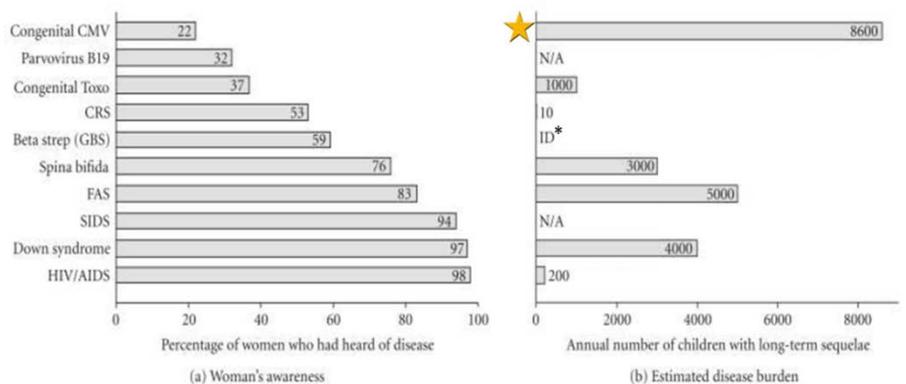


## FOR OBSTETRICAL HEALTH CARE PROVIDERS

### Some CMV Stats:

- About 40% of women (40 of every 100) who become infected with CMV for the first time (primary infection) during a pregnancy will pass the infection to their fetus. However, it is possible for damage to occur if a mother was infected for the first time *before* pregnancy but has a CMV reactivation or is infected with a different strain of CMV during pregnancy (secondary infection).
- About 1 in 150 children is born with congenital CMV infection. In Utah, this equates to approximately one child per day.
- CMV is the most common cause of congenital infection/malformation in developed countries.
- Congenital CMV infection is a known cause of pregnancy loss, still birth, or prematurity.
- About 1 of every 5 children born with congenital CMV infection (1 in every 750 children born in the United States) will develop permanent problems (such as hearing loss or developmental disabilities) due to the infection.
- Congenital CMV infections can only be prevented by preventing CMV infection in pregnant women. There is no available vaccine for preventing CMV. However, pregnant women can take steps that may reduce their exposure to CMV.
- Most women are unaware of CMV, and research has shown that many OB/GYNs do not counsel their patients about CMV or CMV prevention.
- Women who work with or have young children, or those with multiple sexual partners are at increased risk of CMV during pregnancy.



Jeon J, Victor M, Adler SP, et al. Knowledge and Awareness of Congenital Cytomegalovirus Among Women. *Infectious Diseases in Obstetrics and Gynecology* 2006;2006:80383. doi:10.1155/IDOG/2006/80383.

\* ID = Insufficient Data

## What should I tell my patients about CMV?

- If you're pregnant or planning a pregnancy, the best way to protect your baby from CMV is to protect yourself.
  - Don't share food, drinks, or eating utensils with a child.
  - Do not put a child's pacifier in your mouth.
  - Do not share a toothbrush with a young child.
  - Use soap and water or a disinfectant to clean toys, countertops, and other surfaces that may have a child's saliva or urine on them.
  - Avoid contact with a child's saliva when kissing or snuggling.
  - Wash your hands often with soap and water for 15-20 seconds, especially after:
    - changing diapers
    - feeding a young child
    - wiping a young child's nose or drool
    - handling children's toys
- The Utah Department of Health CMV Core Facts could be provided to patients as a source of basic information about CMV infection and prevention. There is also a brochure entitled, "[CMV What Women NEED TO KNOW](#)," that can be given to your patients.

## When should I screen my patients for CMV infection?

- When infected with CMV, most women have no symptoms, but some may have symptoms resembling mononucleosis or influenza. Women who develop a mononucleosis or flu-like illness during pregnancy should be tested for CMV.
- Testing should also be considered for women who have close contact with children or adults with known CMV infection.
- CMV can cause fetal abnormalities that are visualized by ultrasound. If abnormalities are detected during routine fetal ultrasonography, CMV testing may be important and should be discussed with a high-risk obstetrician (Maternal-Fetal Medicine physician).
- In women who have a stillbirth (fetal death  $\geq 16$  weeks gestation), CMV infection should be considered as a possible cause. The fetus should be evaluated for signs of CMV infection (through placental pathology and fetal autopsy). Maternal serology is not generally helpful in this situation.
- The value of screening asymptomatic pregnant women or women of childbearing age for CMV is uncertain. Women should discuss this with their obstetricians or primary care physicians. Women who show prior evidence of CMV infection through blood testing (immunity to CMV) have

considerable protection from the potentially damaging effects of CMV on the unborn infant, although this protection is not complete. Therefore all pregnant women, regardless of prior exposure, should take steps to reduce exposure to CMV (see ‘**Talking Points**’, above)

