Improving Child Health Outcomes in Porirua City

Reducing the rates and impact of rheumatic fever, serious skin infections and respiratory illness amongst the children of Porirua

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1. Executive Summary and Recommendations

In 2010 the Capital and Coast District Health Board identified Child Health as an area of strategic priority, and requested the development of a child health action plan to address disparities in high need communities. Discussion at the meeting focused on the Porirua community and in particular on the conditions of rheumatic fever, skin infections and respiratory conditions. This paper has been written in response to that request as the 'first step response'.

Rheumatic fever, together with the associated conditions of serious skin infections and respiratory illness, are indicators of poor social determinants of health within vulnerable communities.

This document provides a framework and direction for actions to improve health outcomes for children aged 0-14 years in the Capital & Coast DHB region, with an initial focus on the children of Porirua.

It is important to note that improvements in childhood rheumatic fever rates, skin infections and respiratory conditions cannot be managed by C&C DHB or the broader health sector alone. The root contributors to these conditions lie in poor quality, cold and damp housing, over-crowding, inadequate income and poor education.

A health response alone will not bring about a significant and sustainable improvement in rheumatic fever rates or broader child health outcomes.

To this end, this paper looks at what C&C DHB can do pro-actively, and what it can do in partnership with its social sector agency partners to begin a journey in sustainably reducing the incidence and impact of rheumatic fever, skin infections and respiratory illnesses. Recommended actions are therefore broken into the following areas:

(a) Preventative Intersectoral Activity (partnering with government agencies to improve the social determinants which contribute to rheumatic fever rates, skin infections and respiratory illnesses);
(b) Early Intervention Activity (Primary and Community Care Activity); and
(c) Early Intervention and Treatment Activity (Secondary Care)

Securing improved social determinant change will be pivotal to the success of this multi-pronged approach. C&C DHB has already developed some strong intersectoral relationships with a range of agencies in the district that will provide a good foundation on which to build a united approach.

The C&C DHB also has a range of existing and emerging activities/ programmes and services in primary and community care settings that are well placed to meet some of the challenges ahead in combating rheumatic fever, skin infections and respiratory illnesses. There are areas (identified within this document) for improvement, and there are opportunities the DHB can take to improve detection and early intervention around precursor conditions to rheumatic fever.

That said, it is unlikely that we would be able to fully eliminate rheumatic fever, skin infection and respiratory illnesses within 10 years without the determinants improving significantly.

The recommendations in this paper are envisaged to achieve the following targets for Porirua Kids:

Rheumatic Fever Targets – Porirua City		
Financial Year	**Rates per 100,000 Aged 5-14**	**Cumulative Reduction**
Baseline	72 per 100,000	-
2012 / 2013	68.5 per 100,000	5%
2013 / 2014	65 per 100,000	10%
2015 / 2016	58 per 100,000	20%
2019 / 2020	43 per 100,000	40%

Serious Skin Infection Targets – Reduction in the number of acute ED attendances in children under 6		
Financial Year	**Attendances**	**Cumulative Reduction**
Baseline	31	-
2012 / 2013	28	10%
2013 / 2014	25	20%
2015 / 2016	20	35%
2019 / 2020	14	55%

Respiratory Illness Targets – Reduction in the number of acute ED attendances in children under 6						
	Asthma		**Bronchiolitis**		**Pneumonia**	
Financial Year	**Attend-ances**	**Cumu. Reduc.**	**Attend-ances**	**Cumu. Reduc.**	**Attend-ances**	**Cumu. Reduc.**
Baseline	92	-	104	-	41	-
2012 / 2013	83	10%	90	10%	37	10%
2013 / 2014	74	20%	83	20%	33	20%
2015 / 2016	65	30%	67	35%	26	35%
2019 / 2020	51	45%	47	55%	13	55%

Recognising that C&C DHB is currently operating in a fiscal environment where new investment is difficult, every effort has been made to make recommendations that are cost neutral and focus on service efficiency gains. Investment will be required however, and a three year investment phasing has been proposed to align with the DHB's financial recovery

plan. These investments will need to be considered each year during the annual planning and budgeting process.

The below table outlines the new investment required for each year of the plan. Total investment by year three would be $365,000. Funding required for the 2011/12 year has been included in the 2011/12 annual planning and budgeting process and investments will be confirmed once the overall process is concluded and availability of funds confirmed.

Financial Year	Investment Proposed
2011/12	$85,000
2012/13	$170,000
2013/14	$110,000

The plan for 2011/12 includes a Rheumatic fever screening efficacy review project. This review will also include modelling of the impact on other services such as hospital cardiology services and cost/ benefit modelling of the overall costs and savings associated with the screening program/s to support any decisions to support these programs.

Financial decisions for 2012/13 and 2013/2014 will be made as part of the annual plan and budget processes for each of these years.

2. Introduction

Child health in Porirua remains an area of concern for Capital & Coast DHB. Recent figures have again highlighted the disproportionate rates of infectious disease and preventable admissions in Porirua children amongst other issues.

Building on the significant investment already made in Porirua, C&C DHB have acknowledged the need for action targeted specifically at Porirua and the three priority areas of:

- Rheumatic Fever;
- Serious skin conditions; and
- Respiratory illnesses

The identification of these target areas helps ensure that resources are focused on achieving outcomes rather than have these dissipated over a range of activities. The objective of this paper is to provide options for efficient, safe, clinically viable, culturally appropriate quality services that meet the needs of the children of the Porirua area, within the existing financial parameters.

In addition to the issues facing children in Porirua, child health in general is becoming an increasingly complex area, with multiple service providers, contractual boundaries between services, complex relationships with providers (e.g. RPH / Hutt DHB & CCDHB). Clarity is needed around current service provision, funding streams, perceived duplications and possible gaps in service delivery. Preliminary discussions have identified a lack of communication and information sharing between services as a significant issue. Because of this issue, a basic stock-take of child health services has been carried out as a component of this review.

2.1 Assumptions

This paper is based on the results and analysis from provider and stakeholder engagement and discussion, data review (local and national) and a limited literature review of child health service delivery, issues of equity and access to services.

Implications

Implementation of the options identified in this document may have personnel or financial implications for C&C DHB and some service providers. A comprehensive change management process will need to be rolled out if C&C DHB chooses to implement one or more of the options outlined in the body of this report.

3. Purpose

The purpose of this paper is to identify opportunities and provide options for consideration, to reduce the impact and burden of the “top three” conditions by:

- Identifying and describing current service provision and delivery models with a focus on Porirua
- Providing options that reduce the burden and impact of the “top 3” health issues within current financial restraints.
- Identifying gaps in current C&C DHB serviced provision, to inform future service development
- Ensuring services are efficient and represent value for money purchasing; and
- To provide options to the C&C DHB Board and Planning & Funding Management Team based on the findings of this review.

In addition, it provides a basic overview of the current service provision of child health services in C&C DHB.

It is expected that the implementation of some or all of the options will deliver tangible benefits to the children of Porirua who are impacted or potentially could be impacted by Rheumatic fever, serious skin conditions or respiratory illnesses.

3.1 Scope

The paper focuses on:

- Reducing the occurrence and impact of Rheumatic Fever, Serious Skin Infections and Respiratory Conditions;
- Porirua;
- Identification of potential areas of duplication and / or inequity; and
- Identification of potential areas of integration

It does not include:

- All of C&C DHB Child Health Services (e.g. Kapiti, greater Wellington area)
- An in-depth review of all child health services in C&C DHB
- Hospital based paediatric services
- Youth Health Services

Development of the paper included:

- Consideration of previous national, sub-regional and local reviews and service development work;
- Limited literature review of national projects for Rheumatic Fever;
- A stock take of current child health service provision;
- Collection and analysis of data;
- Discussion with relevant stakeholders;

4. The Need for Action – a profile of children in Capital & Coast DHB, specifically Porirua

4.1 The International Context

Young children make up one of the most vulnerable groups in our society. Children rely on their family and community to nurture, develop and protect them.

"…New Zealand's child health outcomes compare poorly internationally. In a 2009 report from the Organisations for Economic Co-operation and Development (OECD), Doing Better for Children, New Zealand ranked 29th out of 30 countries for child health and safety. In fact some of New Zealand's disease patterns among children are closer to those of developing countries"[1].

New Zealand is a relatively prosperous nation with excellent healthcare and education systems. However, New Zealand does not compare well with other prosperous nations when it comes to child health. New Zealand has slipped to the bottom third for most indicators, many of which are preventable conditions.

New Zealand compares poorly internationally

Out of 30 OECD countries, New Zealand is ranked:

- 21st for infant mortality (5.1 / 1,000 live births)
- 29th for measles immunisation rates (82% vaccinated by age two)
- 20th for the percentage of children living in poor households (15% of all children)
- 17th for children in overcrowded houses (31% of all children)

New Zealand fares poorly in other international comparisons. New Zealand:

- is fourth to bottom of all OECD countries for injury deaths among one to four-year-olds
- has 14 times the average OECD rate of rheumatic fever
- has rates of whooping cough and pneumonia 5-10 times greater than the United Kingdom and United States
- has a four to six times higher rate of child maltreatment death that OECD countries with the lowest incidence

One of the largest determinants of health is income. Financial hardship limits access to important resources needed for good health, places stress on families and is linked with an increased risk of child abuse and neglect.

The New Zealand Government's investment in the early years is low by international standards. It is less than half the OECD average of 'early childhood' (includes expenditure of education, in-kind benefits, childcare, cash benefits and tax breaks). When health expenditure is included in early childhood spending, New Zealand expenditure by age is lowest for children from just after birth until age five. It increases after age 14 and continues to increase over the life course, until spending on people in the last two years of their lives is five times greater than the investment in early childhood.[2]

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[1] OECD. 2009. *Doing better for Children.* Paris: Organisation for Economic Cooperation and Development

[2] S Chapple, D Rea. 2002. Towards an agenda for evidence-based children's policy. Paper presented to seminar on evidence-based children's policy, Wellington

Overseas governments have faced similar challenges to those the New Zealand Government faces, with poor outcomes in some groups, ineffective service coordination, and negative, long-term effects of poor early childhood development on crime, employment, and health service demand. Overseas governments have made dramatic changes to the way they invest in and address child health and wellbeing, which appear to be making a positive difference. The United Kingdom has adopted a whole of government approach to children that is underpinned by the Children Act 2004.

Other jurisdictions that have recognised the interconnected nature of child health and the need for greater investment in the early years are Manitoba (Canada), Victoria (Australia) and Ireland. Inherent in the long-term nature of these approaches is the acknowledgement that improvements to child health and wellbeing take time.

4.2 The New Zealand Context 2010

New Zealand's health outcomes are low in part because gaps have widened between the health statuses of different groups in our communities over the past three decades. Maori and Pacific children have two to three times' poorer health than non-Maori, non-Pacific children." [3] Children in very low-income families, children of beneficiaries and children of prisoners also have worse health than other children (Table 1)

Infectious diseases are the most common cause of acute hospitalisation in New Zealand. Their incidence is known to have increased during the 1990's. Infectious diseases are also a major case of health inequalities, with Maori and Pacific peoples' hospitalization rates consistently higher than those for Europeans and others. Close contact infectious diseases rates were highest in children less than 5 years with a rate of 4794.9 per 100,000 in the period from 2004 to 2008. Rates also increased markedly in this age group from 40.1 percent of hospitalisations in the 1989 to 1993 period, to 52.7 percent of hospitalisations in 2004 to 2008. [4]

Table 1: Relative risk of hospitalisation for some serious health conditions by deprivation and ethnicity in children aged 0-14 years, 2002-2006

Cause of hospital admission	European	Maori	Pacific	Asian / Indian	Low deprivation (NZ Dep 1)	High deprivation (NZ Dep 10)
Rheumatic fever	1.0	23.0	48.6	1.0	1.0	28.7
Tuberculosis	1.0	11.1	45.2	55.0	1.0	5.0
Bronchiectasis	1.0	4.0	10.6	0.7	1.0	15.6*
Serious skin infection	1.0	2.8	4.5	0.9	1.0	5.2
Sudden unexplained death in infancy					1.0	10.6*
Pneumonia	1.0	2.0	5.1	1.1	1.0	4.5

Notes: NZ Dep = New Zealand Index of Deprivation
* = Relative risk provided for deciles 9 and 10, rather than decile 10 alone.

Sources: I Asher. 2009. Child poverty and child health in NZ: A national disgrace. Child Poverty Action Group presentation. 29 October; E Craig, C Jackson, D Han, NZCYES Steering Committee. 2007. *Monitoring the Health of New Zealand Children and Young People: Indicator handbook.* Auckland: Paediatric Society of New Zealand and the New Zealand Child and Youth Epidemiology Service.

[3] Public Health Advisory Committee, 2010: The Best Start in Life. Achieving Effective Action on Child Health and Wellbeing.

