

# Acute rheumatic fever and rheumatic heart disease in New South Wales | 2023 Surveillance Report

2023 Surveillance Report

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17 March 2025

<https://www.health.nsw.gov.au/Infectious/rheumatic/Pages/nsw-arf-and-rhd-data.aspx>



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# 1

## Executive summary

- There were 34 notified cases of acute rheumatic fever (ARF) in 2023, double the median (15) notified per year for the period 2019-2023.
- In 2023, the ARF notification rate, 0.4 cases per 100,000 population per year, was twice the rate of the preceding 4 year period, 0.2 per 100,000 population per year. A similar increase was also seen in invasive group A *Streptococcus* (iGAS) infections suggesting high circulation of group A streptococcal bacteria in 2023<sup>1</sup>.
- In 2023, there were 29 notified cases of rheumatic heart disease (RHD) in people aged less than 35 years of age in 2023, compared to a median of 18 cases per year for 2019-2023.
- The average crude notification rate for RHD was 0.5 per 100,000 population per year between 2019 and 2023.
- In total, there were 92 notified cases of ARF and 92 cases of RHD in people aged less than 35 years of age between 2019 and 2023.
- Most ARF (71%) and RHD (57%) cases were people aged less than 25 years of age.
- Cardiac involvement at diagnosis was reported for 32% of cases with ARF.
- Most ARF (61%) and nearly half of RHD (46%) cases were people living in areas with the lowest socio-economic index in NSW at diagnosis.
- Between 2019 and 2023, the average crude notification rate in Aboriginal and Torres Strait Islander people was more than 30 times higher for ARF than in people who are not Aboriginal and/or Torres Strait Islander and about 10 times higher for RHD.
- People reporting Māori and Pacific Islander ethnicity represented 18% of cases of ARF and 28% of cases of RHD, a higher proportion than other states and territories.
- Aboriginal and Torres Strait Islander cases of ARF and RHD were more commonly reported from rural and regional LHDs and Māori and Pasifika people from metropolitan LHDs.

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## ARF and RHD in Aboriginal and Torres Strait Islander people

- There were 49 notifications of ARF and 38 notifications of RHD were in Aboriginal and Torres Strait Islander people in NSW between 2019 and 2023.
- For Aboriginal and Torres Strait Islander people in 2019-2023, the average crude notification rate was 4.3 cases per 100,000 population per year for ARF and 6.4 for people aged less than 35 years for RHD. A significant project to identify additional ARF/RHD cases undertaken through Northern NSW Aboriginal Medical Services in 2022 -2023 contributed to the overall increase in the average crude notification rate.
- A majority of Aboriginal and Torres Strait Islander people notified with ARF (87%) or RHD (85%) were living in rural and regional LHDs.
- The highest notification rates of ARF and RHD in Aboriginal and Torres Strait Islander people were in Northern NSW LHD.

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<sup>1</sup> NSW Health Notifiable Conditions Information Management System (NCIMS), Communicable Diseases Branch and Centre for Epidemiology and Evidence, NSW Health. [www1.health.nsw.gov.au/IDD/#/IGAS](http://www1.health.nsw.gov.au/IDD/#/IGAS)

# 2

## Methodology

ARF in people of any age, and RHD in people aged less than 35 years have been notifiable diseases in NSW since 2 October 2015. Notifications of ARF and RHD are based on clinical reports made by doctors and supplemented by active case finding through review of hospitalisation data for hospital admissions with ICD-10 codes related to ARF and RHD. Notifications received by NSW Health are held in the Notifiable Conditions Information Management System (NCIMS). This report was produced using data extracted from NCIMS on 9 September 2024. Data was reported by onset date for ARF and notification date for RHD from 1 January 2019 to 31 December 2023. LHD was reported based on place of residence at notification.

Country of birth and ethnicity data are based on the ABS Standard Australian Classification of Countries (1269.0). People from the Pacific Islands were defined as those from Melanesia, Micronesia, and Polynesia, excluding Papua New Guinea. Specific ethnicity that is collected in NCIMS allows people to nominate up to two ethnicities. People that report being an Aboriginal and/or Torres Strait Islander person and a distinct specific ethnicity, or those that report multiple ethnicities may be counted more than once in the data looking at priority groups.

Population data including NSW mid-year population estimates, estimated populations by country of birth, population estimates by Index of Relative Socio-economic Disadvantage (IRSD) and population estimates by LHD were obtained from the Australian Bureau of Statistics (ABS) via the Secure Analytics for Population Health Research and Intelligence System (SAPHaRI). Rates for ARF were calculated using the entire population as the denominator. For RHD, rates were calculated with the same denominator limited to people aged 0-34 years.

