He Hauora Mo Te Tai Tokerau
A Healthier Northland

RHEUMATIC FEVER PREVENTION PLAN 2013-2017

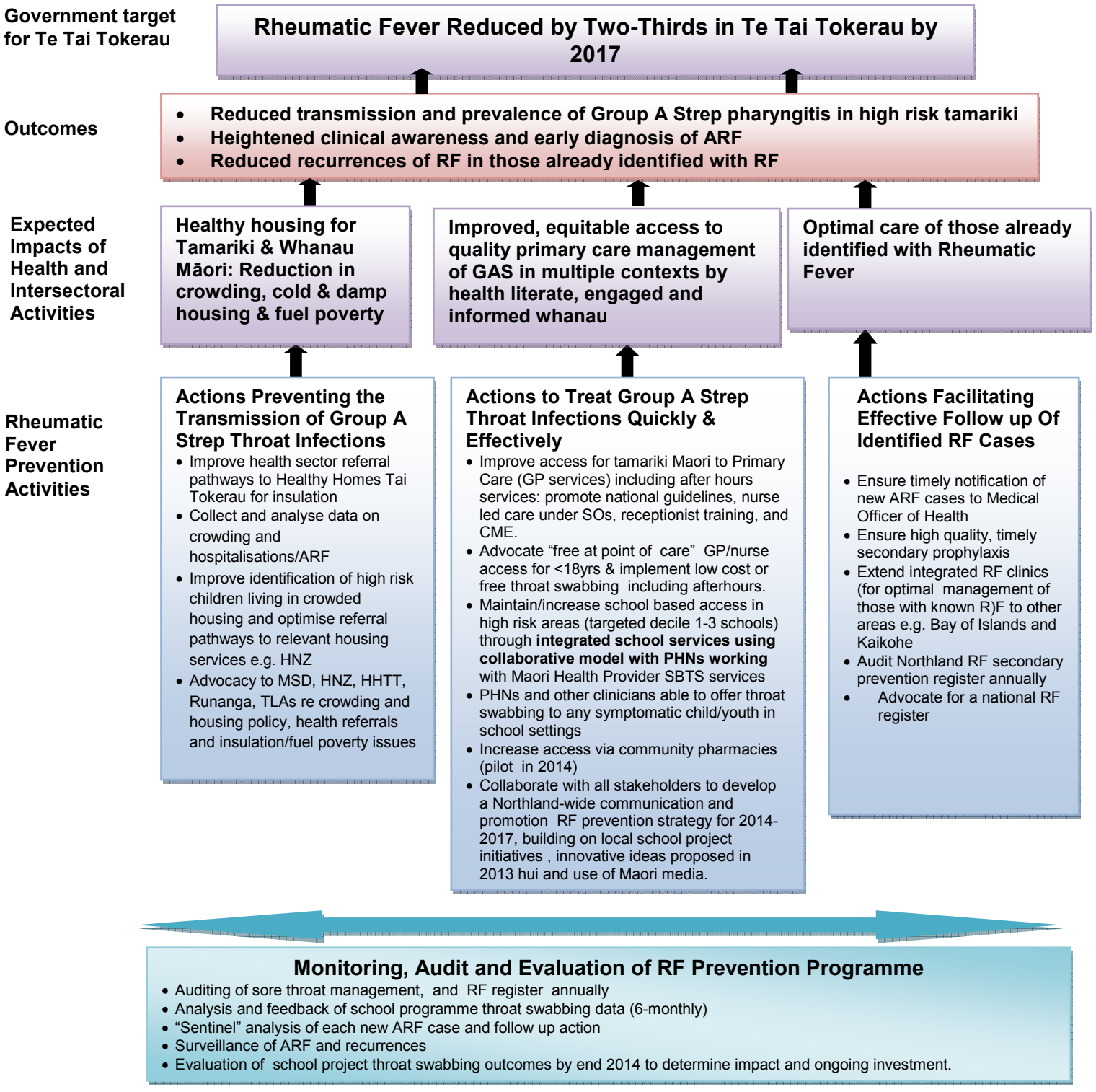
Final Version 1.0

6 November 2013

TE POARI HAUORA Ā ROHE O TE TAI TOKERAU
Northland District Health Board

Contents

SUMMARY LOGFRAME: REDUCING RHEUMATIC FEVER IN TE TAI TOKERAU BY TWO THIRDS BY 2017:[1]



[1] The national target now is to reduce the rate of acute RF by two thirds from 4/100,000 to <1.4/100,000 by 2017. Northland total population rates for 2002-2011 were ~7.7/100,000. Our own DHB goal from our 2011 RF Prevention Plan was to eliminate ARF in Northland by 2020 (ie reduce rates to below current NZ Pakeha levels).

1. INTRODUCTION

Acute rheumatic fever (ARF) develops as a result of an auto-immune response to infection with Group A streptococcus (GAS) in some people. ARF causes an acute, generalised inflammatory response that can affect the joints, central nervous system and subcutaneous tissues. It is, however, the potential damage to the heart that is of most concern as this can lead to permanent disability and in severe cases, death.

ARF and Rheumatic Heart Disease (RHD) are potentially preventable conditions if Group A streptococcal throat infections are identified and treated appropriately although a third of cases have no history of a preceding sore throat illness.[2] ARF occurs most commonly in children and young people aged 5-14 years. The long term sequelae of RHD also results in a considerable burden of disease in the adult population.

Reducing the rate of ARF has been identified as a Better Public Sector (BPS) target.[3] Addressing ARF is complex because of incomplete understanding of the disease itself, the significant influence of upstream determinants of health (such as housing), inequitable access to primary care, and lower health literacy of the highest risk population. In addition, best practice sore throat management according to national guidelines remains variably implemented in the primary care workforce.

The government has a goal of reducing rheumatic fever incidence in New Zealand by two thirds by 2017. The Ministry of Health has developed a Rheumatic Fever work programme which identifies a number of work streams that have been funded in DHBs with high rates of ARF. Northland DHB has the second highest number of annual cases of ARF nationally and the highest rate for tamariki Maori in the published literature (Counties Manukau DHB having the greatest number). It is critical that a reduction in ARF cases is seen in Northland if the national BPS target is to be equitably achieved.

In order to achieve this target, the Ministry of Health has invested over $45 million nationally in initiatives aimed at reducing the incidence of rheumatic fever. District Health Boards (DHBs) are also expected to actively engage and invest in the key results area (letter from Minister of Health to DHB chief executives, January 2013). The Ministry of Health initially focused on the delivery of school based throat swabbing services. There was also funding allocated for research, surveillance and primary care development. This focus was broadened with the announcement of further targeted government investment in May 2013 (however none of this came to Northland).

This plan, summarised in the Logframe, identifies how we aim to achieve the BPS target in Te Tai Tokerau through actions to:

1. Prevent Transmission of Group A streptococcal (GAS) throat infections
2. Treat GAS throat Infections quickly and effectively; and
3. Effectively follow up those identified with acute rheumatic fever to prevent recurrences.

[2] Gordis, l. Effectiveness of comprehensive care programs in reducing rheumatic fever. NEJM. 289(7) .1973 Aug.

