

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

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**23rd PUBLIC HEALTH
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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



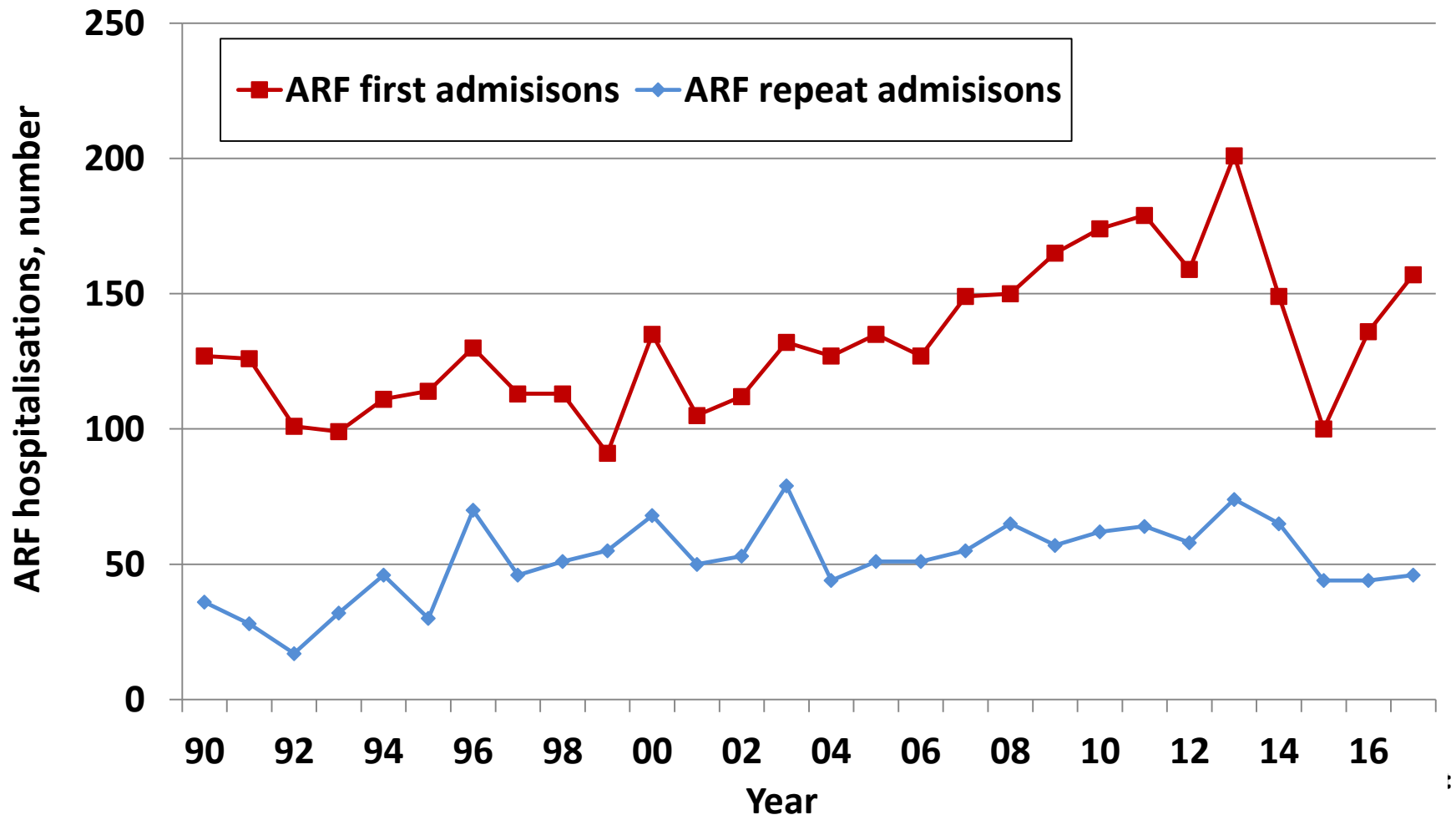
Surveillance sources



- **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

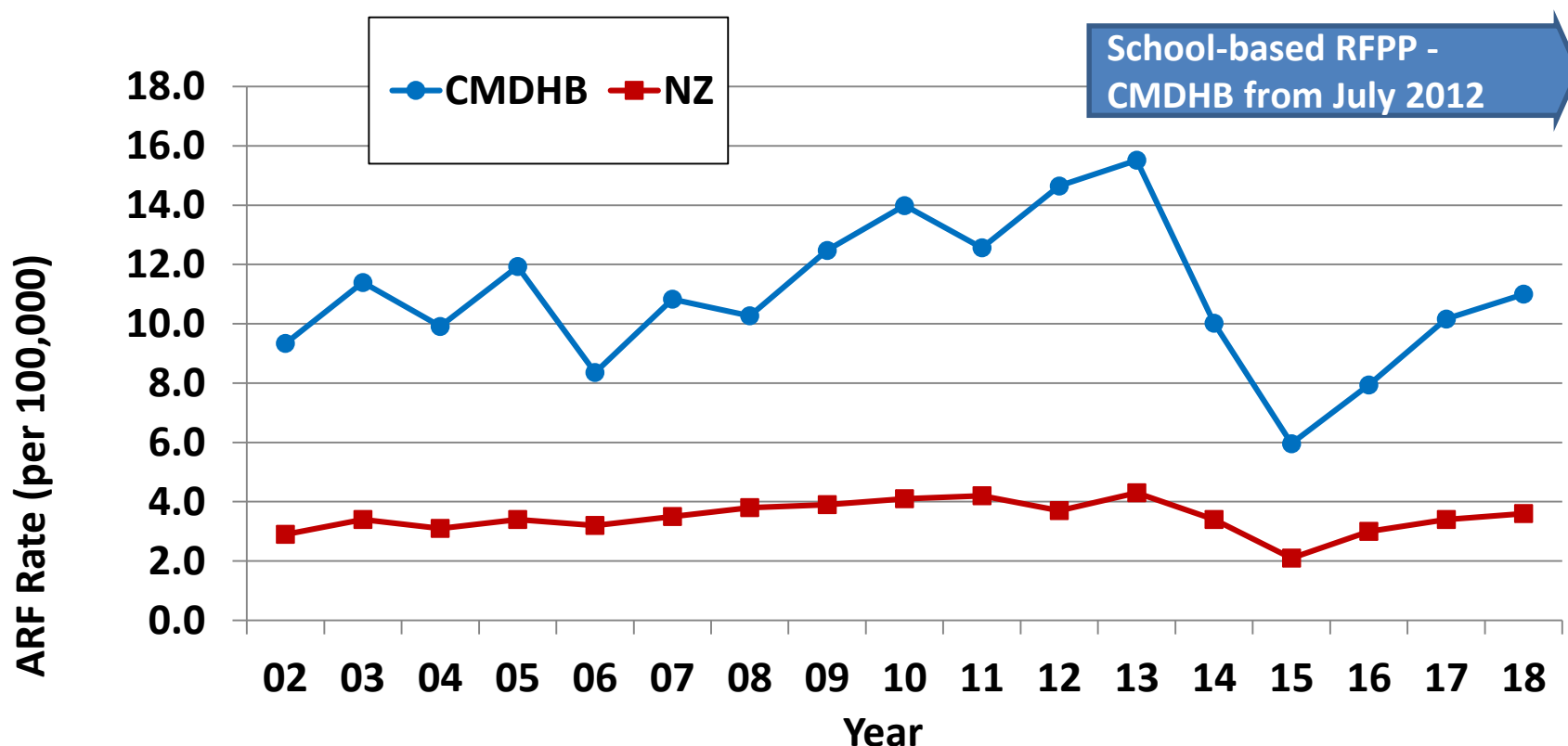
