

# **CYTOMEGALOVIRUS SURVEILLANCE PROTOCOL FOR ONTARIO HOSPITALS**

Developed Jointly by the Ontario Hospital Association and  
the Ontario Medical Association  
Joint Communicable Diseases Surveillance Protocols Committee  
In collaboration with the Ministry of Health and Long-Term Care

Approved by:  
The OHA, The OMA Board of Directors  
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This protocol was developed jointly by the Ontario Hospital Association and the Ontario Medical Association, in collaboration with the Ministry of Health and Long-Term Care, to meet the requirements of the *Public Hospitals Act 1990*, Revised Statutes of Ontario, Regulation 965.

This protocol is based on current scientific and medical knowledge and a desire to ensure maximum cost effectiveness of programs while protecting health care workers. It is intended as a minimum practical standard for Ontario hospitals. However, hospitals may adopt additional strategies when indicated by local conditions.

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# Rationale For Cytomegalovirus Surveillance Protocol

This rationale briefly summarizes current medical knowledge about cytomegalovirus (CMV) to address the need for information and reassure health care workers (HCWs) that CMV is not an occupational health and safety risk if Routine Practices are followed. For more detailed information, refer to the bibliography.

## The Virus

CMV is a widespread virus in the herpes virus family that infects a large portion of the world's population. CMV infects the majority of persons at some time during their lives, usually asymptotically, resulting in positive CMV serology. If infection is first acquired as an adult, the individual may exhibit transient "flu-like" symptoms. As with other herpes viruses, once a person is infected (primary infection), the virus remains latent in the body and may spontaneously reactivate at random intervals. Reactivation can occur in healthy people, and is common during pregnancy and in immunocompromised people. During reactivation, the person will usually be asymptomatic, but the virus will be present in various body fluids: blood, urine, saliva, cervical secretions, semen, breast milk, respiratory secretions.

Acute infection will result in the development of CMV IgM antibodies, followed by development of IgG antibodies. CMV IgG antibody indicates prior infection. In North America, CMV IgG is detectable in 50% to 60% of adults.<sup>1,2</sup> In Canada, over 50% of pregnant women are positive for CMV IgG antibodies.<sup>3</sup> However, CMV IgG does not confer lifelong immunity; reinfection and reactivation can occur in individuals with detectable CMV IgG antibodies.

## Transmission

Transmission occurs through parenteral exposure, intimate mucosal contact, or *in utero*. Transmission of CMV from person to person requires intimate contact with secretions or body fluids of an infected person. This most frequently happens by sexual contact, but the virus can also be transmitted by blood transfusions and by transplacental transfer of virus from mother to fetus.

Asymptomatic excretion of CMV in saliva and urine of young children can result in transmission to other children, their parents and daycare workers. Asymptomatic CMV shedding is common in children. Studies have shown that CMV is excreted in the urine or saliva of 5% of normal healthy infants, 13% of premature infants, up to 50% of older infants, and up to 60% of children from 1-5 years old in day care centres.<sup>4</sup> Therefore, healthcare workers (HCWs) caring for infants or children will regularly come in contact with patients excreting CMV in their body fluids.

Transmission in healthcare settings can occur, but the overall risk of infection for HCWs, including pregnant HCWs, is low. HCWs, regardless of the type of patient they work with, do not have an increased risk of developing CMV infection compared with the general population.<sup>5-9</sup> The annual rate of seroconversion (primary infection) among healthcare workers in several studies was 2.3%, compared with 2.1% among pregnant women in the community.<sup>5</sup> **Adults including HCWs are at a much higher risk of acquiring CMV from children living in the same household and shedding CMV (up to 30% annual seroconversion rate) than from an occupational exposure.**<sup>5</sup> Women who have young children in day care centres are far more likely to be exposed to CMV from their own children than from their occupation.