[3] Better Public Service target is to reduce the incidence of ARF by two thirds to 1.4/100,000 by 2017 (all ages)

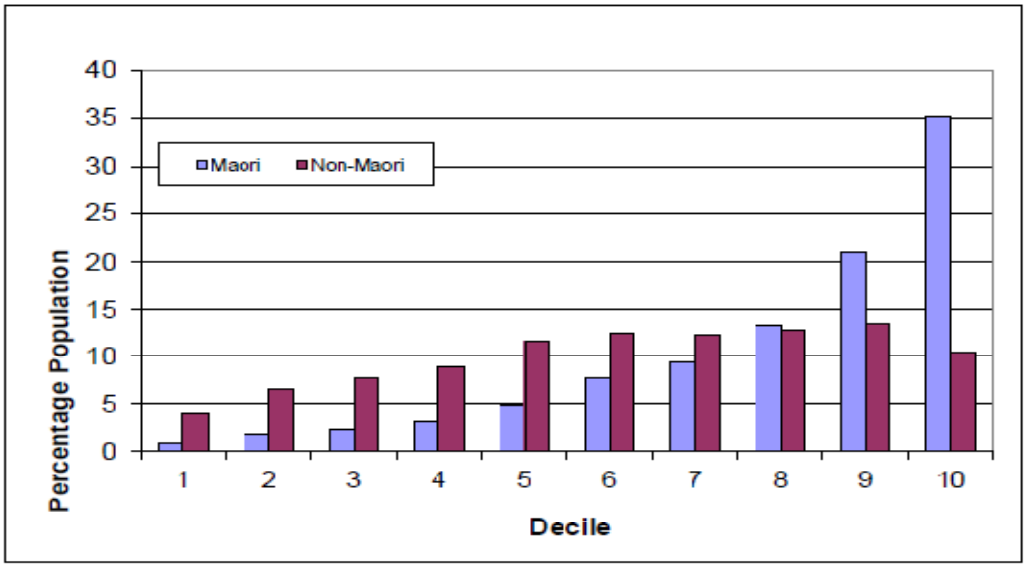
2. OVERVIEW OF RHEUMATIC FEVER IN NORTHLAND DHB

In terms of incidence rates (new cases), rheumatic fever shows the greatest health inequity of all in Te Tai Tokerau. The rates of acute rheumatic fever (ARF) and rheumatic heart disease (RHD) can be considered as highly sensitive indicators of Maori:non-Maori child health inequities in Te Tai Tokerau.

Acute rheumatic fever (ARF) does not affect individuals in our community randomly – incidence is closely associated with socio-economic deprivation and high rates of household crowding. Socio-economic determinants are highly inequitably distributed in Northland, with Maori disproportionately affected. Nearly 60% live in the most deprived quintile (NZDep 9-10), and given the relative youth of the Maori population this impacts most on those under 20 years of age. In Te Tai Tokerau (Northland), 90% of ARF cases in the last decade were living in NZDep decile 8-10 areas, and 95% were Maori children and young people**.**

The economic indicators for Northland over the last decade show lower growth than the national average, with higher unemployment (employment rates have been declining annually since 2007). Currently in Northland overall unemployment is ~10% globally, but this figure hides large disparities, with unemployment disproportionately affecting young people and Maori. Northland Maori households also have significantly lower mean incomes than the New Zealand average. These socio-economic disparities have a major impact on the health of Maori, and in particular tamariki Maori.

Figure 1: Northland DHB population, ethnicity and NZDep06 Decile



Given this context, achieving a substantial and sustainable reduction in ARF is extremely challenging within 3-4 years in Te Tai Tokerau. International experience and a recent meta-analysis of interventions to reduce ARF suggest that at best, a 60% reduction could be achieved through primary prevention (i.e improved access to treatment of GAS phayngitis).

Northland DHB acknowledges the complexity of factors that impact on the prevention of rheumatic fever that are not solely the responsibility of health, and will work collaboratively with other Ministries to address those issues.

The impact of RF in Te Tai Tokerau:

Tamariki Maori in Northland have about a 1 in 200 chance of a damaged heart by the end of school - though this is preventable. The most recent audited data (2002-2011) estimates the annual incidence for Maori children aged 5-15 years at 78/100,000, the highest in this age group for Maori in the published literature in New Zealand (see map, Appendix 1). The total population rate in Northland in this period (7.7/100,000) was nearly double the current national average rate.[4]

Once diagnosed with rheumatic fever, around 130 tamariki in Northland each year receive a very painful injection every month for at least 10 years to prevent more heart damage.

The life span of those affected is reduced, and cardiac surgery may be necessary. Strokes, heart failure and heart arrhythmias are other serious sequelae of rheumatic heart disease throughout adult life. Most of the health sector costs of Rheumatic Heart Failure (RHF)/RHD occur after the age of 30 as cardiac function deteriorates and heart valves require repair or replacement.

This is an extremely costly disease to tamariki, their whanau and our communities, in terms of burden of illness, grief and suffering, loss of opportunities in education and employment, and economic productivity. However, there is a solid and growing evidence base for cost-effective interventions, which include improved housing and reducing household crowding;[5] community and school based sore throat clinics[6,7,8] and enhanced access to primary care for appropriate sore throat management.

A considerable amount of work was carried out in Northland when the first Te Tai Tokerau Rheumatic Fever Elimination Strategy was developed and approved by a stakeholder hui in Kawakawa, June 2011. In addition, rheumatic fever elimination has become a “whole of government” priority since early 2012, which has given RF prevention greater prominence and further funding.

Key progress has been made in a variety of areas as planned in the Te Tai Tokerau 2011 strategy:

1. Further implementation of RF prevention school projects. There are currently 6 projects, which cover 6,703 children in 54 decile 1-3 schools, approximately 50% of Maori school children aged 5-15years in Northland. These include interventions supported through the Northland DHB Public Health Unit, funded by Northland DHB core Public Health communicable disease funding (Whangaroa, since 2002) and Ministry of Health, Vote Public Health funding via Northland DHB (Kaikohe, since 2008); (see Table 1).

2. Of the six projects, four “new” projects funded directly by the Ministry have been implemented since late 2011-2012 (Table 1). The four Ministry of Health funded school

[4] Robin A, Mills C, Tuck R Lennon D The Epidemiology of Acute Rheumatic Fever in Northland, 2002-2011 NZMJ 126:1373 April 2013 http://journal.nzma.org.nz/journal/126-1373/5618/

[5] Jaine R, Baker MG, Venugopal K Acute rheumatic fever associated with household crowding in a developed country The Pediatric Infectious Disease Journal 2011: 30:4 315-19

[6] Lennon D Stewart J Farrell E et al A RCT of a school-based primary prevention programme for rheumatic fever The Pediatric Infectious Disease Journal 2009 28:9 787-794

[7] Milne R Lennon D Stewart J et al Economic evaluation of a school intervention to reduce the risk of rheumatic fever Report to the Ministry of Health Feb 4, 2011

[8] Lennon D, Kerdemelidis M, Arroll B Meta-Analysis of Trials of Streptococcal throat treatment programs to prevent rheumatic fever The Pediatric Infectious Disease Journal 2009 28:7 259-64

based throat swabbing services were phased in over the period September 2011 to November 2012.

