

Supplementary Material

Addressing rheumatic fever inequities in Aotearoa New Zealand: a scoping review of prevention interventions

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Supplementary file S1. Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	1
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	4-5
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	5
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	Not applicable
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	5
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	6
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	Appendix B
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	6
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	7
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	7
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	Not applicable
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	7

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	7, Figure 1
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	Table 1
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	Not applicable
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	Appendix C
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	7-12
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	12-14
Limitations	20	Discuss the limitations of the scoping review process.	14
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	14
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	15

JB1 = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).


‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Ann Intern Med*. 2018;169:467–473. doi: 10.7326/M18-0850.

Supplementary file S2. Electronic search strategy

Scopus




Scopus

SearchSourcesListsSciVal?

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219 document results

(TITLE-ABS-KEY (rheumatic OR "rheumatic fever" OR "group A strep*") AND TITLE-ABS-KEY (interven* OR reduc* OR prevent* OR manag* OR evaluat* OR strateg* OR initiative) AND TITLE-ABS-KEY ("New Zealand" OR aotearoa OR "NZ"))

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

Medline (Ovid)

▼ Search History (6)


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EMBASE (Ovid)

▼ Search History (6) View :

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CINAHL



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Supplementary file S3. Table of stocktake interventions (all sources including peer reviewed articles & grey literature)

Reference & organisation	Programme	Region	Target population	Initiative type	Primary setting	Description of initiative	Pacific or Māori focus	Start & end date (if known)	Evaluation & outcomes
Lennon et al 2008 ¹	Once-daily amoxicillin versus twice-daily penicillin V in GAS pharyngitis	Auckland	Children presenting to sore throat clinic	Treatment	Clinical	Randomised non-inferiority trial in NZ school-based clinic. Children with GAS pharyngitis randomised to oral amoxicillin 1500 mg once daily or to oral penicillin V 500 mg twice daily for 10 days. Observed medication & weekend diary cards used to monitor adherence	Unknown	1996-1998	353 children with +ve throat swabs randomised to amoxicillin (n = 177) or penicillin V (n = 176). No significant differences in resolution of symptoms between groups. 1 case of unsubstantiated ARF after 7 days of amoxicillin. Once daily oral amoxicillin not inferior to twice daily penicillin V for treatment of GAS
Grayson et al 2006 ²	Regional audit of nurse-led RF secondary prophylaxis programme	Auckland	Patients with RF	Secondary prophylaxis	Clinical	Confirmed RF episode notified to Medical Officer of Health, listed on Auckland RF Register & put on RF secondary prophylaxis programme, delivered by community nursing services. Register data audit 1998 & 2000 assessed compliance. Average compliance rates for community nursing offices & DHBs calculated	Unknown	1998-2000	Community-based nurses provide efficient way to deliver RF secondary prophylaxis programme. Results showed compliance rates across 3 Auckland DHBs ranging 80%-100% for individual community nursing offices. Community health workers have key role to play in facilitating compliance
Lennon et al 2009 ³	School-based prevention of acute RF randomised trial	South Auckland	Primary & secondary schools	School-based throat swabbing Awareness	School	53 schools randomised to sore throat clinic or no clinic & routine GP care. Clinic provided education, diagnosis & observed treatment. Classrooms visited daily to ask if children had sore throats. Monthly inspections identified undeclared cases. Parents of students with +ve culture contacted for short medical history & consent for 10 days of school nurse-observed oral penicillin. Outcome measure was presence of ARF	Oversight by Board with Pacific & Māori members, close consultation with Māori health providers. Māori & Pacific communities consulted	1998-2001	Non-significant reduction in RF for school-based sore throat clinic programs. Possible reasons include small numbers of RF cases, high turnover rates in some schools (some 100% in single year), schools randomly allocated clinic therefore in particular neighbourhoods, siblings could be in intervention or control school, likely resulting in inadequate control of spread of highly infectious GAS

Harré et al 2000 ⁴	School-based prevention of RF project	South Auckland	Primary & secondary schools	Awareness	School	Communication provided to students in schools with sore throat clinics explored. 1 school in South Auckland, majority Māori & Pacific, received intervention & compared with control school. Intervention was 3 assemblies led by public health nurses, classroom lessons on RF & information sheet about clinics. Pre/post questionnaires measured student understanding & motivation to attend clinic	Pacific Island teaching structures often used at intervention school. Large-group assemblies may have been culturally effective format for students	2000 (publish date)	Assemblies conducted by public health nurses was highly attended (85%) & most effective as it was engaging, simple & humorous. Information sheet least effective – read by only 37%. Students at intervention school showed significant improvement in knowledge compared to students at control school
Jarman, 2008 ⁵ <i>Northland District Health Board (DHB)</i>	Whangaroa RF Prevention Programme	Whangaroa, Northland	Families, in particular Māori	School-based throat swabbing Awareness	School	Programme included school-based intervention & community health promotion. Hui in Whangaroa in 2001 agreed: <ul style="list-style-type: none"> • 3 times weekly swabbing of school children with sore throats • Referral of +ve cultures to medical centre • Oral amoxycillin for 10 days • Education on sore throats • Community-owned partnership approach 	Collaboration with local Māori Health Trust. Local Māori community health workers (kaimahi) delivered educational messages	2002-ongoing	Prior to intervention, RF notifications for 5–14 years in Whangaroa = 424/100,000, all Māori. Intervention began in February 2002. Only 1 new case of ARF identified since programme onset
Atatoa-Carr et al, 2008 ⁶ <i>National Heart Foundation of NZ</i>	NZ Guideline for RF Diagnosis, Management & Secondary Prevention	National	All people in NZ	Primary care guidelines	Clinical	Guideline developed, reviewed & consulted on by group of experts & wider stakeholders. NZ guideline should result in improved consistency in approach to this disease, & reduced mortality & morbidity from acute RF & rheumatic heart disease	Endorsed by Te Hotu Manawa Māori, Pacific Islands Heart Beat, Pasifika Medical Association, & Te Ohu Rata o Aotearoa. Māori/Pacific experts among writing group, reviewers & contributors	2006	Lack of information regarding evaluation & outcomes. (2006 guidelines were updated in 2014 guidelines version)
Northland DHB, 2020 ⁷ <i>Te Hauora o Kaikohe</i>	Throat swabbing project	Northland	Kaikohe	School-based throat swabbing Awareness	School	Based in Kaikohe, covering 8 schools. Programme used school-based throat swabbing & treatment activities & community awareness raising through local media (eg Māori radio)	Led by Te Hauora o Kaikohe with aim of achieving optimal outcomes for whānau	2008	RF cases in area stabilised since project began (0-2 cases / year). Report ⁸ identified that programme less successful than in Whangaroa, due to inadequate management capabilities under-funding

