# Pregnant Women, Guidelines for Vaccination & Immunization

It is important to be immunized against common and ordinary contagious diseases when you are pregnant. Being immunized will protect yourself and your unborn baby from becoming very ill from these infections. When possible immunizations should be given before getting pregnant. This is especially true if you live in a high risk area for contracting any of the diseases that have a vaccine.

Vaccines produce antibodies that protect you from getting the infection. Risk to a developing fetus from vaccination of the mother during pregnancy is mostly theoretical. No evidence exists of risk from vaccinating pregnant women with inactivated viral or bacterial vaccines or toxoids. Benefits of vaccinating pregnant women usually outweigh risks when:

- The likelihood of disease exposure is high.
- Infection would pose a risk to the mother or fetus.
- The vaccine is unlikely to cause harm.

Live-virus and live bacterial vaccines are not usually given to pregnant women. There is a possible risk of passing the vaccine virus or bacteria to the fetus. If a live-virus or live-bacterial vaccine is accidentally given to a pregnant woman, or if a woman becomes pregnant within 4 weeks after vaccination, she should be counseled about the potential effects on the fetus. It is not usually an indication to end the pregnancy. Whether live or inactivated (killed virus or bacteria) vaccines are used, vaccination of pregnant women should be considered on the basis of risks versus benefits.

## ROUTINE VACCINES:

### HEPATITIS A

The safety of hepatitis A vaccination during pregnancy has not been determined. Because hepatitis A vaccine is produced from inactivated hepatitis A virus, the theoretical risk to the fetus is expected to be low. The risk associated with vaccination should be weighed against the risk for hepatitis A in women who may be at high risk for exposure to hepatitis A virus. There is no known risk from the vaccine affecting the fetus.

### HEPATITIS B

On the basis of limited data, there is no apparent risk of adverse effects to the fetus when hepatitis B vaccine is given to pregnant women. The vaccine contains noninfectious HBsAg particles and should cause no risk to the fetus. Hepatitis B virus infection affecting a pregnant woman may result in:

- Severe disease for the mother.
- Abortion or chronic infection for the newborn.

Therefore, neither pregnancy nor breastfeeding should stop this vaccination of women. Hepatitis B vaccine is recommended for pregnant women at risk for hepatitis B virus infection. If the mother contracts Hepatitis B during pregnancy, her newborn baby should receive the vaccine and hepatitis B immune globulin.

### INFLUENZA (inactivated)

All women who will be pregnant during the influenza season should be vaccinated because of the increased risk for influenza-related complications. Vaccination can occur in any trimester. Pregnant women should only receive inactivated influenza vaccine. Pregnant women who develop influenza and are not vaccinated are at risk for:

- Severe disease.
- Spontaneous abortion.

### MEASLES

Measles-mumps-rubella (MMR) vaccine and its component (partial) vaccines should NOT be given to women known to be pregnant. There may be a risk to the fetus from these live virus vaccines. Women should avoid becoming pregnant for 28 days after vaccination with measles or mumps vaccines or MMR or other rubella-containing vaccines. If a pregnant woman is accidentally vaccinated or if she becomes pregnant within 4 weeks after an MMR vaccination, she should be counseled regarding the risk to the fetus. However, the MMR vaccine given during pregnancy should not be a reason to end the pregnancy.

MUMPS

Measles-mumps rubella (MMR) vaccine and its component (partial) vaccines should NOT be given to women known to be pregnant. There may be a risk to the fetus from injection of these live virus vaccines. Women should be counseled to avoid becoming pregnant for 28 days after vaccination with measles or mumps vaccines or MMR or other rubella-containing vaccines. If a pregnant woman is accidentally vaccinated or if she becomes pregnant within 4 weeks after MMR vaccination, she should be counseled regarding the risk to the fetus. However, MMR vaccination during pregnancy should not ordinarily be a reason to end the pregnancy.

PNEUMOCOCCAL

The safety of pneumococcal polysaccharide vaccine during the first trimester of pregnancy has not been studied. No problems have been reported among newborns whose mothers were vaccinated during pregnancy.

POLIO (IPV)

Although no adverse effects of IPV have been documented among pregnant women or their fetuses, vaccination of pregnant women should be avoided to be on the safe side. However, if a pregnant woman is at increased risk for infection and requires immediate protection against polio, IPV can be given according to the recommended schedules for adults.

RUBELLA

Measles-mumps rubella (MMR) vaccine and its component (partial) vaccines should NOT be given to women known to be pregnant. There may be a risk to the fetus from injection of these live virus vaccines. Women should be counseled to avoid becoming pregnant for 28 days after vaccination with:

- Measles or mumps vaccine.
- MMR.
- Other rubella-containing vaccines.

If a pregnant woman is accidentally vaccinated or if she becomes pregnant within 4 weeks after MMR vaccination, she should be counseled regarding the risk to the fetus. However, MMR vaccination during pregnancy should not ordinarily be a reason to terminate the pregnancy. Women who have not had rubella and are not vaccinated because they are or may be pregnant should be counseled about the potential risk for CRS (congenital rubella syndrome). They should also be informed about the importance of being vaccinated as soon as they are no longer pregnant.

