South Australian Perinatal Practice Guideline

# Rubella Infection in Pregnancy



**Note:**

This guideline provides advice of a general nature. This statewide guideline has been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach. The guideline is based on a review of published evidence and expert opinion.

Information in this statewide guideline is current at the time of publication.

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Health practitioners in the South Australian public health sector are expected to review specific details of each patient and professionally assess the applicability of the relevant guideline to that clinical situation.

If for good clinical reasons, a decision is made to depart from the guideline, the responsible clinician must document in the patient's medical record, the decision made, by whom, and detailed reasons for the departure from the guideline.

This statewide guideline does not address all the elements of clinical practice and assumes that the individual clinicians are responsible for discussing care with consumers in an environment that is culturally appropriate, and which enables respectful confidential discussion. This includes:

- The use of interpreter services where necessary,
- Advising consumers of their choice and ensuring informed consent is obtained,
- Providing care within scope of practice, meeting all legislative requirements, and maintaining standards of professional conduct, and
- Documenting all care in accordance with mandatory and local requirements

*Note: The words woman/women/mother/she/her have been used throughout this guideline as most pregnant and birthing people identify with their birth sex. However, for the purpose of this guideline, these terms include people who do not identify as women or mothers, including those with a non-binary identity. All clinicians should ask the pregnant person what their preferred term is and ensure this is communicated to the healthcare team.*

"**Aboriginal and Torres Strait Islander recognition statement:** We use the term 'Aboriginal' to refer to people who identify as Aboriginal, Torres Strait Islander, or both Aboriginal and Torres Strait Islander. We do this because the people indigenous to South Australia are Aboriginal and we respect that many Aboriginal people prefer the term 'Aboriginal'. We also acknowledge and respect that many Aboriginal South Australians prefer to be known by their specific language group(s)."

***Australian Aboriginal Culture is the oldest living culture in the world, yet Aboriginal people continue to experience the poorest health outcomes when compared to non-Aboriginal Australians. In South Australia, Aboriginal women are 2–5 times more likely to die in childbirth and their babies are 2–3 times more likely to be of low birth weight. The accumulative effects of stress, low socio-economic status, exposure to violence, historical trauma, culturally unsafe and discriminatory health services, and health systems are all major contributors to the disparities in Aboriginal maternal and birthing outcomes. Despite these unacceptable statistics, the birth of an Aboriginal baby is a celebration of life and an important cultural event bringing family together in celebration, obligation, and responsibility. The diversity between Aboriginal cultures, language and practices differ greatly and so it is imperative that perinatal services prepare to respectfully manage Aboriginal protocol and provide a culturally positive health care experience for Aboriginal people to ensure the best maternal, neonatal and child health outcomes.***

***Explanation of the Aboriginal artwork***: The Aboriginal artwork used symbolises the connection to country and the circle shape shows the strong relationships amongst families and the Aboriginal culture. The horseshoe shape design shown in front of the generic statement symbolises a woman and those enclosing a smaller horseshoe shape depicts a pregnant woman. The smaller horseshoe shape in this instance represents the unborn child. The artwork shown before the specific statements within the document symbolises a footprint and demonstrates the need to move forward together in unison.

## Aim and Scope of PPG

This guideline provides clinicians with information to support and manage women and infants with Rubella (German Measles). Note that the recommendations in this guideline have been adapted from Australasian Society for Infectious Diseases (ASID) Guidelines, 3rd edition, 2022.