Sharpe et al, 2011 ⁹ <i>Te Ao Hou PHO & Whakatohea Iwi Social & Health Services</i>	Opotiki Rheumatic Fever Prevention Project	Opotiki, Bay of Plenty	Māori children, whānau, iwi, & hapū in Opotiki district	School-based throat swabbing Awareness	School	Piloted & rolled out across Opotiki schools in 2009. Kaimahi visited each class 2-3 times a week, offering throat swab to any child with sore throat. If +ve, child prescribed 10-day course of penicillin by GP. Community awareness campaign raised public awareness	Extensive involvement of Māori community groups, leaders, service providers & health workers	2009	20% throat swabs +ve for GAS at programme beginning in Oct 2009, dropped to 3% by Dec 2010. Reports of 2011 evaluation ¹⁰ highlighted strong sense of community ownership, support from parents, GP practices & kaimahi
Kerdelmidis et al, 2009 ¹¹	Guidelines for sore throat management in New Zealand	National	All people, Māori, Pacific & low SES	Primary care guidelines	Clinical	Sore throat management guideline for NZ context. <ul style="list-style-type: none"> Recommended diagnoses & treatments. A sore throat algorithm which takes into account differences in risk 	Algorithm & guidelines take into account differences in risk for Māori & Pacific	2009 (publish date)	Lack of information regarding evaluation & outcomes
Mardani et al, 2011 ¹²	Throat swabbing for primary prevention of RF following health information	Flaxmere Hawkes Bay	Children aged 5-14 years, particularly Māori & Pacific	Awareness	Community	Health promotion activities in Mar–Aug 2009 to increase sore throat swabbing in Flaxmere vs non-Flaxmere residents in Hawkes Bay. <ul style="list-style-type: none"> RF information & guidelines sent to Hawke's Bay general practices Promotion of "sore throats matter" message at Flaxmere Family Festival Pamphlets distributed to school community if student developed RF. 52% of Flaxmere children aged 5–14 years received at least 1 pamphlet during 2009 	Focused on children in Flaxmere, high proportion of whom Māori or Pacific	2009	Higher pre-intervention bacterial throat swab rate for Flaxmere children (6.0% vs 3.2%; p<0.001). Throat swab rate increased for Flaxmere children during intervention period, compared to the previous year (1.6; 1.3–2.0) & compared to the increase observed among non-Flaxmere children (1.4; 1.1–1.8). Significant increase in throat swab rate of Māori & Pacific children (1.8; 1.4–2.4). Intervention was effective for children with highest risk
Toi Te Ora Public Health, 2017 ¹⁰ <i>Lakes DHB</i>	Lakes DHB Rheumatic Fever Awareness Campaign	Bay of Plenty	Māori in Lakes DHB region.	Awareness	Community	'Sore throats matter' awareness campaign, Sept–Dec 2009 with culturally appropriate resources & a Kanohi ki te kanohi / train the trainer approach. Key modes included pamphlets, posters, presentations & workshops, Māori & Pacific radio advertorials, press releases, utilising local iwi networks, puppet shows for primary school children. RF awareness waiata composed & held regular spot on Māori radio station in 2010	Based on kaupapa Māori philosophies. Led by local Māori health professional with support from key (non-Māori) health professionals & organisations	2009	After 12 workshop presentations, evaluation found 58% average increase in RF knowledge & awareness (across all questions & respondents) ⁸

Walsh et al. 2020 ¹³	School-based Sore-throat Treatment Programs & ARF Amongst Indigenous Māori	Bay of Plenty	Māori school children	School-based throat swabbing	School	3 cohorts of Māori schoolchildren received different interventions: <ul style="list-style-type: none"> • 1st cohort: School programmes commencing 2009 to 2012, in addition to GP care. Term-time throat swabs offered 2x weekly for sore throats during class visits. GPs provided prescriptions for GAS +ve swabs • 2nd cohort: No school-based programme • 3rd cohort: 1 small school-based programme & mainly GP care All cohorts had public health promotion & usual GP care with Health Ministry's intensified programme	Focused on cohorts of Māori schoolchildren	2009-2012	ARF declined in cohorts with school-based programmes. Cohort 1 saw significant post-intervention decline of 60%. Cohort 3 ARF incidence decreased 48%, from 50 to 26/100,000/year RR = 0.52(CI 0.27–0.99) P = 0.044. Cohort 2 students with GP-only care experienced increase in ARF, RR = 2.28(CI 0.99–5.27) P = 0.047
Hawkes Bay DHB, 2012 ¹⁴ <i>Hawke's Bay DHB & Te Taiwhenua o Heretaunga</i>	The Say Aah project	Flaxmere Hawkes Bay	School children in Flaxmere.	School-based throat swabbing Awareness Housing	School	Fronted by All Black Israel Dagg. Aimed to take throat swabs from all school children in Flaxmere. Strategies to increase compliance included medicine dispensed in single bottle with measuring cup (liquid) or blister packed (capsules), sticker chart (prize for completing 10 days), medication delivered to home, free of charge to family, 5-day check. Referrals for eligible families to Hawkes Bay DHB Healthy Homes Initiative	Led by Hawkes Bay DHB & Te Taiwhenua o Heretaunga. Use of kaiāwhina to access & support high risk families	2010-ongoing	As of Aug 2012, 5702 swabs were taken, 704 +ve (12.3%), 100% treated, 92% of whanau chose nurse treatment, 95% given 1x daily amoxycillin, 1 case of RF. 2015 evaluation ¹⁵ found Say Ahh was "highly effective", showing reduction in ARF rates since implementation. Programme judged "somewhat effective" for improving equity of access to throat swabbing
New Zealand Guidelines Group, 2011 ⁸ <i>Counties Manukau DHB & the National Heart Foundation of NZ</i>	The Bro'town Project	South Auckland & Waikato DHB region	Māori & Pacific children & youth	Awareness	School	3 hard copy comics with Samoan characters from Bro'town TV show. Aim to raise awareness among Māori & Pacific children & youth, with parents as secondary audience. Trialled with children in low decile South Auckland schools, & youth in the Waikato DHB region. <ul style="list-style-type: none"> • Comic 1: RF prevention & what to do if you have sore throat. • Comic 2: ARF hospital journey. • Comic 3: Preventing another attack of RF (i.e., monthly BPG injections) 	Conceptualised by Pacific nurses in Counties Manukau DHB. Pacific Heartbeat managers also consulted during development	2010-ongoing	Lack of information regarding evaluation & outcomes

