Measles Mumps Rubella (MMR)

Information for women on measles mumps rubella (mmr) vaccine during pregnancy or breastfeeding

The information provided below is for readers based in the United States of America. Readers outside of the United States of America should seek the information from local sources.

What is the measles mumps rubella vaccine?

Measles mumps rubella (MMR) vaccine is a shot that is given to prime the immune system to defend the individual against measles, mumps, and rubella, all of which are extremely contagious diseases caused by viruses.

What is the MMR vaccine given to prevent or treat?

MMR vaccine is given to prevent measles, mumps, and rubella. Generally, the protection requires that the vaccine be given a few weeks at minimum prior to exposure to the virus. This is because full protection requires two doses of the vaccine, separated by at least 28 days. However, in the case of measles, the vaccine can be utilized as a treatment in the sense that it can be given to somebody who discovers that they have been exposed recently to a person with measles. If given within 72 hours of exposure to the measles virus, MMR vaccine can provide some amount of protection. Its not the full protection that comes with administration of the vaccine in two doses, but it can make an enormous difference, either by preventing the infection from producing disease altogether, or by dampening the bodys reaction to the virus, resulting in a more mild illness.

How does MMR vaccine work?

There are three components in the MMR vaccine, each a live virus designed to prime the human immune to protect against a disease. One component primes the immune system against measles, another against mumps, and the other against rubella. Each component virus is *live* in the sense that it can infect cells in the human body and multiply to produce more virus particles, but each virus also is *attenuated*, meaning it has been grown inside cells of animals (such as chickens or humans) in a laboratory culture (the cells are grown outside the body). Growing a virus in this way has the effect of

altering the virus to render it less virulent, meaning less aggressive, to human cells compared with the original virus that was used to infect the cells in the laboratory.

In the case of the measles and mumps components of the MMR vaccine, viruses that normally would produce measles and mumps in humans were *attenuated* by growing them in cultures of chick embryo cells and hens' eggs and chick embryo cell cultures. In the case of the rubella component, attenuation was achieved through growth in a line of human embryonic lung cells. After injection into a healthy human, each component of the MMR vaccine spreads through body cells without producing measles, mumps, or rubella. In the process, however, the proteins on the surface of the virus particles are presented to the persons immune system as if the person were being infected by the full-strength (un-attenuated) viruses that cause all three diseases. Over the course of a few weeks, the immune system responds in a way that offers partial, short-term protection against the measles, mumps, and rubella viruses should the person be exposed. At the same time, the immune system also starts producing an increasing number of components that can serve as sentinels able to recognize the three viruses over the long-term. This process of creating the long-term immunity is accelerated and amplified or boosted when the individual receives a second dose of the live, attenuated vaccine. In the case of MMR, the power of the second dose, the booster dose, is optimized when given from 28 days to a few years after the initial dose.

If I am taking MMR vaccine, can it harm my baby?

Health authorities recommend against giving MMR vaccine to women who are pregnant, or who are trying to become pregnant. The reason for this is that live vaccines present a theoretical risk to the developing baby, because the vaccine's ability to reproduce inside the mother means that they could infect the developing baby under certain circumstances.

If I receive MMR vaccine and become pregnant, what should I do?

Despite the theoretical risk of a live vaccine, should you discover that you became pregnant prior to, or just after receiving the MMR vaccine, there is no rationale for terminating your pregnancy. Instead, the US Centers for Disease Control and Prevention recommends that mothers-to-be who received MMR vaccination while pregnant should be counseled about the risks and benefits of receiving live vaccines during pregnancy.

If I am given MMR vaccine, can I safely breastfeed my baby?

Yes. Even though live, attenuated viruses reproduce inside the mother, most vaccines made from such viruses do not appear to enter human milk. A possible exception is the rubella component of the MMR vaccine, but this component does not infect nursing infants, even when it does get into the mothers milk. Furthermore, such viruses would be generally well tolerated in infants that do get exposed, because they are attenuated. At most, they would produce a mild reaction.

If I am given MMR vaccine, will it be more difficult to get pregnant?

The MMR vaccine should not affect your fertility negatively. If you are administered a dose of the vaccine, however, and are not yet pregnant, you should wait 28 days from the time of vaccination to be begin trying to get pregnant. If this was the first dose of MMR vaccine in your lifetime, you should furthermore wait 28 at least days and have your second dose of the vaccine, then wait several weeks again, before trying to become pregnant.

If I am given MMR vaccine, what should I know?

If you are in the process of staring a family, you should know that it is important to have been vaccinated with MMR prior to becoming pregnant, particularly to obtain the rubella vaccine component. This is because becoming infected with rubella virus during pregnancy, also possibly right before conception, can have dire consequences for the baby. In particular, maternal rubella can result in what is called congenital rubella syndrome (CRS) which shows up notoriously as deafness, eye problems (cataracts in particular), and congenital anomalies of the heart and great vessels.

If I am taking any vaccine, what should I know?

You may find Pregistry's expert report about vaccines during pregnancy here, reports about a variety of vaccines here, and reports about the various medications used for infections here. Pregistry also offers blog posts about vaccines here. Additional information can also be found in the resources at the end of this report.

Resources for MMR vaccine in pregnancy:

For more information about MMR vaccine during and after pregnancy, contact http://www.womenshealth.gov/ (800-994-9662 [TDD: 888-220-5446]) or check the following link:

- US Centers for Disease Control and Prevention: Pregnancy and Vaccination

Last Updated: 18-09-2018

General information

It is very common for women to worry about having a miscarriage or giving birth to a child with a birth defect while they are pregnant. Many decisions that women make about their health during pregnancy are made with these concerns in mind.

For many women these concerns are very real. As many as 1 in 5 pregnancies end in a miscarriage, and 1 in 33 babies are born with a birth defect. These rates are considered the background population risk, which means they do not take into consideration anything about the health of the mom, the medications she is taking, or the family history of the mom or the baby's dad. A number of different things can increase these risks, including taking certain medications during pregnancy.

It is known that most medications, including over-the-counter medications, taken during pregnancy do get passed on to the baby. Fortunately, most medicines are not harmful to the baby and can be safely taken during pregnancy. But there are some that are known to be harmful to a baby's normal development and growth, especially when they are taken during certain times of the pregnancy. Because of this, it is important to talk with your doctor or midwife about any medications you are taking, ideally before you even try to get pregnant.

If a doctor other than the one caring for your pregnancy recommends that you start a new medicine while you are pregnant, it is important that you let them know you are pregnant.

If you do need to take a new medication while pregnant, it is important to discuss the possible risks the medicine may pose on your pregnancy with your doctor or midwife. They can help you understand the benefits and the risks of taking the medicine.

Ultimately, the decision to start, stop, or change medications during pregnancy is up to you to make, along with input from your doctor or midwife. If you do take medications during pregnancy, be sure to keep track of all the medications you are taking.