

In this article...

- Flu-related morbidity and mortality, and the burden of flu on health and social care
- Flu immunisation programme in England and eligibility for 2018/19 campaign
- Role of nurses in informing people about flu and encouraging them to get vaccinated

Flu immunisation in England: helping nurses to protect patients



Nursing Times
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Key points

The risk of flu-related morbidity and mortality is higher among infants, pregnant women, older people and people with certain conditions

The flu immunisation programme in England helps to protect those at risk of complications and reduce the burden on the NHS

In 2018/19, childhood immunisation will be extended to children in school year 5

People aged 65 and over will be offered an adjuvanted trivalent vaccine, which has been shown to be more effective in this age group

Adults under 65 in at-risk groups will be offered a quadrivalent vaccine, which protects against two strains of type B flu instead of one

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Abstract Flu viruses normally start to circulate in England around December. Public Health England has been preparing for the 2018/19 flu season and has made recommendations for this winter's immunisation campaign. Nurses have a central role in the campaign, not only as the main vaccinators, but because they are well placed to inform and encourage people at higher risk of developing complications from flu to accept the offer of free vaccination. This article presents key information for the 2018/19 immunisation campaign.

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Influenza (flu) can cause serious complications and lead to death, especially in certain patient groups. Nurses are at the forefront of flu immunisation and this article outlines the 2018/19 immunisation campaign in England. Information on campaigns in the other UK countries are available at:

- Bit.ly/FluNorthernIreland2018;
- Bit.ly/FluScotland2018;
- Bit.ly/FluWales2018.

Flu virus types

Flu is an acute viral infection of the respiratory tract; it is characterised by fever, chills, headache, muscle and/or joint pain, and fatigue. There are three types of influenza viruses: A, B and C; types A and B cause most clinical illness.

Influenza A viruses cause outbreaks in most years. They are categorised according to their surface antigens, haemagglutinin (H) and neuraminidase (N). The H antigen binds to the cells of the host and the N antigen releases the virus from the cell surface. The different types of H and N are

identified by numbers, for example, H₁N₁. Genetic changes in these antigens result in the viruses continually evolving.

Influenza B viruses tend to cause less severe disease and smaller outbreaks, although the 2017/18 flu season saw an unusually high proportion of illness caused by type B flu. Most of the burden is usually seen in children, in whom the severity of illness can be similar to that seen with type A flu.

Consequences of flu

Flu has an incubation period of 1-3 days and is highly infectious. For healthy individuals, it is an unpleasant but self-limiting disease, with recovery within 2-7 days. The risk of serious illness and complications from flu is higher among children under six months, pregnant women, older people and those with underlying conditions such as respiratory disease, cardiac disease and immunosuppression.

On average 8,000 people die of flu in England each year, but in some years the

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numbers exceed 20,000 (Public Health England, 2014). Flu can compound winter pressures on the NHS because staff and carers may become sick, hospital admissions due to flu complications increase, and admitted patients often require intensive care and respiratory support. Ward and nursing home closures due to flu outbreaks can put services under additional strain.

Immunisation programme

Flu immunisation – recommended in the UK since the 1960s – offers protection to people at higher risk of flu-associated morbidity and mortality. The immunisation programme in England aims to help protect those who are vulnerable to complications and reduce the burden of flu on the NHS, social care and communities.

Initially targeted at clinical at-risk groups, the programme was extended in 2000 to include all people aged 65 years and over. In 2010, pregnant women became eligible because of evidence that they and their unborn children are at increased risk of complications.

In 2012, the Joint Committee on Vaccination and Immunisation (JCVI), which advises the government on vaccination policy, recommended extending immunisation to children – as a result, a specific programme was rolled out in 2013/14. Vaccinating healthy children interrupts the spread of the virus in the community, thereby protecting vulnerable individuals, as well as protecting the individual child.

The early stages of the childhood flu immunisation programme included a

pilot phase for school-aged children. In 2014/15, there was a significant reduction in the number of GP consultations for flu-like symptoms of both children and adults in the pilot areas (Pebody et al, 2015). Fig 1 shows the main results from the pilot.

Settings and eligibility

Most flu immunisation is carried out by nurses in general practice. Clinical at-risk groups, over-65-year-olds and pregnant women can choose to be vaccinated in pharmacies if they prefer. Pregnant women may also be offered immunisation via maternity services, while school-aged children are offered the vaccine by immunisation teams in the school setting.

For the 2018/19 season, the only change in eligibility is the extension to an additional cohort of children – those in school year 5. Box 1 shows the complete list of eligible people for the 2018/19 season. Health professionals should refer to the flu chapter (chapter 19) in the Green Book (PHE, 2013), which is regularly updated (sometimes during the flu season), for full details about eligibility, contraindications and precautions.

Vaccination is free for those eligible via the national immunisation programme.

Flu vaccines are safe

Flu viruses change over time. The vaccines are made in advance of each flu season and aim to protect against the strains that are most likely to circulate that season. Flu viruses usually circulate in England from around December to late March.