Lowe, 2015 ¹⁶ <i>Toi Te Ora Public Health Service, Bay of Plenty DHB</i>	Bay of Plenty Rheumatic Fever Awareness-raising Campaign	Bay of Plenty	People in Bay of Plenty	Awareness	Community	Multi-media awareness campaigns in 2010-12 & 2014 promoted early diagnosis & treatment of GAS to reduce ARF. Locally-affected children fronted local campaigns. <ul style="list-style-type: none">• General awareness raising• Targeted among high-risk communities (eg Māori tamariki, whānau, iwi & hapū)• Targeted at local GPs & health professionals to promote use of Heart Foundation RF Guidelines Included press releases, newspaper articles, locally voiced radio adverts, kanoahi ki te kanoahi approaches, English & Te Reo resources, RF website, school newsletters & RF presentations for local GPs	Extensive leadership from local Māori communities. Local Māori networks, kaimahi & agencies utilised	2010-2014	Street surveys before, during & after awareness campaign. In 2012, 65% of respondents answered that sore throats can lead to acute rheumatic fever, 82% reported that if they had sore throat, they would ask for throat swab. 2014 evaluation found: <ul style="list-style-type: none">• 2/3 surveyed individuals knew something about RF• Television adverts most readily recalled source• Strong support for school-based throat swabbing programmes
Gray et al., 2013 ¹⁷	Nurse-led school-based clinics for skin infections & RF prevention	South Auckland	School children in South Auckland	School-based throat swabbing Skin infections Awareness	School	Pilot nurse-led clinic in South Auckland primary school. Study ran from Apr-Jul 2011. PHN & whānau support worker recruited. Students consented. Clinic focused on timely diagnosis & treatment of GAS throat infections & skin infections. Families educated on importance of completing full course of antibiotics, students incentivised with sticker charts & families supported by regular phone calls from PHN	Based in a South Auckland school with roll of 400, approximately two thirds Pacific & one third Māori	2011	Small numbers so programme effectiveness not formally assessed. 92/720 isolated occurrences of GAS (13 % positive). Medication provided by nurse in 85/92 cases. 7 sought care from GP. 98 episodes of skin conditions in students referred to PHN. Provision of free antibiotics by PHN time saving for staff & encouraged students & families to maintain good antibiotic adherence
Jack et al., 2018 ¹⁸ <i>Ministry of Health</i>	Rheumatic Fever Prevention Programme (RFPP)	National	All, with focus on equity for Māori & Pacific children	School-based throat swabbing Awareness Housing	Community	Government invested \$65 million into multi-faceted intervention. Programme included: <ul style="list-style-type: none">• School-based sore throat service for high-risk children in areas of relative socio-economic deprivation.• Improved primary care management through provider education• Raising community awareness• Free 'drop-in clinics' for throat swabbing & treatment for high-risk Māori & Pacific youth & their families• Referrals to housing services	Pacific Engagement Service engaged > 43,000 Pacific families by 2017 via home visits & community events to raise awareness of RF	2011-2017	ARF incidence rate declined by 28% from 4.0/100,000 at baseline (2009–11) to 2.9/100,000 by 2016 (P<0.01). School-based sore throat service 23% overall effective. In Counties Manukau, with high baseline ARF rates, effectiveness was 46%. When this region was excluded, school-based service not effective for remaining 9 regions. Overall, target of reducing RF by two thirds to 1.4/100,000 by 2017 not achieved

New Zealand Guidelines Group, 2011 ⁸ <i>Toi Te Ora Public Health Service, Bay of Plenty DHB</i>	Murupara Rheumatic Fever Prevention Programme	Whakata ne, Bay of Plenty	Murupara	School-based throat swabbing Awareness Housing	School	School-based throat swabbing programme, awareness campaign & educational resources developed in collaboration with local Māori health providers & organisations. Included local children affected by ARF. Presentations & pamphlets provided to students & teachers about sore throats & RF. Energy Options, Eastern Bay Energy Trust & EECA provided free insulating of low-income homes in Murupara	Te Ika Whenua Hauora (a Māori health provider), & Toi Te Ora initially funded programme. Consultations occurred with Māori communities & Māori health organisations	2011	Lack of information regarding evaluation & outcomes
O'Sullivan, 2011 ¹⁹ <i>Te Runanga O Te Rarawa</i>	MOKO: Manawa Ora, Korokoro Ora	Northland	Kaitaia	School-based throat swabbing Skin infections Awareness	School	14 schools across Kaitaia aimed to swab throats & give children 10-day antibiotics if GAS +ve. Included skin infection management & promoting awareness. Model is 1 kaimahi per 500 children & 1 nurse per 1200 children. Isolated schools could connect online & receive treatments.	Led by Te Runanga O Te Rarawa. Links with Māori health providers, Iwi providers, & primary health care providers	2011	Lack of information regarding evaluation & outcomes
Spinetto et al., 2011 ²⁰	A nurse-led programme of 28-day penicillin in area of high endemicity	Auckland	RF patients in Auckland	Secondary prophylaxis	Clinical	ARF diagnosed patients from 1993–1999, identified via Auckland RF register. Patients referred to programme for free benzathine penicillin every 28 days by community nurses with discharge after 10 years or age 21 years. Most penicillin injections delivered at school. Community clinics held as an alternative. 1 st injection given in hospital setting	Unknown	2011	Of 360 cases, 20 recurrences occurred in 19 people. Recurrent episodes due to patient non-adherence (10/20), diagnostic error (3/20) or system failure (3/20). 2 patients completed programme & were discharged. Study showed 28-day penicillin prophylaxis delivered by community nurses safe & effective for patients with no or mild cardiac disease by auscultation at discharge from penicillin
The Health & Disability NGO Working Group, 2012 ²¹ <i>Mangere Community Health Trust PHO</i>	Rapid testing in community	Mangere, Auckland	People living in Mangere area	Throat swabbing	Community	Mangere Community Health Trust PHO introduced instant, on the spot GAS testing at Makaurau Marae, Mangere. Intended to provide easily accessible & quick testing for whanau to ensure rapid antibiotic administration if required. 'Aunty' taught how to swab sore throats. Children with sore throats swabbed & if GAS +ve, went to GP for antibiotics	Unknown	2011	Lack of information regarding valuation & outcomes