High-risk groups are those living in communities with high rates of ARF (incidence >30/100,000 per year in people aged 5-14 years) or RHD (all-age prevalence >2/1000). In NSW, Aboriginal people and Torres Strait Islander people, people reporting Māori and Pacific Island ethnicity, and immigrants from countries with an RHD prevalence greater than 2 per 1000 population are considered high risk for ARF and RHD.

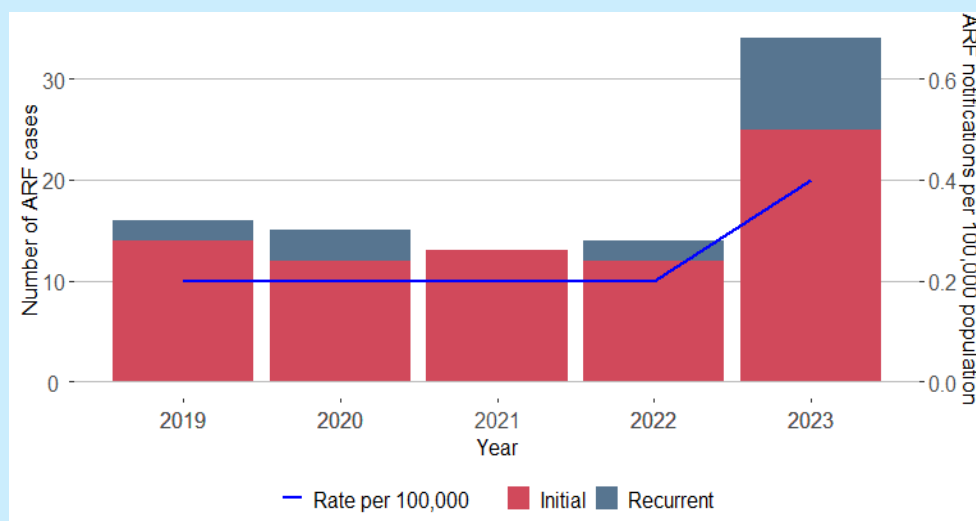
# 3

## Acute rheumatic fever



There were 34 cases of ARF notified with an onset date from 1 January to 31 December 2023; and a total of 92 cases notified with an onset date between 1 January 2019 and 31 December 2023 (Figure 1). In 2023, there were 25 cases reported as an initial (or first) diagnosis and 9 recurrent cases, compared to 12 initial and 2 recurrent cases in 2022. The median number of cases per year was 15 (range 13 to 34), and the average crude notification rate was 0.2 per 100,000 population per year from 2019-2023 (Figure 1). Cases were classified as definite, probable, or possible in line with *CDNA National Guidelines for Public Health Units* (Table 1).

**Figure 1: ARF cases and notification rate by year of onset, NSW, 2019-2023**



**92**  
Number of cases notified

**Table 1: ARF cases by case classification and year, NSW, 2019-2023**

Year	Case classification status			Total
	Definite	Probable	Possible	
2019	11	1	4	16
2020	10	1	4	15
2021	9	2	2	13
2022	9	2	3	14
2023	19	9	6	34
<b>Total</b>	<b>58</b>	<b>15</b>	<b>19</b>	<b>92</b>

**0.2**  
Average crude rate per 100,000 population

## Notifications by LHD

December 2023 with 24 cases, followed by Hunter New England and South Western Sydney with 15 cases each (Table 2). The highest average annual crude notification rate in 2019-2023 was in Northern NSW (1.6 cases per 100,000 population) followed by Far West (0.7 cases per 100,000 population).

**Table 2: ARF cases by LHD of residence at onset, NSW, 2019-2023**

LHD	Number of ARF cases						Average annual crude rate per 100,000
	2019	2020	2021	2022	2023	Total	
Northern NSW*	6	4	7	2	5	<b>24</b>	1.6
Hunter New England	5	3	3	1	3	<b>15</b>	0.3
South Western Sydney	1	1	0	4	9	<b>15</b>	0.3
Western Sydney	2	4	0	1	7	<b>14</b>	0.3
Central Coast	0	0	1	0	3	<b>4</b>	0.2
South Eastern Sydney	0	1	1	1	1	<b>4</b>	0.1
Western NSW	0	0	0	2	2	<b>4</b>	0.3
Southern NSW	0	0	0	0	3	<b>3</b>	0.3
Nepean Blue Mountains	2	0	0	0	0	<b>2</b>	0.1
Sydney	0	1	0	1	0	<b>2</b>	0.1
Illawarra Shoalhaven	0	0	0	1	0	<b>1</b>	0.0
Northern Sydney	0	1	0	0	0	<b>1</b>	0.0
Far West	0	0	1	0	0	<b>1</b>	0.7
Mid North Coast	0	0	0	0	1	<b>1</b>	0.1
Murrumbidgee	0	0	0	1	0	<b>1</b>	0.1

