Update on the Epidemiology and Burden of Rheumatic Fever in New Zealand

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Outline

• Surveillance sources
• Trends in acute rheumatic fever (ARF) incidence to assess impact of recent interventions
• Trends in rheumatic heart disease (RHD) incidence and mortality to assess burden & impact of recent interventions
• Distribution of ARF by ethnicity to assess inequalities
Surveillance sources

- **ARF** – First hospitalisation, principal diagnosis = ICD-10: I00-I02, no previous admission for ARF or RHD
- **RHD** – First hospitalisation, principal diagnosis = ICD-10: I05-I09, no previous admission for RHD
- **RHD mortality** – Underlying cause of death = ICD-10: I05-I09
- **Denominator populations** – from linear interpolation of census data
- **Limitations** – generally large case under-ascertainment but probably some over-estimation of RHD (eg ICD.10 I08)
- **Improvements** – national RF register
ARF Cases by year, 1990-17

ARF first hospital admissions, range 91-201 pa.
ARF incidence rate by year, NZ & CMDHB

Average NZ rate of ARF hospitalisations of 3.7 / 100,000 pa 2010-17, range 2.3-4.7 / 100,000

Data from NZ Ministry of Health, 2018 rates based on first 6 months of year
CMDHB = Counties Manukau District Health Board
ARF cases by month

Monthly average hospitalisations 2010-14
Modest Autumn–Winter peak vs Spring-Summer trough
ARF incidence rate by DHB

ARF concentrated in North Island (97.5% of cases in those <20 years, 2010-14)

11 (out of 20) District Health Boards with hospitalisation rates of 5.0 per 100,000 or higher accounted for 94% cases
ARF cases by age

ARF average of 157 cases pa. 2010-17
81.0% <20 years of age (10.9 per 100,000)
Median age 12 years
Males 56.2% of cases
ARF incidence rate by age group & year

ARF hospitalisation rate, time trends for key age ranges, 2000-17

![Bar chart showing ARF hospitalisation rate by age group and year from 2000-2017, with distinct color codes for each time period.](chart.png)
ARF incidence rate by ethnicity & year

ARF incidence rate by major ethnic group & year, aged <20 years, 1993-2017

ARF hospitalisations rate (per 100,000)

Year
ARF incidence rate by ethnicity & year

ARF hospitalisation rate, <20 years, time trends for major ethnic groups
ARF incidence by ethnicity & deprivation

Incidence of ARF by ethnicity and deprivation (NZDep13)
Aged <20 years, Average annual rate, 2010-17

Hospitalisation rate (per 100,000)

NZDep2013 Deprivation Decile

- Pacific
- Maori
- Total
- Non-Māori Non-Pacific
RHD cases by year: Hospitalisations, Deaths

RHD first hospitalisations numbers by year 2000-17, Deaths by year 2000-15
RHD rate by year: Hospitalisations, Deaths

RHD first hospitalisation rate by year 2000-17, Mortality rate by year 2000-15

![Graph showing RHD hospitalisations and deaths rate](image-url)
RHD hospitalisations by age group

RHD average of 307 first hospitalisations pa. 2010-17
Median age 67 years, average 51 pa <40 years
Males 52.6% of cases
RHD Hospitalisation rates by age group & year

RHD hospitalisation rates, for 10-year age bands, and 5-year time periods, 2000-17

Possible over-counting in older age groups (ICD.10 I08)
RHD Hospitalisation rates by age group & year
(continued from previous slide)

RHD hospitalisation rates, for younger age bands (<50yrs), and 5-year time periods, 2000-17
RHD Mortality by age group

Average 121 deaths pa, 2010-15
Median age 76 years, 93% 70+ years
Males 39.2% of cases
RHD Mortality rate by age group & year

RHD mortality rate, for specific age bands, average pa, 2000-15
Summary

• **ARF**: Average of 157 new ARF hospitalisations pa, no consistent trend, risk concentrated in 5-19 year olds

• **RHD**: 310 new hospitalisations pa, largely 50+years but still ~50 cases pa in <40years, no consistent trend

• **RHD mortality**: 121 deaths pa, largely 70+years, steady decline

• **Ethnic inequalities in ARF** – remain very high, recent decline in Māori rate, no decline in Pacific

• **Surveillance** – generally large case under-ascertainment, benefits of national RF register