Anderson et al., 2016 ²² Lennon et al., 2017 ²³ <i>National Hauora Coalition & Counties Manukau DHB</i>	Mana Kidz: Nurse-led school-based health programme	South Auckland	Primarily Māori/Pacific children, but all children in South Auckland schools	School-based throat swabbing Skin infections Awareness	School	88 primary & intermediate schools (>34,000 consented children) in South Auckland. 59 schools have nurse & whānau support worker in school each day & 29 schools have nurse in school once a week. The programme includes: <ul style="list-style-type: none"> • Sore throat assessment, treatment & follow up • Diagnosis & management of skin infections • Headlice, hearing & vision checks • New entrant immunisations Schools & whānau ring 0800 line to be connected with services	Managed by National Hauora Coalition (Māori-led PHO). Supported by Māori & Pacific organisations. Practices Kaupapa Māori approaches.	2012-Ongoing	RR 1.8 (1.3–2.3) of being pharyngeal GAS +ve pre-programme in 2013 vs in 2014. ²² Hospitalisations for ARF & skin infections for ages 5–12 years in Counties Manukau declined. In study period 2010-2016: ²³ <ul style="list-style-type: none"> • ARF rates declined 58% in 5-13 year olds from 88/100,000 pre-clinics to 37/100,000 after 2 years of clinic availability • -Significant decrease of 1st presentation ARF rates after programme, incidence risk ratio: 0.61 • Pharyngeal GAS prevalence fell from 22% preintervention to 12% & 11% 1 or 2 years later (P = 0.005).
Jack et al., 2015 ²⁴ <i>Ministry of Health</i>	School-based sore throat management service	National	School children in high-risk areas	School-based throat swabbing Awareness	School	RFPP included school-based sore throat management: <ul style="list-style-type: none"> • providing throat swabbing & referral services in school, home or other • increasing awareness of RF risk factors among whānau in key geographical areas • developing & maintaining relationships with other health & social service providers DHBs chose which schools to implement sore throat management service	Included contracting of Māori & Pacific health provider organisations.	2012	Implementation variable among DHBs. Maximum coverage at start of 2014, with 251 schools & 53,998 children. By June 2014, 58 schools had stopped service, leaving 193 schools operating at least through to end of 2014. Overall decline in national incidence of ARF by June 2015 compared to baseline, although difficult to attribute to RFPP's school-based service
Shetty et al., 2014 ²⁵	Primary care management of GAS pharyngitis in Northland	Northland	Children & young people aged 3-20 years who attended general practice with GAS	Primary care guidelines	Clinical	Assessing adherence by GPs & school-based programmes to national guidelines. Laboratory & pharmaceutical data obtained for 3–20-year-olds who had GAS +ve throat swabs in Northland between 1 Apr-31 Jul 2012	Unknown	2012	20% children presenting to general practice with +ve throat swab did not receive treatment according to national guidelines. Significant proportion seen in general practice received antibiotics not recommended by guidelines, inadequate length of treatment or no prescription. Appropriate treatment offered to >98% of children accessing school-based programmes. No significant difference in management of Māori & non-Māori children

Tūhoe Hauora, n.d. ²⁶	Tūhoe Rheumatic Fever Prevention Screening Programme	Tūhoe, Bay of Plenty	Students aged 5-14 years in 6 Tūhoe kura	School-based throat swabbing Awareness	School	School-based swabbing for 6 Tūhoe Kura, 2x week for 5–14-year-olds. Aim to identify & support children at risk & raise awareness of RF prevention	Led by Tūhoe Hauora (Kaupapa Māori community health service) & including local iwi	2012	Lack of information regarding evaluation & outcomes
Auckland DHB, 2016 ²⁷	Rheumatic Fever Prevention Plan	Metro Auckland	People in ADHB catchment area, particularly Māori & Pacific	Awareness School-based throat swabbing Housing Service or system changes	Clinical	DHB plan to reduce ARF incidence. Included targeted school-based throat swabbing programme in 16 high needs primary schools, rapid response testing in GP practices & pharmacies, housing referrals, co-designing resources to support young people to be compliant with bicillin & research to identify lived experiences of whānau with ARF & RHD	Annual RF engagement strategy Hui with Māori providers & workforce. Pacific Health is engaged with programme at Governance level. Dialogue maintained with Pacific providers & community	2013-2017	While 2013/2014 ARF target rate was achieved, 2014/15 target rate of 2.0/100,000 was not . See <i>Healthy Homes Initiative</i> sources for evaluation & outcomes related to Auckland Wide Healthy Housing Initiative
Bay of Plenty DHB, 2015 ²⁸	Bay of Plenty & Lakes RF Prevention Plan	Bay of Plenty	People living in Bay of Plenty & Lakes DHB catchment	Awareness School-based throat swabbing Housing Skin infections	Clinical	Priorities for DHB plan included: <ul style="list-style-type: none"> • Addressing housing conditions & crowding • Establishing a local RF register • Community awareness raising • Health professional development • Easier access to primary care • High quality school-based programmes in high-risk areas • Process & outcome evaluation Hand & general hygiene education occurs in schools. RF sector teams visit schools with the resource	RF steering group includes DHB Māori health teams, & Māori health providers	2013-2022	No clear evidence of sustained ARF reduction in region. ²⁸ However, +ve results include: <ul style="list-style-type: none"> • -Raised community RF awareness • Increased GP awareness of sore throat guidelines • Establishment of a register • School-based throat swabbing in 30 decile 1-3 schools. Evaluation showed statistically non-significant decrease in RF for Māori children in eastern BOP intervention schools: from 128.7/100,000 preintervention (2000-2010) to 50.7/100,000 at intervention (2011-2014)

