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Brief Report: Out of Sight Out of Mind - Preventable Childhood Kidney Disease in the Far North

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Abstract

APSGN is an immune-mediated kidney disease that occurs after a Streptococcus pyogenes skin or throat infection in children and contributes to chronic kidney disease later in life. It is a disease of poverty and regrettably common in Aboriginal and Torres Strait Islander children. There have been seven documented APSGN outbreaks across Far North Queensland in the last nine years. Despite this disease being notifiable in both Western Australia and the Northern Territory, Queensland is yet to acknowledge the importance of early notification in the management of APSGN. Notification-driven publication of APSGN incidence should help raise its profile and stimulate better public health policy.

Keywords

Indigenous Health, Public Health

In late spring of 2021, while most of Australia was occupied by the COVID-19 pandemic and the public heath response, primary healthcare workers in a remote Far North Queensland (FNQ) Aboriginal and Torres Strait Islander community observed an increase in healthcare presentations for skin disease. In this community, 96% of the population identify as Aboriginal Australian. Many children and a few adults were presenting to the primary healthcare centre with impetigo, scabies and other skin infections. Clinic and public health staff knew that skin infection is often 'normalised' in these communities and that there were likely to be many more infected children who did not come to the attention of the health service (Yeoh et al., 2017). Three weeks later, two children were reported to have new onset haematuria (blood in urine) and a third child was evacuated to the nearest regional hospital with haematuria, hypertension, and peripheral oedema. These children were subsequently diagnosed with acute post-streptococcal glomerulonephritis (APSGN). A community outbreak was declared, and the local public health team went into action. Six weeks later the outbreak was declared over. Sadly, this vignette is all too common in this part of Australia.

APSGN is an immune-mediated kidney disease that typically occurs about three weeks after a skin or throat infection with *Streptococcus pyogenes* (Strep A) (Scrace & Koko, 2006). It is predominantly a disease of poverty, especially in children (Marshall et al., 2011). APSGN is characterised by a constellation of clinical and laboratory features including haematuria, hypertension, facial oedema, low serum complement and evidence of recent Strep A infection (Marshall et al., 2011). Most cases result in a mild transient kidney function impairment, but some cases develop severe nephritic syndrome (Kimberley Population Health Unit, 2014). Background scabies infection is a major contributor to pyoderma, and as such, APSGN and acute rheumatic fever (ARF) share similar background risk factors (Pearce et al., 2020). While ARF is predominantly host-dependant and endemic, APSGN appears largely bacterial strain dependant and is often associated with outbreaks (Carapetis et al. ,2005). Both are accompanied by potentially devastating long-term health sequelae (RHD Australia, 2020; Hoy et al., 2012; Atkins, 2001). The social factors driving APSGN and ARF are well known: household overcrowding, lack of domestic health hardware, poverty

and poor access to health services (May et al., 2016; Bennett et al., 2022). Childhood APSGN outbreaks and ARF are entirely preventable; we know this because both are largely absent from the rest of the Australian population.

A recent internal Hospital and Health Service audit of APSGN reports found evidence of 141 confirmed and 31 probable cases across Torres Strait and Cape York communities between 2005 and 2020. All were in Aboriginal and Torres Strait Islander children. With seven outbreaks documented in the last nine years, APSGN outbreaks are almost yearly events across the region (Torres and Cape Hospital and Health Service, 2022). While alarming, these figures almost certainly fail to reflect the true burden of disease because many cases likely go undiagnosed or are treated clinically by remote health centre staff without provoking a public health response (Northern Territory Centre for Disease Control, 2010).

The history of short-term band-aid approaches to addressing APSGN outbreaks are in stark contrast to the Australian COVID-19 public health response, which marshalled intense political attention and investment of substantial resources across the nation (Queensland Audit Office, 2021). Paradoxically, to date COVID-19 has had little impact on Aboriginal and Torres Strait Islander communities in Far North Queensland. Over the last two years of the COVID-19 pandemic, more Aboriginal and Torres Strait Islander people were medically evacuated from remote FNQ communities' regional hospitals for complications from APSGN or ARF than for COVID-19 infection.

The public health response to APSGN in FNQ has been hobbled by the absence of notification under Queensland and National public health legislation. Out of sight; out of mind. APSGN is notifiable in both Western Australia and the Northern Territory, jurisdictions that have shown a strong commitment to addressing this condition in remote communities (Kimberley Population Health Unit, 2014; Northern Territory Centre for Disease Control, 2010). Notification would seem to be a simple and logical next step in addressing APSGN across Queensland, but this requires public health commitment and political initiative.

For a disease to be considered as notifiable across Queensland, it must meet the Australian National Notifiable Diseases List, which assess public health priority and the feasibility of data collection against 12 criteria (Communicable Disease Network Australia, 2022). Public health priority criteria include: necessity for public health response, utility and significance of notification for prevention programs, vaccine preventability, importance for Indigenous health, emerging or re-emerging disease, communicability and potential for outbreaks, severity and socioeconomic impacts, preventability and level of public concern and/or political interest (Communicable Disease Network Australia, 2022). Feasibility criteria include: a case definition, data completeness is likely to be acceptable and there are alternative surveillance mechanisms. While a vaccine to prevent some strains of Group Strep A streptococcus is still some time away, APSGN would score highly on the bulk of these criteria including its importance for Indigenous health.

The main challenge to legislating for APSGN notification in Queensland appears to be the limited level of public health concern and political interest from metropolitan areas rather than insurmountable practical obstructions. If achieved, notification would strengthen the ability of public health services to identify cases, undertake contact tracing and mount appropriate outbreak responses in a timelier manner, as seen in other States and Territories (Northern Territory Centre for Disease Control, 2010). Such public health responses must be co-designed, multidisciplinary, strengths-based, community-owned and community-driven (Wapau et al., 2022). The upcoming release of the inaugural North Queensland Acute Post-Streptococcal Glomerulonephritis (APSGN) Public Health Guideline may stimulate renewed discussion. To date, the regular FNQ APSGN outbreaks have failed to raise any alarm.

The COVID-19 epidemic has reignited national debate around public health priorities and the best use of public health resources (Public Health Association Australia, 2022). The availability of notification-driven APSGN incidence will help raise its profile and stimulate better public health policy. As such, any effective policy must embrace the interconnected biological, social and environmental disease determinants (Jacob et al, 2021). While out of

sight, the risk of yet another APSGN outbreak remains ever-present across remote FNQ communities. It's time to make APSGN notifiable in Queensland.

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