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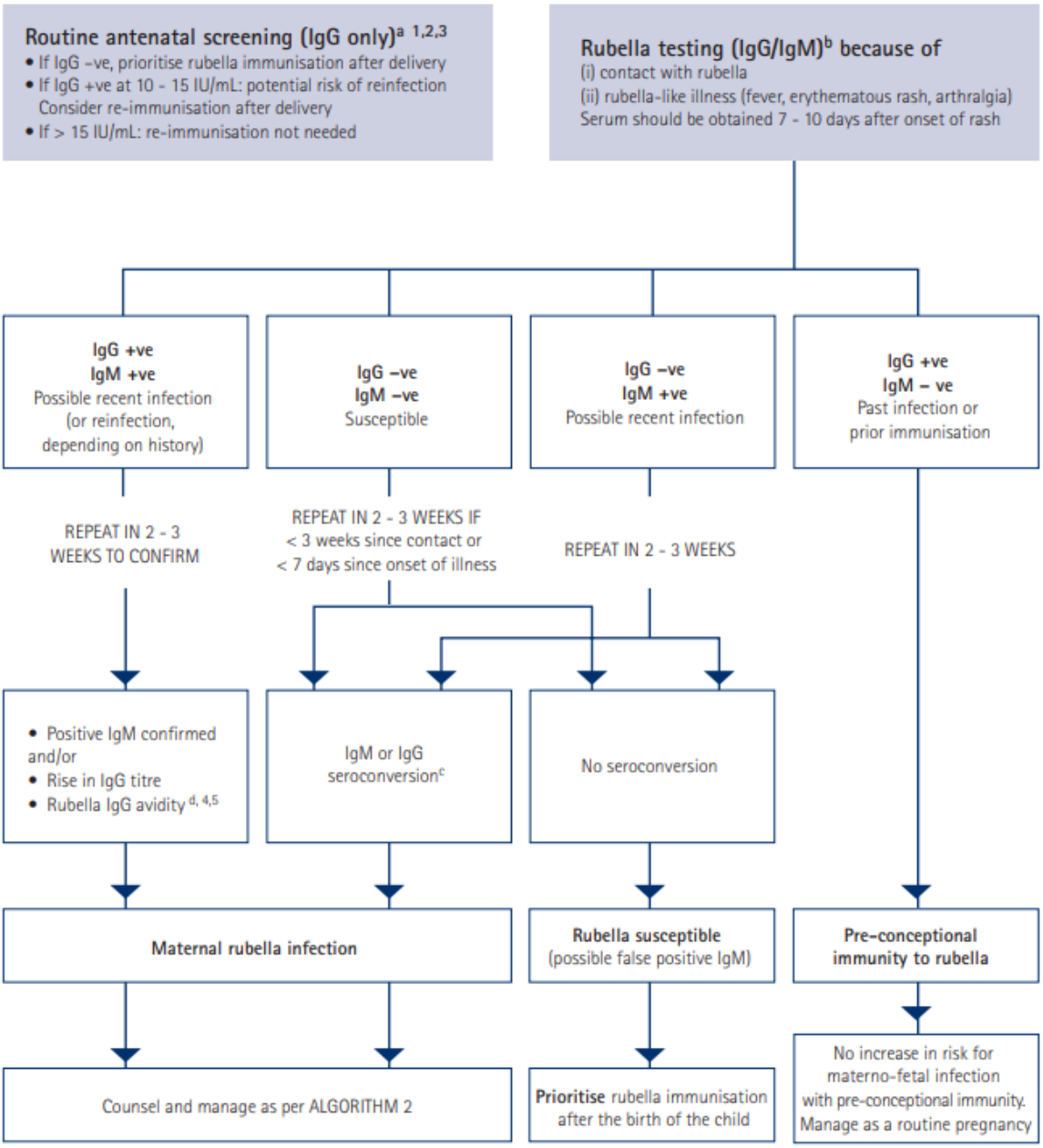