Allen + Clarke, 2018 ²⁹ Pierse et al., 2019 ³⁰ <i>Ministry of Health</i>	Healthy Homes Initiative (HHI)	National	At-risk families via referral	Housing	Community	As part of RFPP, initiative covered 11 DHBs with high RF incidence. Providers identify eligible families, undertake housing assessment & then work with agencies to facilitate access to range of interventions eg insulation, curtains, heating sources, minor repairs & support with private/community/social housing relocations	HHIs invested in making relationships with health & social sector organisations, such as iwi & Pasifika health service staff	2013-ongoing	Enhanced whānau experience via clear expectations of what service can provide, contacting whānau soon after referral & co-developing intervention plan. As of Dec 2018, programme received 15,330 eligible referrals & delivered >40,000 interventions to low-income households. Estimated to have resulted in 1,533 fewer hospitalisations, 9,443 fewer GP visits & 8,784 fewer filled prescriptions in 1 st year after programme's intervention
Counties Manukau DHB, 2013 ³¹	Rheumatic fever prevention plan	South Auckland	Children & families living in Counties Manukau, focusing on high-risk	Awareness School-based throat swabbing Housing Service or system changes	Clinical	DHB plan to reduce ARF. For children & families: <ul style="list-style-type: none"> • Increase messages on sore throats • Establish rapid response sore throat clinics & school-based health services • Housing referrals for those at risk • For health professionals: • Implementation of sore throat guidelines in primary care • Training to improve awareness of symptoms & signs of ARF • Identify system failures • Improve systems to ensure timely notification to Medical Officer & timely secondary prophylaxis 	DHB Māori & Pacific teams involved in plan's development	2013-2017	See <i>Mana Kidz</i> for evaluation & outcomes related to nurse-led school clinics. See <i>Healthy Homes Initiative</i> for national outcomes that include Auckland Wide Healthy Housing Initiative
Eastern Bay Primary Health Alliance, n.d. ³² Cassie, 2018 ³³	Kiri Ora/Healthy Skin project	Bay of Plenty	Schools & youth in Eastern Bay of Plenty	Skin infections	School	Project delivered through wider RF school programme. Providing 'healthy skin' packs to all children consisting of soap, plasters, chlorhexidine wipes, toothbrushes, nail clippers, nit combs & health information via resource booklet. Each school visited 2 days/week to provide assessment, treatment, education & resources. Approx 1-2 students referred weekly for antibiotics	Unknown	2013-Ongoing	Prior to ARF school programme in 2010, pharyngeal GAS was 22%. Post 3 years ARF programme in 2013, pharyngeal GAS = 12% & post 4-year school programme plus Kiri Ora = 6%. Skin packs well received, practical & re-enforced healthy skin messaging

Litmus Limited, 2015 ³⁴ <i>Ministry of Health</i>	Sore Throat Clinics	National	Children aged 4-19 years who identify as Māori & Pacific and/or live in quintile 5 areas	Throat swabbing	Clinical	Provides free, drop-in sore throat clinics, as part of RFPP as school-based programmes do not reach all priority populations & are not operated in all DHBs. Eligibility for free services: <ul style="list-style-type: none"> • Māori & Pacific children & young people aged 4-19 • 4-19-year-olds living in Quintile 5 • 3-35-year-old household contacts (with sore throat) of someone who treated for GAS throat infection in sore throat clinic 	Evaluation found strong focus for Māori, but services could be improved. Limited focus on Pacific people at strategic & service delivery levels, despite high Pacific population	2013-Ongoing	Most parents & young people were not aware of free, drop-in sore throat clinics. Clinics & general practices are not always accessible. Pacific families found the sore throat clinic hours of operation too restrictive, & wanted evening availability. People who accessed services from Māori or Pacific staff/providers were more likely to find the service socially sensitive & culturally appropriate
Northland DHB, 2013 ³⁵ Northland DHB, 2017 ³⁶	Rheumatic Fever Prevention Plan	Northland	People living in the Taitokerau/ Northland region	School-based throat swabbing Housing Awareness Service or system changes	Clinical	DHB plan to reduce ARF: <ul style="list-style-type: none"> • Increase awareness of ARF via social media, radio, health promotion in schools & key community events. • Prevent transmission of GAS within households & increase referrals to healthy homes initiative. • Increase access to throat swabbing for all Decile 1-4 schools that have high proportion of Māori students. • Continuous quality improvement & further standardise key clinical processes. • Ensure equitable input & active engagement from all sectors 	Engagement with Iwi Runanga, Hapū, Māori NGOs, school/kura contacts & kaimahi Māori, & community groups. Iwi & Hapū gave strong endorsement for Māori providers participating at all levels	2013-2019	<ul style="list-style-type: none"> • School-based throat swabbing programme demonstrated acceptability & accessibility for high-risk children but less success in secondary schools. • Uptake of pharmacy-based throat swabbing showed that access is being achieved for high-risk populations. • Healthy Homes Tai Tokerau now has well-established health referral pathway with both Manawa Ora & Healthy Homes Initiative referrals
Taranaki DHB, 2013 ³⁷	Rheumatic Fever Prevention Plan	Taranaki	People living in Taranaki, especially the vulnerable	Awareness	Clinical	DHB plan to reduce ARF incidence: <ul style="list-style-type: none"> • Annual reports to show ARF notification trends. • Addressing determinants of health • Improving access to health information via schools & kohunga 	Inclusion of Māori Health Advisor on project team.	2013-2017	Lack of comprehensive evaluation/outcomes information available
Wairarapa, Hutt Valley & Capital & Coast DHBs, 2015 ³⁸ <i>The Central Pacific Collective</i>	Pacific Engagement Strategy	Greater Wellington region	Pacific families in Wellington region	Awareness	Community	As part of RFPP, strategy raises awareness in Pacific families of sore throats & ARF as current written promotional resources were found to have limited success for Pacific on their own. Providers could also refer children with sore throat to nearest Free Rapid Response Clinic including their Pacific GP practice	Central Pacific Collective leads delivery in partnership with Pacific Health Service Porirua & Pacific Health Service Hutt valley	2013	By 30 June 2015, Collective members had engaged 3,010 Pacific people with RF messages & information via home engagement & community events

