



PERTUSSIS VACCINATION IN PREGNANCY

What is pertussis (whooping cough)?

Pertussis (Whooping cough) is an infectious disease caused by the bacterium *Bordetellapertussis*. In recent years, about 500 cases of pertussis / year have been reported in Italy. In the last 10 years in Lombardy there have been an average of 85 cases of pertussis (136 in 2016) of which 35% in the 0-4 age group.

The transmission takes place by air, through saliva droplets spread in the air when the patient coughs. Contagiousness is greatest in the catarrhal phase and in the first two weeks after the onset of cough. Parents or older siblings with mild symptoms and unrecognized disease are an important source of infection for the **newborn** who has not yet been vaccinated for personal reasons (the 2017-2019 vaccine prevention plan of the Ministry of Health proposes the anti-pertussis vaccine starting from from day 61) or has not yet completed the vaccination schedule (3 doses).

Immunity against pertussis, both natural and acquired with vaccination, does not last for life, but decreases after 4-12 years: for this reason and for the fact that vaccination coverage in our country is not total, it can happen that a teenager / adult becomes ill and transmits the infection to the newborn.

Why get vaccinated during pregnancy?

Since 2005, a progressive increase in the incidence of pertussis has been reported in both the United States and Europe, especially in children under 1 year old. The disease contracted in the first year of life tends to have a more severe course, with higher rates of hospitalizations due to complications of the infection (dyspnoea, pneumonia, convulsions) and a high risk of mortality related to them (reported up to 1%). Contrary to other infectious diseases, whooping cough can

also affect newborns with an immune mother. For this reason, several government health agencies around the world and since 2017 also the Italian Ministry of Health, have recommended the vaccine against pertussis during pregnancy: immunity antibody induced during pregnancy, thanks to the transplacental passage of maternal antibodies, can prevent infection in the newborn. In addition, pertussis type A antibodies have been found in pregnant women vaccinated in breast milk, which may further contribute to the protection of the newborn. Observational studies conducted in the United Kingdom and the USA report that after the introduction of the pertussis / diphtheria / tetanus vaccine in pregnancy there was a significant reduction in neonatal deaths due to the disease and hospitalizations for pertussis, as well as a lower severity of ' infection in infants.

When to get vaccinated during pregnancy?

The peak of the antibody response in women vaccinated against pertussis occurs 2-4 weeks after the vaccine. The Italian National Vaccine Prevention Plan recommends one dose of pertussis / diphtheria / tetanus vaccine in the third trimester of each pregnancy (international recommendations suggest **between 27 and 36 gestational weeks**). Having been vaccinated against whooping cough in the past is no reason not to get vaccinated during pregnancy. If the vaccine was given during pregnancy but before 27 weeks, there is no indication to give it again.

The pertussis, diphtheria, tetanus

vaccine The pertussis vaccine is associated with the diphtheria and tetanus vaccine. **Tetanus** is an acute disease caused by a powerful toxin produced by a bacterium (*Clostridium tetanus*) capable of surviving for a

very long time in the environment in the form of a spore. The spores of the bacterium are ubiquitous in the external environment, especially in the soil and can penetrate the organism through lacerations of the skin. The disease is often fatal; when exceeded, it does not confer permanent immunity, therefore the only valid defense is vaccination. **Diphtheria** is an acute infectious disease that is contagious due to the toxin produced by a bacterium (*Corynebacterium diphtheriae*). It presents with typical whitish plaques adhering to the mucous membranes, especially at the level of the nose and throat. Complications are serious and target the heart, kidneys and central nervous system. The anti-diphtheria-tetanus-pertussis vaccine contains purified and inactivated (no longer toxic) tetanus and diphtheria toxins, pertussis antigens and adjuvant substances, which help stimulate the immune response. Administration takes place intramuscularly, in the upper arm (deltoid muscle).

What are the risks associated with vaccination?

Studies on the safety of diphtheria / tetanus / pertussis vaccines in pregnancy include hundreds of thousands of mother / infant couples and **do not** demonstrate increased risks of maternal-fetal complications related to vaccine administration.

A vaccine, like any other drug, can cause problems, such as severe allergic reactions, but the likelihood of this happening is extremely low.

It is much safer to get vaccinated during pregnancy than to risk the baby getting sick with whooping cough.

Minor adverse events are the most frequent. Local reactions: mild pain, redness and swelling at the injection site, sometimes associated with swelling of the local lymph nodes. Systemic reactions: fever, chills, general malaise, headache, muscle weakness, joint stiffness, itching, lymphadenopathy, nausea, vomiting, diarrhea may occur. These symptoms are almost always mild and lasting. Severe allergic reactions, which may manifest as difficulty in breathing, swelling of the throat, wheezing,

hypotension, tachycardia, hives, high fever, are extremely rare (<1 in 1 million doses). In case of manifestations such as high fever or signs of a severe allergic reaction, seek medical attention promptly and inform the Vaccination Center.

Contraindications / precautions to the administration of the vaccine

Who is allergic to the components of the vaccine.

Anyone who has experienced severe allergic reactions after receiving previous vaccinations tetanus, diphtheria or pertussis.

Who at the time of vaccine administration is severely or moderately ill.

Who has experienced syndrome Guillain Barré or brachial neuritis after administration of tetanus vaccine.

Who has suffered from thrombocytopenia, neurological disorders, temperature $\geq 40.0^{\circ} \text{C}$ following previous vaccination.

What alternatives are there to vaccination during pregnancy?

A possible alternative to the pertussis vaccine performed during pregnancy is to vaccinate **all** people who will be in close contact with the newborn (family members, people who will offer care to the child) immediately after delivery. However, this strategy confers only moderate levels of protection against whooping cough and only from 2 weeks of age, because this is the time it takes for antibodies to form after vaccination. For this reason the international scientific group GPI (Global Pertussis Initiative) indicates this strategy as secondary to the vaccine in pregnancy, which is recommended as the first choice.

How can I find out more?

- At the Vaccination Center
- From your trusted gynecologist

- By consulting the site: <http://www.epicentro.iss.it/>