ARF Cases by year, 1990-17

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

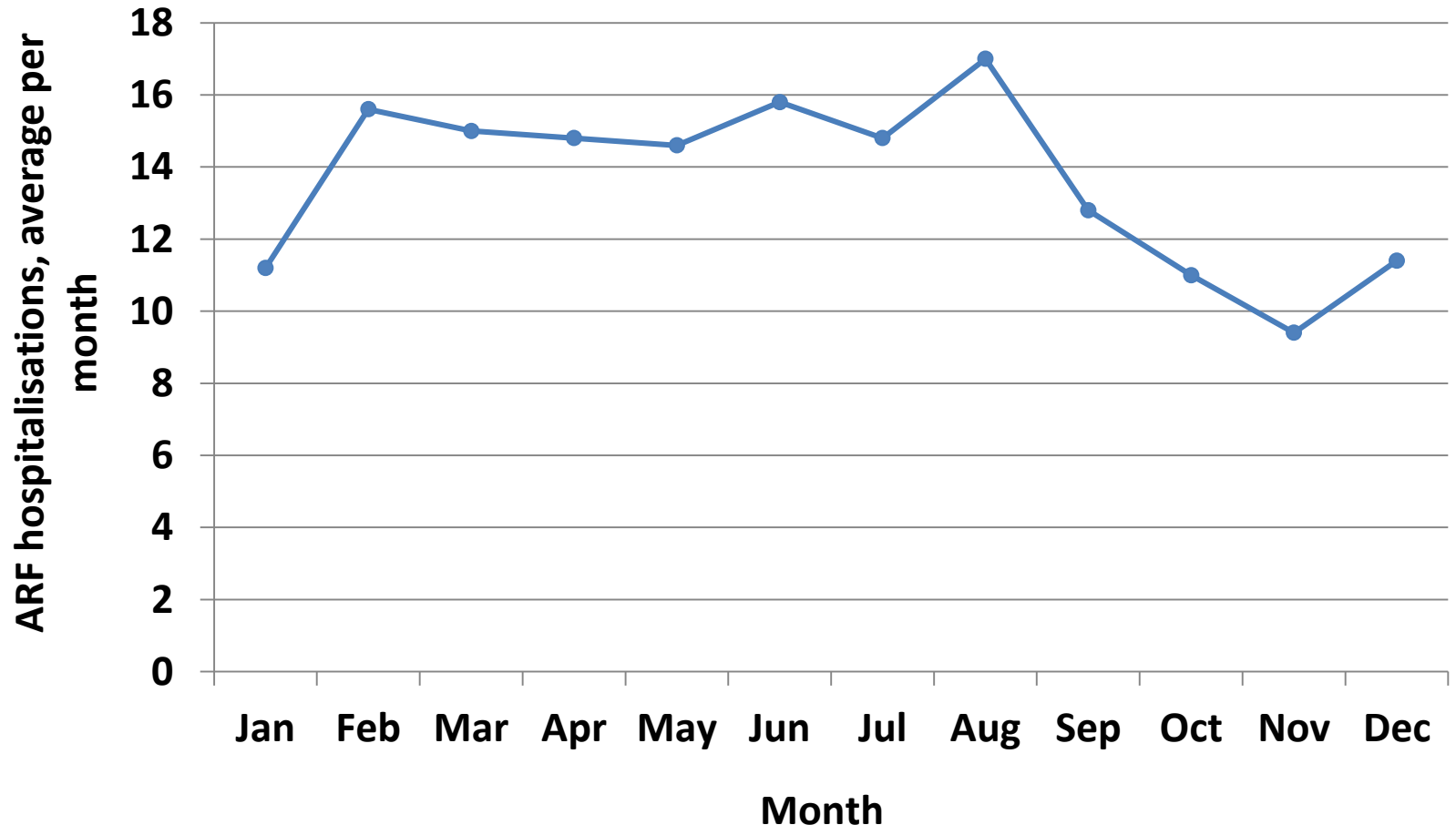


Data from NZ Ministry of Health, 2018 rates based on first 6 months of year
CMDHB = Counties Manukau District Health Board

ARF cases by month

Monthly average hospitalisations 2010-14

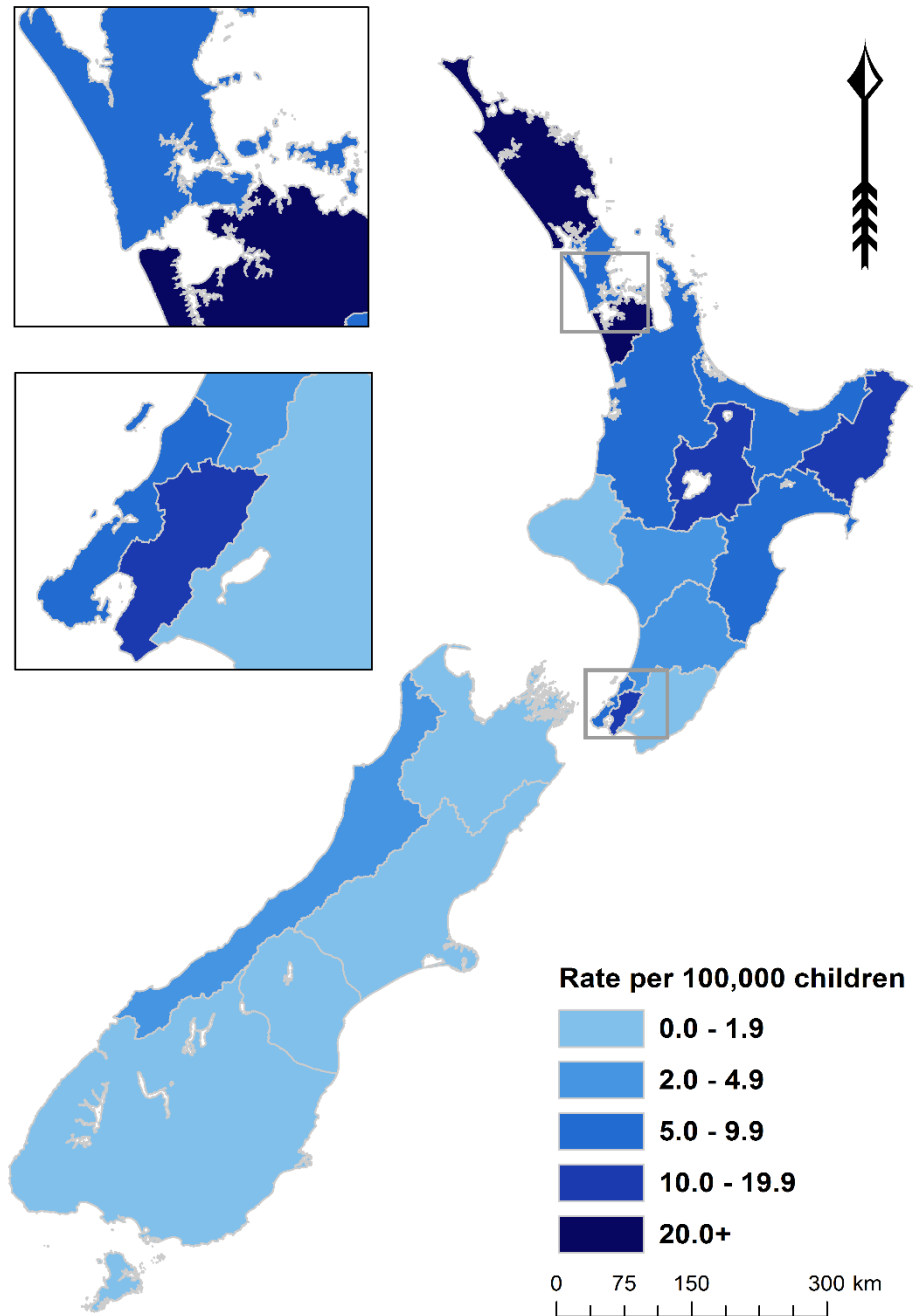
Modest Autumn–Winter peak vs Spring–Summer trough



