

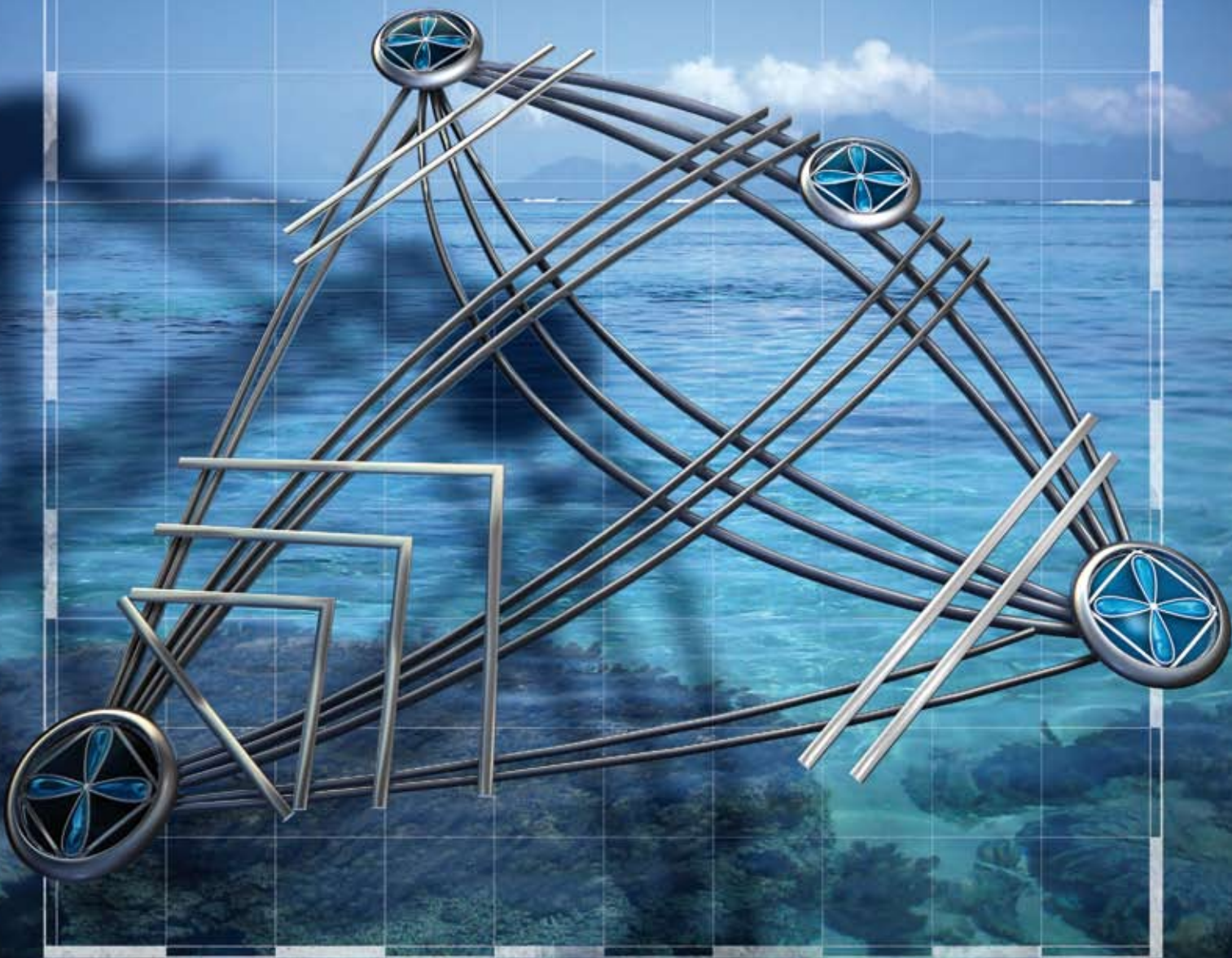
# BEST PRACTICE

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NOVEMBER 2010

Finau, saga finaūa`ilo ma le filifiligā mo o mea silisilā`ia`e

– Strive hard and always for the best



“Fonua” – A focus on Pacific health

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## Close contact infectious diseases: an increasing concern for Pacific peoples

Pacific peoples have poorer health status than other New Zealanders, including higher rates of infectious diseases. Socioeconomic factors such as overcrowding increase the risk of disease transmission.

### Rheumatic fever – the neglected disease

New Zealand continues to have high rates of rheumatic fever, particularly among Pacific peoples.

### The burden of bronchiectasis in Pacific peoples

Rates of bronchiectasis among Pacific children are disproportionately high.

### Skin infections in Pacific peoples

Serious skin infections such as cellulitis, abscesses and impetigo are an increasingly common reason for hospital admission in Pacific peoples. Scabies is also a frequent issue in some areas.

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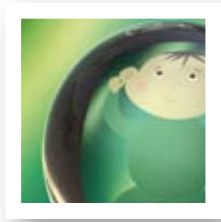
## Promoting healthy lifestyles for Pacific peoples

Ask a Pacific person what a “healthy lifestyle” means for them and the response will depend on who you are talking to. Healthy lifestyles mean different things for different people depending on their age, state of health, family and culture. Six Pacific health experts provide insight and commentary on what a healthy lifestyle means for Pacific peoples and the barriers and solutions to achieving this.

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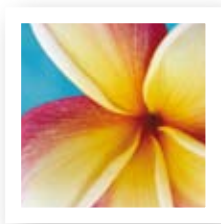
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*Supporting the PHO Performance Programme*



### **Lord of the Fonua**

*You have blessed us with the beauty of our lands and sea*

*You have blessed us with fish, shells and mighty whales*

*You have blessed us with palms and coconut trees*

*You have blessed us with children of the Pacific*

*Glory be to your name, today and forever*

**Rev. Valamotu Palu, Fiji**

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# Ni sa bula vinaka • Talofa lava • Kia orana • Taloha ni • Malo e lelei • Fakalofa lahi atu • Talofa • Halo olaketa • Tēnā koutou • Warm Pacific Greetings

Welcome to BPJ 32: “Fonua”, the first Pacific health focused edition of Best Practice Journal.

In Tongan, “Fonua”, relates to land and people. The Fonua Model of Health Promotion (Sione Tu’itahi, September, 2009) highlights the interdependent relationship between humanity and its ecology for the purpose of achieving health and well being. This journal focuses on some significant health issues for Pacific peoples through the sharing of best Pacific health practice and knowledge.

Dr Api Talemaitoga, Clinical Director, Pacific Programme Implementation, Ministry of Health, provides an introduction to Pacific health. He challenges all health professionals to take responsibility for Pacific health by delivering services that are more responsive to the needs of the Pacific peoples we serve.

**Rheumatic fever** has been termed as “the neglected disease” in Pacific communities. Māori and Pacific peoples have the highest rates of rheumatic fever in New Zealand and among the highest rates in the world.

**Bronchiectasis** has declined in most developed countries, however, rates in New Zealand, especially among Pacific and Māori children, remain disproportionately high.

**Skin infections** are also prevalent and a serious issue for Pacific peoples. Socioeconomic factors such as overcrowding contribute to the high rates of **close contact infections**.

Pacific healthcare leaders provide their views on **healthy lifestyles** for Pacific peoples and latest research about **gout** – a disease that disproportionately affects the quality of life for Pacific men – is discussed.

While **immunisation** coverage rates among Pacific children have substantially improved in recent years, it is important that strategies to improve immunisation rates continue. Rates of **cervical screening** are also increasing among Pacific women, but disparities between ethnic groups still remain.

The opportunities for health improvement begin in our families, neighbourhoods, schools and jobs. Pacific health providers are at the heart of Pacific communities. They work with, and for, communities and families to address barriers to good health and making healthy choices. General Practice can view Pacific providers as a resource to call on and work with in reaching and understanding Pacific peoples’ health needs. The ultimate aim for all health providers is to ensure a positive and rewarding health experience with improved health outcomes for all Pacific peoples.

*Fakamalolo ke he tau amaamanakiaga, ke ma fola ai e tau matakainaga*

*– Strengthen all endeavours, the community will benefit*

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# The health of Pacific peoples in Aotearoa is “everybody’s business”

Contributed by Dr Api Talemaitoga, Clinical Director, Pacific Programme Implementation, Sector Capability and Implementation Directorate, Ministry of Health, Wellington

## Pacific peoples in Aotearoa

New Zealand is home to approximately 250 000 New Zealanders of Pacific descent, who make up 7% of the country’s total population. Although collectively known as Pacific peoples or peoples of Pacific ethnic origin, these New Zealanders come from approximately 20 different island groups, and have their own unique identities, languages, cultures and spiritual beliefs. This impacts on their individual perceptions and collective interactions with New Zealand health services.

## Opportunities to make a difference

Interacting with Pacific peoples provides unique opportunities and experiences for us as health practitioners:

- We have the opportunity to make a difference to the many poor health statistics that affect Pacific peoples

- We play an important role in ensuring Pacific peoples’ experience of health service is a rich and fulfilling one that makes a positive and long lasting impact on their health and the health of their families

Despite being able to access the same health services as other New Zealanders, Pacific peoples endure persistent disparities in health outcomes and health care. Pacific peoples experienced the least improvement in age-adjusted all-cause mortality from 1981 to 2004 of all ethnic groups (Figure 1).<sup>1</sup>

Pacific peoples’ amenable mortality (deaths which should not occur given available healthcare technologies) has had the least improvement. This indicates that healthcare for Pacific peoples has been less effective, and suggests that improvements are needed in the quality of care.<sup>2</sup>

A large proportion of Pacific peoples’ health disparity is due to their high chronic disease burden, particularly for

cardiovascular disease (CVD) and type 2 diabetes.<sup>1</sup> The prevalence of diagnosed diabetes in Pacific peoples, for example, is three times the prevalence reported in the total New Zealand population.<sup>3</sup>

Risk factors for these chronic diseases appear early in life. Pacific children, for example, have a higher prevalence of obesity compared to the total population, and the prevalence nearly doubles between age two to four years and age five to nine years.<sup>4</sup>

### The challenges are many but not insurmountable

Alongside these persistent disparities, the Pacific population is undergoing significant demographic changes. The proportion of Pacific peoples born in New

Zealand has increased, with the largest proportion amongst Niueans, Cook Island Māori and Tokelauan. The number of Pacific children born with dual or multiple ethnic ancestries has also increased significantly, and the Pacific population is youthful compared to the total New Zealand population.<sup>5,6</sup>

There is evidence that health outcomes, such as CVD mortality, varies between Pacific groups, with the highest CVD mortality rate among Cook Island Māori (approximately 1.66 times the Samoan rate).<sup>7</sup> A recent needs assessment, which compared a number of health indicators between the four largest Pacific groups in Counties Manukau DHB, found that a pattern emerged – Samoans and Tongans shared similarities across several indicators; as did Cook Island Māori and Niueans. For example, Samoans and Tongans were more likely to live in crowded households, and

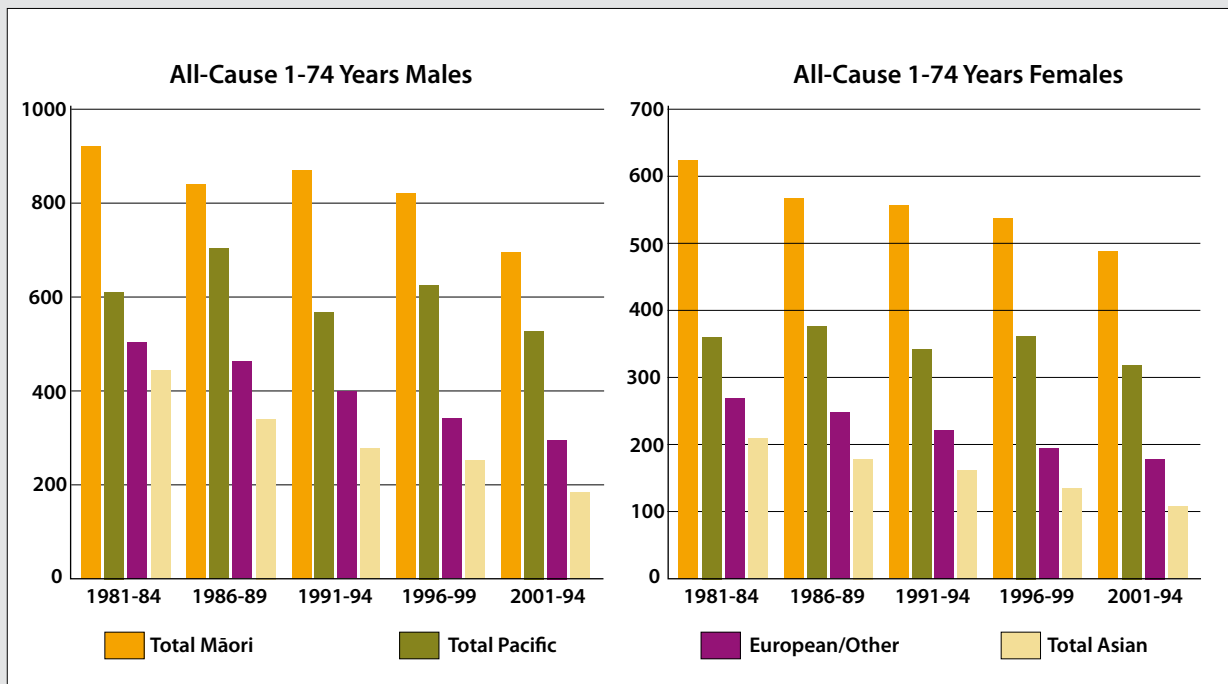


Figure 1: Trends in ethnic all-cause mortality rates (New Zealand Census Mortality Study)<sup>1</sup>

#### Percentage decline 1981-84 to 2001-04

|                | Māori | Pacific | Asian | European/Other |
|----------------|-------|---------|-------|----------------|
| <b>Males</b>   | 25%   | 14%     | 58%   | 42%            |
| <b>Females</b> | 22%   | 10%     | 50%   | 35%            |



had higher rates of child hospitalisations for respiratory-related illnesses, than Cook Island Māori and Niueans.<sup>8</sup>

As emphasised in 'Ala Mo'ui – Pathways to Pacific Health and Wellbeing 2010-2014 (the Ministry of Health's action plan for Pacific health),<sup>9</sup> all these aspects of diversity (place of birth, multiple ethnicities, and cultural variation between Pacific groups) mean that services need to be particularly adaptable and innovative to respond to the varied needs and preferences of Pacific peoples.

The principles emphasised in 'Ala Mo'ui, when working with Pacific peoples are that:

- Families and culture are important. They play a significant role in the health and well being of Pacific peoples.
- The key dimensions of quality, such as access, equity, cultural competence and patient-centeredness, are implicit in the delivery of health and disability services
- Health and disability services need to work across other sectors like education, housing and social development

Pacific health providers have been effective at driving innovative approaches to increasing Pacific peoples' uptake of health services (such as the MeNZB vaccine) and improving Pacific peoples' chronic care management. These health providers have used "wrap-around" services to support the clinicians' treatment and advice and borrow heavily on the principles of 'Ala Mo'ui.

While there is some growth in Pacific peoples' utilisation of primary care services, high rates of ambulatory sensitive hospitalisations (hospital admissions that could have been avoided by provision of outpatient-based primary care) and emergency department attendances<sup>10</sup> reflect ongoing issues for Pacific peoples in accessing high quality, convenient and timely primary health care. For example, the highest rate of "Potential Avoidable Hospitalisation" for Pacific peoples in Auckland DHB in the 12 months to April 2010 was for cellulitis – essentially a condition that should be largely treatable in primary care.

## **Cultural competence is a must for health practitioners if we are to make a real difference**

The definition of "culturally appropriate" (also termed culturally-specific or culturally-adapted) health care generally refers to any type of health care that is specifically tailored to the cultural needs of a minority group, and/or is delivered by health workers from the same cultural group.<sup>11</sup>

Improving the health of Pacific peoples in New Zealand is everybody's business. All health practitioners will at some stage encounter a Pacific person/family seeking health advice. The difference between a good practitioner and a great practitioner is someone that aims to make the health interaction one that is not only positively memorable but also one that encourages ongoing engagement to improve the health of the Pacific person and their family.

