



Healthcare worker vaccination: clinical evidence (updated August 2014)



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Every year, influenza vaccination is offered to NHS staff as a way to reduce the risk of staff contracting the virus and transmitting it to their patients. In 2013/14 the influenza vaccine uptake rate for frontline healthcare workers was 54.8 per cent (compared with 45.6 per cent in 2012/13).¹ Uptake among NHS local area teams ranged from 33.5 – 71.4 per cent and within staff groups, uptake was highest among GP practice nurses.¹ This document outlines the clinical evidence supporting the need for flu vaccination among healthcare workers.

Why should we worry about influenza?

Influenza can cause a spectrum of illness ranging from mild to severe, even among people who were previously well. The impact on the population varies from year to year, depending on how many people are susceptible, any changes to the influenza virus and the severity of the illness caused by the influenza subtype in circulation.² The capacity for the virus to mutate/change and the duration of the protection from the vaccine (about one season) are the reasons that the vaccine is tailored each year to protect against the most commonly circulating strains and why annual vaccination is necessary.²

The timing, extent and severity of influenza seasons is unpredictable and intermittent epidemics can cause significant illness and mortality. The 2013/14 influenza season was considered to be less severe, but there were still 904 admissions to intensive care units due to influenza and 10.8 per cent of these patients died.³ During the 2010/11 influenza season (following the 2009 pandemic) there were 2,200 admissions to intensive care units.⁴

Why is flu vaccination important for clinical staff?

Protecting yourself against flu

Frontline healthcare workers are more likely to be exposed to the influenza virus, particularly during winter months when some of their patients will be infected. It has been estimated that up to one in four healthcare workers may become infected with influenza during a mild influenza season – a much higher incidence than expected in the general population.⁵

Typically the elderly, the very young, and people with underlying medical conditions are at a greater risk of suffering severe illness. However, even previously healthy people and the young can develop severe complications from influenza including bronchitis, secondary bacterial pneumonia and, more rarely, meningitis, encephalitis and/or death. In 2009/10 and 2010/11, up to one third of deaths from influenza were in people considered healthy.⁶ Many cases of severe illness were in those aged under 65 years (89 per cent of hospital admissions, 87 per cent of critical care beds occupied and 79 per cent of deaths).⁵⁻⁹

Protecting your patients against flu

Influenza is a highly transmissible infection. The patient population found in hospital is much more vulnerable to its severe effects.¹⁰ Healthcare workers may transmit the illness to patients even if they are mildly or sub-clinically infected. There are reports of influenza outbreaks within hospitals and other care settings where transmission from healthcare workers to patients is likely to have facilitated the spread of the disease.¹¹⁻¹³ In one outbreak, 118 staff and 49 patients were infected.¹⁴ A second resulted in six infections among neonates and one death.¹³

Settings randomised to high levels of immunisation had reduced rates of flu-like illness, hospitalisation and mortality in the elderly in comparison with controls.¹⁵⁻¹⁸

Protecting your family against flu

Some healthcare workers, aware that they are more likely to become infected with influenza, get the flu vaccination in order to try to protect their family members, particularly young children or other relatives who may fall into at-risk groups.¹⁹

Advice from professional bodies about the flu vaccine

[The Green Book](#) recommends that healthcare workers directly involved in patient care be vaccinated annually.¹⁰ It is also encouraged by the General Medical Council²⁰ as part of good medical practice, and by the British Medical Association (BMA).²¹

How effective is the flu vaccine?

The vaccine is 50-70 per cent effective depending on the age and health of the person receiving it^{3,22-24}, and on how well the circulating influenza strains match the composition of the vaccine.

How safe is the flu vaccine?

The most common side effect can be bruising or local muscular stiffness at the injection site (10–64 per cent).²⁵ Other reported side effects include short-lived fever, malaise and myalgia with an incidence in studies that is similar to those who receive a placebo vaccine (fever, 3 per cent vs 1 per cent; malaise, 9 per cent vs 6 per cent; myalgia, 18 per cent vs 10 per cent).²⁶

The vaccines used during the pandemic in 2009 had an adjuvant to boost the immune response and reduce the dose of vaccine needed to provide protection and some of these side effects were particularly common. The present trivalent vaccine does not contain adjuvants so side effects are less common.