Flu vaccines have a good safety profile.

None of the vaccines used in the immunisation programmes in the UK contain thiomersal and the injectable vaccine does not contain any live viruses. The live attenuated influenza vaccine (LAIV) Fluenz Tetra, in nasal spray form and used in children, contains live viruses that have been weakened and adapted, so they can only replicate at the lower temperatures found in the nasal passages.

Flu vaccines cannot cause flu. Flu-like symptoms after vaccination are likely to be caused by:

- One of the many other circulating viruses that produce flu-like symptoms;
- Flu contracted around the time of vaccination before the immune system has had time to respond;
- The body's immune system response to the vaccine.

During the last 10 years the vaccine has generally been a good match for the circulating strains, although it has been less effective in people aged 65 years and over.

Improving effectiveness

There is increasing evidence that non-adjuvanted standard flu vaccines perform poorly and adjuvanted vaccines are more effective in older people (Domnich et al, 2017; Van Buynder et al, 2013). An adjuvanted trivalent inactivated influenza vaccine (aTIV), Fludax, is now licensed for use in the UK in people aged 65 years and over. In October 2017, the JCVI advised that an aTIV would be more effective in those 65 years and over, and that they should preferentially receive it.

The JCVI also looked at quadrivalent influenza vaccines (QIVs), which offer protection against two strains of influenza B virus, as opposed to trivalent vaccines that only protect against one strain. As type B flu is more common and more virulent in children, the vaccines centrally supplied for the childhood programme are quadrivalent preparations. Modelling by Public Health England suggests substantial benefits would be gained from the use of QIVs instead of trivalent vaccines in adults under 65 years of age in at-risk groups, including pregnant women. One of these benefits would be a reduction in hospitalisations and GP consultations. For 2018/19, NHS England therefore recommends that:

- People aged 65 and over receive an aTIV, and an aTIV is also offered to frontline health and social care workers in that age range;
- Adults under 65 years of age in at-risk

Fig 1. Results of childhood flu vaccine pilot 2014/15 in England

In flu vaccine pilot areas (2014/15) where children of primary school age were given the nasal spray vaccine, we saw:



↓94%

Primary school-aged children: GP consultation rates for influenza-like illness were 94% lower



↓74%

Primary school-aged children: Accident and emergency respiratory attendances were 74% lower



↓93%

Primary school-aged children: Hospital admissions due to confirmed influenza were 93% lower



↓59%

Adults: GP consultation rates for influenza-like illness were 59% lower

Uptake and impact of vaccinating school-aged children against influenza during a season with circulation of drifted influenza A and B strains, England 2012/15

Source: Public Health England, 2016

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groups, including pregnant women, receive a QIV and a QIV is also offered to frontline health and social care workers in that age range.

People who will become 65 years of age before 31 March 2019 may be offered an aTIV 'off label'.

Increasing uptake

The UK has a well-established immunisation programme and, in general, uptake is good. However, in some at-risk groups, uptake is suboptimal. Patients have a high level of trust in advice given to them by health professionals (Campbell et al, 2017), so all nurses can help ensure patients are protected by encouraging them to take up the offer of immunisation and signposting them to appropriate services. Providers of immunisation services in general practice should actively invite all eligible individuals. They should also consider the flexibility and accessibility of services, so those who want to be vaccinated can easily do so.

Children

In some children, even if they were previously healthy, flu can cause serious complications and even death. Flu surveillance data shows that children under five years of age had the highest rate of hospital admissions for flu, whether or not they belonged to at-risk groups (Cromer et al, 2014). At around 44%, the uptake of LAIVs in pre-school children is considerably lower than in school-aged children, in whom it is around 62% (PHE, 2018a); increasing uptake in pre-school children is therefore a priority for 2018/19.

Parental attitudes to immunisation are surveyed every year. The 2017 survey shows that a clear majority of parents surveyed were more confident about immunising their child after discussion with a health professional. Nurses and health visitors should use every opportunity to inform and encourage parents of eligible children to take up the offer of flu vaccination.

Pregnant women

There is good evidence that pregnant women are at increased risk of complications from flu (Pebody et al, 2010; Neuzil et al, 1998). Having flu during pregnancy may be associated with premature birth and smaller birth size and weight (McNeil et al 2011; Pierce et al, 2011). Vaccinating pregnant women may reduce the likelihood of prematurity and smaller birth size (Omer et al, 2011), as well as protect infants in their first months of life (Dabrera et al, 2014; Eick et al, 2011; Poehling et al, 2011; Benowitz et al, 2010; Zaman et al, 2008).