## The Risks

The greatest risk associated with CMV infection is the possibility of congenital infection in the newborn. Congenital infection can occur if the mother has a primary infection or reactivation during pregnancy, and occurs in 1 to 1.5% of all live births.<sup>3,10,11</sup> Infection is transmitted to the fetus at a higher rate with primary infection during pregnancy (estimated rate: 30-40%)<sup>11-13</sup> than with reactivation (estimated rate: <1.5%).<sup>11</sup> However, most congenital CMV infections are thought to result from reactivation of the virus in the mother, rather than from primary infection of the mother, because most adults have already had their primary infection and reactivation infection is common during pregnancy.<sup>14</sup>

Ten to 15% of infants born with congenital CMV infection will be symptomatic.<sup>11</sup> The small percentage born *with* symptoms may have physical and/or neurologic defects, the most common being deafness. Symptoms are more likely to be severe and long lasting with primary maternal infection (vs. reactivation), and with maternal infection during the first half of pregnancy.<sup>15</sup>

## Prevention: Routine Practices

To prevent transmission of CMV in a health care setting, workers must practice careful hand hygiene after all patient and patient environment contact, and use Routine Practices for all patient interactions. Staff must wear gloves if they expect to contact body secretions or excretions (including urine and saliva) or mucous membranes and must practice careful hand hygiene after removing gloves. Because patients who are excreting CMV are usually asymptomatic and cannot be readily identified, workers must take these precautions with **all** patients. Kissing or cuddling infants and young children brings the mucous membranes of the mouth, nose and eyes into proximity of the oral and respiratory secretions of the infant, which may contain CMV; this practice by HCWs caring for infants and young children must therefore be prohibited.

Serologic evaluation to determine the CMV antibody status of women who work in

hospitals is not recommended.<sup>16</sup> Women who are seropositive during pregnancy may still be at risk of having infants congenitally infected from maternal reactivation.

Pregnant women are at no increased risk of primary CMV infection compared with non-pregnant women. There is no prevention for reactivation of the virus during pregnancy in previously infected individuals. **Because of the potential risk to the fetus, and the wide prevalence of this virus in patients' body fluids, pregnant women must scrupulously and consistently adhere to routine infection prevention and control practices, including hand hygiene, with *all* patients.**

# Cytomegalovirus Surveillance Protocol for Ontario Hospitals

Developed by  
The Ontario Hospital Association and The Ontario Medical Association  
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## I. Purpose

The purpose of this protocol is to assist Ontario hospitals in managing cytomegalovirus (CMV) infections among employees and other workers, and for preventing transmission of CMV from patients to persons carrying on activities in the hospital.

## II. Applicability

This protocol applies to all persons carrying on activities in the hospital including employees, students, volunteers, undergraduate and postgraduate medical trainees, physicians and contract workers. The term health care worker (HCW) is used in this protocol to describe these individuals. This protocol does not apply to patients or residents of the facility or visitors.

When hiring contract workers or training students, the hospital must inform the supplying agency/school that the agency/school is responsible for ensuring that their personnel are educated and managed according to this protocol.

**This protocol is for use by the Occupational Health Service (OHS) in hospitals.**

## III. Pre-placement

Screening for susceptibility or immunity to CMV in persons carrying on activities in the hospital is neither required nor recommended. If screening has been done, results do not affect HCW placement.

## IV. Continuing Surveillance

No routine screening for susceptibility or immunity to CMV in persons carrying on activities in the hospital is needed.

### ***Pregnant Health Care Workers***

Since there is no evidence of increased risk of infection among HCWs working with infants, young children or immunocompromised patients, **susceptible HCWs (including pregnant women) need not be reassigned to other units.**

## **V. Exposure**

The principal reservoirs of CMV in the hospital are infants, young children and immunocompromised patients. The virus can be shed in urine, saliva, respiratory secretions, breast milk, semen and cervical secretions.

Most persons infected with CMV are asymptomatic; therefore, only a minority of infected patients are identified.

**All HCWs may be potentially exposed to CMV and must observe routine infection prevention and control practices including hand hygiene before and after *all* patient and patient environment contact. Contact with the secretions of *all* patients should be prevented by use of appropriate barriers as indicated by Routine Practices. HCWs should avoid kissing or cuddling hospitalized babies and young children.**

## **VI. Acute Disease**

HCWs who develop illness thought to result from CMV need not be restricted from work. To reduce the risk of transmission of CMV infection to patients or others, they must practice careful hand hygiene and exercise care to prevent their body fluids from contacting other persons.

Pregnant women who develop symptoms consistent with acute CMV infection should be referred to their personal physician for assessment, counseling and follow-up. Guidelines for management and follow up are available from the Society of Obstetricians and Gynaecologists of Canada.<sup>16</sup>

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