

Apparent Contrasting Rates of Pharyngitis and Pyoderma in Regions where Rheumatic Heart Disease is Highly Prevalent

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Background: The aim of the study was to describe the epidemiology of pharyngitis and pyoderma in a Central Australian Aboriginal community with a high prevalence of rheumatic heart disease (RHD) and compare it to communities in the Top End of the Northern Territory.

Methods: Following ethics approval and community consultation, selected households were enrolled and visited over a 13-month period. People were asked if they had a sore throat and/or skin sores and asked about current or recent use of antibiotics; all throats and any pyoderma lesions were swabbed for bacterial culture. Beta-haemolytic streptococci (BHS), including group A streptococcus (GAS), were identified in the central laboratory using standard methods. Household crowding was also assessed. Results were then compared to those from the Top End study.

Results: Sore throat was relatively common (480 episodes per 100 person years), although there was only one case of GAS pharyngitis in 326 consultations. Only 5.5% of children <15 years had pyoderma during the course of the study. This is the opposite picture to that reported in the Top End where symptomatic pharyngitis is rare and pyoderma is common.

Conclusions: Although the data are limited, the epidemiology of pharyngitis and pyoderma in this Central Australian Aboriginal community appears to be more akin to that seen in temperate climates rather than tropical Top End communities. In this community, RHD preventative measure should continue to include aggressive treatment of pharyngitis according to recommendations.

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Introduction

The Northern Territory (NT) covers a vast area, from the monsoonal Top End to the desert and semi-desert country of Central Australia. The arid zone of Central Australia covers about 1 million km². It extends from north of Tennant Creek to the Anangu-Pitjantjatjara lands of South Australia and the Ngaanyatjarra lands of Western Australia and does not correspond to state and territory boundaries (Fig. 1). The population is about 50,000, 40%

of whom are Aboriginal Australians.¹ The majority of the Aboriginal population lives outside urban areas there is a high level of mobility with up to 60% of the population moving each year.^{2,3} Across the NT there are marked differences in Aboriginal language and culture. There is also great variability in quality of community infrastructure, adult literacy and household size, both between regions and within each region.¹

Non-urban Aboriginal communities in both Top End and Central Australian regions have exceptionally high reported prevalence rates of rheumatic heart disease (RHD) with about 16 per 1000 population (all ages) in Central Australian and 17 per 1000 in the Top End (data from the NT Top End and Central Australian ARF/RHD Registers).^{4,5} In contrast, the prevalence rate of RHD in the non-Aboriginal population is less than 1 per 10,000

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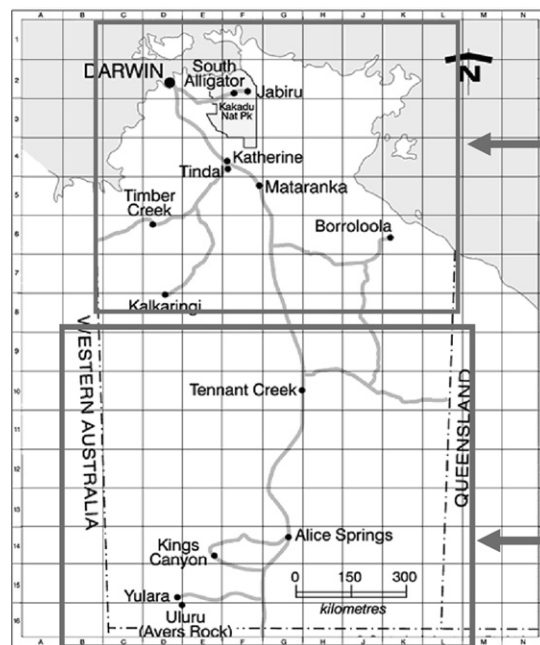


Figure 1. Map of the Northern Territory showing Central Australia and the Top End regions.

people.⁶ The reported rates of RHD in Aboriginal communities are also likely to be underestimates because a substantial proportion probably goes undetected.⁷ Detection is expected to improve with increasing awareness of acute rheumatic fever (ARF) and RHD and wider use of sophisticated diagnostic tools, such as portable echocardiogram machines. On the other hand, the reported rates of ARF have been falling in the region over the past four years (Fig. 2); this is probably due to the activities of the Central Australian Rheumatic Heart Disease Program and bodes well for the projected prevalence of RHD.

The hypothesis that, in some settings, streptococcal skin infection plays a role in the pathogenesis of acute

rheumatic fever has been primarily based on data collected from Aboriginal communities in the Top End of the NT.^{8,9} The aim of the whole project, initially conducted in the Top End, was to undertake intensive, prospective surveillance of skin and throat infection and colonisation with beta-haemolytic streptococci (BHD) in families of ARF/RHD patients in remote Aboriginal communities, combined with active surveillance for ARF, to document the site of streptococcal infections preceding cases of ARF.¹⁰

There has been scant published information reporting rates of streptococcal pharyngitis or pyoderma from Central Australian Aboriginal communities. A study published by Lehmann and others in 2003 reported data collected in semi-arid Western Australian communities and found rates of pyoderma similar to those in the Top End.¹¹ However, anecdotal information from nurses, medical officers and Aboriginal health workers (AHW) in some Central Australia communities suggested that symptomatic pharyngitis was a common problem whilst pyoderma was much less common than in communities to the west and in the Top End. If so, the epidemiology of streptococcal infection, and possibly ARF/RHD, in Central Australian communities could be more akin to that seen in temperate climates; that is, primarily driven by streptococcal pharyngitis.¹² This observation prompted the addition of a Central Australian community to the project in an attempt to document the apparent disparity between the regions.

The relative burdens of streptococcal and pyoderma have practical implications for local treatment and possible primary prevention of ARF/RHD. In the NT, most nurses, AHW and medical practitioners use a guideline (CARPA Standard Treatment Manual¹³) that recommends treatment for sore throat in all people aged 2–25 years

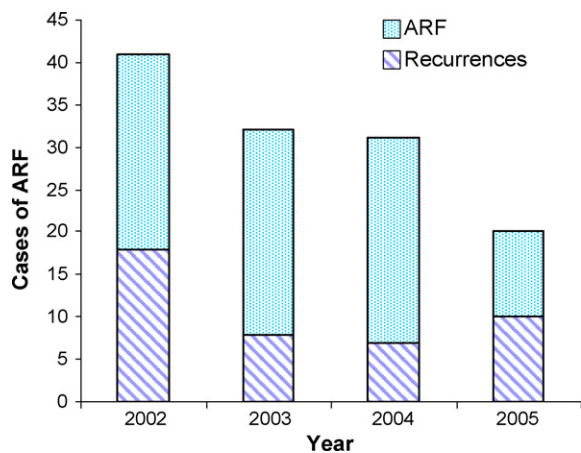


Figure 2. The reported incidence of acute rheumatic fever in Central Australia (data from the Central Australian ARF/RHD register-by permission). ARF: acute rheumatic fever; recurrences: recurrent episodes of ARF.

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