CQI adventures with Rheumatic Heart Disease

The Map, the App & the Audit

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Richmond Valley

Acknowledgement of Country

A call to action……

Learning outcomes

- You will have increased knowledge about diagnosis and management of Acute Rheumatic Fever (ARF)-Rheumatic Heart disease (RHD)
- You will have a greater awareness of the landscape of ARF–RHD in Australia, and NSW in particular
- You will have an understanding of how to start a CQI journey with ARF-RHD in your own AMS / medical practice

Quick survey…….
Hands up!

- …Who cares for patients with ARF or RHD?

  …has diagnosed a patient with Acute Rheumatic Fever?

  …has managed a patient with Rheumatic Heart disease?

  …has done a search in their medical software about a specific condition?

  …has completed an audit on their own patient database?

Acute Rheumatic Fever (ARF)

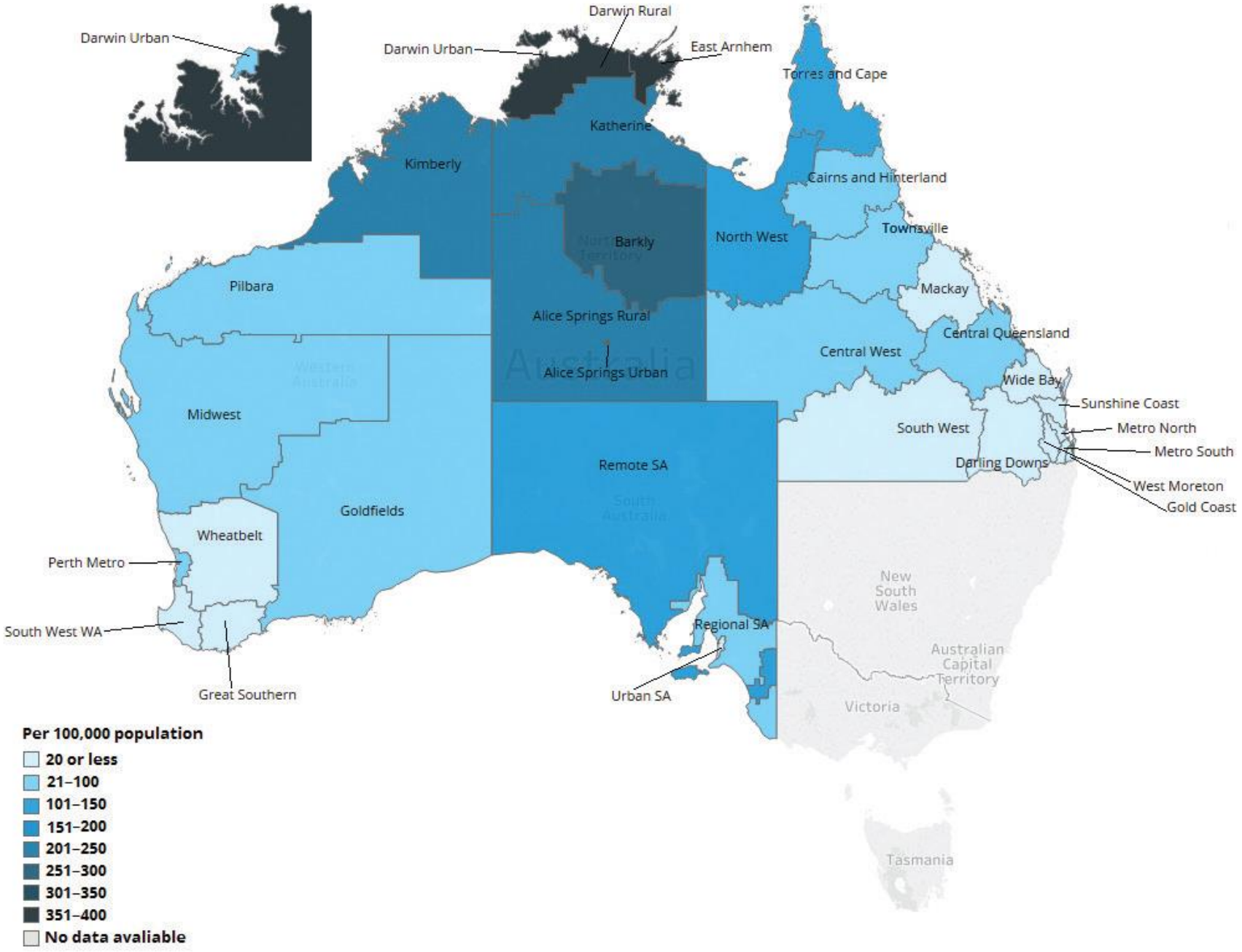
Abnormal autoimmune response to a Group A streptococcal infection

