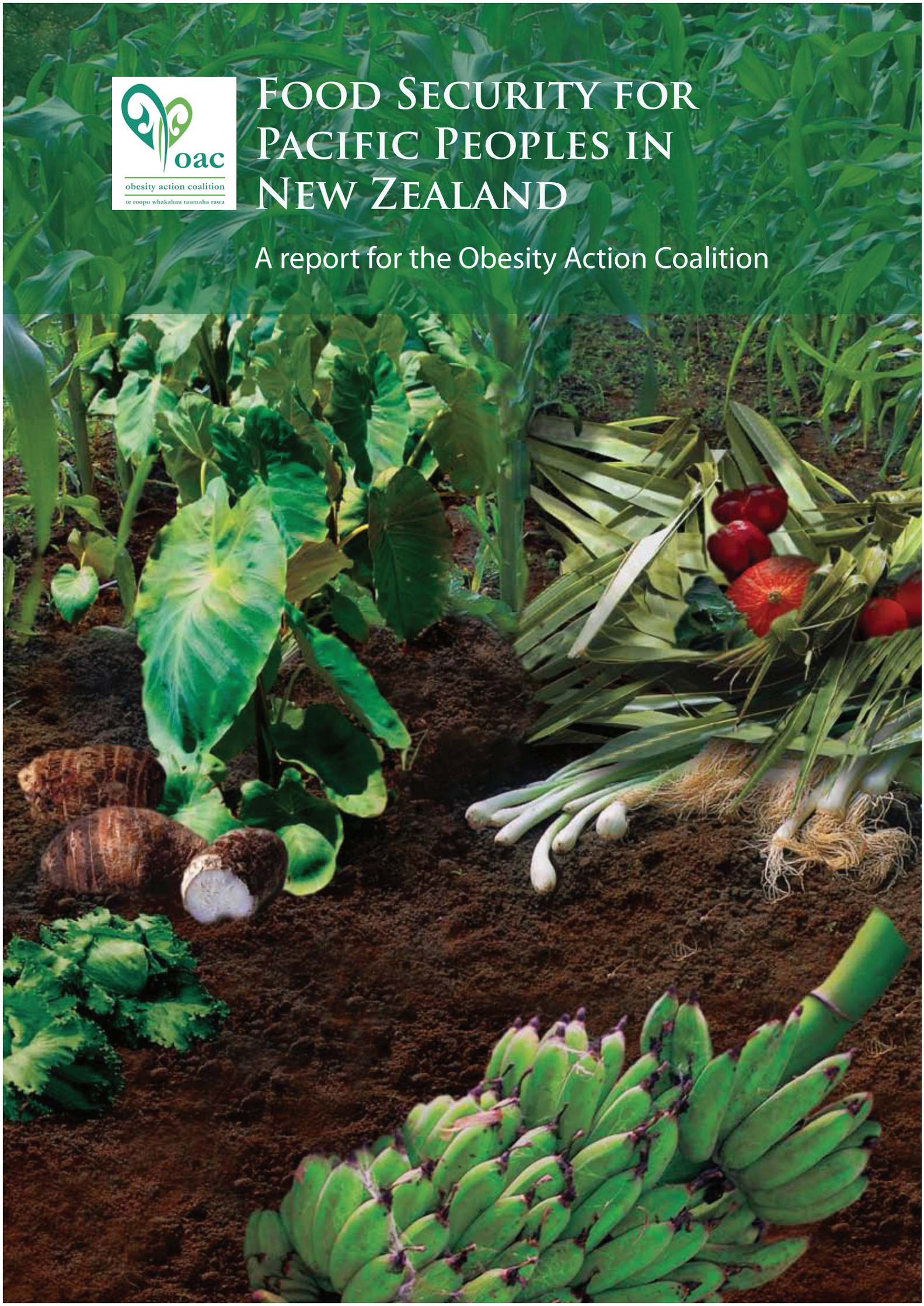

Food Security for Pacific Peoples in New Zealand

A report for the Obesity Action Coalition

oac
obesity action coalition
te roopu whakahau taumaha rawa

ISBN 978-0-473-14661-0.

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Foreword

MATIKE MATIKE te tumu toro enua o avaiki
" Mouria te tiki iakoe, kavea te kura iakoe"

> *"Rise up stand up Pacific leaders, take hold of the message and share it"*
>
> *The term "leaders" is used in the broader sense and includes grandparents, parents, aunties...*

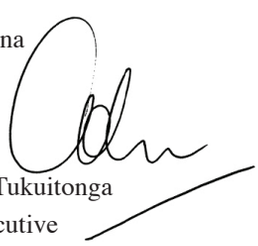
Food plays an important social and cultural role in all Pacific societies, over and above human biological needs for nourishment and survival. In traditional settings, food is used as a means of maintaining societal norms and practices and affirming one's identity and place. There are clear rules and expectations with regard to the production, preparation, storage, distribution and consumption of food. Indeed, food defines people and cultures.

When Pacific peoples move across oceans to new lands and new cultures, they face new challenges as they adapt to their new environment. While food retains a central role, the social, economic, cultural and political landscape demands significant changes in the way they obtain and consume food. For most Pacific peoples in New Zealand, the environment has been described as "obesogenic" and not conducive to consuming food that is healthy, wholesome, nutritious and affordable. Diets and food items that are actively marketed are not consistent with evidence-based advice on what constitutes a healthy diet.

This report provides a comprehensive account of the challenges faced by Pacific New Zealanders in their quest for food. It provides a good account of the enormity and complexity of the task of ensuring access to food. A detailed account shows the factors which help or hinder access to food. The report draws heavily on various surveys of nutrition carried out in New Zealand over the last few years. It is a distinct advantage that we have good information about the challenge we face.

Despite the size and nature of the challenge, the report also identifies a number of community-based prevention initiatives that show promise. This is encouraging because the whole world is short of interventions that are known to be effective. It is essential that actions are taken across all sectors of society. It is well established that health and social problems are more likely to be addressed if affected populations are actively involved in the design and delivery of preventive and treatment services.

Kia monuina



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Wellington
March 2009

Further copies of this report are available from the Obesity Action Coalition. Phone +64 4 473 8031.
Published in March 2009 by the Obesity Action Coalition, PO Box 12-115, Wellington
ISBN 978-0-473-14661-0

Citation: Rush E. 2009. Food Security for Pacific Peoples in New Zealand. A report for the Obesity Action Coalition. Wellington: Obesity Action Coalition.
www.obesityaction.org.nz

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Disclaimer

The views expressed in this report are the personal views of the authors and should not be taken to represent the views or policy of the Ministry of Health or the Government.

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Acknowledgements

Thank you very much to everyone who contributed to this report. More than 80 Pacific people and health workers contributed through completion of questionnaires, discussion by phone and participation in discussion groups.