Table 1: School Based Rheumatic Fever Prevention Clinics in Northland from 2002-2013

Locality	Delivered by	No. of Schools	No. of Children	Contract Commencement
Whangaroa	Te Runanga o Whangaroa	6	430	2002
Kaikohe	Te Hau Ora o Kaikohe	8	1671	2008
Kaitaia – MOKO	Navalluso	6 | 8	1035 | 750	Aug.2011 | Oct.2012
Whangarei	Ki A Ora Ngatiwai	6	1248	Feb. 2012
Hokianga	Hokianga Health Enterprise Trust	13	799	Oct. 2012
Kawakawa/Moerewa	Ngati Hine Health Trust	7	760	Oct. 2012
TOTAL		**54**	**6,703**	

3. Active community promotion in high risk areas via the school projects and the Ngati Hine Health Trust Northland regional coordination service (funded terminated September 2013).

4. Development and implementation of a Northland-wide communications strategy 2011-2013, led by the NDHB Population and Public Health service and NDHB Communications, in collaboration with Māori providers (one-off PH funding).

5. Development and implementation of the MedTech sore throat algorithm, standing orders and nurse led management in primary care during 2011-2012.

6. Audit of ARF surveillance (2002-2011). See Appendix 1 for mapped data from the audit, which shows the strong association between socioeconomic deprivation and ARF in Northland.

7. Audits of sore throat management in general practices and a lab-based sore throat DHB-wide audit (2012).

8. Re-orientation of the Healthy Homes Tai Tokerau programme to prioritise child health issues including Group A Streptococcal (GAS)+ and ARF patients, and inclusion of tenanted properties (since 2012).

9. Regular hui with key stakeholders.

10. Development and implementation and/or participation in rheumatic fever research (See Appendix 2 for current activities)

However, little or no progress has been made in terms of improving some critical risk factors for ARF e.g. improving general practice access for sore throat management in 5-15yr olds, or addressing “primordial” factors such as overcrowding and housing quality issues; household and child poverty may be worsening given the current economic situation in Northland.

3. OVERARCHING ACTIONS TO REDUCE THE INCIDENCE OF RHEUMATIC FEVER

This section summarises the overarching actions proposed in this plan. Northland DHB is committed to reducing rheumatic fever, as demonstrated by our earlier work on rheumatic fever prevention.

The Ministry of Health has identified three levels of intervention necessary to achieve a reduction in the incidence of rheumatic fever. These are:

1. *Primordial prevention:* Reducing the transmission of Group A streptococcal infections, for example reducing levels of household crowding.

2. *Primary prevention*: Ensuring effective and timely management of sore throats (GAS) in children at high risk of developing ARF.

3. *Secondary prevention:* Preventing recurrences of ARF through review cases of ARF to identify reasons and take action to improve prevention strategies.

Northland DHB is committed to the Ministry of Health's BPS goal of a two-thirds reduction in acute rheumatic fever hospitalisations by 2017. According to the Ministry of Health's data, this means a reduction in rate from 10.5/100,000 hospitalisations per year to 3.5/100,000, or a reduction in cases from 17 to 6 per year in Northland (see Table 2).

Table 2: Acute Rheumatic Fever hospitalisation target rates/numbers per year for Northland DHB

2009/10-2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Baseline (3 yr average rate)	Target: Remain at baseline	10% reduction from baseline	40% reduction from baseline	55% reduction from baseline	2/3 reduction from baseline
Number of cases					
17	17	15	10	8	6
Rate/100,000 (Based on 3 yr average)					
10.5	10.5	9.5	6.3	4.7	3.5

This plan builds on the previous NDHB plan (2011) and was developed with key stakeholder participation in several hui. Stakeholder hui were held November, 2012 in Whangarei; March 2013 in Kaikohe; and in Kaitaia, September 2013 involving Northland DHB provider services, Northland PHOs, Maori NGOs and community organisations. There have also been discussions with the clinical leader and CEOs of the Northland PHOs, informal consultation through CME sessions with general practitioners, and input from Maori providers via the regular school providers hui (each school holidays).

Preliminary discussions have also included housing stakeholders and further meetings with Housing NZ, MSD and other government departments are planned. Survey results from school students in 2011 about their knowledge of sore throat and rheumatic fever have also contributed to this plan.

Kim Tito, General Manager Planning, Maori, Primary, and Population Health is the Northland DHB "Rheumatic Fever Champion". His tasks include:

1. Acting as the single point of contact to ensure information about the plan is shared with all relevant departments within the DHB
2. Attending regional meetings at least annually to discuss progress on implementation of the plan
3. Other tasks include:
    - Assuring funding, and advocacy for Northland's needs to the Ministry of Health/government;
    - Providing a key linkage to the CEO and Board of Northland DHB, the Kaunihera o Kaumatua, Whanau Ora collectives, and also leading high level inter-sectoral relationships.

Operationally, clinical leadership is provided by the Clinical Director, Child, Youth and Maternity services (Dr Roger Tuck) and the Public Health clinical leader (Dr Clair Mills).

A new "Northland Rheumatic Fever Coordinator" role is also proposed. The scope of this role will focus on ARF primordial and primary prevention, and include:

- Development and oversight of NDHB-wide RF prevention and health promotion strategies, working closely with the clinical leaders and primary care
- Quality oversight and monitoring of school RF prevention projects in Northland
- Close collaboration with Maori providers on RF
- Monitoring, analysis and evaluation of school and primary care interventions and outcomes
- Propose and support relevant audit, evaluation and research activities
- Monitor and analyse RF/RHD data and progress towards the elimination goal.

Key stakeholders in relation to this Rheumatic Fever Prevention Plan are:

- Whanau/families that are at risk of rheumatic fever
- Maori Health Providers
- Manaia PHO
- Te Tai Tokerau PHO
- Northland DHB Public Health Unit – Public Health Nurses, Child and Youth services
- Decile 1-3 Northland schools
- Housing NZ and other housing providers
- Healthy Home Tai Tokerau Provider and Governance Group

The overarching actions proposed in this plan to reduce rheumatic fever in Northland are:

- Optimising referral pathways for tamariki and whanau Maori to housing services, including the Healthy Homes Tai Tokerau insulation programme, Housing New Zealand and other relevant housing services to reduce GAS transmission.
- Maximising access points for identification and treatment of GAS pharyngitis in tamariki Maori in schools and community settings
- Empowering whanau through increased understanding and knowledge of RF and sore throat to access health care appropriately
- Ensuring best practice management of people already identified with rheumatic fever in order to prevent recurrences; and

- Monitoring and evaluation of the impact of these actions on incidence of acute rheumatic fever.

These actions are further detailed in the following sections.

4. INVESTMENT IN REDUCING RHEUMATIC FEVER

This section summarises the financial resources proposed in this plan. It details the total investment by funder (i.e. NDHB or MoH). Key assumptions applied in the model are described as well.

4.1: Funding and Resourcing

The following table details all resources/staff DHB has committed including allocated funding. This includes:

- Resources (financial and staffing) that Northland DHB has committed to reducing rheumatic fever, including funding allocated by Ministry of Health
- Any new investment or initiative Northland DHB is planning that aims to reduce the incidence of rheumatic fever
- How the investment will be sustained into the future
- The assumptions applied to the funding model.

