Te Niwha

Research Project Impact Case Study

Hurts less, lasts longer: Applying Māori and Pacific patient-centered models to implement subcutaneous injections of high dose penicillin to prevent RHD

Short Research Title

Reducing barriers, improving lives: A new approach to rheumatic fever treatment

Key researchers

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Introduction

Acute rheumatic fever (ARF) occurs as an abnormal immune response following a *Group A Streptococcus* infection. ARF can damage the heart, leading to rheumatic heart disease (RHD), disability, and early death. Preventing disease progression relies on regular intramuscular (IM) benzathine penicillin (BPG) injections, but these are painful and difficult to sustain as they are required to be administered every 28 days for a minimum period of 10 years. This project has implemented a less painful, longer-lasting alternative using high-dose subcutaneous injections of penicillin (SCIP). SCIP ensures that protective levels of penicillin last for at least three months, reducing the need for frequent injections. Alongside SCIP, we implemented a rangatahi Māori and Pacific whānau-centred model of care to support the delivery of both IM BPG and SCIP.

Research activities

This programme of work has built on previous studies to combine clinical, pharmacological, and implementation research to generate robust evidence on the safety, efficacy, and acceptability of high-dose subcutaneous penicillin (SCIP). In a Phase IIa trial, approximately 100 participants with ARF across the Wellington and Waikato regions have received over 400 SCIP doses, with the trial supported by three dedicated research nurses (two in Wellington and one in Waikato). The trial demonstrated that SCIP is safe, well-tolerated, and maintains protective penicillin levels longer than traditional intramuscular injections.

In addition, our qualitative research interviewing Māori and Pacific young people confirmed that SCIP "hurts less, lasts longer" and was strongly preferred to IM delivery. As an additional initiative, we undertook economic modelling, recognising it was necessary to understand costs; this showed that SCIP can reduce treatment costs compared with standard IM injections, particularly for younger children and scenarios with higher adherence, supporting its broader implementation in Aotearoa, New Zealand.

We have also expanded our body of work to include the upskilling of community nurses, with approximately 30 nurses nationwide trained in SCIP delivery and more than 60 nurses from the Waikato trained in cultural safety to ensure ARF care is sustainable, safe, and culturally responsive. We secured locally ethics approvals for our South Island expansion, and nurses in Oamaru, Dunedin and Christchurch now administering SCIP. This integrated approach demonstrates the programme's ability to combine rigorous research, practical implementation, and culturally safe care to support patient adherence and broader health system uptake.

The programme also implemented and evaluated a rangatahi Māori and Pacific whānau-centred model of care, which included dedicated whānau navigators to support families and enhance engagement, communication, and culturally safe delivery of both IM and SCIP. Two whānau navigators in the Waikato currently supported approximately 30 whānau and have held peer-support hui, providing ongoing guidance, education, and advocacy. These achievements demonstrate that SCIP, supported by a whanau centred model of care is a feasible, culturally responsive, and sustainable alternative to traditional monthly IM injections, improving patient experience, adherence, and health equity.

Key achievements

This programme has delivered significant outcomes and measurable impact beyond the trial itself. It has strengthened workforce capability by training community nurses nationwide in both SCIP administration and cultural safety, ensuring sustainable and culturally responsive delivery of secondary prophylaxis. The project has actively engaged with Māori and Pacific communities through whānau navigators and peer-support hui, fostering trust, empowerment, and greater participation in care. Findings have been disseminated widely through peer-reviewed publications, and conference presentations, contributing to national and international discussions on improving ARF/RHD prevention. Collectively, our achievements demonstrate that SCIP, combined with a rangatahi Māori and Pacific whānau-centred model of care, is a feasible, safe, and culturally responsive alternative to conventional monthly intramuscular injections, with strong potential to transform secondary prophylaxis delivery and reduce health inequities both in Aotearoa and internationally.