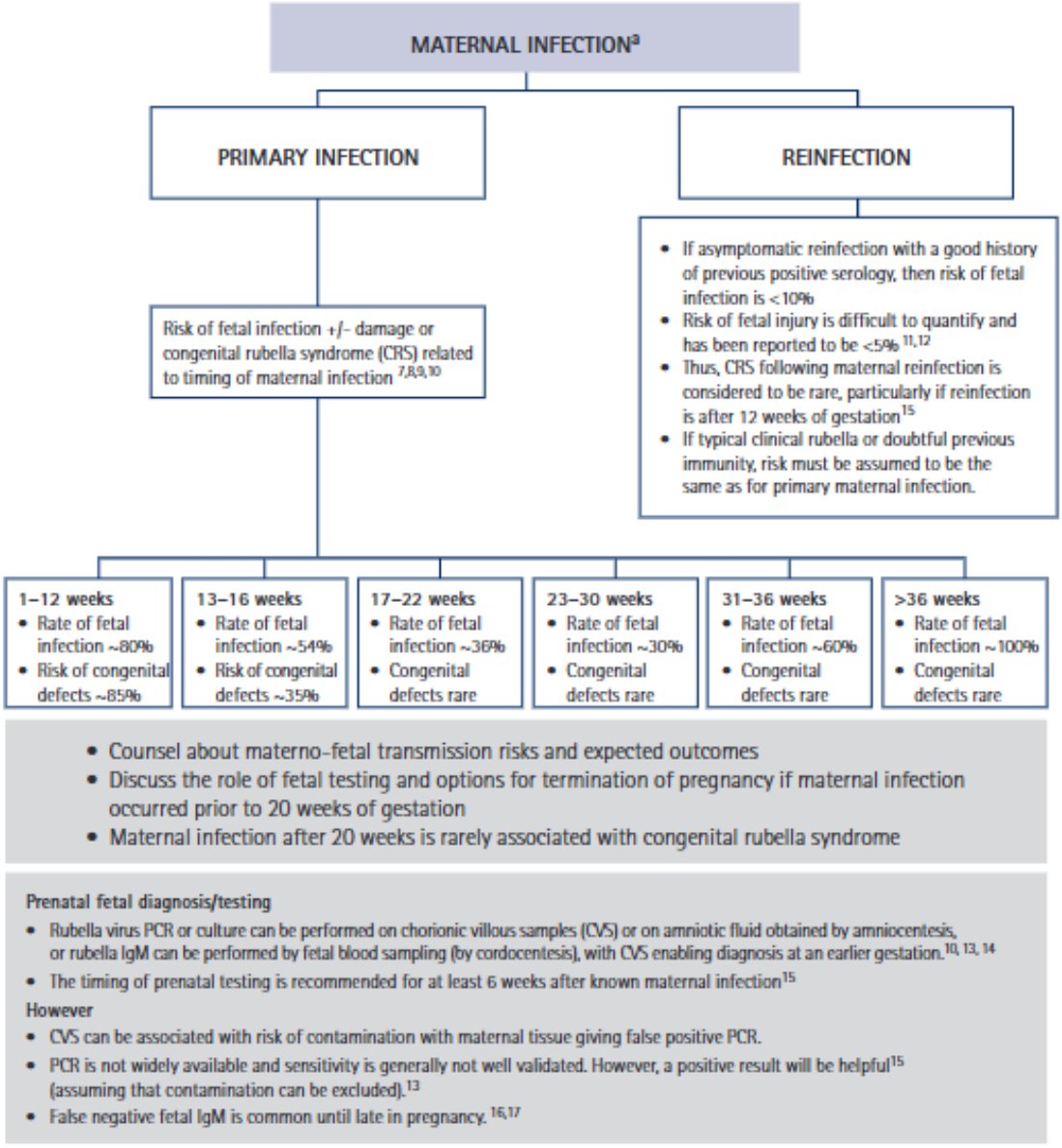
## Flowchart 1| Diagnosis of Suspected Maternal Rubella Infection