Table 1 (please refer to table 2 for detail of funding)

	2013/14	**2014/15**	**2015/16** 6 months
Ministry of Health Funding	1,258,310	1,067,652	254,240
Northland District Health Board Funding	15,000	618,162	323,418
Total	***$1,273,310***	***$1,685,814***	***$577,658***

The DHB has committed an additional $40,000 to evaluate the long term viability of the school based programme beyond 2015 and an extra $30,000 has also been allocated for communication expenses.

4.2: FINANCIAL FORECAST for this year and out years

The following table details all funding and related costs including new investments/initiatives that the DHB is planning.

Table 2:

	2013/14	**2014/15**	**2015/16 Six months**
Ministry of Health funding – remaining balance	1,023,943	769,535	62,681
MoH, Public Health Group funding	213,117	213,117	106,559
MoH, Regional Northland coordination funding (via Auckland)	21,250	85,000	85,000
NDHB – evaluation/communication funding		40,000 **1)**	30,000 **1)**
NDHB – pharmacy pilot throat swabbing (one-off funding)	15,000 **1)**	0	
NDHB – 4.0 Public Health Nurse FTE / additional lab swab charges	0	578,162 **1)**	293,418 **1)**
Total Income	***1,273,310***	***1,685,814***	***577,658***
Proposed costs with NGOs – these are based on the number of students at schools and applying the ratio's detailed in bullet point 3,4 directly below this table	1,237,060	982,652	497,097
NDHB – **4.0** Public Health Nurse FTE fully absorbed	0	544,740	276,456
Additional lab swab charges only, due to increased coverage	0	33,422	16,962
Regional Northland coordination	21,250	85,000	85,000
Planning, monitoring and communication charges	15,000	0	30,000
NDHB Evaluation	0	40,000	
Total Costs	***1,273,310***	***1,685,814***	***905,515***
Net Surplus / Deficit ( )	***0***	***0***	***(327,857)***

Assumptions applied in the model:

- The enumerated columns [relates to **1)** above] indicates DHB investment
- 2013/14 current coverage is 6,700 students, in 2014/15 this will be increased to 7,750 students, equating to an uplift in service coverage of 1,050 students or 15%
- The model provides for 1 Kaimahi FTE per 500 school children (3 visits per week) and 1 Registered Nurse per 1,200 school children outside of Whangarei
- The student to Kaimahi ratio is modified in Whangarei to reflect the geography, the model now provides for 1 Kaimahi FTE per 750 school children (3 visits per week) and 1 Registered Nurse per 1,200 school children

- A 1.5% inflationary adjustment is applied from 2015/16 for all costs excluding planning, monitoring and communication charges, and coordinators salary cost

Sustainability going forward

NDHB will undertake an evaluation of the programme toward the end of 2014 along with CMDHB/ADHB and HRC study results on GAS prevalence before a decision can be made about further investment.

5. ACTIONS PREVENTING THE TRANSMISSION OF GROUP A STREPTOCCOCAL THROAT INFECTIONS

Minimising transmission of Group A Streptococcal throat infections requires addressing risk factors for transmission such as household crowding and bed-sharing, as well as quick and effective treatment of GAS infections to prevent further transmission. This section identifies the detailed actions that Northland DHB will undertake to prevent the transmission of Group A Streptococcus.

In Northland, the Healthy Homes Tai Tokerau (HHTT) programme has insulated over 5000 homes since 2008. Manaia PHO manages and administers a co-ordination service of health related referrals through to the Energy Efficiency Conservation Authority (EECA) contracted Healthy Homes Tai Tokerau Insulation Providers (Community Business and Environment Centre (CBEC) and He Iwi Kotahi Tatou Trust (HIKTT)). These referrals are then assessed against the criteria to enable a fully subsidised insulation retrofit. The full subsidy is generated through primary and third party funding from EECA, ASB Community Trust, Northland PHOs, Northland DHB and Top Energy Community Development Trust (TECDT).

Regular quarterly meetings are held with the Healthy Homes Tai Tokerau Governance Group to monitor:

- EECA national policy and its impact in Northland
- Service provider (CBEC/HIKTT) activity reports in meeting annual targets
- HHTT Co-ordination activity regarding referrals and outcomes
- Financial reporting

The membership of the HHTT Governance Group is:

- Northland DHB
- Northland PHOs
- EECA
- CBEC/He Iwi Kotahi Tatou Trust
- TECDT

The focus of this work is to ensure:

- Referral pathways are developed and monitored
- Collaboration with stakeholders to address inter-sectoral responses to housing issues
- Community engagement and communication.

The HHTT programme has been re-oriented since early 2012 to prioritise tamariki Maori and low income whanau with health problems, including all children with GAS+ results or ARF. Eligibility has also been extended to include tenanted homes. However **household crowding** is the most important risk factor for ARF and HHTT cannot directly address this, although it may have some impact on functional crowding if the insulated home is warmer overall.

This plan proposes that whanau/families with children at high risk of rheumatic fever living in crowded housing will be identified and appropriately referred to housing services for follow up and interventions through:

1. Improving the health sector referral pathways to Healthy Homes Tai Tokerau for insulation, via key stakeholders:
    a. Northland DHB services:
        i. Child Health Unit

ii. Ward 2, Children's Ward

iii. Special Care Birthing Unit

b. Primary Health Organisations

i. General Practices

c. Maori Health Providers

d. Lead Maternity Carers.

2. Implementing a "crowding" pilot survey in Whangarei Hospital's children's ward, to identify ways to optimise identification and referral of children at high risk of RF to available/existing housing and tenancy services, including Housing New Zealand.
3. Use the information obtained above to further develop and improve referral pathways from the health sector to Housing New Zealand for high risk children and their whanau. This will involve further discussions with health providers and with HNZ locally and at a regional level, to ensure these referrals are prioritised and actioned appropriately.
4. Collecting and analysing health and housing data (including images/stories) to substantiate the issues faced in our communities with respect to housing, crowding, and their relationship to poor health, and to support intersectoral housing action.
5. Collaborating with Housing NZ and other housing stakeholders:

a. The Northland Housing Forum,

b. HHTT members,

c. Te Aupouri Trust Board, He Korowai Trust,

d. Runanga/iwi and TLAs)

in order to develop inter-sectoral responses to poor quality housing and crowding in priority areas of Northland.

NB: Significant change in household crowding in Northland cannot be expected by the above measures without a major change in national housing and income policies.