Acute generalized inflammatory illness that targets

- Skin
- Joints
- Brain
- Heart

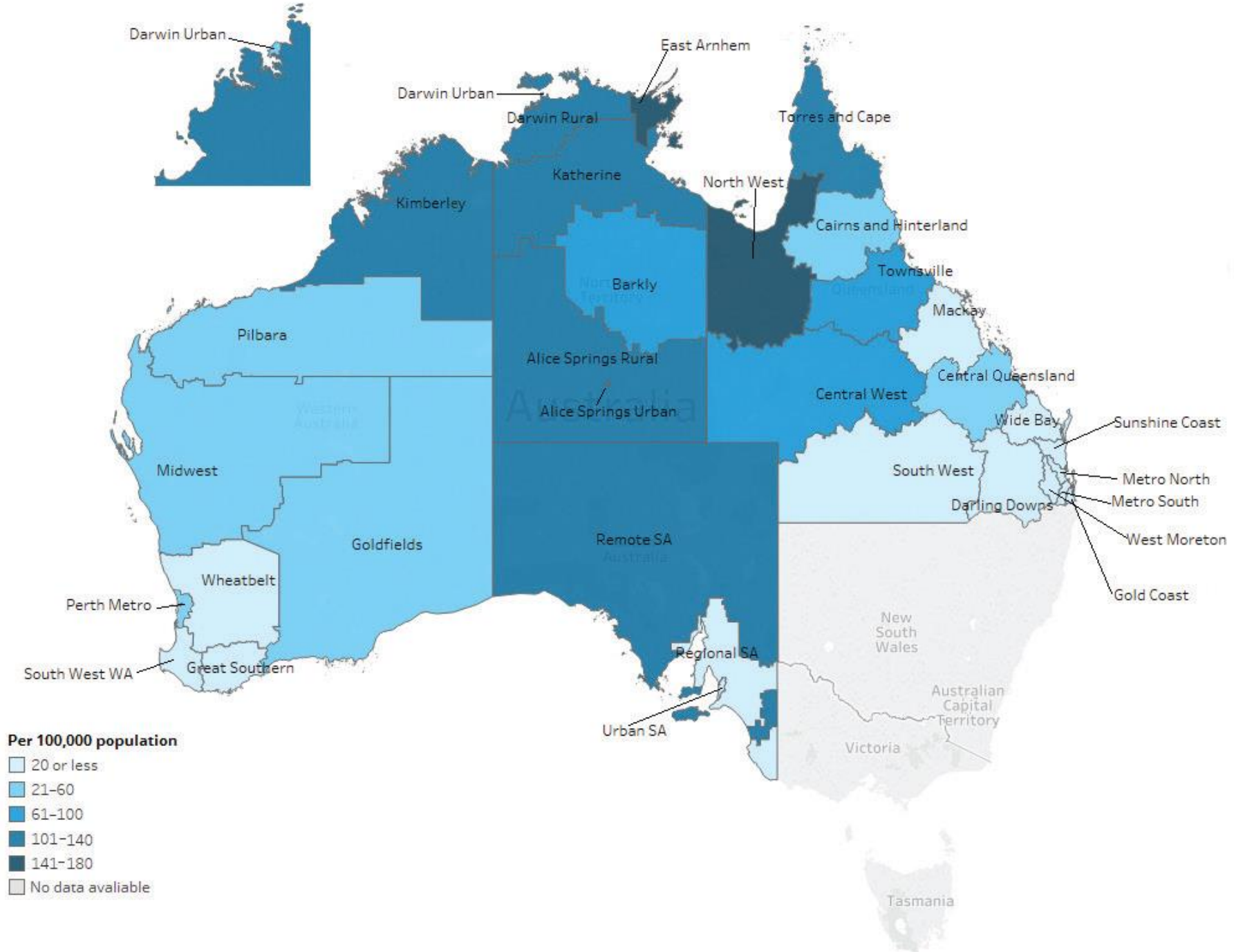
Typically leaves no damage to the skin joints or brain, but if heart affected, one or more heart valves may remain damaged. This is Rheumatic Heart disease

