–35 months. This vaccine is expected to be available in mid-April 2018.

### New influenza vaccination precaution

Influenza vaccination may be contraindicated or need to be delayed for people receiving some new cancer treatments. The immune-stimulant actions of atezolizumab (Tecentriq®), ipilimumab (Yervoy®), nivolumab (Opdivo®) and pembrolizumab (Keytruda®) on the immune system increase a person's risk of developing autoimmune conditions.

It is not known whether receipt of an influenza vaccine whilst receiving these treatments or for up to six months after treatment increases a theoretical risk of triggering the occurrence of these side effects. Please contact the person's oncologist or 0800 IMMUNE (0800 466 863) for current advice about influenza vaccination for these people BEFORE administering the vaccine.

### INFLUVAC® TETRA and FLUARIX® TETRA can be given to people with egg allergy or anaphylaxis

INFLUVAC® TETRA and FLUARIX® TETRA can be safely administered to people with a history of egg allergy or egg anaphylaxis at general practices, pharmacies or at the workplace.<sup>2</sup> Studies have shown that influenza vaccines containing less than one microgram of ovalbumin do not trigger anaphylaxis in sensitive individuals.<sup>2</sup> The residual ovalbumin in one dose of INFLUVAC® TETRA or FLUARIX® TETRA is significantly below this limit.<sup>3,4</sup>

### Ordering influenza vaccine

Online ordering is available at [www.hcl.co.nz](http://www.hcl.co.nz). The online order process is less susceptible to error, has an audit trail and is faster. The fax order form is available on page 8.

### Ordering printed influenza resources

Online ordering only, available at [www.influenza.org.nz/](http://www.influenza.org.nz/) resources.

### Pharmacist vaccinators

Some community pharmacies provide purchased influenza vaccination to adults and children aged 13 years or older. Some community pharmacies also provide funded influenza vaccination to:

- pregnant women, and
- people aged 65 years or older

### Recording influenza vaccination on the National Immunisation Register (NIR)

All influenza vaccinations given in general practice should be recorded on the NIR. This provides invaluable information for planning the programme to protect our population. For more information please refer to page 9.

Pharmacist vaccinators use the NIR web application called *ImmuniseNow* to record all vaccinations on the NIR. Pharmacist vaccinators are also required to inform the person's general practitioner (GP) when they have administered an influenza vaccine. It is planned for this process to be fully automated in the future.

Influenza coverage reports by District Health Board, Primary Health Organisation, ethnicity and deprivation are available for providers, including general practice, with access to the Business Objects NIR Datamart.

### Go to [influenza.org.nz](http://influenza.org.nz) for additional associated content

- Related diseases (pneumococcal, meningococcal and pertussis)
- Flu Kit references
- Claiming funded vaccine
- Use of antivirals for influenza treatment and/or prevention
- Data sheet for INFLUVAC® TETRA
- Data sheet for FLUARIX® TETRA

**The Ministry of Health and The Immunisation Advisory Centre appreciate all your hard work, and thank you for your role in ensuring New Zealanders are protected from influenza.**

# Influenza disease

Influenza is caused by different strains of influenza viruses. Symptoms may vary with age, immune status and health of the individual, and include fever, sore throat, muscle aches, headache, cough and severe fatigue. The fever and body aches can last 3–5 days and the cough and fatigue may last for two or more weeks.<sup>5</sup>

During seasonal increases, most influenza diagnoses are based on symptoms. The definitive diagnosis of influenza can only be made in the laboratory, usually from PCR testing of secretions from a nasopharyngeal swab. Samples should be collected within the first four days of illness.<sup>6</sup>

Not everyone with influenza has symptoms or feels unwell. However, asymptomatic individuals can still transmit the virus to others.<sup>5,8,9</sup>

**Influenza can be difficult to diagnose based on clinical symptoms alone because influenza symptoms can be similar to those caused by other infectious agents including *Neisseria meningitidis*,<sup>7</sup> respiratory syncytial virus (RSV), rhinovirus and parainfluenza viruses.<sup>5</sup>**

\* For more information go to [www.influenza.org.nz/meningococcal-disease](http://www.influenza.org.nz/meningococcal-disease)

The Southern Hemisphere Influenza and Vaccine Effectiveness Research and Surveillance (SHIVERS) study, based in Auckland, identified around one in four people were infected with influenza during the 2015 influenza season. Data showed that four out of five children and adults (80%) with influenza did not have symptoms.<sup>1</sup>

In an earlier study following the 2009 New Zealand influenza season, almost one quarter of adults who reported that they had not had influenza in 2009 had serological evidence of prior infection (21% [95% confidence interval 13–30%]). Conversely, almost one quarter of adults who reported having had influenza during 2009 had no serological evidence of prior infection (23% [95% confidence interval 12–35%]).<sup>10</sup>

The SHIVERS hospital-based surveillance for severe acute respiratory infections in Auckland during 2017 identified that adults aged 80 years or older had the highest severe acute influenza respiratory infection hospitalisation rates of all age groups, 283 cases per 100,000 people compared with 97/100,000 for adults aged 65–79 years, 17/100,000 for midlife adults and 145/100,000 for infants aged under 1 year.<sup>11</sup>

Pacific peoples (83/100,000) had higher hospitalisation rates for severe acute influenza respiratory infection than Māori (45/100,000), and both groups had higher hospitalisation rates than Asian, European and other ethnicities.<sup>11</sup>

## Transmission

The influenza virus is transmitted among people by direct contact, touching contaminated objects or by the inhalation of aerosols containing the virus. Therefore, thorough handwashing is an important preventative method. Symptomatic and asymptomatic influenza cases can transmit the virus and infect others at home, in the community, at work and in healthcare institutions. Healthy adults with influenza are infectious for up to five days, and children for up to two weeks.<sup>5</sup>

**Handwashing is an important and effective way of reducing the spread of influenza.**

# Should healthcare workers be vaccinated?

**Yes. The World Health Organization strongly recommends healthcare workers as a priority group for influenza vaccination, not only for their own protection and ability to maintain services but also to reduce the spread of influenza to their vulnerable patients including pregnant women.<sup>12</sup>**

Healthcare workers can transmit influenza without knowing they are infected. Influenza does not always cause symptoms or make a person feel unwell.<sup>5,8,9</sup> Data from the Southern Hemisphere Influenza and Vaccine Effectiveness Research and Surveillance (SHIVERS) study, based in Auckland, suggest that four out of five children and adults (80%) with influenza did not have symptoms.<sup>1</sup> In an earlier study following the 2009 influenza season in New Zealand, almost one quarter of the adults who reported that they had not had influenza in 2009 had serological evidence of prior infection (21% [95% confidence interval 13–30%]).<sup>10</sup>

Healthcare workers have a duty of care to protect vulnerable patients from the serious health threat of influenza illness. Studies demonstrate that annual influenza vaccination for healthcare workers is likely to reduce illness among the patients they care for.<sup>13–15</sup> Relying on patients being vaccinated is not enough as vulnerable people may have a poor immune response to their vaccination or may not have been vaccinated this year.

Influenza vaccination coverage rates for District Health Board-based (DHB-based) healthcare workers has remained steady at 65–66% over the past few years.<sup>16</sup> For 2018, the Ministry of Health has introduced the goal of 80% of DHB-based healthcare workers are vaccinated against influenza annually. The 2017 Workforce Influenza Immunisation Coverage Rates by District Health Boards report is available on the Ministry of Health website [www.health.govt.nz/our-work/preventative-health-wellness/immunisation/influenza](http://www.health.govt.nz/our-work/preventative-health-wellness/immunisation/influenza).

**Recommend annual influenza vaccination to your patients**

## When should people be vaccinated?

It is possible to come in contact with influenza viruses all year round. However, the likelihood of influenza viruses circulating in the community significantly increases during winter.

For most people, the best time to be vaccinated against influenza is before the start of the winter season. It can take up to two weeks for the vaccine to provide the best influenza protection. However, influenza vaccinations can be given when influenza virus activity has been identified as

protective antibody levels have been observed to develop rapidly from four days after vaccination.<sup>17,18</sup>

The funded INFLUVAC® TETRA vaccine for eligible adults and children aged 3 years or older is expected to be available from early-April until 31 December 2018.

The funded FLUARIX® TETRA vaccine for eligible children aged under 3 years, i.e. aged 6–35 months, is expected to be available from mid-April until 31 December 2018.

## Why is influenza vaccination needed every year?

Annual influenza vaccination is required for two important reasons:

- Protection from the previous vaccination lessens over time
- The circulating influenza viruses can change and the strains in the vaccine usually change each year in response to the changing virus pattern

For 2018, of the four influenza strains included in the funded vaccines, **two are new (in bold)**.<sup>19</sup>

- A/Michigan/45/2015 (H1N1) pdm09-like virus
- **A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus**
- **B/Phuket/3073/2013-like virus**
- B/Brisbane/60/2008-like virus

# New Zealand immunisation strategy

## Who should be vaccinated?

Influenza continues to be a major threat to public health worldwide because of its ability to spread rapidly through populations. Influenza vaccination can be offered to individuals aged 6 months or older.

Influenza vaccination is funded for certain groups of people who are considered to be at greater risk of complications from influenza. Additional preventative strategies are important to reduce their risk of exposure to influenza. The vaccination is also recommended, although not funded, for those who are in close contact with individuals who are more vulnerable or at high risk of complications and who may also be less able to mount a strong immune response to vaccination. Front-line healthcare workers are usually funded by their employer.