Being a great practitioner does not mean just complying with the Health Practitioners Competence Assurance Act and Medical Council requirements, but more as part of a collective responsibility that we all undertake to improve the health of all New Zealanders of which Pacific peoples are a part. I am sure this can appear hard to fit in on top of everything else in our already busy practices, but lessons learnt from research and the success of Pacific health providers may assist us in better engaging our Pacific patients. These include:

- The use of community health workers to liaise directly with patients with health promotion and health literacy activities
- The more effective use of nurses to drive and run chronic care management clinics/programmes
- The strong empowerment of patients and their families to be more proactive in self management of their chronic conditions
- The use of or referral to a health practitioner of the same ethnic background or to someone who can explain important health issues in a language specific to him/her

- The use of Pacific institutions such as churches and the engagement of lay preachers and ministers in the delivery of the health messages to Pacific peoples

The New Zealand Medical Council has recently published a resource booklet; “Best health outcomes for Pacific peoples: Practice implications”, that provides an understanding of the requirements for working successfully with Pacific peoples, families and communities. Research shows that health practitioners who are familiar with their patient’s cultural differences are likely to offer improved patient care.

This booklet is available from: [www.mcnz.org.nz](http://www.mcnz.org.nz) (see Resources / Standards and guidelines / Cultural competence)

### **Ongoing quality improvements will contribute towards a more responsive health system**

We need to continually monitor and evaluate any new initiatives being undertaken to ensure they are culturally competent, cost effective and delivering better health outcomes for the Pacific populations we serve. This may also include ongoing research which in turn puts New Zealand in an enviable position of leading the way in being culturally appropriate and responsive to the health of minority populations within its borders.



Research already being undertaken on the strategies and aspects of culturally appropriate care includes:

- A review of strategies to improve health care quality for ethnic minorities, e.g. use of tracking and reminder systems for improving the quality of preventive care and smoking cessation programmes, with nurses or community workers offering screening services directly to patients.<sup>12</sup> N.B. Many of the studies reviewed did not specifically evaluate the duration of the effective strategies, which limits any conclusions that can be drawn.<sup>13</sup>
- A review of the effectiveness of culturally competent care (integrating cultural beliefs, values and practices into the service delivery model), found it was associated with improved access and quality of health care among ethnic minorities.<sup>14</sup> There are very few studies evaluating the effectiveness of culturally competent health care interventions in terms of improved health outcomes.<sup>12</sup>

### **Take home message**

Improving the health of Pacific peoples in Aotearoa is everybody’s business and my challenge to all health practitioners is to take action – to deliver health services in a way that is more responsive to the needs of the Pacific peoples we serve. Think outside the square.

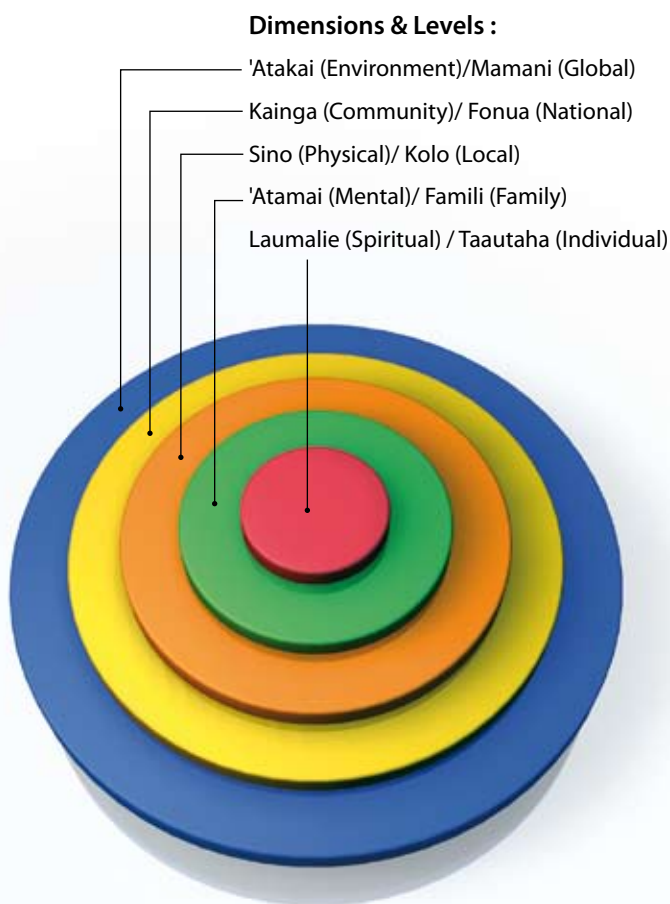
Pacific health providers are at the very heart of their communities and are making a tangible difference to Pacific health. They are improving access to primary healthcare and specialists; they are increasing immunisation and screening rates; they are educating communities in important preventative health messages; and they are helping to address the underlying causes of ill health such as poor housing, education, nutrition and exercise.

The majority of us in non-Pacific practices (which care for over 80% of Pacific peoples in Aotearoa) need to take up the challenge of matching this effort not only because we want to, but also because we have a responsibility to the

Pacific populations that are served by us collectively. We need to make it our business to deliver the best health care that can bring real gains for all Pacific peoples - now and for future generations. Only then can we make real gains for the overall New Zealand health system.

## Fonua Model

**Fonua:** The cyclic, dynamic, interdependent relationship (va) between humanity and its ecology for the ultimate purpose of health and wellbeing



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Close-contact infectious diseases:  
**An increasing concern  
for Pacific peoples**

Pacific peoples have higher rates of infectious diseases than other New Zealanders.<sup>1</sup> The overall incidence has increased over the last 20 years with close-contact infectious disease being the largest contributor to this increase. Close-contact infectious diseases are spread by person-to-person contact within a community and are most often respiratory, skin or enteric (faecal-oral) infections.<sup>2</sup>

### Ethnic inequalities are marked

Hospitalisation rates for close-contact infectious disease are higher for Pacific peoples than for Europeans in New Zealand (Table 1). Ideally, only a small proportion of people who have close-contact infections should require hospital admission as the majority of cases can be treated successfully in primary care.

Health differences between ethnic groups are often a reflection of variables such as socioeconomic factors and access to healthcare services rather than due to any intrinsic differences in susceptibility to disease. Lower incomes, lower educational attainment and poorer housing contribute significantly to the health status of Pacific peoples.<sup>3</sup>

One recent example that highlights the ethnic differences within close-contact infectious diseases was the higher rates of hospitalisation reported for Māori and Pacific peoples during the 2009 H1N1 influenza pandemic. Hospitalisation rates were nearly seven times higher for Pacific peoples than for Europeans in New Zealand.<sup>4</sup>

### Socioeconomic factors increase risk

Key factors that increase the incidence of close-contact infection include crowded living conditions and lower socioeconomic status. The incidence of close-contact infectious diseases is higher among people who live in the most deprived areas (decile 10); 42% of the Pacific population live in decile 10 areas.<sup>1</sup> Pacific peoples are also more likely than other ethnic groups to be living in crowded households. It has been estimated that over 40% of Pacific peoples in New Zealand live in households needing extra bedrooms.<sup>5</sup>

### Younger and older people are more at risk

Rates of close-contact infections are highest among children aged less than five years. The Pacific population in New Zealand is a youthful population, similar to Māori. Adults aged 70 years or more are the second most vulnerable group for these types of infections.<sup>2</sup>

### Most hospitalisations are a result of respiratory or skin infections

Approximately half of all close-contact infectious diseases, that result in hospital admission, are respiratory infections.<sup>2</sup> Hospitalisation rates from close-contact skin infections, primarily bacterial in origin, have increased by 100% between 1989 and 2008. Pacific peoples have a higher incidence of this type of infection than Europeans in New Zealand.<sup>2,6</sup>

**Table 1:** Hospitalisations for infectious disease (2004–2008)<sup>2</sup>

| Ethnic group        | Hospitalisations for infectious disease<br>(as a % of total hospitalisations for<br>each ethnic group) | Hospitalisations for close-contact<br>infectious disease |
|---------------------|--|--|
| Pacific peoples     | 31.8%  | 24.3%  |
| Māori               | 27.2%  | 20.4%  |
| European and Others | 22.5%  | 16.5%  |

## Understanding the role of antibiotics

Many people do not have a good understanding of how antibiotics work and why they are important for the treatment of infectious diseases. In a New Zealand study involving 112 Samoan people, less than 2% identified the correct purpose for antibiotics. Most thought they were used to relieve pain.<sup>8</sup> The use of antibiotics in Samoa is high, most likely due to the fact that antibiotics are available without prescription from pharmacies. This may affect Samoan and other Pacific peoples' expectations of treatment and patterns of antibiotic use in New Zealand.<sup>8</sup>

When prescribing an antibiotic treatment for a close-contact infectious disease, the following points may be discussed:

- The importance of getting the prescription filled and collecting the dispensed medicine
- Ensuring that the full course of antibiotics is completed
- Ensuring that all close contacts are identified and receive antibiotic treatment as appropriate
- Not sharing antibiotics with family members, because each person needs to complete their own full course and the prescribed medicine may not be suitable for other members of the family
- If financial barriers exist, consider options to cover the immediate cost of medicines e.g. use of Practitioner supply order

Other possible contributing factors to the high rates of skin infections among Pacific peoples include under recognition of the importance of preliminary first aid measures, lack of resources to provide this initial first aid, late identification and therefore delayed treatment of a skin infection, and factors that may limit access to healthcare including cost, language and cultural barriers.<sup>1</sup>

## Prevention and control of close-contact infectious disease requires a multifactorial approach

Measures that can help prevent and control close-contact infectious diseases can be grouped into approaches that are focused on:

1. Disease specific factors
2. The mode of transmission
3. Socioeconomic factors

### Disease specific factors

Prevention and treatment that focuses on disease specific factors includes, for example, treating sore throats early for primary prevention of rheumatic fever.

In response to the increased rate of hospitalisation for serious skin infections in Pacific and Māori children, programmes were implemented in Auckland (the Glen Innes Serious Skin Infection Prevention Project) and Wellington (the Reducing Serious Skin Infections project). These projects aim to reduce serious skin infections and focus on providing patient information in a number of key areas including:

- When to go to the doctor
- The importance of hygiene, especially hand washing
- Specific skin infections and their management

### The mode of transmission

Prevention measures that focus on the modes of transmission include, for example, education about

effective hand-washing, cough etiquette and reducing both active and passive smoking.

Practical advice can be offered to minimise the spread of infection after a family member has contracted a close-contact infectious disease. This may include discussion around the following points:

- If someone in the family has a skin infection it is important that they have their own towels, clothing or linen to avoid transmission of the disease to others
- Linen should ideally be washed in hot water and thoroughly dried. If this is impractical, e.g. for financial reasons, the use of bleach solution in the

wash or hot ironing can also reduce bacterial load

- Sores should be covered, especially when going to preschool, school or playing sports
- Prophylactic treatment for the whole family, where appropriate, can prevent the spread of the infection

### Socioeconomic factors

Primary prevention through addressing the underlying determinants of health is extremely important, although can be challenging as it is usually outside the direct scope of the health sector.

Primary health care is often a patient's first point of contact with health services and can provide an access point for

## Common beliefs and practices among Pacific peoples

It should not be assumed that all Pacific peoples share a Western understanding of medical treatments and healthcare. Conversely, it should also not be assumed that all Pacific peoples share the same views. The key is to ensure that Pacific peoples, like all people, understand the importance of seeking treatment and understand the role and correct use of medicines for their condition. It is also important that an open dialogue is created so that any culturally specific beliefs can be discussed. In some cases, it may be appropriate to continue traditional treatments alongside conventional healthcare and in other cases, careful explanation may be required as to why a traditional treatment should be discontinued.

Some issues may include:

- A lack of understanding or appreciation of the severity of infections and potential complications if left untreated, e.g. sepsis, endocarditis, glomerulonephritis. This is especially an issue in patients with co-morbidities such as diabetes.
- Traditional Pacific medicines may be used, such

as plant material for wound dressing. This can potentially cause problems if the preparation of these materials is not carried out in a sterile environment.

- There is an increasing use of traditional Chinese herbal medication among Pacific peoples in South Auckland, especially in those with pre-existing chronic illness. Some of these preparations are potentially toxic and can interact with long-term medication.
- Conventional first-aid measures may not be understood or followed. For example, leaving boils or wounds exposed to "dry out" rather than using a sterile dressing.
- Sharing of medicines between family members is common, including half-used courses of antibiotics. This can lead to under-treatment of infections and potential antibiotic resistance.
- In some cases, Pacific peoples may believe that antibiotics are a "cure all" and no other care is required. It may be necessary to stress the importance of continued wound care.

other social services, such as financial assistance or housing and accommodation entitlements.<sup>3</sup>

It is important that all members of the household are receiving their full and correct entitlements from Work and Income as many families are not aware of the assistance they may be eligible for. This can include assistance with meeting the costs of treatments. Providing help to make initial enquires with a case manager may be very beneficial.

Taking steps to reduce overcrowding is likely to be the most effective strategy to prevent the spread of skin infections, particularly highly contagious diseases such as scabies and impetigo. Again, assisting with initial enquiries to Housing New Zealand and Work and Income may be helpful.

Measures undertaken on a national level can address socioeconomic status in general and involve programmes that are aimed at reducing overcrowded living conditions such as the Healthy Housing initiative.<sup>7</sup>

The following series of articles address the prevention and treatment of close-contact infections including rheumatic fever, bronchiectasis, cellulitis, impetigo and scabies.

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# Rheumatic fever: the neglected disease

## Key concepts

- New Zealand continues to have high rates of rheumatic fever, particularly among Pacific peoples
- 80% of cases occur in young people aged less than 15 years
- The majority of areas with a high incidence of rheumatic fever are in the North Island
- Acute rheumatic fever can be prevented by effective treatment of Group A streptococcal throat infection
- Management of people presenting with sore throat should be guided by age, ethnicity and location
- Guidelines have been developed for the diagnosis and management of sore throat and acute rheumatic fever and also for primary and secondary prevention of rheumatic fever


## The problem

Pacific peoples have the highest rate of rheumatic fever in New Zealand and one of the highest rates in the world. In 2009, there were 53 notified cases of rheumatic fever among Pacific peoples in New Zealand, a rate of 23 per 100 000. This is over six times the overall rate for all New Zealanders of 3.5 per 100 000 (a total of 140 cases).<sup>1</sup>

New Zealand stands out from most other developed countries in continuing to have high rates of acute rheumatic fever (ARF) and rheumatic heart disease (RHD). It is estimated that 97% of cases of RHD worldwide occur in developing countries and in the indigenous populations of countries such as New Zealand and Australia.<sup>2</sup>

Since 1984, ARF has been a notifiable disease in New Zealand. However, it continues to be under-notified despite increasing rates each year.<sup>3,4</sup>

There is significant geographical variation in the rates of ARF in New Zealand, with the highest rates in the North Island, e.g. Tairāwhiti, Hawke's Bay and Northland.<sup>4,5</sup> However, clusters of cases occur in a number of communities across New Zealand.

 **Best Practice Tip:** Check the incidence of rheumatic fever in your DHB area. A map of New Zealand showing rates per DHB is available in the Heart Foundation Rheumatic Fever Guidelines (see sidebar).

The majority of cases of ARF (approximately 80%) occur in young people aged less than 15 years.<sup>1</sup> The high rates of ARF in Pacific peoples have been widely attributed to socioeconomic factors such as overcrowding, poverty and poor nutrition, but also to delayed diagnosis and treatment of streptococcal throat infection.

### Group A streptococcal throat infection

Appropriate diagnosis and treatment of streptococcal sore throat in high risk populations is required to reduce the incidence of ARF. A guideline for the management of sore throats in New Zealand (see sidebar) has been developed to assist with targeted treatment of streptococcal throat infection and includes algorithms for individual and household management.

Community pharmacists, particularly those in areas of high ARF incidence, can assist by encouraging patients with sore throat to see their GP.

### Approach to treatment of sore throat in high risk groups

A key message from the Auckland Regional Public Health Service is to: “Think differently about sore throats in different population groups”.<sup>6</sup>

All children presenting with sore throat who are of Pacific or Māori ethnicity, aged three years and over and who live

in areas with a high incidence of rheumatic fever, should have a throat swab taken.

If the child has any of the following clinical features, empirical antibiotics should be prescribed:<sup>6</sup>

- Tonsillar swelling or exudate
- Anterior cervical lymphadenopathy
- No cough or coryza (which may suggest viral cause)
- Temperature  $\geq 38^{\circ}\text{C}$

If none of the clinical features are present, wait for the results of the throat swab. If the swab is positive for group A streptococcus, a ten day course of antibiotics, e.g. penicillin V, amoxicillin or erythromycin, should be prescribed.