Like all adventures, we started with **a map**

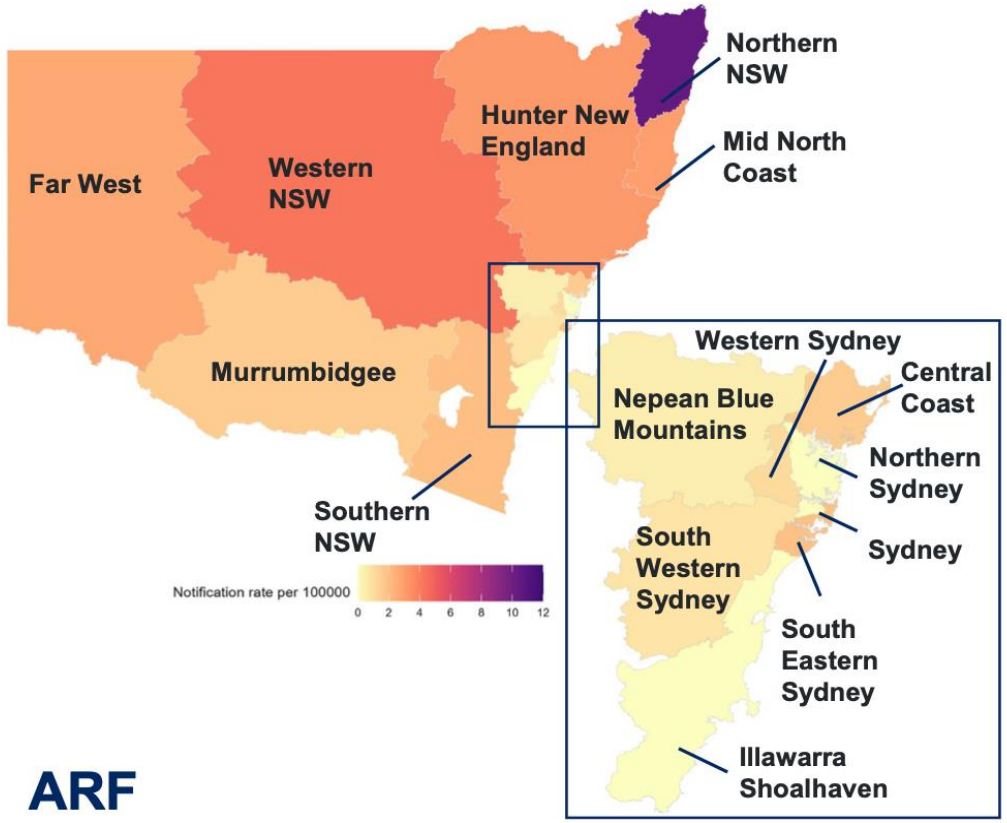


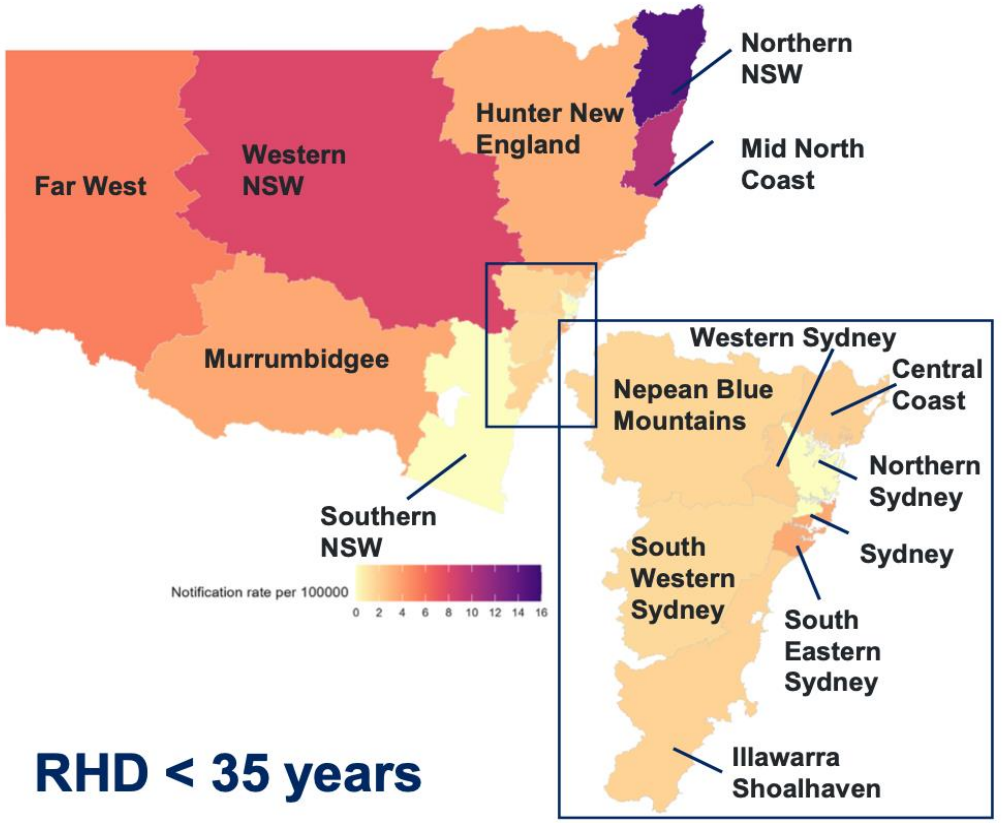
ARF diagnoses per 100,000 among Aboriginal and Torres Strait Islander Australians 2013–2017

New RHD diagnoses per 100,000 among Aboriginal and Torres Strait Islander Australians 2013–2017



Notification rate of Aboriginal and Torres Strait Islander people with ARF and RHD, 2016 – 2024*, by LHD





* 2024 data collection incomplete

Data source: Notifiable Conditions Information Management System

CQI adventures with Rheumatic Heart Disease

The Map, **the App** & the Audit


Australian guideline for the prevention, diagnosis and management of acute rheumatic fever and rheumatic heart disease
(Edition 3.3) June 2025

iOS

Android

Acute Rheumatic Fever

RHD Australia

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ARF Diagnosis

- Difficulties with ARF diagnosis and management
- High risk groups
- Diagnostic criteria
- Streptococcal antibody titres
- Manifestations of ARF
- Differential diagnosis
- Investigations in suspected ARF

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High risk groups

Australian populations with the highest rates of ARF are often the most geographically isolated, and access to diagnostic and treatment services is often limited.

At high risk

- Living in an ARF-endemic setting†
- First Nations peoples living in rural or remote settings
- First Nations peoples, and Māori and/or Pacific Islander peoples living in metropolitan households affected by crowding and/or lower socioeconomic status
- Personal history of ARF/RHD and aged <40 years.

May be at high risk

- Family or household recent history of ARF/RHD
- Household crowding (>2 people /bedroom) or low socioeconomic status
- Migrant or refugee from low- or middle-income country and their children.

Additional considerations which increase risk

- Prior residence in a high ARF risk setting
- Frequent or recent travel to a high ARF risk setting
- Aged 5- 20 years (the peak years for ARF).

†Endemic setting refers to populations where community ARF/RHD rates are known to be high e.g. ARF incidence >30 /100,000 per year in 5–14-year-olds or RHD all-age prevalence >2 /1000.

Figure 5.1: ARF and/or RHD diagnoses among First Nations people, by region of management, at 31 December 2022

Rate (per 100,000 population)
Not applicable (n.a.)

ARF RHD

At high risk

- Living in an ARF-endemic setting†
- First Nations peoples living in rural or remote settings
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Acute Rheumatic Fever

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Primary Prevention

- Strep A throat infections
- Strep A skin infections

DRUG	DOSE		ROUTE	DURATION
All cases				
Benzathine benzylpenicillin G (BPG)[‡]	Weight (kg) Child: <10 10 to <20 ≥20 Adult: ≥20	Dose in units (mL)[‡] 450,000 units (0.9 mL) 600,000 units (1.2 mL) 1,200,000 units (2.3 mL) 1,200,000 units (2.3 mL)	Deep intramuscular injection	Once
If IM injection not possible, use one of the following four oral options depending on circumstances, availability and potential drug intolerances:				
Phenoxymethylpenicillin	Child: 15 mg/kg up to 500 mg, twice daily Adult: 500 mg, twice daily		Oral	For 10 days
Azithromycin	Child: 12 mg/kg up to 500 mg, once daily Adult: 500 mg once daily		Oral	For 5 days
Cefalexin	Child: 25 mg/kg up to 1 g, twice daily Adult: 1 g, twice daily		Oral	For 10 days
Amoxicillin	Child: 25 mg/kg up to 1 g, once daily Adult: 1 g, once daily		Oral	For 10 days