Waitemata DHB, 2016 ³⁹	Rheumatic Fever Prevention Programme	North & West Auckland	People living in the Waitemata DHB district	Awareness School-based throat swabbing Housing Service or system changes	Clinical	DHB plan to reduce ARF. Similar to the Auckland DHB programme, Waitemata DHB plan included healthy housing initiative, school-based throat swabbing, rapid response testing in GP practices & pharmacies & co-designing resources to support young people to be compliant with bicillin & prevent RF recurrence	Annual RF engagement strategy Hui with Māori providers & workforce. Pacific Health engaged with programme at Governance level. Dialogue maintained with Pacific providers & community	2013-2017	Evaluation difficult due to small numbers. DHB target of 0.8 new cases/100,000 total population by 2016-17 only partially achieved. See <i>Healthy Homes Initiative</i> for national outcomes which include Auckland initiative
Whanganui DHB, 2016 ⁴⁰ Whanganui DHB, 2013 ⁴¹	Rheumatic fever prevention plan	Whanganui	People living in Whanganui DHB catchment	Awareness School-based throat swabbing Housing Service or system changes	Clinical	Strategies for RF prevention include senior executive management sponsorship, ensuring clinicians are aware of updated guidelines, effective transfer of care & ensuring systems facilitate the correct 'flagging' of RF for follow-up. School-based public health nurses swab students with sore throats on standing order basis. TDHB Māori Health Plan includes an awareness campaign in the Māori community. Includes assisting with subsidised home insulation	DHB's Māori Health Plan highlight local Iwi's commitment to reducing RF	2013-2018	Lack of comprehensive evaluation/outcomes information available. Whanganui only DHB within North Island & 1 of 4 nationally to have no new RF cases in 2015
Doyle et al, 2018 ⁴²	Effect of Oral Probiotic <i>Streptococcus salivarius</i> K12 on GAS Pharyngitis	Porirua, Wellington	Schools involved in RFPP	Oral probiotic	Clinical	Placebo-controlled randomised trial to evaluate effectiveness of <i>S. salivarius</i> K12 probiotic in preventing GAS pharyngitis among school children at high risk of ARF. <i>S. salivarius</i> K12 or identical placebo provided as blister-packed lozenges. 1314 children quasi randomized by "odd" or "even" birthdates to receive either K12 or placebo & continued observed daily treatment for 1 school year	Unknown	2014-2015	Small nonsignificant reduction in GAS-+ve throat swabs among children assigned to probiotic. Greater protective effect from probiotic among girls, older children & NZ European ethnicity, but not significant. Of +ve swabs, 15.5% were children receiving BLIS & 18% receiving placebo. Lozenges given to children when they attended school but not for weekends/holidays
Heart Foundation of New Zealand, 2014 ⁴³	2014 Update of NZ Guidelines for RF	National	All people	Primary care guidelines	Clinical	Guidelines for diagnosis, management & secondary prevention of RF. Aimed to identify standard of care that should be available to all in NZ, particularly high-risk populations, & identify best available evidence to inform guidelines	Stakeholders included Māori & Pacific professionals, & lay groups. Endorsed by Pacific Heartbeat	2014	Lack of comprehensive evaluation/outcomes information available

National Hauora Coalition, 2019 ⁴⁴	Antibiotic adherence trial	South Auckland	School children	Treatment	Clinical	<p>3 studies assessed antibiotic adherence via post-treatment swab taken within 72 hours of completing 10-day course of oral amoxicillin. Control group: 10-day course of self or parent administered amoxicillin.</p> <ul style="list-style-type: none"> • 110 students administered medication via directly observed therapy (DOT). • 67 students administered via blister pack. • 86 students received daily text reminder for duration of 10-day course 	National Hauora Coalition (Māori-led PHO). Māori & Pacific providers participated in trial	2014	<p><u>DOT</u>: Difference between +ve swabs in vs DOT group statistically significant ($P=0.01$) indicating that DOT effectively improved antibiotic adherence.</p> <p><u>Blister pack</u>: No difference with control ($P=0.58$), suggesting that blister packs had no effect.</p> <p><u>Text communications</u>: 90% of texts sent were received, 7% had error, & 3% not received. No difference between groups ($P=0.86$), suggesting that daily text reminders had no effect</p>
National Hauora Coalition, 2019 ⁴⁴	Use of intramuscular bicillin as a treatment option for GAS positive in schools & primary care settings	South Auckland	School children	Treatment	Clinical	All parents of children with GAS +ve pharyngitis at Turuki Healthcare schools in Mangere in Term 4, 2014, offered intramuscular bicillin as a treatment. 41 students, with parent consent, received intramuscular bicillin administered by Mana Kidz nurses at Turuki Healthcare.	Intervention initiated by National Hauora Coalition (Māori-led PHO). Included Māori & Pacific providers.	2014	Antibiotic adherence was 100%. Post-treatment swab taken on day 11. Following bicillin, 36.4% of children had GAS +ve post-treatment swab. Average pain rating on the day was 4.1 (scale 0-10), 1 month later average pain rating was 4.4. 82.9% of parents happy with way the bicillin was administered & 80.5% would choose it again. Transport to clinics was issue for some & some families would prefer option at school or home.
<p>TNS New Zealand Limited, 2015⁴⁵</p> <p><i>Ministry of Health & Health Promotion Agency</i></p>	2014 Winter Rheumatic Fever Campaign	National	All, with focus on parents & caregivers of at-risk children & young people	Awareness	Community	<p>Winter mass media campaign, part of RFPP, focused on link between sore throats & RF, getting sore throats checked & completing antibiotics.</p> <p>Strong focus on Pacific families with radio & TV advertising, online banners, posters print materials, online videos & social media activities</p>	Campaign had a focus on stories from Māori & Pacific families	2014	High recall of getting children with sore throats checked. 76% of target audience was reached. TV advertising most likely to be recalled by Māori & Pacific people, while radio of high recall among Pacific as well. Strong increase in awareness that RF is caused by sore throat. Many parents remained unsure whether RF can re-occur (only 43% agreed)