## Eligibility for funded influenza vaccine

All children aged under 18 years who meet the influenza vaccination eligibility criteria can receive funded influenza vaccination regardless of their immigration and citizenship status, and providers can claim the immunisation benefit for administering the vaccine.<sup>20</sup>

Adults aged 18 years or older who meet the influenza vaccination eligibility criteria must also be eligible to receive publicly funded health and disability services in New Zealand to receive funded influenza vaccination.<sup>20</sup> Refer to the *Health and Disability Services Eligibility Direction 2011* for eligibility criteria (available at [www.health.govt.nz/new-zealand-health-system/eligibility-publicly-funded-health-services/eligibility-direction](http://www.health.govt.nz/new-zealand-health-system/eligibility-publicly-funded-health-services/eligibility-direction)).

Women aged 18 years or older who are pregnant and not eligible to receive publicly funded health and disability services in New Zealand are recommended to receive influenza vaccination but are not eligible to receive funded vaccination, even if they are receiving funded primary maternity services under the *Section 88 Primary Maternity Services Notice 2007*<sup>21</sup> (available at [www.health.govt.nz/publication/section-88-primary-maternity-services-notice-2007](http://www.health.govt.nz/publication/section-88-primary-maternity-services-notice-2007)).

## Funded vaccines for 2018

### INFLUVAC® TETRA

INFLUVAC® TETRA is funded if administered to eligible adults and children aged 3 years or older by 31 December 2018. This vaccine is expected to be available from early-April 2018.

### FLUARIX® TETRA

FLUARIX® TETRA is funded if administered to eligible children aged under 3 years, i.e. 6–35 months, by 31 December 2018. This vaccine is expected to be available from mid-April 2018.

Note: Both INFLUVAC® TETRA and FLUARIX® TETRA are prescription medicines. For full prescribing information please refer to the data sheets at [www.medsafe.govt.nz](http://www.medsafe.govt.nz) or [www.influenza.org.nz](http://www.influenza.org.nz).

## Eligibility criteria for FREE influenza vaccination for 2018:

- Pregnant women (any trimester)
- People aged 65 years or older
- People aged under 65 years with any of the medical conditions listed on the opposite page
- Children aged 4 years or under who have been hospitalised for respiratory illness or have a history of significant respiratory illness
- People under 18 years of age living in the:
  - Seddon/Ward and rural Eastern Marlborough region (within the Nelson Marlborough District Health Board), or
  - Kaikoura and Hurunui areas (within the Canterbury District Health Board) or
  - who have been displaced from their homes in Edgumbe and the surrounding region
- The following conditions are excluded from funding:
  - Asthma not requiring regular preventative therapy,
  - Hypertension and/or dyslipidaemia without evidence of end-organ disease

## For vaccination eligibility and clinical queries contact:

The Immunisation Advisory Centre (IMAC)

The University of Auckland

Phone: 0800 IMMUNE (0800 466 863)

Email: [0800immune@auckland.ac.nz](mailto:0800immune@auckland.ac.nz)

Also refer to the New Zealand *Pharmaceutical Schedule* on the PHARMAC website ([www.pharmac.govt.nz/tools-resources/pharmaceutical-schedule](http://www.pharmac.govt.nz/tools-resources/pharmaceutical-schedule)).

**Influenza vaccination  
before winter offers the  
best protection**

# Eligible medical conditions for funded influenza vaccination

## Funded influenza vaccine is available each year for people who meet the following criteria set by PHARMAC:\*

- people 65 years of age or older; or
- people under 65 years of age who:
  - have any of the following cardiovascular diseases:
    - ischaemic heart disease, or
    - congestive heart failure, or
    - rheumatic heart disease, or
    - congenital heart disease, or
    - cerebrovascular disease; or
  - have either of the following chronic respiratory diseases:
    - asthma, if on a regular preventative therapy, or
    - other chronic respiratory disease with impaired lung function;<sup>a</sup> or
  - have diabetes; or
  - have chronic renal disease; or
  - have any cancer, please refer to the vaccine precaution below<sup>#</sup>, excluding basal and squamous skin cancers if not invasive; or
  - have any of the following other conditions:
    - autoimmune disease,<sup>b</sup> or
    - immune suppression or immune deficiency, or
    - HIV, or
    - transplant recipient, or
    - neuromuscular or CNS disease/disorder,<sup>c</sup> or
    - haemoglobinopathy,<sup>d</sup> or
    - children on long term aspirin, or
    - a cochlear implant, or
    - error of metabolism at risk of major metabolic decompensation, or
    - pre- or post-splenectomy, or
    - Down syndrome, or
    - pregnant women (any trimester); or
    - children aged 4 years or under who have been hospitalised for respiratory illness or have a history of significant respiratory illness;
- people under 18 years of age living in the:
  - Seddon/Ward and rural Eastern Marlborough region (within the Nelson Marlborough District Health Board), or
  - Kaikoura and Hurunui areas (within the Canterbury District Health Board) or
  - who have been displaced from their homes in Edgumbe and the surrounding region

Unless meeting the criteria set out above, the following conditions are excluded from funding:

- asthma not requiring regular preventative therapy,
- hypertension and/or dyslipidaemia without evidence of end-organ disease

\*Eligibility criteria as at March 2018.<sup>22</sup>

## #New influenza vaccination precaution

Influenza vaccination may be contraindicated or need to be delayed for people receiving some new cancer treatments. Please read the information under *Contraindications and precautions to receiving influenza vaccine* on page 16 for people receiving atezolizumab (Tecentriq®), ipilimumab (Yervoy®), nivolumab (Opdivo®) and pembrolizumab (Keytruda®) and contact the person's oncologist or 0800 IMMUNE (0800 466 863) for current advice about influenza vaccination for these people BEFORE administering the vaccine.

**For vaccination eligibility queries call 0800 IMMUNE (0800 466 863)**

- a. Chronic respiratory diseases include: chronic bronchitis, chronic obstructive pulmonary disease, cystic fibrosis, emphysema.
- b. Autoimmune diseases may include: coeliac disease, Crohn's disease, Grave's disease, Hashimoto's thyroiditis, lupus, rheumatoid arthritis. Immune suppression or immune deficiency includes disease modifying anti-rheumatic drugs (DMARDs) or targeted biologic therapies.
- c. Neuromuscular and CNS diseases/disorders include: cerebral palsy, congenital myopathy, epilepsy, hydrocephaly, motor neurone disease, multiple sclerosis, muscular dystrophy, myasthenia gravis, Parkinson's disease.
- d. Haemoglobinopathies include: sickle cell anaemia, thalassemia.

# Vaccine ordering, delivery and storage

Influenza vaccine ordering is handled by Healthcare Logistics (HCL). You can order in two ways: **ONLINE: [www.hcl.co.nz](http://www.hcl.co.nz) (preferred option, registration required) or TOLL-FREE fax: 0508 408 358**

Enquiries can be made by calling: 0508 425 358. The order form is also available on [www.influenza.org.nz](http://www.influenza.org.nz) in the *Resources* section.

## Cost of the influenza vaccines

The vaccine costs \$9.00 (excl. GST) per dose. For people eligible for funded influenza vaccine (refer to page 6), the vaccine is free (i.e. no vaccine cost and no administration service cost to the person). General practices can claim for the cost of the vaccine and the immunisation benefit for administration of a funded influenza vaccine to an eligible individual via the usual Sector Services process.

**Note:** Claims can only be made when the vaccine is given during the funded Influenza Immunisation Programme, usually March to 31 December.

## How much is the immunisation benefit?

\$20.51 (excl. GST)

## Delivery charges?

There are no delivery charges.

## Minimum order requirements?

The total influenza vaccine order must meet minimum quantities as follows:

<b>MARCH</b>	Min 60 doses	<b>JUNE</b>	Min 30 doses
<b>APRIL</b>	Min 60 doses	<b>JULY</b>	Min 20 doses
<b>MAY</b>	Min 60 doses	<b>AUG-DEC</b>	Min 10 doses

### Notes for providers:

- Please base FLUARIX® TETRA stock on your known population of children aged under 3 years, i.e. aged 6–35 months, who are eligible for funded influenza vaccination
- Please consider your refrigerator capacity and the addition of Zostavax® to the National Immunisation Schedule on 1 April 2018

## Influenza vaccine chilly bins

Influenza vaccine chilly bins cannot be recycled. To reduce wastage when ordering, please consider your expected usage. A small bin holds 60 doses, a medium chilly bin holds up to 120 doses, a large bin holds up to 180 doses, and the extra-large bin holds up to 500 doses.

## Vaccine availability at the start of the season

Orders will be dispatched as soon as the vaccine is released by the Ministry of Health. **Please do not organise clinics before your vaccine stock has arrived.**

**INFLUVAC® TETRA, for adults and children aged 3 years or older**, is expected to be available in early-April 2018.

**FLUARIX® TETRA, for children aged under 3 years, i.e. aged 6–35 months**, is expected to be available in mid-April 2018.

## Influenza vaccine stock damaged in transit

Influenza vaccine damaged in transit may be returned to Healthcare Logistics for destruction. Please contact Healthcare Logistics on 0508 425 358 before returning.

