

Why flu vaccination is important for health care workers (HCWs)

Every year the flu vaccine is offered to health care workers to prevent the spread of flu to vulnerable patients and to staff. Health care workers should get the flu vaccine to protect themselves, their families and their patients.

This year the HSE aims to achieve a target of 40% flu vaccine uptake among health care workers.

In 2017/2018

There was an increase in flu vaccine uptake both in hospital staff (31.6% compared to 22.5% in 2015/2016) and in long term care facility (LTCF) staff (-29.8% compared to 26.6% in 2015/2016).

The highest uptake was in medical and dental staff and the lowest uptake in nursing staff.

15 hospitals and 32 LTCFs exceeded the 40% target. (1)

Please read this information which answers some common questions about flu and the flu vaccine. It provides clinical evidence showing why vaccination of healthcare workers is so important.

Why is flu an issue?

Flu is responsible for between 200 and 500 deaths each year in Ireland. In a severe season it can cause up to 1000 deaths.

Flu can cause serious complications such as pneumonia, especially in those aged 65 and older, children under 4 years of age, those with long term medical conditions and pregnant women.

Flu leads to an increased incidence of heart attacks and strokes. (2, 3, 4)

Flu can also cause serious disease in previously healthy people. Between 7-26% of the 483 people admitted to ICU in Ireland with flu since 2009 were previously healthy people and 73% were aged less than 65 years (HPSC surveillance of influenza in ICU) Data are provisional, week 20 data provided by the HPSC August 2016.

The number of confirmed influenza hospitalised cases reported during the 2016/2017 season was 1394. Fifty confirmed influenza cases required admission to critical care units.

Flu is highly transmissible and those who are infected, including healthcare workers, can spread the disease from one day before symptoms begin (while asymptomatic) and for 5 to 7 days after developing symptoms.

Flu occurs every winter but the extent of infection is unpredictable so it is not possible to know whether there will be a mild or a severe season in any particular year.

Why is vaccination important for health care staff?

Flu vaccine is recommended for healthcare workers to protect them from getting flu and to reduce transmission of flu from them to their family, colleagues and patients. They care for elderly and at risk patients who are not able to generate the same level of protection from the flu vaccine. These vulnerable patients rely on the immunity of those who care for them to keep them safe. Flu is spread by coughing and sneezing. Anyone with flu can be infectious from 1 day before to 5 - 7 days after onset of symptoms. This means that you can pass on flu or the flu virus to somebody you care for even before you know that you are sick.

Healthcare workers are at increased risk of exposure and hence flu infection compared to the general adult population. (7) It is estimated that at least 20% of healthcare workers are infected with flu every year (8) and many healthcare workers continue to work despite being ill, which increases the risk to their colleagues and patients.

During hospitalisation, patients in general are 5-35 times more likely to acquire influenza if exposed to infected patients or healthcare workers. (9)

The immune systems of those aged 65 and older or those with long term medical conditions respond less well to the flu vaccine. (10) As these groups are more likely to be in hospitals and long term care facilities they rely on the immunity of those who care for them.

There are many reports of flu outbreaks within hospitals and long term care facilities where unvaccinated healthcare workers are likely to have infected patients and facilitated the spread of the disease. (11, 12)

Institutions with high levels of healthcare worker immunisation in Europe have shown reduced rates of flu-like illness, hospitalisation and deaths from flu in the elderly, and a reduction in healthcare worker sick leave. (13, 14, 15)

Who should get vaccinated?

Flu vaccine is recommended for all those working in health care settings including:

- Medical, nursing and allied health professionals,
- Medical, nursing and allied health students,
- Dental personnel,
- Hospital porters and cleaners,

- Ambulance personnel,
- Carers and home helps,
- All GP practice staff
- Agency staff that fall into the above categories.

The vaccine is also recommended for other groups because they are at an increased risk of developing complications from the flu.

Should pregnant healthcare workers be vaccinated?

Yes. Seasonal flu vaccine is recommended for all pregnant women. Pregnant women are more likely to get complications from flu due to changes in their heart and lung function. They are more likely to need admission to hospital and even to the Intensive Care Unit. Getting flu in pregnancy may also lead to premature birth, lower birth weight and even stillbirth. There is evidence that vaccination reduces the rate of stillbirth by over 50%. (30) The seasonal flu vaccine will then continue to provide protection to the mother and baby for up to six months after birth. Infants under the age of 6 months have the highest rate of hospitalisation and death from influenza.

