

# WHAT IS CYTOMEGALOVIRUS?



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## KEY MESSAGES

- Cytomegalovirus (CMV) is the most common viral infection in pregnancy and is the leading cause of non-genetic hearing loss in infants and one of the main causes of childhood disability
- Vertical transmission of CMV may occur from mother to baby during pregnancy
- Past infection with CMV does not confer complete protection against reinfection or congenital CMV
- Risk of mother to baby transmission of CMV is highest in the first trimester of pregnancy
- CMV is not currently part of routine antenatal or newborn screening in Aotearoa
- Midwives should discuss CMV with whānau at first antenatal appointment
- Hygiene measures considerably reduce the risk of contracting a primary maternal CMV infection
- Whānau with a child in daycare (or those working with young children) carry the highest risk of exposure to CMV

Human cytomegalovirus (CMV) is part of the herpes family and is the most common congenital viral infection. The CMV virus can remain dormant in the body over a long period after initial infection and women who have been exposed to CMV prior to pregnancy may have naturally acquired immunity. Transmission of CMV occurs through direct contact with bodily fluids (such as saliva, urine, blood, semen and breast milk) from individuals who are actively shedding the virus. CMV is extremely common and is found throughout all geographical locations and socioeconomic groups. Congenital cytomegalovirus (cCMV) infection is the most common congenital infection globally and has potentially severe consequences for infants. cCMV is the leading cause of non-genetic hearing loss in infants and one of the main causes of childhood disability.

CMV is excreted in the bodily fluids of

infected people, and children under the age of two (particularly those in day care environments) will carry the highest viral loads (Cannon et al., 2011). CMV can be transmitted from bodily fluids to hands, then to mucosal surfaces (such as the mouth).

**Cytomegalovirus is  
destroyed by soap and water**

## IMPACT OF CMV INFECTION

Most healthy adults and children who become infected with CMV will be asymptomatic and will not experience any long-term effects. Some infected people may display flu-like symptoms. If women contract CMV during pregnancy, the infection can pass directly from the mother to the baby (vertical transmission), and the earlier in pregnancy this occurs, the more risk there is to the baby. The highest likelihood of mother to baby transmission is following maternal primary infection in the first trimester (32% risk of intrauterine transmission; Leruez-Ville et al., 2024).

cCMV infection carries a significant burden with a 0.64% global prevalence (Leruez-Ville et al., 2024). cCMV is the most common infectious cause of disabilities in newborn babies and is associated with an increased risk of stillbirth, sensorineural hearing loss, visual problems, cerebral palsy, physical impairment, autism and learning disability.

Meta-analysis shows that although long-term sequelae, especially sensorineural hearing loss (SNHL), are more common in those with clinically detectable disease at birth, they are also found in 13% of those without clinical features attributable to cCMV on initial examination (Dollard, Grosse, & Ross, 2007).

## PRIMARY VERSUS SECONDARY INFECTION

The highest likelihood of adverse perinatal outcome occurs following maternal primary infection during the first trimester (associated with a 30–40% risk of intrauterine transmission; RANZCOG, 2023).

Secondary infection with CMV (also referred to as reinfection or reactivation of latent infection) during pregnancy is associated with a 1–3% risk of fetal infection; however, when fetal infection does occur during a secondary maternal infection with CMV, the potential for and severity of morbidity for the baby is similar to cases of primary infection. Although we don't have reliable prevalence rates of CMV seropositivity in Aotearoa, in Australia the rate of seropositivity is 40–60% within the childbearing population (RANZCOG, 2023).

## SCREENING

Although universal serological screening for CMV is not currently recommended in Aotearoa, early pregnancy screening with CMV IgG may be considered for women who are at high risk of infection. This includes women who work with young children, those displaying flu-like symptoms during pregnancy, and those who receive abnormal ultrasound results (such as periventricular echogenicity, ventriculomegaly and intraparenchymal calcifications). CMV is included within a TORCH screen.