[4] Baker M, Telfar B, Zhang et al. Close-contact infectious diseases in New Zealand: Trends and ethnic inequalities in hospitalizations, 1989 to 2008. Wellington: Housing and Health Research Programme, University of Otago. 2010

The difference in health status between New Zealand children with the best and worst health is similar to the very wide disparity between the health status of the richest and poorest OECD countries.

Other areas in New Zealand have similar issues (e.g. high rates of Rheumatic fever in pockets on the East Coast, Bay of Plenty as well as in Northland). Other DHBs have developed programmes to address these issues. This is a valuable source of information and guidance. Despite the uncertainty of some clinicians, the throat swabbing programmes run in a number of areas has delivered successful outcomes, and is clearly something Capital & Coast DHB need to implement (Appendix 4)

4.3 Local Context – Capital & Coast

Children and young people make up a third of the Capital and Coast population and collectively represent a taonga or treasure, whose health and wellbeing need to be safeguarded in order to ensure the future prosperity of the region. The following information outlines what the child health population looks like for the C&C DHB district based on data from New Zealand Census 2006.

The C&C DHB region of responsibility covers three Territorial Local Authorities (TLA's) – Kapiti Coast, Porirua City and Wellington City.

At the time of the 2006 Census there were 51,909 children (0-14 years) usually resident within the C&C DHB boundaries. While the proportion of Maori children was lower than the New Zealand average, the proportion of European, Pacific and Asian children was similar/higher (Table 2)[5].

Table 2: Distribution of Children (0-14 years) by Ethnicity, Capital and Coast vs New Zealand at the 2006 Census

Ethnic Group	Capital and Coast		New Zealand	
	Number	%	Number	%
	Children 0-14 years			
European	30,000	57.8	479,418	55.3
Maori	8,571	16.5	199,929	23
Pacific	5,769	11.1	75,531	8.7
Asian	4,917	9.5	70,485	8.1
Other	921	1.8	8,658	1.0
Not Stated	1,731	3.3	33,558	3.9
Total	**51,909**	**100**	**867,579**	**100**

Source: Statistics New Zealand; Ethnicity is Level 1 Prioritised

During 2007, the proportion of Maori babies born in Capital and Coast was lower than the national average while the proportion of European, Pacific and Asian children was similar/higher. The data also demonstrates a higher proportion of children lived in very affluent (NZDep decile 1) areas than the national average while the proportion living in moderately deprived (Decile 7-9) areas was lower. 99.0% of children lived in urban areas, as compared to 87.1% nationally (Table 3).

[5] New Zealand Child & Youth Epidemiology Service, March 2009: The Health Status of Children And Young People In The Capital & Coast DHB:

Table 3: Distribution of Births by Baby's Ethnicity, NZ Deprivation Index Decile and Rural Urban Location, Capital and Coast vs New Zealand 2007 from p 10 health status report 2009

	Capital & Coast		New Zealand	
	Number	% of Births	Number	% of Births
Baby's Ethnicity				
European	2,167	53.0	31,237	47.7
Maori	823	20.1	19,465	29.7
Pacific	483	11.8	7,066	10.8
Asian	461	11.3	6,447	9.8
Other	153	3.7	1,326	2.0
Total	**4,087**	**100.0**	**65,451**	**100.0**
New Zealand Deprivation Index Decile				
1	881	21.5	4,892	7.5
2	426	10.4	5,233	8.0
3	383	9.4	5,194	8.0
4	578	14.1	5,800	8.9
5	230	5.6	5,430	8.3
6	389	9.5	6,736	10.3
7	143	3.5	6,480	9.9
8	203	5.0	8,115	12.5
9	434	10.6	8,056	12.4
10	425	10.4	9,225	14.2
	4,092	**100.0**	**65,161**	**100**
Urban / Rural				
Urban	4,050	99.0	56,951	87.1
Rural	42	1.0	8,475	13.0
Total	**4,092**	**100.0**	**65,426**	**100.0**

The figures in Table 3 would tend to suggest that as a result of its regional demographic profile, Capital and Coast might expect lower rates for conditions for which socioeconomic disparities are most marked, as well as lower rates for conditions for which ethnic disparities for Maori children are prominent. Unfortunately for children residing in Porirua this assumption is incorrect.

For Capital & Coast the most frequent causes of post-neonatal acute hospital admissions in children 0-14 years are indentified in Table 4.

Table 4: Capital & Coast 2003-2007

Primary Diagnosis / Procedure	Total 2003-2007	Rate per 1,000	% of Type	% of Total
Acute Admissions (by Primary Diagnosis)				
Injury / Poisoning	2,094	8.10	16.8	9.0
Infectious Gastroenteritis	1,050	4.06	8.4	4.5
Asthma	895	3.46	7.2	3.8
Acute URTI	892	3.45	7.2	3.8
Bronchiolitis	771	2.98	6.2	3.3
Bacterial/Viral Pneumonia	761	2.94	6.1	3.3
Viral Infections NOS	689	2.67	5.5	2.9
Serious Skin Infections	629	2.43	5.1	2.7
Abdominal/Pelvic Pain	319	1.23	2.6	1.4
Appendicitis	285	1.10	2.3	1.2
Other Diagnoses	4,053	15.68	32.6	17.4
Total	**12,438**	**48.12**	**100.0**	**53.2**

Source: Numerator-National Minimum Dataset; Denominator-Census; Injury and Mental Health Emergency Department Cases Removed

4.4 Health Priorities for Children in Porirua

The issues affecting the health of children in Porirua are well understood both through analysis available to Planning & Funding and providers and from work undertaken in Porirua by Ngati Toa Rangitira, Regional Public Health, HHS staff, PHO's, Porirua Healthlinks, Porirua City Council, Ora Toa, Porirua Union and Community Health Service, Maraeroa Health Clinic, Pacific Health Porirua, general practices, Plunket, pharmacists, social services, government agencies, NGO's, churches and the many active community based groups.

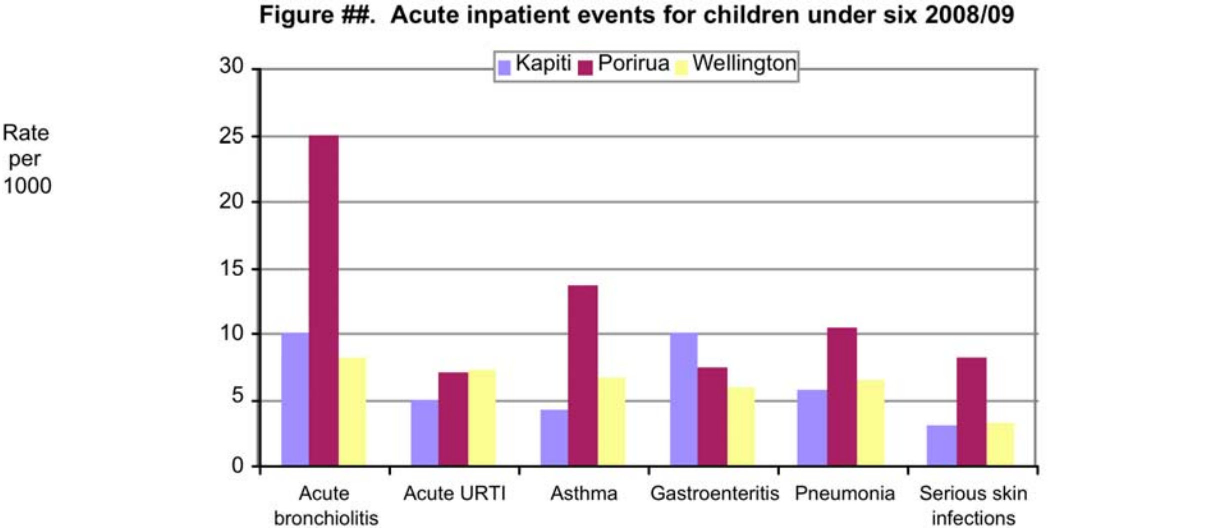
It is also important to recognise that Porirua has benefited from additional investment since 2002 to build primary care capacity and support initiatives to address some of the social and environmental factors that impact on child and family/whanau health. These include additional school based clinics, a nurse in the Community Links (WINZ) office, additional Public Health Nurse Resource, funding to improve access to general practice, and outreach nurses. The DHB has also funded a public health nurse (PHN) with specific focus on rheumatic fever follow-up for youth (district wide), a skin infection project and promoted healthy housing through insulation.

In 2008/09 there were 672 acute medical and surgical admissions for children living in Porirua. In 237 cases, the child had been to Kenepuru A&M on the same day (68% of these had been to the A&M after hours).[6]

Top diagnoses for these 237 events were bronchiolitis and other lower respiratory tract infections (93), asthma (36), pneumonia (33) and acute upper respiratory tract infections (25).

The graph below demonstrates the high rates of acute admissions for Porirua children compared to children from the rest of the District for bronchiolitis, asthma, pneumonia and skin infections[7]

Figure ##. Acute inpatient events for children under six 2008/09



It has been identified that the poorer health of Porirua children is due to a range of modifiable factors including income, housing quality and health care access.

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6 Blair N. Kenepuru After Hours Care for Children of Porirua. Presentation to C&C DHB. April 2010

7 Analysis undertaken by C&C DHB Planning & Funding Directorate, including: Outcomes for under sixes_hospital admissions; A&M Attendances_children 0-17 0809; ED Attendances_children under six 0809

For children living in Porirua:

- 50% live in NZ Dep deciles 9 and 10 (the most deprived);
- 24% live in overcrowded houses; and
- 10.5% households in Porirua do not have access to a car

In Porirua over 40% of people aged 15 years and over are trying to live on an annual income of less than $20,000 (Statistics NZ Census, 2006; Porirua City Wellbeing, 2007). The recognised minimum living wage is $28,000 (Ministry of Social Development 2002).

Porirua has more people living in NZDep 9 and 10, 37% (most deprived) than in NZDep 1, 29% (least deprived). Pacific people make up the majority of people in the NZDep 10, followed by Maori (Porirua City Wellbeing, 2007). A total of 64% of children under the age of 15 years live in areas NZDep 6-10 and 56% live in areas NZDep 9-10 (Porirua City Wellbeing, 2007).

It is recognised and researched that people living in the most deprived areas have more health problems and greater difficulty accessing health services.

These health problems are not unique to Porirua so this DHB needs to utilise experiences from other parts of New Zealand and implement the same successful programmes.

4.4.1 Respiratory disease – including acute e.g. bronchiolitis and chronic e.g. asthma

Respiratory illness, including asthma, bronchiolitis and pneumonia are one of the leading causes of admission to Wellington Children's Hospital with hospital discharge rates highest for Pacific and Maori children

- *Asthma* prevalence in New Zealand is among the highest reported in the world[8] with 25% of children aged 6-7 years and 30% adolescents 13-14 years reporting asthma symptoms in one recent survey[9]. While asthma prevalence is thought to be highest amongst Maori > European > Pacific children, symptom severity is the highest amongst Maori and Pacific children[10]
- *Pneumonia* - In Capital & Coast during the past 9 years, admissions for pneumonia among children and young people were lower that the New Zealand average. During 1996-2006, hospital admissions for pneumonia were highest amongst Capital & Coast Pacific > Maori > European and Asian / Indian children.
  - Porirua children rates of admission for pneumonia are more than double the rates for children from Wellington (7 per 1000 compared with 3 per 1000).
- *Bronchiolitis* - In Capital & Coast during the 1996-2006, hospital admissions for bronchiolitis were higher amongst Pacific > Maori > European and Asian / Indian infants

Note: Asthma attacks in children are most commonly triggered by viral infections, but may also be associated with hypersensitivity to substances such as pollen, mould, house dust mite, foods, animal dander, cigarette smoke, chemicals or drugs. Asthma may also be triggered by exercise, exposure to cold air, or psychological stress.

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[8] ISAAC Steering Committee, Worldwide Variation in Prevalence of Symptoms of Asthma, Allergic Rhinoconjunctivitis and Atopic Eczema: ISAAC. Lancet, 1998. 351 (April 25): p. 1225-1227

[9] Asher, M., et al., The Burden of Symptoms of Asthma, Allergic Rhinoconjunctivitis and Atopic Eczema in Children and Adolescents in Six New Zealand Centres: ISAAC Phone One. N Z Med J, 2001. 114 (23 March): p 114-120

[10] Pattemore, P., et al., Asthma Prevalence in European, Maori and Pacific Children in New Zealand: ISAAC Study. Paediatric Pulmonology, 2004. 37: p 433-442

Pneumonia – the term pneumonia refers to a group of acute lower respiratory tract infections which lead to inflammation of the lung tissue. By international standards, New Zealand's pneumonia admission rates are high. These rates also vary significantly by ethnicity, with Pacific and Maori children having both higher hospital admission rates[11] and more severe disease once admitted, than European children. It has been suggested that factors such as poor housing (cold, damp, mould, overcrowding), access to primary healthcare and poor nutrition (e.g. iron deficiency) are of particular importance in the New Zealand context.