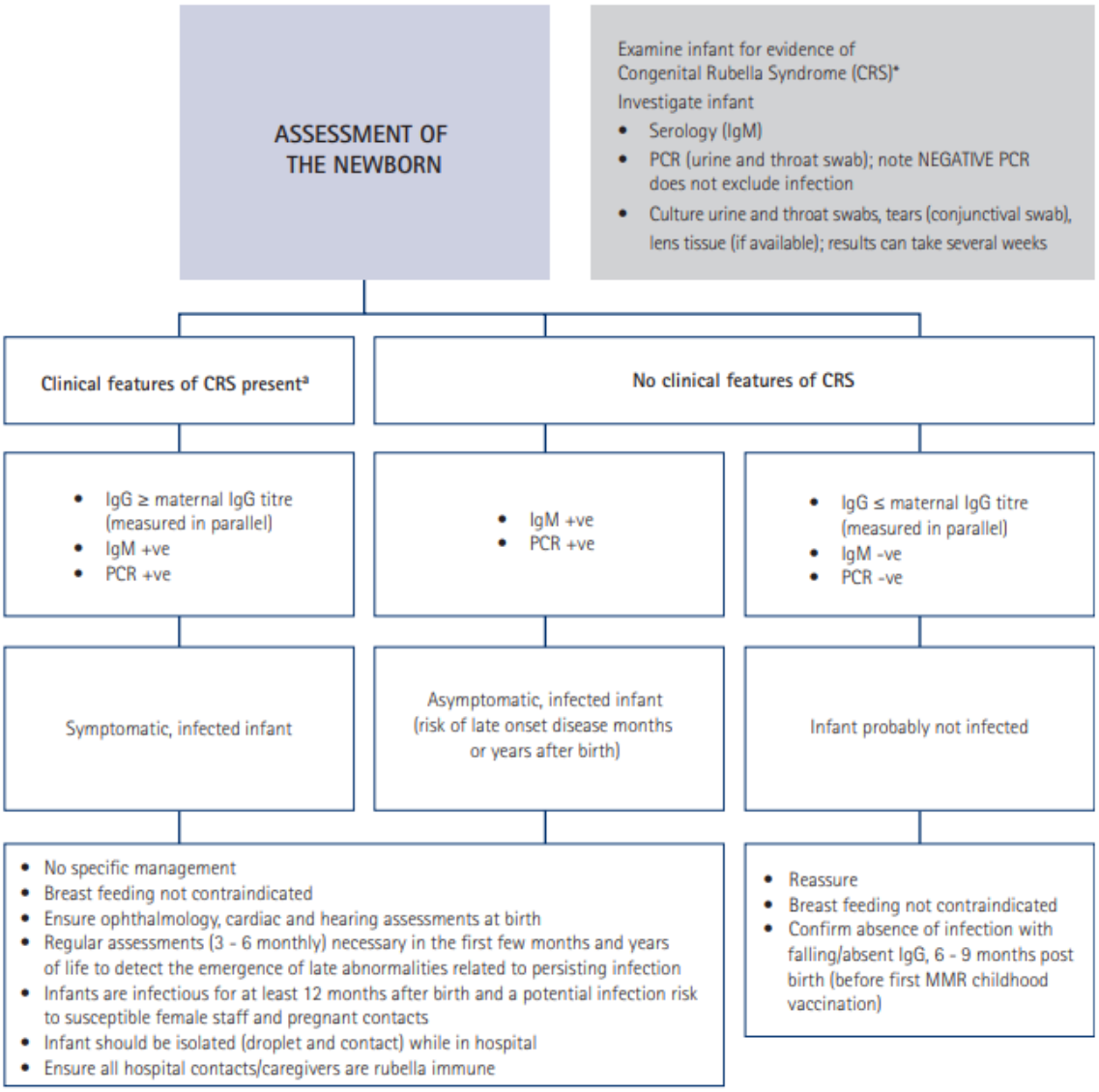

*Rubella: ASID Algorithm 1 – Diagnosis of Suspected Maternal Rubella Infection.* Reproduced with permission from the Australasian Society for Infectious Diseases (ASID) Guidelines , 3rd Edition, 2022

## Flowchart 2| Management of Proven Maternal Rubella Infection




*Rubella: ASID Algorithm 2 – Management of Maternal Rubella Infection.* Reproduced with permission from the Australasian Society for Infectious Diseases (ASID) Guidelines, 3rd Edition, 2022.

## Flowchart 3| Neonatal Management and Follow Up




*Rubella: ASID Algorithm 3- Management and Follow up of the Infant at risk of Infection.* Reproduced with permission from the Australasian Society for Infectious Diseases (ASID) Guidelines, 3rd edition, 2022

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## Summary of Practice Recommendations

**Routine antenatal screening for rubella IgG is recommended** for all pregnant women at their first antenatal visit.

No re-immunisation required if IgG positive (> 15 International Units/mL).

Prioritise immunisation postnatally if IgG negative.