The vaccine can be given at any stage of pregnancy.

How can flu be prevented?

The best way to prevent flu is to get the flu vaccine. Flu vaccine is a safe, effective way to help prevent flu infection, avoid hospitalisation and reduce flu related deaths and illnesses. Vaccination of healthcare workers has been shown to reduce flu-related deaths by 40%.

What is influenza (flu)?

Influenza is a highly infectious acute respiratory illness caused by the influenza virus. Influenza affects people of all ages. Flu spreads rapidly and outbreaks of influenza occur almost every year, usually in winter. This is why it is also known as seasonal flu.

How common is flu?

Each year in Ireland flu causes significant illness and mortality.

During the 2016/2017 influenza season (31)

- Sentinel GP influenza-like illness (ILI) consultation rates were higher than in the previous five seasons, peaking at 90.4 ILI cases per 100,000 population during week 1 2017.
- The predominant circulating influenza virus was influenza A (H3N2).

- 1394 cases of influenza were hospitalised and 50 were admitted to ICU. The highest admission rates were amongst adults aged 65 years and over.
- The number of deaths in notified influenza cases was 92. These deaths occurred in both community and hospital settings.
- 111 confirmed influenza outbreaks were reported.

How serious is flu?

Flu is often self-limiting. Healthy people normally recover within 7 days but some people recover more quickly. People who are at risk of the complications of flu will usually feel better in about 10 days. However, flu can be severe and can cause serious illness and death, especially in the very young and in the elderly.

Serious respiratory complications can develop, including pneumonia and bronchitis, to which older people and those with certain chronic medical conditions are particularly susceptible.

Pregnant women have also been found to be at increased risk of the complications of flu. Some people may need hospital treatment and a number of mainly older people die from influenza each winter.

The number of deaths due to flu is high compared to other infectious diseases - for example invasive meningococcal disease causes around 2-12 deaths per year in Ireland. (5) Worldwide, flu causes between 3 and 5 million cases of severe disease each year and 250,000 to 500,000 deaths.

It is estimated that influenza associated deaths and complications, in addition to work absenteeism and reduced productivity, contribute to an economic burden of €6-14 billion per year in the EU.(6)

Is it a cold or flu?

It can be difficult at times to tell between the common cold and flu, especially in the elderly. A cold is a much less severe illness than flu. The flu symptoms come on suddenly with fevers and muscle aches, although the elderly often do not generate a fever. A cold usually starts gradually with symptoms of a sore throat and a blocked or runny nose.

How is flu spread?

Flu is a highly infectious illness. A person carrying the virus can spread the illness by coughing or sneezing from 1-2 days before they develop symptoms and for up to 5 days after symptoms develop. Influenza can survive on worktops/objects especially in low temperatures and in low humidity. Less often, a person might get flu by touching a surface or object with flu virus on it and then touching their own mouth, eyes or possibly their nose. The virus can live on a hard surface for up to 24 hours and a soft surface for around 20 minutes.

Why is flu vaccination required every year?

Each year the seasonal (annual) flu vaccine contains killed forms of the three most common influenza virus strains. The circulating flu viruses change each year which is why a new influenza vaccine has to be given each year.

What strains are in the 2017/18 seasonal flu vaccine?

This year's seasonal flu vaccine contains the 3 strains of flu virus recommended by the World Health Organization (WHO) as the strains most likely to be circulating this season (16).

These are:

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

What vaccine is available for the 2017/2018 seasonal flu programme?

The flu vaccine used in the 2017/2018 HSE seasonal vaccination programme is inactivated Influenza vaccine (Split Virion) BP (manufactured by Sanofi Pasteur).

How long is the flu season?

In the Northern hemisphere the flu season lasts from October to the end of May. Flu vaccine is recommended for all those in the at-risk groups until the end of April. Women who are pregnant at any stage during the flu season should get flu vaccine. Therefore two flu vaccines, one in each season, may be necessary during pregnancy.

Is there anyone who cannot get flu vaccine?

Most people can get flu vaccine.

It is not recommended for those who have:

- a history of anaphylaxis following a previous dose of flu vaccine or any part of the vaccine.

What about those with an egg allergy?

Those with confirmed egg anaphylaxis and non-anaphylactic egg allergy can be given an influenza vaccine with an ovalbumin content <0.1µg per dose.