**24**

**1.6**

Highest number of cases in 2019-2023 by LHD - Northern NSW

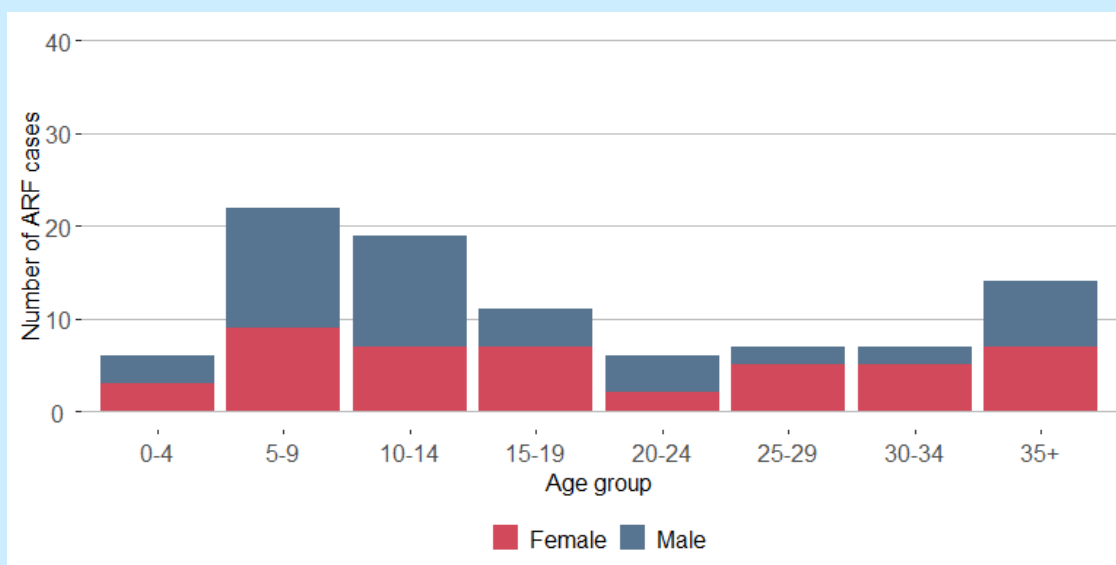
Highest average annual crude rate per 100,000 by LHD - Northern NSW

\*A significant project to identify additional ARF/RHD cases was undertaken through Northern NSW Aboriginal Medical Services in 2022 -2023.

## Demographics

Between 2019 and 2023, the median age at onset was 14 years (range 2 - 58) and 45% of notifications were in people aged 5-14 years (Figure 2). Males accounted for 51% of cases and females 49%.

**Figure 2: ARF cases by age group and sex, NSW, 2019-2023**



**51%**  
Male



**49%**  
Female

Cases were more common in areas of lower socioeconomic status (Table 3).

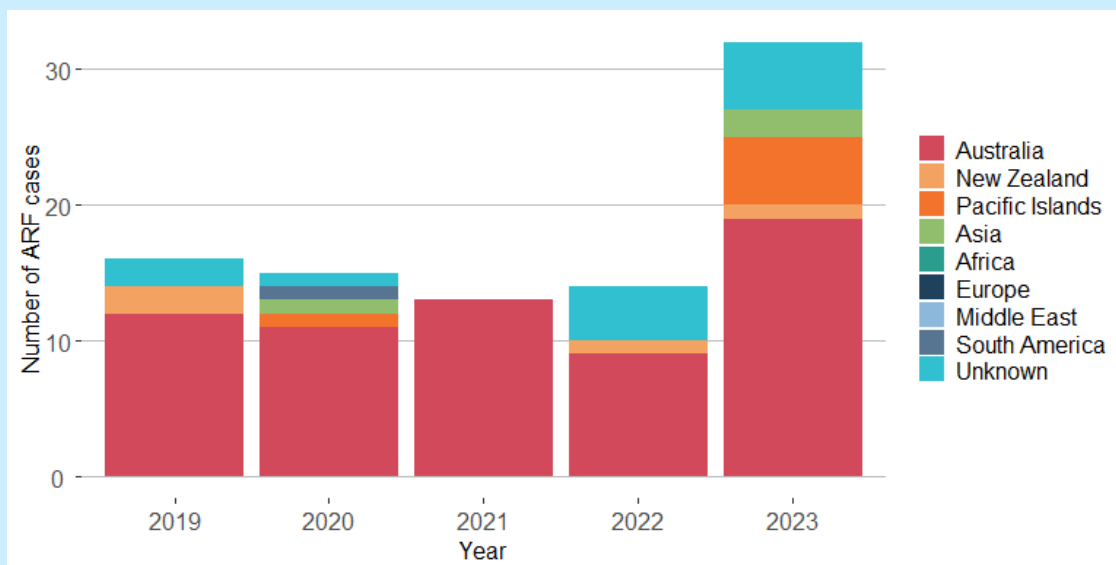
**Table 3: Number of ARF cases by IRSD quintile, NSW, 2019-2023**