Acute Rheumatic Fever

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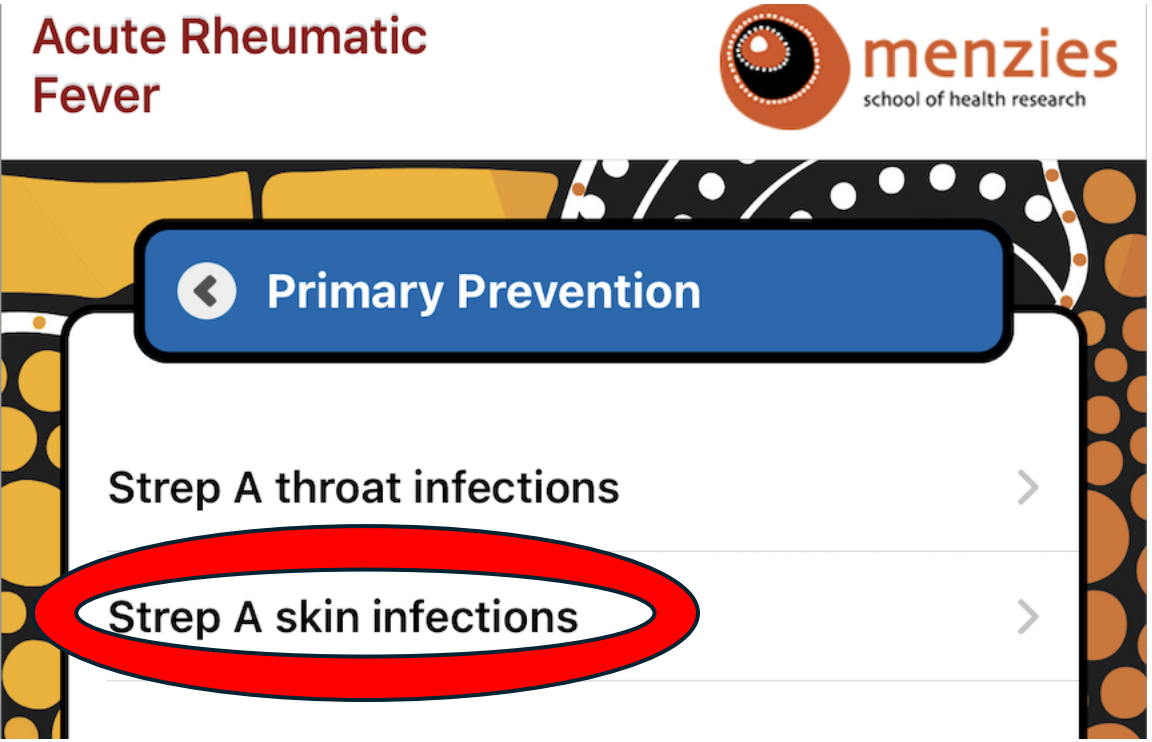

Recommended antibiotic treatment for Strep A skin sores†

DRUG	WEIGHT RANGE	DOSE			ROUTE	DURATION
	For ≥1 purulent or crusted sore(s)					
Cotrimoxazole (trimethoprim / sulfamethoxazole) 4 mg/kg/dose trimethoprim component	**Weight range**	**Syrup dose (40 mg/5 mL)** §	**Tablet dose SS (80/400 mg)** ‡	**Tablet dose DS (160/800 mg)** ‡	Oral	Morning and night for 3 days
	3–<6 kg	12 mg (1.5 mL)	N/A	N/A		
	6–<8 kg	24 mg (3 mL)	¼ tablet			
	8–<10 kg	32 mg (4 mL)	½ tablet			
	10–<12 kg	40 mg (5 mL)				
	12–<16 kg	48 mg (6 mL)	¾ tablet			
	16–<20 kg	64 mg (8 mL)				
	20–<25 kg	80 mg (10 mL)	1 tablet	½ tablet		
	25–<32 kg	100 mg (12.5 mL)	1 ½ tablets	¾ tablet		
	32–<40 kg	128 mg (16 mL)				
	≥40kg	160 mg (20 mL)	2 tablets	1 tablet		
Benzathine benzylpenicillin G (BPG)	Weight Child: <10 kg 10 to <20 kg ≥20 kg Adult: ≥20 kg			Dose in units (mL)§ 450,000 units (0.9 mL) 600,000 units (1.2 mL) 1,200,000 units (2.3 mL) 1,200,000 units (2.3 mL)	Deep IM injection	Once

† Antibiotic treatment is indicated for all people with one or more lesions with pus or crust.

‡ Cotrimoxazole comes as syrup (40 mg trimethoprim/5 mL) and tablets. The tablets are single strength (SS) (80/400 mg trimethoprim/ sulfamethoxazole) or double strength (DS) (160/800 mg trimethoprim/ sulfamethoxazole). When syrup is unavailable, tablets may be crushed and dissolved in water for small children as per the table above.

§ mL is only relevant for the premix product. Volumes of powdered BPG may vary.

People already receiving secondary antibiotic prophylaxis for ARF still need active treatment of subsequent Strep A infections if the last penicillin injection was more than 7 days ago.