The flu vaccine in the 2017/2018 HSE seasonal vaccination programme is inactivated Influenza vaccine (Split Virion) BP (Sanofi Pasteur). It contains less than 0.1µg ovalbumin per dose and so can be administered in accordance with the Table below.

History	Recommendation
Non-anaphylactic egg allergy without severe asthma	Seasonal influenza vaccine with ovalbumin content <0.1µg per dose, in primary care, with observation for 60 minutes.
Egg anaphylaxis or egg allergy and severe asthma	Refer to hospital specialist for vaccination with seasonal influenza vaccine with ovalbumin content <0.1µg per dose. Skin testing is NOT necessary and vaccine should be given as a single dose with observation for 60 minutes.

(17, 18)

When should vaccination be postponed?

There are very few reasons why vaccination should be postponed. Vaccination should be re-scheduled if you have an acute illness with a temperature greater than 38°C.

How does seasonal flu vaccine work?

Seasonal flu vaccine helps the person's immune system to produce antibodies to the flu virus. When someone who has been vaccinated comes into contact with the virus these antibodies attack the virus.

How effective is the vaccine?

Annual vaccination is important because flu viruses are constantly changing and immunity from vaccination declines over time.

Vaccine effectiveness depends on how closely circulating strains of flu match with those in the vaccine. Influenza vaccines provide seasonally variable protection of 40-90% in persons less than 65 years. (19) Overall a combined analysis suggests an efficacy of 59% against confirmed disease in adults aged 18-65 years. (20)

However, the vaccine is only 30%-40% effective in preventing illness among persons 65 years of age and older. Although the vaccine is not highly effective in preventing clinical flu among the elderly, it is effective in preventing complications and death. Among elderly persons living in long-term care facilities, the vaccine is 50-60% effective in preventing hospitalisation for all causes and 70-80% effective in preventing death. (20, 21)

How effective is the flu vaccine?

This year's flu vaccine is expected to be around 60% effective.

For the 2015/16 season, vaccine effectiveness (VE) was reported as moderately good, and the 2016/17 season vaccine had an effectiveness of 38%-43%. (31) The vaccine reduced severe illness and hospitalisation from influenza infection.

Influenza vaccination remains the best protection against influenza and is recommended by all major expert bodies including the World Health Organization, US Centers for Disease Control and Prevention, European Centre for Disease Prevention and Control and the National Immunisation Advisory Committee of the Royal College of Physicians of Ireland.

How safe is the vaccine?

The flu vaccine used in the 2017/2018 HSE seasonal vaccination programme is inactivated Influenza vaccine (Split Virion) BP manufactured by Sanofi Pasteur.

Common side effects (over 1%) are:

Local: redness, swelling, pain, bruising, itching and induration at the site of the injection

General: headache, sweating, muscle and joint pain, diarrhoea, vomiting, malaise, weakness, drowsiness, dizziness, insomnia, fever and shivering.

These reactions usually disappear within 1-3 days without treatment. (22)

Randomised trials comparing vaccine with placebo show similar rates of these minor general reactions. (23, 24)

How safe is the flu vaccine during pregnancy?

Seasonal flu vaccines have been given to millions of pregnant women. The vaccine has been given to protect pregnant women for almost 60 years in the US. Reactions are generally mild and serious side effects are very rare. (25, 26, 27, 28)

What about severe reactions?

The risk of having an anaphylactic reaction to the seasonal flu vaccine is very rare, but those who have had a severe reaction (anaphylaxis) to a previous dose of seasonal flu vaccine or to any part of the vaccine should not receive it.

How is safety of the vaccines monitored?

All medicines including flu vaccines require licensing by the Health Products Regulatory Authority (HPRA) or the European Medicines Agency (EMA). Any adverse events should be reported to the HPRA.

Is there thiomersal in the seasonal flu vaccine?

No. There is no thiomersal in the vaccine being used in the 2017/2018 flu campaign.

Can the vaccine cause the flu?

Sometimes the short lived side effects from the vaccine may be thought to be from flu itself. This is not possible as the viruses in the vaccine are inactivated (killed), which means they cannot cause infection. Flu vaccine manufacturers kill the viruses used in the vaccine during the process of making the vaccine and the vaccine is rigorously tested prior to release.

In addition there are always other circulating viruses that can cause flu-like symptoms.

How long does the vaccine take to give immunity?