## Refund for unused/expired funded influenza vaccine

One refund will be available for a total of 10 doses of unused INFLUVAC® TETRA and/or one dose of unused FLUARIX® TETRA from any one account. To be eligible for a refund, the unused stock must be returned prior to 31 January 2019. Please ensure you continue to have influenza vaccine stock available until 31 December for those who are eligible for influenza vaccination. Contact Healthcare Logistics on 0508 425 358 to request a Return Authorisation.

## The shelf life of funded influenza vaccines

All influenza vaccines are marked with an expiry date that should be checked before vaccine administration.

## Cold chain

The vaccines must be stored between +2°C and +8°C at all times. They must not be frozen.

Temperature-monitored chilly bins must be used if vaccines are temporarily stored outside the vaccine refrigerator or being transported. Refer to the *National Standards for Vaccine Storage and Transportation for Immunisation Providers 2017* (available at [www.health.govt.nz/coldchain](http://www.health.govt.nz/coldchain)).

If vaccines have been stored outside the required temperature range, quarantine the vaccines and contact your Immunisation/Cold Chain Coordinator.

## Temperature logging devices

A temperature logging device and instructions may be included with your order.

# 2018 funded influenza vaccine order form

(Failing to complete in full may delay the processing of your order)

**TO: Healthcare Logistics**

**ONLINE: [www.hcl.co.nz](http://www.hcl.co.nz) (preferred option, registration required) or**

**TOLL-FREE FAX: 0508 408 358**

Date: \_\_\_\_\_ Healthcare Logistics Customer Number: \_\_\_\_\_

Surgery name: \_\_\_\_\_

Contact name: \_\_\_\_\_

Delivery address: \_\_\_\_\_

Contact phone: \_\_\_\_\_

Email address for invoice: \_\_\_\_\_

(Email address for invoicing only needs to be provided once)

Customer purchase order number (if applicable): \_\_\_\_\_

## I would like to order:

☐

**INFLUVAC® TETRA DOSES** [1144113], funded influenza vaccine (only available in multiples of 10).

☐

**FLUARIX® TETRA DOSES** [1144112], funded influenza vaccine (only available in single dose packs)

Note: FLUARIX® TETRA will not be available until mid-April 2018

You will be supplied the doses that you commit to in your online or faxed order (please remember we cannot split boxes).

## Notes for providers:

- Please base FLUARIX® TETRA stock on your known population of children aged under 3 years, i.e. aged 6–35 months, who are eligible for funded influenza vaccination.
- Please consider your refrigerator capacity and the addition of Zostavax® to the National Immunisation Schedule on 1 April 2018.

Influenza chilly bins cannot be recycled. To reduce wastage when ordering, please consider your expected usage. A small bin holds 60 doses, a medium chilly bin holds up to 120 doses, a large bin holds up to 180 doses, and the extra-large bin holds up to 500 doses.

**Note: Due to demand, please allow up to 48 hours before dispatch. Please do not book your clinics before your stock has arrived.**

## Total influenza vaccine order must meet minimum quantities as follows:

MARCH	APRIL	MAY	JUNE	JULY	AUG-DEC
Min 60 doses	Min 60 doses	Min 60 doses	Min 30 doses	Min 20 doses	Min 10 doses

NOTE: Some orders may have a temperature logging device included with the shipment. Do not be concerned if your shipment does not contain a temperature logging device.

## Refund for unused/expired funded influenza vaccine

One refund will be available for a total of 10 doses of unused INFLUVAC® TETRA and/or one dose of unused FLUARIX® TETRA from any one account. To be eligible for a refund, the unused stock must be returned prior to 31 January 2019. Please ensure you continue to have influenza vaccine stock available until 31 December for those who are eligible for influenza vaccination. Contact Healthcare Logistics on 0508 425 358 to request a Return Authorisation.

**This form is also available on [www.influenza.org.nz](http://www.influenza.org.nz) in the *Resources* section.**

# Recording influenza vaccinations on the National Immunisation Register

The National Immunisation Register (NIR) is a national database, held by the Ministry of Health (the Ministry). The NIR records National Immunisation Schedule vaccinations given to children and some Schedule vaccines given to adults, such as influenza vaccinations. The Ministry and District Health Boards use the NIR to help monitor vaccination coverage, including vaccination of pregnant women, assess protection against diseases such as influenza, and plan future population health programmes.

## The following points are useful for informing your patients about the NIR

- The NIR provides an accurate record of a person's vaccination history, to help with their ongoing health care even if they change doctors, and to help the Ministry measure vaccination coverage across the whole population
- The NIR records a person's NHI number, name, gender, address, date of birth and vaccination information
- Only authorised professionals will see, use or change the information
- Information that does not identify individuals may be used for research or planning

The NIR leaflet (HE2423) informs adults about the NIR. Leaflet pads can be ordered from [www.healthed.govt.nz](http://www.healthed.govt.nz).

Influenza coverage reports by District Health Board (DHB), Primary Health Organisation (PHO), ethnicity and deprivation are available for providers, including general practice, with access to the Business Objects NIR Datamart.

## Recording adult influenza vaccination, including pregnant women, on the NIR in:

### General Practice

The NIR and Practice Management Systems (PMS) record all influenza vaccinations given in general practice for all age groups and for pregnant women. To record an adult's influenza vaccination information on the NIR select the opt-on button on your PMS.

To help avoid errors in recording influenza on the NIR:

- Ensure you have the most up-to-date PMS software version
- Send a list of all the vaccinators and general practitioners (GPs) who will deliver the influenza vaccine in your practice to your local DHB NIR administrator before the beginning of the influenza season to ensure they are entered into the system

- Vaccinators should validate the vaccinee's address in all address fields before they are messaged to the NIR
- The provider should be noted as the "GP" and the nurse or "GP" who administers the vaccine as the "vaccinator"
- For adults wanting to opt off the recording of their influenza vaccination on the NIR please leave the opt-on/off fields blank. The vaccination information will only be recorded on your PMS and will not be sent to the NIR

**Note:** the NIR programme does not schedule influenza vaccinations and identify overdue influenza vaccinations in the *Overdue Tasks* report as it does for the childhood vaccinations.

### Pharmacy

Pharmacist vaccinators use the NIR web application called *ImmuniseNow* to record all vaccinations on the NIR. Pharmacist vaccinators are also required to inform the person's general practitioner (GP) when they have administered an influenza vaccine. It is planned for this process to be fully automated in the future.

### Other influenza vaccination settings

The Ministry is working towards expanding access to *ImmuniseNow* in the future for other influenza vaccination settings such as DHB clinics or workplaces.

Occupational health providers are also expected to notify an individual's general practice when they have administered an influenza vaccine so their records can be updated.

### For questions about:

- The NIR, please contact your DHB NIR administrator or contact the Ministry of Health Support team 0800 505 125 and select option 3
- *ImmuniseNow*, contact the Ministry of Health Support Team (details above)
- Your general practice or pharmacy PMS, please contact your vendor directly

# Influenza vaccination consent form

## Patient/Guardian

Surname: \_\_\_\_\_ First name: \_\_\_\_\_

Phone: \_\_\_\_\_ Date of birth: \_\_\_\_\_ Gender: M F NHI: \_\_\_\_\_

Ethnicity: ☐ NZ European ☐ Māori ☐ Samoan ☐ Cook Island Māori ☐ Tongan ☐ Niuean ☐ Chinese  
☐ Indian ☐ Other (such as Dutch, Japanese, Tokelauan) Please state: \_\_\_\_\_

Name of guardian (if applicable): \_\_\_\_\_

Address: \_\_\_\_\_

Your doctor's name / surgery address: \_\_\_\_\_

**This form confirms that you have given your consent to have an influenza vaccination.**

If any of the following apply to you then please advise your healthcare professional:

- ☐ I am currently unwell with a high fever ☐ I have had a previous severe response to an influenza vaccination  
☐ I have a history of a bleeding disorder ☐ I have received treatment for cancer during the last 12 months

## Possible responses to influenza vaccination:

Influenza vaccination is usually well tolerated. Possible responses include pain, redness and/or swelling at the injection site for a day or two; a mild fever, muscle aches or headache within the first two days. Rarely, an allergic response can occur.

## You should remain under observation to watch for an allergic response for 20 minutes after your vaccination.

The influenza vaccine does not protect against other respiratory viruses such as the common cold. For more information on the influenza vaccine please refer to the consumer medicine information sheet located at [www.medsafe.govt.nz](http://www.medsafe.govt.nz).

The Ministry of Health keeps a record of influenza vaccinations on the National Immunisation Register so that authorised health professionals can find out what vaccinations have been given. It helps to monitor the population's protection against influenza. If you do not want your vaccination recorded on the National Immunisation Register please advise your doctor, nurse or healthcare professional.

I have read or have had explained to me information about influenza vaccination, and I have had a chance to ask questions that were answered to my satisfaction. I believe I understand the benefits and risks of influenza vaccination. I understand getting the vaccination is my choice. I agree to get the vaccination and that it is recommended that I wait here for 20 minutes after my vaccination.

I consent to this information being given to my healthcare provider to update applicable records.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Signed/Guardian (if applicable): \_\_\_\_\_

Relationship to the child/patient: \_\_\_\_\_

### Vaccination record (clinical use only)

Vaccine: \_\_\_\_\_ Administered: Left / right arm

Vaccine batch number: \_\_\_\_\_ Expiry date: \_\_\_\_\_

Vaccinator: \_\_\_\_\_

The influenza vaccine is a prescription medicine. Talk to your healthcare professional about the benefits and possible risks.