Rheumatic
Heart Disease

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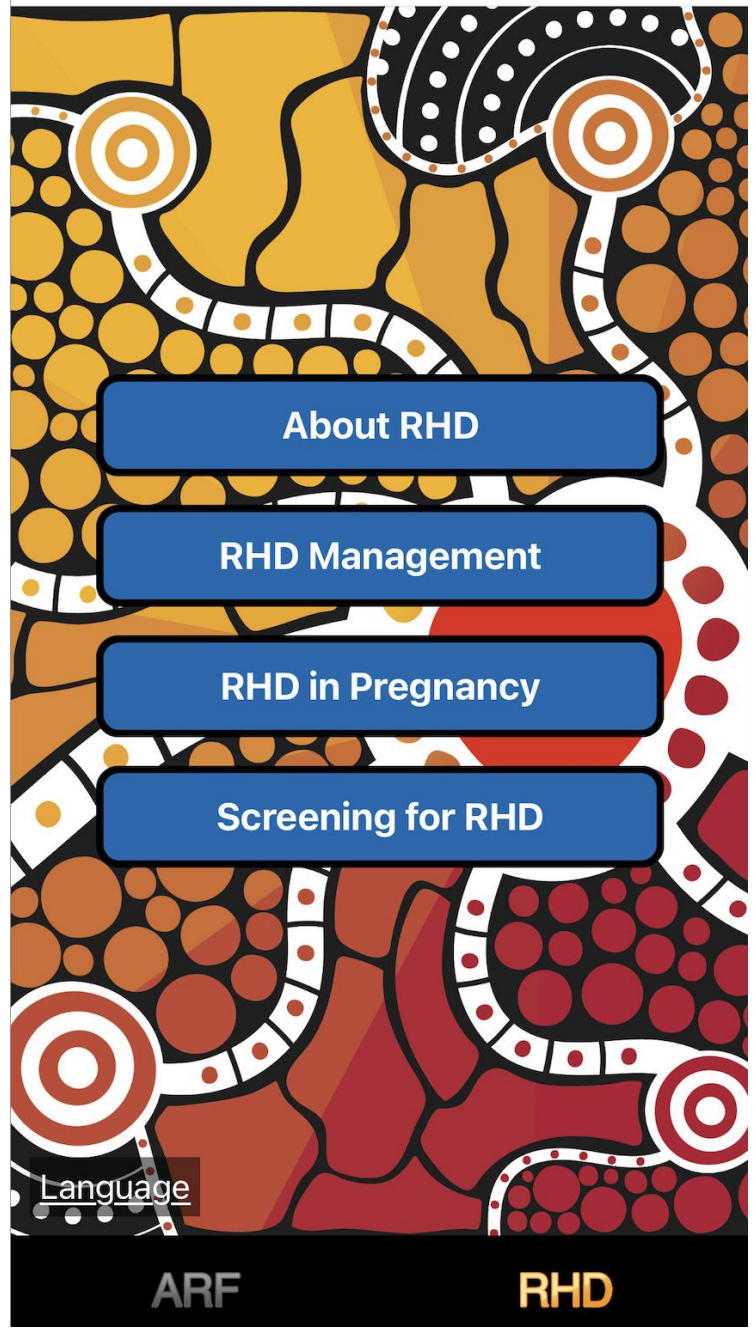


What can we do as GPs

Primary prevention

Secondary prevention

Good communication between ED + paeds + cardiology to ensure patients don’t get lost in the spaces between us all

CQI adventures with Rheumatic Heart Disease

The Map, the App & **the Audit**

The Auditing process at BNMAC

CONSENSUS ON WHAT WE ARE GOING TO LOOK AT

A COLLEGIATE LEARNING ENVIRONMENT – WE AUDIT EACH OTHERS FILES

TIME ALLOCATED EVERY MONTH TO COMPLETE

QI and CPD program

- GPs have paid, quarantined work time appr 2hrs / month
- Regional coordinator works with lead clinicians who liaise with clinic teams
- Devise topics, background research, search medical records, develop patient lists and audit tools
- GPs do the audits, review practice, adjust patient care