### Acute rheumatic fever and rheumatic heart disease

ARF arises from an autoimmune response to group A streptococcal throat infection. On average there is a latent period of three weeks between the initial infection and the development of symptoms of ARF. The majority of people with ARF are very unwell, in considerable pain and require hospitalisation for confirmation of diagnosis and treatment. ARF causes a widespread inflammatory response that affects the heart, joints, skin and brain.

## The Heart Foundation Rheumatic Fever Guidelines

The Heart Foundation of New Zealand has developed a three part guideline for rheumatic fever;

1. Diagnosis, management and secondary prevention
2. Group A streptococcal sore throat management
3. Proposed rheumatic fever primary prevention programme

These guidelines provide key information including:

- A geographical map of rheumatic fever incidence
- Guidelines for the management of sore throat
- Clinical features and diagnosis criteria for rheumatic fever

The full guidelines are available from the Heart Foundation website: [www.heartfoundation.org.nz](http://www.heartfoundation.org.nz) Keyword search: Rheumatic fever



The heart (specifically the mitral and/or aortic valves) is the only organ that suffers long term damage, particularly after recurrent attacks of ARF. In some people ARF may be silent and symptomless, but still affects the heart i.e. causing subclinical carditis.<sup>4,7</sup>

ARF is diagnosed clinically because there is no single diagnostic test available. Diagnosis is based on the Jones criteria although these may not be sensitive enough to detect ARF in populations with a high incidence such as Pacific peoples.<sup>8</sup>

A modified version of the Jones criteria and a full description of the clinical features of the major and minor manifestations of ARF are detailed in the Heart Foundation guidelines for rheumatic fever (see sidebar). Criteria for diagnosing ARF include the presence of two major, or one major and two minor, manifestations, plus a preceding group A streptococcal infection. Major manifestations include carditis, polyarthrititis, chorea, erythema marginatum and subcutaneous nodules. In New Zealand, evidence of subclinical carditis on echocardiogram is also accepted as a major manifestation.<sup>8</sup> Minor manifestations include fever, raised CRP, polyarthralgia and prolonged P-R interval on ECG. If these signs are not present but there is strong clinical suspicion, ARF remains a possible diagnosis.<sup>8</sup>

Diagnostic certainty may vary according to location and ethnicity. It is recommended that a lower threshold for diagnosis be applied to people who:<sup>8</sup>

- Are in high risk groups (such as Māori and Pacific peoples)
- Live in lower socioeconomic areas
- Have delayed presentation
- Have atypical clinical features at presentation

Refer all patients with suspected ARF to hospital. Clinical follow-up of patients and their close contacts, and the ongoing use of prophylactic antibiotics after an attack of ARF are important in preventing recurrence of ARF and RHD.

It has been estimated that over 60% of patients with ARF will develop RHD,<sup>9</sup> which remains a significant cause of premature death in New Zealand (responsible for up to 200 deaths each year).<sup>10</sup> Adult patients may present with RHD that is a legacy of ARF from decades previously.

## The difficulties

Not all streptococcal throat infections cause symptoms and many children with sore throat do not present to primary care. Therefore there should be a low threshold for swabbing and treating sore throats in people who live in areas of high incidence of ARF.

Pacific people are often stoical, putting up with a sore throat or a sore joint and not presenting for medical care. Pacific families may prefer to use traditional health remedies rather than visit a doctor. Children may present later, so in high incidence areas antibiotics should be prescribed empirically rather than waiting for swab results (if the child has a sore throat and clinical features as detailed previously). A sore, swollen joint in a child should never be ignored and a possible diagnosis of ARF should always be considered.

Populations that are transient are likely to be more at risk. There may be a lack of continuity within primary care which can result in delayed diagnosis or treatment or stopping antibiotics needed for secondary prevention. Irregular school attendance may jeopardise school-based detection programmes. Multiple caregivers may result in a child attending multiple GPs. Secondary prevention programmes are also only effective with consistent long-term follow up.

## The solutions

Targeted interventions are important. New Zealand-wide approaches include:

- Ongoing awareness and education about the Heart Foundation rheumatic fever treatment guidelines for all medical care staff both at a primary and secondary care level. The goal is for a reduced incidence of ARF through effective treatment of sore throat.

- Secondary prevention programmes to prevent recurrence in people who have had confirmed ARF or RHD. These programmes rely on effective follow up to ensure regular administration of prophylactic antibiotics over a minimum of ten years.

School-wide regular throat swabbing programmes have successfully reduced the incidence of ARF in some regions. The use of portable echocardiograms to detect previously undiagnosed RHD in school children has also been initiated in some areas.

Solutions aimed at improving housing, reducing overcrowding and improving the socioeconomic situation of Pacific peoples will require a longer time frame and a co-ordinated approach with other sectors, e.g. education, welfare and housing, at both local and national levels.

Some recent regional approaches include:

**The Opotiki Rheumatic Fever prevention project** led by Te Ao Hou PHO was initiated in October 2009. The message was: “sore throats matter”, and the project involved community health workers visiting primary schools, three times a week, to take throat swabs (with parental consent) from children who reported sore throat.


Any child who tested positive for group A Streptococcus received a ten day course of antibiotics. This campaign has raised public awareness and has increased the number of parents requesting throat swabs for children with sore throat.

More information is available from:

**[www.toiteorapublichealth.govt.nz/Rheumatic\\_Fever\\_GP](http://www.toiteorapublichealth.govt.nz/Rheumatic_Fever_GP)**

**The “Say Aah” campaign** in Flaxmere, Hawkes Bay, is fronted by All Black Israel Dagg. This campaign aims to obtain parental permission to take throat swabs from all school children in Flaxmere, an area with a rheumatic fever rate of 32 per 10 000.

In 2002, a successful community based primary prevention programme for rheumatic fever was initiated in **Whangaroa, Northland**. For more information on this programme, see “How a community controlled the Streptococcus”, BPJ 13 (May, 2008).

 For further information about rheumatic fever see “Why we still need to think of rheumatic fever”, BPJ 13 (May, 2008).

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# The burden of bronchiectasis in Pacific peoples

## Key concepts

- Rates of bronchiectasis among Pacific children are disproportionately high
- Bronchiectasis should be suspected as a diagnosis in Pacific adults and children, living in areas with a high prevalence of bronchiectasis, who have a chronic, wet cough
- Referral to secondary care is required for a formal diagnosis based on a CT scan
- Acute exacerbations of bronchiectasis should be treated with a two week course of antibiotics and more intensive chest physiotherapy
- Consider developing an action plan so that treatment can be initiated early in an exacerbation

In most developed countries the incidence of bronchiectasis has declined over the years. However, in New Zealand, rates remain higher than in other developed countries and are disproportionately high in Pacific and Māori children. The rate among Pacific children is reported as 12 times higher than the rate for European children in New Zealand.<sup>1</sup>

Clinicians, particularly those in the upper North Island, should take into consideration the higher prevalence of bronchiectasis in Pacific peoples when diagnosing the cause of cough.

## Characteristics of bronchiectasis

Bronchiectasis is defined as irreversible widening of the bronchi in the lungs. It is characterised by inflammation, destruction of bronchial walls and chronic bacterial infection. Patients with bronchiectasis usually have a chronic, wet cough. Severe or recurrent respiratory infections such as pneumonia, tuberculosis or pertussis can result in bronchiectasis, especially if access to care or treatment is delayed. N.B: This article refers only to non-cystic fibrosis bronchiectasis.

## Starship statistics on bronchiectasis

Starship Children's Health, Auckland run a specialised bronchiectasis clinic and since 1998 has maintained a computerised database of children with bronchiectasis. Approximately 170 children with bronchiectasis are currently under active review at this clinic.<sup>4</sup>

Data on 91 children who have been followed for five or more years have been reported.<sup>4</sup> The median age at diagnosis was seven years.

Some key findings from this study were:

- 59% of the children were of Pacific ethnicity
- 36% lived in areas with a New Zealand deprivation score of 10
- 67% lived in areas with New Zealand deprivation scores of 8–10
- 28% of clinic appointments were not attended
- 14% of children were “lost to follow-up”
- 45% of children had worsening lung function despite clinic follow-up
- 44% of children had co-existing asthma
- 7% (six children) died during the follow-up period

Pacific or Māori ethnicity, male gender or low socioeconomic status was predictive of poor lung function.

Early recognition of children (including infants) with a “chronic, wet cough”, especially those with recurrent respiratory infections, is critical in reducing the incidence of bronchiectasis in New Zealand. If bronchiectasis is untreated it becomes a progressive condition that reduces life expectancy.<sup>2</sup> Even with treatment, bronchiectasis may have a major impact on day-to-day life for the child, with reduced exercise tolerance and time off school. Parents and caregivers must deal with the increased demands of an unwell child and the need for time away from work. Repeated primary care visits are necessary along with outpatient appointments and hospital admissions.

An increased awareness of bronchiectasis appears to have resulted in less delay before diagnosis, earlier referral and a younger age at diagnosis than previously reported.<sup>1,3</sup> This has markedly increased the number of children with bronchiectasis who are under active review in specialist clinics.<sup>2,4</sup> However, recent analysis of data from Starship Children's Health, Auckland, shows that even with follow up in a specialist clinic, almost half the children continue to have deteriorating lung function.<sup>4</sup>

## Prevention of bronchiectasis

Strategies to help prevent bronchiectasis include:<sup>5</sup>

- Ensuring up to date immunisations, including flu vaccination if appropriate
- Consideration of the possibility of a foreign body and prompt referral and treatment if this is likely
- Avoidance of aspiration if possible, e.g. in a patient with neurologic dysfunction, and effective treatment if aspiration occurs
- Early identification and treatment of chest infections
- Provision of a smoke-free environment for children and smoking cessation programmes for adults
- Providing education about bronchiectasis
- Improving housing conditions, e.g. reducing overcrowding and improving insulation and heating
- Improving nutrition

## When to suspect bronchiectasis

Bronchiectasis should be suspected in an adult who presents with a chronic productive cough, breathlessness and a history of a severe lower respiratory tract infection as a child or recurrent lower respiratory infections.<sup>6</sup> A classic presentation is an adult who has a history from a young age of repeated chest infections, daily sputum production and no history of smoking. Other clinical features that may be present in adults include haemoptysis (in up to 50% of cases) and non-pleuretic chest pain that occurs between exacerbations (approximately 30% of cases).<sup>6</sup>

Bronchiectasis should be suspected in a child who has a chronic wet cough (children aged less than five years usually swallow sputum). They may have shortness of breath, particularly with exercise. A child with wheeze, which may have been thought to be due to asthma, but has responded poorly to treatment, should raise suspicion of the possibility of bronchiectasis.<sup>6</sup> Haemoptysis is only rarely reported in children presenting with bronchiectasis.<sup>2</sup>

### Examination is not diagnostic

Clinical examination findings in patients with bronchiectasis are variable and not diagnostic.<sup>2, 6</sup>

During exacerbations:

- Fever may or may not be present
- Oxygen saturation may be borderline or reduced
- Respiratory rate and effort may be increased
- Crackles, usually coarse, may be localised or widespread. If present they are usually in the lower lung fields.
- Rhonchi may be present in about one-third of cases. Asthma may co-exist with bronchiectasis, however, rhonchi may be due to increased bronchial secretions rather than true bronchospasm.

Clinical signs of chronic lung disease, such as digital clubbing and chest deformities, e.g. Harrison's sulci,

pectus carinatum and hyperinflation, may be present. Studies have reported clubbing in up to 50% of children with bronchiectasis and chest wall abnormality in 40–60%.<sup>2, 4, 7</sup>

### Investigation and diagnosis of bronchiectasis

A good quality sputum sample should be obtained, although in younger children this may not be possible. In a secondary care setting, nasopharyngeal aspirate may be useful.<sup>2</sup>

Indicators of inflammation in the serum (increased white cell count and CRP) may be present even between exacerbations, but this does not alter management.<sup>2</sup>

A chest x-ray, although abnormal in the majority of cases, may not be diagnostic but should be arranged mainly to exclude other causes of chronic cough.<sup>6</sup>

Referral to secondary care is usually required for a formal diagnosis of bronchiectasis as CT scanning rather than bronchoscopy is now regarded as the test of choice.<sup>6, 7, 8</sup> Other investigations in secondary care may be performed to help determine the underlying cause of bronchiectasis and include:

- Gene testing to exclude cystic fibrosis
- Serum immunoglobulins (IgG, IgA and IgM) to screen for primary immunodeficiency (approximately 9% of children<sup>4</sup>)
- Bronchoscopy, e.g. in a child with suspected foreign body aspiration

In nearly 50% of cases of bronchiectasis, despite extensive investigation, no underlying aetiology is found.<sup>4, 8</sup>

### Treatment of bronchiectasis in primary care


In an acute exacerbation of bronchiectasis that can be managed in the community, a two week course of a suitable antibiotic should be prescribed.<sup>2, 6</sup> The choice of antibiotic should reflect the results of the sputum culture and sensitivities if possible. Appropriate initial antibiotic

choices include amoxicillin, erythromycin, cefaclor or co-trimoxazole.<sup>2, 6</sup> If there is wheeze or breathlessness, a short acting inhaled beta<sub>2</sub> agonist may be required. Inhaled corticosteroids are not indicated unless there is coexisting asthma.<sup>6,7</sup>

Regular chest physiotherapy in patients with known bronchiectasis can help with the drainage of secretions and help to prevent disease progression. Ideally physiotherapy should be increased during an exacerbation of bronchiectasis. Teaching a family member to assist with chest physiotherapy exercises can improve adherence to treatment and secretion drainage.

Consider developing an action plan<sup>2</sup> and providing a prescription for antibiotics so that treatment can be started early in an exacerbation.

A review visit is recommended to assess the response to the antibiotic and to check the sputum results if the antibiotic was started empirically. If there is deterioration or the patient has not improved with initial antibiotics, hospital admission may be required for intravenous antibiotics and more intensive physiotherapy.<sup>2, 6, 7</sup>

 For further information about bronchiectasis see: “Asthma and chronic cough in Māori children” BPJ 13 (May, 2008) and “Cough in children” BPJ 29 (July, 2010)

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# Skin Infections in Pacific peoples

## Multiple factors can contribute to the development of skin infections

Serious skin infections, such as cellulitis, abscesses and impetigo, are an increasingly common reason for hospital admission in Pacific peoples. Pacific children living in New Zealand have a disproportionately higher rate of hospitalisation for serious skin infection compared with other ethnic groups.<sup>1</sup>

Multiple factors can contribute to the development of skin infections, including:

### Injuries, insect bites and poor skin health:

- Broken skin as a result of grazes, cuts, bites, stings, infestations, burns, accidental falls or sports injuries increases the risk of cellulitis and other infections
- Eczema has been identified as a significant contributor to skin infections. The dryness, cracking, itching and scratching that eczema causes, increases the risk of bacteria entering through the skin. New Zealand children have a higher prevalence of eczema compared to children in many other countries.<sup>2</sup>

### Lack of awareness:

- Health literacy among Pacific peoples can be variable, and Pacific language translated patient information is not always available. This can lead to delays in treatment and serious complications.

- The importance of basic hygiene measures to reduce infection such as washing hands, keeping fingernails trimmed to avoid scratching and covering sores, may not always be understood

### Overcrowding:

- Large numbers of people per household and sharing of contaminated bed linen and towels increases the likelihood of transmission of bacteria from person to person

### Low socioeconomic status:

- Limited access to hot water, washing machines and driers reduces standards of personal and clothing/linen hygiene
- Reduced access to first aid supplies, e.g. plasters, dressings, insect repellent and emollients increases the risk of infection
- Reduced access to medical care due to barriers such as cost, lack of transport and language, increases the risk of serious infection and complications

### Promoting skin health can prevent skin infections

Keeping the skin clean is the best way to keep it healthy. Simple information to promote healthy habits can make a difference such as the “clean, cut and cover” message:

Clean hands often

Cut fingernails short


Cover sores with a plaster


## The role of antiseptics

Many clinicians use antiseptic solutions or creams when cleaning a wound or insect bite. Although there is no clear evidence that antiseptics are not effective, there does not appear to be any evidence that they are superior to simple cleaning practices, e.g. thorough washing. There is also concern that unnecessary use of antiseptics or disinfectants around the house may promote bacterial resistance. Active promotion of the use of antiseptics is not recommended.<sup>2</sup>

The use of plain soap is recommended for hand washing. Household antibacterial soaps are generally no more effective than plain soap in reducing bacterial levels on the hands, or in reducing infectious diseases.<sup>3</sup> If dry or sensitive skin is a problem, a soap substitute such as aqueous cream or a cleanser that has the same pH as the skin (5.5) can be used. Alcohol hand rubs are also effective at reducing bacterial load.