	IRSD Quintile				
	1	2	3	4	5
Number of cases <sup>#</sup>	3	11	19	19	37
Crude notification rate per 100,000	0.04	0.2	0.2	0.3	0.5

<sup>#</sup>There were 3 notifications where residence/IRSD quintile was unknown

At the time of reporting, country of birth was complete for 87% of cases. There were 19 countries of birth reported. The most common country of birth was Australia with 64 cases (70%). Due to low numbers for other countries, cases are reported by region (Figure 3).

**Figure 3: Country/region of birth by year of onset, NSW, 2019-2023\***



\*Country of birth was unknown for 12 notifications (13%)

**70%**

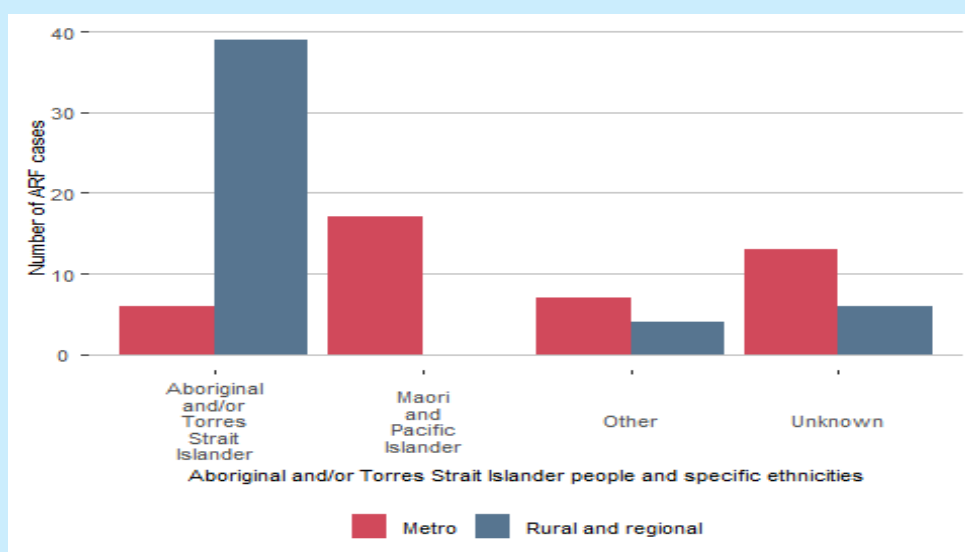
Cases born in Australia, 2019-2023

**17%**

Cases born overseas, 2019-2023

For the period 2019-2023, Aboriginal and Torres Strait Islander status was complete for 100% of cases, and specific ethnicity fields were completed for 79% of cases. There were 45 Aboriginal and/or Torres Strait Islander people with ARF (49%) and 17 Māori and Pacific Islander people with ARF (18%) (Figure 4). Aboriginal and Torres Strait Islander people were more likely to live in rural and regional LHDs while Māori and Pacific Islander people were more likely to live in metropolitan LHDs (Figure 4).

**Figure 4: Ethnicity of people diagnosed with ARF by residence at onset, NSW, 2019-2023**



## Aboriginal and Torres Strait Islander

Between 2019 and 2023, 49% of notified ARF notifications were in Aboriginal and Torres Strait Islander people (Table 4). The average crude notification rate from 2019 to 2023 in the Aboriginal and Torres Strait Islander population was 3.4 cases per 100,000 population per year compared to 0.1 cases per 100,000 population per year in people who are not Aboriginal and/or Torres Strait Islander (Table 4). The highest average crude notification rate in Aboriginal and Torres Strait Islander people was seen in Northern NSW with a rate of 26.4 cases per 100,000 population per year (Table 5).

