Getting the Basics Right

Influenza vaccination: helping respiratory consultations

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Influenza infection (flu) usually manifests as a highly infectious respiratory viral infection. Most people feel unwell for a few days and then get better. However, we now understand that certain groups of people may suffer significant complications from infection, including death. Since the 1960s there has been an annual campaign to encourage patients and subsequently healthcare workers to receive annual flu vaccination. Typically, 600 deaths attributable to flu occur annually in the UK, although this has risen to over 10,000 during epidemic seasons.

Despite various public health campaigns, there is a hard core of patients and staff who do not wish to be vaccinated. So who should be vaccinated and when? What is the evidence base for vaccination? Why do we have to do it every year? Are peoples' concerns about vaccination valid? We attempt to debunk the myths here.

Is all flu the same?

There are three main types of influenza virus: A, B and C. Types A and B cause most of the disease seen in the UK, with epidemics usually related to type A flu.

What is the evidence base for vaccination?

Original guidance for influenza vaccination dates back to the early 1960s and did not undergo the rigorous evaluations seen now. More recent studies have been evaluating the different types of flu vaccine. For example, it is now known that inactivated flu vaccine is the most effective method of administration for every adult – the quadrivalent vaccine for 18–65-year-olds and the trivalent vaccine for those over the age of 65. For children it is recommended that those aged 2–9 years are vaccinated, usually with evidence for both live attenuated (recommended) and inactivated vaccines being options. In reality, most children are given the intranasal live vaccine unless immunocompromised.

Why should we do it every year?

The flu viruses, particularly type A varieties, are able to adjust their structure to invade cells and cause infection. The process, known as 'antigenic shift', essentially involves the virus manufacturing different surface proteins every year to allow it to increase infectivity. Organisations such as the World Health Organisation (WHO) monitor the different flu 'strains' and try to predict which strains are most likely to be prevalent that year – this informs which vaccines are manufactured. It is because of 'antigenic shift' that yearly vaccination is required to prevent new epidemics The recommendation for 2018–2019 is shown in the Box.

Recommended composition of influenza virus vaccines for use in the 2018-2019 northern hemisphere influenza season

22nd February 2018

It is recommended that quadrivalent vaccines for use in the 2018-2019 northern hemisphere influenza season contain the following:

- an A/Michigan/45/2015 (H1N1)pdm09-like virus;
- an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus;
- a B/Colorado/06/2017-like virus (B/Victoria/2/87 lineage); and
- a B/Phuket/3073/2013-like virus (B/Yamagata/16/88 lineage)

It is recommended that the influenza B virus component of trivalent vaccines for use in the 2018-2019 northern hemisphere influenza season be a B/Colorado/06/2017-like virus of the B/Victoria/2/87-lineage

(Source: WHO, February 2018)

A list of the influenza vaccines available in the UK is published ahead of the influenza season in the national flu immunisation programme plan for England (https://www.gov.uk/government/collections/annual-flu-programme).

Who should get it?

(a) The 'Healthy' – the latest recommendations from Public Health England (PHE) are as follows:

In 2018/19 the following are eligible for flu vaccination:

- all children aged 2–9 years (but not 10 years or older) on 31 August 2018
- all primary school-aged children in former primary school pilot areas
- those aged 6 months to under 65 years in clinical risk groups
- pregnant women
- those aged 65 years and over
- those in long-stay residential care homes
- carers (ie, people who receive a carer's allowance or are the main carer for an elderly or disabled person whose welfare may be at risk if you fall ill)
- those in frontline health and social care

(b) Those 'at risk' (Table 1)

Which vaccine and for whom?

There is lots of choice, but PHE always advise. Well children are mostly likely to be offered vaccination within the school setting, but this is likely to vary according to localities. The following is an example from PHE guidance for children:

Eligible cohort	Vaccine available: children in clinical risk groups*	Vaccine available: children not in clinical risk groups
Six months to less than 2 years old	Offer suitable inactivated flu vaccine	Not applicable
Children aged 2 years to less than 18 years old	Offer LAIV (Fluenz Tetra®) (unless medically contraindicated)	Offer LAIV (Fluenz Tetra®)

* Children in clinical risk groups aged six month to less than nine years who have not received flu vaccine before should be offered two doses of the appropriate flu vaccine (given at least four weeks apart)

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 emphasise 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, a mild illness (often termed 'mini-flu') in the week following vaccination may occur. In addition, people who are vaccinated can also suffer local reactions (sore/red arm).

Who cannot have the vaccine?

The two principal 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'.

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.

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.

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 ng/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 seven key strategies to improve uptake:

- Having a lead staff member for planning the flu campaign
- Producing a written report of the uptake annually (PHE now do this)
- Sending a personal invitation to all eligible patients
- Only stopping vaccination programmes when outcomes had been achieved

Table 1: Clinical risk groups who should receive the influenza immunisation

Cinical risk category	Examples (this list is not exhaustive and decisions should be based on clinical judgement)
Chronic respiratory disease	Asthma that requires continuous or repeated use of inhaled or systemic steroids or with previous exacerbations requiring hospital admission. Chronic obstructive pulmonary disease (COPD) including chronic bronchitis and emphysema; bronchiectasis, cystic fibrosis, interstitial lung fibrosis, pneumoconiosis and bronchopulmonary dysplasia (BPD). Children who have previously been admitted to hospital for lower respiratory tract disease. See precautions section on live attenuated influenza vaccine.
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, chronic hepatitis.
Chronic neurological disease (included in the DES directions for Wales)	Stroke, transient ischaemic attack. Conditions in which respiratory function may be compromised due to neurological disease (eg, 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 contraindications and precautions section on live attenuated influenza vaccine)	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). 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. 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. Some immunocompromised patients may have a suboptimal immunological response to the vaccine.
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	Pregnant women at any stage of pregnancy (first, second or third trimesters). See precautions section on live attenuated influenza vaccine.
Morbid obesity (class III obesity)*	Adults with a body mass index ≥40 kg/m^2.

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

Table 2: Tips for increasing vaccination uptake

1. Plan early and designate a 'flu' champion	• 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 (eg, 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 programme so that consistent messages are given to patients • Ensure adequate planning for emergency resuscitation • Plan for follow-up clinics
2. Publicity	• Posters – make them colourful • Send reminders to those who are eligible (written, txts, 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!	• 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
4. Flexibility and opportunism	• Make it easy for staff and patients to be vaccinated
5. Lead by example	• Get yourself done early

- Identifying a lead staff member to identify eligible patients from practice register
- Utilisation of a modified manufacturer's search programme to identify eligible patients
- Utilisation of an in-house search programme to identify eligible patients – now part of GP software

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 Table 2.

Conclusions

Flu vaccines are safe and effective. Start by vaccinating yourself if you are in frontline 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 programme which should be promoted in every healthcare setting. Not only should we ensure that we have robust strategies to maximise all eligible patient vaccinations, but also that every healthcare professional carefully considers their responsibility to be vaccinated themselves.

Suggested reading

https://bnf.nice.org.uk/drug/influenza-vaccine.html
http://vk.ovg.ox.ac.uk/inactivated-flu-vaccine
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/635921/Inactivated_influenza_vaccine_information_for_healthcare_practitioners.pdf
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