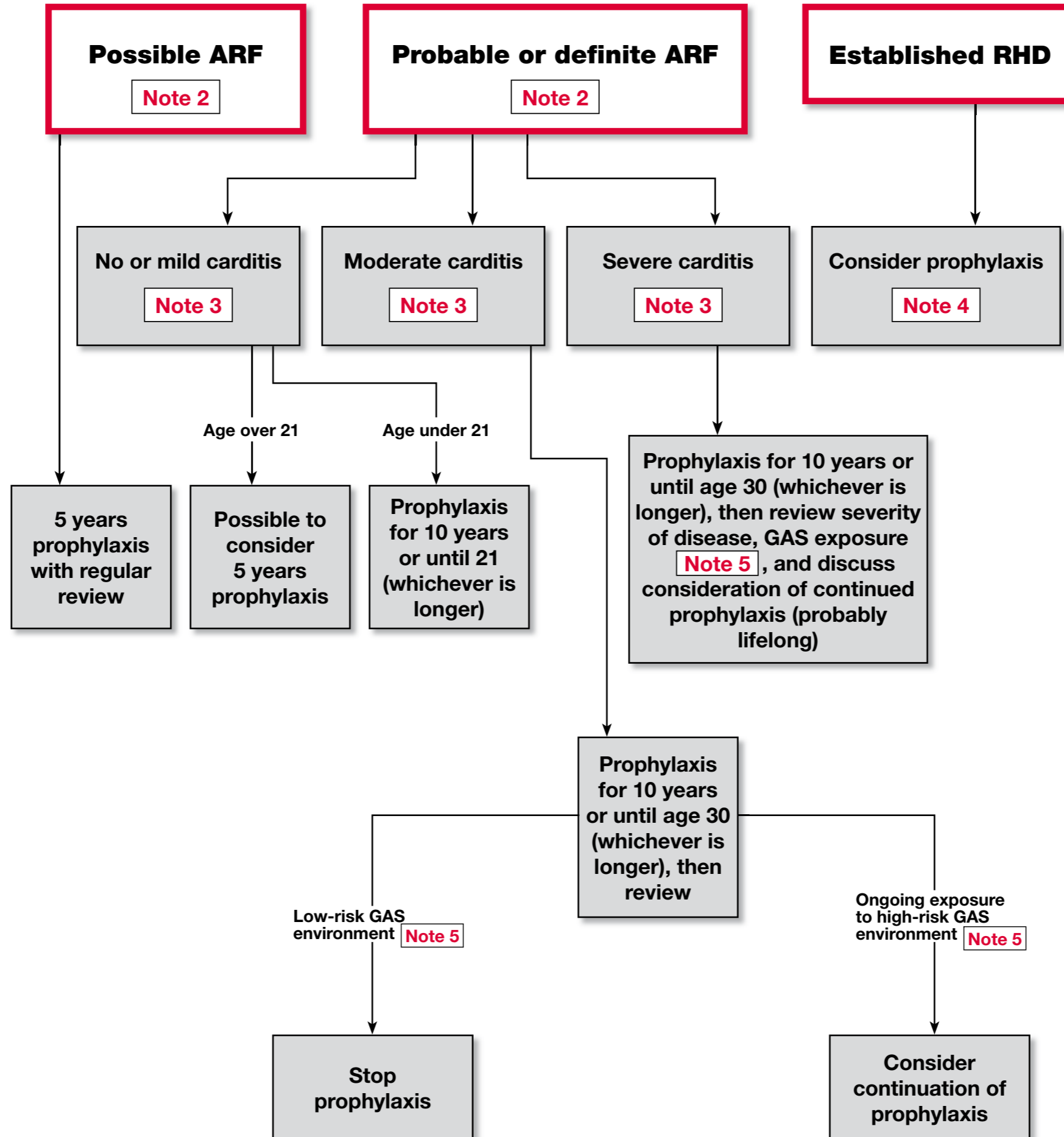


New Zealand standard recommendations are for 4-weekly (28-day) IM BPG prophylaxis. A 21-day prophylaxis schedule is recommended only for those who have had confirmed recurrent ARF despite full adherence to 4-weekly prophylaxis **Note 1**



Abbreviations:
 ARF = acute rheumatic fever
 GAS = group A streptococcus
 IM = intramuscular
 RHD = rheumatic heart disease

Algorithm based on the evidence-based, best practice *New Zealand Guideline for Acute Rheumatic Fever: Diagnosis, Management and Secondary Prevention* (2006), produced by The National Heart Foundation of New Zealand and The Cardiac Society of Australia and New Zealand.

