



Primary Care Respiratory Society

Get Winter Wrapped

Influenza



Ren Lawlor *Advanced Nurse Practitioner and Senior Lecturer in Nursing and Paramedic Science at the University of Greenwich*

Influenza (flu) is an acute viral infection of the respiratory tract. It is a highly infectious illness which spreads rapidly transmitted by droplets, aerosol, or through direct contact with the respiratory secretions of someone with the infection. Even people with mild or no symptoms can infect others. For healthy individuals, flu is an unpleasant but normally self-limiting disease with recovery usually within two to seven days. However, for some people infection with flu can cause serious illness and in worse cases death.

The risk of most serious illness is highest in children under 6 months, pregnant women, older people and those with underlying health conditions. These groups are at greater risk of complications such as bronchitis or pneumonia. Flu during pregnancy may be associated with perinatal mortality, prematurity, smaller neonatal size and lower birth weight.

Why do we vaccinate every year?

There are 3 main types of influenza virus that infect humans – A, B and C. A viruses cause outbreaks most years and are the usual cause of epidemics and pandemics. A viruses live and multiply in many different animals and may spread between them. Birds, particularly wildfowl, are the main animal reservoir. B viruses tend to cause less severe disease and smaller outbreaks, they are predominantly found in humans and the burden of disease is mostly seen in children. Types A and B cause most of the disease seen in the UK, with epidemics usually related to Type A flu.

The flu virus has two surface antigens:

Haemagglutinin (H)

The role of the H antigen is to bind to the cells of the infected person. There are 18 different types of H.

Neuraminidase (N)

The role of the N antigen is to release the virus from the cell surface. There are 11 different types of N.

The different types of H and N are identified by numbers, e.g. H1N1, H3N2.

Changes in the surface antigens (H & N) result in the flu virus constantly changing, these genetic changes occur in two ways:

- **antigenic drift:** minor changes (natural mutations) in the genes of flu viruses that occur gradually over time
- **antigenic shift:** when two or more different strains combine. This abrupt major change results in a new subtype. Immunity from previous flu infections/vaccinations may not protect against the new subtype, potentially leading to a widespread epidemic or pandemic

The World Health Organisation monitors flu virus epidemiology throughout the world and makes recommendations about the strains of influenza A and B which are predicted to circulate. Vaccines are developed off the back of these predictions. There are two main types of influenza vaccine available – inactivated and live. All but one of the flu vaccines available in the UK are inactivated and do not contain live viruses.



One vaccine (Fluenz Tetra®) contains live viruses that have been attenuated (weakened) and adapted to cold so that they cannot replicate efficiently at body temperature to cause flu but can stimulate the immune system to produce an antibody response.

The inactivated vaccines are administered by intramuscular injection. The live attenuated vaccine (Fluenz Tetra®) is given by nasal spray.

For the 2020/21 flu season (northern hemisphere winter), it is recommended that the quadrivalent flu vaccines contain the following:

Egg-based vaccines:

- A/Guangdong-Maonan/SWL1536/2019 (H1N1)pdm09-like virus
- A/Hong Kong/2671/2019 (H3N2)-like virus
- B/Washington/02/2019 (B/Victoria lineage)-like virus
- B/Phuket/3073/2013 (B/Yamagata lineage)-like virus

Cell or recombinant-based vaccines:

- A/Hawaii/70/2019 (H1N1)pdm09-like virus
- A/Hong Kong/45/2019 (H3N2)-like virus
- B/Washington/02/2019 (B/Victoria lineage)-like virus
- B/Phuket/3073/2013 (B/Yamagata lineage)-like virus

This vaccine composition differs from the 2019/20 vaccine composition as both influenza A virus strains and one of the B virus strains have been replaced. The influenza B component in the 2020/21 trivalent vaccines (aTIV and TIV-HD) will be the B/Washington/02/2019 (B/Victoria lineage)-like virus.

Who is eligible?

In light of the Covid-19 pandemic this year's national flu vaccination programme has been extended to include:

- household contacts of those on the NHS Shielded Patient List. Specifically, individuals who expect to share living accommodation with a shielded person on most days over the winter and therefore for whom continuing close contact is unavoidable
- children of school Year 7 age in secondary schools (those aged 11 on 31 August 2020)
- health and social care workers employed through Direct Payment (personal budgets) and/or Personal Health Budgets, such as Personal Assistants, to deliver domiciliary care to patients and service users

This is in addition to the eligible groups listed in table on page 3:

- all those aged two to eleven (but not twelve years or older) on 31 August 2020
- people aged six months to under 65 years in clinical risk groups

- all pregnant women (including those who become pregnant during flu season)
- people aged 65 years and over (including those becoming 65 years by 31 March 2021)
- people living in long-stay residential care homes or other long-stay care facilities
- carers
- household contacts of those on the NHS shielded patient list and immunocompromised individuals
- all frontline health and social care workers
- individuals between 50 and 64 years may be offered flu vaccine under the NHS flu vaccination programme following prioritisation of other eligible groups and subject to vaccine supply

Which vaccine should I use?