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



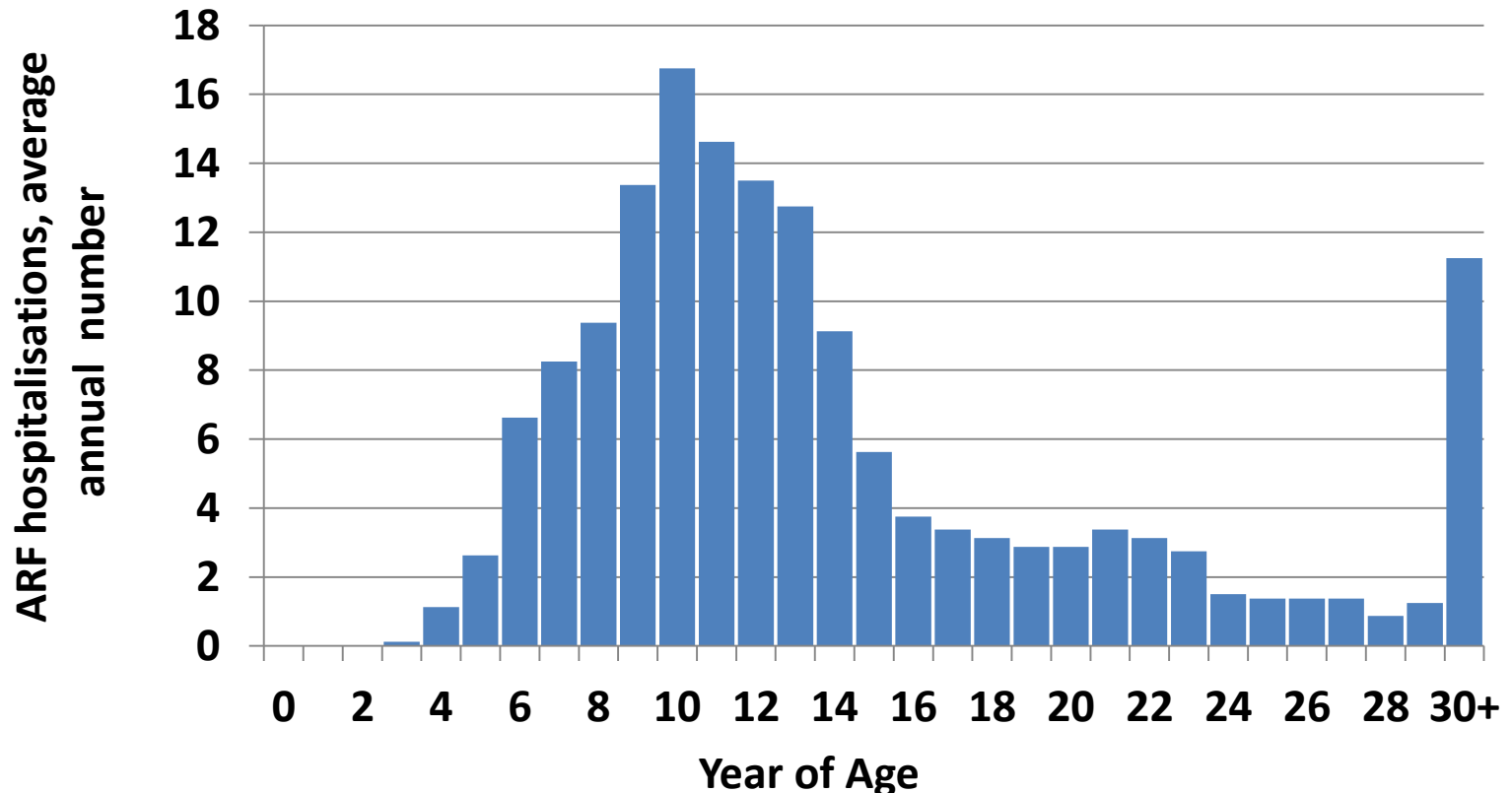
ARF cases by age

ARF average of 157 cases pa. 2010-17

81.0% <20 years of age (10.9 per 100,000)