4.4.2 Serious Skin Infections

Bacterial skin infections are a common cause of hospitalisation in children. During the past decade, New Zealand's hospital admission rates for serious skin infections have risen progressively. During 2002-2006, hospital admissions for serious skin infection had the highest rates occurring amongst children <5years of age, followed by young people in their late teens and early 20's. Rates were also higher for Maori and Pacific children and young people, males and those living in the most deprived areas[12]

Determinants: factors that are deemed to be important are:

- Socio-economic / Environmental
  - These include the ability to afford first aid supplies and medical care, linen / towels, washing machines and driers, and hot water. Housing (e.g. overcrowding), conditions for insects to thrive (e.g. stagnant water), and nutrition are other factors.
- Disruption of the normal skin barrier
  - Including abrasions, lacerations, infestations and insect bites. Chronic skin conditions, especially eczema, also increased the risk of infections
- Bacterial contamination of damaged skin
  - From potentially harmful transient bacteria. Reducing the time and amount of colonisation, and transmission are important protective factors, through both general hygiene and first aid. School hand washing and drying facilities also play a role here.
- Micro-organism factors
  - Including bacterial resistance leading to early treatment failure, recurrent infections and increased transmission, and virulence factors
- Healthcare factors
  - Including barriers to access; links between services (e.g. referrals); eczema management; and some gaps in treatment guidelines (e.g. for recurrent infections).

These factors show how multiple levels of determinants can impact on skin infections, and it is impossible to single out any one as the reason for an increase in admission numbers over time. Only one or some factors may be important for any one individual at any one time, however over the whole population all areas are likely to make a contribution to the burden of disease.

Rates of admission for serious skin infections for Porirua children are around 8 per 1000, double the rate for children from Wellington.

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[11] Grant, C., Pneumonia in Children: Becoming Harder to Ignore. NZ Med J, 1999. 112:p. 345-7

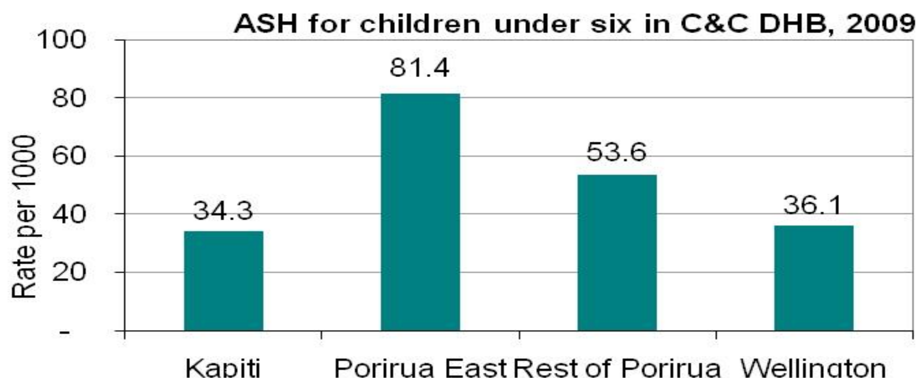
[12] Health Outcomes for Children and Young People in Capital & Coast DHB; New Zealand Child & Youth Epidemiology Service, August 2008

4.4.2.1 Ambulatory Sensitive Hospitalisations (ASH)

An ASH is a measure used to identify a hospital admission or premature mortality that could potentially be prevented by early access to, and effective primary health care interventions (Sheerin et al, 2006). Avoidable hospitalisations involve a set of conditions that can be identified and treated early through screening and intervention, i.e. diabetes, cellulitis.

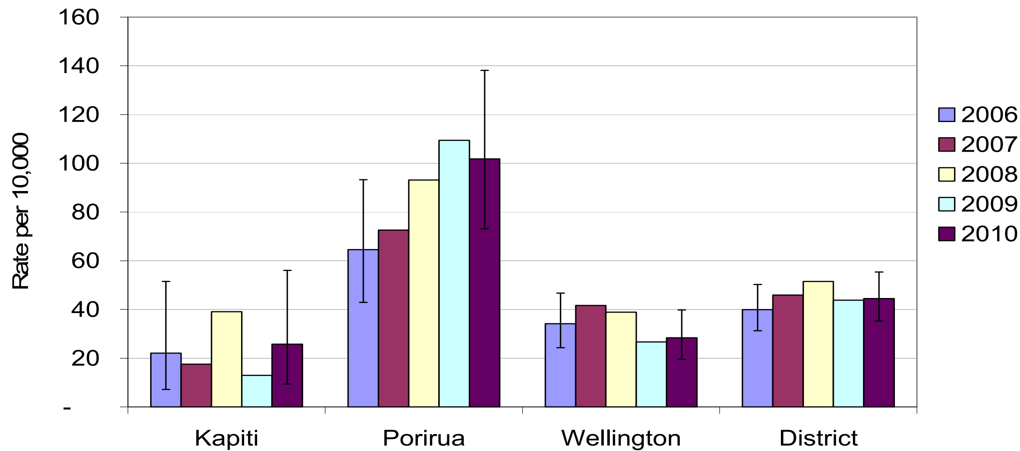
It must also be noted that while ensuring early access to effective primary care is still likely to be of considerable value in reducing ASH rates, in countries such as New Zealand where large socioeconomic and ethnic disparities in child health remain, a greater emphasis may need to be placed on addressing those factors, often outside of the health sector, which drive the underlying burden of disease (e.g. household income, housing, nutrition, exposure to second hand cigarette smoke). This is because, even with optimal access, the ability of a primary care practitioner to prevent a paediatric pneumonia admission after the first crucial hours may be limited, but the opportunities available for a DHB to prevent paediatric respiratory infections via e.g. healthy housing projects and parental smoking cessation programmes may be considerable. Children living in Porirua have the highest ASH rate in the district. It is twice the rate of Kapiti and 73% higher that children in Wellington.

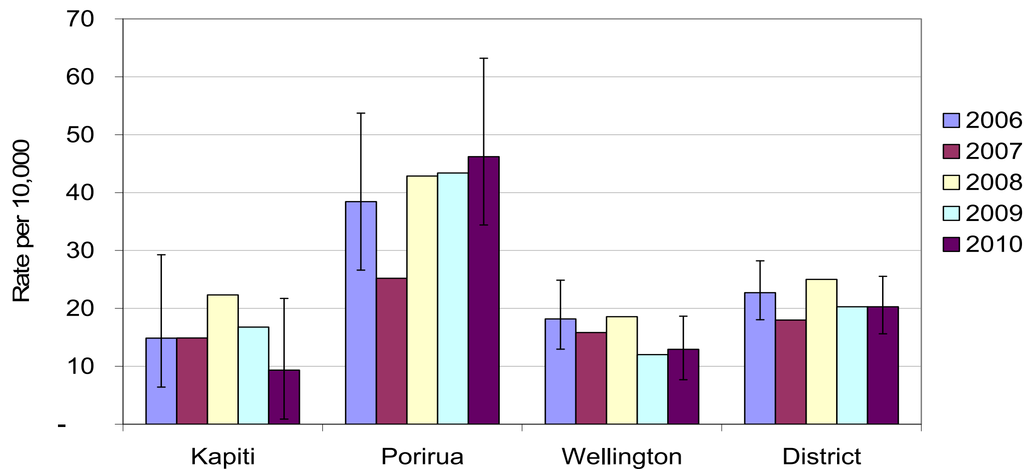
The following graph, that analyses admissions in 2009 that are considered avoidable through ambulatory (primary care, outpatient, dental, allied health) services, demonstrates that the children from Porirua East are particularly over-represented.[13]



Despite all of the additional interventions and investment, the health statistics for children residing in Porirua indicate that there remain some significant issues. The fragmented nature of services, pockets of very high deprivation and transport issues are significant issues impacting on service access and effectiveness.

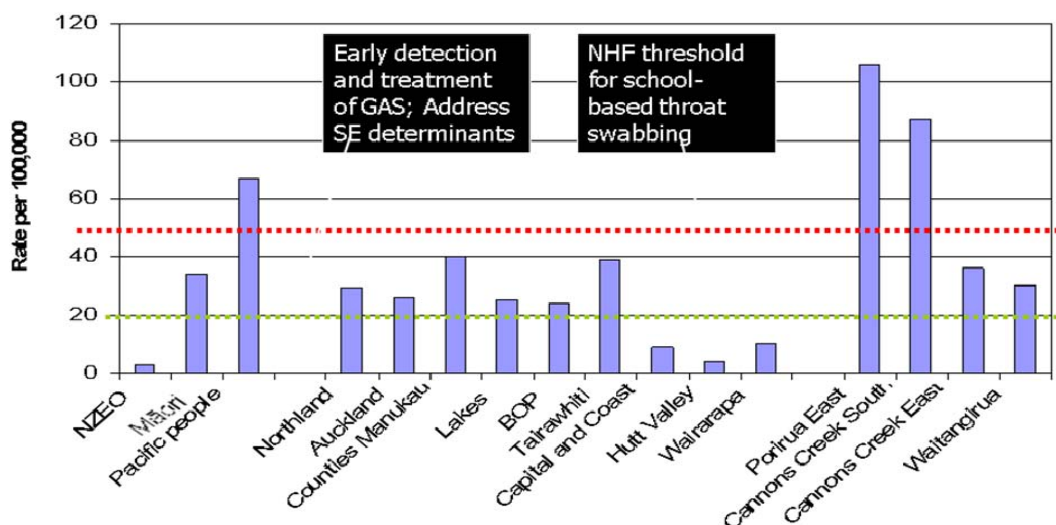
[13] Analysis undertaken by C&C DHB Planning and Funding Directorate.





4.4.3 Rheumatic Fever

Overall the rate of rheumatic fever in CCDHB was slightly below the national average in 2010 (ESR Annual Surveillance Report 2010) However this overall rate masks the fact that the rate for children in Porirua City is the highest of all Territorial Authorities in New Zealand (ESR data: annualised rate of rheumatic fever in 5-15 year olds 2005-2009) Within Porirua City, Cannons Creek, Porirua East and Waitangirua have particularly high rates.



Note: Rheumatic fever usually occurs in school-age children and may affect brain, heart, joints, skin or subcutaneous tissue[14]. Recurrent episodes of rheumatic fever may result in the development of rheumatic heart disease, a progressive condition leading to scarring and deformities of the heart valves. While New Zealand's rheumatic fever rates have declined significantly during the past 30 years, they still remain higher than those of many other developed countries. Risk factors include age, (school age children), ethnicity (Pacific>Maori>European), socioeconomic disadvantage and overcrowding. Primary prevention focuses on the adequate treatment of streptococcal throat infections, while secondary prevention aims to ensure that those previously diagnosed with rheumatic fever receive monthly antibiotic prophylaxis, either for 10 years from their first diagnosis or until 21 years of age[15].

4.4.4 Emergency Department (ED) and Accident & Medical (A&M) Attendance

There were 14,758 attendances by children under 18 years at A&M during 2008/09. Ninety-six percent of these were by children living in C&C DHB with the remainder from outside the district or overseas. Rates of attendance are highest for children living in Porirua City (643 per 1000), who accounted for two-thirds of visits.

Bronchiolitis and asthma account for a higher proportion of ED attendances for children from Porirua. They are the top causes for Porirua, whereas injuries are the top cause for all children.

[14] Mosby Inc. Mosby's Medical, Nursing and Allied Health Dictionary. 2002 [cited August 2005; Available from

[15] Ministry of Health, DHB Toolkit: Cardiovascular Disease. 2003: Wellington. P.21-22

Top diagnoses for ED attendances, Porirua children under six 2008/09

Primary Diagnosis	No of acute inpatient events	Percentage
Bronchiolitis	104	10%
Asthma	92	9%
Injuries	84	8%
Acute URTI	76	8%
Pneumonia	41	4%
Unspecified viral infection	38	4%
Convulsions	38	4%
Serious skin infections	31	3%
Gastroenteritis	27	3%

The Kenepuru A&M is the only after-hours medical service for almost 13,000 children (0-14 years) living in the Porirua Region. In Porirua 10.5% of households do not have access to a motor vehicle (Census 2006). There is no after-hours public transport to Kenepuru A&M therefore another barrier to access for this population.

There is an opportunity for primary care to review current after hours and weekend services rather than provide reduced or free services from A&M which could create further problems for continuity of care for general practitioners.

5. Service Delivery - who is doing what, where are the gaps and what are the options for improvement?

There has been and continues to be significant investment into child health services in Porirua, and a multitude of people involved in health service delivery in some form. Issues arise when a review of the statistics provided in the previous section for the three priority areas show little improvement despite the programmes, interventions and increased funding. This section aims to clarify who the service providers are and what they are doing, specifically for the top three priority areas and identify opportunities for improvement.