We particularly acknowledge the valuable feedback and advice the Whangarei Pacific community and 2008 Certificate for Pacific Nutrition classes provided for the report.

We thank Jewel Wen, MPhil, for technical and co-ordination support.

Thank you to the Pacific Islands Families (PIF) study team and participants for their contributions.

Note:

The Pacific Island Food and Nutrition Action Group (PIFNAG) was born out of concern by Pacific health professionals and community leaders about changes in lifestyle and the epidemic of increased body fatness. Based in Auckland, PIFNAG is made up of dietitians, nutritionists, community health workers, community leaders, nurses, researchers and social scientists. PIFNAG is a voluntary organisation that runs on the passion and commitment of its members, as well as the goodwill of employers who allow their staff to take part in its activities. To join PIFNAG please contact the treasurer, Kasalanaita Puniani: Naita.Puniani@southseas.org.nz

Executive summary

This report provides a review and an overview of the 2008 situation for food security in New Zealand for Pacific peoples. During the writing of this report a "global financial crisis" occurred which compounds the global food security crisis.

The purpose of this report was to identify key determinants of food security in New Zealand in the context of the lives of Pacific peoples by using evidence and key informant input from Pacific peoples throughout the country.

The aim was to inform advocacy about how to support and celebrate the strengths of the Pacific community and improve their ability to consume the required quantities of healthy foods every day.

Food insecurity is an escalating problem, particularly for households with children.

In 1997, 60 in every 100 Pacific households reported that they could always afford to eat properly.

In 2002, 46 in every 100 Pacific households with children reported that they could always afford to eat properly.

Pacific peoples have picked up the challenge of food security and there is much good work and many intersectorial initiatives in place. If these continue to be supported they should have long-lasting effects within Pacific communities and future generations.

Examples of initiatives include:

- leadership training for Pacific health professionals
- church-based interventions supported by district health boards
- training of Pacific community health workers in how to deliver nutrition education within their communities.

These actions will not be successful unless policy and the environmental infrastructure also offer support. Healthy food is more expensive than less healthy food, not as easy to access and not always as tasty.

Food security will only be improved if bold, intersectorial and far-reaching actions are taken now. It is vital for public health that communities are protected from malnutrition. Central and local governments must make and enforce regulations for food supply and access that avert this crisis.

Food security issues are closely linked to social and economic development.

How may the information in this report be useful to you and your community?

Use the information to make submissions to lobby – pester power!

Write letters to Ministers of the Crown.

Include in and use to support applications for funding to improve food security.

Align with "Healthy Eating – Healthy Action" (HEHA) activities.

Raise collective awareness of food security and issues highlighted in this report.

Advocacy

Use the information when talking to the media.

Spread the news – through networks.

Mobilise community action – encourage others to take action on local policies and recognising local values.

Talk with the local and national food suppliers about how they can make changes.

Build the voice of Pacific peoples in relation to food security.

Read the recommendations at the end of this report and act where you can.

Literature review

Historical background

Following World War II food security was considered only from the point of view of physical availability of food, particularly for the "poor" of a country. In the following years, the concept has extended to include the role of economic access, the fact that women and children tend to be less well nourished than men and that micronutrients are essential to a balanced diet; this is in addition to standards for food hygiene and safe drinking water (Maxwell, 1996). Now with food and energy costs rising, the availability of water decreasing, global warming and financial crises imminent, it is recognised that there is an increasing need to protect vulnerable communities from food insecurity and the associated decline in health and increased burden of disease (World Health Organization, 2008).

Definitions and understanding of the term "food security" vary but at the individual, household, national, regional and global levels there is the same meaning. All people should have access at all times to, and be able to consume adequate quantities of, foods and liquids (including water) that are required for health. Two definitions are:

Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (Food and Agriculture Organization of the United Nations, 1996).

Food security is the ability of individuals, households and communities to acquire appropriate and nutritious food on a regular and reliable basis by socially acceptable means (McIntyre, 2003).

For the purposes of this report the definition was reworded to apply at a community level.

> Food security means having easy access to enough healthy food every day. It must be culturally and socially acceptable.

Context in New Zealand

This report focuses on information available about Pacific peoples in New Zealand that has relevance to the topic of "food security". A good overview of food security in New Zealand, along with the determinants of food security and information sources, is provided in the companion document *Food Security among Māori in Aotearoa* (Te Hotu Manawa Māori & Obesity Action Coalition, 2007).

The New Zealand Ministry of Health definition is:

Food security is access to adequate, safe, affordable and acceptable food.

What makes a community "food secure"?

Food security is a complex issue and means many things to many people. Food security is determined by what foods are available and the resources and the knowledge (and desire and motivation) to access and use that food (New South Wales Centre for Public Health Nutrition, 2003).

A simple supply and demand model does not take into account the fact that food security is a goal and is not simply a matter of food availability. Food availability is determined by location, money, and the rate at which food is consumed. People eat healthy food acceptable to their beliefs and values. Therefore food security is difficult to measure or categorise in useful ways unless the context and the people are considered. The determinants of food security keep changing. One way to conceptualise the meaning of food security is as a goal (Keenan, Olson, Hersey, & Parmer, 2001), rather than as a perfect situation.

*The New Zealand Health Strate*gy (Ministry of Health, 2000) has goals which are relevant to food security including:

- a healthy social environment
- reduction of inequalities in health status
- healthy communities, families and individuals
- healthy lifestyles
- better physical health.

Why are Pacific peoples different?

From the recent report entitled *Enhancing food security and physical activity: the views of Māori, Pacific and low income peoples* (Lanumata, Heta, Signal, Haretuku, & Corrigan, 2008) on the views of Māori, Pacific and low income peoples it was noted that there was "unanimous agreement amongst participants about the desire for better access to food in order to live longer and healthier lives". These universal goals and physical, economic, political and sociocultural environmental factors (Swinburn, Egger, & Raza, 1999) should be considered when talking about food security for people of different ethnic groups and community settings. This is particularly relevant in the context of Pacific peoples in Aotearoa, as culture (world view), geographic location and origin, and socioeconomic status all affect attitudes to and access to food.

Pacific peoples are distinguished from other groups in that (in general) they:

- have strong affiliation with churches
- have strong affiliation with their islands of origin
- are relatively new immigrants to New Zealand, which differs in culture, language, climate and resources from their country of origin where they "enjoyed traditionally diverse ways to achieve food security, through gardening, fishing, hunting, and selling products or labour for cash" (Barnett, 2007)
- are of relatively young age and low socioeconomic and education status compared with other New Zealand peoples
- have poorer health outcomes than other New Zealanders.