**Table 4: ARF cases and average crude rate per 100,000 population by Aboriginal and/or Torres Strait Islander status, NSW, 2019-2023**

	Year					Total/ Average
	2019	2020	2021	2022	2023	
<b>Number of ARF cases</b>						
Aboriginal and/or Torres Strait Islander people	11	7	11	5	15	<b>49</b>
Not Aboriginal and/or Torres Strait Islander people	5	8	2	9	19	<b>43</b>
<b>Crude rate per 100,000 population</b>						
Aboriginal and/or Torres Strait Islander people	3.9	2.4	3.8	1.7	4.9	<b>3.4</b>
Not Aboriginal and/or Torres Strait Islander people	0.1	0.1	0.1	0.1	0.2	<b>0.1</b>

**Table 5: ARF cases and crude notification rate per 100,000 by Aboriginal and/or Torres Strait Islander status and LHD of residence at onset, NSW, 2019-2023**

LHD	Number of ARF cases			Crude rate per 100,000	
	Aboriginal and Torres Strait Islander people	Not Aboriginal and/or Torres Strait Islander people	Total	Aboriginal and Torres Strait Islander people	Not Aboriginal and/or Torres Strait Islander people
Northern NSW*	20	4	24	26.4	0.3
South Western Sydney	1	14	15	1.2	0.3
Hunter New England	13	2	15	4.9	0.0
Western Sydney	3	11	14	3.9	0.2
Central Coast	3	1	4	4.8	0.1
South Eastern Sydney	2	2	4	4.6	0.0
Western NSW	4	-	4	2.4	-
Southern NSW	2	1	3	5.3	0.1
Nepean Blue Mountains	-	2	2	-	0.1
Sydney	-	2	2	-	0.1
Illawarra Shoalhaven	-	1	1	-	0.1
Northern Sydney	-	1	1	-	0.0
Far West	-	1	1	-	0.7
Mid North Coast	1	-	1	1.5	-
Murrumbidgee	-	1	1	-	0.1

\*A significant project to identify additional ARF/RHD cases was undertaken through Northern NSW Aboriginal Medical Services in 2022-2023

## Māori and Pacific Islander people

Between 2019 and 2023, there were 17 notifications of ARF in people identifying as Māori and/or Pacific Islander, with an average crude notification rate of 3.4 per 100,000 population per year (Table 6). Samoan (n = 7, average crude rate = 4.5) followed by Fijian (n = 6, average crude rate = 5.3) were the most reported ethnicities among people identifying as Māori and/or Pacific Islander people.

**Table 6: ARF cases and crude rate per 100,000 in Māori and/or Pacific Islander people, NSW, 2019-2023**

	Year					Total
	2019	2020	2021	2022	2023	
Number of Māori/Pacific Islander cases	2	4	0	3	8	17
Māori/Pacific Islander rate	1.9	3.8	0.0	2.1	5.7	2.7

## Clinical symptoms

The frequency of clinical symptoms and signs is shown in Table 7.

A longer duration of secondary prophylaxis therapy is recommended for people with cardiac involvement at ARF diagnosis: a minimum of 10 years for people with cardiac involvement and a minimum of 5 years for people without. For cases diagnosed with ARF, 32% had evidence of cardiac involvement (carditis and/or prolonged PR interval).

**Table 7: Presenting Jones criteria for ARF cases, NSW, 2019-2023<sup>&</sup>**

Symptoms	Frequency	%
Elevated CRP	67	72.8
Fever	56	60.9
Elevated ESR	47	51.1
Polyarthralgia	46	50.0
Polyarthritis	27	29.3
Carditis	18	19.6
Prolonged P-R interval	17	18.5
Chorea	8	8.7
Other	14	15.2
Mono-arthritis, aseptic	7	7.6
Subcutaneous nodules	6	6.5
Mono-arthralgia, aseptic	5	5.4

<sup>&</sup>ARF diagnosis requires the presence of multiple criteria, except in the case of chorea