Additional information about providers, their programmes/services and funding streams are discussed in more detail in Appendix 2.

Before discussing specific interventions, it is helpful to reflect on comments made by stakeholders during discussions. These comments have helped identify gaps and options for future improvements.

- *"....services have become territorial in their care, and do not share information"*
- *"....one of the issues we face is a lack of referrals into the service"*
- *"....we need more social work input in schools"*
- *"...we have created an environment where health care is provided according to contracts and service specifications. There appears to be no consideration of providing care outside of these boundaries"*
- *"...we have no idea what services they provide, or how to access them"*
- *"...I have no idea what they are doing for my patient"*

- *“...we are only dealing with the immediate health problem, not the wider picture. Most of the issues are social. We are not social workers but have become them by default”*
- *“...we don’t get informed about what other health professionals are doing, for our patients, or about changes/developments in their service”*
- *“...I have no idea who we get clinical oversight from”*
- *“...this job is networking and socialising”*
- *“...out IT system does not capture most things that we do on a day to day basis”*
- *“...I have no idea who the other people around the table are, or what their roles are”* – note: these people work in the same organisation.

5.1 Rheumatic Fever

5.1.1 Rheumatic Fever Nurse – Regional Public Health (RPH) (note: this service is specifically for youth)

Although acute rheumatic fever (ARF) has declined substantially since the 1970s, New Zealand still has unacceptably high rates compared to other developed countries, particularly amongst young people.

C&C DHB funds RPH to provide a Rheumatic Fever Mobile Nurse & Coordination Service. The 0.6 FTE mobile nursing service ensures that 16 - 21 years who have had or are diagnosed with rheumatic fever, receive the ongoing care they require to prevent recurrences and cardiac damage and support healthy lifestyle choices. The service comprises of the following service components:

- Provision of monthly bicillin prophylaxis injections, in accordance with current national guidelines;
- Coordination of rheumatic fever prophylaxis and annual rheumatic fever checks;
- Support and advice in treating and managing rheumatic fever; and
- Health promotion activities.

The Service not only supports those 16-21 year olds who have had or are diagnosed with rheumatic fever, but also their families, and GP undertaking annual checks and / or administering monthly Benzanthine penicillin to patients.

The Service also provides regional coordination of rheumatic fever prophylaxis register. This role includes

- active follow-up;
- patient transfer;
- updating patient information;
- coordination of GP visits and annual checks; and
- Transition to new services.

Note: When the young person reaches 21 years, RPH supports transition to a primary care provider to ensure continuity of care.

Latest reports show the number of new young people joining the service has tripled from previous period, with increased number transferring from paediatric services. There are currently 40 young people enrolled with the service.

The majority of clients receiving prophylaxis are Pacific (71%), followed by Māori (25%). This matches national research that indicates hospitalisation rates for Pacific are at least nine times that of European and others and Māori over five times that of European and others. Māori and Pacific people also have higher rates of ARF recurrence.

There are strong linkages with:
- HHS services, including paediatricians and cardiologists;
- Primary care providers;
- Paediatric district nurses;
- Māori health providers;
- Pacific health providers;
- Dental services.

5.1.2 School Based Nurses (Public Health)

The School Health team (discussed in more detail in Appendix 2) is in the unique position of having access to children both in the school and community setting (home visits). This enables a holistic approach to both personal and public health service delivery. PHN's often provide health care to children who are not enrolled with a Primary Health Care Provider. Once initial care has been given and the family situation assessed introduction to a local provider can be made.

Components of care delivered include referrals to other health services (health camps, ear nurse, general practitioner, dietician), health promotion (e.g. hand washing, skin protection), as well as liaison with CYFS, and other social services.

Public Health nurses (PHNs) focus on the social determinants of health in order to reduce future health costs for the individual, their family/whanau and the nation.

Although they are not yet doing throat swabbing (for Strep A) this team is ideally placed to carry out this programme within schools. The relationships are already established (between schools, laboratories, general practitioners, secondary care), and they generally have an agreed site within the school to function from.

5.1.3 Social Work Team

There are currently 3.8 FTE Social Workers in the Kenepuru area. Within that, a 32 hour p/w (0.8fte) was established in 2009 specifically for paediatrics. The other social workers are dedicated to adult client needs.

By the very nature of their work, Social workers have the potential to significantly impact on positive health outcomes by addressing some of the determinants of health other practitioners don't e.g. ensuring families received their full and correct entitlements (benefits) or facilitating access to other support services such as smoking cessation.

The social work team functions according to locality, and are not aligned with specific practices. This creates issues from the GP perspective as they do not have a relationship with one or two identified social workers, but with whoever is in the area and is seeing "their" patient.

Effective discharge planning could improve understanding of family and environmental context – especially in high risk environments. The social worker should be integral in the discharge planning process. This would inform a broader assessment of the child and their social circumstances. Developing a well functioning multidisciplinary team will require some

services to re-think how they currently operate. Community Social work is well placed to re-align with primary care to achieve this, not to continue working within location boundaries.

5.1.4 Porirua Kids Project (PKP)

This is a joint initiative led by East Porirua primary care providers, PHOs, Regional Public Health, CCDHB Clinicians, and Planning & Funding. The project focuses on raising awareness and improving the health outcomes of children between 0-16 years in Porirua East, while promoting best practice detection and management within primary health clinics.

Sore throats, rheumatic fever and skin conditions are the initial key health areas to be addressed. This area of programme activity will be covered over three consecutive phases. The first phase is to increase community awareness of the link between sore throats and rheumatic fever, while at the same time improving access to swabbing and the appropriate antibiotic treatment of sore throats. Further phases include the scoping of school based clinics and echo screening.

The next phase of the programmed activities planned this year will focus on reducing, and improving outcomes for serious skin conditions.

A proactive approach to RF in the first instance was agreed, with a collective plan to increase swabbing and treatment of children with sore throats (suspect Strep A infections). It was also agreed National Heart Foundation protocol would be adapted for the management of sore throats. Aligned to the protocol, standing orders have also been developed to avoid delays in the commencement of treatment of suspected GAS sore throats. Education sessions for health professionals have been carried out.

Please see appendix x for full description of project

5.1.5 Gaps:

- Rheumatic fever nurse reports some difficulty in transferring young people to a primary care provider, or for annual checks, for a number of reasons including:
  - access to primary care providers is generally only during working hours;
  - cost of primary health care services;
  - concerns with young people not continuing compliance schedules on their own;
  - capacity for primary care to follow-up if appointments are missed.

- Need for stronger intersectoral approaches to improving child health in Porirua through the recognition and cross-sectoral ownership of social determinants of Health

- Opportunistic throat swabbing in schools are not currently undertaken as is being trialled in other districts.

- Minimal health promotion information kept at Porirua Community Link (WINZ).

- Differing protocols for treatment across primary care (NB: this is what the PKP is addressing).

- Funding to support access (cost to patients, nurse led clinics, medications)

- Rheumatic fever nurse role does not cover children under 16 years of age

- Education and health promotion activity is limited, as current FTE allocation does not allow for comprehensive programmes to be run.

- Reduced awareness of the relationship between sore throats and Rheumatic fever from:

    - other health professionals (e.g. social workers, Plunket nurses, NGO's)
    - teachers / school staff / early childhood centres
    - community

5.2 Serious Skin Infections

5.2.1 Regional Public Health (RPH)

RPH have been involved in numerous projects directed at specific "health issues". As an example, in 2004 collaborative project between C&C DHB, Hutt Valley DHB and RPH was implemented in response to increasing numbers of skin infections in children. Dr Darren Hunt completed and published a report which outlined the factors that appeared to contribute to serious skin infections in children.

These factors included:

Socio-economic/ environmental factors

- Ability to afford household and medical items to prevent infection
- Standard of housing, nutrition
- Standard of hand-washing facilities/poor hygiene
- Health education
- Conditions for insects to thrive

Healthcare factors

- Barriers to healthcare
- Lack of coordination between services (referrals)
- Eczema management

Disruption of the skin barrier

- Injuries to skin
- Insect bites

Microorganism factors

- Bacterial resistance
- Virulence factors

Since this report, these factors have changed little and all remain contributors to the overall burden of serious skin infections. RPH have continued to develop the Promoting Healthy Skin Programme. The overall goal of the programme is to reduce paediatric hospitalisations in the Wellington region from serious skin infections. Public Health Nurses that work in schools and public health advisors that support Early Childhood Education Services (ECES) are in a key position to promote skin health to students and children in the school and ECES setting. The level of activity depends on two things:

- The decile of the school/ECES
- The number of skin infections at the ECES, school or college.

The four key areas that PHN's/ECES advisors can provide skin health promotion are first aid, hand hygiene, injury prevention and insect bites/other skin infections. Based on the requests of schools and capacity of PHNs, the following services may be provided.

Decile 1 - 3 Primary and Intermediate Schools
The school PHN in primary and intermediate schools will aim to run the full Promoting Healthy Skin programme. Skin kits are provided to distribute to schools and students through first aid staff.

Decile 4 - 7 Primary, Intermediate and Colleges
The school or college PHN will aim to run the full programme if there is high number of skin infections amongst the students at the school or college.

Decile 8 – 10 Primary, Intermediate Schools and Colleges
The school or college PHN will aim to provide the school with skin health updates, website information and resources as required.

The programme has developed 4 work-streams aimed to reduce skin infections in children focused on high need communities that are potentially effective, feasible and supported existing services, and grouped into the following work areas:

- Work and Income
- Working with Schools
- Working with Primary Health Organisations
- Region-wide collaboration

RPH works with Work and Income, WINZ in the region to provide assistance to low income families experiencing serious skin infections. Families can access WINZ assistance for medication and household items necessary to reduce serious skin infections. These include items such as head lice and scabies treatments, plasters, non-prescription eczema/skincare products, bedding, towels and washing machines. The work program for 2011/12 includes more emphasis on Early Childhood Education Centres, with a focus on Maori and Pacific.

RPH has a internal Steering Group to advise the project but also actively attempts to work collaboratively with other providers. RPH will link into the recently developed subregional approach to skin infections, which is part of the subregional ASH group.

5.2.2 C&C DHB Eczema Nurse Service

C&C DHB established an Eczema Nurse Service which provides outreach clinics at Kenepuru and Ora Toa. The clinics are nurse-led, and are accessed by referral only. Services are provided to children aged 0-16 years and their families/caregivers.
The purpose of the service is to provide eczema and/or skin infection management advice and education to children and their families/caregivers.

The key objectives of this service are to:

- Provide direct access to the service from community referrers
- Provide children and families/caregivers affected by eczema or recurrent skin infections with improved access and choice of provider

- Contribute to the provision of consistent and collaborative management of children with eczema and/or skin infections between health care professionals and across sectors
- Enhance knowledge of eczema management among health professionals
- Provide children and their families/caregivers with the knowledge to confidently manage eczema
- Address or, as appropriate, refer on any other health issues such as asthma, nutrition, growth and development
- Promote a preventative approach to the development of eczema and allergies
- Minimize the impact of poorly managed eczema, eczema exacerbations, infected eczema or recurrent skin infections from other causes
- Prevent hospitalisation/readmission of children with eczema exacerbation, infected eczema and skin infections from other causes
- Promote appropriate use of health resources, including pharmaceuticals

The service has steadily gained credibility which has led to an increase in the volume of referrals received from other health providers. The situation as it currently stands is that demand is exceeding supply. Additional clinics have been scheduled in an attempt to keep the waiting list down to an acceptable level, and to see patients prioritised as urgent.

The nurse leading this programme is in the process of obtaining Nurse Practitioner status and is taking a proactive approach toward educating colleagues about the management of eczema and other skin conditions. She also wants to provide clinics from general practices so is in discussion with Porirua Pacific Union Health Service about using their facility.

Collaboration with RPH occurs but the majority of the time this is at an informal level.

> *……"I have had a long working relationship with the public health nurses -mainly the school nurses about all sorts of paediatrics issues but especially eczema and to a lesser extent skin infections. Contact is as they approach me but as well as informal contact with individual nurses I also am asked to present at one of their study days every one-two years. On those days I have exposure the greater Wellington region. It still comes down to the individual though".*

5.2.3 Gaps

- formal collaboration between C&C DHB and RPH Skin Project Group

- Informal processes for professional education of colleagues

- No holistic/healthy homes assessments taking place re: environment, cohabitation, overcrowding, laundering capacity/capability, nutrition

- There is limited connectivity between community social workers, primary care and public health.

- No single clinical note per NHI – multiple paper based or electronic notes per patient. This leads to health professionals working in isolation of each other.