Food security issues are influenced by:

Geographic location

Ethnic differences/mixed ethnicity

Language

Family size

Culture/ world view

Strong Christian religion/church ties

Deprivation and employment

Socioeconomic status (health status, employment, workplace and shift work)

Time spent in New Zealand

Supply, access and need

These influences are considered in detail below.

Geographic location, origin and ethnicity

As at 2001 (NZ Institute of Economic Research, 2003) more than half the Pacific peoples living in New Zealand were born here and this number is increasing. Younger Pacific peoples are likely to be less "culturally aligned" than older Pacific peoples in New Zealand (Meleisea & Schoeffel, 1998). However, ethnic/cultural differences exist among Pacific groups and these differences are also related to the time spent in New Zealand. English is spoken by more than 97% of those born in New Zealand and 87% of those born overseas. Half of Pacific peoples speak their own language and the same proportion speak more than one language.

In 1997, of all live births (57,600) in New Zealand, 13% had one or two Pacific parents (Cook, Didham, & Khawaja, 1999). Three-quarters of the babies with only one parent of a Pacific ethnicity had a Pacific mother. The other one-quarter derived their Pacific ethnicity only from their father. This increasing cross-cultural mix of Pacific peoples also needs to be considered in the context of food security. Methods of classification of ethnicity are beyond the scope of this report but attention is drawn to the changes in the definition of ethnicity used over time; also, a person may change their self-identified ethnic group with time.

Pacific peoples are highly urbanised, with 98% living in urban areas in 2001, and 66% living in the Auckland Region, followed by the Wellington Region (13%) (NZ Institute of Economic Research, 2003). According to the 1996 New Zealand Census, the Tongan and Niuean communities are much more concentrated in Auckland than other groups, while the Tokelauan community predominantly (51%) lives in the Wellington Region. Auckland and Manukau cities contain over half of all people of Pacific ethnicities in New Zealand. Suburbs such as Glen Innes, Otahuhu, Mt Wellington, Otara and Mangere are notable for their Pacific communities (Cook, Didham, & Khawaja, 1999).

Pacific ethnic groups

In the 2006 census (Statistics New Zealand, 2006) the population of Pacific peoples was 265,974, comprising:

Samoan	49%
Cook Islands Māori	22%
Tongan	19%
Niuean	8%
Fijian	4%
Tokelauan	3%
Tuvaluan	1%

The most recent population projections for distribution of Pacific peoples in 2008 by the 21 district health boards are provided in Appendix 1.

The Pacific population is a young population (median age 21.1 years) with 38% under the age of 15 years; this is greater than for any other ethnic group in New Zealand. Only a small proportion (4%) of the Pacific population is older than 65 years.

Family size

Fifty percent of Pacific households have five or more people living in the same house, with 25% of households having seven or more residents. Pacific peoples are more likely to be living as part of an extended family (29% cf 8% of national population) and the average number of occupants for a Pacific household was 5.4 compared with the national average of 3.5 for each household (NZ Institute of Economic Research, 2003).

Culture/world view

Pacific peoples have strong spiritual and cultural connections with food and family. The ability to provide plenty of food for the family and visitors is integral. How sociocultural patterns impact on the eating patterns of Pacific peoples must be taken into account when food security issues are considered (Mavoa, 2006). Mavoa asks the following eight questions for community-based interventions.

1. Who accesses, selects, prepares and distributes food?
2. Who influences food-related practices in various settings?
3. Is there a preference for group or individual activities?
4. Are food-related practices determined collectively or individually?
5. Does group or individual influence differ across settings?
6. Do current ideals concur with Western ideals?
7. Do community ideals support/inhibit healthy eating and body size?
8. What values support/inhibit healthy eating and body size?

Church ties

The church has a special place in the Pacific community and plays a key role in providing information and services. In the Pacific Islands Families (PIF) study, 92% of the mothers reported (in 2000) a religious affiliation and 65% of those made general traditional gift commitments to family or church (Cowley, Paterson, & Williams, 2004). Two-thirds reported that gifting to family or church made their household financial situation more difficult. The research showed that religious affiliation was strongly associated with gift giving – the reasons why were not explored. The authors also quote a New Zealand Herald article (2003) reporting that peer pressure was also used to push families to "mortgage their homes, go without food or become bankrupt" to make payments to churches and to family in their home islands. Gifting was most strongly associated with being Tongan, Pacific Island born, having a household income more than $10,000, living in a married or "living together" relationship, having a religious affiliation and a strong alignment with Pacific culture.

In the Obesity Prevention in Pacific Communities study Fa'asisila (2007) reports that 77% of 2,045 Pacific adolescents in Mangere recorded that they attended church. It was shown that church attendees were heavier, and had a higher BMI, waist circumference and risk of obesity and overweight than non-attendees. Information about family income was not collected so this difference is not able to be explained. It was reported that church attendees more often bought breakfast and lunch from a shop than had home breakfasts. In the Children's Nutrition Survey 2002 it was reported that Pacific children were less likely than Māori and New Zealand European children to eat breakfast at home before school (Utter, Scragg, Mhurchu, & Schaaf, 2007).

Quotes from the focus groups of Lanumata et al (Lanumata et al., 2008) support the existence of a conflict between culture and health:

Tongan:

"Attending cultural functions is not good for your health."

Samoan:

"As kids we were not allowed to get off the table until we finish everything on our plate."

"There is a lot more to it than just the food. It is the gathering of all your families together."

Deprivation and employment

Pacific peoples are still mainly concentrated in low-paid jobs, although Pacific participation in tertiary education is growing (NZ Institute of Economic Research, 2003). It is estimated that one in five children in New Zealand is living in poverty (Fletcher & Dwyer, 2008). The authors report that child poverty for Pacific peoples is not able to be determined because of response rates, but state that 40% of New Zealand children who are not European or Māori live in poverty.

More than one-third of Pacific mothers from the PIF study reported that their homes are damp (Butler, Williams, Tukuitonga, & Paterson, 2003). At the same time, around half of Pacific children lived in overcrowded housing (NZ Institute of Economic Research, 2003).

The median New Zealand annual income for adults aged 15 years and over was $24,400; for Pacific peoples the median annual income was $20,500.

Pacific men were most likely to be employed as:

- labourers (23%)
- machinery operators and drivers (21%)
- technicians and trades workers (20%).

Occupations of women of Pacific ethnicity show greater diversity than those of men, as Pacific women were equally likely to be employed as:

- clerical and administrative workers (19%) or labourers (19%)
- professionals (15%) or community and personal service workers (15%).

Pacific peoples are more likely to be employed in part-time and shift work than other groups. Pacific unemployment is almost twice the national unemployment rate. We were not able to find statistics that answered the question on how many Pacific peoples work more than one part-time/full-time job to supplement family income. Anecdotally it is the experience of many Pacific parents that they have more than one part-time job.