## If I suspect a maternal CMV infection, how do I test my patient?

- CMV antibodies (IgG and IgM) are tested on maternal serum.
  - IgG- IgM- indicates a woman is not immune to CMV and should be especially careful to prevent infection by avoiding contact with the saliva and urine of young children.
  - IgG+ IgM- indicates immunity to CMV. Women should still use the same precautions to avoid CMV, since **reinfection may still pose a risk to the fetus**.
  - IgG+ IgM+ indicates either a recent or past infection. The presence of CMV IgM is not solely indicative of primary infection. CMV IgM is detectable when a person 1) is newly infected, 2) has been infected in the past but recently re-exposed to CMV, 3) is undergoing reactivation of CMV infection that was acquired in the past, or 4) has a false-positive test result. Thus, the presence of CMV IgM should not be used by itself to diagnose primary CMV infection.

Recently, IgG avidity assays, which measure antibody maturity, have been shown to reliably detect recent primary CMV infection. When a person is infected with CMV for the first time, the body produces low-avidity IgG. After 2-4 months, the body begins to produce high-avidity CMV IgG. Low CMV IgG avidity suggests a primary CMV infection occurred within the past 2-4 months. High CMV IgG avidity suggests that CMV infection occurred at some point in the past. In the United States, CMV IgG avidity tests are not yet widely available commercially, but are available at some labs.

## What if my patient tests positive for CMV?

From Michael Cannon, Ph.D., CMV researcher at the Centers for Disease Control and Prevention:

- Pregnant women with primary CMV infections were significantly less likely to transmit CMV to transmit CMV to fetuses when treated with CMV hyperimmune globulin (HIG) (Nigro, NEJM, 2005).
- Some other observational studies reported a positive effect of HIG treatment (e.g. Visentin, CID, 2012).

However...

- Randomized controlled trial (RCT) in Italy found a modest but not statistically significant positive effect (Revello, NEJM, 2014)
- Also, the frequency of adverse obstetrical events was higher in the treated group.

A large, multi-center RCT is currently being conducted in the United States, and Utah is one of the participants:

Michael Varner, MD,

NICHD, MFMU Research Network: Prevention of Congenital CMV, Hyperimmune Globulin

Qualifications: < 20 weeks gestation, primary CMV infection

Contact: Utah MFMU Network Study Coordinator, Kim Hill

[kim.hill@hsc.utah.edu](mailto:kim.hill@hsc.utah.edu) or (801) 585-5586

## What are signs of congenital CMV infection before birth?

- Signs of fetal CMV infection may be seen on routine ultrasound. Possible findings include intrauterine growth restriction, microcephaly, ventriculomegaly, intracranial calcifications, and echogenic bowel.
- Fetal infection is diagnosed by PCR or viral culture of amniotic fluid collected by amniocentesis.
- Congenital CMV infection can be best diagnosed in an infant if the virus is detected in the urine or saliva within 2-3 weeks after birth (PCR testing is a preferred method).

## Where should I go for additional information about CMV?

- The Utah Department of Health CMV Core Facts is a resource for patients and health care providers. This and many other documents created for this initiative can be found at: [health.utah.gov/cm](http://health.utah.gov/cm)
- The CDC CMV website is an excellent source of information ([cdc.gov/cm](http://cdc.gov/cm))
- If you have a patient with possible CMV infection during pregnancy, or you have questions about CMV, please contact a high-risk obstetrician (Maternal Fetal Medicine physician) for consultation.

These facts were compiled by the CMV Core Facts Committee for Utah H.B. 81 (2013 General Session) UCA 26-10-10 Cytomegalovirus Public Health Initiative. Updated 7/10/13; updated 4/28/2015.