Vermillion et al., 2015 ⁴⁶ <i>Ministry of Health & Health Promotion Agency</i>	2015 Rheumatic Fever Awareness Campaign	National	All, with focus on families with greatest risk of RF.	Awareness	Community	2015 RF awareness campaign, part of RFPP. Similar delivery methods were used to 2014 campaign (TV, print, radio & digital advertising) in order to raise awareness of RF, sore throats & importance of seeking healthcare amongst Māori & Pasifika audiences	Evaluation recommended supporting Pacific & Māori community ownership & discussion	2015	Media & local knowledge supported successful reach of campaign to 95% of target audience. Supported good understanding of association between sore throats & RF, but importance of completing course of antibiotics was less understood
Wairarapa, Hutt Valley & Capital & Coast DHBs, 2015 ³⁸	Rheumatic Fever Prevention Plan	Greater Wellington region	People living in Wairarapa, Hutt Valley & Capital & Coast DHB catchment	School-based throat swabbing Awareness Housing Service or system changes	Clinical	DHB plan to reduce ARF: <ul style="list-style-type: none"> • Effective referral for housing & social services interventions • Raising community awareness • School-based throat swabbing • Promotion of rapid response services 	Māori & Pacific advisors provided input directly into planning process	2015	Lack of comprehensive evaluation/outcomes information available
Auckland DHB, 2016 ²⁷	Rheumatic Fever Youth Engagement programme	Auckland	Youth	Awareness	Community	ADHB & WDHB's RF prevention programme plan's outline youth engagement strategy. Includes RF Ambassadors programme, 'Clear ya throat' spoken word programme, & Dramatic Fever Edutainment Road Show. HYPE (Healthy Youth Priority Event) was youth specific engagement & information event for young people on bicillin	ADHB & Waitemata DHB plans reported stakeholder engagement with Māori, Pacific & youth	2016-2017	Lack of comprehensive evaluation/outcomes information available. Young people preferred RF awareness methods of: <ul style="list-style-type: none"> • peer to peer support • activities to engage young people should be continuous • youth festivals • a multi-channel approach, including social media • health professionals to deliver consistent messages to whānau & communities
Hawkes Bay DHB, 2016 ¹⁵	Refreshed rheumatic fever prevention plan	Hawkes Bay	People living in the Hawkes Bay catchment	School-based throat swabbing Awareness Housing Service or system changes	Clinical	DHB plan to continue Say Ahh throat swabbing programme, increase RF awareness & health literacy efforts & address poor quality housing. Engaging Pacific communities to inform strategic framework & supporting communities to become actively involved in identifying local solutions	Community engagement & consultation was conducted & attended by, Māori & Pacific whānau	2016	Lack of comprehensive evaluation/outcomes information available

Lakes DHB, 2015 ⁴⁷	Rheumatic Fever Prevention Plan	Bay of Plenty	People in the Lakes DHB catchment	Awareness School-based throat swabbing Housing Service or system change	Clinical	DHB plan included: <ul style="list-style-type: none"> • Raising public awareness via radio, TV, local resources • Continuing professional development for health professionals • Rapid response services • Healthy homes service • Improving notification, management & surveillance of ARF cases 	Steering group included Māori members & stakeholder engagement occurred with Māori & Pacific organisations	2016-2018	Although there is lack of comprehensive evaluation & outcomes information available, DHB reported range of +ve results including raised awareness of RF in higher risk communities & general public & increased awareness of sore throat guidelines among primary health care
Ministry of Health, 2016 ⁴⁸ <i>Alliance Health Plus</i>	Pacific Engagement Service	Auckland	Pacific people in Auckland	Awareness	Community	Providers working in Auckland churches & schools to improve RF awareness via presentations, skits, songs, rhyme/raps with young people, Sunday school play & developing RF website	Alliance Health Plus (Pacific-led PHO) delivers service	2016	Lack of comprehensive evaluation/outcomes information available
Oetzel et al., 2019 ⁴⁹	Efficacy of an incentive intervention on secondary prophylaxis for young people with RF	Waikato	Young patients on the ARF registry in Waikato	Secondary prophylaxis	Clinical	Patients provided with new mobile phone at start of intervention & \$20 top-up each time they received their injection. Multiple attempts were made to contact patients after missed injection & top-up was provided as soon as patients received their injections (even when late)	Unknown	2016-2017	Sharp increase in injections for intermittent patients' post-intervention with slight decrease over time, while fully adherent patients maintained their high rate of injections ($p = .003$). Incentivising secondary prophylaxis appears to have strong impact for partially adherent patients, particularly early in intervention. Improving communication with patients may result in more sustainable adherence
Ponkia-Rangi, 2016 ⁵⁰ <i>Ministry of Health & Health Promotion Agency</i>	2016 Rheumatic Fever Awareness Campaign	National	All, with focus on families with greatest risk of RF	Awareness	Community	As part of RFPP, 2016 awareness campaign included existing advertisements from previous campaigns across TV, radio, print & social media channels. Aimed to contribute to national awareness of RF & heart damage it can cause	Campaign targeted at Māori & Pacific parents & caregivers of high-risk children	2016	Lack of comprehensive evaluation/outcomes information available.