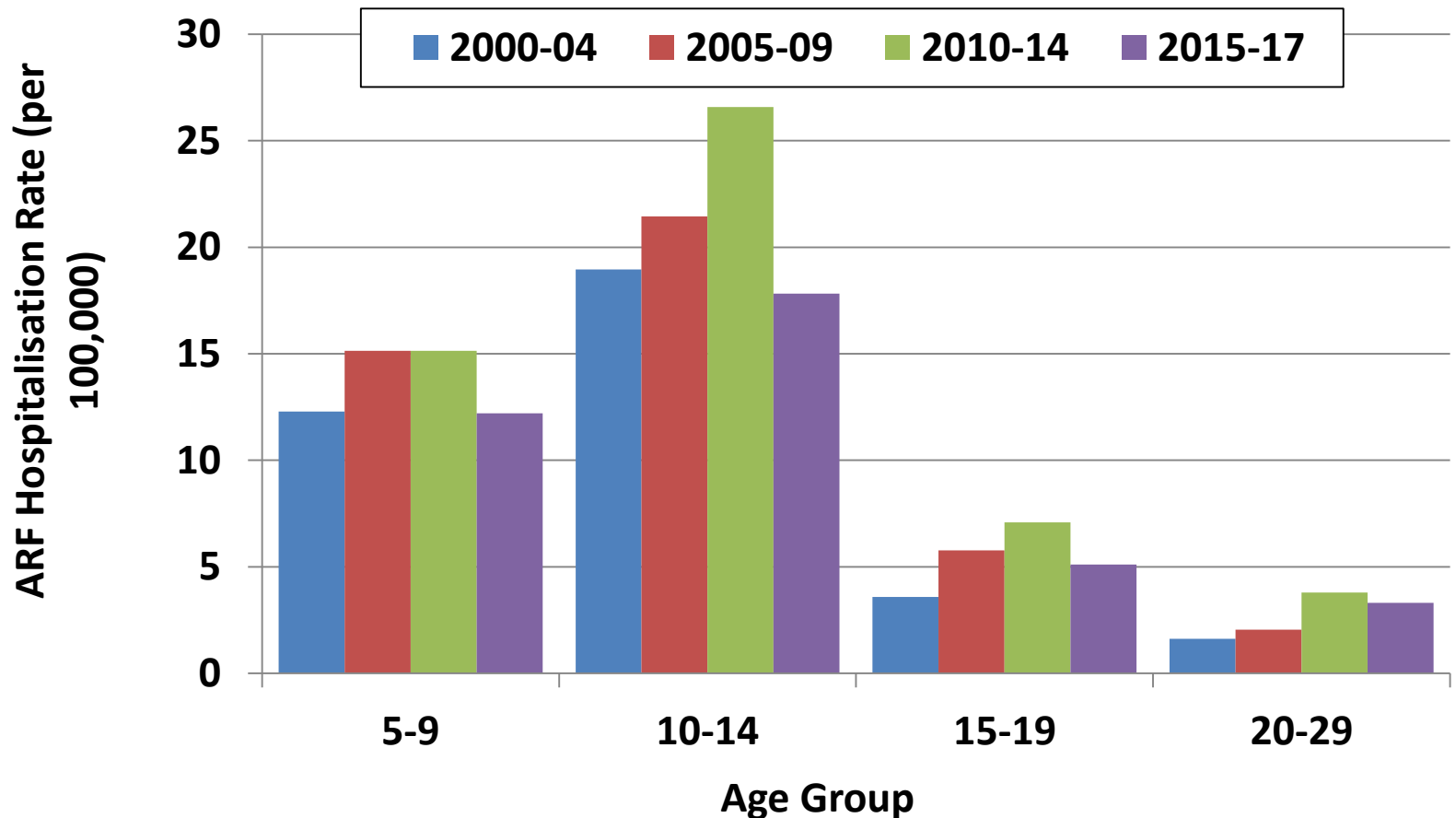
Median age 12 years

Males 56.2% of cases



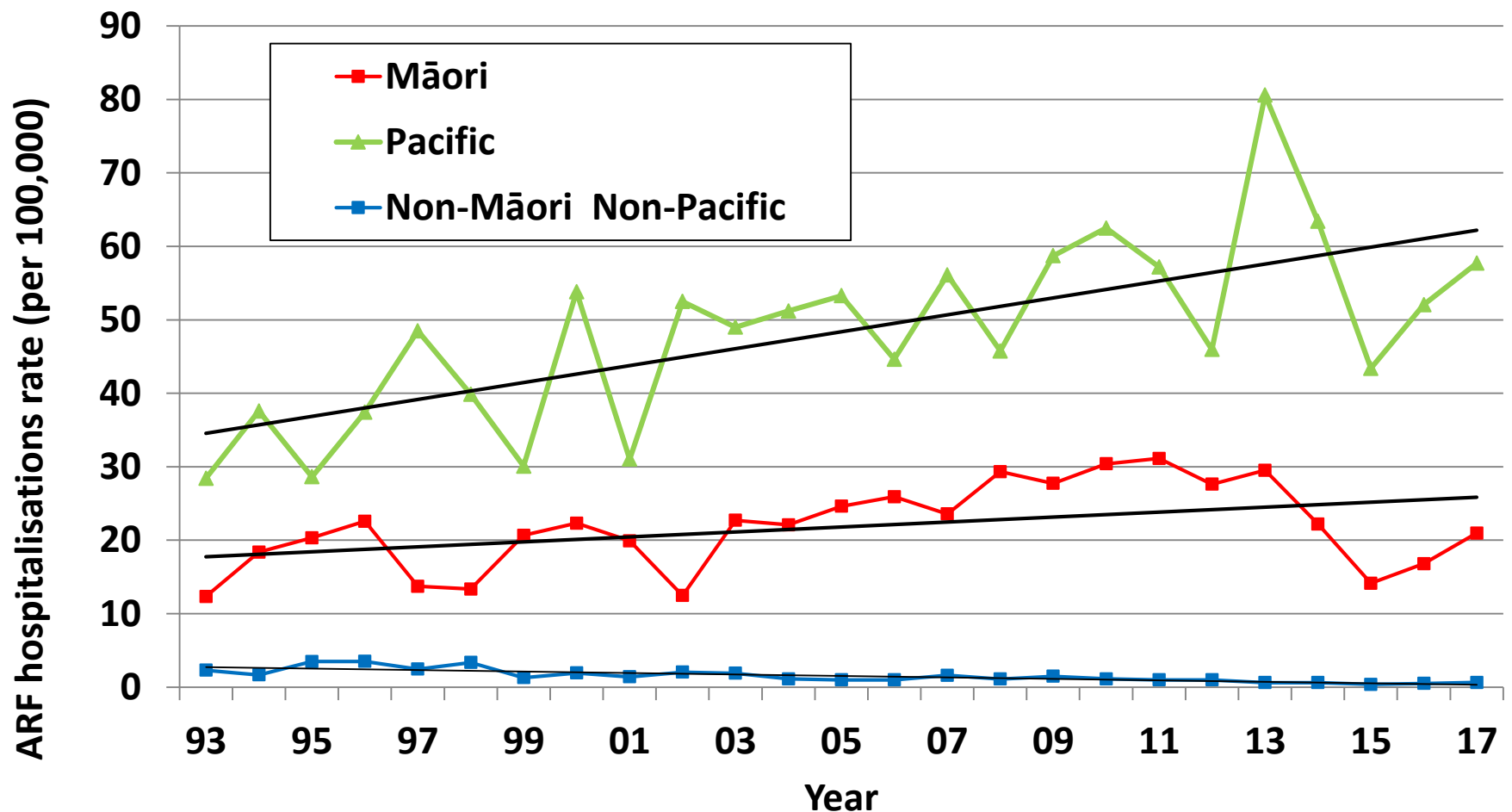
ARF incidence rate by age group & year

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



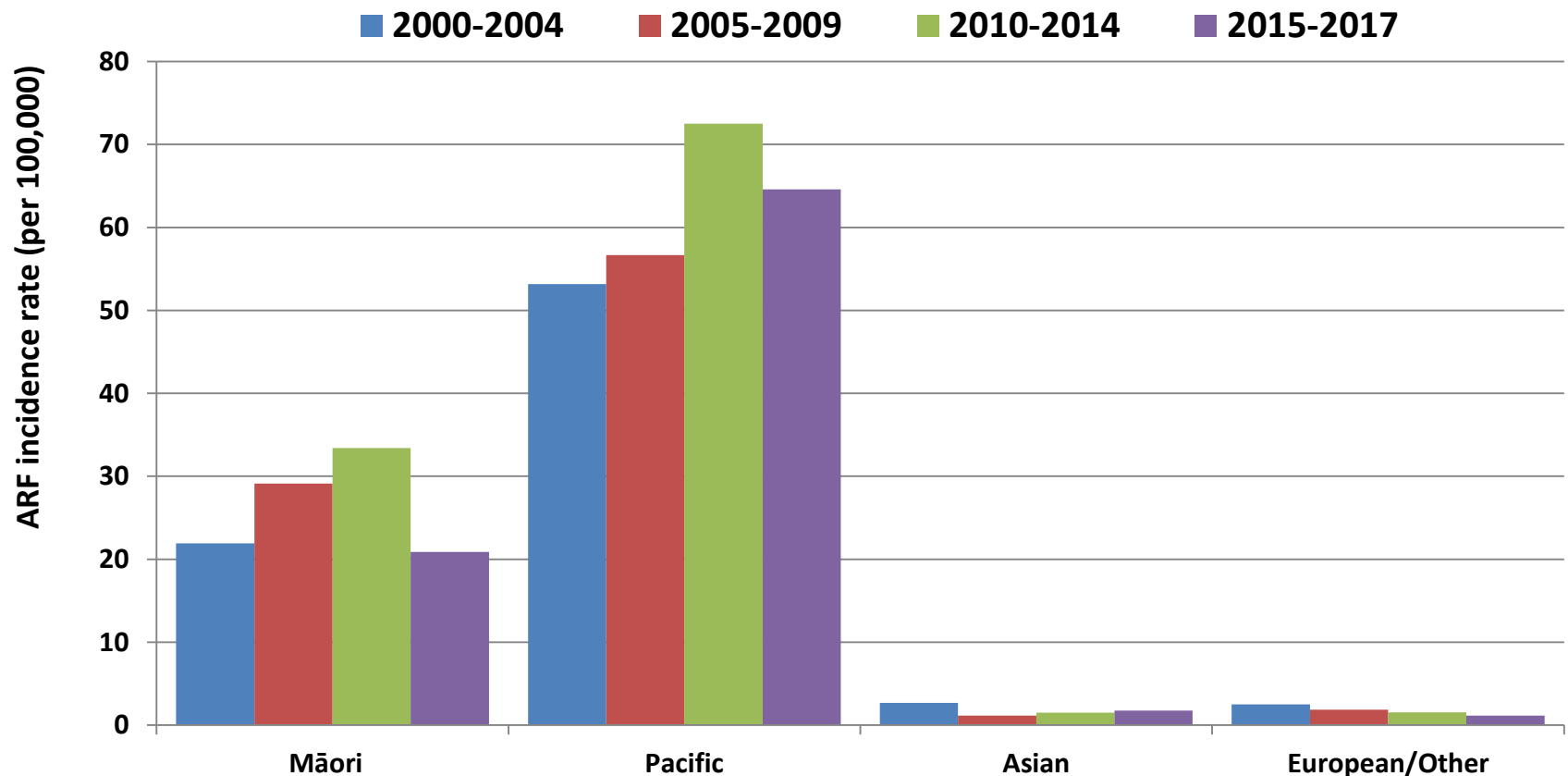
ARF incidence rate by ethnicity & year