Socioeconomic/health status

Social and economic factors are known to contribute significantly to health status. Pacific peoples experience poorer health outcomes than all other New Zealanders across a number of health and disability indicators; for example, Pacific peoples have higher rates of cardiovascular disease, stroke and diabetes, and lower rates of cancer survival. They exhibit a lower life expectancy than other ethnic groups, excluding Māori (Ministry of Health, 2008).

Pacific children have higher rates of hospitalisation for acute and chronic respiratory and infectious diseases than any other group in New Zealand. Dietary quality and health are closely linked. For example, a diet low in fruit and vegetables is associated with increased risk of asthma (Devereux & Seaton, 2005).

Economic environment

> *In New Zealand food and fuel prices are increasing faster now (October 2008) than in the last 19 years!*
> (Statistics New Zealand, 2008)

Between February 2004 and January 2005, electronic sales data from supermarket shoppers was used to determine prices of 1000 top-selling groceries. Baskets of "regular" and "healthier" options were compared. Healthier meat and poultry options were 27% more expensive, healthier spreads 44% and healthier cheese 19%. Canned fish was a less (10%) expensive healthier option (Ni Mhurchu & Ogra, 2007).

The healthier basket per unit weight contained less energy (29%), total fat (35%), saturated fat (52%), sugar (56%) and sodium (20%) than the regular basket (Ni Mhurchu & Ogra, 2007).

Myth
A healthy diet costs the same as an unhealthy diet.

Fact
Healthy diets cost more
Examples: wholemeal versus white bread
Low-fat versus "full-fat" milk.

Myth
The more weight you get for your money the better the value.

Fact
When fat is removed from meat the more expensive option may be the best value for money. Key nutrients in meat include protein, iron and B vitamins which are important for healthy blood and muscle.
Dried beans like lentils and chick peas are easy to carry home and provide good protein and fibre to extend soups, stews and casseroles.

Supply, access and need

As previously stated, food security can be separated into supply, access and perceived need.

- "Food supply" incorporates location of food outlets; availability in outlets; price; quality; variety; and promotion.
- "Access to food" incorporates financial resources; distance and transport to shops; knowledge, skills and preferences; storage facilities; preparation and cooking facilities; time and mobility; social support.

These are described in more detail below with added insights from Pacific contributors.

Food supply can be directly influenced by the food and nutrition system, including food production, food processing, food transport, food retail outlets, and prepared-food outlets.

For Pacific communities it is more relevant to consider the local food supply – within 1–2 km of home. The location and type of food outlets (including supermarkets) and the range of affordable, healthy foods is a key determinant. Accessibility by public transport or home delivery could be considered. Price, quality and variety of food are also important but the local promotion and advertising of foods should be examined; for example fast food outlets near school grounds.

Practical promotion of "healthy eating – healthy action" could be targeted at point of decision for food purchases; for example in shopping malls, outside supermarkets, bus stops and local dairies. Food access and perceived need for foods, or the ability to be able to make use of a local food supply, is directly influenced by socioeconomic determinants such as: employment, income, education, housing, area of residence and social inclusion. Added to this we buy what we think we need – and "need" might be for social as much as for physical nourishment.

New Zealand research indicates that the median distance required to travel to fast food outlets in lower socioeconomic areas is less than in higher socioeconomic areas (Pearce et al., 2007). It appears that supermarkets are further away (1.2–1.3 km) in deciles 7-10 (more deprived), while fast food outlets are within 0.7–0.8 km. In less deprived areas (deciles 1-4) supermarkets are 2.1–2.7 km away and fast food outlets are within 1.2–1.8 km. One of the measures of deprivation is access to a car. This suggests that physical and time-based barriers are more significant in low-decile areas where access to cars to transport shopping and the ability to pay for petrol are limited. Also, local food outlets such as dairies and petrol stations, while potentially sources of healthier food, are not – and some fast food outlets could be healthier than others; for example the hot chips project of the National Heart Foundation.

> In the most deprived neighbourhoods supermarkets are further away (1.2–1.3 km) than are fast food outlets (0.7–0.8 km).
>
> In the least deprived neighbourhoods supermarkets are 2.1–2.7 km away and fast food outlets are within 1.2–1.8 km.
> (Pearce, Blakely, Whitten, & Bartie, 2007)

One in five New Zealanders is employed in the food industry. Many Pacific peoples are employed in the food industry, particularly in food service, and their livelihood depends on continued employment. Within the workplace there is a need to balance access to healthy food and this could be a target area for intervention.

Nationally rising costs for accommodation, transport and food mean that it is becoming more difficult to buy appropriate and nutritious food on a regular and reliable basis by socially acceptable means. People of lower socioeconomic status will be disproportionately disadvantaged because their income will not increase as fast as costs of other essentials such as electricity, rent, travel and food. There is very little choice when money is limited.

At the Hamilton Combined Christian Foodbank, it's been up more than 40% on a year ago in each of the past three months, and at the Salvation Army's 37 foodbanks nation wide it was up 22% in the three months to June.

The survey found that housing costs now eat up more than 30% of net incomes for at least three-quarters of the clients at all four foodbanks, and more than 50% of incomes for about half the clients in Manukau and Hamilton.

On top of that, food prices rose by 7% and petrol prices by 34% in the year to June, compared with a 4% rise in overall consumer prices.

Welfare benefits increased by only 3.2% in April, in line with overall consumer prices in the year to last December.
(NZ Herald, August 2008)

Practical community actions are called for.

Mercy Missions

We are trying to encourage people to grow some vegetables and to find the person with the grape fruit tree or the orange tree with the fruit lying on the ground and knock on the door, because it's really important to get fruit for the children somehow.
(NZ Herald, 16 August, 2008)

What does New Zealand research tell us about food security for Pacific peoples?

Two national surveys have asked questions about household food security. The National Nutrition Survey 1997, NNS97 (Russell, Parnell, & Wilson, 1999) surveyed adults aged 15+ years – 305 of these were Pacific. In 2002 the Children's Nutrition Survey, CNS2002 (Ministry of Health, 2003) included 1,058 Pacific children aged 5-14 years. Both surveys divide the population by ethnicity into three groups: Māori, Pacific, and New Zealand European and other (NZEO). The findings from these surveys are listed below and summarised in Table 1 which allows comparison by ethnic groups. Table 1 also includes findings from the Pacific Islands Families study which is described after this section. Numbers below have been rounded for clarity.

NNS97 – key findings concerning food security

1. 60% of Pacific households stated that they could always afford to eat properly, compared to 90% of NZEO households.

2. 49.5% of Pacific households reported they ran out of food sometimes or often, compared to 9% of NZEO households.

3. 38% of Pacific households stated they ate less sometimes or often because of lack of money, compared to 9% of NZEO households.