- No intersectorial collaboration (e.g. Councils, education, social development)

- No identified coordinator of care (key worker) for children who have multiple readmissions for serious skin conditions

5.3 Respiratory Conditions

A large burden of avoidable morbidity can be attributed to respiratory and infectious diseases and rates for many conditions associated with poverty and overcrowding remain high by international standards. Pacific infants have higher mortality rates than children of other ethnicities and are less likely to be breastfed. Pacific children have the highest rate of avoidable hospital admissions of all children.

From a population perspective, many of these conditions share a set of common causes (e.g. poor housing, poor nutrition, exposure to second hand smoke, inadequate access to timely primary health care). The services currently having to deal with respiratory conditions are the same as for skin conditions and Rheumatic fever, therefore the gaps and recommendations are similar.

The role of Regional Public Health is essential. The Keeping Well Framework and linkages with other agencies (housing, councils etc) will play a vital role in reducing the incidence of respiratory illnesses in children. C&C DHB must work closely with RPH to ensure our health priorities and their work complement each other and both parties work towards the same desired outcomes.

6. Framework for Action

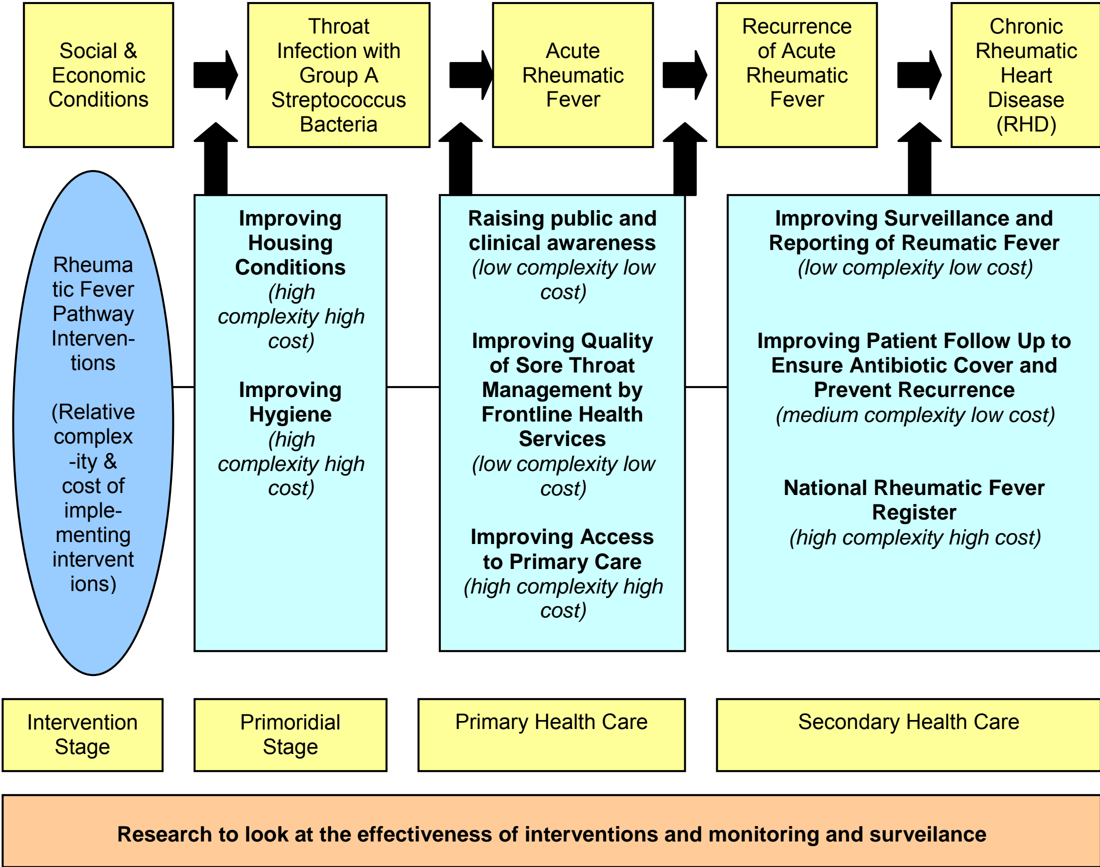
6.1 The Emerging National Approach

During the preparation of this document the Ministry of Health announced a national framework for action in respect to Rheumatic Fever. It advocated a whole of government approach, together with an enhanced primary and secondary care provision. Internal policy work within the Ministry is currently underway in respect to how a nationally consistent approach will be led and resourced.

It is pleasing to see there is a direct correlation between the high level rheumatic fever pathway being advocated by the Ministry, and the multi-pronged intersectoral approach that this paper is advocating. To this end, this paper has adopted the Ministry's Rheumatic Fever Pathway (below) as the framework for action in this district.

The initiatives recommended in this paper are consistent with the mix of services the Ministry is advocating, ensuring the DHB can access rheumatic fever funding as and when it is made available by the Ministry. At the same time, the initiatives are cautiously phased both in terms of collection of clinical evidence prior to commencement (particularly in respect to screening activity) and financial affordability. The Ministry is likely to undertake a number of clinical efficacy trials in respect to screening components in the framework below, therefore it makes sense to await those results before proceeding to local activity.

Ministry of Health Rheumatic Fever Pathway



6.2 Building on what is already there

There is already a significant body of work in terms of intersectoral collaboration, public health activity, primary and community care and secondary services that are actively, and in some cases successfully assisting vulnerable children in respect to their health.

It goes without saying that there are gaps and areas for improvement, but any additional services or initiatives need to be reflected in the context of what already exists.

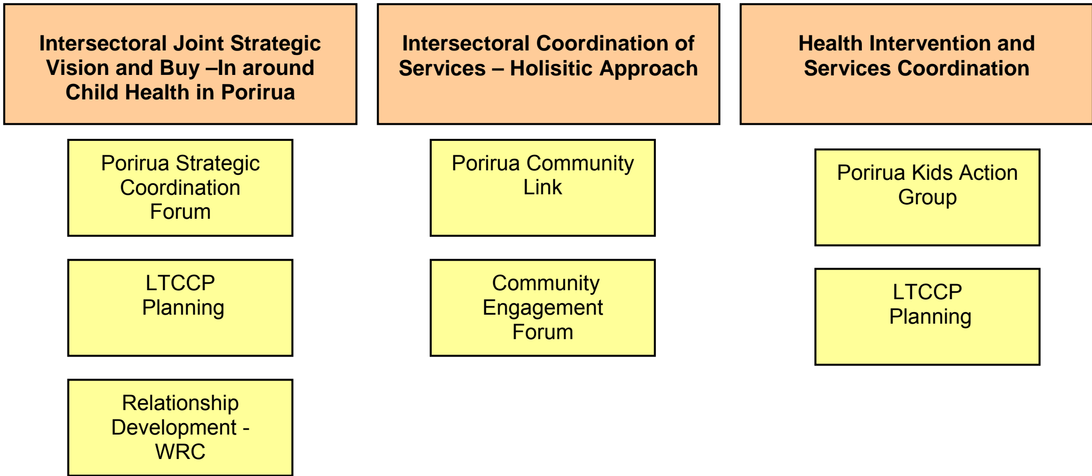
At a strategic level, the vehicles already in place that the DHB can leverage off of include the Porirua Strategic Forum (a PCC led cross agency senior management group focussed on intersectoral approaches to local priorities), and the Long Term Council and Community Planning Process. The development of a stronger relationship with the Wellington Regional Council will further strengthen the DHBs ability to influence policy and service decisions impacting on children's health in Porirua.

At an operational level, the DHB will work intensive with all the players operating in the Ministry of Social Development (MSD) Community Link function in Porirua (the multi-agency approach being led out of the local Work and Income Service Centre) in conjunction with our participation in the local community engagement forums (responsible for targeting MSDs funding from the Family and Community Services function). The effective participation in these functions will ensure there are appropriate mechanisms in place to bring different agencies services together to target identified vulnerable families. Appropriate resourcing of a health coordination function within the Porirua Community Link service will ensure holistic

service delivery plans are developed and that services can respond effectively to emerging needs within vulnerable communities.

From the Health sectors perspective, the Primary Care led Porirua Kids Action Group has already provided highly effective at bringing different health sector players together to both share information, undertake joint planning, and agree on effective service collaborations that ultimately lead to more effective service provision and coverage in the areas of rheumatic fever and serious skin infection management. The DHB will appropriately support this group to continue this important service connection and oversight function.

Influencing and Coordination Mechanisms



Strategic oversight of services to reduce childhood incidence and impact of rheumatic fever, serious skin infections and respiratory conditions will continue through the Child Health Advisory Group.

The following tables break down existing and proposed services and approaches into preventative, early intervention and treatment contexts, clearly demonstrating how an overall mix of services around rheumatic fever, serious skin infections and respiratory illness would look.

There are additional and more general services provided through primary care that actively contribute to child health, which are not necessarily reflected in these tables as “existing services”. Where the paper describes “existing services” it has been decided to reflect the services that in consultation have been most frequently discussed as being important to maintain a focus on in respect to tackling Rheumatic Fever, Serious Skin Infections and Respiratory Illness.

6.3 Prevention

Building on our Inter-sectoral Approaches to address the Social Determinants of Rheumatic Fever, Skin infections & Respiratory Illness

Current and Relevant Inter-sectoral Relationship Mechanisms	Leverage opportunity	Engagement	Performance To Date (Reporting)	Impact / Measures going forward
Porirua Strategic Working Group	This group is led by Porirua City Council jointly prioritises areas of collaborative work across agencies within Porirua City. C&CDHB has been a key partner over several years working with other agencies to improve local recreation facilities, supporting the housing renewal programme, support Porirua City achieve WHO safer city status, and working to improve employment outcomes for local youth. This group has representation of all the key (and relevant) agencies to this project including Housing NZ, Work and income, TPK, MPIA, ACC and Education. This group will welcome the escalation of a joint child health project, and is the best place to develop an outcome focussed project with cross agency support and commitment.	Current	Currently the most effective mechanism for intersectoral engagement in the district.	Joint Agency agreement around multi-agency contributions to the reduction of rheumatic fever rates Agreed joint ownership of realistic targets
Letter of Agreement / Working Relationship Ministry of Social Development	MSD and CCDHB have worked collaboratively for over 7 years on addressing social determinants of health where MSD is able to play a key role. Over this time we have made significant progress in respect to full and correct benefit entitlement, youth employment programmes and services to Invalids and Sickness Beneficiaries.	Current	Wellington has some of the best full and correct benefit rates in NZ	Targeted W&I case management for 30 most vulnerable families in place Demonstrated employment assistance where applicable
Home Insulation Programme	In partnership with EECA and the sustainability trust we currently contribute to the insulation of around 300 homes annually, targeting low income families. This programme can be built upon as described below.	Current	Over 1200 houses insulated with DHB funding past 4 yrs	Ongoing investment in at least 300 low income houses per year, at least 200 p.a in the Porirua area
Porirua City Council – Long Term Council / Community Planning Process	When PCC develops its LTCCP Capital and Coast is proactive in its involvement around community health. In the next round we will be advocating for regulatory change to improve housing standards manage housing occupancy levels appropriate to the home's capacity.	Current	CCDHB has actively participated	Rheumatic Fever, Serious Skin Infections and Childhood respiratory disease will all be specifically addressed in PCC's next LTCCP

Recommended Additional Activity	Service Description / Rationale	Phasing	Priority	Cost – Health Sector	Impact / Measures
Cross Agency Case management Project – Annually targeting 30 most vulnerable families	Every agency will be aware of the most vulnerable (and generally most service intensive) families in the Porirua community. Development of a cross agency agreement to work holistically with a group of families to target assistance to improve social determinants of health and access to health services is both efficient and cost effective in achieving longer term outcomes. (Reference: Auckland Gang Families Project). Working with up to 30 families over a 12 month period, this initiative will be coordinated by the *Porirua Community Link Governance Group*, resourced across social agencies respective to their service provision, and serviced by a community health worker focussed on the outcomes of this project. This approach will better coordinate existing social services to improve social outcomes for families agreed within a client outcomes framework. Scoping and intersectoral agreement for this initiative will be P&F led.	2012/13	High	Financial impact to DHB - $65,000 Community Health Worker P&F FTE contribution – intersectoral agreement development	30 most vulnerable families identified Agreed multi-agency protocol developed 30 family action plans and outcome frameworks developed by 30 June 2013 Rheumatic fever prevention and/or detection measure: TBA Serious Skin Infection prevention and treatment measure: TBA Respiratory Infection control measures: TBA
Enhanced Housing Insulation and Heating Programme	Building on the current home insulation programme, and utilising successful partnership approaches from Counties Manukau and Hutt Valley DHBs, P&F will work in partnership with RPH to align public health nursing expertise with the home insulation project to ensure we maximise the value out of the insulation investment. This will involve a full assessment of families home environment and social needs, linking them to additional services where required. Automatic referrals of from the vulnerable families project to this initiative.	2012/13	High	0.5 RPH Nursing FTE $50,000 cost to DHB	Environmental and Family assessments undertaken for at least 150 families in Porirua catchment – these will be undertaken at the same time as insulation assessment done. Action plans developed in conjunction with assessments Environmental change measures as the result to Serious Skin Infections or respiratory illness: TBA
Enhanced Relationship with	Improving transport availability to improve access to key services	2012	Moderate	Neutral	Planning and Funding led Letter of Agreement developed