The frequency of recurrent skin infections may be reduced with a regular quarter-filled bath to which one capful of household bleach has been stirred into the water. Care should be taken to clarify measurement with a “bottle cap or a soup spoon” so as not to be misunderstood as cupful. If there is no bath in the house, a similar dilution of bleach into a clean bucket or basinful of water is an alternative.

 **Best Practice Tip:** Many low decile households do not buy sticking plasters, and many people believe cheap generic supermarket brands are inferior to marketed brands. Consider including plain sticking plasters in your dressings stock to reinforce that covering sores with basic products is both effective wound care and accessible on a tight household budget.

 For further information about skin health and hygiene, including downloadable patient information in different language options, see: [www.skininfections.co.nz](http://www.skininfections.co.nz)

## Cellulitis

Cellulitis is a common bacterial infection of the skin, which is most commonly seen in children and elderly people, but can affect people of all ages.<sup>2</sup> Cellulitis is a common cause of admission to hospital but hospitalisations are generally preventable if treatment is sought early. Pacific peoples require hospitalisation for cellulitis at a rate 1.5 times that of the total New Zealand population.<sup>4</sup>

Infection results from the invasion of skin structures by endogenous skin flora or by exogenous pathogenic organisms. All layers of the skin, fascia and muscle may be involved. The limbs are most often affected but cellulitis can occur anywhere on the body. Symptoms and signs, e.g. redness, increased warmth, tenderness and swelling, are usually localised to the affected area but patients can become generally unwell with fevers, chills and shakes due to bacteraemia.<sup>3</sup> Complications include endocarditis, gram-negative sepsis and streptococcal glomerulonephritis.<sup>5</sup>

The most common infecting organisms are *Streptococcus pyogenes* and *Staphylococcus aureus*. Cellulitis associated with furuncles, carbuncles or abscesses is usually caused by *S. aureus*.<sup>6</sup>

Cellulitis is more common in people with:<sup>3</sup>

- Previous cellulitis
- Venous disease, e.g. gravitational eczema, leg ulceration or lymphoedema
- Current or prior injury, e.g. trauma, surgical wounds, radiotherapy
- Diabetes
- Alcoholism
- Obesity
- Pregnancy
- Tinea pedis (athlete's foot) in the toes of the affected limb

Pacific adults have higher rates of diabetes and obesity than other New Zealanders,<sup>7</sup> which makes them a higher risk group for cellulitis.


## Cellulitis treatment

Most patients can be treated with oral antibiotics at home, usually for seven to ten days. However, if there are signs of systemic illness, extensive cellulitis or poor response to oral antibiotics, treatment with intravenous antibiotics may be needed.

The first choice oral antibiotic is flucloxacillin. Alternatives include erythromycin, roxithromycin, cefaclor or co-trimoxazole. Oral doses of flucloxacillin should be taken at least 30 minutes before meals as the presence of food in the stomach reduces absorption.

Flucloxacillin is bactericidal with a mode of action similar to that of benzylpenicillin, and is active against penicillinase-producing and non-penicillinase-producing staphylococci. Flucloxacillin alone is sufficient to treat skin infections that involve both *S. aureus* and *S. pyogenes*. Combination with penicillin is not required as flucloxacillin is active against the large majority of staphylococcal and streptococcal species that cause cellulitis when given at the appropriate dose, i.e. 500 mg four times a day for adults.

Flucloxacillin suspension is recommended for children. Although adherence is sometimes an issue with this medicine due to its taste, parents should be encouraged to persevere with giving flucloxacillin (unless allergic). It is a relatively safe medicine to use in children, and as it is a narrow spectrum antibiotic, it does not contribute to increasing bacterial resistance.

 For further information see “Antibiotic choices for common infections”, BPJ 21, (Jun, 2009).

## Impetigo

Impetigo is a highly contagious skin infection which is most common in infants and school children. It is also known as “school sores”. Impetigo often starts at the site of a minor skin injury such as a graze, an insect bite or scratched eczema, although it can also develop in healthy skin. It is more common in hot, humid weather and where there are conditions of poor hygiene or close physical contact.<sup>7</sup>

## Educating patients about skin infections

Patients should be advised to seek medical attention if a sore or area of redness has any of the following features:

- Is greater than the size of a ten cent coin (approximately 1.5 cm)
- Is increasing in size
- Has pus
- Has red streaks coming from it
- Is not getting better within two days
- Is located close to the eye

A skin infection in a person who is immunocompromised or has diabetes requires closer monitoring. It is also important to determine if there is a history of injury with the possibility of a foreign body within the wound.

Explain to patients that if skin infections are left untreated serious complications can occur that may require hospitalisation including:

- Deeper abscesses, which can form in the lungs, kidneys, joints, muscles, bone and brain
- Septicaemia
- Osteomyelitis and septic arthritis
- Acute glomerulonephritis

It can become a recurrent problem within families and households.

Similar to cellulitis, impetigo is most commonly caused by *Staphylococcus aureus* and *Streptococcus pyogenes*.<sup>3</sup> Impetigo is usually not serious, and may resolve spontaneously in two to three weeks. However, as it can sometimes lead to complications such as cellulitis, treatment with a topical or oral antibiotic is recommended.<sup>3</sup>

Impetigo generally presents with pustules and round, oozing patches which increase in size each day. There may be clear blisters, which rupture to form a golden yellow crust. It most often occurs on exposed areas such as the face and hands, or in skin folds, particularly the axillae.<sup>3</sup>

Systemic signs are not usually present, however if the infection is extensive, fever and regional lymphadenopathy may occur.<sup>8</sup>

### Community outbreaks of impetigo

Recurrent infection and community outbreaks of impetigo may result from the nasal carriage of causative micro-organisms or from fomite colonisation e.g. bed sheets, towels and clothing that may be shared.


If nasal carriage is suspected (as in recurrent infection), a nasal swab should be taken to confirm this. A topical antibiotic (such as fusidic acid 2% ointment) may be applied inside each nostril, three times per day for seven days. All household members and close contacts should also be treated.<sup>3</sup>

### Impetigo treatment

Impetigo is diagnosed clinically and swabs for microbiological analysis are not usually required unless there is recurrent infection, treatment failure or a community outbreak (see sidebar).

For small localised patches of impetigo, topical treatment is recommended initially. Fusidic acid cream applied for seven days is a suitable choice.<sup>9</sup> Crusts should be gently removed before applying the cream.

Oral antibiotics should be used for extensive disease or systemic infection or when topical treatment fails. Flucloxacillin for seven days is a suitable choice as it is effective against *S. aureus* and *S. pyogenes*.<sup>3</sup> Erythromycin may be used for people who are allergic to penicillins. Broad spectrum antibiotics such as amoxicillin clavulanate are inappropriate because the organisms are usually known and are susceptible to narrow spectrum antibiotics.

 For further information see “Management of impetigo”, BPJ 19 (Feb, 2009) and “Antibiotic choices for common infections”, BPJ 21 (Jun, 2009).

During the infectious stage, i.e. while the impetigo is oozing or crusted or within 24 hours of starting antibiotic treatment, advise the patient or their caregiver to:<sup>3</sup>

- Cover the affected areas (where practical)
- Avoid close contact with others
- Use separate towels and flannels
- Change clothes and linen daily and wash in hot water (or use bleach or hot iron)

Children with impetigo must stay away from school or day care until the crusts have dried out.

As days off school equate to increasing educational disparity and parental time off work (without pay for wage earners), families should be encouraged to take precautions in preventing skin infections.

## Scabies

A scabies outbreak can occur within any community, regardless of socioeconomic group or level of personal hygiene. One of the major factors is overcrowding, which is usually associated with low socioeconomic conditions, but the underlying reason is close body-to-body contact.<sup>10</sup> Scabies is endemic in many of the Pacific Islands.<sup>11</sup> Family members visiting from the Islands and new immigrants to New Zealand may be carriers of the infection.

Transmission of the scabies mite (*Sarcoptes scabiei*) usually occurs via close skin-to-skin contact with an infested person. For example, sleeping in the same bed or even holding hands. Fomites such as sheets, towels and other inanimate objects can also carry the scabies mite.<sup>9</sup>

Scabies infection produces intense pruritus, especially on the trunk and limbs, and at night. There are usually limited visible signs of the infestation but burrows may sometimes be observed on the wrists, finger web spaces or the sides and soles of the feet. Complaints of intense pruritus should raise a suspicion of scabies, especially if there is a family report of similar symptoms.<sup>11</sup>

### Scabies treatment


Treatment of both the infested person and their close physical contacts should begin immediately, regardless of whether they are symptomatic. Finger and toe nails should be cut short to prevent scratching and carriage of mites and eggs.<sup>10</sup>

Scabies will not resolve spontaneously without treatment. Permethrin appears to be the most effective topical scabicide.<sup>12</sup> Malathion lotion may also be considered. Topical gamma benzene hexachloride (Lindane or Benhex) has been used in the past but is now not recommended due to toxicity concerns.<sup>13</sup> Success or failure of therapy for scabies infestation depends much more on correct application of the topical preparation and treating all household contacts, than on which scabicide to use.<sup>13</sup> Permethrin 5% lotion (A-Scabies®) and malathion 0.5%

liquid (A-Lices®, Derbac-M®) are both available fully funded in New Zealand.

Scabicides should be applied to the entire body, from below the chin and ears, concentrating on the areas between the toes and fingers, genitals and under the nails (use a soft brush if required). Treatment should be applied to the face (avoid eye area) and scalp in children aged under two years, people who are immunocompromised and elderly people. Treatment should be reapplied to areas that are washed within the application time e.g. after hand washing. The treatment (both lotion and cream formulae) needs to be left on the body overnight and washed off the following morning. Repeat application of the treatment is required in 10–14 days. Linen and clothing should also be washed regularly.

Symptoms of itch can continue for several weeks after treatment. The most frequent complication of treatment with topical scabicides is post-scabies eczema (generalised eczematous dermatitis). Because of the irritant effects of the various formulations, xerosis (dry skin) might increase and worsen eczema, which could be mistaken for drug failure or re-infestation. Therefore, rehydration of the skin using emollients and anti-inflammatory therapy with topical steroids can be useful.<sup>11</sup>

 For further information see Scabies diagnosis and management, BPJ 19 (Feb, 2009).





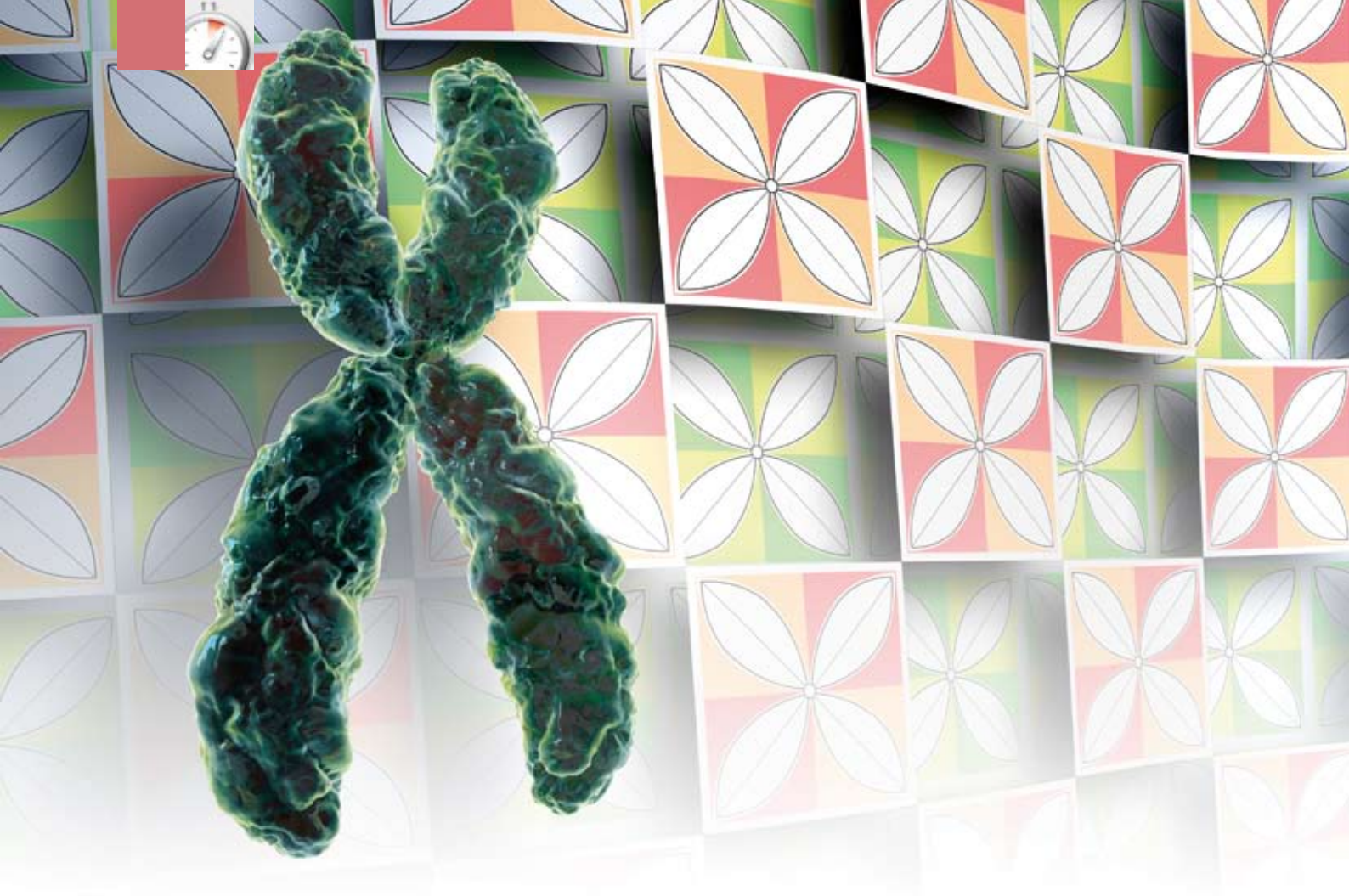
**“The capacity to blunder slightly is the real marvel of DNA. Without this special attribute, we would still be anaerobic bacteria and there would be no music.” — Lewis Thomas**

**Improve patient safety by sharing solutions and prevent these incidents from occurring again. Report patient safety incidents here:**

**[www.bpac.org.nz/safety](http://www.bpac.org.nz/safety)**

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## Genes, fructose, allopurinol and gout

Gout affects approximately 15% of Pacific men and 3% of Pacific women. This is a similar prevalence to that in Māori, however five-fold more than in people of European ethnicity. Pacific peoples also have high rates of severe gout, early onset gout, tophaceous disease and accelerated joint damage.<sup>1</sup> A major factor in the high incidence of gout in Pacific peoples is inherently higher levels of serum urate (hyperuricaemia). Current evidence indicates that hyperuricaemia and gout have both a genetic and environmental basis.

### A genetic basis for hyperuricaemia

Recent genetic data show that genes that encode proteins responsible for excretion of urate via the kidneys and gut are strong risk factors for gout in Pacific peoples. A genetic variant in the SLC2A9 gene confers a greater than five-fold increased risk for gout in Pacific peoples,<sup>2</sup> and a genetic variant in the ABCG2 gene confers a three-fold

increased risk of gout.<sup>3</sup> It is thought that these genetic variants reduce the ability to excrete urate, contributing to hyperuricaemia and thus the risk of gout. This genetic information is consistent with biochemical data from the 1980s that demonstrated reduced renal clearance of urate in Pacific peoples when compared to people of European ethnicity.

### Dietary influences in hyperuricaemia with particular reference to fructose

It is well recognised that certain foods, e.g. alcohol, meat and shellfish, contribute to hyperuricaemia. Recent studies in North America have shown that soft drinks sweetened with high fructose corn syrup, but not artificially sweetened soft drinks, are also associated with hyperuricaemia and gout.<sup>4,5</sup> This effect of increasing serum urate was also seen with fruit juice and excessive consumption of fruit. Fructose is a component of refined sugar, but in contrast

to glucose, the metabolism of fructose in the blood is not regulated. Therefore fructose cannot be stored in the body, in the way glucose is stored as glycogen in the liver. An adverse effect of the unregulated catabolism of fructose is the production of urate in the blood, increasing the risk of gout in people who are genetically predisposed to excrete less urate.