QI and CPD program

Analysis, feedback of results, discussion at clinic level

Agreement on way forward re clinical practice

Identify measurable indicators to look at in future

How to start an Audit with ARF-RHD……

1

Code all sore throats

2

Code impetigo

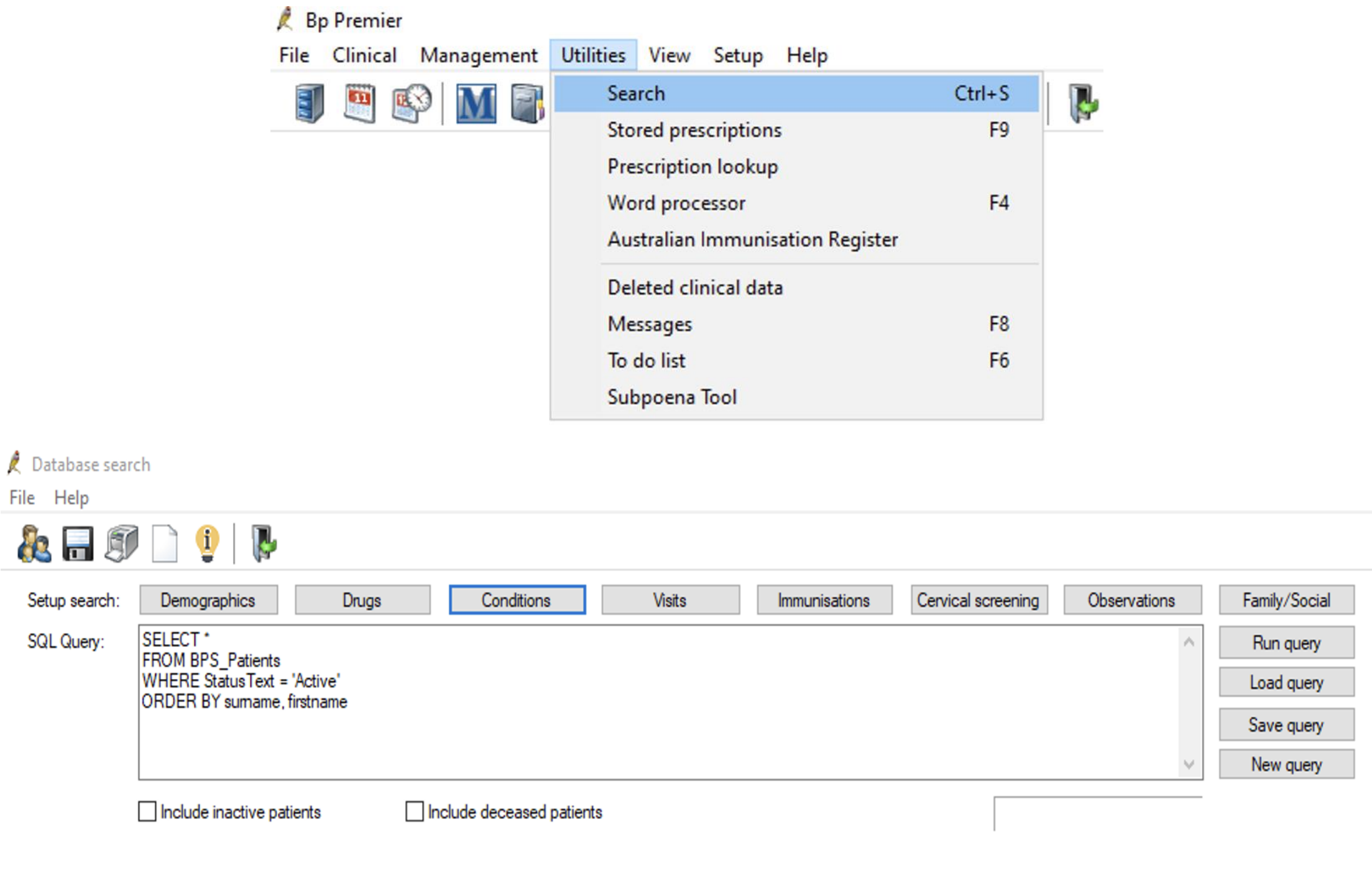
3

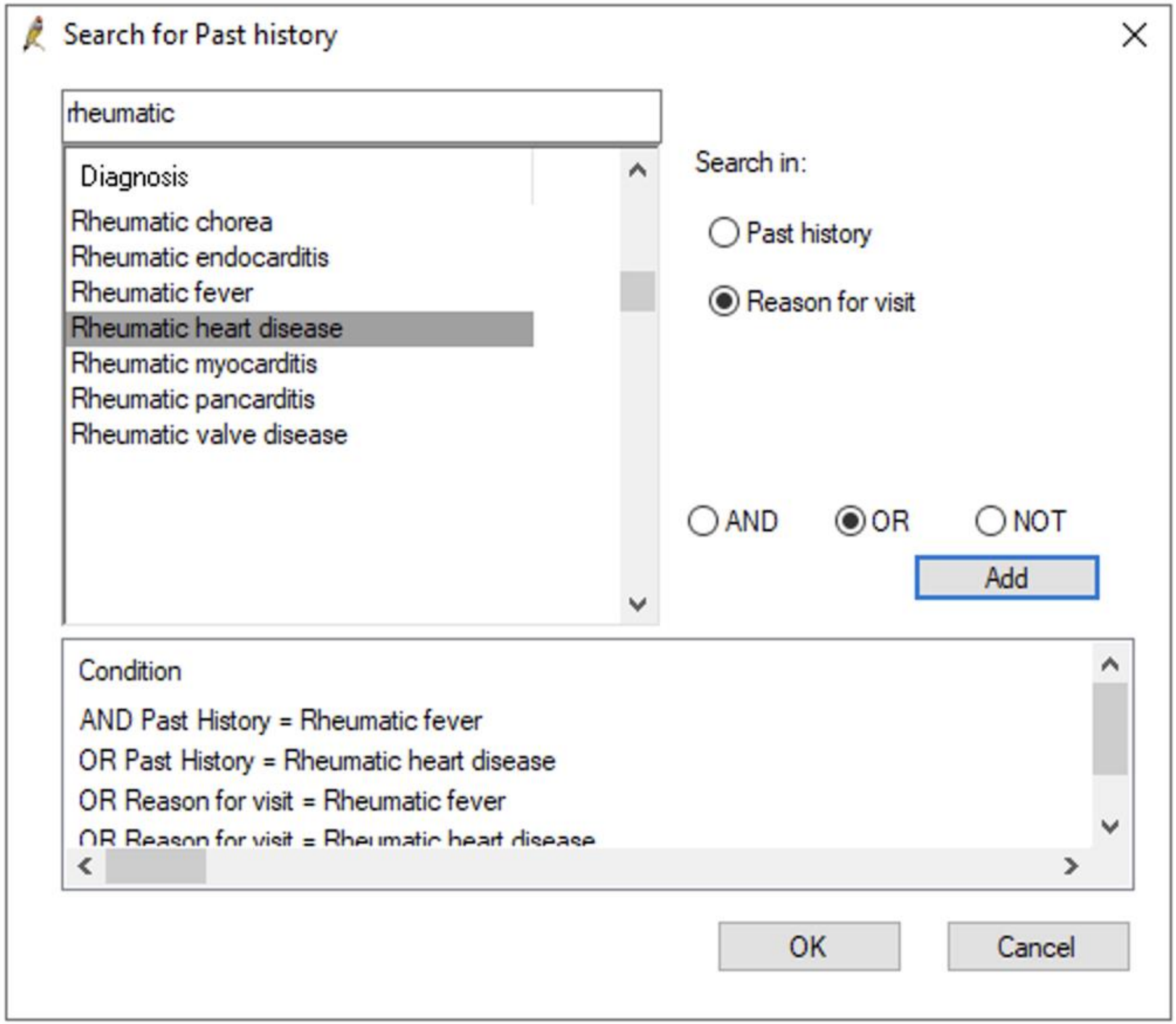
Choose a question to be answered to start

- Are we managing sore throats and skin infections as per the guidelines
- Are we managing our patients with ARF –RHD well?