Recommended Additional Activity	Service Description / Rationale	Phasing	Priority	Cost – Health Sector	Impact / Measures
Wellington Regional Council	Policy development around housing affordability and over-crowding Other opportunities as developed in partnership with WRC				Joint work programme agreed
Targeted Full and Correct Benefit Entitlement	The Health and Income working group will prioritise low income families in the Porirua basin for increased monitoring and assessment to maximise benefit entitlements. Full and Correct Benefit Entitlement is already a key area of agreement between C&CDHB and MSD, so focussing this work on improving income levels amongst vulnerable families will be prioritised. In particular nutritional and heating costs will be targeted and improvements measured. Increased training to Primary Care around Benefit rights and availability Key role of the Porirua Community Link Governance Group - monitoring actual benefit delivery, entitlement and impact on the families participating in the *30 families project* with a regular report back to CHAG and CPHAC	2012	High	Neutral	Full and Correct Benefit targeting programme – 30 families plus other vulnerable families in place MSD reporting to board about progress Proposed target: 90% of targeted families have full and correct benefit entitlements reviewed and demonstrated
Partnership with Schools around Enhanced Public Health Messaging – Using the kids to educate parents	Increased messaging within public schools – encouragement of kids to “share the message” with families in the home	2012/13	Moderate	Neutral – RPH and school delivered – to be negotiated by DHB	Education delivery in vulnerable community schools

6.4 Early Intervention

Primary and Community Care Services – Rheumatic Fever, Serious Skin Infections, Respiratory Illness

Currently Delivered Service Mix Impacting on Rheumatic Fever Rates	Service Description / Rationale	Priority	Performance To Date (Reporting)	Impact / Measures
Porirua Kids	The 'Porirua Kids Action Project' (PKAP) is joint initiative led by East Porirua primary care providers, PHO's, Regional Public Health, CCDHB Clinicians and Planning and Funding. The project focuses on raising awareness and improving the health outcomes of children between 0-16 years in Porirua East, while promoting best practice detection and management within primary health clinics. Sore throats, rheumatic fever and skin conditions are the initial key health areas to be addressed. Porirua Kids will become the central health response oversight group for C&C DHB activity in the community around Rheumatic Fever and Serious Skin Infections.	High	New Service – initial reporting very positive	Protocols in place Initiatives developed Cross-service relationships and communications improve Client groups clearly identified
Rheumatic Fever Nurse	Medications management to clients in their own environment. Manages to reach clients that would likely drop through the cracks in a primary care appointment based approach.	High	Extremely Effective / High Value	Xxx clients managed effectively over 12 month period
RPH Public Education Programme	Important mechanism, but impact limited by educational achievement amongst parents in the community and their ability to comprehend the importance of the messages.	Moderate	Low – not because of service delivery, but client uptake	Further clarity required in service specifications around input and output measures
RPH School Nurses	Opportunistic in nature in terms of symptom identification, notification / referral and follow up. Could be better utilised (potentially for throat swabbing and skin infection treatments) but impact assessment on other duties would need to be weighed against change.	Moderate	Medium – satisfactory outcome in respect to current work program	Further clarity required in service specifications around input and output measures
Immunisation	Immunisation is both a national and local priority of Capital and Coast DHB. Although we perform well in our imms coverage for children against nationally agreed targets, there continues to be a disparity between Maori and Pacific and other children in the district. Immunisation is an important strategy in preventing respiratory illnesses therefore ongoing efforts to reduce disparity in immunisation rates between vulnerable groups and the general cohort remain essential.	High	CCDHB performs well, but disparities (vulnerable communities) exist	
Oral Health	Childhood oral health rates in Porirua remain a considerable concern to Capital and Coast DHB. Poor oral health is shown to have some contributing factors to overall poor health of children in socially disadvantaged communities. In the year ahead, Capital and Coast will be working intensively to significantly improve both utilisation rates and dental health outcomes.	High	Need Improvements and to be addressed through discussions with HVDHB as service provider	
Smoking Cessation - Maternity	New funding from the Ministry has this year been allocated to working with pregnant mothers and mothers of young children to increase smoking cessation rates. Smoking during pregnancy and with young children significantly increases the risk of respiratory disease within children, and is extremely prevalent amongst young Maori and Pacific mothers.	High	New Service – robust cessation measures in place	Xxx pregnant / young mothers offered cessation services Xxx mothers uptake services
Nurse Practitioner – Community Paediatric Care	The district has been fortunate to have a highly competent and respected Community Paeds nurse who will soon become the District's Paediatric Nurse Practitioner. This will allow the incumbent to provide increased complexity of care in the community and add significant value to the service mix to vulnerable communities.	Moderate	Extension of current capability	TBA

Recommended Additional Activity	Service Description / Rationale	Phasing	Priority	Financial Implication	Impact / Measures
Targeting SIA to vulnerable families	PHOs SIA plans will be aligned to improving access by at risk children and families to Primary Care Services.	2011/12	High	Neutral to DHB	SIA investments lead to increased enrolments and more timely appointments for kids with relevant symptoms
Improving Community Awareness – Hygiene, Sore Throats and Skin Infections	Through the Porirua Kids Group, additional resourcing will be provided to improve communications and resources available to local families. The Porirua Kids Action Group will also coordinate and facilitate better cross-health sector communications into at risk families. A wider range of publications and messaging tools will be utilised with availability broadened into non-health related envirnments – eg – Community Link centre etc.	2011/12	High	$30,000 Cost to DHB	Improved community awareness and knowledge leading to better hygiene and primary care access
Vulnerable Family Primary Care Debt Management (30 family project)	It is not just the cost of a child's visit to primary care that presents a barrier to parents accessing timely advice around their child's care. Existing debt with practices which parents know they will be questioned about creates anxiety about making timely appointments. To ensure the success of the 30 family focus project – eliminating the debt upfront to reduce barriers to access will be front footed by the DHB.	2012/13	High	$20,000 per annum Cost to DHB	Quick-fix fund for vulnerable family group to immediately improve families willingness to engage with primary care Ongoing support for primary care in their existing debt management processes
Extension to Rheumatic Fever Nursing Capacity	Increased screening and/or service coverage will inevitable lead to increased need for medications management in the community. This additional resource will meet the increased demand and provide good value for money in ensuring those who have suffered from rheumatic fever previously are managed in the community, thereby reducing the likelihood of their need for costly tertiary intervention.	2012/13	High	0.5 FTE $60,000 to PHOs, neutral to DHB	Effective management ensures expensive interventions rates as a result of rheumatic heart disease don't increase. Current good management and client-reach practices are delivery very good results
Review current social paediatric social work capacity targeted to Porirua	Currently there is 0.8 FTE committed to a paediatric social working role in Porirua. It is recommended that a piece of work be undertaken to determine if there is any additional value to be added by increasing this capacity to better reflect children's population composition in the community. This piece of work has not been able to be completed within the timeframe of this reports production.	2012/13	Moderate	Neutral Internal clinical review process	
Linen Exchange and Education Project	A project in the final stage of development, this initiative aims to assist families whose children have serious skin infections on two fronts: (a) provision of a linen exchange service for 6 weeks to ensure cross-infection rates amongst children are reduced and sanitary sleeping environments are provided to children during crucial serious skin infection treatment regimes; and (b) education to vulnerable families about the importance of clean linen and ensuring children sleep in their own bed.	2011/12	High	$5,000 per annum cost to DHB	Delivery to xx families Reduced cross infection rates: measure TBA Improved treatment outcomes: measure TBA
Improved Cross Service Communication	A key message from submissions to this report was that most vulnerable families have a connection to a key health worker, but that emerging social or health issues that are identified by those workers are not necessary shared with health workers in other settings where they might be best dealt with. Essentially – health workers in different services are sometimes not communicating well with each other about mutual clients. Porirua Kids is expected to improve an aspect of this by targeting multiple services to vulnerable kids. The 30 family holistic family case management approach will also significantly assist cross-service and cross-agency communications. This work is currently a key improvement in connections between services as a result of its oversight arrangement and regular meetings. This will continue with the ongoing support of P&F.	2011/12	High	Cost to DHB: Resources: $20,000 Process Review and Evaluation (2013): $10,000	Demonstrably improved cross services communications MDT approaches counted in respect to most vulnerable families

6.5 Screening and Treatment

Secondary Care Services and Screening Activity – Rheumatic Fever, Serious Skin Infections, Respiratory Illness

Currently Delivered Service Mix Potentially Impacting on Rheumatic Fever Rates	Service Description / Rationale	Performance To Date (Reporting)	Impact / Measures
0.5 FTE Community Paediatrician	Chair of the Child health Advisory Group Participant in the Porirua Kids Project Coordination of the annual Child Health Hui		
On call Paediatric Advice	HHS provided specialist capacity – available for primary care consultation daily		

Recommended Additional Activity	Service Description / Rationale	Phasing	Priority	Financial Implication	Impact / Measures
Rheumatic Fever Screening Efficacy Review Project ▪ 2 yearly Cardio Echo screening pilot ▪ School Based Throat Swabbing	Screening has been proposed as key mechanisms to reduce the incidence and impact of rheumatic fever. Throat swabbing has been advocated to identify Strep throat early amongst kids (as a preventative approach to rheumatic fever). Echo screening has been advocated as an early detection approach to rheumatic fever related cardiac defects so that clients can be better managed in the community thereby reducing costs for costly surgery later. On balance, there appears to be a number of value for money arguments around increased screening, however clinicians attending the review group (including the chief medical officer) to this work plan recommended both pieces of work undergo further clinical efficacy testing. It is also recommended we undergo a full impact assessment in respect to existing tertiary services and their capacity to meet additional demand created by screening. To that end it is recommended that a clinically led evaluation be undertaken with results referred back to a clinical oversight group for consideration about next steps. Ministry evidence currently being gathered around clinical efficacy of both programmes will also be fed into the subsequent recommendation. Counties Manukau Echo Screening trial results will be particularly pertinent. Work will also be undertaken to establish the impact on services within the secondary care setting.	2011/12	Moderate	Cost to DHB: $30,000 project coordination cost Costs relating to recommendations TBA	Clarity around the cost/benefit and clinical efficacy of screening as a preventative approach to incidences and impact of Rheumatic Fever
Undertake a review existing Paediatric services capacity (Hospital and Community)	To address ongoing concerns raised in consultations relating to this work plan about Paediatric capacity and community engagement, a full review of Paediatric service provision is recommended. The focus should be on: ▪ Service gaps ▪ Capacity issues ▪ Establishing Stronger Paediatric Clinical Leadership ▪ Capacity to increase community clinics ▪ Better use of paediatric nursing staff / increased Paediatric Nurse Practitioner Capacity ▪ Ideal service configuration and location Planning and Funding to coordinate this review process.	2012/13	Moderate	$35,000 Investment in 13/14 $100,000 in Porirua	Capacity matched to need Increased skill and knowledge transfer into primary care Improved access to specialist service in the community Better, Sooner More Convenient Delivery Improved access to Hospital Based Child Health Services

7. Summary

Capital & Coast already has a well developed child health infrastructure, an effective and well developed primary care sector, mature and competent public health providers, an effective non-government sector and a community that is motivated to improve the health of children.

However, the challenge ahead cannot be underestimated – improving the health status of children has been a priority in recent years yet we continue to see figures which confirm we are not doing as well as we think we are.

Implementation of some or all of the options suggested within this paper will require the development of further capability.

Details of implementation will need to be developed and reported on regularly to ensure progress is being made.

The plan outlines an ambitious agenda of programmes and system change. While multiple organisations will be responsible, a strong central group with excellent project management skills will be required to support overall coordination and drive the programme forward.

Funds will be required to support the implementation. However, the biggest benefit fill come from re-orienting existing resources, not from limited new resources.

Achievement of the actions proposed in the plan will rely on positive relationships being established and maintained across all involved sectors.

A clear long term vision needs to be established and maintained but there is also the need to focus on highly practical and achievable actions.

The clinical leadership group will need to agree the priority of the proposed interventions, and introduce them in a phased manner so they are effectively managed.

The overarching priority for improving child health in the region beings with actions targeting children living in the Porirua area, and the three specific health issues of Rheumatic fever/rheumatic heart disease, serious skin infections and respiratory conditions.

8. Appendices

Appendix 1: Literature Review

A limited literature review has been undertaken prior to and after meeting with providers and stakeholders in order to gain a national and local view of child health prioritisation and action.

