

Point-of-care Strep A tests set to save lives in remote settings

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Credit: Telethon Kids Institute

Instant diagnosis and treatment of potentially life-threatening Strep A infections is now very close to reality across Australia's remote and regional areas thanks to molecular point-of-care testing (POCT) that

slashes result times from five days to just minutes.

Published today in the *Medical Journal of Australia*, researchers from Telethon Kids Institute and their collaborators have shown that utilizing POCT machines to fast-track diagnosis of group A streptococcal (Strep A) pharyngitis in kids has the potential to revolutionize prevention strategies for acute rheumatic fever (ARF) and [rheumatic heart disease](#) (RHD).

Strep A infections are often responsible for [sore throats](#) and painful skin infections, which can lead to irreversible and potentially deadly heart and kidney damage if left untreated.

Affecting remote Aboriginal and Torres Strait Islander Australians at some of the highest rates in the world, the key challenge in the prevention of ARF and RHD has been timely diagnosis and treatment of Strep A to minimize the risk of serious complications and stop the spread of infection throughout communities.

Dr. Dylan Barth, Honorary Research Associate and Epidemiologist for the END RHD Program at the Wesfarmers Center of Vaccines and Infectious Diseases, based at Telethon Kids Institute, and Adjunct Research Fellow at The University of Western Australia, said using POCT brings the diagnostic lab directly to the patient and will play a crucial role in elimination of ARF and RHD in Australia.

"Our research has shown that POCT is extremely efficient in detecting mild and undiagnosed infection and facilitates early confirmation of Strep A pharyngitis by reducing turnaround time from several days for traditional laboratory testing down to just minutes," Dr. Barth said.

"Over 100 POCT machines were set up in remote health clinics throughout Australia as part of COVID-19 testing, and this network of

machines will be a game-changer in enabling clinicians to accurately treat patients on the spot.

"A positive test will minimize missed opportunities to treat patients who have a Strep A [sore throat](#) and reduce the risk of antimicrobial resistance by ensuring clinicians only prescribe antibiotics to children with a confirmed result.

"In addition to the considerable benefits for young people at risk of Strep A, utilizing POCT will enhance public health surveillance systems to detect outbreaks and action a public health response in a timely manner. "

Dr. Asha Bowen, Head of the END RHD Program at the Wesfarmers Center of Vaccines and Infectious Diseases, Associate Professor at The University of Western Australia and Perth Children's Hospital Pediatrician, said the roll-out of a POCT program for Strep A is backed up by years of research at Telethon Kids Institute.

"We demonstrated the value of molecular POCT in a previous study screening 120 [school children](#) in Western Australia's remote Kimberley region. Thanks to the extremely quick, highly sensitive results, we were able to identify 72 percent of children with sore throat symptoms had Strep A pharyngitis," Dr. Bowen said.

"As part of a collaboration led by the Kirby Institute at UNSW Sydney, we now have the opportunity to extend the existing use of POCT set-up during the COVID-19 pandemic to incorporate Strep A into this platform of tests, and the research team has received just under \$10 million in Medical Research Future Funding from the Australian Government to make this happen.

"Working closely with Professor Rebecca Guy from the Kirby Institute

and many other collaborators, including the National Aboriginal Community Controlled Health Organization (NACCHO), we are looking forward to seeing POCT becoming the standard of care for the diagnosis and treatment of Strep A infection in remote settings.

"Using POCT will go a long way in ensuring we identify cases of Strep A as early as possible, significantly reducing the number of Aboriginal and Torres Strait Islander children facing the life-long burden of RHD and giving these kids the bright future they truly deserve."

More information: Dylan D Barth et al, Roadmap to incorporating group A Streptococcus molecular point-of-care testing for remote Australia: a key activity to eliminate rheumatic heart disease, *Medical Journal of Australia* (2022). [DOI: 10.5694/mja2.51692](https://doi.org/10.5694/mja2.51692)

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