TETANUS & DIPHTHERIA

Td toxoid is commonly indicated for pregnant women. Previously vaccinated pregnant women who have not received a Td vaccination within the last 10 years should receive a booster dose. Pregnant women who are not immunized or only partially immunized against tetanus should complete the primary series. Although no evidence exists that tetanus and diphtheria toxoids are harmful to the fetus or embryo, waiting until the second trimester of pregnancy to give Td is a reasonable warning for limiting any concern about the possibility of such reactions.

VARICELLA

The effects of the varicella virus vaccine on the fetus are unknown. Pregnant women should NOT be vaccinated with this live virus vaccine. Women who are vaccinated should also avoid becoming pregnant for 1 month following each injection. For people who are susceptible to the virus, having a pregnant household member is not a reason to avoid vaccination. If a pregnant woman is vaccinated by mistake or if she becomes pregnant

within 4 weeks after varicella vaccination, she should be counseled regarding the risk to the fetus. However, varicella vaccination during pregnancy should not be a reason to end the pregnancy. VZIG [Varicella Zoster Immune Globulin] should be strongly considered for susceptible pregnant women who have been exposed to the virus. The manufacturer & CDC have established a VARIVAX® Pregnancy Registry to monitor outcomes of women who got the vaccine 3 months before or any time during pregnancy.

## TRAVEL AND OTHER VACCINES:

### ANTHRAX

No studies have been done about the use of anthrax vaccine among pregnant women. Pregnant women should be vaccinated against anthrax ONLY IF the potential benefits outweigh the potential risks to the fetus.

### BCG

BCG is a vaccine that contains live bacteria. Although no harmful effects to the fetus have been associated with BCG vaccine, its use is NOT recommended during pregnancy.

### JAPANESE ENCEPHALITIS

This vaccine contains live virus. No specific information is available on the safety of JE vaccine in pregnancy. This vaccination poses an unknown but possible risk to the developing fetus. The vaccine should NOT be routinely given during pregnancy. Pregnant women who must travel to an area where risk of JE is high should be vaccinated when the possible risks of immunization are outweighed by the risk of infection to the mother and developing fetus.

### MENINGOCOCCAL

Studies have shown this vaccine to be both safe and effective when given to pregnant women. There are no reports of the vaccine adversely affecting the fetus. If indicated because of travel, vaccination should be offered to pregnant women.

### RABIES

Because of the possible danger of untreated exposure to rabies, and because there is no indication that problems with the fetus have been associated with the rabies vaccine (killed virus), it is not necessary for pregnant women to avoid the vaccine if exposed to rabies. If the risk of being exposed to rabies is great, pre-exposure treatment might also be suggested. There is no indication that fetal abnormalities have been associated with rabies vaccination. Pregnancy is not a reason to avoid vaccination against rabies. If the risk of exposure to rabies is substantial, preexposure prophylaxis might also be indicated during pregnancy.

### TYPHOID

There is no data on the use of any of the three typhoid vaccines among pregnant women. It is not recommended except in cases of very high risk of of exposure to typhoid. There are no reports of the vaccine adversely affecting the fetus.

### VACCINIA (SMALLPOX)

This is a live virus vaccine and is NOT recommended during pregnancy. Vaccinia vaccine should NOT be given to pregnant women for non-emergency reasons. However, vaccinia vaccine is not known to cause congenital problems. Although less than 50 cases of fetal vaccinia infection have been reported, vaccinia virus has been reported to cause fetal infection on rare occasions, almost always after the primary vaccination of the mother. Pregnant women who have had a definite exposure to smallpox virus are at high risk for contracting the disease and should be vaccinated. Definite exposure means the pregnant women has had:

- Face-to-face.
- Household.
- Close-proximity contact with a smallpox patient.

Smallpox infection among pregnant women has been reported to result in a more severe infection than among

non-pregnant women. The risks to the mother and the fetus from experiencing smallpox outweigh any potential risks from the vaccination. In addition, vaccinia virus has not been proven to cause developmental abnormalities to the fetus or embryo, and the incidence of fetal vaccinia is low. When the level of exposure risk is unknown, the decision to vaccinate should be made after evaluation by the caregiver and discussing with the patient the potential risks versus the benefits of smallpox vaccination.

YELLOW FEVER

The safety of yellow fever vaccination during pregnancy has not been proven. The vaccine (live virus) should be given only if:

- Travel to an area known to be infected is unavoidable
- An increased risk for exposure exists.

If international travel are the only reason to vaccinate a pregnant woman, rather than an increased risk of infection, efforts should be made to obtain a waiver letter from the traveling woman's caregiver. Pregnant women who must travel to areas where the risk of yellow fever is high should be vaccinated. Despite the apparent safety of this vaccine, infants born to these women should be monitored closely for:

- Evidence of congenital (existing at birth) infection.
- Other possible harmful effects resulting from yellow fever vaccination.

If vaccination of a pregnant woman is necessary, blood tests to document an immune response to the vaccine can be considered. To discuss the need for blood testing contact:

- The appropriate state health department.
- The Division of Vector-Borne Infectious Diseases.
- The Division of Global Migration and Quarantine at CDC.

If you are pregnant or thinking of becoming pregnant, check with your caregivers regarding current guidelines and recommendations. To be safe, see your caregiver before getting pregnant and get the necessary immunizations.

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