Patients with gout, particularly Pacific patients, should be advised to drink water, unsweetened coffee and tea, and milk rather than fruit juices and sugar-sweetened soft drinks. Low fat dairy products such as milk have been shown to be associated with lower serum urate levels and reduced risk of gout.<sup>6</sup> In patients with poorly controlled gout, excessive fruit intake should also be advised against. A healthy diet including recommended serves of fruit and vegetables should be recommended.

High fructose consumption is also implicated in hypertension. A clinical study has shown that concurrently lowering uric acid levels with allopurinol prevents an increase in arterial blood pressure.<sup>7</sup> The authors of the study postulated that excessive fructose intake also has a role in the current obesity and diabetes epidemic.<sup>8</sup>

### The role of allopurinol in the management of gout

Allopurinol is the most commonly used drug for the long-term management of gout. It inhibits the enzyme xanthine oxidase, which is responsible for the production of urate. It can be difficult to establish patients on allopurinol, as it often precipitates gout flares. However, concurrent administration of colchicine, non-steroidal anti-inflammatory agents or corticosteroids in the first three to six months is an effective strategy for preventing gout flares.

Sustained reduction of serum urate  $<0.36$  mmol/L is critical for the long-term management of gout. It may take 6–12 months of serum urate levels  $<0.36$  mmol/L before gout attacks abate. In general, creatinine clearance (CrCL) based doses of allopurinol are used in an attempt to

reduce potential adverse effects, in particular allopurinol hypersensitivity syndrome. However, many patients fail to achieve the target serum urate ( $<0.36$  mmol/L) with CrCL based doses.<sup>9</sup> In renal impairment, reducing the dose of allopurinol does not increase its safety.


The effects of increasing the dose of allopurinol above CrCL based doses in patients who fail to achieve reduction in serum urate to  $<0.36$  mmol/L has recently been investigated in a New Zealand based study.<sup>10</sup> The dose of allopurinol was gradually increased until the target serum urate was achieved. The dose of allopurinol required to reach the target ranged from 50–400 mg above the CrCL based dose. All but one patient (34 out of 35) achieved a serum urate  $<0.36$  mmol/L at some stage during the study period and in 31 patients this was sustained. There were no significant adverse effects during the twelve month study period. Although larger studies are required for confirmation of the safety of such an approach, treating with allopurinol to achieve the target serum urate appears safe and effective.

#### “Treat to target”

From a practical perspective it is recommended to gradually build up to the CrCL based dose of allopurinol. If this fails to achieve the target serum urate after four to six weeks, the dose of allopurinol should be systematically increased until the target serum urate of  $<0.36$  mmol/L is reached unless adverse events occur. This “treat-to-target” approach is being increasingly practised and accepted.

#### Other urate lowering therapies

Other urate lowering therapies which increase the excretion of urate via the kidneys are available. Benzbromarone is one such agent which exerts its effects through the SLC2A9 urate transporter in the kidney. Benzbromarone may be a more effective therapy for Pacific peoples with gout who under-excrete urate, however it is not currently registered for use in New Zealand.

 For further information about the treatment of gout, see; “Gout – hit the target”, BPJ 8 (Sept, 2007) and “Gout in the Māori community”, BPJ 13 (May, 2008).



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# Promoting healthy lifestyles for Pacific peoples

The following Pacific health experts provided commentary for this article. Their responses have been collated and individual quotes attributed where appropriate:

**Anna Bailey**, RN, Service Manager Health Star Pacific Trust, Leader Samoan Nurses Association, Auckland

**Dr Siro Fuata'i**, GP, Chairperson of TaPasefika Health Trust, Counties Manukau

**Mafi Funaki-Tahifote**, Dietitian, Team Leader Nutrition and Physical Activity, Pacific Heartbeat, National Heart Foundation, Auckland

**Tua Sua**, RN, Pacific Projects Manager, Valley PHO, Hutt Valley

**Dr Tasileta Teevale**, Post-doctoral Research Fellow, Pacific Health, School of Population Health, Faculty of Medical and Health Sciences, University of Auckland

**Sione Tu'itahi**, Health Promotion Strategist and Pacific Advisor, Health Promotion Forum of New Zealand, Auckland



## Healthy lifestyles mean different things for different people

“Ask a Pacific person what a ‘healthy lifestyle’ means for them and the response will depend on who you are talking to. For young people it may mean having regular healthy meals and participating in physical activity most days of the week, not smoking or drinking and maintaining a good social life. For more mature people, it is about eating responsibly, getting enough sleep, having the ability to do enjoyable activities e.g. going to church, family occasions, meeting all social and family responsibilities and having a comfortable and clean home.

“For those who have chronic medical conditions, e.g. type 2 diabetes, cardiovascular disease, depression or arthritis, a healthy lifestyle means more than just simply exercise and healthy eating. It is about:

- Being fully informed about their condition(s) and the consequences
- Having a care plan
- Recognising the health impact of lifestyle behaviours such as smoking, excessive alcohol consumption and a sedentary lifestyle
- Having the ability to live a “normal” life as much as possible with minimal restrictions
- Being able to do things that provide a sense of enjoyment, with their families and friends

- Being able to make choices regarding lifestyle changes
- Having the whole family involved in the care plan
- Having support, e.g. from family, caregivers, general practice, secondary care and other community services/agencies.”

—Siro Fuata’i

A healthy lifestyle is the basis of a successful management plan for any chronic condition. However, many Pacific peoples are unable to achieve a healthy lifestyle, resulting in disparities in care and a greater burden of disease.

### What are some of the barriers to achieving a healthy lifestyle?

#### 1. Money

- Healthy food choices are considered costly, compared to fast foods which are considered more affordable and convenient. Take-away “meal deals” are seen as value for money.
- The cost of structured exercise such as a gym membership or personal trainer is prohibitive for most Pacific peoples (although self-directed activities such as walking can be undertaken without cost)

## 2. Time

- Today's lifestyle means that many people are busy at work, sometimes employed at two or more jobs. This leaves little time for anything else, impacting on the ability to exercise and make healthy meals
- Lack of time makes it more convenient to buy pre-packaged or fast foods, quite often with little or no nutritional value

## 3. Mindset

- Social acceptance among some Pacific peoples that "big is culturally ok"
- Issues around acceptance of generic diets/weight loss programmes
- Misconception that being physically active at work or around the home is adequate
- Lifestyle changes are "too hard" and not implemented unless accepted by all family members
- Cultural and religious expectations – healthy lifestyles are not for elderly people or those who are under "God's will"

### What are some potential solutions for General Practice?

- Target individuals, but involve families
- Take every opportunity to discuss healthy lifestyles including diet, exercise, smoking cessation, substance misuse and addictions
- Tailor advice to ensure lifestyle changes can be realistically applied
- Use plain language and ensure the patient and their family understands what changes they need to make and why they need to make them
- Understand the social contexts influencing individual and family choices

### Food plays a central role in the lives of Pacific peoples

For Pacific peoples, health is a concept that covers spiritual, emotional, mental, physical and social aspects.

It emphasises the total well-being of the person within the context of the extended family (the Fonofale framework explains this model of health).<sup>1,2</sup> Food is regarded as not only a source of nourishment, but a way of conveying words of thanks, condolences, apology and hospitality. It is also used to build relationships and mark celebratory events such as birthdays, weddings and graduations. Food plays a central role in the lives of Pacific peoples.<sup>3</sup> An understanding of this concept is important when discussing and creating expectations for dietary based lifestyle changes with Pacific patients.

The types of food consumed and eating patterns of Pacific peoples is directly associated with the high rates of nutrition-related diseases such as diabetes, cardiovascular disease and obesity.<sup>4</sup> However, other determinants of health such as income, employment, education and housing, are also contributory factors to the comparatively poor health status of Pacific peoples.<sup>5</sup> These health determinants influence the choices, preparation, accessibility and affordability of healthy foods.

### Contributing factors to poor nutrition among Pacific peoples

#### 1. Breastfeeding rates are low

There is strong evidence of the benefits of breastfeeding infants for the first year of their life. One of the health benefits of breastfeeding is that it helps reduce the risk of obesity, and may help reduce the risk of diabetes, in the infant later in life.<sup>6</sup> It is therefore important that Pacific women are encouraged and supported to breastfeed.

Breastfeeding rates in New Zealand are similar to rates in other OECD countries, but overall, significant improvement is required. Rates of breastfeeding at six weeks are lower in New Zealand, than in other countries, especially among Māori and Pacific women.<sup>6</sup> In 2007, 65% of infants at six weeks were fully breastfed, 54% at three months and 26% at six months. For Pacific infants, these rates were even lower, with 53% fully breastfed at six weeks, 43% at three months and 18% at six months.<sup>6</sup>

A number of barriers may contribute to low rates of breastfeeding, including:<sup>6</sup>

- A lack of breastfeeding education and support
- Returning to paid work
- Low awareness of common breastfeeding problems and solutions
- Limited access to appropriate help for overcoming breastfeeding problems
- Pain and exhaustion resulting in the introduction of formula
- Supplementation of breastfeeding with formula for other reasons
- Negative attitudes towards breastfeeding from the general public or family members

## **2. Breakfast is often skipped**

Breakfast is the most important meal of the day. Eating breakfast at home is a proxy measure of good nutritional intake and healthy behaviour. It is positively associated with increased intake of most vitamins and minerals, better food choices, better concentration at school and improved mental health.<sup>7</sup> Children who usually eat breakfast at home have been shown to have a lower mean BMI than those who do not.<sup>8</sup> It has also been reported that children who do not eat breakfast are more likely to eat unhealthy snack foods and are less likely to eat lunch.<sup>9</sup>

Results of the National Health Survey 2006/07 showed that after adjusting for age, Pacific children were less likely to have eaten breakfast at home every day in the previous seven days, compared to children in the total population.<sup>10</sup>

Reasons why children may not be eating breakfast include lack of parental/caregiver supervision at mealtimes, financial barriers and time.

## **3. Bought lunches at school**

The National Children's Nutrition Survey showed that over 13% of Pacific children bought most of the food they ate at school from the canteen or tuck shop (about 25% in

the 11–14 year age group). Consequently, Pacific children were less likely than European or Māori children to bring most of their food from home – European males 92%, European females 91%, Māori males 77%, Māori females 75%, Pacific males 50%, Pacific females 57%.<sup>8</sup>

In many instances, the nutritional value of “school lunch” food is poor and high fat, high sugar, high salt content foods are readily available for purchase. Healthy food choices are not easily accessed.

## **4. Carbonated soft drinks (fizzy drinks) are frequently consumed**

The New Zealand Health Survey 2006-07 reported that approximately one in four Pacific children aged two to 14 years had three to four fizzy drinks in a typical week. This level of consumption was similar to Māori children but higher than European and Asian children.<sup>10</sup>

There is a strong association between fizzy drinks with a high sugar content and an increased risk of obesity and type 2 diabetes.<sup>10</sup>

Fizzy drinks can be cheaply purchased and are frequently available as the only drink option for children at social gatherings.

## **5. Take-away food (fast food) is popular**

The New Zealand Health Survey 2006-07 reported that Pacific children were twice as likely to have eaten take-away food three or more times in the previous week, compared to children in the total population.<sup>10</sup> Fast food usually has little nutritional value, and is associated with weight gain and obesity.

## **6. Meal portions are too large**

Consumption of large meals/portion sizes is common within Pacific communities. A study of over 4000 people in Auckland found that Pacific peoples consumed more food per day than any other ethnic group. Pacific diets were higher in carbohydrates, starch, sucrose, protein and fats than any other group. More Pacific peoples consumed larger than standard serving sizes of chicken, fish, red

meat, potato, kumara, taro and other vegetables. Pacific peoples were more likely than any other ethnic group to fry food in butter, lard or dripping.<sup>11</sup>

It is usual for large amounts of food to be provided at community and church events. Increasing portion sizes supports the general Pacific cultural view that “more of something” is better than “less of something”. With regard to food, it is better to provide more food than less food because not providing enough food results in a bad reputation for the hosting church or family. Conversely, it would be considered as a slight on the host if food is returned on the plate. Reputation is important in Pacific cultures, as the population is small, and as many community members know each other, there is potential for an impact on future working relationships.

#### **7. Vegetable and fruit consumption is less than ideal**

There is strong evidence that fruit and vegetable consumption has many health benefits, including a protective effect against cardiovascular disease. The New Zealand Health Survey 2006/07 found that Pacific men and women were less likely to eat three or more servings of vegetables a day compared to men and women in the total population.<sup>10</sup>

The Children’s Nutrition Survey 2006/07 found that three out of five children ate vegetables three or more times a day. Pacific children were most likely to eat taro, cooked green banana, cassava and tomatoes. Pacific children (50%) were more likely than other children in New Zealand (40%) to eat two or more portions of fruit a day.<sup>8</sup>

## **Determining priorities for health**

### **Health is often not a priority if no physical symptoms are experienced**

Cardiovascular disease (CVD) risk assessment is offered in general practice clinics for Pacific men and women over

the age of 35 and 45 respectively, and annual reviews are offered for all patients with diabetes. The majority of patients’ assessments and health education sessions are carried out by the practice nurse, focusing on making lifestyle changes such as dietary modification and taking up exercise. Despite CVD and diabetes assessments being encouraged, uptake is often low. A possible reason for this is that many Pacific peoples do not prioritise health and generally would not seek any help unless they have physical symptoms such as pain or discomfort.

*“People with high blood pressure or blood glucose levels, and those who are overweight, will still come into the practice and say “there is nothing wrong with me” because they feel well. They would have been through health education and been advised to do exercise and to eat healthy. On their GP visit, they are asked if they have followed the advice; they will politely nod their heads acknowledging the doctor but in reality they haven’t made any changes.” – Tua Sua*

### **Healthy lifestyle messages are well known but not always acted upon**

Key health messages, e.g., 5+Plus-A-Day, Push Play, are usually well known amongst Pacific peoples, but there seems to be a disconnection between knowing and doing.

*“Social determinants of health are often more important than individual choices. For example, most Pacific adolescents purchase school food items that are tasty, affordable and easily accessible within their immediate environment, i.e., the school canteen or shops outside the perimeter of the school. Students find it difficult to practice healthy eating when surrounded by an obesogenic environment of easily accessible unhealthy foods that are also being consumed by their peers.” – Tasileta Teevale*

## Finding solutions in General Practice

### Establish relationships and gain an understanding of Pacific culture and customs

Developing strong and meaningful relationships is instrumental in engaging Pacific patients to undertake lifestyle changes. Language may sometimes be a barrier, however, this can be broken down by using simple gestures like a smile, making eye contact and a warm welcome. Taking the time to maintain an open and friendly relationship is an important investment as it “buys” compliance and respect from patients and their families. In the Pacific culture, politeness is not necessarily an indication of acceptance of services

*“We routinely recommend that patients and their families note down what issues they wish to consult with their GP about, prior to their appointment. There is often a lot of anxiety and apprehension associated with visiting a GP or Practice nurse and a little preparation ahead of an appointment can facilitate better discussion.” —Anna Bailey*

It is important that all Practice staff are aware of appropriate protocols and customs. Reception staff are the face of the General Practice and can gain or lose patients by their attitudes and behaviours.

### Family is influential in shaping attitudes and activities

For Pacific peoples, health and wellbeing begins in the family. The family carries the culture, values and practices and, therefore, is very influential in shaping healthy attitudes and activities. This is where any interventions should be targeted and the greatest gains can be made.

*“Use the strengths of Pacific cultures such as ‘togetherness’, ‘generosity’ and ‘deep spirituality’, to encourage and improve breastfeeding rates, vegetable consumption and having breakfast, and to reduce the consumption of fizzy drinks, takeaways and large portions” —Mafi Funaki-Tahifote*

### Ask about food

When approaching a healthy lifestyle dietary change with a Pacific patient, discuss what food means to them and their family. Ask about what celebrations are culturally important to them and what types of foods would normally be served at these functions. Ask about the types of meals usually consumed at home and how these are prepared. The aim is to find ways in which healthy food choices can be made, while not compromising the cultural importance of the occasion. Dietary changes are most successful when implemented for, and supported by, the whole family. Consider referral to a dietitian for specialised nutritional advice.

Take every opportunity to discuss the benefits of breastfeeding with pregnant women or new mothers. Ensure they know how to access any information or support that they may require.

Ask parents about the nutrition of their children and how mealtimes are organised at home. Approaching healthy lifestyles for young Pacific peoples requires the cooperation of parents or caregivers to instil simple household based lifestyle changes such as homemade meals, supervised mealtimes and designated time for physical activities.