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



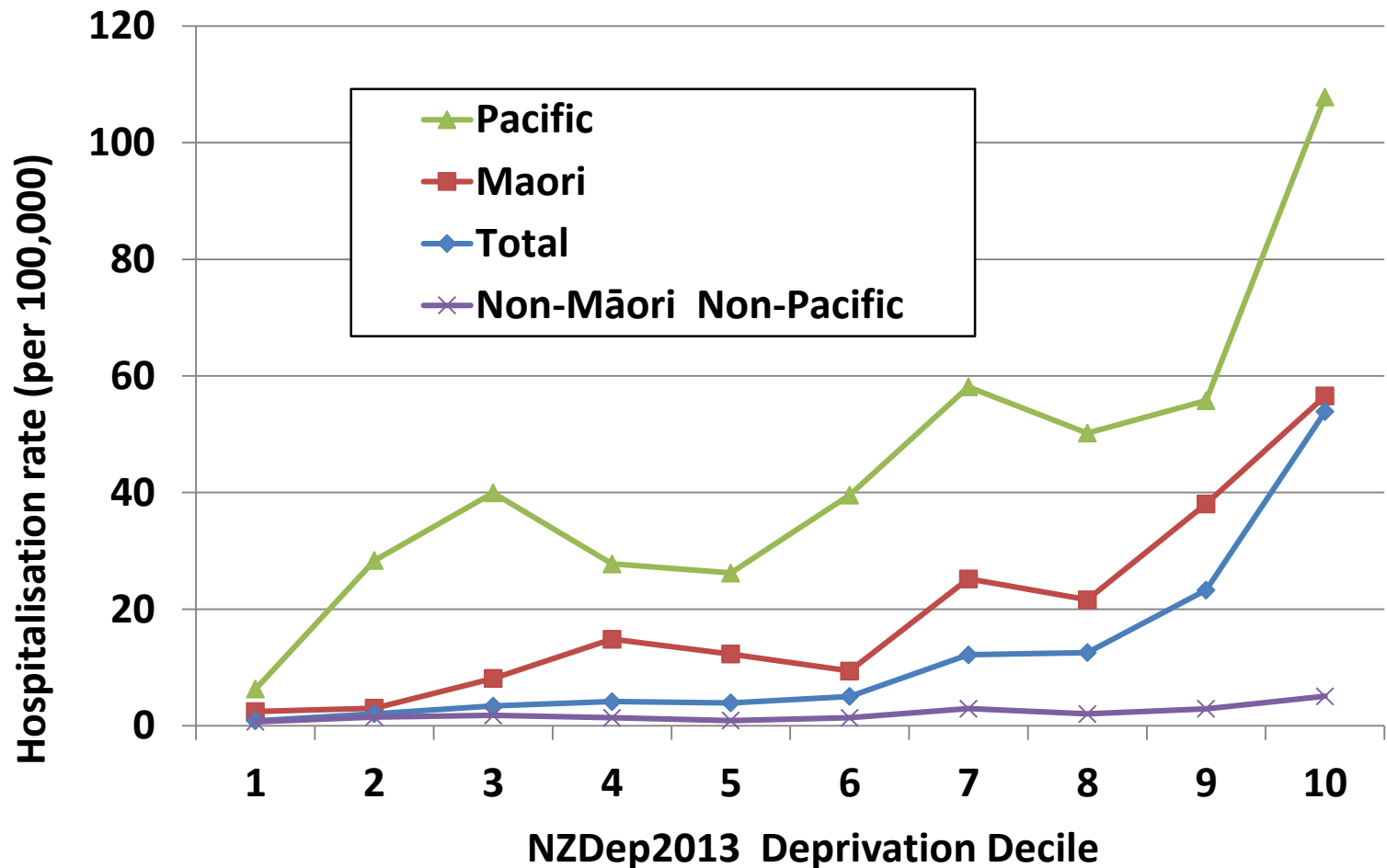
ARF incidence rate by ethnicity & year

ARF hospitalisation rate, <20 years, time trends for major ethnic groups



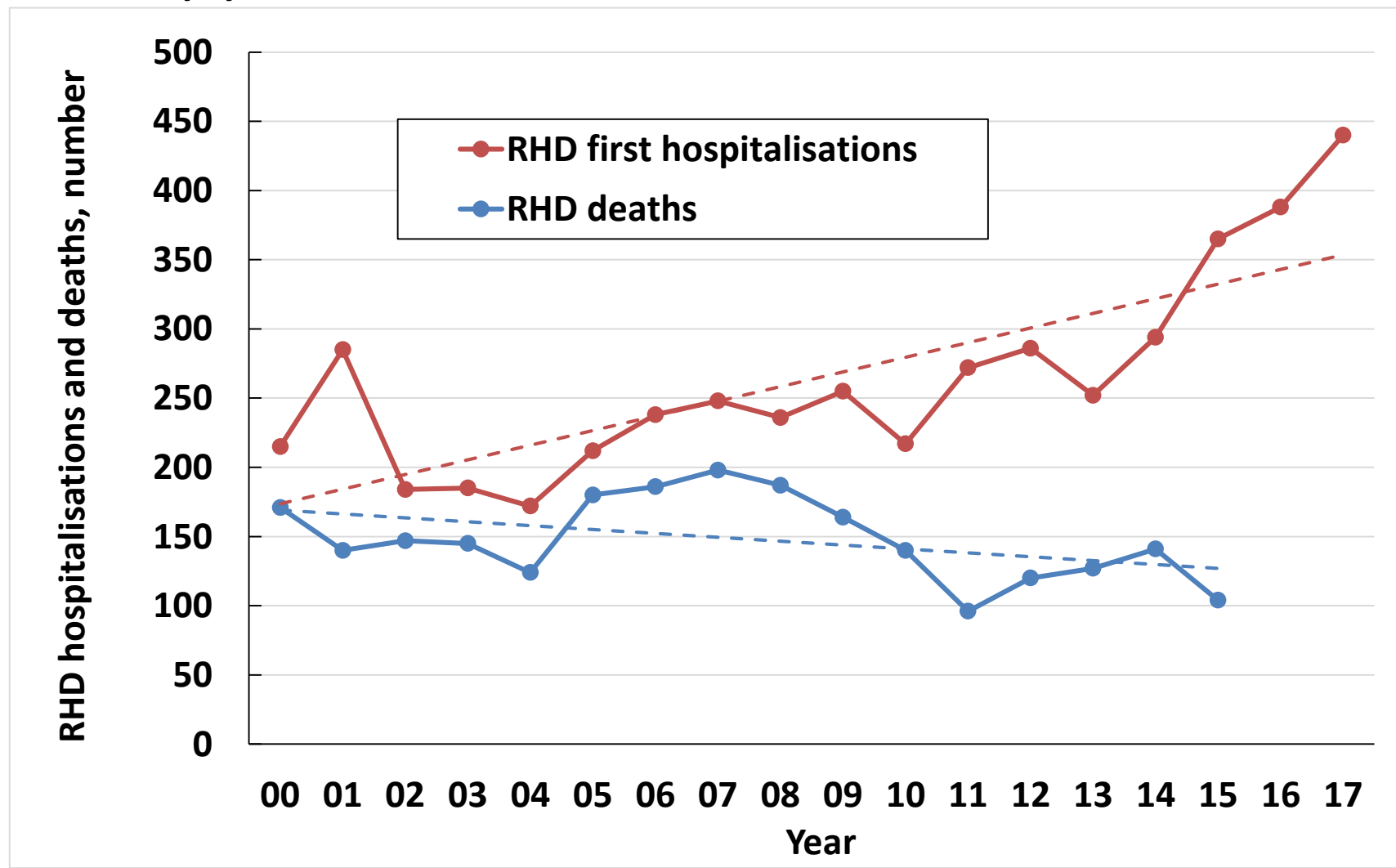
ARF incidence by ethnicity & deprivation