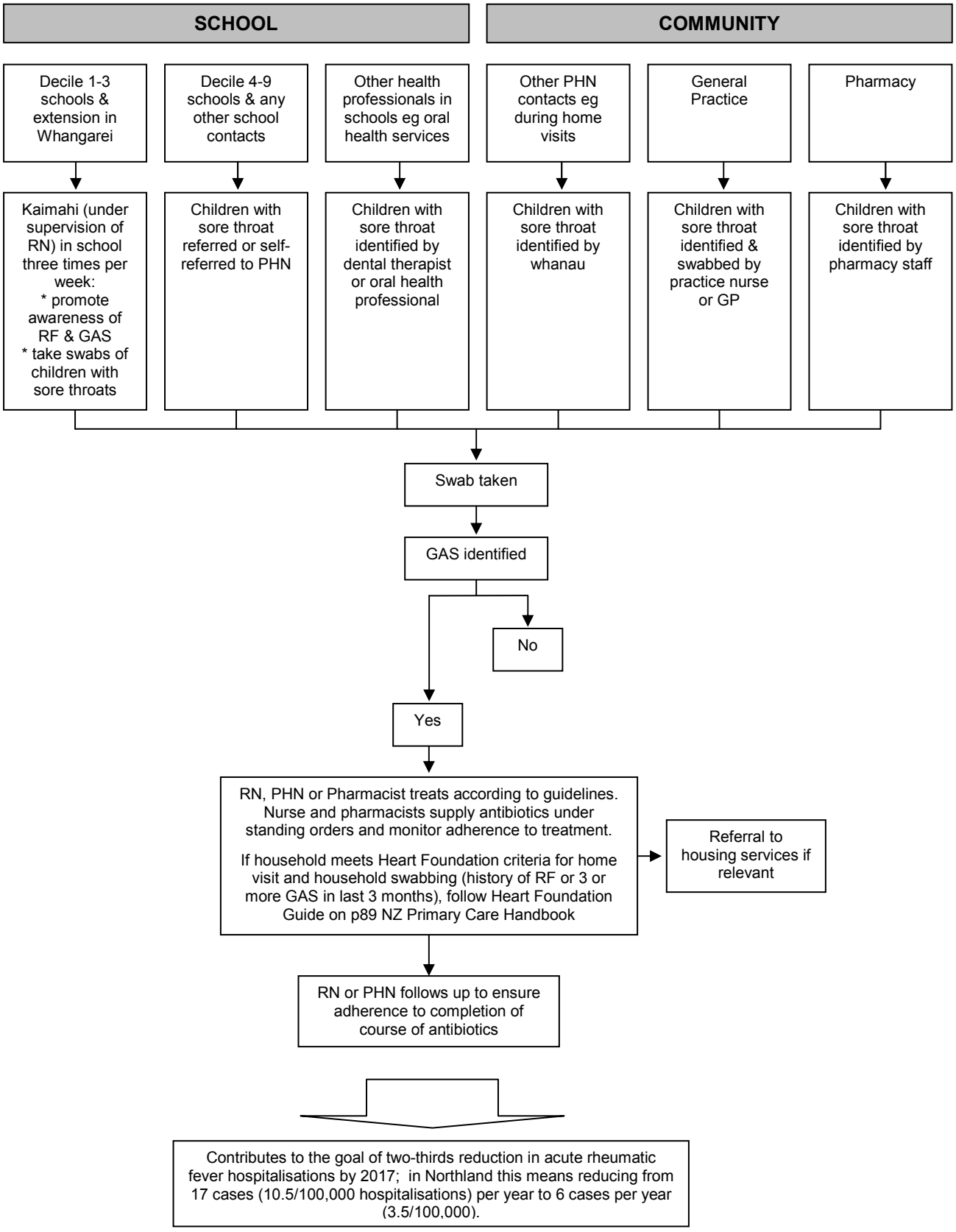
6. ACTIONS TO TREAT GROUP A STREPTOCCOCAL THROAT INFECTIONS QUICKLY AND EFFECTIVELY

This section identifies actions that Northland DHB will undertake to ensure timely and effective treatment of GAS throat infections, with a focus on high risk communities. The first aim of this section is to ensure that children and whanau who are at risk of ARF have multiple potential access points for seeking treatment of GAS sore throat. A further aim is to increase the knowledge and understanding of whanau at risk of RF so that they are empowered to take timely, appropriate action if their children have a sore throat.

Northland DHB will work with Primary and Community Care partners (Manaia PHO, Te Tai Tokerau PHO and Maori NGOs) to ensure that Group A Streptococcal throat infections are treated quickly and effectively according to current best practice guidelines and recommendations.

Children and young people with sore throats

Treating GAS quickly and effectively in Te Tai Tokerau



6.1: GENERAL PRACTICE:

6.1.1 Improve access to general practice services for 6-18yr olds, including after-hours services[9]

- Promote free or very low cost "no-appointment-needed/walk-in" nurse consultations for sore throat in general practice (which is similar to the Rapid Response model proposed by Counties Manukau DHB) and after hours clinics for <18yrs across Northland.

- Identify other barriers to general practice access (e.g. cultural safety/competence issues and acceptability of main stream services for Maori) and address these [e.g. receptionists role, appointment barriers, racism, health literacy etc – ongoing work with/by PHO and providers]

- Encourage antibiotic supply in general practice via Medical Practitioner Supply Order (MPSO) for high risk children

- Pilot pharmacy-based access to sore throat management [PHU to pilot initially in 2013/14]; further develop depending on evaluation of pilot.

6.1.2: Ensure implementation of the National Heart Foundation 2008/NZ Primary Care 2012 sore throat guidelines (and any revisions) in general practice, including after hours services.

The Northland lab-based audit of primary care management of sore throat in 2012 suggests that at best, only four out of five children with laboratory-confirmed Group A Streptococcus (GAS) pharyngitis are being appropriately managed. Further actions to enhance quality management include:

- Laboratory reminder on all positive lab results for Group A Streptococcus (GAS) about risk of ARF and ten day treatment with amoxicillin once daily as optimal choice (Northland Pathology Laboratory (NPL)and Northland DHB labs)

- Appropriate orientation of new staff especially locums, non-NZ trained GPs, GP registrars etc and nursing staff, and information on RF provided in the Northland locum handbook. (PHOs/practices) [Update as required annually]

- Promote the use of the MedTech advanced form (the current clinical decision tool) and/or develop further electronic decision support tools for sore throat management in general practice [PHO/Child Health Regional Network, HealthAlliance/Ministry, 2013-14]

- Actively promote the national sore throat and ARF guidelines including advantages of once a day amoxicillin treatment to maximise adherence via Clinical Medical Education (CME)/Clinical Nurse Education (CNE) to all practices and after-hours services. This will be promoted through current networks [MOH/Pediatricians/PHOs & Rural GP Network- 3 x in 2013, plan annually], and reinforced by PHO general practice facilitators.