4

Use the search tool in your software or PENCAT or Cubiko to find the patient group


Bp Premier
File
Clinical
Management
Utilities
View
Setup
Help
Search Ctrl+S
Stored prescriptions F9
Prescription lookup
Word processor F4
Australian Immunisation Register
Deleted clinical data
Messages F8
To do list F6
Subpoena Tool
Database search
File
Help
Setup search:
Demographics
Drugs
Conditions
Visits
Immunisations
Cervical screening
Observations
Family/Social
SQL Query:
SELECT *
FROM BPS_Patients
WHERE StatusText = 'Active'
ORDER BY surname, firstname
Run query
Load query
Save query
New query
Include inactive patients
Include deceased patients


Search for Past history
rheumatic
Diagnosis
Rheumatic chorea
Rheumatic endocarditis
Rheumatic fever
Rheumatic heart disease
Rheumatic myocarditis
Rheumatic pancarditis
Rheumatic valve disease
Search in:
Past history
Reason for visit
AND
OR
NOT
Add
Condition
AND Past History = Rheumatic fever
OR Past History = Rheumatic heart disease
OR Reason for visit = Rheumatic fever
OR Reason for visit = Rheumatic heart disease
OK
Cancel

age	Current ARF Dx	RHD severity	RHD detail	What follow up needed	date last echo	te last cardiol	e next cardio	Comments
20	Poss	Unclear	thickened mitral valve	echo in Sept 25	11/10/2024	only echo so	1/10/2025	complex Q fever patient - ID + Prof Anna Ralph consulted - for prophylaxis
43	Prob	Unclear	thickened mitral valve	echo in Aug 25	29/8/2024	only echo so	1/8/2025	prob ARF - presented with chest pain and myocarditis - not consiedred diagnosis by LBH until aft
15	Poss	na	normal echo	last echo in Aug 25	1/8/2024	1/8/2024	1/8/2025	poss ARF but only able to take erythromycin for a short period of time - not on prophylaxis now
24	Poss	na	normal echo	needs echo - last echo 2016	14/4/2016	14/4/2016	?	poss ARF - needs repeat echo
55	Poss	na	normal echo	repeat ASOT, ant-dnase B titres and echo	2/12/2024	2/12/2024	2/12/2025	poss ARF needs repeat tires + echo
34	Def rec	Mod	Mild MI+ AI + Aortic sclerosis	repeat echo Mar 25	29/3/2023	11/8/2023	28/3/2025	advised by cardiologist to only need echos every 2-3 years - not consistent with RHD guidelines
32	Def	na	normal echo 2021	repeat echo 2025	29/11/2021	29/11/2021	referral sent	needs final echo?
48	Def	na	normal echo 2022 + 2024	repeat echo now as no secondary prophylaxis a	24/5/2024	nil just echo	needed now	unable to tolerate pencillin IM or oral, was on erythemomycin but has stopped - needs urgent ca
29	na	na	no echo availableN - one consult in 2008 with sore ankle	do one echo and ECG				needs echo as never had, poss ARF in 2008
64	Def	Severe	MVR	yearly echo+cardiol+dental review	15/8/2024	15/8/2024	awaiting app	Stable patient - unclear what risk she is post valve surgery
35	Def	na	had thickened mitral valve leaflets but recent echo 2023 normal MV	yearly echo+cardiol+dental review	16/8/2023	16/8/2023	needs referra	stable on bicillin but needs cardiology review
32	Prob	BL	thickened mitral valve 2023	needs echo to see if can stop bicillin + dental	19/9/2024	19/9/2024	1/9/2025	on 3 weekly bicillin but maybe able to stop with next echo if normal
23	Def	Severe	MVR in 2023	sees Dr Beek - will need 6/12 review	?	?	?	Dr Beek patient
37	Def	Severe	3 x double valve replacements so far	echo this June + dental	21/6/2024	6/11/2024	1/6/2025	stable, remains on bicilin monthly until 40 yrs
9	Def	na	echo 2023 normal	echo in Aug 25	1/8/2023	1/8/2023	due Aug 24 - r	stable on bicillin, for echo in Aug 25
50	Def	Unclear	echo 2016 - valve thickening, 2021 - no significant valvular pathology	needs echo and cardiology review ? RHD	13/7/2021	13/7/2021		for echo and review ? RHD
29	Poss	Unclear	no echo available	needs echo			ASAP	childhood ARF no followup, needs echo
38	Def rec	Mild	mild thickened MV	echoin Oct 2025	17/10/2023	17/10/2023	1/10/2025	for echo and dental this year - complicated with SLE
24	Poss	na	no echo available	needs echo				re-referred for echo and cardiology f/u 09/24 - to contiue to chase
8	Def	Mild	mild MV disease	echo in 2026	2/10/2024	2/10/2024	2/10/2026	stable on monthly bicillin
33	Def rec	Unclear	thickened mitral valve on echo 2023	echo to confirm or not RHD	25/10/2023	25/10/2023	25/10/2025	needs further echo to establisjh whether RHD mild
48	na	na	childhood ARF, Echo in 2015 NAD	repeat echo	17/6/2015	17/6/2015		repeat echo to confirm no RHD
37	Prob	na	echo Aug 24 NAD - for repeat in 3-6 months	needs echo now	13/8/2024		now	needs echo and cardiology review now
59	Poss	Unclear	? leaky valve	needs echo and cardiology review				for echo and cardiol review - no clear diagnosis as yet
48	Poss	Unclear	loud murmur 2013 with ? ARF	needs echo and cardiology review ? RHD				for echo and review ? RHD
44	Def	na	Echo June 2024 - N valves	Echo due June 2025, dental + cardiol - seen last	28/6/2024	3/5/2021	ASAP	needs cardiol review + echo in June
10	Def	na	Echo in 2023 - nil since	Echo due now	28/3/2023	not had	ASAP	parents refuted diagnosis and woudn't allow bicillin nor paeds cardiology review
25	Def	Mild	Echo in 2027?	echo booked for 3 years but not in line with guid	28/8/2024	28/8/2024	2027?	might need echo before 3 yers out given valve disease
19	Def	na	echo 2025 normal	dental, bicillin	6/2/2025	6/2/2025	6/2/2026	stable on bicillin next echo in Feb 26
16	Def	Mod	Mod MV disease	UTD with echo - for review this year	1/11/2024	1/11/2024	1/11/2026	Cardiology letter does not report degree of RHD
44	Def	Unclear	not had echo or cardology followup yet	cardiology review and echo and dental	never had	due now		needs cardiology review
57	Def	Unclear	echo in 2014, 2015 no RHD	final echo to rule out RHD	08.12/2015	due in 2017!	ASAP	needs cardiology review
15	Def	Unclear	no echo, no billcin as yet - lost to followup	first echo and cardiology review and SAP	never had	due now	ASAP	needs echo and cardiology review - initial - lost to followup
58	Poss	Unclear	recent echo shows severe MR, previous echo 3 years ago normal	murmur and echo - severe MR for valve replace	13/3/2025	13/3/2025	for cardiotho	chasing dr Blenkhorn to see if meets criteria for RHD
7	Poss	na	recent admission with paeds normal echo	first echo NAD but needs followup. Not on SAP a	28/3/2025	due now	Mar-26	needs SAP for 12 months and repeat echo
elsewhere								
51	Def	na	nil RHD - normal echos	nil - completed	5/5/2017	5/5/2017	nil booked	completed followup with 3 normal echos
54	Def	na	normal echo 2018 + 2023	nil - completed	30/11/2023	30/11/2023	nil booked	completed followup for ARF/RHD
11	na	na	normal echos post secondary prophylaxis - no ARF	completed 2 echos - no ARF	13/8/2024	13/8/2024	completed	no ARF
58	Poss	na	Echo 2014 - no RHD	nil completed				no RHD, PMHX ARF as a child
48	Poss	na	echo 2022 - no RHD	nil completed				no RHD, PMHX ARF as a child
46	Poss	na	echo 2023 normal	nil - completed	15/9/2023	15/9/2023	nil needed	no RHD, PMHX ARF as a child
16	na	na	suspected ARF but was Perthes	review and possible echo				
51	Def	Unclear	echo 2023 - mild MR + TR + thickened MV	needs echo and cardiology review ? RHD - move	13/7/2023			for echo and review ? RHD - has moved to QLD. Aware to followup there.