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



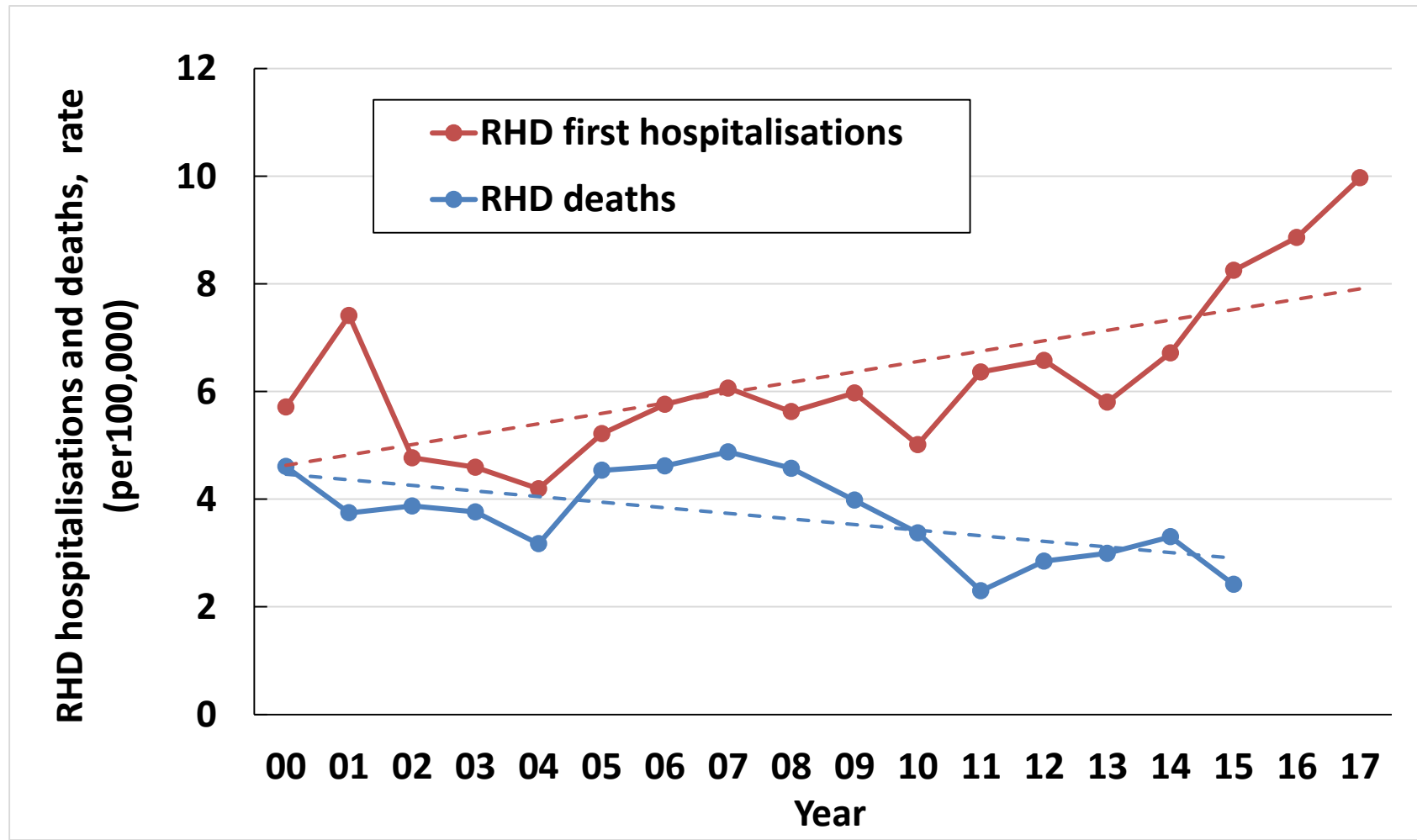
RHD cases by year: Hospitalisations, Deaths