- Further promote standing orders and nurse-led care as initiated in 2011; feedback results to practices; visit and discuss Quality Assurance in General Practice (GP) in

[9] See Northland Youth '07 Health Survey- the majority of secondary school students (93%) accessed GPs for health care, rather than other providers (e.g. school health clinics 21%), but 15% reported access barriers to health care (eg 33% of these could not get an appointment), as well as concerns about privacy and confidentiality.

high risk areas. [PHO, practice facilitators, practice managers- ongoing, need further implementation plan- to d/w PHOs]

- Support GP audits of sore throat management (Best Practice Advocacy Centre (BPAC)) in high risk areas –including implementation of follow up quality improvement plans [PHOs/PHO clinical leader, GP training and registrars, PH unit]

- Investigate/implement involvement of receptionist/practice management staff; identify key practices and engagement on a one:one basis to support implementation of the guidelines [PHOs- 2014]

- Disseminate RF promotion resources (eg posters/pamphlets/video etc in primary care to raise GP, whanau and patient awareness of sore throats and ARF [also for CYFS, pharmacists, schools etc]. [Ongoing 2013/14]

6.2: SCHOOL ENVIRONMENTS:

Enlarge coverage of sore throat swabbing for high risk children and youth through an integrated school based health services approach

Northland DHB will implement an integrated school based health service programme that includes GAS identification and treatment, targeting high risk individuals and communities. The focus to date has been on implementation of school-based throat swabbing programmes (intensive 3 times per week) in selected highest risk decile 1-3 schools. The integrated school-based programme will extend this to include swabbing of symptomatic children/youth that present with sore throat across all high-medium risk schools and/or geographic locations (including secondary schools) using existing public health nursing and other health professional services already working in schools. [NB PHNs will also be able to treat other basic health issues including skin infections when students present with these].

The focus of this work is to ensure:

- Optimal access for high risk children and youth to health services which can identify and treat GAS
- High quality, effective treatment according to the Heart Foundation (or updated) “sore throat” guidelines
- An integrated approach to school based health services.

There are three actions proposed to enlarge existing access to throat swabbing in schools:

Action 1: The current six throat swabbing programmes will continue but with some modifications to ensure equity of service coverage, and coverage of highest risk areas. The proposed model is based on a community health worker role (also known as kaiawhina, kaiarahi or kaimanākitangata) who carries out throat swabbing, supported by registered nurses. Based on experience in Northland (and depending on rurality), it is envisaged that there will be approximately one FTE community health worker per ~500 children, who will visit schools three times weekly, with one FTE registered nurse per ~1200 children. Supervision and treatment will be provided by the nurse working under standing orders.

The model aims to assure greater equity of funding than the current contractual arrangements, support collaboration, and the more efficient use of resources of existing providers working in schools. It also relies on close collaboration between existing services working in schools, including NDHB public health nursing services and Maori providers.

Maori Provider kaimahi will continue to deliver throat swabbing in the current high risk schools, with extension to further high risk primary schools in Whangarei District, three times

a week (intensive swabbing). The Public Health Nurses (PHN) will refocus part of their time in school based health services and collaborate with the SBTS Maori Health Providers to support this.

- For example, for MOKO (Kaitaia throat swabbing project), the proposed model will utilise approximately 0.7FTE PHN time to work alongside the MOKO kaimahi and 1 registered nurse employed by MOKO. The model is based on one kaimahi per 500 children and 1 nurse per 1200 children (this configuration is based on experience from current throat swabbing projects). It would be similar with KAONT (Whangarei), and Ngati Hine Health Trust (Kawakawa, Moerewa) although less PHN resource is needed for the latter as there are smaller numbers of children enrolled.
- PHNs will support the SBTS provider through treatment of GAS positive children, and administer and supply antibiotics based on standing orders. PHNs will also work with SBTS kaimahi to ensure the collection of antibiotics and adherence to the course of antibiotics.

Action 2: Enhancing school based health services with an increased focus by Public Health Nurses on RF prevention and throat swabbing is an additional action to the model of School Based Throat Swabbing services proposed above. This component was identified in the 2012 Northland DHB Health Services Plan as part of a range of actions contributing to the overall goal of improved health and equity of outcomes of children in Northland. Integrating sore throat management as a key component of improved school health services is recognised by NDHB as essential for cost effectiveness and sustainability, as well as providing a more holistic model of care for children.

All PHNs will be able to swab at any time a child who is referred or self-presents with a sore throat, as part of their normal work in each school. This is especially important in the decile 3-9 schools which are not covered by three times per week SBTS service (but where there are still significant numbers of tamariki Maori). The PHNs will also offer this service in secondary schools which are mostly not covered by dedicated throat swabbing projects.

Action 3: NDHB aims that all health professionals working with children and young people have an awareness and knowledge of rheumatic fever and sore throat management. We aim to operationalise this through training all clinicians who work in schools, so that they are capable of treating or referring for a throat swab appropriately. This will include dental therapists in NDHB and NHHT oral health services.

Key Assumptions of this model:
It is assumed:

- That the MoH will provide NDHB the full $2.99 million for the 2013-17 period.
- That the Ministry will negotiate with current providers and hand over contract management to NDHB from early 2014. As 3 of the current contracts end June 30, 2014 (Ngati Hine HT, Hauora Hokianga, MOKO (2nd 8 schools) and Kaikohe/THOOK), re-negotiation based on the above model must take place well before this date. The Ki A Ora Ngati Wai contract with the Ministry has been extended already until December 2015 and this would have to be varied. The “roll over” of the first (6 school) MOKO contract expires at December 30, 2013 and this needs to be addressed as a first priority.
- That most of remaining MoH RF funding be brought forward into the 2014/15 year, to minimise the funding gap in the immediate future and allow for NDHB to re-prioritise funding for this programme in out years.
- The MoH will hand over existing contracts in such a way that the NDHB will not be required to go to RFP for these services.

- Some phasing will be needed to transition to and implement the extended model without impacting on current services. Additional training and supervision for Maori provider staff and NDHB PHNs to ensure high quality delivery will be critical.

In addition to the above actions, NDHB will:

- Continue Public Health team support for current school-based projects (training, data analysis, supervision, quality improvement and monitoring);[10] and support additional coverage by PHNs in schools not covered by throat swabbing projects

- Consider/pilot use of rapid diagnostic tests for general practice, school projects and whanau contact tracing [2014]

- Assess the potential for other non-health professional throat swabbing in community settings eg parents, school staff.

6.3: EMPOWERING WHANAU:

Develop and implement a health promotion & communications plan for Rheumatic Fever prevention, with a focus on enhancing knowledge and understanding of whanau of RF and sore throat management

Northland DHB will review the RF Communications Plan 2011-13 (in collaboration with key stakeholders) and develop a new plan to support local community engagement and awareness for 2014-17. Additional actions include:

- Ensuring synergy of planning and activities with Northern region and national RF programme, especially for Maori whanau/communities

- Identify other important stakeholders to work further with (eg community pharmacists, teachers, Early Childhood Educators, Ringa Atawhai)

- Provide updated RF Health education resources to all projects; advocate to get RF on school's health curriculum; promote NHF school health modules for RF prevention

- Assess and develop other ideas from hui as feasible eg online surveys, mobile/iPad apps, and developing a Facebook/Web page with linkages to support groups (local to regional/national)

- Focus on the use of Maori media to target and promote RF Prevention and key messages.]

7. ACTIONS FACILITATING THE EFFECTIVE FOLLOW UP OF IDENTIFIED RHEUMATIC FEVER CASES

This section outlines actions that Northland DHB will undertake to ensure the effective follow-up of identified rheumatic fever cases.

The rationale for secondary prevention is that prevention of GAS colonisation or re-infection will prevent recurring episodes of rheumatic fever, thereby reducing the risk of developing rheumatic heart disease (RHD).[11] Secondary prevention has proven to be beneficial in

[10] NDHB PH Unit is represented on the existing school project Steering Groups (governance) and provides clinical support and training, including data collation and analysis, to all the school projects.

