

# Health Care Worker (Pregnant) - Infectious Diseases Risks and Exposure



## 1. Purpose

The purpose of this guideline of the Royal Women's Hospital (the Women's) is to provide accurate information on the risks to pregnant Health Care Workers (HCWs) in the event of an exposure to a transmissible infectious disease.

### Persons Affected

All Category A, B & C staff (refer to Definitions below).

## 2. Definitions

**Risk Categories:** HCWs are categorised according to their risk of contact with infectious agents, the categories being determined by the degree of contact each staff member will have with potentially infectious agents.

**Category A:** HCWs who have contact with patients and/or blood or body substances or infectious material e.g. nurses, doctors, allied health, laboratory, biomedical and engineering, SPS staff, PSA's, cleaners.

**Category B:** HCWs who have no contact with patients and/or blood or body substances or infectious material. E.g. Health information staff and gardeners.

**Category C:** Laboratory Staff

**Standard Precautions:** Infection Control practices designed for the care of all patients in hospital, regardless of their diagnosis, carrier or infection status.

## 3. Responsibilities

It is the responsibility of all staff (for example: medical, nursing, allied health and PSA) who have patient contact as above to familiarise themselves with this guideline and seek appropriate medical advice following an exposure to a potentially contagious infectious agent.

## 4. Guideline

### 4.1 General Information

All HCWs are advised to use standard precautions for the care of all hospitalised patients as per Hospital guideline: [Infection Control Standard Precautions](#). In general, adherence to Standard Precautions and maintaining high standards of general hygiene in the workplace will provide staff with the necessary protection and prevent the acquisition of infection.

This guideline relates to infections which are both potentially significant in pregnancy and have some possibility of being acquired through patient care. It is not a detailed account of all infectious agents that may be of relevance to pregnant women.

Please consult the Infection Prevention and Control Department for information on any diseases/infections not included in this guideline.

### Preventative Interventions

- Ensure immunisation status is reviewed and updated according to hospital guideline: [Staff Immunisation](#), before or at commencement of employment.
- Document immune status (previous infection or immunisation) on Staff Immunisation Form.
- Update recommended immunisations including (but not limited to):
  - **Influenza vaccine.** An influenza vaccine is strongly recommended for pregnant women during any stage of pregnancy.
  - **Pertussis (whooping cough) vaccine.** A pertussis vaccine is strongly recommended before planning pregnancy or as soon as possible after birth. Alternatively, the whooping cough vaccine can be given during the third trimester. The booster is recommended if 5 years have passed between the last dose and the expected delivery date.
- Practice Standard Precautions in the care of all patients and Transmission Based Precautions as per hospital procedure: [Infection Control Transmission Based Precautions](#) for the care of those patients who are known to be infected. This is adequate for preventing respiratory infections and transmission of multi

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resistant organisms.

- Regular, thorough and appropriate hand hygiene is essential at all times and is one of the key preventative practices of infection control.
- Practice safe waste handling and disposal techniques to avoid injury or exposure to blood or body fluids.

## After exposure to an Infectious Agent

Specific precautions required for the infections listed below are found in the [Infection Control Transmission Based Precautions](#) procedure. In the event of a pregnant HCW's exposure to a potential pathogen, the following guidelines should be followed:

**Risk Assessment:** Consider the following factors in conjunction with the treating Obstetrician, Infectious Diseases Consultant or Infection Prevention and Control Consultant to determine the potential effect on the foetus if the infection is acquired by a pregnant HCW:

- The HCW's trimester of pregnancy
- Whether the HCW has a history of previous infection (and may be immune) or been vaccinated against that infection
- The risk of transplacental transmission
- The risk for clinical manifestations when infection does occur
- The severity of clinical manifestations
- The route of transmission
- The specific body fluid likely to contain the infectious agent
- The portal of entry
- The infectivity of the agent, and subsequent risk of acquisition by HCW from patient
- The likelihood of exposure either in hospital or outside hospital to asymptomatic carriers or undiagnosed patients who have not been identified.