# Useful contact information

All the information and contacts you may need are here:

## Vaccination eligibility, clinical queries and general information

The Immunisation Advisory Centre (IMAC)  
The University of Auckland

**Phone: 0800 IMMUNE (0800 466 863)**  
**Email: 0800immune@auckland.ac.nz**

The New Zealand *Pharmaceutical Schedule* is available from PHARMAC at [www.pharmac.govt.nz](http://www.pharmac.govt.nz).

## Ordering printed influenza resources

Online ordering only, available at [www.influenza.org.nz](http://www.influenza.org.nz)/resources.

## Ordering vaccine

Healthcare Logistics (HCL)  
You can order in two ways:

**ONLINE: [www.hcl.co.nz](http://www.hcl.co.nz)**  
**(preferred option, registration required)**  
**TOLL-FREE fax: 0508 408 358**

The order form is available on page 8 and is also available from [www.influenza.org.nz](http://www.influenza.org.nz) in the *Resources* section.

Enquiries

**Phone: 0508 425 358**

## Cold chain

Your Immunisation/Cold Chain Coordinator.

Ministry of Health

The *National Standards for Vaccine Storage and Transportation for Immunisation Providers 2017* are available from [www.health.govt.nz/coldchain](http://www.health.govt.nz/coldchain).

## Claiming funded vaccine

Sector Services Help Desk

**Phone: 0800 458 448 and select option 5**

The manual claim form is available from [www.health.govt.nz/new-zealand-health-system/claims-provider-payments-and-entitlements/immunisation-subsidy](http://www.health.govt.nz/new-zealand-health-system/claims-provider-payments-and-entitlements/immunisation-subsidy).

## NHI number

Sector Services

**Phone: 0800 855 151**

## Reporting adverse events following immunisation

Centre for Adverse Reactions Monitoring (CARM)

**Phone: (03) 479 7247**  
**Email: [carmnz@otago.ac.nz](mailto:carmnz@otago.ac.nz)**  
**Website: [nzphvc.otago.ac.nz](http://nzphvc.otago.ac.nz)**

(online reporting, use your practice number as login)

## National Influenza Immunisation Programme promotion

**Phone: (09) 373 7599 ext. 82075**  
**Email: [influenza@auckland.ac.nz](mailto:influenza@auckland.ac.nz)**  
**Website: [www.influenza.org.nz](http://www.influenza.org.nz)**

Your Immunisation Coordinator may be able to assist with more information.

## National Immunisation Register

Ministry of Health Support team

**Phone: 0800 505 125 and select option 3**

Your District Health Board NIR administrator may be able to assist with more information.

## ImmuniseNow

Ministry of Health Support team

**Phone: 0800 505 125 and select option 3**

## NIR leaflet for adults (HE2423)

Available from HealthEd at [www.healthed.govt.nz](http://www.healthed.govt.nz).

## Vaccine data sheets

Available from [www.influenza.org.nz](http://www.influenza.org.nz), or  
Medsafe at [www.medsafe.govt.nz](http://www.medsafe.govt.nz)

# Summary table for 2018 funded influenza vaccines

<b>Vaccine brand:</b>	<b>INFLUVAC® TETRA</b>		<b>FLUARIX® TETRA</b>																								
<b>Manufacturer:</b>	• Mylan • Phone: 0800 737 271		• GlaxoSmithKline NZ Ltd • Phone: 0800 808 500																								
<b>Funding status:</b>	• Fully funded for eligible adults and children aged 3 years or older		• Fully funded for eligible children aged under 3 years, i.e. aged 6–35 months (not available until mid-April 2018)																								
<b>Dosage:</b>	<table><thead><tr><th>Age</th><th>Dose</th><th>Number of doses</th></tr></thead><tbody><tr><td>6–35 months</td><td>NOT FOR USE IN THIS AGE GROUP</td><td></td></tr><tr><td>3–8 years</td><td>0.5 mL</td><td>1 or 2*</td></tr><tr><td>≥ 9 years</td><td>0.5 mL</td><td>1</td></tr></tbody></table> <p>*Two doses separated by at least four weeks if an influenza vaccine is being used for the first time.</p>		Age	Dose	Number of doses	6–35 months	NOT FOR USE IN THIS AGE GROUP		3–8 years	0.5 mL	1 or 2*	≥ 9 years	0.5 mL	1	<table><thead><tr><th>Age</th><th>Dose</th><th>Number of doses</th></tr></thead><tbody><tr><td>6–35 months</td><td>0.5 mL<sup>#</sup></td><td>1 or 2*</td></tr><tr><td>3–8 years</td><td rowspan="2">NOT FOR USE IN THESE AGE GROUPS</td><td></td></tr><tr><td>≥ 9 years</td><td></td></tr></tbody></table> <p><sup>#</sup>A full 0.5mL dose is administered for this age group *Two doses separated by at least four weeks if an influenza vaccine is being used for the first time.</p>		Age	Dose	Number of doses	6–35 months	0.5 mL <sup>#</sup>	1 or 2*	3–8 years	NOT FOR USE IN THESE AGE GROUPS		≥ 9 years	
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<b>Influenza strains for 2018:</b>	<b>INFLUVAC® TETRA and FLUARIX® TETRA</b>																										
<b>Route of administration:</b>	• A/Michigan/45/2015 (H1N1) pdm09-like virus • A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus • B/Phuket/3073/2013-like virus • B/Brisbane/60/2008-like virus																										
<b>Precaution:</b>	• Intramuscular																										
<b>Components of special note:</b>	• Influenza vaccination may be contraindicated or need to be delayed for people receiving the following cancer treatments, atezolizumab (Tecentriq®), ipilimumab (Yervoy®), nivolumab (Opdivo®) and pembrolizumab (Keytruda®), refer to page 16 for more information																										
<b>Latex:</b>	• Gentamicin • Less than 1 microgram ovalbumin																										
<b>Presentation:</b>	• INFLUVAC® TETRA cannot be considered latex-free • FLUARIX® TETRA is latex-free																										
<b>Storage:</b>	• Pre-filled syringe: 0.5 mL																										
<b>Order from:</b>	• Vaccines must be stored, protected from light, at +2°C to +8°C. DO NOT FREEZE • Temperature-monitored chilly bins must be used if vaccines are temporarily stored outside the vaccine refrigerator or being transported • Quarantine vaccines stored outside the required temperature range and contact your Immunisation/Cold Chain Coordinator																										
	• Healthcare Logistics (HCL) • Phone: 0508 425 358 • Fax: 0508 408 358 • www.hcl.co.nz																										

INFLUVAC® TETRA and FLUARIX® TETRA are a prescription only medicines.  
Please refer to the Medsafe data sheets for further details.  
[www.medsafe.govt.nz](http://www.medsafe.govt.nz) and [www.influenza.org.nz](http://www.influenza.org.nz)

# Questions and answers about the 2018 funded influenza vaccines

## What are the funded influenza vaccines for 2018?

- INFLUVAC® TETRA (Mylan) is the funded influenza vaccine for adults and children aged 3 years or older.
- FLUARIX® TETRA (GSK) is the funded influenza vaccine for children aged under 3 years, i.e. aged 6–35 months.

Both are quadrivalent vaccines. For more information, please refer to the Medsafe data sheets ([www.medsafe.govt.nz](http://www.medsafe.govt.nz) or [www.influenza.org.nz](http://www.influenza.org.nz)) and vaccines summary table on page 12 of this resource.

## What are the influenza vaccine strains for 2018?

The funded quadrivalent influenza vaccines in 2018 offer protection against the following influenza strains:<sup>19</sup>

- A/Michigan/45/2015 (H1N1) pdm09-like virus
- A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus
- B/Phuket/3073/2013-like virus
- B/Brisbane/60/2008-like virus

The A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus in this year's vaccine is broadly matched to the strain being referred to in the media as '*Australian flu*'. This strain circulated in the southern hemisphere during winter 2017 and severely affected the northern hemisphere during their 2017–2018 winter.

## Is there a minimum interval between an influenza vaccination at the end of 2017 and this year's vaccination?

No minimum interval is required between an influenza vaccination in 2017 and one in 2018. The 2018 influenza vaccination can be given as soon as the vaccine is available.

## Why is an influenza vaccination recommended every year?

Yearly vaccination is recommended for two reasons: first, because protection from the previous vaccination lessens over time; and second, because the circulating influenza viruses can change and the strains in the vaccine usually change each year in response to the changing virus pattern.

## Can INFLUVAC® TETRA or FLUARIX® TETRA be administered to people receiving anticoagulant medication?

Yes. Influenza vaccines can be administered to people on anticoagulants, including aspirin, dabigatran (Pradaxa®), enoxaparin (Clexane®), heparin, and warfarin.<sup>23</sup> After vaccination, apply firm pressure over the injection site without rubbing for 10 minutes to reduce the risk of bruising.

## Can INFLUVAC® TETRA or FLUARIX® TETRA be administered simultaneously with other vaccines?

Yes. Influenza vaccine can be administered with other vaccines, such as Tdap, the zoster (shingles) vaccine, pneumococcal vaccines or the childhood National Immunisation Schedule vaccines. However, the vaccines must be given at different injection sites.