NSW Health CONFIDENTIAL

Acute Rheumatic Fever / Rheumatic Heart Disease Notification Form

NSW GOVERNMENT

NSW HEALTH USE ONLY
Date received: __ __ / __ __ / __ __ __ __ PHU: _____ Record No: _____

PATIENT DETAILS

Last Name: .....
First Name: .....
Alias: .....
Parent / Guardian's Name: .....
Parent / Guardian's Name: .....
Address: *(permanent)* .....
State: ..... Postcode: .....
Address: *(temporary)* .....
State: ..... Postcode: .....
Phone 1: ..... Phone 2: .....
Date of Birth: __ __ / __ __ / __ __ __ __ Age: .....
Gender: ☐ Male ☐ Female ☐ Other

NOTIFYING DOCTOR

Name: .....
Patient's Hospital / Clinic Number: .....
Hospital/Clinic: .....
Address: .....
State: ..... Postcode: .....
Phone: ..... Fax: .....

Patient's Usual Health Service Provider

Patient's Hospital / Clinic Number: .....
Address: .....
State: ..... Postcode: .....
Phone: ..... Fax: .....
Language spoken at home: .....

Country of birth: ☐ Australia ☐ Other ..... ☐ Unknown

Indigenous status: ☐ Aboriginal ☐ Torres Strait Islander ☐ Unknown
☐ Both Aboriginal and Torres Strait Islander ☐ None of the above

Ancestry: ☐ Maori ☐ Pacific Islander .....
☐ Other ..... ☐ Unknown

ACUTE RHEUMATIC FEVER (ARF)

Current episode: ☐ Initial ☐ Recurrent ☐ Unknown

Date of onset (current episode): __ __ / __ __ / __ __ __ __ Date of onset (first episode): __ __ / __ __ / __ __ __ __

Manifestations (tick all that apply)

☐ Carditis ☐ Chorea ☐ Erythema marginatum ☐ Fever ≥ 38°C
☐ Mono-arthralgia (aseptic) ☐ Mono-arthritis (aseptic) ☐ Polyarthralgia ☐ Polyarthritis
☐ Prolonged P-R interval on ECG ☐ Elevated ESR (≥ 30 mm/hr): _____ mm/hr __ __ / __ __ / __ __ __ __
☐ Subcutaneous nodules ☐ Elevated CRP (≥ 30 mg/L): _____ mg/L __ __ / __ __ / __ __ __ __

Webinars

10 Nov.

AHMRC sponsored webinar Nov 10th

- Focussed on ARF-RHD diagnosis and management with interactive cases and Prof Anna Ralph – ID NT, co-author of the guidelines

RACGP-Ministry Of Health December 3rd

- A case with Paediatric Cardiologists from John Hunter Hospital

3 Dec.

Take home messages

Primary Prevention – swab and start antibiotics as per high risk populations

Guidelines at your fingertips with diagnosis and management of ARF-RHD

Audit tool available through AHMRC

Don’t be afraid to look

Remember to notify any cases new or old

Thankyou…

- I hope this talk has sparked your interest and curiosity to have a look around your part of the state,
- to work to prevent ARF-RHD and
- **save lives**