Consider re-immunisation after birth if IgG positive (at 10–15 International Units/mL) or potential risk of reinfection.

**All** pregnant women who have contact with rubella or clinical features consistent with rubella-like illness should be screened for the presence of rising antibody titre and/or rubella specific IgM.

If testing shows maternal infection, determine if primary or reinfection.

Counsel about materno-fetal transmission risks and expected outcomes.

Discuss fetal testing and options for termination for medical reasons if infection occurs prior to 20 weeks' gestation.

Examine neonatal for signs of Congenital Rubella Syndrome (CRS) post birth.

Send placenta for anatomical pathology.

Breastfeeding is encouraged.

Confirm absence of infection 6-9 months post birth (before first MMR vaccine).

## Abbreviations

| | |
|---|---|
| **>** | Greater than |
| **≥** | Equal to or greater than |
| **<** | Less than |
| **≤** | Equal to or less than |
| **g** | Gram(s) |
| **mL** | Millilitre(s) |
| **CDCB** | Communicable Disease Control Branch |
| **CRS** | Congenital Rubella Syndrome |
| **IgG** | Immunoglobulin G |
| **IgM** | Immunoglobulin M |
| **MMR** | Measles, Mumps, Rubella |
| **NHIg** | Normal human immunoglobulin |
| **RNA** | Ribonucleic Acid |
| **WHO** | World Health Organisation |

## Definitions

| | |
|---|---|
| **Shared decision making** | Shared decision making involves discussion and collaboration between a consumer and their healthcare providers. It is about bringing together the consumer's values, goals, and preferences with the best available evidence about benefits, risks and uncertainties of screening, investigations, and treatment, to reach the most appropriate healthcare decisions for that person. |

## Introduction

Rubella (German Measles) is an enveloped, positive-stranded RNA virus classified as a *Rubvirus* in the *Togaviridae* family. Humans are the only natural reservoir. It is usually a mild and self-limiting infectious disease that can be difficult to diagnose, as the features are transient and can be present in several other viruses.

The Australasian Society for Infectious Diseases (ASID) Management of Perinatal Infections, 3rd edition guideline has been endorsed for use in South Australia to support the assessment and management of *Rubella Infection in Pregnancy* in South Australia.

**Rubella is a notifiable disease in South Australia.** Further information is available at: Notifiable disease reporting | SA Health.

### Transmission

- Transmission is through direct, or droplet contact from nasopharyngeal secretions.
- In pregnancy, the pregnant woman can transfer to the fetus.
  - Infants with CRS are considered infectious for up to 1 year. [1]

### Incubation Period

- The incubation period ranges from 12 to 23 days.

### Infectious Period

- The 7 days prior and 7 days post the onset of the rash are considered infectious.

### Clinical Presentation

**Clinical Features**

- Low grade fever
- Maculopapular rash, predominately behind the ears, on the face and neck
- Headache
- Malaise
- Coryza (runny nose/stuffy nose/sneezing)
- Mild conjunctivitis
- Arthralgia or arthritis
- Swollen lymph glands (preceding the rash)

***Note:*** *20 - 50% of rubella virus infections are subclinical or asymptomatic.* [2]

## Maternal Risks

Whilst rare, complications may include:

- encephalitis
- haemorrhagic manifestations
  - thrombocytopenic purpura, gastrointestinal, cerebral or intracranial haemorrhage
- orchitis
- neuritis
- progressive panencephalitis.

## Effects on the Fetus

- Rubella infection, particularly in the first 8 weeks of pregnancy results in fetal infection in approximately 75% of cases.
- Early in pregnancy infection carries the greatest risk of:
  - intrauterine death
  - spontaneous abortion
  - congenital malformations of major organ systems.

***Note:*** *The risk declines after 12 weeks and defects are rare after the 20th week of pregnancy.*[1]

- Congenital Rubella Syndrome refers to **all** intrauterine rubella infections and may result in:
  - miscarriage
  - stillbirth
  - birth defects
  - low birth weight
  - asymptomatic infection.
- Congenital Rubella Infection may cause **variable** birth defects due to fetal exposure to the virus, including:
  - hearing impairment
  - congenital heart defects
  - cataracts/congenital glaucoma
  - pigmentary retinopathy.
- Timing of maternal infection correlates to the risk of fetal infection, damage and development of CRS.