In one study, children aged 6–23 months are two to three times more likely to develop a fever of 38°–39°C during the first 24 hours after receiving influenza and PCV13 (PREVENAR 13®) vaccines at the same visit compared with children who received the vaccines on separate days.<sup>24</sup>

Around one in 10 adults have an increased risk of experiencing fatigue, headache and/or body aches and pains during the 14 days after receiving influenza and PCV13 vaccines at the same visit.<sup>25</sup>

Around two in 10 adults have an increased risk of redness or pain at the site of one or both injection sites when receiving influenza and 23PPV (PNEUMOVAX®23) vaccines concurrently.<sup>26–28</sup>

Separating administration of these vaccines by two days can be offered, but is not essential.

## Can INFLUVAC® TETRA and FLUARIX® TETRA be given to people with egg allergy or anaphylaxis?

Yes. These vaccines can be safely administered to people with a history of egg allergy or egg anaphylaxis at general practices, pharmacies or at the workplace.<sup>2</sup> Studies have shown that influenza vaccines containing less than one microgram of ovalbumin do not trigger anaphylaxis in sensitive individuals.<sup>2</sup> The residual ovalbumin in one dose of INFLUVAC® TETRA or FLUARIX® TETRA is significantly below this limit.<sup>3,4</sup>

## Can INFLUVAC® TETRA and FLUARIX® TETRA be given to people with a sulfonamide (sulfur) allergy?

Yes. Sulfonamide (sulfur) antibiotics, such as co-trimoxazole, sulfasalazine, and sulfite preservatives used in food are different to medicines containing the words sulfate or sulphate, e.g. gentamicin sulphate.<sup>29</sup>

### **How are INFLUVAC® TETRA and FLUARIX® TETRA produced?**

INFLUVAC® TETRA and FLUARIX® TETRA are subunit vaccines that contain only viral surface antigens (haemagglutinin proteins). Influenza virus is grown in embryonated hens' eggs from disease-free flocks and inactivated. The haemagglutinin protein for each strain is harvested and purified for use in the vaccine.<sup>3,30</sup>

### **Do INFLUVAC® TETRA and FLUARIX® TETRA contain gentamicin?**

Yes. Both vaccines contain traces of gentamicin due to the use of this substance during production.<sup>3,30</sup> INFLUVAC® TETRA and FLUARIX® TETRA should be used with caution in people with a hypersensitivity to gentamicin.

### **Are INFLUVAC® TETRA and FLUARIX® TETRA latex free?**

INFLUVAC® TETRA syringes do not contain any latex components. However, the manufacturer (Mylan) is unable to confirm that the product did not come in contact with any latex materials during the manufacturing and packaging process.

FLUARIX® TETRA prefilled syringes with a separate needle do not have any components made using natural rubber latex.<sup>30</sup>

If no latex-free influenza vaccine is available, please call 0800 IMMUNE (0800 466 863) before vaccinating a person who is highly sensitive to latex with a history of severe hypersensitivity response.

### **Do INFLUVAC® TETRA and FLUARIX® TETRA contain blood products?**

No. Blood products are not used in the manufacturing processes for these vaccines.<sup>3,30</sup>

### **Do INFLUVAC® TETRA and FLUARIX® TETRA contain thiomersal?**

No. Both these vaccines are preservative free. They do not contain thiomersal.<sup>3,30</sup>

### **Can you get influenza from INFLUVAC® TETRA and FLUARIX® TETRA?**

No. These vaccines have been made from influenza viruses that have been concentrated, inactivated, and then broken apart. Neither INFLUVAC® TETRA nor FLUARIX® TETRA can cause influenza as the vaccines do not contain any live viruses.<sup>3,30</sup>

Sometimes influenza vaccination is accused of causing the disease. There are two possible reasons for this. First, when vaccinated, the body responds to vaccination by producing an immune response. This can include systemic symptoms such as fever, headache or fatigue, which may mistakenly be assumed to be early signs of influenza but are the body responding to the vaccination. Second, other respiratory viruses and bacteria circulate during the winter months and influenza vaccination does not protect against these.

Most of these other viruses cause milder infections. However, some viruses and bacteria may produce influenza-like symptoms and/or quite severe illness which can lead to the suggestion that influenza vaccination is ineffective. These illnesses should not be confused with influenza.

### **How effective are the vaccines against influenza strains not included in the formulation?**

Effectiveness can be reduced by a difference between circulating virus strains and vaccine strains. The influenza virus keeps changing and new vaccines are formulated for each northern and southern hemisphere season. There may be some cross protection against a virus type that is not in the vaccine<sup>31,32</sup> but the amount of protection cannot be guaranteed or easily quantified.

## **Pharmacist vaccinators**

Many community pharmacies offer purchased influenza vaccination for individuals aged 13 years or older. Some community pharmacies also provide funded influenza vaccination for:

- ▶ pregnant women, and
- ▶ people aged 65 years or over

# Safety of inactivated influenza vaccines

## Common responses to vaccination

Influenza vaccine is generally well tolerated.

Common responses associated with inactivated influenza vaccines in adults and children include pain, redness and/or swelling at the site of injection. Local responses are almost always mild. Systemic events such as headache, muscle aches and fatigue may occur in adults.<sup>33-39</sup> Fever, irritability and loss of appetite are more likely to occur in children.<sup>33-35,40-45</sup> These are generally mild and usually resolve after a day or so. Systemic events may appear influenza-like. However, the influenza vaccines currently used in New Zealand do not contain live viruses and cannot cause the disease.<sup>33-35</sup>

## Serious events associated with influenza vaccination

The most significant serious adverse event associated with influenza vaccination is anaphylaxis, a serious allergic response that usually comes on within minutes of receiving the vaccine. This occurs around once in a million influenza vaccine doses.<sup>46</sup>

With the possible exceptions of Guillain-Barré syndrome (refer below) and that side effects related to some new immune-stimulant cancer treatments could be triggered (refer to page 16), other serious adverse events are no more likely to occur in individuals who are vaccinated compared with those who are unvaccinated.<sup>33-35</sup>

## Guillain-Barré syndrome and influenza vaccination

Guillain-Barré syndrome (GBS) has an annual incidence of around 1–4 cases per 100,000 people worldwide.<sup>47</sup>

During a swine influenza vaccination campaign in the United States in the 1970s, an increase in GBS was observed in vaccine recipients (around one case per 100,000 vaccinations) and the vaccination campaign was halted and surveillance of GBS expanded.<sup>48</sup>

Epidemiological studies since then have suggested either no increased risk or a possible slight increase in risk of around one case per million adult influenza vaccinations. A recent meta-analysis of these studies identified a small increase in the risk of GBS following influenza vaccination.<sup>49</sup> However, studies have also identified that the risk of GBS following an episode of influenza-like illness is significantly higher than the risk following influenza vaccination, especially in older adults.<sup>50,51</sup> This highlights the importance of balancing the potential risks of disease with the potential risks and benefits of influenza vaccination to make an informed decision.<sup>52</sup>

## Febrile events following influenza vaccination

Fever is a common adverse event in children after vaccination.<sup>41-45</sup> Convulsions associated with fever can occur in susceptible children. Around 3–8 children in 100 aged under 7 years will experience a febrile convulsion, most likely when aged between 16 and 30 months.<sup>53</sup>

In one study, children aged 6–23 months were two to three times more likely to develop a fever of 38°–39°C during the first 24 hours after receiving influenza and PCV13 (PREVENAR 13®) vaccines at the same visit compared with children who received the vaccines on separate days.<sup>24</sup>

Parents/guardians whose children are recommended to receive both influenza vaccine and PCV13 should be advised of the possible increase in risk of fever following concurrent administration of these vaccines. Separating administration of these vaccines by two days can be offered, but is not essential.

For the PREVENAR 13® data sheet please refer to the Medsafe website [www.medsafe.govt.nz](http://www.medsafe.govt.nz).

# Reporting adverse events following influenza vaccination

Healthcare professionals/vaccinators are professionally and ethically responsible for reporting any serious or unexpected adverse events after the administration of all medicines, including the influenza vaccine, regardless of whether or not they consider the event to have been caused by the vaccination.

## Information should include:

- vaccinee's details
- the vaccine administered
- vaccine batch number
- date of onset of symptoms
- type and duration of adverse event
- treatment required
- outcome if known but do not delay reporting while waiting outcome information

Some providers are able to report events through their practice management system. Reports can be completed online ([nzphvc.otago.ac.nz](http://nzphvc.otago.ac.nz)), or the form can be downloaded and printed using the above link, completed and mailed to:

**Freepost 112002**  
**The Medical Assessor**  
**Centre for Adverse Reactions Monitoring**  
**University of Otago Medical School**  
**PO Box 913, Dunedin 9054**  
**or faxed to: (03) 479 7150**

## Contraindications and precautions to receiving influenza vaccine

### Who should not receive the vaccine?

Influenza vaccination is contraindicated for individuals who have had documented anaphylaxis to any ingredient in the vaccine except egg,<sup>2</sup> or a previous dose of inactivated influenza vaccine. These individuals should not receive the vaccine.