There are multiple options from various manufacturers but Public Health England provide guidelines, in summary these are:

- for those aged 65 and over—the adjuvanted trivalent influenza vaccine (aTIV) (with the cell-based quadrivalent influenza vaccine (QIVc) offered if aTIV is unavailable)
- for under-65s at risk, including pregnant women, offer QIVc or, as an alternative, the egg-grown quadrivalent influenza vaccine (QIVe)

Can the flu vaccine give you the flu?

If you receive inactivated flu vaccine (all adults and the majority of children) then the answer is “NO!” It is important to emphasize to patients that there are other viruses about during the flu vaccination season and these may give rise to similar symptoms but are not full ‘flu’.

For those receiving live attenuated vaccines then a mild illness (often termed “mini-flu”) can occur during the week following vaccination. In addition, people who are vaccinated can also suffer local reactions sore/red arm etc).

Who cannot have the vaccine?

The two principle contraindications to flu vaccination are, a previous severe allergic/anaphylactic reaction to a flu vaccine, and live attenuated vaccines should not be administered to people with severe immunodeficiency. The advice is to refer to the Summary of Product Characteristics (SPC) if unsure.

It is usual to avoid vaccination in those patients with an intercurrent illness, although the BNF rates this as a “caution” as opposed to a “contraindication.”

Clinical risk category	Examples (this list is not exhaustive and decisions should be based on clinical judgement)
Chronic respiratory disease	<p>Asthma that requires continuous or repeated use of inhaled or systemic steroids or with previous exacerbations requiring hospital admission.</p> <p>Chronic obstructive pulmonary disease (COPD) including chronic bronchitis and emphysema; bronchiectasis, cystic fibrosis, interstitial lung fibrosis, pneumoconiosis, and bronchopulmonary dysplasia (BPD).</p> <p>Children who have previously been admitted to hospital for lower respiratory tract disease.</p> <p>See the precautions section of the full guideline on live attenuated influenza vaccine</p>
Chronic heart disease	Congenital heart disease, hypertension with cardiac complications, chronic heart failure, individuals requiring regular medication and/or follow-up for ischaemic heart disease.
Chronic kidney disease	Chronic kidney disease at stage 3, 4, or 5, chronic kidney failure, nephrotic syndrome, kidney transplantation.
Chronic liver disease	Cirrhosis, biliary atresia, and chronic hepatitis.
Chronic neurological disease (included in the DES directions for Wales)	Stroke, transient ischaemic attack (TIA). Conditions in which respiratory function may be compromised due to neurological disease (e.g. polio syndrome sufferers). Clinicians should offer immunisation, based on individual assessment, to clinically vulnerable individuals including those with cerebral palsy, learning disabilities, multiple sclerosis and related, or similar conditions; or hereditary and degenerative disease of the nervous system or muscles; or severe neurological disability
Diabetes	Type 1 diabetes, type 2 diabetes requiring insulin or oral hypoglycaemic drugs, diet controlled diabetes.
Immunosuppression (see contra-indications and precautions section of the full guidance on live attenuated influenza vaccine)	<p>Immunosuppression due to disease or treatment, including patients undergoing chemotherapy leading to immunosuppression, bone marrow transplant, HIV infection at all stages, multiple myeloma or genetic disorders affecting the immune system (e.g. IRAK-4, NEMO, complement disorder).</p> <p>Individuals treated with or likely to be treated with systemic steroids for more than a month at a dose equivalent to prednisolone at 20 mg or more per day (any age), or for children under 20 kg, a dose of 1 mg or more per kg per day.</p> <p>It is difficult to define at what level of immunosuppression a patient could be considered to be at a greater risk of the serious consequences of influenza and should be offered influenza vaccination. This decision is best made on an individual basis and left to the patient's clinician.</p> <p>Some immunocompromised patients may have a suboptimal immunological response to the vaccine.</p>
Asplenia or dysfunction of the spleen	This also includes conditions such as homozygous sickle cell disease and coeliac syndrome that may lead to splenic dysfunction.
Pregnant women	<p>Pregnant women at any stage of pregnancy (first, second, or third trimesters).</p> <p>See the precautions section of the full guideline on live attenuated influenza vaccine</p>
Morbid obesity (class III obesity) ^[A]	Adults with a body mass index ≥ 40 kg/m ²

^[A] Many of this patient group will already be eligible due to complications of obesity that place them in another risk category

a) But what about neurological patients?