## Diagnosis

- **Routine antenatal screening for rubella IgG is recommended** for all pregnant women at their first antenatal visit.
  - See Flowchart 1 for diagnosis of suspected rubella infection.
- Notification should be made to the **CDCB** as soon as practicable and within 3 days of suspicion of diagnosis:
  - Telephone **1300 232 272** or Fax (08) 7245 6696

## Management

- See Flowchart 2 for proven maternal rubella infection.
- Referral to MFM for management, follow-up, counselling, and monitoring.
- Due to the challenging nature of congenital infections, a multidisciplinary approach is needed to ensure families receive the appropriate treatment and advice. This includes Maternal Fetal Medicine (MFM) Specialists, Infectious Disease Specialists and Neonatologists.[3, 4]

***Note****: In non-immune pregnant contacts, the risk of rubella may be reduced, but not eliminated, with a 20mL dose of Normal Human Immunoglobulin (NHIg) as post exposure (within 72 hours) prophylaxis. Disease symptoms may be modified for the mother and may marginally reduce rubella infection to the fetus. It is essential to complete serological follow-up for these women for 2 months post NHIg.*[5]

### Reinfection

- Re-infection can occur in women with a history of previous positive serology.
  - Re-infection is often asymptomatic, and risk of fetal infection is < 10%.
  - CRS following re-infection is rare, particularly if re-infection after 12 weeks.
- If clinically symptomatic of rubella or previous immunity is unknown, risk must be assumed to be the same as for primary maternal infection.

### Infection Control Precautions

- Women presenting with acute rubella infection should be isolated with contact and droplet precautions applied (see page 18 of *Management of Infectious Diseases Summary Table* found at www.sahealth.sa.gov.au)
- Non-immune staff should not provide care for women with rubella.
- Newborns being investigated for CRS or confirmed CRS should be isolated in hospital with contact and droplet precautions.
  - Ensure all clinicians caring for the newborn are vaccinated against rubella.

***Note:*** *Infants with CRS can shed the virus in their pharyngeal secretions and urine for up to 1 year. They are considered infectious during this time, unless urine and pharyngeal specimens are negative by culture or Nucleic Acid Test after 12 weeks.*[1]

## Birth and Postnatal Care

- Paediatrician/Neonatologist present at birth.
- See Flowchart 3 for management and follow up of infants at risk of infection.
- Offer pre-discharge, MMR vaccination to all postpartum women who are found to be rubella negative (< 10 International Units/mL) on antenatal screening.
  - 2 doses of the vaccine, 4 weeks apart, is recommended.[6]
  - Avoid pregnancy for 28 days post vaccination.

**Send placenta for anatomical pathology post birth.**
See *Anatomical Pathology Management of the Placenta* PPG in the A–Z listing at www.sahealth.sa.gov.au/perinatal.

## Resources

**Australian Charter of Healthcare Rights:** (www.safetyandquality.gov.au)
Australian Charter of Healthcare Rights | Australian Commission on Safety and Quality in Health Care

**Australian Government Pregnancy, Birth and Baby:** (www.pregnancybirthbaby.org.au)
Pregnancy, Birth and Baby | Pregnancy Birth and Baby (pregnancybirthbaby.org.au)

**Consumer Information:**
Rubella (German measles) - including symptoms, treatment and prevention | SA Health

**Medicines Information:** (sahealthlibrary.sa.gov.au)
https://sahealthlibrary.sa.gov.au/friendly.php?s=SAPharmacy

**SA Health Pregnancy:**
Pregnancy | SA Health

**SAPPGs Web-based App:**
Practice Guidelines (sahealth.sa.gov.au)

**Pathology Tests Explained:** (https://pathologytestsexplained.org.au/)
Pathology Tests Explained

**Rubella-CDNA National Guidelines for Public Health Units:** (www.cdc.gov.au/resources)
Rubella – CDNA National Guidelines for Public Health Units | Australian Centre for Disease Control