*“The key difference between the households of Pacific adolescents who are healthy weight and those who are obese is parental presence at home. Significantly more healthy weight Pacific young people have a full-time or part-time parent at home who monitors meal consumption, making sure that appropriate meals, including vegetables are eaten. Parents of healthy weight adolescents made meals at home, as opposed to buying takeaway food and instilled simple food and activity rules in their households, for example, not purchasing fizzy drinks, and limiting television watching on school nights.”—Tasileta Teevale*

### Encourage an active lifestyle

Discuss ways in which physical activity can be incorporated into a daily routine. Exercise does not have to cost money.

Simple activities such as taking the stairs at work, rather than the lift, can be accumulated in bouts of ten minutes to achieve the recommend goal of thirty minutes or more of moderate intensity exercise per day. Exercise can also be undertaken as a family activity, such as a game of touch rugby or a vigorous walk.

*“Most young Pacific peoples love sports and being active, and their families want them to be active and involved in sports from a young age. Most young people participate in sports and activity because it is enjoyable. When young people enter secondary schools however, many drop out of sports and activities. This is largely because the secondary school environment promotes sports participation for achievement, rather than for enjoyment. If a teenager does not have the skills to win a place in a team, they miss out on that activity.” – Tasileta Teevale*

Young Pacific peoples need to be provided with environments that promote daily physical activity, which is different to providing sports only for achievement. Healthy weight young Pacific peoples are of a healthy weight because they are active and they are good at sports. The young people that want to be active, but currently are not, should be encouraged to participate in active social activities.

### **Consider partnerships with Pacific providers**

The growth of Pacific health providers over the last 15 years in New Zealand indicates a willingness of Pacific peoples to take control of their health, wellbeing and future. General Practices are encouraged to become aware of the profile of Pacific providers in their area, as these services are still not well utilised. Pacific provider services can be used to complement and reinforce general practice messages, for example lifestyle advice, medicine administration techniques and following up delayed or missed immunisations.

In order for a successful partnership between General Practice and Pacific providers, it is essential to ensure that consistent messages are delivered. It is difficult to engage patients in their healthcare when messages are not reinforced or are inconsistent, creating confusion and mistrust.

*“We encourage parents and caregivers to take their child’s Well Child- Tamariki Ora Health Book for the GP or Practice Nurses to fill in. However, they are often informed that there is no need to do this as records are kept on file. What is the rationale in us doing this? We see ourselves as partners with parents and*





families on a journey. Part of their responsibilities is to make sure the health book is kept up to date and maintained on behalf of their child. The health book provides an effective communication tool between the child’s GP, Practice nurse, Lead Maternity Carer, Well Child Provider, hospitals and other complementary services.” – Anna Bailey

**Engage with “champions” to reach out to Pacific communities**

Forming collaborations with Pacific institutions such as churches is an ideal way to reach out to Pacific communities.

“Engage with community champions such as church leaders. They can be allies and champions of your nutrition initiatives. Having guidelines or a policy for church premises to be smokefree and a place for community exercises is one example of initiatives you can work with churches on.” – Sione Tu’itahi

**Wider public health strategies are also needed**

Although general practice can make a difference to individual patients and their families, the solutions to many of the issues raised in this article also require societal structural changes.

Examples of possible policy changes:

- Make nutritional foods more affordable
- Increase tax on unhealthy foods and drinks
- Restrict advertising of unhealthy foods
- Make healthy lifestyles part of the school curriculum
- Restrict fat content of food in school and workplace cafeterias

**Key findings of the New Zealand Health Survey 2006/07**

Pacific children are:<sup>12</sup>

| More likely than other children in New Zealand to:  | Less likely than other children in New Zealand to:   | The same as other children in New Zealand to:   |
|---|--|---|
| <ul style="list-style-type: none"> <li>▪ Consume fizzy drink and fast food</li> <li>▪ Use transport to and from school</li> <li>▪ Be overweight or obese</li> <li>▪ Have medicated eczema</li> <li>▪ Have one or more teeth removed due to decay, abscess or infection</li> <li>▪ Have seen their GP in the past year</li> <li>▪ Have never seen an oral healthcare worker</li> </ul> | <ul style="list-style-type: none"> <li>▪ Be breastfed, if they live in the most deprived areas</li> <li>▪ Eat breakfast at home every day</li> <li>▪ Have a body size in the normal range</li> <li>▪ Have seen an oral healthcare worker in the past year</li> </ul> | <ul style="list-style-type: none"> <li>▪ Experience second-hand smoke in the home</li> <li>▪ Watch two or more hours of television per day</li> <li>▪ Have a chronic health condition</li> <li>▪ Have unmet need for GP services</li> </ul> |



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# Pacific health providers

Adapted from Lalaga – Pacific providers making a difference

*“Pacific providers are now at the very heart of their communities and making a tangible difference to Pacific health. They are improving access to primary healthcare and specialists; they are increasing immunisation and screening rates; they are educating communities in important preventative health messages; and they are helping to address the underlying causes of ill health such as poor housing, education, nutrition and exercise.” – **Api Talemaitoga**, Clinical Director, Pacific Programme Implementation, Ministry of Health*

Pacific Health providers in New Zealand first began to emerge in the 1980s. There are now 39 Pacific led health providers throughout New Zealand, employing hundreds of Pacific health professionals, and running sophisticated, sustainable business models, with ambitious plans for future growth and expansion. Four Pacific health service providers have been included in the recent announcement of providers to deliver health and social services under the Whanau Ora scheme.

*“Our healthcare acknowledges that our patients are part of a special community. We combine the best of*

*Pacific with the best of mainstream.” – **Siobhan Matich**, General Manager, Ta Pasefika Health Trust*

Pacific Health Providers focus on getting Pacific communities to take greater responsibility for their own health. They successfully work with Pacific communities to improve health literacy and encourage action to be taken to improve Pacific peoples' health. Frontline health interventions are provided in Pacific settings, with Pacific leadership and engagement with churches, schools, community groups and sports clubs.

*“In the Pacific World, relationships are everything. Our staff attend important community events - weddings, funerals and church services. It's all about maintaining and valuing the relationship” – **Naita Puniani**, Chief Executive, South Seas Healthcare.*


Pacific health provider services integrate primary care, health promotion, secondary care and social services. General practice services include community workers who are involved in home visits and health promotion. Some Pacific health providers have co-located specialist clinics with visiting secondary care specialists providing outpatient clinic services.

Other Pacific health provider services include:

- Well child
- Sexual health
- Cervical screening
- Primary mental health
- Diabetes clinics
- Child asthma
- Disability
- Nutrition and physical activities
- Smoking Cessation
- Family violence prevention

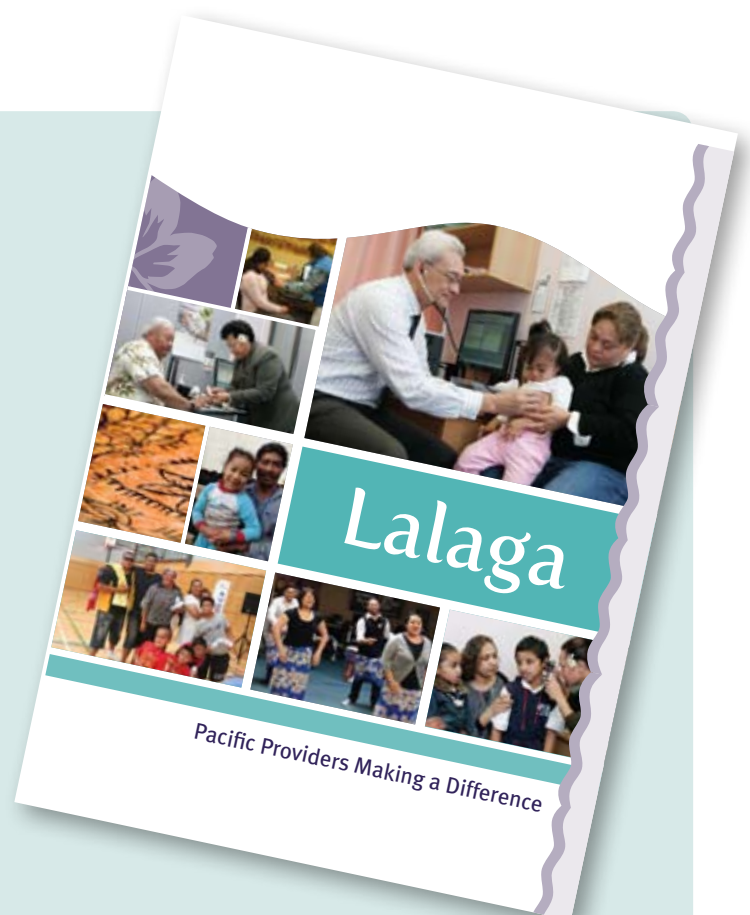
*“Our Pacific population dictates the way we run our service. We involve whole families, not just individuals. When a diabetic person comes here, they bring the whole family.”—Elia Chan, Manager, Pacific Horizon Healthcare*

Pacific models of care recognise the role that culture, language and community settings play in overcoming barriers to access and improving health outcomes. These models acknowledge the strong influence that Pacific families have on the health of individuals. Services are tailored to a patient’s family environment, community setting and cultural beliefs.

 Further information about Pacific health providers, including local contacts is available in “Lalaga - Pacific Providers Making a Difference”, Ministry of Health.

[www.moh.govt.nz](http://www.moh.govt.nz) keyword: **lalaga**

DHBs can also provide details of Pacific Health services in your region.





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# Immunisation in Pacific children: a success story

## Key concepts

- The Ministry of Health goal is for 95% of two-year-old children to be fully immunised by July 2012
- Immunisations coverage rates among Pacific infants have improved substantially in recent years
- Although improvements have been made, it is still imperative that strategies continue to improve immunisation rates
- Primary care clinicians are well placed to help address barriers to immunisation and improve the health of Pacific children

## Supporting the PHO Performance Programme

### Are immunisation targets being achieved?

Childhood immunisation plays an important role in the health of children, their families and the wider population. It helps prevent disease and is one of the most cost-effective public health interventions. However, for vaccine preventable disease transmission to be effectively controlled in a community there must be high immunisation coverage of approximately 95% (depending on the disease). For this reason the overall national immunisation goal set by the Ministry of Health is for 95% of two-year-old children in New Zealand to be fully immunised by July 2012.

Immunisation coverage for New Zealand children at age two years has improved over the past few years. Latest statistics show that 87% of two-year-old children were fully immunised in the three month reporting period ending June 2010.<sup>1</sup> However, it is concerning that by age five years only 67% of New Zealand children were fully immunised.<sup>1</sup>

The six-month milestone provides a measure of timeliness of the primary series of immunisations. In March 2010 only 67% of New Zealand infants had received their primary series of immunisations by age six months (72% European, 64% Pacific, 53% Māori).<sup>2</sup>

### Immunisation rates among Pacific children have improved

There have been past concerns about the low rates of childhood immunisation coverage among Pacific infants

### PHO Performance Programme goal for immunisation

The PHO Performance Programme (PPP) was established to improve the health outcomes of people enrolled in general practice and to reduce inequalities, especially in high needs populations (Māori, Pacific peoples and those living in lower socioeconomic areas).

The current (2010) PPP goal for immunisation is for 85% or more of a PHOs enrolled population to have received their complete set of age appropriate vaccinations by their 2nd birthday.

in New Zealand. However, over recent years there have been substantial improvements (Figure 1) and initiatives to increase immunisation rates among Pacific children appear to be succeeding.<sup>3</sup>

The 1991/92 National Immunisation Coverage survey revealed that only 53% of Pacific infants were fully immunised by age two years.<sup>4</sup> A follow-up survey completed in early 2005 showed that two- to three-year-old Pacific children had the highest coverage level of all ethnic groups (although the difference was not statistically significant from that of the European/Other ethnic groups).<sup>5</sup>

By 2009 the immunisation rates in Pacific and European children in New Zealand were both approximately 85% (Figure 1).


#### A success story in Waikato

In 2010 the Waikato District Health Board has achieved an increase in immunisation coverage of all two-year-olds from 76% in June 2009 to 86% in 2010. Coverage rates were higher in Pacific children and increased from 80% in 2009 to 93% in 2010.

Waikato DHB implemented a “no child left behind” initiative, which involved a collaborative approach between immunisation providers, the Immunisation Advisory Centre, primary care and outreach workers. The National Immunisation Register team and opportunistic immunisation services also had an important role in the achievements.

The Waikato region has a mobile immunisation service, with two vehicles and two nurse vaccinator teams. The service travels across the Waikato DHB region to immunise hard-to-reach children, addressing access issues such as transport and cost for parents.

The Hospital Opportunistic Immunisation Service, based at Waikato Hospital, allows children who present at hospital as either a patient or visitor, to get their required immunisations in the emergency department, wards and clinics. To date, this service has immunised more than 400 children since its inception in August 2009.<sup>7</sup>

 For further information about Waikato’s childhood immunisation services, visit: [www.waikatodhb.govt.nz](http://www.waikatodhb.govt.nz)

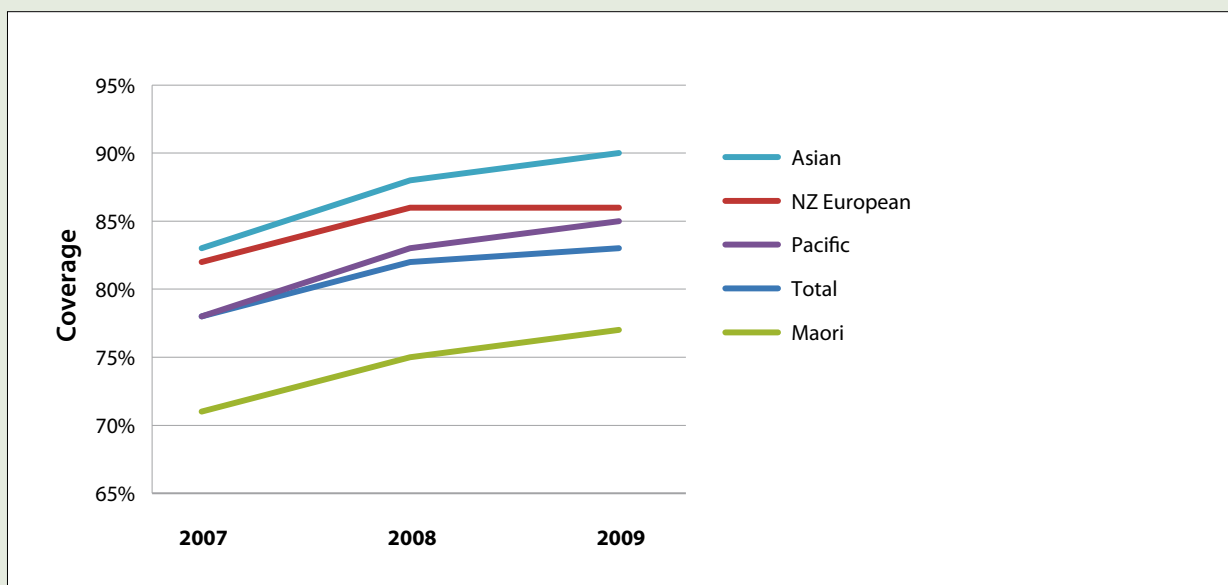


Figure 1: New Zealand children fully immunised by age two, by ethnicity (adapted from IMAC, 2010)<sup>6</sup>



## Why are some Pacific children not being immunised?

### Identifying and addressing barriers to immunisation

The National Immunisation Coverage survey (2005) explored caregivers' underlying attitudes and understanding of childhood vaccination.

Some key observations with respect to Pacific caregivers were:<sup>5</sup>

- The vast majority of Pacific caregivers (97%) agreed that all childhood immunisations were important (compared with 87% European/Other). However most (87%) agreed that doctors and nurses should provide more information on the benefits and risks of immunisation (compared with 55% European/Other). Of interest was that 69% of Pacific caregivers with English as their second language stated that they would understand more about immunisations if information was provided in their own language.
- Approximately half of Pacific caregivers found it hard to remember when their child's immunisations were due and also approximately half said that immunisation injections are too upsetting/painful for young children (compared with only approximately a quarter of European/Other)
- Approximately a third of Pacific caregivers said that travelling and waiting time at doctor's surgery makes it difficult to have their child immunised (compared with 12% European/Other)
- Approximately half of Pacific caregivers would rather have a nurse come to their house to give child immunisations than go to doctor's surgery (compared with 26% European/Other)


### Key strategies to improve immunisation rates

Although improved coverage rates of immunisation for Pacific children is encouraging, ongoing improvement is necessary and disparities are still apparent between population groups. Timeliness of immunisations also

needs to be improved. Being aware of the fears and perceptions of parents/caregivers is a good first step. After that, planning at a practice level is necessary to address issues and disparities.