Box 1. People eligible for free flu immunisation in 2018/19 in England

- All children aged 2-9 years on 31 August 2018
 - All children of primary school age in former pilot areas
 - All people aged between six months and 64 years who have:
 - Chronic (long-term) respiratory disease, such as severe asthma, chronic obstructive pulmonary disease or bronchitis
 - Chronic heart disease, such as heart failure
 - Chronic kidney disease at stage 3, 4 or 5
 - Chronic liver disease
 - Chronic neurological disease (such as Parkinson's disease or motor neurone disease) or a learning disability
 - Diabetes
 - Splenic dysfunction or asplenia
 - A weakened immune system due to disease (such as HIV/AIDS) or treatment (such as cancer treatment)
 - Morbid obesity (defined as body mass index of 40 and above)
 - Pregnant women at any stage in their pregnancy
 - People aged 65 years and over, including those who will be 65 by 31 March 2019
 - People living in long-stay residential care homes or other long-stay care facilities, where infection is likely to spread rapidly and cause high morbidity and mortality (this does not include prisons, young offender institutions or student halls of residence)
 - Those who receive a carer's allowance and/or care for an older or disabled person whose welfare may be at risk if their main carer falls ill
 - All frontline health and social care workers
- Consideration should also be given to the vaccination of household contacts of individuals who are immunocompromised, and specifically those who expect to share accommodation with people who are immunocompromised on most days over the winter period.

Vaccine uptake in pregnant women (both healthy and in at-risk groups) was 47.2% in the 2017/18 season (PHE, 2018a). Increasing uptake in pregnant women should be a priority.

All pregnant women, including those who become pregnant during the flu season, can be vaccinated by their general practice or a pharmacy. Local NHS England teams also commission maternity providers to provide immunisation; in 2017/18, some 70% of maternity services offered this.

Midwives play a key role in explaining the benefits of vaccination to pregnant women and offering it as part of maternity services. If the latter is not feasible, they should signpost women to their GP or a pharmacy. Providers of maternity services should inform GPs when a woman becomes pregnant or is no longer pregnant, so GPs can invite eligible women for vaccination.

At-risk groups

People with certain medical conditions are at greatly increased risk of severe complications and death if they catch flu. Table 1 shows that both the risk of death and

vaccine uptake vary considerably between groups. Some of the people at the highest risk have the lowest uptake; for example, people with chronic liver disease are almost 50 times more likely to die from flu-related complications than someone with no underlying risk factors, yet the uptake in this group is just over 40%.

Nurses delivering immunisation in primary care should ensure robust call and recall systems are in place so all patients in at-risk groups are invited for vaccination. Secondary care nurses caring for these patients should encourage them to accept the offer of vaccination and signpost them to their GP or local pharmacy.

Health and social care workers

Health and social care workers look after some of the most vulnerable people in our communities, so it is important that they protect themselves: flu spreads easily, so if they catch it, they may pass it on to the people they care for – even if they only have mild symptoms or no symptoms at all.

The 2017/18 season saw the highest number of frontline healthcare workers ever vaccinated against flu in England. Almost 69% received the vaccine – up from

Table 1. Relative risk of flu-related death and vaccine uptake in at-risk groups in England

At-risk group	Age-adjusted, relative risk of flu-related death*	Vaccine uptake (%)			
		2014/15	2015/16	2016/17	2017/18
People with chronic liver disease	48.2	43.9	42.5	42.6	44.5
Immunosuppressed people	47.3	55.4	52.9	53.1	54.0
People with chronic neurological disease	40.4	50.4	49.0	49.2	50.9
People with chronic renal disease	18.5	55.6	53.5	53.2	55.0
People with chronic heart disease	10.7	50.1	48.6	48.5	49.9
People with chronic respiratory disease	7.4	49.2	47.4	48.5	50.8
People with diabetes	5.8	68.1	65.5	64.7	65.4
Pregnant women	7.0	44.1	42.3	44.9	47.2

*Example of how to read this column: people with chronic liver disease are 48.2 times more likely to die from flu-related complications than people with no underlying risk factors.

Sources: PHE (2018a); PHE (2013)

analysis to inform vaccine policy. *Journal of Infection*; 68: 4, 363-371.

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63.2% in 2016/17 and 50.6% in 2015/16 (PHE, 2018b). This is a fantastic achievement, in no small part due to the hard work of nurses in immunisation teams. We need to build on this and get even more frontline health and social care workers vaccinated; all should be offered, and encouraged to accept, vaccination.

In the care setting, staff vaccination against flu has been shown to reduce the spread of disease and patient mortality (Carman et al, 2000), yet uptake is estimated to be considerably lower than in

health care. This is likely due to several factors, including staff not being able to access the vaccine easily – some social care employers are not aware of their responsibility to offer staff vaccination.

There are many flu outbreaks in care homes despite the fact that residents have high vaccination rates (PHE, 2018c). This is partly because, as people age, they do not produce as good an immune response to vaccination. This makes vaccination of care home staff even more important.

Conclusion

Nurses play a crucial role in helping protect the population from flu-related morbidity and mortality, not only by carrying out most vaccinations but also by informing eligible patients of the benefits of vaccination, encouraging them to take it up, and by getting vaccinated themselves. **NT**

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