4. 49% of Pacific households reported that lack of money affected the variety of food consumed either sometimes or often, compared to 23% of NZEO households.

5. 29% of Pacific households sometimes or often relied on others for food, compared to 4% of NZEO households.

6. 15% of Pacific households reported sometimes or often using food grants/food banks, compared to 2% of NZEO households.

7. 32% of Pacific female respondents sometimes felt stressed about lacking money for food, compared to 10% of NZEO respondents.

8. 30% of Pacific respondents reported sometimes feeling stressed when there was no food for social occasions, compared to 10% of NZEO respondents.

CNS2002 – key findings concerning food security (households with children)

1. Only 46.6% of Pacific households stated they could always afford to eat properly, compared to 86.1% of NZEO households.

2. 53.9% of Pacific households reported they ran out of food sometimes or often, compared to 13% of NZEO households.

3. 47.7% of Pacific households stated they ate less sometimes or often because of lack of money, compared to 10.2% of NZEO households.

4. 60.4% of Pacific households reported that lack of money affected the variety of food consumed either sometimes or often, compared to 27.8% of NZEO households.

5. 29.2% of Pacific households sometimes or often relied on others for food, compared to 5.8% of NZEO households.

6. 19.3% of Pacific households reported sometimes or often using food grants/food banks, compared to 4.5% of NZEO households.

7. 46.6% of Pacific caregivers sometimes felt stressed about lacking money for food, compared to 16.5% of NZEO households.

8. 42.4% of Pacific caregivers reported sometimes feeling stressed when there was no food for social occasions, compared to 14.8% of NZEO respondents.

Further analysis of CNS2002 data by Utter, Scragg and Schaaf (2006):

52% of Pacific children reported that they usually eat or drink at home before school, compared to 90% of NZEO respondents.

8% of Pacific children reported that they ate or drank something on the way to school, compared to 2% of NZEO respondents.

Children and adolescents who watched the most TV were significantly more likely to be higher consumers of foods most commonly advertised on TV: soft drinks and fruit drinks, some sweets and snacks, and some fast foods.

Pacific children were more likely to watch TV for two or more hours a day than NZEO and more likely to be high consumers of all the commonly advertised foods and soft drink.

Pacific children have more exposure to television advertisements for high fat, salt and sugar foods than NZ European and Māori.

Summary of national surveys

The two national surveys (1997 and 2002) provide clear evidence that up to 50% of New Zealand's Pacific adults and children have a burden due to food security issues, more so than other ethnic groups. The surveys also show that the more children a family has, independent of ethnicity, the more likely the family is to experience aspects of deprivation and food insecurity. In short, the more deprived the more insecure.

Between 1997 and 2002 there was a marked decrease in food security for households with Pacific peoples, as well as for Māori and New Zealand European and other (NZEO).

1997
60 out of 100 Pacific households could always afford to eat properly.

2002
46 out of 100 Pacific households with children could always afford to eat properly.

Recent increases in food and fuel costs are likely to worsen the situation.

Costs of food, energy and transport are not within the control of most people, including Pacific families.

Table 1. Summary of surveys for household food security – percentage who responded sometimes

	Can afford to eat properly		Food runs out		Eat less		Variety of food limited		Rely on others		Use food grants/banks		Stressed about lack of money for food		Stressed when no food for social occasions	
	Always	Some times	Some times	Often	Some times	Often	Some times	Often	Some times	Often	Some times	Often	Some times	Often	Some times	Often
1997 NNS	%															
All	86	13	14	2	12	2	23	6	7	2	4	1	11	2	11	2
Pacific	60	37	39	10	37	4	36	12	28	2	14	2	26	6	24	6
Māori	68	30	26	6	24	5	39	9	17	4	14	2	20	7	22	4
NZEO	89	10	9	1	9	1	20	4	4	1	2	0	9	2	10	1
2000 PIF																
Pacific			39.6	3.9	33.0	3.4	34.5	4.9	27.7	2.5	13.7	0.4	21.4	2.9	30.3	4.4
2002 CNS	%															
All (2771)	77.8	20.1	18.5	3.6	15.3	2.8	25.6	9.0	10.3	1.5	8.6	0.8	18.1	6.4	16.9	3.3
Pacific (808)	46.6	47.9	47.7	6.2	44.2	3.5	51.3	9.1	27.8	1.3	18.1	1.2	39.9	6.7	37.4	5.0
Māori (1057)	64.3	33.6	30.6	6.9	24.5	6.2	31.1	14.1	19.8	3.6	17.4	2.6	27.9	12.1	21.5	6.5
NZEO (908)	86.1	12.1	10.9	2.1	8.7	1.5	20.6	7.2	4.9	0.9	4.4	0.1	12.1	4.4	12.8	2.0

NNS, national nutrition survey; NZEO, New Zealand European and other; PIF, Pacific Islands Families study; CNS, children's nutrition survey.

The same indicator questions were used in each survey.

Pacific Islands Families Study

The Pacific Islands Families (PIF) study is a longitudinal study designed to increase knowledge about the health, psychosocial, and behavioural characteristics of Pacific peoples with young children resident in New Zealand. Mothers of Pacific infants born at Middlemore Hospital between 15 March and 17 December 2000 were recruited. Maternal home interviews covering socio-demographic, cultural, environmental, child development, family and household dynamics, childcare, lifestyle, and health issues were undertaken at approximately six weeks, one, two, four and six years postpartum. At six weeks 1,376 mothers were interviewed and at six years 1,001 participated.

What does the PIF study tell us about food security at six weeks of age?

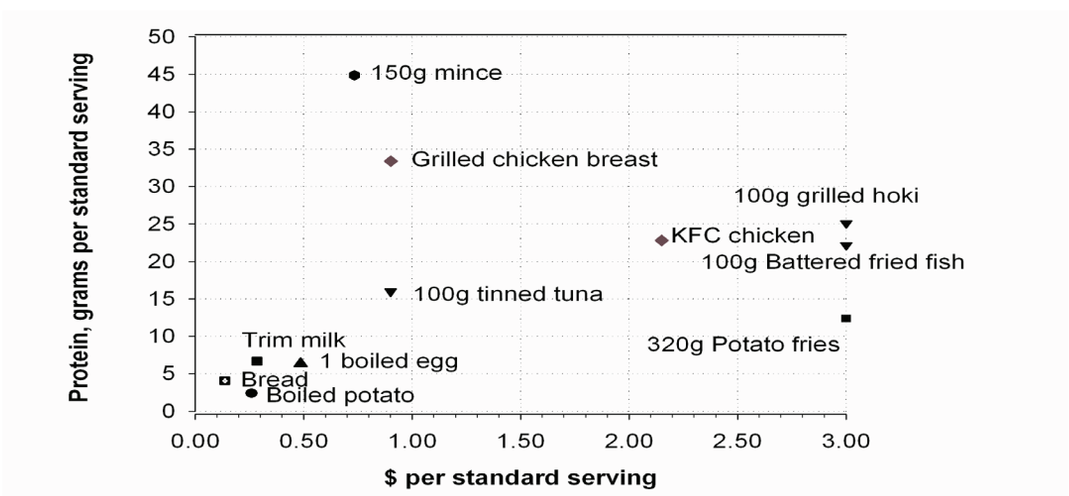
Food security was identified as a major cause for concern when the mothers were interviewed in the year 2000 when the children were six weeks old. This has been published (Rush, Puniani, Snowling, & Paterson, 2007) and is summarised under 2000 PIF in Table 1. Conclusions from this analysis are listed below.