## Action:

- Contact Infection Prevention and Control for advice.  
Follow up may include:
  - Confirming the nature of the infection in the 'source' patient to whom the HCW was exposed. This may require discussion with the patient's medical team.
  - Assessment of previous exposure/immunity may be performed by serological testing of stored antenatal blood of the pregnant HCW (all laboratories performing antenatal screening are legally required to keep this blood for a minimum of 12 months). This assessment will determine whether the HCW is at risk of primary infection.
  - Referral to HCW's treating Obstetrician if required.
  - Possible administration of vaccine, immunoglobulin or other appropriate chemoprophylaxis after consultation with the HCW's treating Obstetrician and Infectious Diseases Physician.

## 4.2 Potentially significant infections for the Pregnant HCW

### Cytomegalovirus (CMV)

60% of women of childbearing age in Australia (including HCWs) will be seronegative for CMV and therefore susceptible to primary CMV infection during pregnancy. In general, HCW are not at increased risk of CMV acquisition in the workplace; their risk is equivalent to that of the general public. However HCW with exposure to newborn infants are at slightly increased risk of acquisition in the workplace.

Routine antenatal screening is not recommended, but may be considered following discussion with the HCWs Obstetrician.

As with all herpes viruses, CMV exhibits latency. Following primary infection, CMV persists and is intermittently shed in secretions eg. saliva & urine.

There is a high incidence of asymptomatic CMV excretion (particularly in saliva and urine) among infants and toddlers, and particularly congenitally infected infants. Unrecognised exposure may therefore occur at any time. However, transmission can be avoided by maintaining standard precautions (particularly following nappy change, and avoidance of kissing infants and sharing eating utensils). This applies to all HCWs whether they are pregnant or not.

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## Effect of primary maternal CMV infection on pregnancy”

- The rate of transplacental CMV transmission if primary infection occurs during pregnancy is 40%. 1 - 2% of women will acquire primary infection during pregnancy.
- Where transmission occurs, 10% of infected infants will be symptomatic at birth.
- Of those who are infected but asymptomatic at birth, 5%-10% will develop varying degrees of hearing loss and subtle learning and behavioural disorders.

## Rubella Virus

Rubella is a vaccine preventable infection. All HCWs born after 1966 should have two documented doses of Measles, Mumps and Rubella (MMR) vaccine. HCWs considering pregnancy should discuss prenatal rubella IgG testing with their medical practitioner. A MMR booster may be given prior to conception if rubella IgG levels are <10 IU/ml. Note that MMR is a live vaccine and should not be administered within 28 days of conception or during pregnancy.

Serious congenital abnormalities most commonly follow rubella infection occurring in the first trimester of pregnancy.

### Effect of maternal Rubella infection on pregnancy:

- The severity and nature of the congenital rubella syndrome (CRS) depend on the stage of pregnancy when the maternal infection occurred. For example cardiac defects are more common in the first 10 weeks of pregnancy, while solitary sensorineural deafness may be seen after 12 weeks gestation.
- CRS occurs in 25% of infants born to mothers who have rubella during the first trimester of pregnancy.
- The incidence of congenital defects in infants born to mothers who have rubella by the 16<sup>th</sup> week of pregnancy is 10 – 20%.
- Defects are rare if rubella occurs after the 20<sup>th</sup> week of pregnancy.

## HIV (Human Immunodeficiency Virus)

- In general, the risk of seroconversion after a needlestick injury is 0.3%.
- Seroconversion after mucous membrane or non-intact skin exposure is considered to be less than 0.2%.
- Congenital HIV infection is very uncommon in Australia, largely due to the low prevalence of HIV in pregnant women and the use of highly active antiretroviral therapy (HAART).
- HIV infection during pregnancy can safely be treated with certain antiretrovirals under consultation with a specialist in HIV medicine.

### Effect of maternal HIV infection on pregnancy:

- Most transmission to the baby occurs at the time of delivery. Maternal viraemia (eg. during primary infection or late stage disease), delivery before 34 weeks of gestation; breast feeding or if the child is the firstborn of a multiple gestation also increases the risk
- Chemoprophylaxis administered to HIV infected women and their newborns reduce the risk of perinatal transmission by approximately two-thirds.
- HIV infected infants are usually asymptomatic during the first few months of life. The median age of onset of symptoms is estimated to be three years for infants infected perinatally, but some remain asymptomatic for more than 5 years.