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

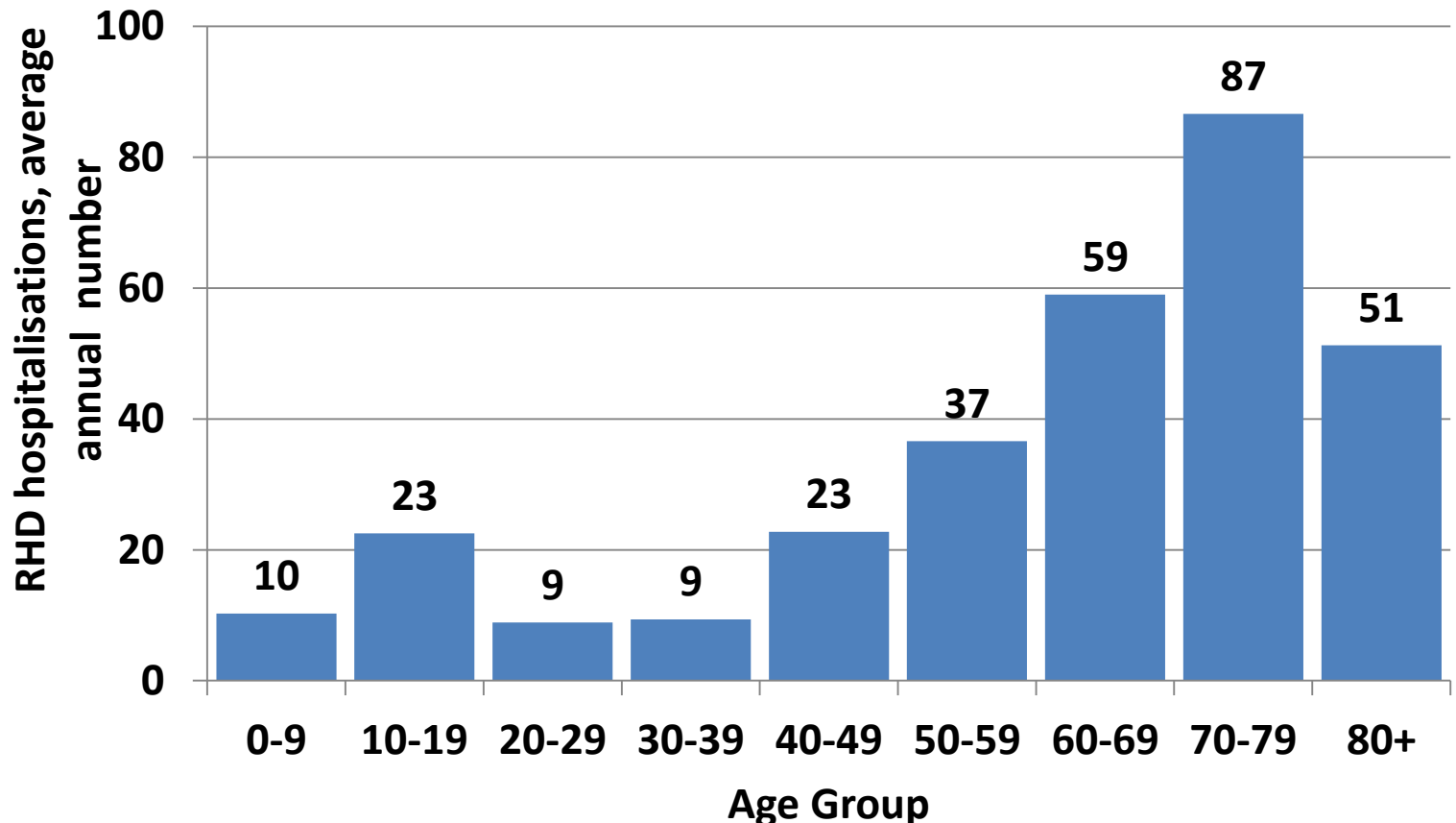


RHD hospitalisations by age group

RHD average of 307 first hospitalisations pa. 2010-17

Median age 67 years, average 51 pa <40 years

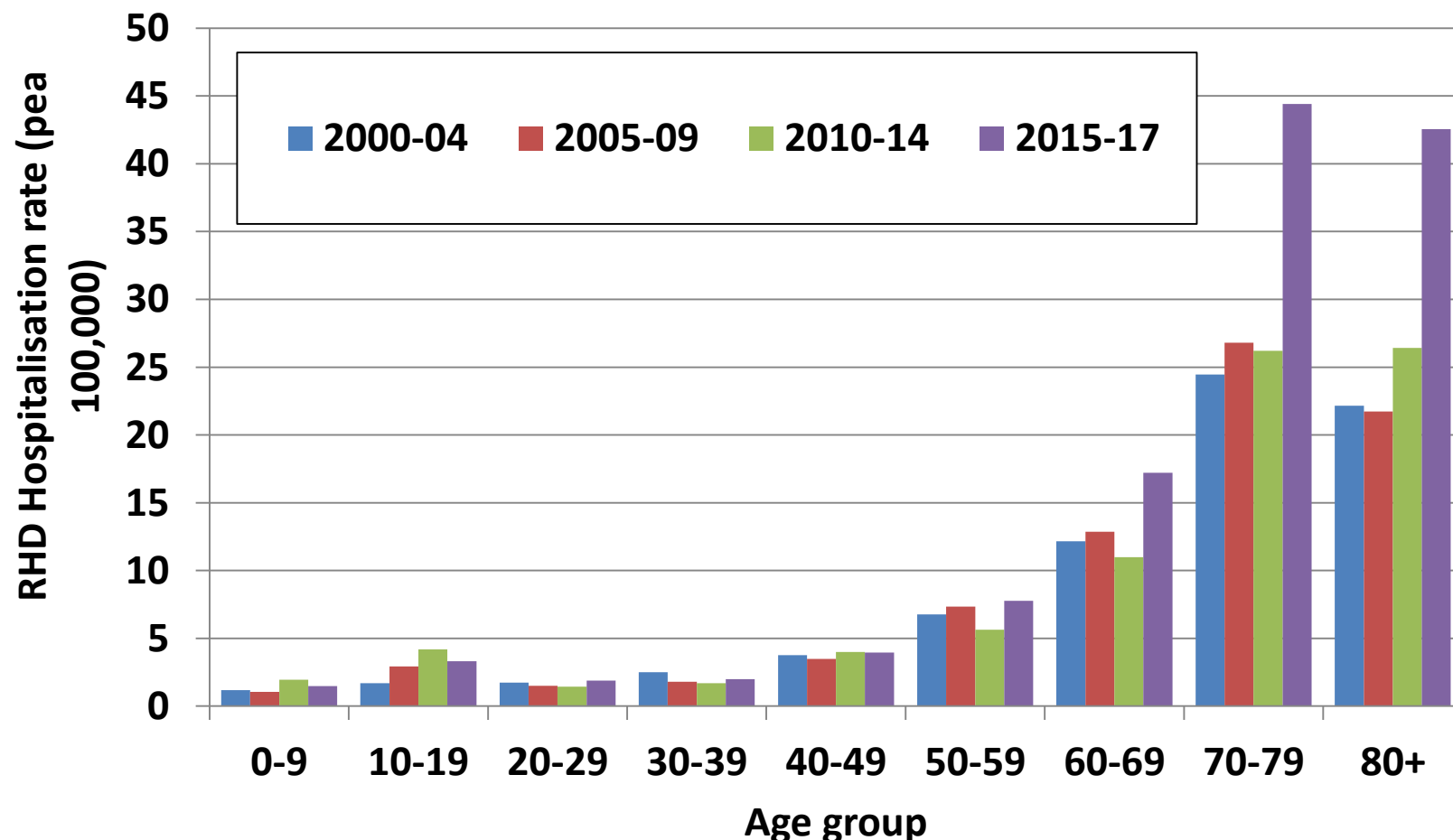
Males 52.6% of cases



RHD Hospitalisation rates by age group & year

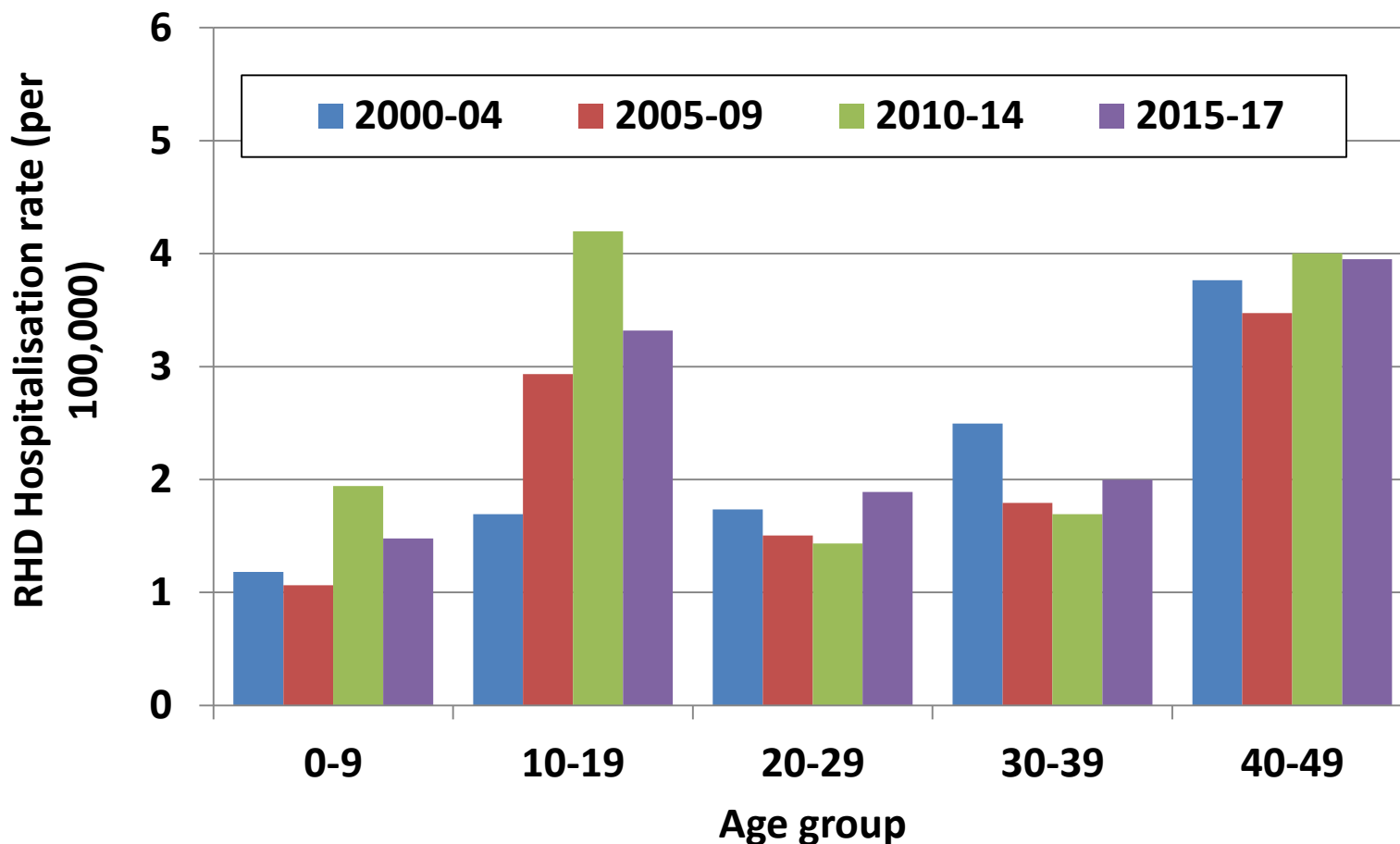
RHD hospitalisation rates, for 10-year age bands, and 5-year time periods, 2000-17