### Influenza vaccination may be contraindicated or need to be delayed for people receiving some new cancer treatments

The immune-stimulant actions of atezolizumab (Tecentriq®), ipilimumab (Yervoy®), nivolumab (Opdivo®) and pembrolizumab (Keytruda®) on the immune system increase a person's risk of developing autoimmune conditions. It is not known whether receipt of an influenza vaccine whilst receiving these treatments or for up to six months after treatment increases a theoretical risk of triggering the occurrence of these side effects.

Please contact the person's oncologist or 0800 IMMUNE (0800 466 863) for current advice about influenza vaccination for these people BEFORE administering the vaccine.

# Effectiveness of inactivated influenza vaccines

The efficacy (prevention of illness among vaccinated individuals in controlled trials) and effectiveness (prevention of illness in vaccinated populations) of influenza vaccines is dependent on several factors. The age, immune status and health of the recipient are important as well as the match between circulating viral strains and the vaccine. Research comparing vaccinated with unvaccinated participants show outcome measures that include laboratory-confirmed infection with influenza virus provide the most robust evidence of vaccine efficacy.

Trivalent influenza vaccines contain two influenza A strains (a H1N1 and a H3N2 strain) and one influenza B strain (from either the Yamagata or Victoria line). Quadrivalent influenza vaccines contain two influenza A strains (a H1N1 and a H3N2) and two influenza B strains (one from each line). Receipt of a quadrivalent influenza vaccine broadens the immune response, which may provide additional protection if influenza B viruses from both lines are circulating or the predominant circulating influenza B virus is not from the line included in the trivalent vaccine.<sup>54</sup>

Inactivated influenza vaccine effectiveness against influenza in recent meta-analyses and systematic reviews ranges from 59% (95% confidence interval 51–67%)<sup>32</sup> to 73% (95% confidence interval 54–84%)<sup>31</sup> in healthy adults for years when circulating and vaccine strains are well matched. Vaccine effectiveness may not be as high in the elderly and those with high-risk conditions. A re-analysis of the Cochrane Review, *Vaccines for preventing influenza in the elderly*,<sup>55</sup> applying a biological perspective to the same information found that influenza vaccination of the elderly is often protective.<sup>56</sup>

The following table summarises selected current estimates of both vaccine efficacy and vaccine effectiveness against a range of clinical outcomes.

Population	Type of outcome	Level of protection (95% confidence intervals)
Infants aged under 6 months whose mothers received an influenza vaccination during pregnancy	Efficacy against laboratory-confirmed influenza	41–49% <sup>57–59</sup>
Healthy children aged under 2 years	Effectiveness against laboratory-confirmed influenza	Insufficient data <sup>32,60</sup> 66% (9–88%) <sup>61</sup>
Healthy children aged 6–35 months	Effectiveness against laboratory-confirmed influenza	66% (29–84%) <sup>61</sup>
Healthy children aged under 16 years	Effectiveness against influenza requiring hospitalisation	56% (12–78%) <sup>62</sup>
Healthy adults (aged 18–64 years)	Effectiveness against influenza-like illness requiring a general practitioner (GP) visit or hospitalisation in NZ	30–60% <sup>63</sup>
	Effectiveness against laboratory-confirmed influenza	59% (51–67%) <sup>32</sup>
Pregnant women	Effectiveness against acute respiratory illness requiring: an emergency department visit, or hospitalisation	81% (31–95%) <sup>64</sup> 65% (3–87%) <sup>64</sup>
	Effectiveness against laboratory-confirmed influenza	50% (15–71%) <sup>59</sup>
Adults aged 65 years or older (Cochrane Review 2010) <sup>55</sup>	Effectiveness in preventing influenza, influenza-like illness, hospitalisations, complications and mortality	Inconclusive due to poor quality of studies <sup>55</sup>
Adults aged 65 years or older (Re-analysis of Cochrane Review 2010 information) <sup>56</sup>	Effectiveness against non-fatal and fatal complications	28% (26–30%) <sup>56</sup>
	Effectiveness against influenza-like illness	39% (35–43%) <sup>56</sup>
	Effectiveness against laboratory-confirmed influenza	49% (33–62%) <sup>56</sup>

Influenza vaccines are effective in children; however less evidence is available for children aged under 2 years.<sup>32,60</sup> In healthy adults, influenza vaccines are effective in reducing cases of influenza particularly when the vaccine and circulating virus strains are well matched.<sup>32,63</sup> Evidence suggests the effectiveness of influenza vaccination in the community-dwelling elderly is modest. There is some evidence that in long-term care facilities, influenza vaccination is effective against complications.<sup>55</sup>

Pooled New Zealand data from the Southern Hemisphere Influenza and Vaccine Effectiveness Research and Surveillance (SHIVERS) study have shown that influenza vaccine effectiveness over 2012–2015 was around 46% (95% confidence interval 35–55%) preventing influenza-like illness presentations to general practice and 52% (41–62%) preventing influenza-related hospitalisations.<sup>63,65–67</sup> For 2017, the seasonal level of influenza was too low to allow robust estimates of influenza vaccine effectiveness at preventing influenza-like illness presentations to general practice and influenza-related hospitalisations.<sup>68</sup>

## How long after vaccination does it take for antibodies to be produced?

It can take up to two weeks for the vaccine to provide the best influenza protection. However, influenza vaccinations can be given when influenza virus activity has been identified as protective antibody levels have been observed to develop rapidly from four days after vaccination.<sup>17,18</sup>

# Influenza and older people

As we age our immune system becomes less efficient at preventing infectious diseases and associated complications.<sup>69</sup> Older people (aged 65 years or older) with influenza are more likely to require hospitalisation and significantly more likely to die than adults with influenza who are aged under 65 years. The presence of chronic conditions such as diabetes or heart, kidney, neurological or respiratory diseases adds to their risk of influenza-related complications.<sup>69,70</sup>

Although older people may have a reduced immune response to influenza vaccine compared with younger adults, they may still benefit from influenza vaccination.<sup>56,71,72</sup>

Influenza vaccination has been shown to reduce symptom severity in older adults who get influenza despite having been vaccinated.<sup>73</sup>

Influenza vaccination is recommended (although not funded) for those who are in close contact with older people and individuals at high risk of influenza infections to reduce the spread of disease to those who are more vulnerable and also may be less likely to mount a strong immune response to the vaccine.



# Influenza and pregnancy

Influenza affects different population groups disproportionately with pregnant women, the very young, the very old and people with certain health conditions at highest risk of serious complications.

Two important groups at high risk of disease and serious complications have been recognised since the 1918 influenza pandemic,<sup>74</sup> they are pregnant women and their babies (up to 6 months of age).<sup>75-83</sup>

Influenza vaccination of pregnant women during any stage of pregnancy has been found to be highly effective in preventing influenza and its complications in the woman and her baby, during pregnancy and for up to six months after birth by the passive protection passed on to the baby in utero, through the placenta.<sup>57,58,64,83-88</sup>

The World Health Organization recommends influenza vaccination of pregnant women at any stage of pregnancy, and that they are given the highest priority.<sup>12</sup> Influenza vaccination has been recommended and funded in New Zealand for pregnant women since 2010.

Inactivated influenza vaccine is used in New Zealand. There are no concerns about the safety of influenza vaccination during any trimester of pregnancy.<sup>83,89-101</sup>

The funded influenza vaccine is usually available from March until 31 December.

## Pregnancy

It is well established that some of the physiological changes that occur during pregnancy leave pregnant women and their growing baby at greater risk of serious influenza complications.<sup>77,107-109</sup>

Influenza infection during pregnancy can have catastrophic consequences for both mother and baby including premature birth, stillbirth, small for gestational age and perinatal death.<sup>76-79,82</sup>

Physiological changes during pregnancy that can lead to complications from influenza include the following:

- **Immune system:** While humoral (antibody mediated) immunity appears to be enhanced, the cellular arm of the immune system is temporarily suppressed. This is to prevent harmful immune responses being directed at the growing baby, which is genetically foreign to the mother. These changes can leave a pregnant woman more vulnerable to some intracellular pathogens including viral infections.<sup>77,107-109</sup>
- **Physical changes:** Changes in the pelvic region, abdominal and thoracic cavities place pressure on surrounding organs. Lung capacity is decreased and oxygen consumption increased. Blood volume, heart rate and the amount of blood pumped per contraction (stroke volume) are increased.<sup>107</sup>

## Risk for the woman

Data from the Southern Hemisphere Influenza and Vaccine Effectiveness Research and Surveillance (SHIVERS) hospital-based surveillance for severe acute respiratory infections in Auckland during 2012–2014 identified that pregnant women with influenza were five times more likely to be hospitalised than non-pregnant women.<sup>1</sup> A normally healthy woman who is pregnant has a similar risk for complications from influenza as non-pregnant women who have co-morbidities. This

risk increases with gestation. When pre-existing medical conditions are superimposed on pregnancy the risks become even higher.<sup>75,83</sup>

Evidence suggests that pregnant women are even more vulnerable during pandemics.<sup>78,82</sup>

## Risk for the growing baby

Direct vertical transmission of the influenza virus to the growing baby is thought to be extremely rare. The adverse effects observed on the baby in mothers who have influenza are likely to be indirect, i.e. as a result of the mother's response to the virus. Maternal influenza infection can be associated with congenital abnormalities caused by fever.<sup>76</sup> Overall there is an increase of general pregnancy complications in women who have influenza.<sup>77-79,82,83</sup>

Historical studies proposed a possible link between maternal influenza infection during pregnancy and an increased risk of cancer in infants and children, such as leukaemia, brain tumours or neuroblastomas. The increased risk of cancer in a child born to a mother who had influenza during pregnancy was extremely low as these are rare cancers.<sup>110</sup>

## Risk for young babies

Babies aged under 6 months have a higher risk of being hospitalised with influenza than other age groups.<sup>80,81,83,111</sup> Influenza-related complications can include fever-related convulsions, vomiting and diarrhoea, pneumonia and occasionally brain inflammation.