National Literature

In 1998 the Ministry of Health developed the *Child Health Strategy*[16], which provided a policy platform for the public sector to develop actions focusing on improving child health services and ultimately the health status of New Zealand's children from then until 2010. The Strategy identified four priority populations: tamariki Maori, Pacific children, children with high health and disability support needs, and children form families with multiple social and economic disadvantages. This Strategy had 9 key principles:

- Children/tamariki should have their needs treated as paramount
- Child health and disability support services should be focused on the child/tamariki and their family and whanau
- Child health and disability support services should be available as close to home as possible,, within the bounds of quality and safety
- Child health and disability support services staff should work together with each other and with staff from other sectors to benefit the child
- Child health and disability support services should be provided to achieve equity
- Child health and disability support serviced should be based on international best practice, research and education
- Child health and disability support services should be regularly monitored and evaluated
- Child health and disability support services should be culturally safe, culturally acceptable and value diversity
- Child health and disability support services should take into account the available resources.

This document also highlighted the important role of Public Health in improving child health. Public health has been defined as 'the science and art of preventing disease, prolonging life, and promoting health through organised efforts of society' (Acheson 1988). Public health action involves essential long-term investments in better health. Key public health strategies are outlines in the *Ottawa Charter for Health Promotion (*WHO et al 1986).

Well child services are an important part of child health. The *Well Child/Tamariki Ora National Schedule*[17] (Ministry of Health 1996a) describes the activities which every child under five years and their family or whanau are entitled to receive. The schedule includes three parallel streams, which are delivered as an integrated package of care for each child and their family or whanau.

Underpinning the *Child Health Strategy* was the *Child Health Programme Review*[18] (Ministry of Health 1998). The review focused on preventive interventions which have the greatest potential to reduce morbidity and mortality including home visiting services and improved service delivery, including co-ordination.

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[16] Ministry of Health. 1998. *Child Health Strategy.* Wellington: Ministry of Health

[17] Ministry of Health. 1996. *Well Child/Tamariki Ora National Schedule.* Wellington: Ministry of Health

[18] Ministry of Health. 1998. *Child Health Programme Review.* Wellington: Ministry of Health

More recently, Government policy for the health and disability sectors is set out in two key documents – the *New Zealand Health Strategy*[19] *(2000)* and the *New Zealand Disability Strategy.* The *New Zealand Health Strategy* called for the health sector to work co-operatively towards common goals rather than competing for the largest share of the health dollar. DHB's are responsible for ensuring services reflected the needs of individuals and communities at a local level. The intention was that local decision making would help to deliver the Government's commitment to reduce inequalities and improve health status.

The changes would:

- Focus on population needs
- Reduce disparities in health
- Emphasise community and health services users' involvement at all levels
- Improve co-ordination across the health sector so that the whole system works for people
- Improve co-ordination on health issues across all central and local government portfolios and sectors
- Achieve a non-commercial, collaborative and accountable environment that encourages cooperation on common goals
- Create an environment where those working in the sector feel part of the total system

In the primary care and community setting, the *Primary Health Care Strategy* [20]placed greater emphasis on population health and the role of the community, health promotion and preventative care, the need to involve a range of professionals, and the advantages of funding based on population needs rather than fee for service.

In applying the concepts from the national strategies, Capital & Coast DHB needs to focus on planning of services ensuring that children have equal access to services across the region.

Local Literature

Alongside the national body of child health literature, C&C DHB, Regional Public Health, Hutt DHB and a number of service providers working within the district have contributed to a growing local body of evidence and information about the health needs of the young people living within the C&C DHB area.

In 2004 C&C DHB conducted a review of child and maternal health services and developed an action plan for 2004-2007. Building on gains from that body of work, the C&C DHB Child Health Strategy 2008-2010/11[21] was developed. This strategy provided an overarching framework to guide efforts to improve health gain for this population, and validate and support attitudes and actions that help improve child health. The 7 priority areas that stemmed from this work were:

- The patient journey
- Collaboration and Coordination
- Improving Information, Monitoring and Evaluation
- Nutrition and Physical Activity
- Mental Wellness
- Preventable Illness
- Preventing Intentional and Unintentional Injury

Action plans were developed for each of the priority areas and the status of these has been monitored and reported on since.

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[19] Ministry of Health: 2000. *The New Zealand Health Strategy.* Wellington: Ministry of Health

[20] Ministry of Health: 2001. *Primary Health Care Strategy.* Wellington: Ministry of Health

[21] C&C DHB: 2008. *Child Health Strategy 2008/09-2010/11.* October 2008

Appendix 2: Service Providers

Regional Public Health – summary of funding

Lead DHB	PU Desc / Service spec	PU Code
Hutt	Vision Hearing Screening	C01011
	BCG	C01013
	BCG Nurse Service	C01013
	CCDHB Rheumatic Fever Nurse	C01014
	Public Health Nurses	C01014
	* School Based Nursing	C01014
	School Dental Services	D01003
	Oral Health Promotion	D01011
	Administration of Dental Benefit	D01020
Provider - WellTrust	Child & Youth Community Services (A&D)	MHCS36A
WINZ Nurse (0.5 fte)		CO1014

* - a mix of primary and secondary school students

RPH takes a population based approach to enabling good health by preventing disease and promoting health and wellbeing. As well as working with other parts of the health sector, primary care in particular, RPH works with agencies that can influence the wider determinants of health such as local authorities[22].

In June 2010, RPH released the *Decision Document – Change in Regional Public Health's Organisational Structure*. This document outlined a restructure resulting in a change of focus and team composition. The intention of the new structure is to align staff with a range of professional skills to work alongside each other to more effectively deliver services.

With a focus on child health, the new structure has two key groups:

- School Health & Immunisation Group (50.95 fte) – this is broken down further to:
    - 3 School Health Service teams based in Porirua, Wellington and Hutt
    - Immunisation Team
- Preventative Health & Chronic Disease Group

In addition to the restructure, RPH have confirmed their strategic framework *Keeping Well*[23] which has 8 strategic priorities:

- Equal opportunity to good health
- Smoke-free living
- Nutrition and physical activity
- Mental wellbeing
- Lives free form harm due to alcohol and other drugs
- Control of infectious diseases
- Living conditions that nurture human health
- Families living violence free lives

There is agreement between RPH and P&F that child health spans the *Keeping Well* spectrum and is an area of priority. How the Keeping Well Framework translates into specific action(s)

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22 Regional Public Health; Business Plan 2010-11

23 Regional Public Health: Keeping Well 2008-12; Wellington Region Strategic Plan for Population Health; March 2008

that address the 3 priority areas identified for Porirua is yet to be clearly defined, and requires engagement and collaboration between the two parties.

School Health Team

The School Based Service has evolved and changed. Over the years all revenue has been put into 'one big pot'. Service delivery has been made according to national service specifications (Tier 2; School and Pre School Health Service, linked to the overarching Tier 1 Child & Youth Service Specification) and DHB health priorities. Reporting capabilities within the service do not adequately reflect or record the work that is being delivered by the School Health Service. Over the past 12 months an attempt has been made to 'tease out' contracting lines and re-align the service to these.

The School Health team is in the unique position of having access to children both in the school and community setting (home visits). This enables a holistic approach to both personal and public health service delivery. PHN's often provide health care to children who are not enrolled with a Primary Health Care Provider. Once initial care has been given and the family situation assessed introduction to a local provider can be made.

Public Health nurses (PHNs) focus on the social determinants of health in order to reduce future health costs for the individual, their family/whanau and the nation. They are free and easy to access.

School Based Nursing – Decile 1 & 2

This is an intense personal health service. Schools that fall into this category and those schools situated in communities of lower socio economic backgrounds. Children and their families who live in these areas may be affected more by the social determinants of health than children who attend higher decile schools, in particular children who are of Maori and/or Pacific origin.

Key delivery includes:

- Weekly visits to schools (5 hours)
- Nurse led clinics
- Family support (including home visiting and follow up of personal health referrals including transportation to hospital and specialist appointments)
- Health promotion
- New entrant assessments

Decile 3 – 7

Key delivery includes:

- Fortnightly visits to schools (3-5 hours)
- Family support (including home visiting and follow up of personal health referrals including transportation to hospital and specialist appointments)
- Influencing of public health issues
- New entrants assessment by request in response to health concerns
- Health education

Anecdotally, PHNs report they are now only seeing about one child per month that has not had a B4SC completed, so they do a 5-yr old check. This is an improvement on 12 months ago.

The School based service is delivered by 6 nurses, whose combined hours equate to 4.4 full time equivalents. The salary range (under the PSA Mental Health and Public Health Nursing MECA) is $44,905 - $67,902 per annum (pro rata).

Porirua Children's Ear Clinic

This service has been operating since 1993, with a new clinic vehicle and equipment purchased in 2005. Service evolution has seen the number of 'drop in' community clinics increase from 2 to 6 per week, thereby providing greater opportunities for parents/caregivers to access and increased choice of times and venues.

Provision of education sessions for General Practitioners, GP Registrars, Practice Nurses, student nurses studying at Whitireia etc is becoming an increasingly important part of the Ear Nurse Specialist role. With increased knowledge of ear disease by health and education professionals, early identification and effective management of children with ear disease will ensue.

The Service is dedicated to working in the Porirua area, however families from Otaki, Paraparaumu, Miramar and occasionally Masterton have utilised the service.

During the 2008-09 year, a total of 1657 children visited the service. This compares to 07/08 – 1529, and 06/07 – 1410 children. Of the 1657 children that attended the clinic, 1039 visited the service for the first time, with 618 follow-ups / re-checks.

Referrals to the service are received from parents / care givers (self referrals), ENS, Vision & Hearing Technician, General Practitioners, Pre-schools, Public Health Nurse, Plunket, Schools, ENT, Audiology, B4School check.

The service is staffed by two part-time Registered Nurses with training in otoscopy, microscopy and diagnostic skills in ear disease. The Ear Nurse Specialist (ENS) hours equate to 1.2 FTE (full time equivalent).

RPH Work & Income Nurse in Porirua

This service was the result of a collaborative discussion involving C&C DHB, Ministry of Social Development (MSD) and RPH. The initial pilot has been in place since January 2007, with an evaluation completed in 2008. The evaluation supported the approach of providing health expertise and advice onsite at the Porirua Work & Income office as an opportunity to positively affect health outcomes for their clients.

C&C DHB currently funds RPH to provide the 0.5 FTE nurse within the Work & Income Porirua office. The overall aims of the service are to affect change in health outcomes for clients, and to up-skill Work & Income staff in the effects of poor health on social, economic and employment status. The service includes expert advice, clinical advice and support and structured health promotion activity.

Clients engage with the Work & Income nurse by referral via:

- Work & Income Case Managers;
- a booking system;
- structured activities of the Work & Income service (e.g. client seminars);
- spontaneous referral through waiting area contact at Work & Income office; and / or
- primary care providers or NGOs.

One of the outcomes of the evaluation was for stakeholder meetings to be held regularly, with intersectorial funders, the provider and partner PHOs and NGOs. In the past this had not occurred as it should have.

Through discussion with Lucy Gunn, Work & Income Nurse, it is clear there are a growing number of young people accessing the service, particularly young women and young mothers who it seems, are becoming dependent on Work & Income benefits through different life stages – i.e. leaving school, leaving home, independent child benefit, domestic purposes benefit, sickness benefit.

Recent reporting has shown an increase in referrals from the last quarter, with 54% of contacts young people under the age of 35. Note: the reported quantitative data does not distinguish between ages 19 - 35 years. In addition, 46% of all contacts are of Māori or Pacific ethnicity.

Discussion also provided insight into increasing numbers of mental health, and AOD issues, with Case Managers receiving support in identification and management of these clients by the service. CPHCN – Tumai Locality also provide their primary mental health coordinator one day per week, to provide brief assessments with those clients identified. Jon Blackshaw, CPHCN – Tumai Locality Child Coordinator is also working half a day per week at the Work & Income office.

The service is in the midst of establishing the Community Links initiative which has seen the reconfiguration of the Porirua Work & Income Office to include a range of different intersectorial providers and local NGOs, for example Housing New Zealand, Inland Revenue Department and local primary health care providers - enabling easier access to multiple support and services for clients in a "one stop shop" approach. The concept is based on a current Justice pilot operating that includes linkages to the Family Violence Court. This Work & Income office has been identified as a good location in central Porirua City, with many other services and NGOs nearby.

Future planning for the service involves the completion of a Work & Income Nurse Orientation and Competencies Manual, and continued promotion of the value of this role to other public services, in particular Housing New Zealand. A closer working relationship with Youth One Stop Shops and other youth-specific services would also be beneficial.