"Food insecurity" is an issue for Pacific peoples – there is a need to identify cheap nutritious food options.

Convenience foods such as chips, biscuits and crackers are energy dense, low in protein, and low in fibre (nutrient poor).

Other commonly eaten foods such as deep-fried chicken and corned beef have good protein content but are expensive (per g/protein) and very energy dense because of their high fat content.

Figure 1. Scatterplot of the relationship between price per serving and amount of protein foods that provide a large portion of the protein intake for Pacific peoples

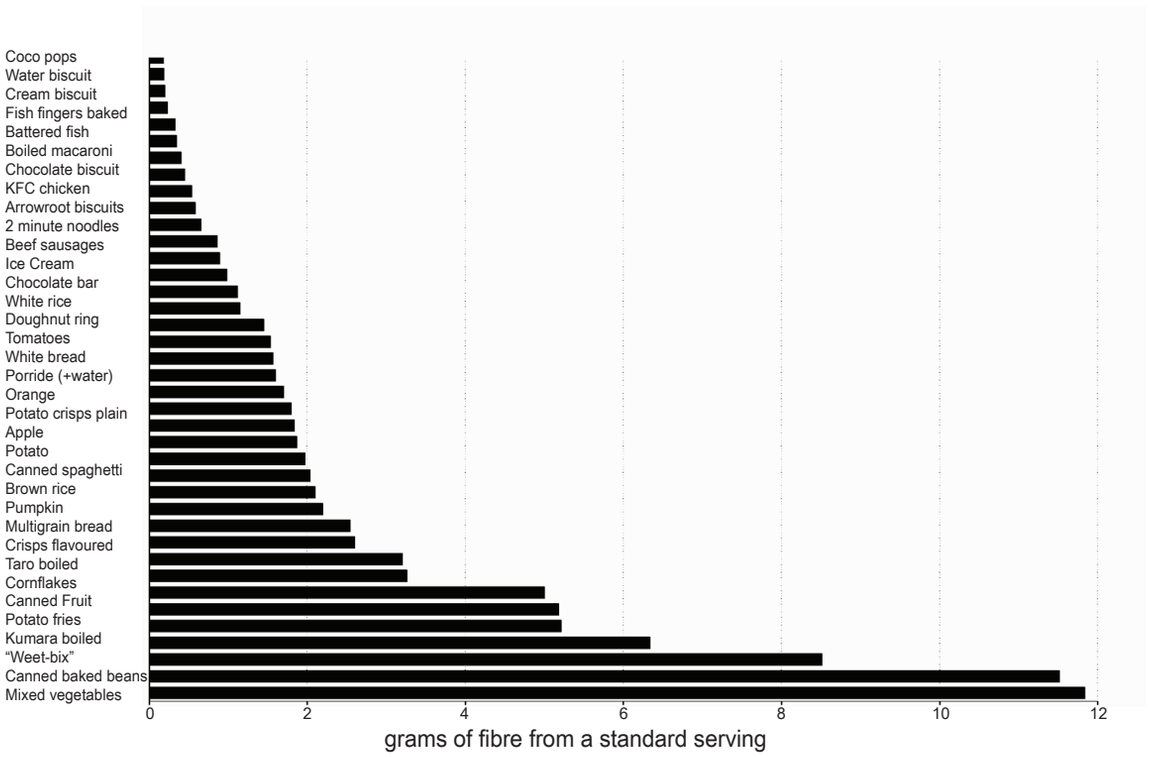


Healthy options such as chicken, trim milks, baked beans, eggs, wheat cereals, brown breads are:

- less energy dense, more nutrient dense
- higher in protein
- may be higher in fibre (Figure 2)
- similar cost per serve to some convenience foods.

Foods that are particularly rich in fibre, relatively less expensive and often eaten by New Zealand people include kumara, weet-bix, canned baked beans and mixed vegetables (Figure 2).

Figure 2. Grams of fibre for standard servings of selected foods frequently eaten by Pacific peoples



From the PIF study, data collected up to and including 2006, ethnic-specific data and other information not reported to date in any publication – and some further analysis (unpublished) relevant to food security – is reported below. This analysis was specifically undertaken for this report.

Food insecurity was higher in families with two or more children.

Tongan and Niuean mothers reported that due to lack of money, food runs out/eat less/variety of food is limited, more often than Samoan or Cook Islands Māori mothers.

Mothers in all Pacific groups reported that they would rely more often on support and assistance from others (30%) than from special food grants or food banks (10%).

There was better food security and less stress about providing enough food reported by mothers who had secondary school or tertiary qualifications, compared to those with no formal qualifications. One in three reported the household income as less than $20,000 per year. Higher household income was associated with better food security and less stress.

Birth weight was slightly heavier in the families that reported food insecurity related to lack of money. Heavier babies were more likely to weigh more at two, four and six years old. This is due to relatively more body fat and less lean body mass.

Breastfeeding at six weeks was not associated with food security.

Food security at birth is associated with
- a lower birth weight
- higher education level of the mother
- higher household income

but is not associated with breastfeeding in the first 6 weeks.

Longitudinal data from studies of children, food insecurity and overweight are linked (Bronte-Tinkew, Zaslow, Capps, Horowitz, & McNamara, 2007).

Children who experience food insecurity tend to weigh more and have higher body fat at all ages.

When the PIF study children were one year old their mothers were interviewed to obtain information about Pacific extended families. The changes that groups and individuals undergo when they come into contact with another culture were examined (Poland et al., 2007). Acculturation is a term used to describe the changes related to migration and adoption of the "mainstream New Zealand culture", and can be divided into assimilation (high New Zealand, low Pacific), integration (high Pacific, high New Zealand), separation (high Pacific, low New Zealand) and marginalisation (low Pacific, low New Zealand).

The mean age of the mothers (when child was 6 weeks old, n=1376) was 30 years; 34% were NZ born; 81% were married or in de facto partnerships; and 32% had post-school qualifications. Half the children in the PIF study lived in an extended family household, compared with a nuclear family. Those born in New Zealand were more likely to live in an extended family. Larger households were more likely to report food insecurity.