[11] Guasch L, Vignau A, Mortimer E, Rammelkamp C. Studies of the Role of Continuing or Recurrent Streptococcal Infection in Rheumatic Valvular Heart Disease. The American Journal of the Medical Sciences. 1962 244(3):290-7.

rheumatic fever management.[12] Prophylaxis with penicillin for those that have previously had ARF reduces the risk of recurrent ARF, developing or exacerbating RHD, surgical intervention for RHD and death.[13、14、15、16]

The focus of this work is to ensure:

- Patients receive timely antibiotics (secondary prophylaxis)
- Timely ARF notifications to Medical Officer of Health
- Identification of risk factors and system failures

7.1: Ensure patients with a history of rheumatic fever receive monthly, on-time antibiotics

- Audit the Northland register, and timelines/completeness of follow up with monthly bicillin by June 2014
- Develop a quality improvement plan to address any identified problems by June 2014
- Re-audit secondary prophylaxis annually 2014-2017
- Support development of a national or regional networked "register" to enhance sharing of information about RF clients, and reduce gaps in following up on patients.
- Implement integrated "RF Clinics" to improve the quality of care and coordinate services, to commence by Dec. 2013)

7.2: Ensure that all cases of ARF are notified to the MOH within seven days of hospital admission

- Review 2002-2011 RF audit and current 2012/2013 to assess historic timeliness (2013)
- Identify steps to promote timeliness and completeness of reporting with clinical teams in Ward 2 and medical wards (2014)
- Implementation of any changes required
- Measure timeliness (median/range) on an annual basis to ensure compliance.

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[12] Lennon DR, Wilson NJ, Atatoa-Carr P, Arroll B, Farrell E, Jarman J, et al. New Zealand Guidelines for Rheumatic Fever 1. Diagnosis, Management and Secondary Prevention. Auckland: National Heart Foundation; 2006.

[13] Manyemba J, Mayosi B. Penicillin for secondary prevention of rheumatic fever. Cochrane Database of Systematic Reviews. 2002;3(CD002227).

[14] Strasser T, Dondog N, El Kholy A, Gharagozloo R, Kalbian V, Ogunbi O, et al. The community control of rheumatic fever and rheumatic heart disease: report of a WHO international cooperative project. Bull World Health Organ. 1981;59(2):285-94.

[15] Sanyal S, Berry A, Duggal S, Hooja V, Ghosh S. Sequelae of the initial attack of acute rheumatic fever in children from north India. A prospective 5-year follow-up study. Circulation. 1982 65(2):375-9.

[16] Lue H, Tseng W, Lin G, Hsieh K, Hsieh R, Chiou J. Clinical and epidemiological features of rheumatic fever and rheumatic heart disease in Taiwan and the Far East. Indian Heart Journal. 1983 35(3):139-46.

7.3: Identify and follow up known risk factors and system failures in new cases of ARF

- Consider each new ARF case as a “sentinel event”
- Develop a standard questionnaire to review the health “pathway” for each case –and implement with relevant health and school services and whanau to elicit areas/recommendations for improvement (via PHN/RF coordinator) (commenced 2013).
- Quarterly review of recommendations and progress re implementation by PH RF lead.

8. MONITORING AUDIT AND EVALUATION

The reporting framework to Ministry of Health will monitor the hospitalisation target rates and numbers of Acute Rheumatic Fever quarterly and annually. Northland DHB also plans to evaluate in early 2015 (possibly in collaboration with metro Auckland DHBs), the impact of the school throat swabbing projects in schools, community, primary care and whanau, implemented from 2012 to end 2014.

In addition, the Health Research Council (HRC) funded study led by Professor Diana Lennon assessing changes in Group A streptococcal prevalence in 1500 children in Counties Manukau DHB, Auckland DHB and Bay of Plenty DHB will be completed in mid-late 2014. Results from this research as well as the evaluation will assist Northland DHB in assessing and re-directing our response to developing and delivering services up to June 2017 in order to achieve the BPS target.

Northland DHB will provide reports to Ministry of Health on the progress towards meeting targets specified in the Plan.

- Quarterly and annual reporting against the final Rheumatic Fever Prevention Plan, commencing 2014, with a final report in 2017
  - 20th January
  - 20th April
  - 20th July
  - 20th October

Northland DHB will also:

- Widely disseminate annual reporting of new ARF cases; map GAS and ARF cases
- Publish/disseminate findings of audits (surveillance data/Northland RF register and GP sore throat management) (2013/14)
- Re-survey school children and whanau about knowledge of sore throat/RF key messages
- Evaluate quality of current hospital coding and maintain oversight of notification data with verification by clinician and PHP.
- Work with Metro Auckland DHBs on a regional approach to evaluation of the school projects and of the overall RF plan.

9. SUMMARY OF THE RHEUMATIC FEVER PREVENTION PLAN

Table 3: Summary of Rheumatic Fever Prevention Plan Actions

	2013/14	2014/15	2015/16	2016/17
DHB Target	Rate: 9.5 Number: 15	Rate: 6.3 Number: 10	Rate: 4.7 Number: 8	Rate: 3.5 Number: 6
Rheumatic Fever Champion	Kim Tito - GM Planning, Maori, Primary and Population Health			
Key stakeholders/providers involved in implementation of the plan	PHOs, 6 Maori providers (delivering current school projects), HNZ, DHB PH and PHN/child and youth services	PHOs, 6 Maori providers (delivering current school projects), HNZ, DHB PH and PHN/child and youth services	PHOs, 6 Maori providers (delivering current school projects), HNZ, DHB PH and PHN/child and youth services	PHOs, 6 Maori providers (delivering current school projects), HNZ, DHB PH and PHN/child and youth services
DHB Financial Investment	15,000	618,162	Half year 323,418	
Ministry of Health Financial Investment (Assumes all MoH funding brought forward into 2014/15 year) Please see Table 1 on page 8 for detail	1,258,310	1,067,652	254,240	
Total Financial Investment	1,273,310	1,685,814	577,658	
Actions to prevent transmission of GAS infections	Improve health referral pathway for insulation (HHTT)	Continue HHTT programme	Continue HHTT programme	Continue HHTT programme
	Pilot crowding survey (hospital)			

	2013/14	2014/15	2015/16	2016/17
	Scope out crowding risk identification and optimise pathways to other relevant housing services eg HNZ	Implement full pathway, including primary care		Evaluate outcomes
	Discuss further options with housing stakeholders	Progress as possible new housing strategies to reduce crowding		
Actions to treat GAS quickly and effectively	Discuss free/low cost model with PHOs; continue to promote nurse-led SOs model	Implement further PHO models		
	Negotiate new "collaborative model" with existing school providers and PHNs	Implement new school collaborative model with increased coverage in Whangarei	Evaluate outcomes by early 2015	
	Extend PHN throat swabbing capacity to cover all students presenting with sore throat in all schools (Feb 2014)	Training of other clinicians working in schools on sore throat mgmt		
	Pilot pharmacy access from early 2014	Evaluate and roll out further if successful		
	Pilot rapid tests from early 2014	Evaluate and roll out further if successful		
	Implementation of updated National Heart Foundation Sore Throat guidelines	General practice-ongoing		
	Review existing and develop new RF prevention communications/promotion plan for 2014-2017	Implement plan		