## Human Parvovirus B19 (Slapped Cheek)

It is important to determine a definitive diagnosis of parvovirus in order to exclude rubella, and to appropriately manage parvovirus in pregnancy.

50 – 60% of women are immune to parvovirus by the time they are of childbearing age.

### Effect of maternal parvovirus infection on pregnancy:

- The risk to unborn babies is low and infection does not cause congenital abnormalities.
- If a non-immune pregnant woman is infected, one-third of babies will develop infection.
- In rare cases infection in the first 20 weeks of pregnancy may cause foetal anaemia with fetal hydrops. Foetal death occurs in less than 10% of these cases.
- Specialist obstetric advice should be sought by pregnant women who may have been in contact with parvovirus infection so that testing can be performed to determine immune status.

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## Varicella Zoster Virus (Chickenpox)

Varicella is a vaccine preventable infection. All HCWs should have a history of varicella infection or vaccination. HCWs considering pregnancy should discuss varicella IgG testing with their medical practitioner if they are unsure of their history. A varicella vaccination course may be given prior to conception if varicella IgG levels are undetectable or equivocal. Note that the varicella vaccine is a live attenuated virus and should not be administered within 28 days of conception or during pregnancy.

Maternal varicella infection 5 days before and 2 days after delivery may lead to neonatal infection.

This is the most dangerous time for a pregnant woman to acquire chickenpox as the newborn infant is exposed to a high viral load and may have little or no immunity. For these reasons non-immune pregnant women should not nurse patients with diagnosed or suspected chickenpox.

### Effect of maternal chickenpox infection on pregnancy:

Varicella infection in the non-immune mother before 20 weeks of pregnancy can occasionally result in foetal varicella syndrome. The highest risk (2.5%) occurs between 12-28 weeks with a lower risk in the first trimester (0.55%).

If Varicella infection occurs in the third trimester of pregnancy it may precipitate the onset of early labour.

Pregnant women who are susceptible (non-immune) and have been exposed to Varicella should seek specialist obstetric advice and may be offered zoster immune globulin (ZIG) and antiviral therapy. ZIG must be given within 96 hours of exposure in order to provide maximum protection.

## Herpes Viruses (HSV)

Either HSV1 or HSV2 can cause neonatal infection; 20 - 50% of cases are due to HSV1.

Perinatal transmission through the maternal genital tract occurs in 70 - 85% of cases, usually presenting between Day 5 and 19.

Postnatal acquisition occurs in 10% of cases and presents as above.

Intrauterine or transplacental transmission occurs in 5% of cases and usually presents within 48 hours of birth.

Transmission is 10 times more likely to occur with primary than with recurrent infection, both of which may be asymptomatic in women.

More than 70% of women who give birth to infants with neonatal HSV infection give no history of genital HSV in themselves or their partners.

### Effect of maternal herpes infection on pregnancy:

- A baby's risk of acquiring herpes from an asymptomatic mother with a history of recurrent genital herpes is less than 3%.
- 45% of neonates who acquire maternal herpes will exhibit localised skin, eye and/or mouth disease. 30% eventually develop disseminated disease or central nervous system involvement. 50% of neonates will exhibit central nervous system disease (encephalitis or more disseminated disease). The mortality rate in this group is 15%, and 50 - 60% of survivors will show signs of psychomotor retardation, with or without microcephaly, spasticity or blindness etc.
- 20% of neonates will have disseminated disease involving any organ (primarily liver and adrenals), and encephalitis will present in 70% of cases. The mortality rate in these babies is 50 - 60% (in spite of treatment) and neurological sequelae will occur in 40%.

## 5. Evaluation, monitoring and reporting of compliance to this guideline

Compliance to this guideline will be monitored and evaluated through staff reporting and the incident reporting system (VHIMs).

## 6. References

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### 7. Legislation/Regulations related to this guideline

Not applicable.

### 8. Appendices

Not applicable.

#### PGP Disclaimer Statement

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