The most frequent reasons given for living in an extended family were that it was cheaper and for taking care of the extended family.

For every six mothers: two were classified as high New Zealand, low Pacific; two as high Pacific, low New Zealand; one as high Pacific, high New Zealand; and one as low Pacific, low New Zealand. High New Zealand, low Pacific were less likely to report food insecurity than the other three groups, with the low Pacific, low New Zealand group the most food insecure.

Marginalisation/having low cultural participation was associated with food running out, eating less and having less variety of foods due to having less money a lot of the time.

Pacific Islands Families study at 2, 4 and 6 years

The PIF study children have now been assessed at age six years and it is possible to look at relationships between body size and growth over the six years and food security at six weeks. No relationships were seen with food security at six weeks and body size or fatness at six years.

At ages two, four and six years, boys were heavier than girls. As the level of food insecurity due to lack of money increased, the gap between boys' and girls' weights increased. This difference could be related to the quantity and quality of the foods made available to boys and girls being different, or metabolic differences by sex, but we do not have the information to answer this question. We do know that boys are taller, heavier and have bigger heads than girls at age six years; girls have more body fat than boys. This difference is normal. None of these variables were directly related to food security or acculturation at birth.

Pacific peoples have high levels of food insecurity and at the same time have increased health risks due to excess body fat. In both the National Children's Nutrition Survey and in the PIF study, one in two Pacific children were classified as overweight or obese at age six years (Table 2). However, in the PIF study, weight at six years is related to birth weight and weight gain between ages two and four years. It is of concern to note that the prevalence of overweight and obese children is higher in the 2006 South Auckland sample than in the 2002 national sample.

Table 2. Pacific children's body size at six years (obesity and overweight classified by Cole criteria)

		Overweight (%)	Obese (%)	Overweight/Obese (%)
Children's Nutrition Survey, 2002	Female	33.2	14.7	47.9
	Male	31.0	21.3	52.3
Pacific Islands Families study, 2006	Female	32.3	23.5	55.8
	Male	30.6	28.9	59.5

The link with food security is weight at birth, providing further evidence that health promotion and support should, ideally, start with potential parents to give the ongoing health of their children the best possible starting point.

Increased birth weight is associated with:

- food insecurity at birth
- increased body size and fat at 2, 4 and 6 years of age.

In the PIF study: what were children eating at age four years?

The 20 foods most frequently eaten by four-year-old Pacific children are listed below. The average four-year-old child was eating bread at least once a day and potato crisps once every two days.

Rank	Food item
1	Bread, including toast and bread rolls (more than once a day)
2	Milk (not flavoured)
3	Apples or pears
4	Breakfast cereal
5	Banana, raw
6	Oranges or mandarins
7	Food drink
8	Chicken
9	Rice
10	Powdered fruit drink
11	Noodles
12	Tomato sauce or ketchup
13	Eggs, boiled, poached, fried or scrambled
14	Yoghurt or dairy food (all types)
15	Mixed vegetables
16	Other potatoes
17	Juice
18	Carrots
19	Other items of eggs, meat, poultry and fish
20	Potato crisps, corn snacks or chips (once every two days)

Obesity is a form of malnutrition. Obesity is related to eating an excess or too much food with "empty" and cheap calories and not meeting the other nutrient needs for optimal health.

Bread and milk were reported as the most frequently eaten foods. White bread was consumed by eight in 10 children; 7% of children had milk less than once a month or never. Of those who drank milk, 85% had the standard (dark blue) milk and 11.5% light blue.

White bread and blue top milk are less expensive than the healthier more nutritious and less energy dense choices.

Consideration should be given to providing, through bread and milk, healthier less expensive options.

What Pacific experts and professionals said for this report about food security for their community

More than 80 people working in heath promotion related to Pacific communities and organisations responded in writing or verbally to the thematic questions outlined in the questionnaire (Appendix 2). Most respondents were working in the Auckland and Wellington regions. Responses were also obtained from Hamilton, Napier, Hastings, Wanganui, Palmerston North, Christchurch and Dunedin. Ethnicity of respondents included Samoan, Tongan, Cook Islands Māori, Niuean, Tokelauan, Fijian and European. Word-for-word quotes are in italics.

What changes would you like to see made?

There was a belief that Pacific peoples do make healthy food choices but that access and affordability to healthier foods such as fruit and vegetables should be improved.

There was a request for more media coverage on training our people how to be more health conscious. Recurring pleas for the items below were recorded.

- *Reduced cost in food*
- *Change Pacific peoples' mentality about the benefits of eating healthy*
- *Food labelling*
- *Takeaways provide healthy food*
- *Less of food vending machines in working places*
- *Decrease number of unhealthy takeaways*
- *More PI food accessible in central areas*
- *Healthy eating and physical activity promoted to reduce obesity and prevent premature death caused by nutrition related diseases*

It was very clear that change was needed, welcomed and actively sought.

Local food supply: supermarkets

The location of supermarkets in relation to where Pacific peoples lived was perceived as variable and some noted that there were other not-so-desirable food outlets close to the supermarkets.

Where your Pacific people live is there easy access to a supermarket?

- *South Auckland – easy access to supermarket as well as takeaways close to the supermarket*
- *Where Pacific Islanders live in Auckland determined by where the rest of the family live. There is little consideration to the location where the food shops or markets are located*
- *There are fewer supermarkets in areas with high concentration of Pacific people compared to other suburbs*
- *Not really in Grey Lynn, Otara, but yes for Glen Innes, Panmure, Mt Wellington*
- *In the urban areas yes. Not so good for our rural Pasifika, as the areas are widely spaced and require travelling distances to reach*

- *The Flat Bush area has easy access to SuperValue, and the Otara end has no access to a supermarket*
- *Supermarkets close but a lot of PI people prefer to go to the dairies*

How do people transport their food (shopping)?

As the average Pacific family and household is more than five people and it is not unusual to have seven or more mouths to feed, the daily load of fruit and vegetables could be more than 3 kg or in the order of 20 kg a week!

Modes of transport used to transport food included (most often) cars, walking, bus, bikes, taxi and a scooter. Car pooling was an option.

Seventy percent of respondents said that a car was required to transport food, 20% would walk and others chose variable modes depending on what they were shopping for.

Containers and chilly bins were also named as ways to transport food.

- *Car and trolley (but it is returned after)!*
- *In NZ the use of family cars will be important. If it is a home with only grandparents with their grandchildren who are in primary schools, they will be lucky if they have one with a driving licence to take them to the shops*

Public transport versus need to use a car or walking?

- *Use of buses and trains if they are there, but there is a problem that you can only carry a small amount of shopping from the area where you get off to the home*
- *Car is the easy way for transporting food – Pacific would not use buses to transport the food*

Not all Pacific households have transportation, therefore public transport is another cost on top of their weekly bills.

