

### About vaccination against influenza ("flu")

Acute respiratory diseases are among the most frequent diseases in humans. They are caused by a variety of pathogens, in particular by viruses. The influenza virus, the causative agent of the 'real' flu, plays a central role. The special role of influenza is due to its epidemic occurrence each year. In addition, influenza viruses usually cause a more severe course of disease than other pathogens responsible for acute respiratory diseases. The best protection is timely vaccination. Influenza vaccination does not protect against acute respiratory diseases caused by other pathogens that typically have a mild course.

Influenza is an acute respiratory illness accompanied by fever, cough, and muscle pains; it cannot always be clinically distinguished from other respiratory diseases. Especially in the elderly and the chronically ill, severe courses of influenza are often observed. Viral flu occurs more frequently in the cold season. Vaccination should therefore generally be given during the fall months. But the protective vaccination can be given at any time. Influenza viruses are constantly changing, so that even people who were afflicted by influenza the previous year or were vaccinated may fall ill with influenza again the next year. The influenza vaccination must therefore be repeated with a current vaccine each year.

### Vaccine

The influenza vaccine is produced each year according to the current recommendation by the World Health Organization (WHO); it is a so-called **seasonal vaccine**. The recommendation takes into account the currently globally circulating influenza viruses of types A and B. The vaccine generally contains components of two influenza A viruses (A/H1N1 and A/H3N2) and of an influenza-B-virus. In larger intervals, there is the danger of the worldwide spread of a completely new influenza pathogen (pandemic). After 2009, this was the case with the "new influenza A/H1N1," also sometimes referred to as "swine flu." However, this pathogen has meanwhile displaced the previously circulating influenza A/H1N1 viruses and is therefore included as one of the components of the current seasonal influenza vaccine. Even if, in exceptional cases, in one season the composition of the vaccine is not changed, a new vaccination should be given, as the duration of immune protection may be shorter, in particular in the elderly and people with pre-existing health conditions.

The inactivated vaccines (dead vaccines) contain the components of the influenza viruses that confer protection against the illness. They are either produced based on chicken eggs or also in cell cultures (these vaccines are approved for adults ages 18 years and older).

The vaccines are generally administered by intramuscular injection, for example, they are injected into the upper arm muscle. A vaccine (for persons ages 60 years and older) is also injected into the skin (intradermal administration). The influenza vaccination can be given together with other vaccines. Children ages 6 through 35 months receive one dose of 0.25 mL vaccine; Children from ages of 36 months, adolescents, and adults receive a dose of 0.5 mL vaccine. Previously unvaccinated children receive 2 injections spaced at least 4 weeks apart. The protection starts approximately 2 to 3 weeks after vaccination.

**Who should be vaccinated?**

Influenza vaccinations are recommended for all people who are particularly vulnerable to influenza:

- People ages 60 years and older
- All pregnant women from the second trimester (in cases with increased health risk due to an underlying disease, from the first trimester)
- People whose profession brings them into daily contact with a large number of people such as, for example, bus drivers or teachers
- Residents of elderly- or nursing homes
- Adults, adolescents, and children with increased health risks due to underlying diseases such as, for example, chronic respiratory diseases, chronic cardiovascular diseases, liver and kidney diseases, metabolic diseases (e.g. diabetes), congenital and acquired immune deficiencies (e.g. HIV infection), chronic neurological diseases (e.g. multiple sclerosis)
- People who risk infecting others they are providing care for with influenza, but who are themselves also at increased risk by patients and persons in need of care; including, for example, medical staff and staff providing care for the elderly and sick
- People who are in direct contact with poultry and wild birds

A new recommendation for vaccinating pregnant women was made because studies have shown that pregnant women have a significantly increased risk of developing complications during an influenza illness. Undesirable side effects were not observed in either the mother or the child.

People suffering from chronic neurological diseases, for example, neuromuscular diseases also are at increased risk for suffering severe courses of influenza (also children). These patients should therefore also be vaccinated, as well as MS-patients in whom influenza can lead to new disease relapses.

**Who should not be vaccinated?**

People suffering from an acute illness with fever that requires treatment should not be vaccinated. The vaccination should be made up at the earliest possible date.

People suffering from severe hypersensitivity to components of the vaccine must not be vaccinated with this vaccine. This may, for example, be the case with a proven severe allergy to chicken protein. These patients should ask their doctor whether a vaccine that was not produced in chicken eggs is available as an alternative.

**Care after vaccination**

The vaccinated person does not require special care, but within 3 days after the vaccination, unusual physical stress should be avoided. People with a tendency for cardiovascular responses or in whom immediate allergic responses are known should tell the doctor before being vaccinated.

**Possible local- and systemic reactions after vaccination**

After vaccination, in addition to the desired immunity and thus protection against the disease, redness or painful swelling may occasionally occur at the injection site. This is an expression of the body's normal response to the vaccine and usually appears within 1 to 3 days, and rarely persists for a longer time. Occasionally, nearby lymph nodes swell and harden. General symptoms may also appear, such as fever, chills, nausea, malaise, diarrhea, fatigue, sweating, headache, and muscle- and joint pain.



The latter general reactions are likely the reason that the influenza vaccination is incorrectly made responsible for influenza-like illnesses that occur at the same time as the vaccination. In general, the mentioned reactions are temporary, local and systemic responses, and they quickly subside without consequences.

**Are complications from the vaccine possible?**

Vaccine-associated complications are very rare consequences beyond the normal vaccination response that significantly affect the health of the person who received the vaccine. After an influenza vaccination, allergic reactions of the skin (occasionally with itching and hives) and of the respiratory tract are very rarely observed. Blood vessel inflammation may also very rarely appear (with the cell culture-based vaccine possibly with temporary involvement of the kidneys) and the platelet count may be temporarily reduced, with possible bleeding occurring as a result. Allergic immediate responses (allergic shock) have been reported in isolated cases only.

Neurological (nervous system) side effects of the vaccinations such as, for example, temporary paralysis were reported in isolated cases in temporal association with the vaccination, but a causal relationship has not been established.

**Advice by the vaccination administrator on possible side effects**

In addition to this information sheet, your doctor offers a consultation.

If symptoms appear after vaccination that are beyond the above-mentioned, quickly subsiding local and systemic reactions, your vaccination administrator will naturally be available for consultation.

You can contact the vaccination administrator at:

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