In Auckland during 2017, infants aged under 1 year had the second highest rate of hospitalisation with a severe acute influenza respiratory infection compared with other age groups, 145 cases per 100,000 people compared with 283/100,000 for adults aged 80 years or older, 97/100,000 for adults aged 65–79 years and 17/100,000 for midlife adults.<sup>11</sup>

# Influenza vaccination during pregnancy

Within New Zealand, influenza vaccination coverage of pregnant women has been very modest. Research has identified that the most significant barriers to vaccination during pregnancy are –

- A lack of information about:
  - influenza disease and potential complications, and
  - the “two for one” benefit of maternal influenza vaccination
- No recommendation from the woman’s Lead Maternity Carer or other healthcare professionals involved in her care
- Structural barriers to accessing services through general practice<sup>102</sup>

There is considerable research to show that patients value the recommendation of their health professional.<sup>103-105</sup> Studies also show the importance of an explanation covering the risks associated with influenza disease, the effectiveness of vaccination for the woman and her baby, and the excellent safety record of influenza vaccination during pregnancy during the decision-making process.<sup>103-106</sup>

In 2018, some community pharmacies will provide funded influenza vaccination to pregnant women.

Influenza vaccination of pregnant women is recorded on the NIR to help monitor vaccination coverage and assess influenza protection. Refer to the section *Recording influenza vaccinations on the National Immunisation Register* on page 9.

## Discuss influenza vaccination with pregnant women and their whānau

### **1. Explain**

- a. The risk of influenza for the pregnant woman, her growing baby and her vulnerable newborn
- b. The effectiveness of the vaccine in reducing the influenza risk for the woman and her baby, both during pregnancy and after birth
- c. The excellent safety record of influenza vaccination during pregnancy; and the potential complications from catching influenza, which pose a greater threat to the woman and her baby

### **2. Make a clear recommendation for the woman to receive an influenza vaccination during pregnancy**

# Effectiveness and safety of inactivated influenza vaccines during pregnancy

## How effective is the inactivated influenza vaccine when given during pregnancy?

The immune response to influenza vaccination in pregnant women is similar to that of non-pregnant women.<sup>112,113</sup> The efficacy (prevention of illness among vaccinated individuals in controlled trials) and effectiveness (prevention of illness in vaccinated populations) of influenza vaccines is dependent on several factors. The age and immune status of the recipient are important as well as the match between circulating viral strains and the vaccine.

Influenza vaccination during pregnancy provides “two for one” protection, reducing the maternal risk of influenza disease and associated complications and the risk for their baby during the first six months after birth.<sup>57-59,64,83-88,114</sup>

A review of acute respiratory illness (ARI) and influenza vaccination during pregnancy over the 2012 and 2013 Australian influenza seasons identified that women who received an influenza vaccination during their pregnancy were 81% less likely to attend an emergency department with an ARI, and 65% less likely to be hospitalised than pregnant women who were not vaccinated.<sup>64</sup>

An increase in circulating maternal influenza antibodies after vaccination supports maximum transplacental antibody transfer to the growing baby and protection against influenza after birth.<sup>113</sup> Babies born during an influenza season in 2002–2005 in the U.S. were followed until they were aged 6 months. Those born to mothers who received an influenza vaccination during pregnancy were 41% less likely to have laboratory-confirmed influenza and 39% less likely to be admitted to hospital with an influenza-like illness than babies whose mother didn’t have an influenza vaccination.<sup>57</sup>

## How safe is receiving the influenza vaccine during pregnancy?

Inactivated influenza vaccines have been recommended for and used in pregnant women since the 1960s, along with ongoing safety monitoring and research.<sup>89</sup> Influenza vaccination during pregnancy has an excellent safety record for the woman herself, the growing baby and newborn.<sup>89,90,92</sup>

Studies comparing hundreds of thousands of vaccinated women with unvaccinated women have identified a lower incidence of stillbirth for vaccinated women<sup>94-96,101</sup> and no difference in the incidence of preterm births, or occurrence of congenital malformations.<sup>91,93,95,97-101</sup> No relationship between maternal influenza vaccination and spontaneous abortion has been identified.<sup>96,97,99,115-117</sup>



# Questions and answers for pregnant women

## **Is INFLUVAC® TETRA the funded influenza vaccine for pregnant women?**

Yes. One dose of the inactivated quadrivalent influenza vaccine is recommended each influenza season/year that a woman is pregnant. A woman who is pregnant across two influenza seasons would receive two influenza vaccinations during her pregnancy.

## **Is there a minimum interval between receiving an influenza vaccination at the end of 2017 and receiving one in 2018?**

No. The 2018 influenza vaccination can be given as soon as the vaccine is available. No minimum time is required between an influenza vaccination in 2017 and one in 2018.

## **Why is an influenza vaccination recommended every year?**

Yearly vaccination is recommended for two reasons: first, because protection from the previous vaccination lessens over time; and second, because the circulating influenza viruses can change and the strains in the vaccine usually change each year in response to the changing virus pattern.

Women who are pregnant across two influenza seasons are recommended to have an influenza vaccination in both of the seasons. In addition to the reasons explained above, a pregnant woman's risk from influenza also increases with increasing gestation.

## **When is the best time to be vaccinated?**

Influenza vaccination can be given at any time during pregnancy. It is preferable to vaccinate as soon as the vaccine is available (usually from March), well before the start of winter. The funded vaccine is available through to 31 December.

## **Can influenza and whooping cough booster vaccinations be given at the same visit?**

If the woman is between 28–38 weeks of pregnancy (in their third trimester) the influenza vaccine and whooping cough booster vaccine (Tdap) can be administered at the same visit. Both vaccines are funded for pregnant women.

## **Can women with a history of miscarriage receive an influenza vaccination?**

Yes. Influenza vaccination does not increase the risk of miscarriage. However, catching influenza can increase the risk.

## **Can a post-partum woman receive an influenza vaccination? Will it protect her baby if she is breastfeeding?**

It is safe for a breastfeeding woman to have the influenza vaccination. Breastfeeding may offer some initial influenza protection to her baby. However, babies will have more protection if their mother is vaccinated during pregnancy.

## **Is the influenza vaccine a live vaccine?**

No. The influenza vaccine used in New Zealand does not contain any live viruses; the influenza viruses are completely inactivated and cannot cause influenza.

## **Are there any preservatives in the influenza vaccine, e.g. thiomersal?**

No. The vaccine used in New Zealand is preservative free.

## **Should pregnant women who work with children receive an influenza vaccination?**

Yes. Influenza infection rates are generally highest in children, and they are a major source of the spread of influenza. The influenza virus may be found in respiratory secretions (breathing, coughing and sneezing) for two weeks or longer in children. The risk of exposure to the influenza virus is higher and, for pregnant women, so is their risk of influenza disease and serious complications.

It is also important for all people working with children, and especially young babies, to be vaccinated against influenza to reduce the risk of passing influenza onto them.

### **Vaccination and breastfeeding**

**The influenza vaccine can be given to a breastfeeding woman. Protecting the mother can help prevent her becoming infected and transmitting influenza to her baby. Breastfeeding may offer some protection against influenza.**

# Influenza and children

Influenza infection rates are generally highest in children.<sup>68,81,118</sup> Healthy children are also the major cause of the spread of influenza viruses in the community.<sup>81,118</sup> Vaccination of healthy children has the potential to substantially reduce influenza-like illness and related costs in both the children themselves and their families.<sup>119</sup>

Influenza vaccination recommendations vary between countries. The United States recommends annual vaccination for all persons from 6 months of age.<sup>120</sup>

The United Kingdom influenza vaccination programme includes annual vaccination for all children aged 2–8 years with a live attenuated nasal spray influenza vaccine with the strategy to offer both individual protection and herd immunity.<sup>121</sup> This type of influenza vaccine is expected to be more effective in children but is not currently available in New Zealand.

## New Zealand's current strategy

The current New Zealand strategy for children is to offer free influenza vaccination to those with certain medical conditions most likely to lead to serious influenza-related complications.<sup>122</sup>

Children aged 6 months to under 9 years who are receiving the influenza vaccine for the first time should receive two doses four weeks apart.<sup>123</sup> Children who have received a previous influenza vaccination need only a single dose.

Age	Funded vaccine brand	Dose	Number of doses
6–35 months	FLUARIX® TETRA	0.5 mL <sup>#</sup>	1 or 2*
3–8 years	INFLUVAC® TETRA	0.5 mL	1 or 2*
≥ 9 years			1

<sup>#</sup>A full 0.5 mL dose is administered for children aged 6–35 months

\*Two doses separated by at least four weeks if an influenza vaccine is being used for the first time.