	2013/14	2014/15	2015/16	2016/17
		Implement evaluation of school throat swabbing services by end of Nov 2014	Evaluation Report received and and recommendations/ decisions on future investment made by early 2015	
Actions to facilitate effective follow up of identified RF cases	Audit of secondary prophylaxis register and notification timeframes	Annual audits and quality improvement plan as required	Annual audits and quality improvement plan as required	Annual audits and quality improvement plan as required
	Sentinel event questionnaire developed and follow up of new RF patients	Respond to system issues as identified	Respond to system issues as identified	Respond to system issues as identified
	Cases of ARF reported to Medical Officer of Health	Cases of ARF reported to Medical Officer of Health	Cases of ARF reported to Medical Officer of Health	Cases of ARF reported to Medical Officer of Health

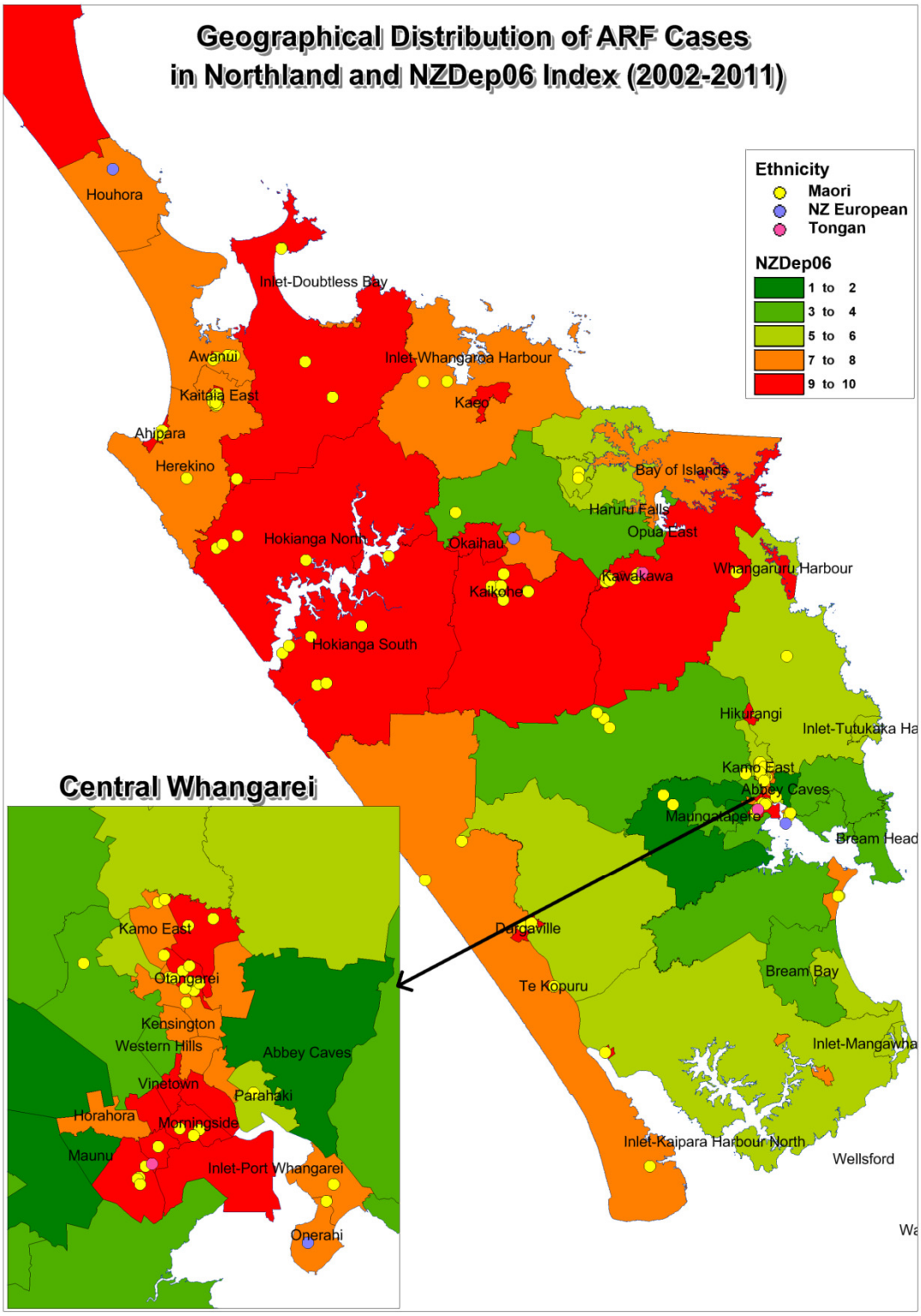
10. REPORTING FRAMEWORK

Table 1: Reporting Framework

Goals	New Actions undertaken since last reporting period	Progress towards goals	Comments on progress and description of highlights over previous quarter
Progress towards Target			
Rheumatic Fever Champion			
Preventing GAS transmission			
Pilot crowding survey completed			
Housing referral pathways developed			
Number of at risk whanau referred to HHTT			
Treating GAS quickly and effectively			
Increased community awareness of risks of sore throat and RF so that high risk whanau seek appropriate treatment			
Extended school coverage implemented			
Existing school indicators (% enrolled, % managed appropriately)			
No/% of general practices offering free throat swabs to <18yrs			
Pharmacy pilot implemented and evaluated			
High quality sore throat (GAS) treatment, according to national guidelines, delivered by all Northland health service providers			
Effective follow up of identified RF cases			

Goals	New Actions undertaken since last reporting period	Progress towards goals	Comments on progress and description of highlights over previous quarter
Audit results (RF register)			
Notification audit done			
Improvements as per improvement plan if required			
Changes to the plan as a result of lessons learned in the previous reporting period			

Appendix 1: Geographical Distribution of ARF Cases in Northland and NZDep06 Index (2002-2011)



Appendix 2: Current and Proposed RF Research in Northland

- Supporting qualitative research into the experience of Maori whanau in accessing care for sore throat/ARF and understandings of RF/RHD (Te Kupenga Hauora Maori, University of Auckland)- funded, to start 2013
- Participating in the HRC-funded RHD in pregnancy prospective surveillance study- ongoing
- Investigating the strep A emmtypes in Northland –underway 2013
- Evaluating use of rapid tests in supporting compliance and health promotion in general practice/school projects/community pharmacy pilot 2013/14
- Crowding - develop and pilot survey in children's ward/CHC 2013
- Access/analyse 2013 Census data on housing once available
- Phone survey re: knowledge and practice re: sore throats with coverage powered for Maori equity (part of DHB Population Health survey planned for 2014)
- Focus groups with tamariki
- Once/if national agreement/scientific consensus is reached, optimise evidence-based use of echo-cardiography for detection for sub-clinical RHD and public communication around ARF. Remain in contact with Nigel Wilson re possibility of further research in 2014 if funding obtained; discuss the evidence for screening high risk women in pregnancy. Plan more screening if national consensus reached.
- Keep in regular contact and learn from other RF projects, research and interventions around the country/internationally (underway).
- Review and develop updated research agenda.