# 4

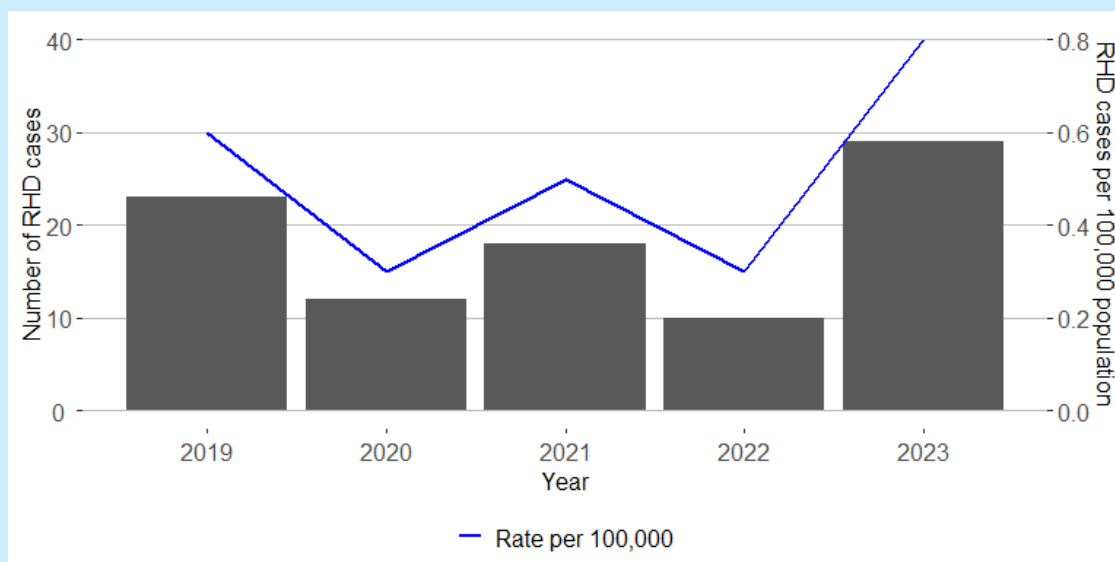
## Rheumatic heart disease

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There were 29 cases of RHD notified in people aged less than 35 years with a diagnosis date between 1 January and 31 December 2023 (Figure 5). There were 92 cases of RHD notified between 2019 and 2023. The median number of cases per year was 18 (range 10 to 29), and the average crude notification rate was 0.5 per 100,000 population per year (Figure 5).

**Figure 5: RHD cases and crude notification rate in people <35 years by year, NSW, 2019-2023**



**92**

Number of cases

**0.5**

Average crude rate per 100,000  
Population

## Notifications by LHD

Western Sydney had the highest number of notifications between 2019 and 2023 with 27 cases followed by South Western Sydney with 14 cases (Table 8). The highest average annual crude notification rate in 2019-2023 was in Western NSW (1.9 cases per 100,000 population) followed by Far West (1.7 cases per 100,000 population).

**Table 8: RHD cases by LHD of residence at diagnosis, NSW, 2019-2023**

LHD	Number of RHD cases					Total	Average annual crude rate per 100,000
	2019	2020	2021	2022	2023		
Western Sydney	6	6	5	3	7	27	1.0
South Western Sydney	3	0	5	2	4	14	0.5
Western NSW	4	2	3	1	2	12	1.9
Northern NSW	1	0	1	0	7	9	1.6
Hunter New England	1	1	2	0	2	6	0.3
Sydney	0	0	2	2	0	4	0.2
Murrumbidgee	0	1	0	0	3	4	0.6
Nepean Blue Mountains	1	0	0	0	2	3	0.3
South Eastern Sydney	2	1	0	0	0	3	0.1
Mid North Coast	1	0	0	2	0	3	0.7
Central Coast	1	0	0	0	1	2	0.3
Illawarra Shoalhaven	2	0	0	0	0	2	0.2
Northern Sydney	0	1	0	0	0	1	0.0
Far West	0	0	0	0	1	1	1.7
Southern NSW	0	0	0	0	0	0	0.0

**27**

**1.9**

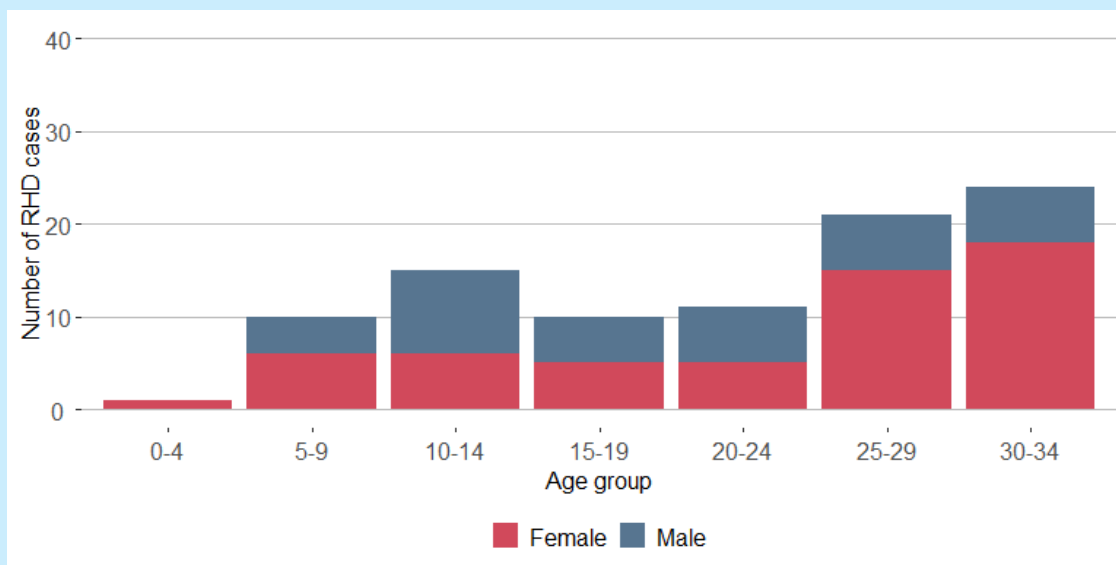
Highest number of cases in 2019-2023 by LHD - Western Sydney

Highest average annual crude rate per 100,000 by LHD - Western NSW

## Demographics

The median age at notification was 24 years (range 3 - 34) and 27% of notifications were in people aged 5-14 years (Figure 6). Males accounted for 39% and females 61% of cases.

