



1. Primary prevention of acute rheumatic fever

The purpose of primary prevention is to limit the incidence of disease by controlling causes and risk factors. Primary prevention can either focus on an entire population or on individuals within that population who are at elevated risk (e.g. people with GAS infection).

This quick reference guide is derived from the *Australian guideline for prevention, diagnosis and management of acute rheumatic fever and rheumatic heart disease* (2nd edn).

What is acute rheumatic fever?

Acute rheumatic fever (ARF) is an illness caused by a reaction to a bacterial infection with group A streptococcus (GAS). It causes an acute, generalised inflammatory response and an illness that targets specific parts of the body, including the heart, joints, brain and skin. Individuals with ARF are often unwell, have significant joint pain and require hospitalisation. Despite the dramatic nature of the acute episode, ARF typically leaves no lasting damage to the brain, joints or skin, but can cause persisting heart damage, termed 'rheumatic heart disease' (RHD).

Primary prevention of ARF

When an individual is exposed to GAS, the organism attaches to and colonises the pharyngeal mucosa. A process of infection incorporating an immune response is initiated, and an episode of ARF may occur 2–3 weeks later. The aim of primary prevention is to identify

symptomatic GAS pharyngitis in those individuals most at risk of ARF (typically children aged 5–14 years), and eradicate the bacterium with antibiotic treatment before the immune response associated with ARF has been initiated. Studies show that ARF associated with GAS pharyngitis can be prevented if treatment is commenced within 9 days of symptoms appearing. While the association between GAS pharyngitis and ARF is well described, the role of GAS-associated skin infection remains unclear.

Antibiotic treatment of sore throats

The management of pharyngitis as a mechanism for preventing ARF is complicated by the fact that only a minority of sore throats are caused by GAS. While it is possible to treat all cases of pharyngitis with antibiotics, this exposes a significant proportion of patients to unnecessary treatment, as only 20–40% of pharyngitis episodes are associated with GAS infection; the remainder are caused by viruses or by bacteria for which antibiotic treatment is not recommended. Some treatment guidelines do suggest that people identified as being from populations at high risk of ARF (e.g. Aboriginal people and/or Torres Strait Islanders), or who have established RHD, but are not currently receiving secondary antibiotic prophylaxis, should be treated with antibiotics

if they develop pharyngitis, irrespective of other clinical features, and before confirmatory testing for GAS is available.

Targeting only those people with confirmed GAS pharyngitis is an alternate strategy. If such an approach is taken, then the rapid identification of GAS in people presenting with pharyngitis is necessary to ensure that treatment is commenced

within 9 days of symptom onset. While rapid diagnosis may rely on clinical features or antigen detection, the utility of these techniques in confirming or excluding GAS as the cause of pharyngitis is variable. Bacterial culture of a throat swab remains the gold standard, but is associated with an inherent delay in diagnosis, and thus treatment.

Recommended antibiotic treatment for streptococcal pharyngitis

| All cases | | | | |
|---|---|------------------|-------------------|-------------|
| BPG | Child: | | Deep im injection | Once |
| | <i>Weight (kg)</i> | <i>Dose (mg)</i> | | |
| | ≥20 | 900 | | |
| | 15 to <20 | 675 | | |
| | 10 to <15 | 450 | | |
| | 6 to <10 | 337.5 | | |
| | 3 to <6 | 225 | | |
| Adult: 900 mg | | | | |
| If im injection not possible | | | | |
| Phenoxymethylpenicillin | Child: 10 mg/kg up to 500 mg, bd | | Oral | For 10 days |
| | Adult: 500 mg, bd | | | |
| For patients hypersensitive to penicillin | | | | |
| Erythromycin ethyl succinate | Child: 20 mg/kg up to 800 mg, bd | | Oral | For 10 days |
| | Adult: 800 mg, bd | | | |

In cases of severe sore throat, procaine penicillin may be required. Refer to CARPA Manual for further information.

bd, bis die (twice daily); BPG, benzathine penicillin G; im, intramuscular injection.

Source: CARPA standard treatment manual, 5th ed. Rural and Remote Health 2011.



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The Australian guideline for prevention, diagnosis and management of acute rheumatic fever and rheumatic heart disease (2nd edition)

Quick reference guides include:

- Primary prevention of ARF
- Diagnosis of ARF
- Management of ARF
- Secondary prevention of ARF
- Management of RHD
- RHD in pregnancy
- RHD control programs

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