Key strategies for general practice include:

- Enrol young Pacific patients early in your practice
- Use the patient management system to target Pacific children who have delayed or missed immunisations
- Keep immunisation records up to date and make sure accurate data is recorded on the National Immunisation Register
- Collaborate with midwives, other lead maternity carers, Plunket nurses and Pacific providers to ensure that information about immunisations is consistent and reinforced
- Use community outreach immunisation services for families in which transport, cost or other barriers to immunisation may be a factor
- Keep knowledge about immunisations, adverse effects and contraindications up to date
- Effectively communicate with parents/caregivers to address any fears or misinformation about immunisation

 For further information about addressing barriers to immunisation, see "Immunisation in children by age two years" BPJ29 (Jul, 2010).

### Patient resources

Ministry of Health patient information leaflets about immunisation are available in Samoan, Tongan, Cook Island Māori, Niuean, Fijian or Tokelauan languages:

1. Immunise your child
2. National Immunisation Register
3. Year 7 immunisation school programme

These resources can be ordered online at: [www.healthed.govt.nz/resources/search-resources.aspx?id=15](http://www.healthed.govt.nz/resources/search-resources.aspx?id=15)

## Results from the Pacific Islands Families study

As part of the Pacific Islands Families: First Two years of Life Study, 1376 Pacific mothers were interviewed about the immunisation status of their infants.<sup>8</sup> Information was gathered on which factors adversely affected immunisation of their six week old infants. In this study, 27% of mothers reported that they had not had their infant immunised at approximately six weeks of age.

After controlling for potentially confounding variables two characteristics were identified about mothers who were less likely to have their child complete the first dose of the primary immunisation series – they had more than five children and had difficulty with transport.<sup>8</sup>

With regard to specific Pacific ethnic groups, Samoan mothers were significantly more likely to report that they had immunised their infant. Infants older than eight weeks were more likely to have been immunised than younger infants. Maternal birthplace, household income, attendance at ante-natal classes, marital status and number of years lived in New Zealand were not significant factors.<sup>8</sup>

This study was performed in 2000 and immunisation rates among Pacific children have increased significantly since then. However, these findings demonstrate the need for continued education about the importance of the primary immunisation series and the current schedules, together with community resources to support mothers and overcome barriers.

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# Overcoming barriers to cervical screening in Pacific women

## Key concepts:

- Pacific women have a cervical screening rate well below the national target of 75%
- Cervical screening rates for Pacific women are slowly improving, but there are still considerable disparities between ethnic groups
- General practice interventions should be carefully targeted to avoid increasing disparities further

## PHO Performance Programme target

The current (2010) PHO Performance Programme (PPP) target is for 75% or more of eligible women, enrolled in the practice, to have had a cervical smear recorded in the last three years.

## Ethnic inequalities exist in cervical screening rates

Cervical screening rates in New Zealand have continued to increase following the introduction of the National Cervical Screening Programme in 1990. The Programme has a target of 75% coverage for all eligible women (increasing to 80% in 2011).<sup>1</sup> Data from 2009 show that this target was only achieved by European/Other women (Figure 1), and only 59% of eligible Pacific women were screened.<sup>2</sup>

The groups of women who consistently have cervical screening rates less than the National Cervical Screening Programme target are:

- Pacific
- Māori
- Asian
- Women living in the lowest socioeconomic areas

## Cervical cancer mortality in Pacific women

The incidence of cervical cancer is higher for Pacific women than for women in the European/Other ethnic groups.<sup>3</sup> Pacific women aged 45–64 years have a mortality rate

from cervical cancer of 14 per 100 000 compared with a national average rate of rate of 8 per 100 000.<sup>4</sup>

The increased incidence is thought to reflect the lower cervical screening rate among Pacific women. Improving screening rates is an important step in reducing the disparities. Approximately half of all women who develop, or die from, cervical cancer have never been screened and about one-third have only been screened irregularly and infrequently.<sup>5</sup>

### Barriers to achieving equality in cervical screening

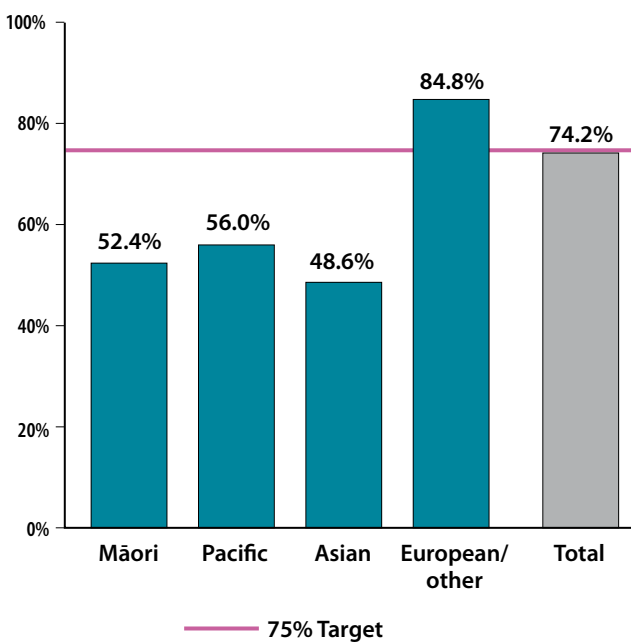
Improving quality of care for Pacific peoples cannot be addressed with a “one size fits all” approach. The cultural identification and needs of Pacific peoples are diverse and changeable. In addition, the barriers faced by an immigrant Pacific person may be quite different those faced by a Pacific person born in New Zealand. Attention to individual factors and multiple approaches are likely to be more successful.

There is limited research relating specifically to the barriers that Pacific women may experience in accessing cervical screening. Barriers such as shyness and cost may prevent women of any ethnicity from having regular cervical screening, while other barriers may be more specific for Pacific women. To ensure the disparities in cervical screening are overcome, it is important that any barriers are identified.

Barriers to cervical screening for many women include:<sup>6</sup>

- Embarrassment
- Shyness
- Cost
- Fear e.g. of cancer
- Pain or discomfort
- Not knowing what to expect

Be considerate of the power imbalance and a fear of loss of control in what is perceived to be a smear-collector controlled procedure. A clinician who is not rushed is likely



**Figure 1:** National cervical screening rates 2009,<sup>2</sup> by ethnicity (Ministry of Health, 2009 MC: change “other” to European/other)

### Who should have cervical smears

It is strongly recommended that all women who have ever been sexually active (even if not currently sexually active) have regular cervical smear tests from age 20 to 69 years. Women aged 70 years and over who have never had a cervical smear test are advised to have a smear test followed by another a year later. If both tests are normal, no further tests are required.

At the first ever smear, or if more than five years have elapsed since the previous smear, a second smear is recommended one year after the first, with three-yearly smears thereafter.

to have more success with women who have previously avoided having a cervical smear than someone who is time-pressured.

### **Overcoming barriers and targeting disparities**

While it is important to be aware of the barriers to cervical screening for Pacific women, knowledge alone is not sufficient to overcome them. Planning at a practice level is necessary to address disparities. It is important that any intervention is carefully targeted to the women that need it most.

The first step is to invest time in establishing an effective relationship. Talk to Pacific women in your practice and try and understand what is important to them. It may take several consultations before some women are ready to have a cervical smear, but it is important to acknowledge their concerns and fears, and provide clear information about the procedure.

### **Make cervical screening a positive experience**

Many women have concerns about having cervical screening performed. Therefore it is important the experience is as positive as possible. Women who have a positive experience are more likely to return, and to encourage their friends and family to attend.

Aspects that may make cervical screening a more positive experience include:

**Making it less embarrassing** – It is important to take practical steps to reduce embarrassment or vulnerability while the smear is being collected. This may include:

- Ensuring the woman is covered while lying on the bed
- Pulling curtains around the bed
- Ensuring the environment is relaxed, e.g. warm temperature
- Offering different positions to lie in
- Offering disposable plastic speculums
- Warming the speculum

**Providing reassurance about confidentiality** – Some women may not want to have a cervical smear because this acknowledges that they are sexually active, particularly if sexual activity outside marriage is viewed as unacceptable by their family.<sup>7</sup> This may be a particular issue for younger women, or women that know someone in the practice.

Women should be reassured that the consultation is entirely confidential, and that all health workers are bound by that confidentiality. Remind them that they do not need to disclose to others the reason for their consultation. It may be worth discussing what an appropriate response could be if family or friends ask why they have attended the practice.

Where possible, give women the choice of who their smear taker will be. Do not assume that all Pacific women would like a Pacific smear taker. In many cases, as Pacific communities are relatively small, Pacific women would prefer a smear taker of different ethnicity to themselves.<sup>8</sup>

### **Consider any language barriers**

If language is a barrier, try to provide access to a smear taker with appropriate language skills. If this is not possible, consider using a telephone interpretation service. Language Line is a service managed by the Office of Ethnic Affairs and funded by some PHOs. An interpreter can be available via the telephone almost immediately, with 40 different languages available, and a choice of gender.

### **Consider financial barriers**

The cost of having cervical screening may be a barrier for many Pacific women. Some PHOs have initiatives in place to provide free or low cost cervical screening. Practice Nurses, Pacific providers or family planning clinics may offer a lower cost alternative. There may also be assistance available for transportation. Become familiar with the services available in your area and ensure the patients who would benefit most have access to these services.

## Social marketing campaign successful

In 2007 a social marketing campaign was launched with the objective of addressing the inequalities in cervical screening coverage between Pacific and Māori women and the rest of the population in New Zealand. The campaign aimed to raise awareness, increase understanding, create discussion and ultimately, increase the number of Pacific and Māori women who have regular smears. Messages were delivered using television, radio and print media. After 12 months, the rate of cervical screening uptake was increased by 13% in Pacific women, 7% in Māori women and 3% in all other women. The campaign has clearly been successful in changing the behaviour of its target audience, while not increasing disparities. It is hoped that over time, cervical screening will become a normalised part of healthcare for Pacific women and the rates of cervical cancer will be reduced.<sup>9</sup>

## Start with your practice population

Practical steps to identify Pacific women who require a cervical smear:

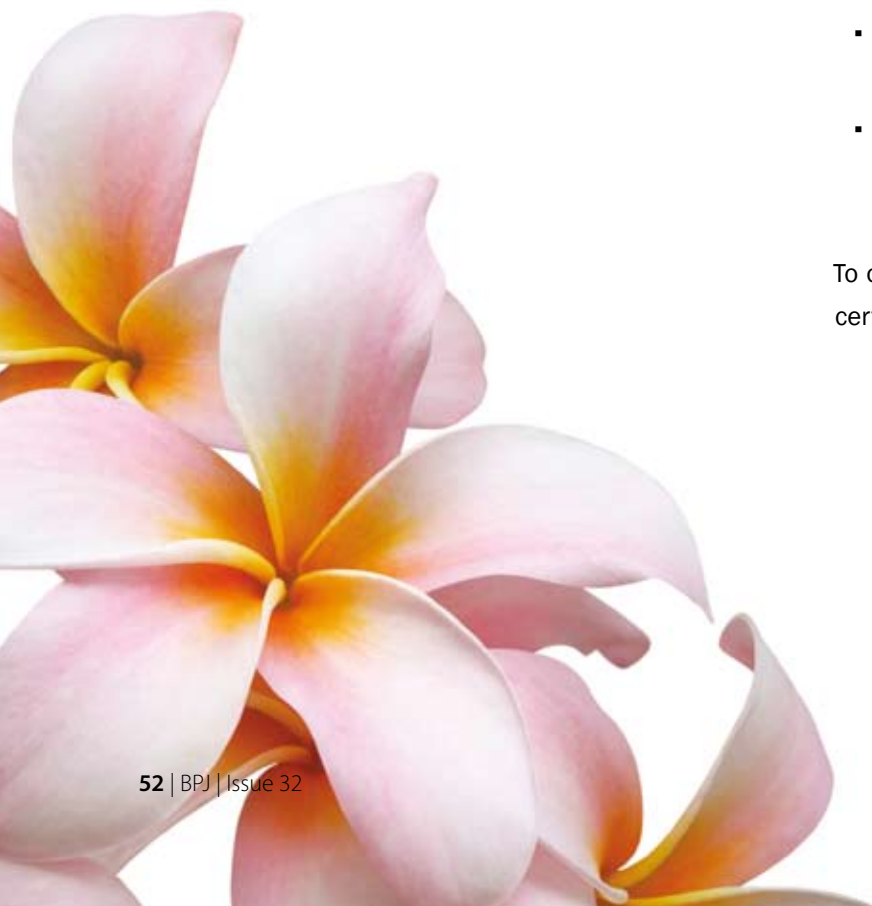
- Perform a computer search to identify all Pacific women in your practice and highlight those who have never had a smear or who are overdue
- Contact the National Cervical Screening Programme (0800 729 729) to check if a smear has been performed by another provider, and to check screening histories and recall, if necessary
- Place an alert on the medical record, so the issue can be discussed when the patient next attends.
- Invite all women who are overdue, by letter or telephone, to receive a cervical smear
- Tailor specific approaches to your practice population

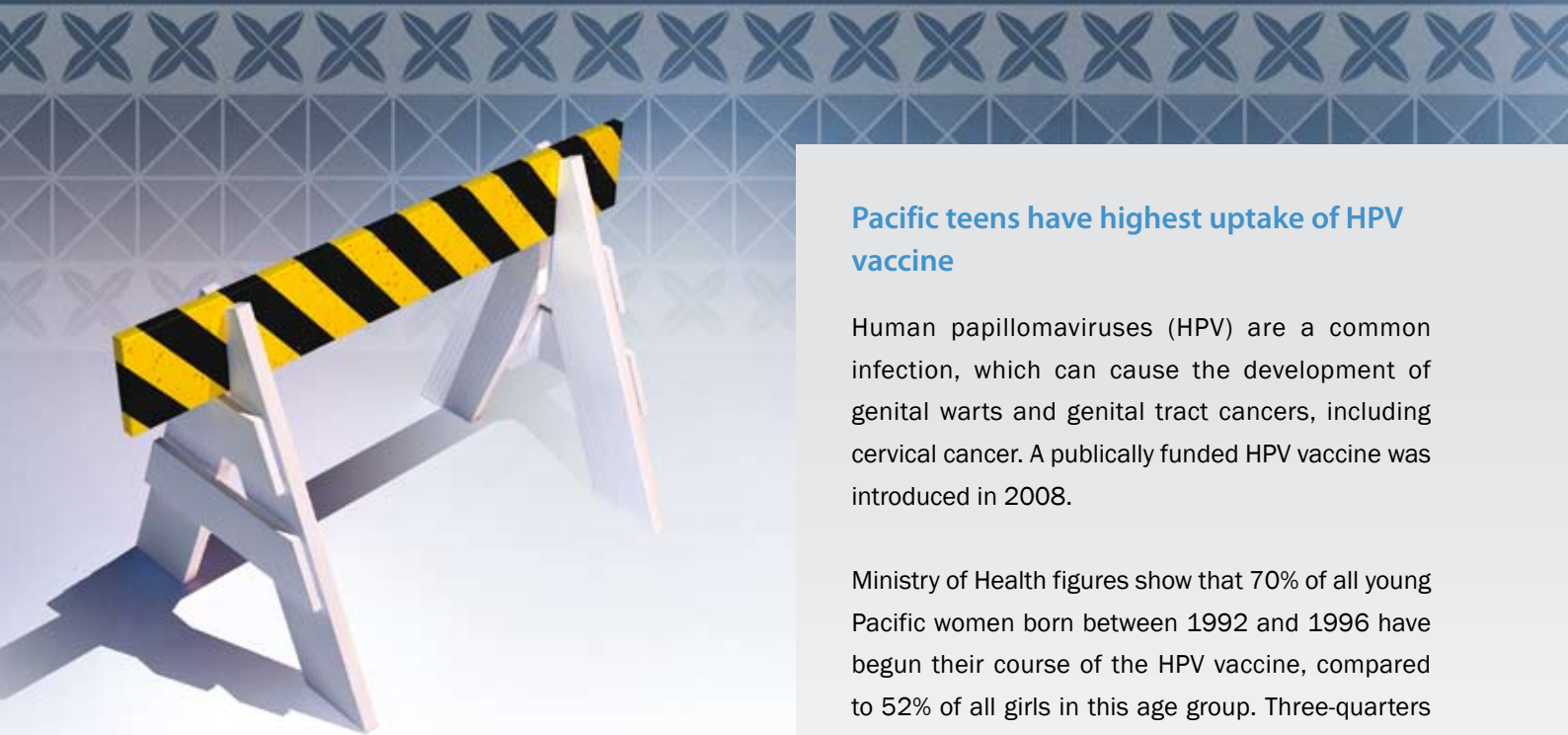
## Health educational resources

The National Cervical Screening Programme provides educational resources to help primary care teams achieve better results for their Pacific patients. These resources are available in Samoan, Tongan, Cook Island Māori, Niuean, Tokelauan, Tuvaluan and Fijian languages, and include:

- National Cervical Screening Programme Pacific Poster
- “Facts about cervical screening” and “Understanding cervical smear test results” pamphlets

To order resources, visit: [www.healthed.govt.nz](http://www.healthed.govt.nz) (keyword cervical screening).





