



## **Cytomegalovirus FAQs**

### **What is cytomegalovirus (CMV)?**

**Cytomegalovirus (CMV)** is a virus that can be transmitted to a developing fetus before birth. CMV is a member of the herpes family of viruses that also includes chickenpox and mono. Primary CMV infection occurs in people who have never been exposed to the CMV virus before. Once a person becomes infected with CMV, the virus remains alive but dormant inside that person's body for the rest of their lives.

Recurrent CMV infection, is when a dormant virus become active again. This can occur if a person's immune system becomes weakened such as in the elderly or in people who AIDs. CMV infection is usually harmless and rarely causes illness. However, for pregnant women, primary CMV infection can cause more serious problems than recurrent CMV infection.

Most women who are infected with CMV whether pregnant or not, will not develop any symptoms of the infection. Those that do experience symptoms may see fever, swollen glands or lethargy (feeling tired or rundown).

### **What is the prevalence of a CMV infection?**

About 50 to 85% of the adults in the United States will become infected with CMV by the time they turn 40. About half of expectant mothers have never been infected with CMV. About 1% to 4% of uninfected mothers have primary CMV infection during their pregnancy.

If a pregnant woman has never been exposed to CMV and has her first infection during pregnancy, there is a chance that the fetus could become infected before the mother's body can eliminate the virus. About one third of women who become infected with CMV for the first-time during pregnancy pass the virus to their unborn babies. Thus, CMV is the most common cause of congenital viral infection in the United States.

### **CMV and birth defects**



On average, about 40% of the babies born to mothers who had a primary CMV infection during pregnancy will become infected themselves. Of the 40% of babies who become infected, twenty percent of babies born with an infection develop medical complications over the first few years of life. Those symptoms can include low birth weight, deafness, blindness, mental retardation, small head, seizures, jaundice, brittle teeth and damage to the liver and spleen.

While a child may develop some of the above symptoms, no baby develops all the symptoms, and some infants have no symptoms at all. Each year in the United States, about 1 in 750 children are born with or develop disabilities as a result of CMV infection. For women who have been infected at least 6 months prior to conception, the rate of newborn CMV infection is about 1%, and these infants appear to have no significant illness or abnormalities.

### **CMV antibody testing**

Most CMV infections are rarely diagnosed because the virus usually produces few, if any, symptoms. However, people who have had CMV develop antibodies to the virus which remain in their body for the rest of their life. Two types of CMV antibodies may be found in the blood: IgM and IgG.

IgM antibodies are the first to be produced by the body in response to a CMV infection. They are present in most individuals within a week or two after the initial exposure. Eventually, after several months, the level of CMV IgM antibody usually falls below detectable levels. IgG antibodies are produced by the body several weeks after the initial CMV infection to provide long-term protection. Levels of IgG rise during the active infection, then stabilize as the CMV infection resolves and the virus becomes inactive.

Once a person has been exposed to CMV, they will have some measurable amount of CMV IgG antibody in their blood for the rest of their life. CMV IgG antibody testing can be used, along with IgM testing, to help confirm the presence of a recent or previous CMV infection. If both CMV IgG and IgM are present in a symptomatic patient, then it is likely that he or she has either recently been exposed to CMV for the first time or that a previous CMV infection has been reactivated. This can be confirmed by measuring IgG levels again 2 or 3 weeks later. A high level of IgG is not as important as a rising level. If



there is a 4-fold increase in IgG between the first and second sample, then the patient has an active CMV infection (primary or reactivated).

### **CMV and Donor Sperm Insemination**

The FDA requires that CMV testing be performed on all men who intend to donate sperm. A positive result, however, doesn't necessarily mean that a man will be ineligible to donate. Sperm banks will obtain semen samples from potential donors and then quarantine those specimens for at least six months. During that time, the man may have CMV antibody levels tested several times.

If the antibody tests indicate the possibility of a CMV infection close to the time of the sperm donation, the man will not be allowed to donate those specimens. If the testing is uncertain, those men will also not be allowed to donate those specimens. However, if a man tests positive for CMV IgG only, indicating a past infection, he will be allowed to donate. Those samples will be labeled in the sperm bank database as CMV positive.

### **Recommendations for choosing sperm for donor IUI**

Women who are considering attempting pregnancy with donor sperm should include CMV antibody testing as part of their infectious disease screening. Those women who have had a past infection are at very low risk of transmitting CMV infection to a fetus. They are at little to no risk from using a CMV positive donor. Women who have never been exposed to CMV however, should consider using a CMV negative sperm donor. Although the risk from CMV positive donors may be small, it is impossible to determine with certainty whether there might be some risk for infection. Therefore, for the CMV negative woman, these specimens are best avoided.

***If you test negative for CMV antibodies, you should consider choosing sperm from a donor who is also CMV negative***