Early determination of CMV serostatus may help in distinguishing between primary infection and reactivation/reinfection during pregnancy if clinically indicated, but does not remove the need to follow recommended hygiene measures. Women with suspected CMV infection in pregnancy should have CMV serology testing for IgG and IgM (and IgG avidity if CMV IgG and IgM are positive). Past infection with CMV does not confirm complete protection against reinfection or congenital CMV.

**Immunoglobulin M (IgM) antibodies are short-lived and their existence in the blood confirms that a new (primary) infection is present.**

**Immunoglobulin G (IgG) antibodies express their predominant activity during a secondary antibody response.**

## HOW TO AVOID INFECTION WHILE PREGNANT



**WASH HANDS  
OFTEN WITH SOAP  
AND WATER**



**CLEAN TOYS AND  
SURFACES CHILDREN  
HAVE PLAYED WITH**



**DON'T SHARE FOOD  
AND DRINK WITH  
CHILDREN**



**AVOID KISSING  
CHILDREN ON THE MOUTH.  
KISS ON THE HEAD**

The European Congenital Infection Initiative (ECCI) advocates for implementation of universal antenatal screening for CMV, followed by anti-viral therapy for mothers with a primary CMV infection in the first trimester of pregnancy (citing evidence of a 71% reduction in vertical CMV transmission, (Leruez-Ville et al., 2024). For further guidance on diagnosis and management see the RANZCOG Statement 'Prevention of congenital cytomegalovirus (CMV) infection', available from [www.ranzcog.edu.au](http://www.ranzcog.edu.au)

### PRACTICE GUIDANCE

The College recommends that midwives:

- inform women about CMV at the first antenatal appointment
- offer resources to provide further information about CMV, risk factors and preventative measures (see below for links to resources)
- ask women if they are in frequent contact with young children (especially those in day care) and, if so, explain the increased risk of CMV infection
- discuss how women can reduce the risk of infection (see infographic)
- consider the possibility of CMV infection if women present with a flu-like illness during pregnancy
- consider offering serological testing for high-risk women (close contact with children or those flu-like symptoms)
- as per the referral guidelines, recommend referral to an obstetric specialist when congenital CMV infection is suspected

on the basis of maternal serology or fetal ultrasound abnormalities. NB: Acute infection with CMV is a transfer under these guidelines

- recommend PCR testing (saliva or urine) for babies of mothers diagnosed with primary CMV infection during pregnancy (for babies older than three weeks the newborn metabolic heelprick sample can be used to test for cCMV but this method has lower sensitivity)
- recommend paediatric consultation for babies diagnosed with congenital CMV and ensure that a hearing screening risk factor surveillance form has been completed
- ensure the local newborn hearing screening team are aware when a mother has had a primary CMV infection during

### POSSIBLE SYMPTOMS OF cCMV IN NEW BORN

Petechiae

Congenital jaundice

Fetal growth restriction

Hepatosplenomegaly

Microcephaly

Lethargy or hypotonia

Poor suck

Eye inflammation

Seizures

pregnancy and when a baby is being tested for cCMV (including completing a risk factor form)

- inform general practitioners and Well Child providers of a diagnosis of cCMV

Antiviral treatment for infants with cCMV is only recommended if started in the first four weeks of life. Infants older than three weeks with symptoms of cCMV should still be investigated as their ongoing management may be informed by this diagnosis. Babies diagnosed with cCMV should be offered specialist follow up and are followed up in audiology until the age of five, due to the high risk of progressive hearing loss.

### ADDITIONAL CMV RESOURCES

Resource Hub: [www.cerebralpalsy.org.au](http://www.cerebralpalsy.org.au)

CMV Australia: [www.cmv.org.au](http://www.cmv.org.au)

CMV Action: [www.cmvaction.org.uk](http://www.cmvaction.org.uk)

CMV Foundation: [www.nationalcmv.org](http://www.nationalcmv.org)

RANZCOG guideline: [www.ranzcog.edu.au](http://www.ranzcog.edu.au) ■

References available on request.

### OCCUPATIONS AT HIGH RISK OF EXPOSURE TO CMV

Primary caregivers of pre-school aged children

Childcare workers

Paediatric health workers

Midwives

Teachers