Although people sometimes say that the vaccine gave them influenza, this is not possible. The influenza vaccines offered to healthcare workers in the UK are inactivated and do not contain

live viruses. Only one vaccine (Fluenz) contains a live virus that has been attenuated and adapted to grow at temperatures below body temperature, but this is not used for vaccination of healthcare workers.¹⁰

It is most likely that the flu-like symptoms experienced by people who have just had the vaccine are not caused by influenza but by one of many other circulating viruses that can produce influenza-like symptoms. Since it can take up to two weeks following vaccination to develop immunity to influenza, it is possible for infection to occur if exposed to influenza during this period.

Is the flu vaccine safe in pregnancy?

No study to date has demonstrated an increased risk of either maternal complications or adverse foetal outcomes associated with inactivated influenza vaccine. In fact there are benefits to both mother and child and inactivated influenza vaccine is now recommended for pregnant mothers.

Is the flu vaccine safe for those who are immunocompromised or have HIV?

The [Green Book](#) advises immunisation of those who are immunocompromised or have HIV. For specific references on safety, use the BHIVA guidelines at www.bhiva.org/Immunization2008.aspx

What about severe reactions to the flu vaccine?

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

Individuals who have an egg allergy can be immunised in primary care with an egg-free influenza vaccine if available, or an inactivated vaccine with an ovalbumin content of less than 0.12 µg/ml.

Patients who have either confirmed anaphylaxis to egg or egg allergy with severe uncontrolled asthma can be immunised with an egg-free influenza vaccine. If no egg-free vaccine is available, patients should be referred to specialists for immunisation in hospital.

In all settings providing vaccination, facilities should be available and staff trained to recognise and treat anaphylaxis.

More detailed information on the characteristics of the available vaccines, including age indications and ovalbumin (egg) content, can be found in chapter 19 of the [Green Book](#).

How is safety of the flu vaccine monitored?

As with all medicines used in the UK, influenza vaccines require licensing by the Medicines and Healthcare Products Regulatory Agency (MHRA). Like other medical products, passive surveillance, using reports from yellow cards, is used to identify adverse events. The observed rate of adverse reports is compared to the expected rate, based on data from a general practice research database, after making allowance for under-reporting.

This is complemented by active surveillance, which uses very large population cohorts from primary care databases, to proactively look at the risk of an adverse event which may be of concern. Comparisons are made between patterns of self-presenting illness to general practice in the period after vaccination compared to controls. Other countries have similar systems and data is pooled and reviewed at national and international levels.

Does the vaccine contain porcine products?

The live attenuated vaccine Fluenz that is used for the childhood flu programme contains a highly processed form of gelatine that is derived from pigs, which is used in a range of many essential medicines. The inactivated vaccine that is routinely offered to healthcare workers does not contain porcine products.

Why do some doctors/clinicians refuse the flu vaccine?

There are a variety of reasons why staff decline the vaccine. A recent survey of healthcare workers in University Hospitals of Leicester and Leicestershire Partnership Trust²⁷ found that one third of unvaccinated clinician respondents felt that universal infection control practices are sufficient. One third of unvaccinated clinician respondents reported they were not vaccinated because they have a good diet and/or take vitamins or supplements that work as well as or better than the influenza vaccine.

Although infection control measures are vital and a good diet is encouraged, these actions alone will not prevent influenza; vaccination is the best option for protecting yourself, your family and vulnerable patients from the virus.

When should I be vaccinated?

The new vaccines should be available each year from the end of September and any healthcare worker with direct patient contact is urged to get vaccinated as soon as possible. Your local occupational health department is likely to lead on delivery so the advice is to contact them or the appropriate team. Any healthcare worker in at-risk groups can receive the vaccine at their GP surgery, but are asked to report this vaccination at work to ensure inclusion in uptake figures recorded for the Department of Health.

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