Shetty et al., 2018 ⁵¹	A repeat audit of primary care management of GAS pharyngitis in Northland	Northland	Children & young people aged 3-20 years who attended general practice with GAS	Primary care guidelines	Clinical	Throat swab & dispensing data were obtained & analysed for children & young people aged 3–20 years who attended general practice in Northland between 1 April & 31 July 2016 & had laboratory-proven GAS pharyngitis	Unknown	2016	From 2012-2016, throat swabs carried out in general practice more than doubled. Proportion of GAS pharyngitis patients in general practice not receiving recommended antibiotics not reduced since previous audits. Significant differences in management of care for Māori & non-Māori patients Implicit bias may contribute to inequity
Upton et al., 2016 ⁵²	Comparison of illumigene GAS assay with culture of throat swabs from children with sore throats in NZ RFPP	Auckland	Primary school in South Auckland	Sore throat diagnosis	Clinical	Culture of throat swabs is “gold standard” for diagnosing GAS pharyngitis, despite 24-72 hour delays for results. Study aimed to assess illumigene GAS assay for the detection of GAS. Included throat swabs from school-based throat swabbing programme tested by routine culture & illumigene GAS assay. 757 throat swab specimens tested by both methods	Unknown	2016 (publish date)	Illumigene GAS test offers community laboratory molecular test for detection of GAS in throat swabs with rapid turnaround time. Assay identifies more true +ve results for GAS at cost of slight drop in specificity (100 to 98%) compared to that of culture
Toi Te Ora Public Health, 2021 ⁵³ <i>Ministry of Health</i>	Rheumatic fever e-learning course	National	Primary care nurses, PHN, community health workers	Awareness	Clinical	Ministry of Health RF e-learning course: www.learnonline.health.nz/ Free & designed for health professionals, aiming to improve awareness. 4 modules explore RF in NZ, how to identify symptoms, ways to reduce transmission & secondary prophylaxis	Unknown	2017-ongoing	Lack of comprehensive evaluation/outcomes information available
Alliance Health Plus, 2018 ⁵⁴	"Take it to Heart" RF Awareness Campaign	Auckland	Pasifika community in Auckland	Awareness	Community	Engaged 18 Pacific churches & community groups. 'Take it to Heart' awareness campaign empowers churches to engage their people to interpret 5 key RF messages via song, dance, theatre & poetry. Campaign also included radio & social media awareness	Alliance Health Plus(Pacific-led PHO) engaged 18 Pacific churches & community groups to deliver messages	2018-2019	By Oct 2018, 10 churches had delivered events & performances with 1,500-2,000 people attending. Surveys at events showed increase in awareness of RF causes & prevention from participants & audience. Video & pictorial information reached 200,000+ people, & has been viewed 100,000+ times

Alliance Health Plus, n.d. ⁵⁵	Rheumatic Fever Awareness	National, with a focus on Auckland (Mangere, Otara, Manurewa, Clendon)	Primarily Tongan & Samoan population. Other Pacific/Māori groups secondary	Awareness	Community	RF awareness in Samoan & Tongan churches in Mangere, Otara, Manurewa & Clendon. Includes education session, & engages youth from churches to produce video content of main messages. Radio quizzes & skits promoted messages in Tongan, Samoan & English. Social media campaigns included videos on rugby players affected by RF	Alliance Health Plus(Pacific-led PHO) Pacific Equity team led rollout of campaign	2020-2022	Pending evaluation/outcomes information
Ministry of Health, 2020 ⁵⁶ <i>ThinkPlace</i>	RF Co-design Initiative	Auckland	Māori, Samoan, Tongan people	Awareness	Community	Co-design process led by ThinkPlace underway with Māori, Samoan & Tongan communities in Auckland to improve the prevention & management of RF.	Aims to partner with local Māori & Pacific to co-design initiative.	2020-Ongoing	Pending evaluation/outcomes information
Kids Health, 2021 ⁵⁷ <i>Auckland DHB</i>	Fight the Fever app	Auckland	RF patients living in ADHB & CMDHB areas	Secondary prophylaxis	Clinical	App to help RF patients get their injections on time, via appointment reminders & showing how much protection they have. Provides easy way to contact nurse or clinic to reschedule if necessary. App co-designed with people with RF	Unknown	2021-ongoing	Lack of evaluation/outcomes information available
Taylor et al., 2021 ⁵⁸	Utility of rapid GAS molecular testing vs throat culture for diagnosis of GAS pharyngitis	Auckland	Middlemore Hospital patients	Sore throat diagnosis	Clinical	In settings with high burden of GAS disease, rapid diagnostic test with strong -ve predictive value is needed to enable prompt & accurate treatment. Throat swabs collected from Middlemore Hospital. Study compared Xpert Xpress Strep A molecular test to throat culture & 2 nd molecular method, BioGX GAS-open system reagent for BD Max for diagnosis of GAS pharyngitis	Unknown	2021 (publish date)	205 swabs suitable for analysis. Of those, 13.7% GAS culture +ve, 22% Xpert Xpress Strep A +ve, & 18.5% BioGX +ve. Findings showed Xpert Xpress Strep A molecular test is rapid & highly sensitive with strong -ve predictive value. Can be safely introduced as 1 st -line test for throat swabs in high-incidence ARF population

Abbreviation key: +ve = positive; -ve = negative; ARF = acute rheumatic fever; BPG = benzathine penicillin G; DHB = District Health Board; GAS = Group A Streptococcus; GP = general practitioner; NZ = New Zealand; PHN = public health nurse; PHO = Primary Health Organisation; RF = rheumatic fever; RFPP = Rheumatic Fever Prevention Programme; RR = relative risk

Meaning of Māori words for this context: hapū = subtribe of an iwi; iwi = Māori tribe; kaiāwhina = community health worker; kaimahi = local community workers; kanohi ki te kanohi = train the trainer approach; kura = school; rangatahi = young people; tamariki = children; whānau = family; waiata = song

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