## References

1. Australian Centre for Disease Control. Rubella (German Measles) and Congenital Rubella Syndrome. In: Department of Health and Aged Care, editor.: Australian Government; 2024.
2. World Health Organisation. Eliminating measles and rubella in the WHO European Region: integrated guidance for surveillance, outbreak response and verification of elimination. Copenhagen; 2024.
3. Al Beloushi M, Saleh H, Ahmed B, Konje JC. Congenital and Perinatal Viral Infections: Consequences for the Mother and Fetus. Viruses. 2024;16(11).
4. Cameron M. How to investigate, counsel and manage women with congenital infections. Obstetrics, Gynaecology and Reproductive Medicine. 2024;34(7):175.
5. Palasanthrian P, Starr M, Jones C, Giles M. Management of Perinatal Infections, Third Edition. Australasian Society for Infectious Diseases. 2022.
6. Australian Technical Advisory Group on Immunisation (ATAGI). Australian Immunisation Handbook. Canberra: Australian Government Department of Health and Aged Care; 2024.

## Acknowledgements

The South Australian Perinatal Practice Guidelines gratefully acknowledge the contribution of clinicians and other stakeholders who participated throughout the guideline development process particularly:

### Review Group

Rebecca King
Rebecca Smith

### Major Contributors

Dr Michael McEvoy
Dr Gemma Hardi
Amy Rigano
Dr Danielle Crosby
Dr Anthia Rallis

### SAPPG Management Group Members

Dr Michael McEvoy (Chair)
Monica Diaz (SAPPG EO)
Dr Elizabeth Allen
Elise Bell
Dr Angela Brown
Marnie Campbell
John Coomblas
Dr Danielle Crosby
Imogen Downard John
Kate Greenlees
Luke Grzeskowiak
Kathryn Hansen
Dr Gemma Hardi
Dr Susie Keynes
Belinda Nitschke
Dr Angela Mathew
Dr Scott Morris
Dr Amanda Poprzeczny
Dr Anthia Rallis
Amy Rigano
Dr Shruti Tiwari
Sally Wadsworth
Allison Waldron

*Suggested citation:*

SA Health. Rubella Infection in Pregnancy [Internet]. Version 5. Adelaide (AU): South Australian Perinatal Practice Guideline; SA Health, Government of South Australia; 2025. 12 p. Guideline No.: PPG124. Available from: http://www.sahealth.sa.gov.au/perinatal.

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## Document Ownership & History

**Developed by:** Maternal, Neonatal and Gynaecology Strategic Executive Leadership Committee
**Contact:** HealthCYWHSPerinatalProtocol@sa.gov.au
**Approved by:** Clinical Guidelines Domain Custodian
**Next review due**: 18/12/2030
**CGSQ reference:** PPG124
**Guideline history:** Is this a new perinatal practice guideline (V1)? **N**
Does this perinatal practice guideline amend or update an existing perinatal practice guideline? **Y**
If so, which version? V4
Does this perinatal practice guideline replace another perinatal practice guideline or policy with a different title? **N**
If so, which perinatal practice guideline or policy (title)?

| Approval Date | Version | Who approved New/Revised Version | Reason for Change |
|---|---|---|---|
| 18/12/2025 | V6.0 | Clinical Guidelines Domain Custodian | Formally reviewed in line with 1–5 yearly scheduled timeline for review. Updated recommendations to align with ASID guidelines. |
| 07/09/2015 | V5.0 | SA Health Safety & Quality Strategic Governance Committee | Reviewed. |
| 20/05/2013 | V4.0 | SA Health Safety & Quality Strategic Governance Committee | Reviewed. |
| 21/09/2010 | V3.0 | SA Maternal and Neonatal Clinical Network | Reviewed. |
| 30/11/2009 | V2.0 | SA Maternal and Neonatal Clinical Network | Reviewed. |
| 19/05/2009 | V1.1 | SA Maternal and Neonatal Clinical Network | Minor amendment. |
| 29/03/2004 | V1.0 | SA Maternal and Neonatal Clinical Network | Original approved version. |

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