**Figure 6: RHD cases by age and sex, NSW, 2019-2023**



**39%**  
Male



**61%**  
Female

Cases were more common in areas of lower socioeconomic status (Table 9).

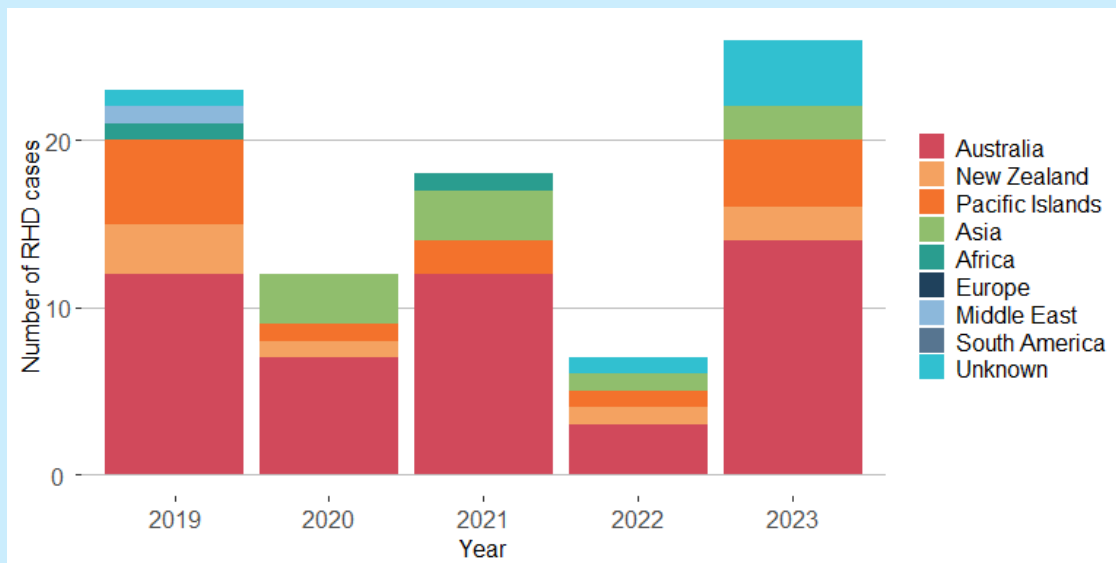
**Table 9: RHD cases by IRSD quintile, NSW, 2019 – 2023**

	IRSD Quintile				
	1	2	3	4	5
Number of cases*	4	19	24	13	29

\*There were 3 notifications where residence/IRSD quintile was unknown

At the time of reporting, country of birth was complete for 95% of cases. There were 21 countries reported. The most common country of birth was Australia with 48 cases (52%). Due to low case numbers for other countries, cases are reported by region (Figure 7).

**Figure 7: Country/region of birth of RHD cases, NSW, 2019-2023<sup>^</sup>**



<sup>^</sup> Country of birth was unknown for 5 notifications (5%)

