

# Abstract

**Background:** Our knowledge of the contemporary incidence of acute rheumatic fever (ARF) in the Indigenous adult population is limited, with little understanding of patterns of ARF recurrence according to age and geographical location. This has created uncertainty in the development of Australian ARF guidelines surrounding the appropriate duration of antibiotics for prophylaxis. The research study aimed to describe the incidence rates of ARF in Indigenous adults, analyse patterns of recurrence according to sex, age, geographical location, and assess adherence to secondary prophylaxis.

**Methods:** ARF episodes in Indigenous adults, aged 18 years and older, recorded within the Northern Territory (NT), South Australia (SA) and Western Australia (WA) ARF registers, diagnosed between 01/01/2007 to 31/12/2017, were included. Poisson and negative binomial regression were used to estimate incidence rate ratios (IRR) and 95% confidence intervals (CI) for first and recurrent episodes according to age, sex and remoteness. Adherence to secondary prophylaxis was described in the 12 months preceding recurrent ARF episodes.

**Results:** 481 episodes across the NT, SA and WA were analysed. The incidence of ARF episodes in these jurisdictions from 2007 to 2017 was relatively constant. The overwhelming burden of disease occurred in remote areas (105 episodes per 100,000 people). An increased rate occurred in females (IRR 2.34, 95%CI 1.81-3.03). The 18-24 year olds had the highest incidence rates (115 episodes per 100,000 people). High rates of recurrence were also observed in those aged 25-34 years (96 episodes per 100,000 people). Analysis of recurrent episodes using NT data showed adherence to secondary prophylaxis was only achieved in 10% of cases.

**Conclusions:** The incidence of ARF remains very high amongst adult Indigenous Australians. Australian ARF guidelines should take into account remoteness as a significant risk factor when deciding the duration of secondary prophylaxis.