Plunket

The Royal New Zealand Plunket Society (Plunket) delivers Well Child/Tamariki Ora services under contract to the Ministry of Health. The society employs Plunket Nurses, Plunket Kaiawhina and Community Karitane to provide Well Child services to families in the C&C DHB area. Additional services are offered by Plunket's community volunteers. Key areas reported on include:

- Enrolments (new baby cases)
- Enrolments by ethnicity
- Face to face contacts
- Contact location (home, clinic, other)
- Breastfeeding rates
- Referrals (to other health services)

Of note from the most recent Plunket report is the number of new baby cases (Maori) for the period July 1 2009 – June 30 2010 which has decreased by 88.

The Well Child/Tamariki Ora Framework has been in place since 2002. Its original aims were to reduce fragmentation and inconsistencies in the delivery of the Well Child / Tamariki Ora programme, to enhance co-ordination between child health services and other early intervention strategies, and to reduce inequalities. The frame work has led to improvements in access for many New Zealand children, but further work needs to be done to reduce fragmentation and inconsistencies in programme delivery and to make sure the programme is meeting children's needs. The programme has recently undergone a major review which identified in a number of

specific areas where greater emphasis and/or evidence-based best-practice changes are needed within the Well Child/Tamariki Ora programme.

A new needs assessment and family/whanau care planning process for Well Child Tamariki Ora and Lead Maternity Carer services will be rolled out from July 2011. In the meantime, the Ministry has contracted the Werry Centre for Child and Adolescent Mental Health Workforce Development to deliver the needs assessment and care planning training and evaluation at two pilot sites, one of which being Porirua. A final report on the results of the pilot will be available to the Ministry by June 2011.

The impact of the pilot and implementation of the new processes

Clearly it is essential that there is better coordination between Well Child / Tamariki Ora practitioners, LMC's, general practice, specialist health services, education and social services in order to achieve the desired goals and outcomes for families and whanau.

Well Child Providers

There are 3 Maori Health Service Providers contracted by C&C DHB to deliver Well Child Services. Each of these providers is contracted until 30 June 2013, with the funding coming from baseline funded primary health services, and the contracts being managed by the Maori Health Directorate.

The providers (identified in the table above) report quarterly through to P&F using a comprehensive database and individual provider narratives.

B4 School Checks (B4SC)

Funding devolved from the Ministry of Health is specifically for the B4SC contract. This service was established around 20 months ago, with the successful tenderer of the contract being the Royal New Zealand Plunket Society.

This is the 8th check in the Well Child framework. It is not solely a physical health check, but also considers the child's community and environment. A child's ability to learn and communicate, their social development, and their family/whanau circumstances are part of the check. The check is offered to all families with four-year old children. It is carried out by Registered nurses with experience in child health, sometimes with help from other health professionals such as vision and hearing technicians.

In Plunket won the C&C DHB tender to provide the B4SC. Initially Plunket formed a partnership with Ora Toa and RPH Vision & Hearing testers to ensure children seen and checked. At the request of two Maori Health providers, Plunket subsequently sub-contracted Maraeroa and Hora Te Pai to carry out B4SC for their population. Each of these providers is paid annually based on the number of closed cases ($60 per child). Since the sub-contracting arrangement was formalised, the co-ordinator has reported that Ora Toa is the only other provider to have completed or closed off any B4SC.

Access to two main databases (PONDS and MoH B4SC) enables the coordinator to identify children that have not had a check. The B4SC database is an excellent source of intelligence. A review of the referrals generated from the checks indicates
there are some serious issues in service provision from other health services. There are lengthy delays for children who are referred to GSE and Child Development Services meaning some children are not seen until after their 5th birthday. Dental referrals are also high (8.6%) and are more than twice the national average and currently the highest of all the DHB's. The relatively high level of children not enrolled for dental services at four years of age is of concern.

The most recent quarterly report (Sept-Dec 2010) shows steady referral patterns:

	Dental	Hearing	Vision	PEDS	SDQ	Growth	Gen	Imms	Total referrals
Actual number	64	44	45	20	4	5	8	7	197
Percent	8.6%	7%	6.1%	2.3%	0.5 %	0.9%	1.3%	0.8%	28.5% of checks

From a combined total of 1579, for the period 1 June – 13 December 2010, a snapshot of referrals for additional health checks for the period 1 June – 13 Dec 2010 is shown below (note: a child may be referred to multiple services)

Dental referred	Dental enrolled	Hearing referred	Hearing rescreen	Vision referred	Vision rescreen	Peds referred
148	381	89	225	72	114	37
9%	24%	5.6%	14.2%	4.5%	7.2%	2.3%
SDQ referred	**General referred**	**Weight referred**	**Imms referred**	**Imms declined**		
15	21	20	26	46		
0.9%	1.3%	1.2%	1.8%	2.5%		

Note: an additional 67 referrals were generated to GP for general concerns, weight and overdue immunisations (4.2%) plus some of the hearing referrals (up to 50%)

The B4SC team have worked together with RPH to schedule clinics to coincide with the ear van / VHT so that the B4SC check can be completed in one visit. This is working extremely well and is a good example of collaboration between services to meet the health needs of children.

Ensuring the "target population" access services is one of the key areas of responsibility for the recently appointed community worker. The appointment (October 2010) covers 16 hours per week has resulted in high risk children being located throughout the region.

Issues identified:

Concern has been expressed by some Medical Practitioner's about the "minimal number of referrals" they received to see children for issues such as obesity etc following a B4SC. There is also a perception that GP's are not being notified of a child's health status. A review of the data clearly shows referrals to general practitioners, and notifications are being generated. Notifications and referrals is a paper based/faxing process which is inherently fraught with problems. Information systems need to be compatible to allow for the safe, reliable and efficient transfer of information. This problem is not isolated to the B4SC system but is an issue across all health care providers.

The referral pattern and response time also highlights long waiting lists for referral follow-up, especially with the school dental, and child developmental services.

Immunisation services

Outreach and coordination services are contracted with all four PHOs in our district.

Child Specific HHS Services:

Service	PU Code	Purchase method
Violence Intervention Programme	ADJ111	Programme
Child Development Services	DSS1012	
Community Paediatrics & Child Protection Service	ADJ111	Programme
Paediatric Social Workers (inpatient & community)		
Paediatric Outreach Nurses (district)	Specialist Community Nursing	DOM 1.01
Eczema Nurse Clinic (rolled into Community nursing)	MSO1001	Attendances
Paediatric Community Nursing Service	DOM1.01	Programme
Child Youth Mortality Review Group funding	ADJ111	Programme
ED Paediatric Assessments	ED06001	Attendances

Community Paediatrician

This is a 20 hour per week role encompassing the following aspects:

- Participation in Regional Child Mortality Review Group
- Chairperson, CHAG
- Member, Porirua Kids Action Group
- Education of health professionals
- Provision of outpatient clinics from Kenepuru

Appendix 3: Toi Te Ora – Public Health Rheumatic Fever Leaflet

Rheumatic Fever in a New Zealand Health District

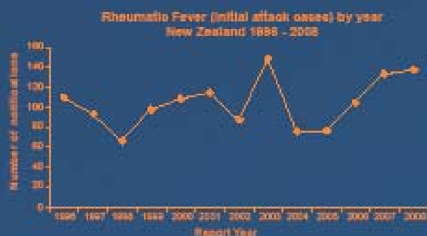
A developing world disease in a developed country

Produced by Dr James M Miller, Medical Officer of Health, Toi Te Ora – Public Health Service, Tauranga, New Zealand
On behalf of the Lakes and Bay of Plenty Rheumatic Fever Steering Group

One to three percent of upper respiratory tract infections (usually a sore throat) due to group A streptococcus (GAS) lead to an auto-immune response. One to three weeks after infection this causes acute inflammation affecting the heart, joints, brain and skin. Patients, mostly children aged 5 to 14 years, are often severely unwell, in great pain and require hospital treatment. Initial and recurrent episodes may damage the heart valves leading to chronic rheumatic heart disease (CRHD). The prevalence of CRHD in New Zealand (NZ) peaks in the 25 -34 year age group causing significant ill health and excess mortality.

Significance for New Zealand

Rheumatic fever and CRHD are now rare illnesses in most affluent developed countries, although they remain common in many developing countries. In New Zealand, however, which has a population of 4.32 million, 137 initial attacks of acute rheumatic fever (ARF) were notified in 2008, a rate of 3.2 per 100,000. Notifications of acute rheumatic fever have not declined over the past decade[1]. The legacy of previous high rates of illness is also evident with around 145 deaths from CRHD each year in NZ. Putting this in perspective, this is double the number of cervical cancer deaths in NZ.



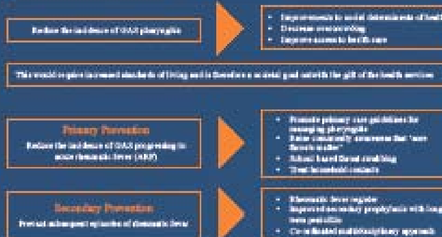
Moreover, most cases of ARF occur in Maori and Pacific people, respectively accounting for 73% and 19% of all notifications in 2008.

Quantifying the problem in the Bay of Plenty and Lakes

The Bay of Plenty and Lakes District Health Board area lies on the eastern Pacific coast of the North Island of New Zealand. Lying between the central volcanic plateau and the ocean, it has very fertile soils and a warm climate. Most of NZ kiwifruit is produced in the area which is also a popular tourist destination. Most of the population of around 300,000 live in the main towns of Tauranga, Whakatane, Rotorua and Taupo. There are strong Maori communities making up 23% of the population in the Bay of Plenty district and 34% of the Lakes district population. Rheumatic fever has long been suspected to be undernotified in these areas. A project aimed at creating an accurate list of all ARF cases in the BOP/Lakes districts was undertaken in 2008[2]. This involved auditing hospital discharge data, district nurse penicillin registers, a register covering part of the district, and seeking information directly from local paediatricians regarding current patients. The diagnoses were verified by consultant paediatricians in each area.

For the period 1999-2007, there had been 75 official notifications of ARF. Active case finding increased the number of known cases to 147. In effect the problem was at least twice as large as had been previously recorded. Most cases were in Maori and there were distinct clusters in three townships.

Evidence based interventions



Fortunately for our local programme multidisciplinary evidence based guidelines[3] for reducing the impact of rheumatic fever in the NZ setting have been progressively developed and published since 2006.

A participative approach

None of the interventions to reduce ARF are easy. Sustained education across communities, professional training, targeted screening in schools and improved patient support will be needed over many years. All of these require long-term commitment from the affected communities. These communities are essentially Maori. Involvement and participation of the Maori whanau (family) and iwi (tribe) have been, and will be, crucial if any meaningful reduction of ARF is to be achieved. Toi Te Ora - Public Health Service set up a steering group to oversee initiatives across the region, including representatives of Maori health providers. Co-ordinators have been employed in both areas to encourage local awareness, involvement and commitment to making a change.

Levels of intervention

Primary prevention

Raising awareness in the community of the importance of managing sore throats appropriately has involved building on experience elsewhere in New Zealand, using the theme of 'sore throats matter, sore throats can break a heart'. Local stakeholders have been involved in making these messages culturally relevant and advising on communication channels. Leaflets have been designed and distributed and radio ads broadcast using stations popular with the Maori community. Even in NZ, many health practitioners may be unaware of the scale of rheumatic fever, so the guidelines on sore throat management and the importance of secondary prevention are being embedded in routine continuing professional development programmes.

To complement this more general approach, GAS infections will be actively sought through school based swabbing where rates of ARF in children 5-14 have exceeded 50 per 100,000 over a five year period. This approach which involves asking children about symptoms, taking throat swabs and arranging antibiotic treatment for any child with a GAS infection, has been successful in reducing ARF in the Northland area of NZ. Long term commitment and community involvement over a number of years will be needed. Led by their local primary health organisation, the community of Opotiki in the eastern part of the Bay of Plenty, are enthusiastic about offering this service to their tamariki (children).

Secondary prevention

To prevent recurrent episodes which can cause further heart damage, children diagnosed with ARF require monthly injections of penicillin for a minimum of 10 years. A robust local register of cases is key to effectively delivering prophylaxis over such a long period of time. A register, which was working well, but only in part of the Lakes district, is being extended to include both health districts.

References

1. ESR. Notifiable and other Diseases in New Zealand. 2008 Annual Surveillance Report. Wellington 2009
2. Loring, Belinda. Rheumatic Fever in the Bay of Plenty and Lakes District Health Boards. Toi Te Ora - Public Health, Tauranga. 2008
3. Cardiac Society of Australia and New Zealand, New Zealand Heart Foundation. New Zealand Guidelines for Rheumatic Fever. Auckland. 2006/2008

Appendix 4: Stakeholders engaged in this Process:

Well-Health PHO
Compass PHO
Ora Toa PHO
Porirua Kids Action Group
Regional Public Health
Ministry of Health
Capital and Coast Paediatrics Services
Planning and Funding – Capital and Coast DHB