**52%**

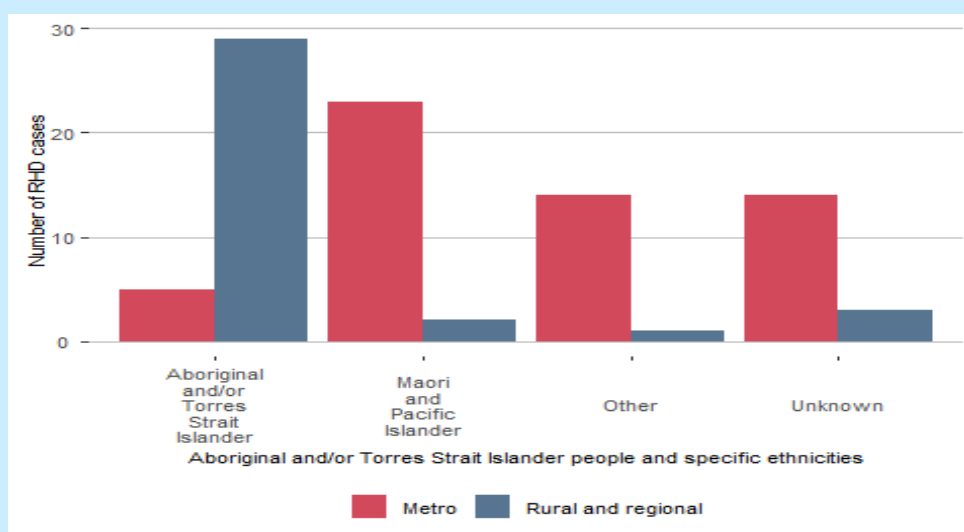
Cases born in Australia, 2019-2023

**43%**

Cases born overseas, 2019-2023

For the period 2019-2023, data for Aboriginal and Torres Strait Islander status was complete for 100% of cases, and specific ethnicity data was complete for 82% of cases. There were 34 Aboriginal and/or Torres Strait Islander people with RHD (37%), and 26 Māori and Pacific Islander people with RHD (28%) (Figure 8). Aboriginal and Torres Strait Islander people were more likely to live in rural and regional LHDs while Māori and Pacific Islander people were more likely to live in metropolitan LHDs (Figure 4).

**Figure 8: RHD cases in Aboriginal and/or Torres Strait Islander people and specific ethnicities by LHD of residence at disease onset, NSW, 2019-2023**



## Aboriginal and Torres Strait Islander people

In NSW, 37% of RHD cases occurred in Aboriginal and Torres Strait Islander people (Table 10). The average crude notification rate between 2019 and 2023 in Aboriginal and Torres Strait Islander people was 3.9 cases per 100,000 population per year compared to 0.3 cases per 100,000 population per year in people in people under 35 years of age who are not Aboriginal and/or Torres Strait Islander (Table 10). The highest average crude notification rate in Aboriginal and Torres Strait Islander people was seen in Northern NSW with a rate of 26.7 cases per 100,000 population per year (Table 11).

**Table 10: RHD cases and crude notification rate per 100,000 population by Aboriginal and/or Torres Strait Islander status, NSW, 2019-2023**

	Year					Total
	2019	2020	2021	2022	2023	
<b>Number of RHD cases</b>						
Aboriginal and/or Torres Strait Islander people	9	5	6	4	14	<b>38</b>
Not Aboriginal and/or Torres Strait Islander people	14	7	12	6	15	<b>54</b>
<b>Crude rate per 100,000 population</b>						
Aboriginal and/or Torres Strait Islander people	4.7	2.6	3.1	2.0	6.9	<b>3.9</b>
Not Aboriginal and/or Torres Strait Islander people	0.4	0.2	0.3	0.2	0.4	<b>0.3</b>

**Table 11: RHD cases and crude notification rate per 100,000 by Aboriginal and/or Torres Strait Islander status and LHD of residence at onset, NSW, 2019-2023**

LHD	Number of RHD cases			Crude notification rate per 100,000	
	Aboriginal and Torres Strait Islander people	Not Aboriginal and/or Torres Strait Islander people	Total	Aboriginal and Torres Strait Islander people	Not Aboriginal and/or Torres Strait Islander people
Western Sydney	1	26	27	2.6	1.5
South Western Sydney	1	13	14	2.2	0.8
Western NSW	12	-	12	15.2	-
Northern NSW <sup>^</sup>	9	-	9	26.7	-
Hunter New England	6	-	6	4.2	-
Sydney	-	4	4	-	0.3
Murrumbidgee	2	2	4	5.7	0.5
Nepean Blue Mountains	-	3	3	-	0.5
South Eastern Sydney	-	3	3	-	0.2
Mid North Coast	3	-	3	9.4	-
Central Coast	2	-	2	5.6	-
Illawarra Shoalhaven	1	1	2	2.6	0.2
Northern Sydney	-	1	1	-	0.1
Far West	1	-	1	11.4	-
Southern NSW	-	-	0	-	-

<sup>^</sup>A significant project to identify additional ARF/RHD cases was undertaken through Northern NSW Aboriginal Medical Services in 2022 -2023.

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## Māori and Pacific Islander people

Between 2019 and 2023, there were 26 people with RHD aged less than 35 years identifying as Māori and/or Pacific Islander, with an average crude notification rate of 7.8 per 100,000 population (Table 12). Samoan (n = 26) followed by Fijian (n = 10) were the most reported ethnicities among people identifying as Māori and/or Pacific Islander people.

**Table 12: RHD cases and crude notification rate per 100,000 in Māori and/or Pacific Islander people, 2019-2023**

	Year					Total/ Average
	2019	2020	2021	2022	2023	
Number of Māori/Pacific Islander cases	8	4	5	2	7	26
Māori/Pacific Islander rate	12.0	6.0	7.5	3.0	10.5	7.8

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## Severity

The severity of RHD was recorded for 69 cases (75%), for those individuals 41 were classified as severe, 18 as moderate and 10 as mild. Five cases notified between 2019 and 2023 are known to have died. Of these deaths, 4 had the cause of death recorded as RHD and the other was unknown.

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