## Why does a child aged under 9 years need two doses if being vaccinated for the first time?

Children under 9 years of age who are receiving influenza vaccine for the first time have a better immune response after two priming doses of vaccine. This may be because they are more likely to be immunologically naive to influenza.<sup>123</sup>

Children who have received one influenza vaccine any time in the past only need a single dose in the current season.

## Why does a child aged 6–35 months receive a full 0.5 mL dose of FLUARIX® TETRA?

The historical recommendations to use a half-dose of influenza vaccine in this age group related to older whole-cell influenza vaccines that caused strong vaccine responses such as fever.

Current influenza vaccines are subunit vaccines that contain only viral surface antigens (haemagglutinin proteins). They are generally well tolerated by children in this age group. However, their ability to induce a robust immune response and protection from influenza is variable.

Receipt of a full 0.5 mL dose of inactivated influenza vaccine has the potential to improve protection against influenza.<sup>45</sup> Studies of children receiving a full 0.5 mL dose of quadrivalent inactivated influenza vaccine show that the vaccine is well tolerated, with vaccine responses comparable to those following either a full dose or a half dose inactivated trivalent influenza vaccine.<sup>43-45</sup>

## Use of paracetamol following vaccination

The routine prophylactic use of paracetamol or any other antipyretic to control fever either prior to or following vaccine administration is not recommended. Evidence shows that the immune response to some antigens can be reduced.<sup>124</sup> However, there is no evidence that this causes individuals to be less protected from disease.

**The current recommendations are as follows:**

- Do not use routine prophylactic antipyretics pre- or post-vaccination in the absence of pain or significant discomfort
- Infants who are uncomfortable with fever should first be managed with appropriate removal of clothing and other cooling measures such as cool drinks or tepid sponging
- Only use analgesics (paracetamol or ibuprofen) for relief of pain or significant discomfort post vaccination

**NOTE: treatment advice may differ for other groups.**

**Anyone with concerns following vaccination should seek medical advice**

# Influenza and other special groups

## Immune compromised

Individuals who are immune compromised are at high risk of severe influenza and complications. It is important to offer vaccination prior to the initiation of chemotherapy, radiation treatment or immune suppressant medication. When this is not possible, influenza vaccination is recommended and can be given while an individual is receiving treatment. Two doses of vaccine administered four weeks apart are recommended in all age groups undergoing chemotherapy.<sup>125</sup> Following cessation of chemotherapy, normal immune responses return after about 30 days. Specialist's advice should be sought when considering influenza vaccination of individuals following haematopoietic stem cell or solid organ transplantation.

Regardless of their age, in the first year of being immune compromised/immunosuppressed individuals are recommended to receive two doses of influenza vaccine administered four weeks apart. Then in subsequent years, only one dose required.<sup>126</sup>

As the response to influenza vaccination in those with a poorly functioning immune system is likely to be low, additional preventative strategies are important to reduce their exposure to influenza. The vaccination is also recommended, although not funded, for those who are in close contact with individuals who are more vulnerable or at high risk of complications. Front-line healthcare workers are usually funded by their employer.

## International travel

Studies have indicated that influenza is the most commonly contracted vaccine preventable disease amongst international travellers.<sup>127,128</sup> Influenza outbreaks have been linked to travellers.<sup>127-129</sup> Certain types of travel where large numbers of people are likely to be in close proximity, such as cruise ship voyages<sup>130,131</sup> or events that include mass gatherings<sup>132</sup> are particularly high risk. For these reasons, all people travelling outside New Zealand should consider influenza vaccination pre-travel. This is especially important for those who are at higher risk of influenza complications, many of whom will be eligible for subsidised vaccination.

In tropical countries, influenza activity can occur throughout the year, so vaccination is worthwhile regardless of season. In temperate climates in the northern hemisphere activity is more common between the months of December and March. If a traveller has received the southern hemisphere vaccine in the preceding New Zealand autumn or winter and the same strains are circulating in the northern hemisphere, they should remain protected. If they haven't been vaccinated in the preceding autumn or winter or it is getting close to

6–8 months since their last influenza vaccination, repeat vaccination is recommended prior to travel. However, depending on stock, influenza vaccine may not be available for purchase far beyond the funded time period. Anyone receiving an influenza vaccination outside the funded period will need to pay.

If the southern and northern hemisphere vaccine strains differ significantly\*, it would be preferable to obtain the local vaccine on arrival. However, vaccination with the southern hemisphere vaccine may offer some protection and would be preferable to having no vaccine. The northern hemisphere vaccine is not available in New Zealand.

\*A comparison chart of southern hemisphere and northern hemisphere influenza vaccine strains can be seen on the back cover of this booklet.

## Are there any circumstances where people may consider re-vaccinating within a year, e.g. prior to travel?

Yes. When the available vaccine gives protection against influenza viruses circulating in the northern hemisphere, travellers – particularly those in 'high-risk' groups – who will be exposed to a northern hemisphere influenza season should consider vaccination or repeat vaccination prior to travel.<sup>127</sup> However, re-vaccination prior to travel is not funded.

Protective antibodies peak one week to one month after vaccination and then begin to wane.<sup>17,18</sup> By 6–8 months after vaccination, protective levels are lower and may not be sufficient to provide good protection.

# Southern hemisphere vaccine vs Northern hemisphere vaccine

The 2017–2018 northern hemisphere vaccine is different to the 2018 southern hemisphere vaccine.<sup>12,61</sup>

## Southern hemisphere influenza vaccine for 2018<sup>19</sup>

### Quadrivalent vaccines

- A/Michigan/45/2015 (H1N1) pdm09-like virus
- A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus
- B/Phuket/3073/2013-like virus
- B/Brisbane/60/2008-like virus

## Northern hemisphere influenza vaccine for 2017–2018<sup>133</sup>

### Trivalent vaccines

- A/Michigan/45/2015 (H1N1) pdm09-like virus
- A/Hong Kong/4801/2014 (H3N2)-like virus
- B/Brisbane/60/2008-like virus

### Quadrivalent vaccines will also include

- B/Phuket/3073/2013-like virus

Note: these strains are the same as for the Southern hemisphere influenza vaccine for 2017

## References

The list of references is available in a separate document in the *Resources* section of the [www.influenza.org.nz](http://www.influenza.org.nz) website

**INFLUVAC® TETRA** (inactivated influenza vaccine, surface antigen): Single-dose 0.5 mL pre-filled glass syringe with needle. **Indication:** For the prevention of influenza caused by influenza virus, types A and B in adults and children from 3 years of age in accordance with the recommendations in the National Immunisation Guideline. **Contraindications:** Anaphylaxis related to a previous dose. Hypersensitivity to eggs, chicken proteins, gentamycin, formaldehyde, cetrimonium bromide or polysorbate 80. Postpone if acute febrile illness. **Precautions:** Immunological response may be diminished if the patient is undergoing immunosuppressant treatment. **Interactions:** No interaction studies have been performed. **Adverse reactions:** Local reactions, fatigue, headache, irritability, appetite loss, fever. Anxiety-related reactions, including vasovagal reactions (syncope), hyperventilation or stress-related reactions. May be accompanied by several neurological signs such as transient visual disturbance, paraesthesia and tonic-clonic limb movements during recovery. **Dosage:** Adults and children from 3 years of age: 0.5 mL; Children 3–8 years not previously vaccinated – two doses at least four weeks apart. Children less than 3 years of age: the safety and efficacy of Influvac Tetra have not been established. **Administration:** IM or deep SC injection. **Presentation:** Single dose 0.5 mL pre-filled glass syringe with 16 mm needle, in packs of 10. Each 0.5 mL may contain no more than 100 ng ovalbumin. **Cold chain:** Store between +2°C and +8°C. Store in the original package in order to protect from light. **Sponsor:** Mylan NZ Ltd. Auckland.

**FLUARIX® TETRA** (inactivated influenza vaccine, split virion): Single-dose 0.5 mL pre-filled glass syringe with separate needles. **Indication:** For the prevention of influenza caused by influenza virus, types A and B in adults and children from 6 months of age. The use of Fluarix Tetra should be based on official recommendations. **Contraindications:** Hypersensitivity related to a previous dose of Fluarix Tetra or influenza vaccine or any component of the vaccine. **Precautions:** Postpone if acute febrile illness. Thrombocytopenia, bleeding disorder; previous Guillain-Barre syndrome; an adequate immune response may not be elicited in patients undergoing immunosuppressant treatment or in patients with immunodeficiency. **Interactions:** Fluarix Tetra can be concomitantly administered with pneumococcal vaccines. **Adverse reactions:** Local reactions, fatigue, headache, irritability, drowsiness, appetite loss, nausea, vomiting, diarrhoea and/or abdominal pain, fever, myalgia, arthralgia and syncope (fainting). **Dosage:** Adults and children aged 6 months or older: 0.5 mL; Children aged 6 months to under 9 years not previously vaccinated – two doses at least four weeks apart. Children less than 6 months of age: the safety and efficacy of Fluarix Tetra have not been established. **Administration:** IM injection. **Presentation:** Single dose 0.5 mL pre-filled glass syringe with separate needles, in pack sizes of 1. Each 0.5 mL may contain residual amounts of ovalbumin. Prefilled syringe with separate needles are not made with natural rubber latex. **Cold chain:** Store between +2°C and +8°C. Store in the original package in order to protect from light. **Sponsor:** GlaxoSmithKline NZ Ltd. Auckland.