## Pacific teens have highest uptake of HPV vaccine

Human papillomaviruses (HPV) are a common infection, which can cause the development of genital warts and genital tract cancers, including cervical cancer. A publically funded HPV vaccine was introduced in 2008.

Ministry of Health figures show that 70% of all young Pacific women born between 1992 and 1996 have begun their course of the HPV vaccine, compared to 52% of all girls in this age group. Three-quarters of Pacific girls born in 1997 have already begun the vaccination course, well ahead of the overall average of 49%. It is hoped that the high vaccination rate will result in a reduction in the rate of cervical cancer among Pacific women in the future.

Incidentally, researchers at the Auckland Sexual Health Clinic have reported a 63% drop in the number of young women presenting with genital warts at Auckland clinics since the introduction of the publicly funded HPV vaccine two years ago.<sup>8</sup>

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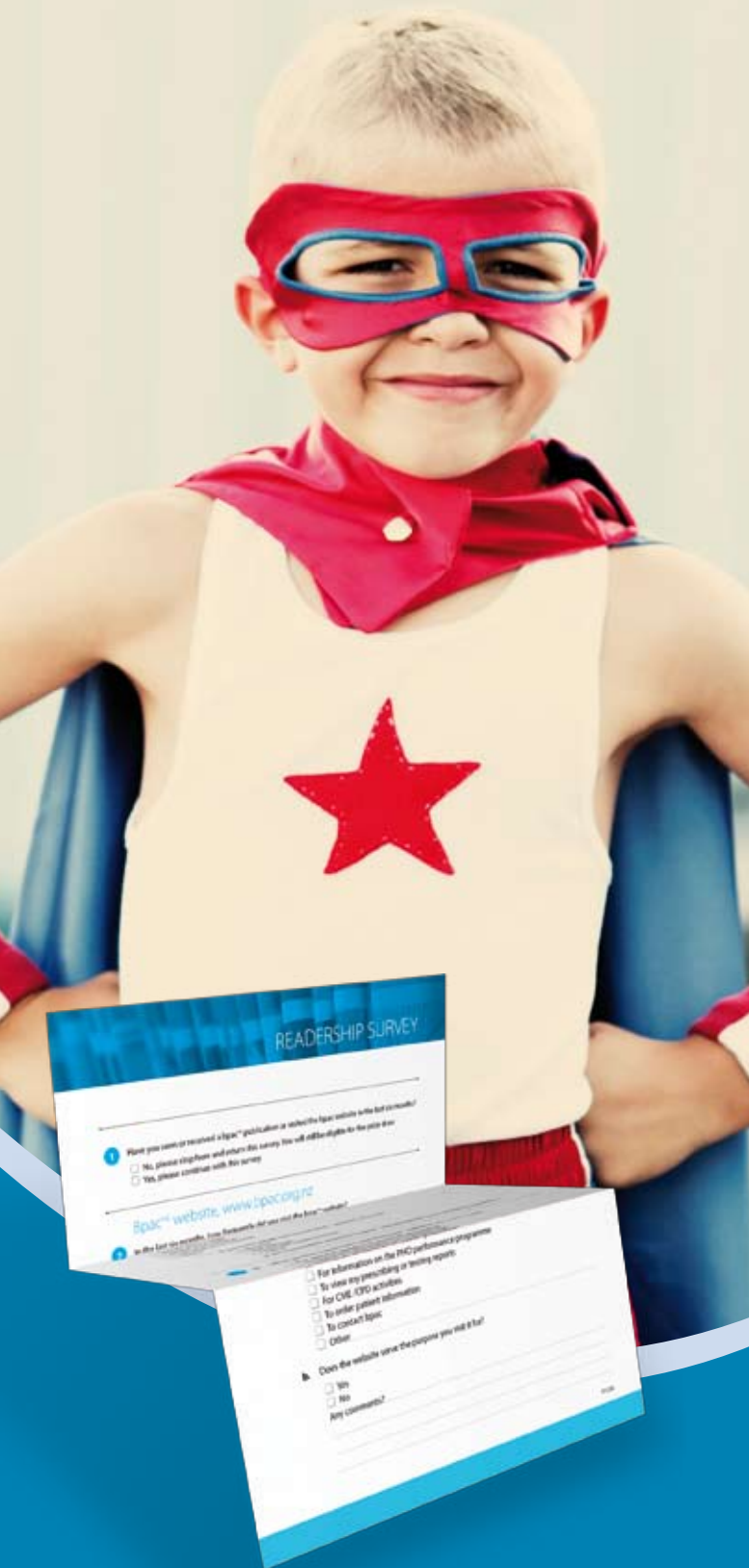
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## Red yeast rice

Dear bpac

In your recent article "An update on statins" (BPJ 30, Aug 2010), you state that the general consensus is that the use of red yeast rice should be avoided. There is evidence to suggest that this view would lead to an excess of cardiac events in patients intolerant of statins.

The New Zealand Guidelines Group recommends that simvastatin is the first-line medicine of choice for lipid reduction in high risk individuals.<sup>1</sup> Difficulties occur in those who are intolerant to statins. Some patients disagree with the opinion of your authors that the adverse effects of statin therapy are usually minor. Estimates of myalgia without elevated CK have been described as 10–20% outside of clinical trials vs 1–2% within clinical trials.<sup>2</sup> Many of your readers will have had the experience of patients reporting a significant increase in their quality of life after they or their doctor withdrew their simvastatin because of myalgia.

If atorvastatin also causes myalgia the GP faces difficulties in how they can best treat the patient. As your authors note, fibrates only weakly lower LDL-cholesterol, there is little evidence of clinical benefit from ezetimibe and nicotinic acid is either poorly tolerated or costs \$100 a month.

Red yeast rice may offer a better alternative for this group of patients. One small study has shown red yeast rice to lower LDL-cholesterol by a mean 30% and to be better tolerated than pravastatin.<sup>3</sup> Another has shown that, in combination with fish oil and lifestyle changes, red yeast rice lowers LDL-cholesterol in proportions similar to simvastatin.<sup>4</sup> A randomised, placebo controlled trial of red yeast rice in secondary prevention in nearly 5000 people in China showed a reduction of cardiovascular mortality of 30% and of total mortality of 33%.<sup>5</sup>

Red yeast rice presents a challenge to GPs. As a fermentation product there is variability in batches and amongst manufacturers in monacolin content.<sup>2</sup> As your authors note red yeast rice can cause the same adverse effects and have the same interactions as statins. The safest way for statin intolerant patients to navigate the difficulties of red yeast rice therapy is in collaboration with their GP. When red yeast rice is used carefully under medical supervision there is evidence to suggest a benefit for statin intolerant patients. If there truly is a general consensus that red yeast rice should be avoided, then those who subscribe to that consensus should make it clear why the risks described in the article outweigh the benefits of red yeast rice in statin intolerant patients.

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**Dr Paul Nola, GP**

Auckland

As the popularity of red yeast rice supplements grows, more research is beginning to emerge. There is some evidence that red yeast rice is effective in lowering cholesterol, however it is important to carefully examine these studies.

In the Halbert study, red yeast rice was observed to lower LDL-cholesterol by 30% in a small group of people, however LDL-cholesterol was lowered by 27% in the pravastatin group. There was no significant difference between the number of patients who withdrew due to myalgia (one in the red yeast rice group and two in the pravastatin group), the mean pain severity due to myalgia or muscle strength. The authors concluded that both regimens were tolerated as well as each other and achieved a comparable reduction in LDL-cholesterol. The authors also note that the red yeast rice supplements used in this study were rigorously analysed for consistent composition and the results should not be generalised to commercially available red yeast rice supplements, in which potency differs.<sup>1</sup>

In the Becker study, similar reductions in LDL-cholesterol were observed in groups receiving simvastatin and alternative therapy, including red yeast rice. However it is difficult to attribute this result specifically to the use of red yeast rice. Patients in the group receiving simvastatin were provided with pre-printed material regarding diet and exercise, based on American Heart Association recommendations. Patients in the alternative therapy group received red yeast rice (at two different strengths depending on their initial LDL-measurements) and fish oil supplements and were also enrolled in a 12-week multidisciplinary lifestyle programme. This included counselling from a dietitian on following a modified Mediterranean diet, with reduced saturated fat intake and restricted carbohydrates. An exercise physiologist also coached the patients to increase their exercise levels to five to six times per week. It is perhaps unsurprising then, that the alternative therapy group were able to achieve reductions in LDL-cholesterol levels.<sup>2</sup>

Results are still emerging from the China Coronary Secondary Prevention Study (CCSPS), but it does appear that xuezhikang, an extract from red yeast rice, has a beneficial effect on cardiovascular morbidity and mortality in Chinese people.<sup>3</sup> However, it is important to note that conventional statin use reduces cardiovascular mortality by a similar degree. Authors of an objective review of the Lu study conjectured that as it has been shown that the cardio-protective effect of statins in Japanese populations occurs at a lower dose than in Western populations, it is also possible that the low doses of lovastatin found in the red yeast rice supplements is sufficient to produce the reduction of cardiac events in the Chinese population in the CCSPS trial. A similar trial with red yeast rice would need to be conducted in a Caucasian population to resolve these doubts.<sup>4</sup>

The issues with recommending red yeast rice for cholesterol lowering can perhaps be more concisely summarised by Thomas Lee, Editor-in-chief of the Harvard Heart Letter:<sup>5</sup>

- Standardised, quality-controlled preparations of red yeast rice can lower cholesterol, but there is no evidence that this will translate to fewer heart attacks or strokes or increased life expectancy, as has been shown for statins.
- There is no way of knowing what is in the red yeast rice supplement you are buying. Multiple analyses have found that the amount of cholesterol lowering compounds in red yeast rice supplements can vary by as much as 100-fold and some contain the toxic compound citrinin.
- Red yeast rice can cause myalgia, just like statins
- Statins are considerably less expensive for the patient

If statin intolerance is a significant issue and lowering doses, switching types of statins and using other lipid-lowering medicines have been tried and failed, then red yeast rice supplements could be considered on an

individual basis. However, it may be difficult for clinicians to supervise its use, given that so little is known about the effects of this product and exactly what its constituents are. Further compelling evidence and strict regulatory requirements would be needed before red yeast rice could be routinely recommended as a statin alternative.

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## Clopidogrel in secondary stroke prevention

*Dear bpac,*

*If the ProFESS trial shows that clopidogrel is equally as effective as aspirin plus dipyridamole in secondary prevention of stroke/TIA why hasn't bpac made this first choice for secondary stroke prevention? ("Access to clopidogrel now widened", *BPJ* 30, Oct 2010).*

*Taking one tablet a day rather than three is going to be better for compliance, simpler and in my experience, patients often struggle with the GI side effects of dipyridamole. Am I missing something? It seems illogical*

to suggest a combination of three tablets taken twice daily is a better choice than one.

**Dr Andrew Miller, GP**  
Christchurch

In the list of indications, clopidogrel would have been better described as an alternative first line treatment (as mentioned later in the article) rather than second line to aspirin plus dipyridamole.

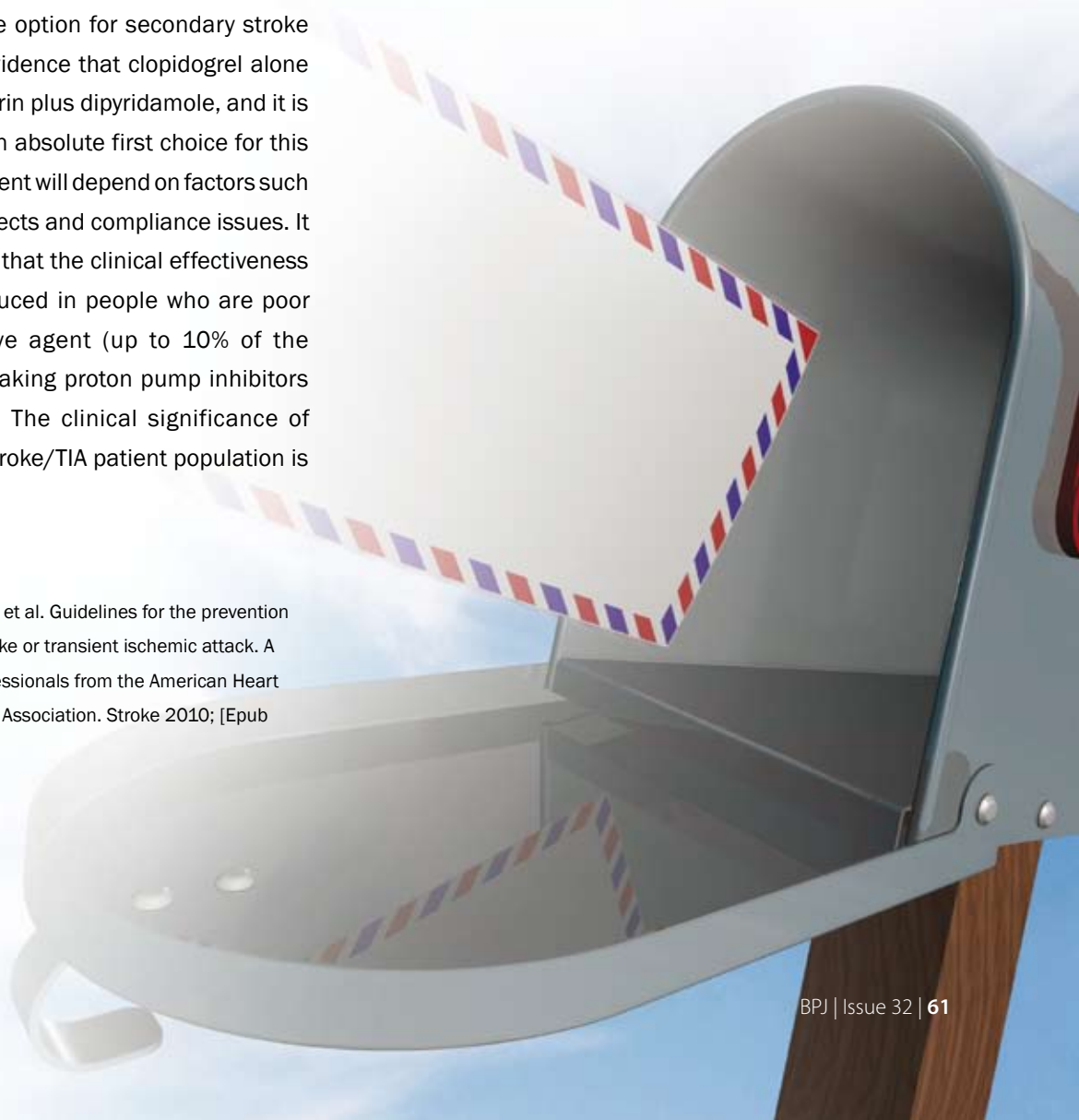
Since the publication of the ProFESS trial, international guidelines have been inconsistent in their recommendations. Some guidelines consider aspirin plus dipyridamole as first choice, however a very recent consensus paper considers clopidogrel alone to be a safe and effective first line option for secondary stroke prevention.<sup>1</sup> There is no evidence that clopidogrel alone is clinically superior to aspirin plus dipyridamole, and it is not currently considered an absolute first choice for this indication. Choice of treatment will depend on factors such as tolerance to adverse effects and compliance issues. It is also relevant to mention that the clinical effectiveness of clopidogrel may be reduced in people who are poor metabolisers to the active agent (up to 10% of the population) and in those taking proton pump inhibitors (particularly omeprazole). The clinical significance of these factors in the post stroke/TIA patient population is not currently known.

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