Note 1

Antibiotic Regimens For Secondary Prevention of Acute Rheumatic Fever/Rheumatic Heart Disease

ANTIBIOTIC	DOSE	ROUTE	FREQUENCY
First line			
Benzathine penicillin G	1,200,000 U ≥ 20kg 600,000 U < 20kg	BPG is most effectively given as a deep intramuscular injection ¹	4-weekly, or 3-weekly for those who have had confirmed recurrent ARF despite full adherence to 4-weekly BPG
Second line (If intramuscular route is not possible or refused)*			
Phenoxymethylpenicillin (Penicillin V)	250mg	Oral	Twice daily
Following documented penicillin allergy**			
Erythromycin (EES)	40mg/kg per day (children)	Oral	2-4 divided doses (maximum 1g/day)
	400mg (adolescents and adults)	Oral	Twice daily

* Oral penicillin is less efficacious than BPG in preventing GAS infections and subsequent recurrences of ARF.^{1,2,3} Twice-daily oral regimens are also likely to result in poorer adherence⁴ and less predictable serum penicillin concentrations.⁵ In addition, oral penicillin V incurs a cost to the patient, while IM BPG is free when provided through an ARF prevention programme. Oral penicillin should be reserved for patients who refuse intramuscular BPG (**Level II, Grade B** evidence - see guideline), the consequences of missed doses must be emphasised, and adherence carefully monitored (**Grade D**).

** The benefits of long-term BPG administration outweigh the rare risk of serious allergic reactions to penicillin and fatality as a result of anaphylaxis.^{4,5,6,7} The rates of allergic and anaphylactic reactions to monthly BPG are rare.^{8,9} There is no increased risk with prolonged BPG use. Before commencing penicillin treatment, cases should be carefully questioned about known allergies to penicillin and other beta-lactam antibiotics. When an allergy to penicillin has been reported, or when a non-specific reaction has been described but there is no unequivocal evidence, they should be investigated for penicillin allergy, preferably in consultation with an allergist. If a confirmed, immediate and severe allergic reaction to penicillin is revealed, a non-beta-lactam antimicrobial (eg erythromycin) should be used instead (**Grade D**).^{1,10}

Note 2

New Zealand Guidelines For The Diagnosis of ARF

	DIAGNOSTIC REQUIREMENTS	CATEGORY
Initial episode of ARF	2 major or 1 major and 2 minor criteria plus evidence of a preceding GAS infection	Definite ARF
Initial episode of ARF	1 major and 2 minor with the inclusion of evidence of a preceding GAS infection as a minor criteria (Jones 1956) ¹¹	Probable ARF
Initial episode of ARF	Strong clinical suspicion of ARF, but insufficient signs and symptoms to fulfil diagnosis of definite or probable ARF	Possible ARF
Recurrent attack of ARF in a patient with previous ARF or established RHD	2 major or 1 major and 2 minor or several* minor plus evidence of a preceding GAS infection (Jones, 1992) ¹²	
Major criteria modified** from Jones 1992 (see guideline for further information on major criteria)	Carditis (including evidence of subclinical rheumatic valve disease on echo)*** Polyarthritis# (or aseptic monoarthritis with history of NSAID use) Chorea (can be stand-alone for ARF diagnosis) Erythema marginatum; Subcutaneous nodules	
Minor criteria (see guideline for further information on minor criteria)	Fever; Raised ESR or CRP; Polyarthralgia#; Prolonged P-R interval on ECG.	

All categories assume that other more likely diagnoses have been excluded.

CRP= C-reactive protein; ECG=electrocardiogram; ESR=erythrocyte sedimentation rate; GAS=group A streptococcus

* WHO (2004) recommendations state that where there is established RHD, a recurrent attack can be diagnosed by the presence of two minor manifestations **plus** evidence of a preceding group A streptococcal infection³

** Acceptance of echocardiographic evidence of carditis as a major criterion is a New Zealand modification to the Jones (1992) update

*** When carditis is present as a major manifestation (clinical and/or echocardiographic), prolonged P-R interval cannot be considered an additional minor manifestation in the same person

If polyarthritis is present as a major manifestation, polyarthralgia or aseptic mono-arthritis cannot be considered an additional minor manifestation in the same person.

Note 3

Definition of the categories of carditis:

- Mild carditis:
 - any valve lesion(s) graded mild clinically, or by echocardiography, with no clinical evidence of heart failure and no evidence of cardiac chamber enlargement on CXR, ECG or echo

• Moderate carditis:

- any valve lesion of moderate severity clinically (e.g. mild or moderate cardiomegaly), **or**

- any moderate severity valve lesion on echocardiography, **or**

- any echocardiographic evidence of cardiac chamber enlargement

• Severe carditis:

- any severe valve lesion clinically (significant cardiomegaly expected, and/or heart failure), **or**

- any severe valve lesion on echocardiography, **or**

- any impending or previous cardiac surgery for RHD.

Note 4

For those presenting with RHD for whom no initial episode of ARF can be identified, the decision to commence penicillin prophylaxis should be taken on an individual basis with regard to the age of the patient, severity of the disease, possible age of first attack and risk of exposure to GAS. It is recommended that cases with established valvular disease have regular dental care and follow the guidelines for endocarditis prophylaxis.

Note 5

Individuals working or living with children, or in a living situation where there is overcrowding or close proximity to others (such as boarding schools, barracks and hostels), have a higher risk of exposure to GAS and subsequent development of ARF. In these cases, consideration should be given to extending the duration of prophylaxis.

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