It takes up to two weeks to develop immunity after vaccination.

What should I expect after vaccination?

You may get soreness or redness around the injection site. You may experience a mild generalised reaction of fever, fatigue and headache for up to 48 hours after receiving the vaccine. These non-specific side effects do not mean that you are getting flu.

Why are some healthcare workers not vaccinated?

There are a variety of reasons why healthcare workers are not vaccinated. The National Immunisation Office carried out focus groups with healthcare workers in 2011.

Some healthcare workers had misconceptions about flu vaccine similar to those reported from other countries, such as:

"I'm very healthy so my immune system will protect me from flu. Why should I get the flu vaccine?"

- Healthcare workers are at increased risk of flu infection compared to the general adult population.
- Even healthy people can get seriously ill from flu.

- Many healthcare workers may only have mild symptoms and may continue to work.
- Flu is highly transmissible and those who are infected can spread the disease.
- This increases the risk to their colleagues and patients.

"I know the symptoms of the flu, and would stay at home if I get sick. So, I wouldn't infect my colleagues or patients. Why should I get the vaccine?"

- Many healthcare workers may only have mild symptoms and may continue to work.
- Flu can be transmitted from one day before (while asymptomatic) and for 3 to 5 days after developing symptoms during which time patients and colleagues could be infected.

"I believe infection control practices such as hand hygiene are a key deterrent to the risk of flu"

- Infection prevention and control procedures including hand hygiene are essential in health care settings but they will not prevent flu.
- Vaccination is the best protection against flu.

"What about narcolepsy as a side effect from the vaccine?"

- Narcolepsy was associated with one of the flu vaccines (Pandemrix) which was manufactured in 2009 in response to the influenza A (H1N1) pdm09 pandemic.
- Pandemrix has not been used since 2011.
- Seasonal flu vaccines have been manufactured for over 60 years and millions of vaccines have been used across the world.
- Narcolepsy has not been reported following seasonal flu vaccination.

"Is Guillain Barré a side effect from the vaccine?"

- Guillain Barré syndrome (GBS) has on rare occasions been temporally associated with flu vaccination.
- The risk of developing GBS after flu vaccine is lower than the chances of developing it following flu infection. (29)

"I had the vaccine before and still got the flu"

There are several reasons for this:

- there are always other circulating viruses that can cause symptoms similar to flu
- the vaccine only protects against flu and not other viruses
- there may have been exposure to flu around the time of the vaccination or during the two week period it takes to develop immunity
- the circulating flu viruses may be different from those in the vaccine

When should I be vaccinated?

Flu vaccine is available from the beginning of October and all health care workers with direct patient contact should be vaccinated as soon as possible.

Contact your line manager or local occupational health department.

How do I get vaccinated?

Contact your line manager, occupational health department, general practitioner or pharmacist for further details.

The vaccine is free to all those in the recommended at risk groups and HCWs (all those working in health care settings or in the community with patients/clients in at risk groups).

The vaccine and administration of the vaccine are free to those within the recommended groups who have a 'Medical Card' or 'Doctor Only Card'.

Family doctors and Pharmacists charge a consultation fee for seasonal flu vaccine administration to those in at-risk groups and HCWs who do not have a 'Medical Card' or 'Doctor Only Card'.

Where can I find out more?

- Algorithm for PPV vaccine (available in English only) <http://www.hse.ie/eng/health/immunisation/pubinfo/flu vaccine/flulandingpg.html>
- Seasonal Flu Vaccine Presentation at <http://www.hpsc.ie/A-Z/Respiratory/Influenza/SeasonalInfluenza/InfluenzaandHealthcareWorkers/>

More information is also available from

- Royal College of Physicians of Ireland Immunisation Guidelines for Ireland <http://www.hse.ie/eng/health/immunisation/hcpinfo/guidelines/chapter11.pdf>

- Health Protection Surveillance Centre website <http://www.hpsc.ie/A-Z/Respiratory/Influenza/SeasonalInfluenza/>
- Centers for Disease Control and Prevention-Epidemiology and Prevention of Vaccine Preventable Diseases "The Pink Book-13th edition, 2015 available at <http://www.cdc.gov/vaccines/pubs/pinkbook/chapters.html>
- Centers for Disease Control and Prevention-Seasonal Influenza (flu) Vaccination available at <https://www.cdc.gov/flu/protect/keyfacts.htm>
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