There are no cautions or contraindications to patients with stable neurological conditions but those with evolving neurological conditions, particularly poorly controlled/unstable epilepsy are advised to receive specialist referral prior to vaccination.

Nearly all practices have a standard leaflet given to parents of all children having flu vaccination warning about febrile convulsions and advising use of paracetamol.

b) Severe allergic asthma?

There is no specific contraindication to flu vaccination for patients with severe allergic asthma but every attempt should be made to undertake vaccination during a relatively "stable" phase.

c) But what about egg allergy?

Egg-free flu vaccines are available or alternatively it is safe to administer a flu vaccine in which the ovalbumin concentration is less than 120 nanograms/ml. Our advice would be to consult with or refer to your "local" immunology service.

How can we engage with the non-converted?

Dexter and colleagues interviewed GP practices with high flu vaccination uptakes in 2012 and identified 7 key strategies to improve uptake.

Since that time PHE has mounted annual national publicity campaigns and each local area, usually led in England by CCGs, has adapted the national message with specific local guidance. Perhaps a more up to date guidance box would look something like the one here on tips for increasing vaccination uptake.

7 key strategies to improve uptake

- 1 Having a lead staff member for planning the flu campaign
- 2 Producing a written report of the uptake annually (PHE now do this)
- 3 Sending a personal invitation to all eligible patients
- 4 Only stopping vaccination programmes when outcomes had been achieved
- 5 Identifying a lead staff member to identify eligible patients from practice register
- 6 Utilisation of a modified manufacturers search programme to identify eligible patients
- 7 Utilisation of an in-house search programme to identify eligible patients – now part of GP software

Tips for increasing vaccination uptake

- | | |
|---|---|
| 1 Plan early and designate a "flu" champion | <ul style="list-style-type: none"> • Identify your 'at risk' groups. • Organise and plan of in-house flu vaccination to include whole team meeting prior to flu clinic days. • Ensure early identification and planning of meeting needs of more complex patients, for example house bound, nursing homes, learning disabilities. • Plan for patients who require alternative vaccines. • Ensure all members of the team are fully aware of the vaccination program so that consistent messages are given to patients. • Ensure adequate planning for emergency resuscitation. • Plan for follow up clinics. • Make sure you have appropriate personal protective equipment to run your campaign and a strategy for managing patient throughput |
| 2 Publicity | <ul style="list-style-type: none"> • Posters – make them colourful. • Send reminders to those who are eligible (written, texts, repeat prescriptions etc) • Advertise your clinics on your Practice website or information screens in the waiting room, your local Village Newsletter or possibly Local Radio). • Consider clinics at times to encourage patients to attend; open clinics (no need to book), early/late appointments, Saturdays? • Wear T-shirts to increase awareness of the vaccines (often available from vaccine providers). |
| 3 Know the facts! | <ul style="list-style-type: none"> • Address patient misconceptions. • Give a personal recommendation that they receive the vaccination. • Don't just mention during the flu season – could also discuss at an annual review for example. • Remind patients about the serious complications of getting flu. • Follow your local guidance for COVID-19 protection at the surgery and remind patients of their responsibilities and ask that they need to wear masks when they attend for vaccination |
| 4 Flexibility and opportunism | <ul style="list-style-type: none"> • Make it easy for staff and patients to be vaccinated |
| 5 Lead by example | <ul style="list-style-type: none"> • Get yourself done early |

Conclusions


Flu vaccines are safe and effective. Start by vaccinating yourself if you are in front line health and social care and then move on to everyone else eligible!

Despite the change in eligibility for flu vaccinations over recent years flu vaccines are still considered worldwide as a safe, effective and essential vaccination program, which should be promoted in every health care setting. Not only should we ensure that we have robust strategies to maximize all eligible patient vaccinations, but also that we every health care professional carefully considers their responsibility to be vaccinated themselves. The annual flu vaccination campaign is a challenge for practices – administering vaccinations at

scale across different age and risk groups heading into the winter season has always stretched capacity. As we move into the flu vaccination season in 2020 we face new challenges. The vaccination cohort is bigger than before with more people to vaccinate and we have to plan our clinics considering social distancing, protection for patients and staff, one way routes and the potential of an increase in Covid cases and demands on services. This year more than ever planning, resourcefulness and flexibility will be key in delivering a successful flu vaccination programme.

Date of Preparation: September 2020 Version 1

This document, originally produced in 2018 and written by Gail Miles, Rotherham, has been updated by Ren Lawlor, in line with current guidance correct at the time of publication (September 2020)



Visit our COVID-19 web pages for help, support, guidance and shared resources on COVID-19, diagnosing patients presenting with respiratory symptoms, recovery after COVID-19 and much more

<https://www.pcrs-uk.org/coronavirus>