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

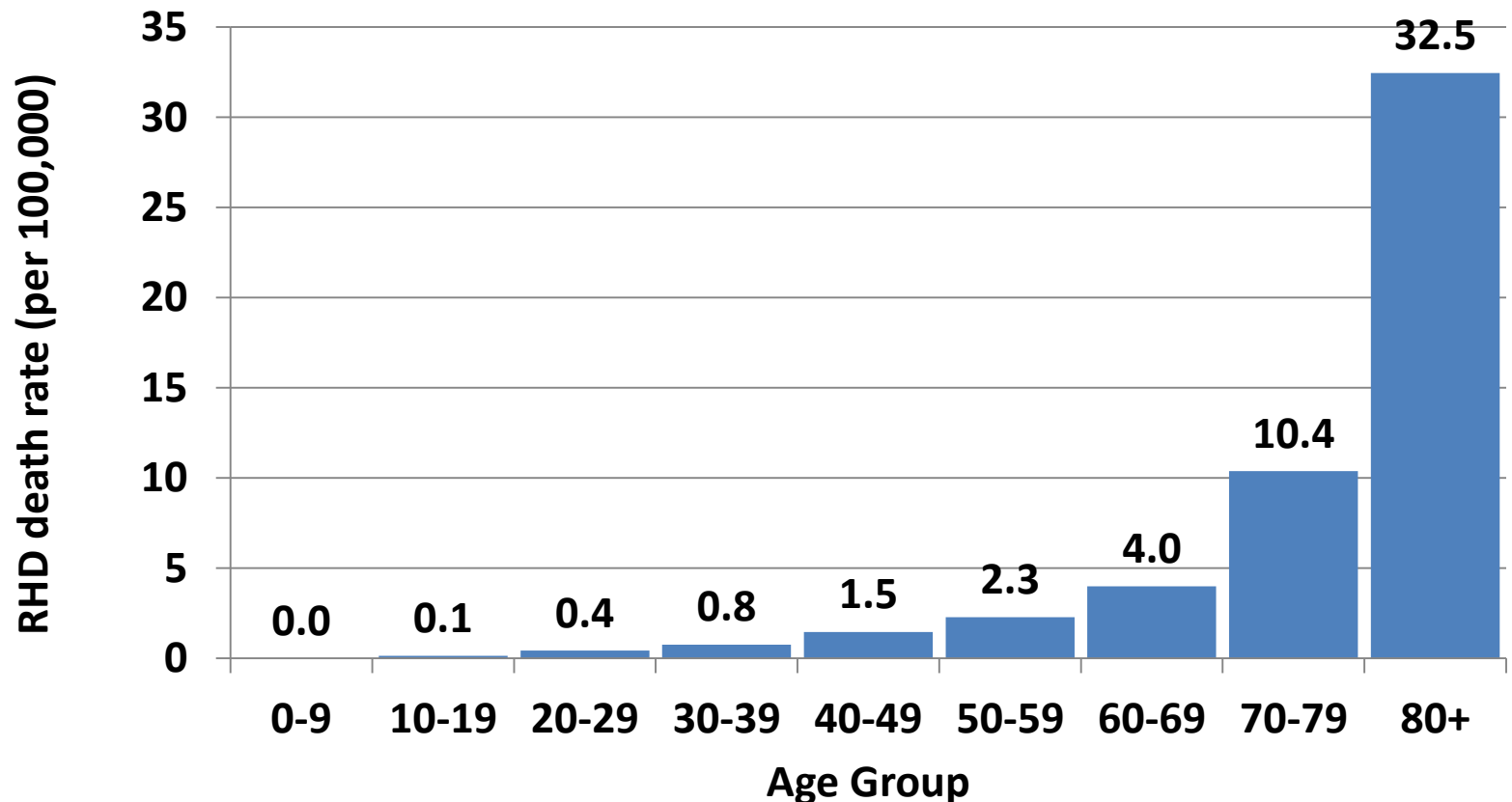


RHD Mortality by age group

Average 121 deaths pa, 2010-15

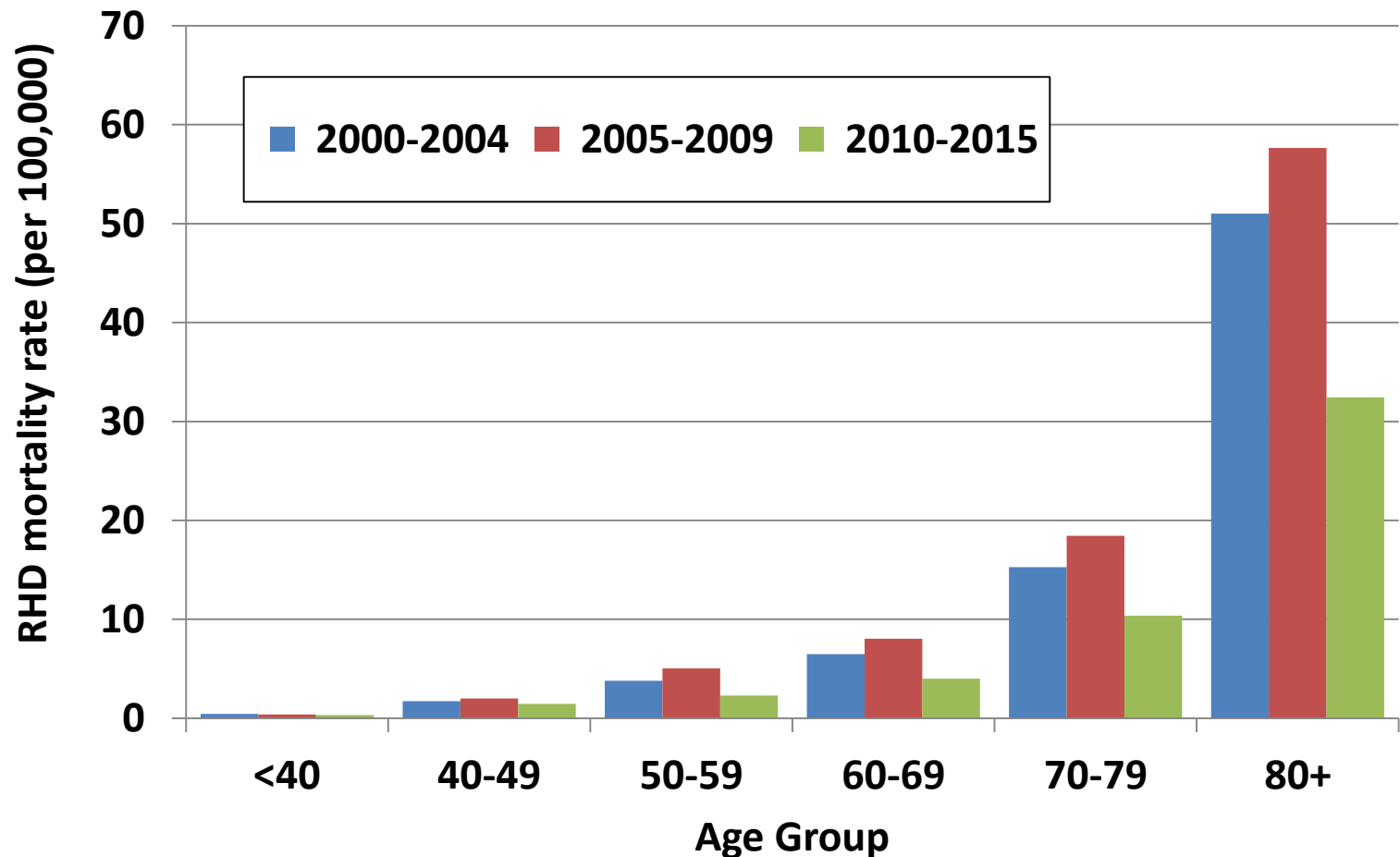
Median age 76 years, 93% 70+ years

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