

Tackling rheumatic heart disease in Indigenous Australians

Rheumatic heart disease causes a large burden of ill health among Indigenous Australians. More investment is needed to prevent and manage the disease, say experts. Sophie Cousins reports.

Australia has one of the highest rates of acute rheumatic fever (ARF) and rheumatic heart disease (RHD) in the world. In disadvantaged Indigenous communities, people are up to eight times more likely than other groups to be admitted to hospital and nearly 20 times more likely to die from RHD, according to Australia's Menzies School of Health Research. "100 years ago in Australia, the urban white population had a similar RHD incidence to what the Indigenous population have today", said paediatric cardiologist Gavin Wheaton, who works at the Women's and Children's Hospital in Adelaide, South Australia.

A recent Menzies study found the prevalence of RHD in Indigenous children living in the Northern Territory (NT) was 15 children per 1000; however, the researchers thought this was a "significant underestimate", with the true extent of disease burden unknown.

RHD is caused by infection with group A streptococcus bacteria that leads to strep throat—a sore throat that most children acquire at some point but which is easily treated with antibiotics. But in communities where overcrowding is rampant, group A streptococcus spreads easily from person to person and children can often suffer from recurrent bouts of disease. This overcrowding, in addition to poor running water, lack of knowledge about the association between hygiene and health, and a delay in receiving antibiotics, means that repeated infection and exposure to strep can lead to ARF, explained Anna Ralph, senior clinical research fellow at the Menzies School of Health Research and clinical director of RHD Australia, a national coordination unit supporting the control of the disease.

What makes combating ARF even more difficult is that there's no single diagnostic test and, with the high

turnover of staff in rural and remote posts, many are not experienced with the disease that's usually associated with poverty in the developing world.

"It's time we started talking about eliminating the disease..."

Once a diagnosis has been made, a child requires penicillin injections every 28 days for 10 years, or until they turn 25 years of age, to prevent the development of RHD. "The reality is that very often we don't make an early diagnosis. While the situation has improved, it's still not uncommon to see children and adolescents having established heart valve damage at the time of diagnosis. Some of those children are missed opportunities", said Wheaton who's involved with South Australia's RHD control programme. "While a great majority of children even in very remote locations do have access to treatment, it's a matter of whether they present for treatment."

Ralph said that although penicillin injections were the cornerstone of RHD prevention, making contact with a health service every month was challenging, along with remembering when the next injection was due, and understanding the importance of adhering to the schedule. But without antibiotic treatment to stop ARF attacks, children increase their risk of damage to the heart, which can lead to RHD. "The diagnosis is potentially catastrophic", said Wheaton. "People that have severe damage to their heart valves will eventually be quite debilitated and will need valve surgery and eventually replacement of heart valves. Adolescent patients in the NT have already had one or two heart valves replaced."

Jonathan Carapetis, director of the END RHD Centre for Research

Excellence and head of the Telethon Kids Institute, is Australia's leading researcher on the issue. Although the Australian Government established a Rheumatic Fever Strategy in 2009, Carapetis said the funding allocated was the bare minimum to maintain a register of cases and "not much else".

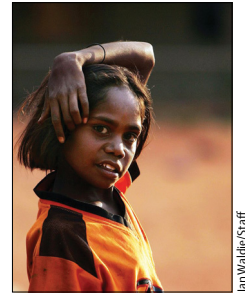
"It's a challenge. The total investment is miniscule—it pays for two or three full-time staff and a bit of technology in a whole state", he said. "The danger here is that people judge the current programme as being a success or failure without putting the right resources in to achieve success. If you want to 'close the gap', then this is the disease we have to combat."

Although experts agree that a vaccine for strep would be the key prevention tool, it's still several years away. In the meantime, improvements in hygiene, nutrition, and overcrowding are crucial. "Existing resources can start targeting high-risk families and looking at living conditions. We want to see housing overall improve."

However, the real challenge is primary prevention, say experts. The early treatment of sore throats and the treatment of skin sores is difficult because a lot of people are asymptomatic. Wheaton and Carapetis said there was also a lot of discussion about the use of echocardiograms to screen for RHD in schools and the cost-effectiveness of the intervention.

But looking ahead, there's cause for optimism that Australia will continue to make great strides in combating the disease. "It's time we started talking about eliminating the disease. It will take a generation, but we should be able to do it—we've got the resources", said Carapetis.

Sophie Cousins



Ian Walde/Staff

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For the **Menzies study** see <https://www.mja.com.au/journal/2015/203/5/rheumatic-heart-disease-indigenous-children-northern-australia-differences>