> *If I need to use public transport I have to walk 15 minutes through a couple of alley ways to get to the bus stop. I would much prefer to use my car as I will feel much safer than if I was walking to the bus stop.*

Local food supply: stores, liquor outlets and markets

Access to food includes the location of the places where food may be bought and also the quality and cost of the food available. Questions centred around dairies, liquor stores and markets.

Do the local dairies supply healthy food?

There was a perception that local dairies were expensive, sold less healthy food and that packaged, junk food was available at the dairy.

- *Not much variety of healthy food choices in local dairies*
- *There are mostly packaged junk food and drink in local dairies*
- *Most of the PI homes are close to the dairy shops that do not sell fresh healthy food and foods in dairies are more expensive than food sold at supermarkets*
- *Dairies sell less healthy foods and some sell alcohol*
- *Yes but outnumbered by unhealthy options*
- *In South Auckland the number of takeaways available is more of a concern*

> *Very limited fresh vegetables and fruit. One occasion there was one mouldy cauliflower.*

Is the cost of healthy food more than not so healthy?

Prompts were given about the most frequently eaten foods, for example wholegrain bread versus white, and low-fat milk versus standard milk. Overall there was almost universal agreement that healthy foods cost more, but some caveats were offered also.

- *The low fat milk tends to be more expensive than the standard milk*
- *The cost of wholegrain breads is a lot higher than the white bread – it is not so much about the cost but quantity consumed – $2-$5 for wholegrain bread and $1-$1.2 for white bread*

> *A 1.5L of fizzy drink can be purchased for 89 cents yet the price of milk is normally $3.5 for 2 litres.*

> *We complain that healthy foods are expensive. The reality is they are cheaper than the unhealthy ones – eg if we go to PAK'n SAVE to spend $50 worth of healthy foods, we can get fruit, vegetables, pumpkin, breakfast, cereals, canned foods, such as baked beans, tin tomatoes, corn. Shopping of these foods will last a week; in comparison a $50 worth of combo KFC that will last only for a meal and be more expensive than the fresh healthy ones.*

Is there balance in availability of liquor versus fruit and vegetables?

17 June 2008, Newstalk ZB:

"Prime Minister Helen Clark says it may be time to revisit the Sale of Liquor Act which is almost 20 years old. She says the number of liquor outlets in suburbs has ballooned since 1989 from just over 6,000 to almost 15,000. Ms Clark says the density of outlets appears to be greatest in some of the country's most deprived areas and is associated with binge drinking and violent crime."

One of the main tenets of good nutrition is balance, moderation and variety. The balance of availability of food choices in deprived areas is a concern. A number of concerns were expressed about the location and the foods and drinks sold locally.

- *In South Auckland the number of takeaways available is more of a concern than the liquor stores*
- *ALAC should play a larger role in working with local government regarding this issue as alcohol is available in the local dairy*
- *A high risk as families on low income may have their resource diverted to alcohol and gaming machines which would leave even less for food*
- *Sometime it's easier to get drunk rather than thinking of what your family could have to eat*

Perception:
In central Christchurch there are about 70 liquor outlets compared with 3-4 fruit and vegetable outlets.

Are there open markets that supply fresh food nearby?

More than three-quarters of respondents said that markets supplying fresh food were nearby.

- *Yes. In South Auckland: flea market and beside the streets sell fruits and vegetables*
- *No, they are all far away from the homestead – need transport to get to it*
- *Yes. However, increasing availability of takeaway foods and the large amount of cheap imported goods may reduce the capacity of the market to provide fresh food and vegetables*
- *Not really, apart from the Saturday market under the canopies in Porirua*

Takeaways

- *Takeaways should provide healthy foods*
- *Decrease unhealthy takeaways*
- *There is easier access to takeaways than supermarkets*
- *More takeaways than liquor stores in my area*

What are organisations/groups doing?

What activities does your organisation do that help address the problem of food security in Pacific people?

- *One-to-one health education/family home visit/health talks to community sessions*
- *Provide nutrition education to improve healthy eating at home and support the establishing of healthy eating policies in the churches*
- *Visit clients at home and help them prepare safe meals*
- *Childcare centre*

What actions are taking place in your area to improve food security?

- *Addressing good nutrition with portion size/cooking methods*
- *Vegetable garden*
- *Food preparation demonstrations in different culture settings*
- *Sending childcare staff to courses to help identify and promote food security at our workplaces*

What is working well and why?

- *Kai Lelei in preschool centre: Pacific parents can see how easy it is to do, and make healthy foods with their children*
- *Acceptance of different ethnic groups' ways of cooking and preparing food*
- *People enjoy the fruit of their own labour regarding growing own gardens*
- *Using the same ethnic language in health education session*
- *Some people are not interested in change*

A group of Samoan families who were migrated to Te Kuiti who found employment at the meat work in Bennydale King Country found it hard to adjust to the food in NZ. Population Health Services approached the food market, fruit and vegetables outlet to provide taro, fresh coconuts and green bananas for these families. These products are available for these families now.

What information, education or communication do you see a need for?

- *Consistent messages about food and nutrition to the public*
- *Practical cooking demonstration/more tasting sessions*
- *The traditional recipes for foods cooked in rich coconut cream need to be modified so healthy tasty ingredients are added so it will taste as good as the original recipes*
- *More put through the church groups and via Pasifika events*
- *Workshops on how to eat healthy on a budget*

> *Education that healthy food is affordable/change the perception that all Pacific Island food is fattening .*

- *More visual aids to be translated into different Pacific languages*
- *Skills were passing down from generations to generation then. Easy access to food in New Zealand stops Pacific peoples from passing down planting skills to next generations as well as teaching children about the importance of eating fruit and vegetables. Now we have to tell the children through education that fruit and vegetables come from plants and trees that we grow, not from Chinese fruit shops*
- *Make funds available*
- *Support mechanisms that help Pacific bulk buy as groups eg church or "village"*
- *More publicity about programme available*
- *Promotion of better preparation of food including*
    - *pressure cookers for cheaper cuts*
    - *sharpening knives*
    - *safe food storage*
    - *reducing food waste*
    - *cleaning pots*
    - *cooking classes for fathers!*
- *There should be stricter guidelines on the suppliers who sell bad/low quality food to Pacific peoples*

> *Educate Pacific peoples about eating the Pacific way and smarter instead of the "white way".*

Government/policy actions called for included:

- *Removing GST on healthier foods*
- *Supporting the regulation of how food high in salt sugar, and fat can be advertised or marketed (through the Public Health Bill)*
- *Improving physical access and price of healthier foods*
- *Continuing to provide programmes for generating community awareness, participation and ownership – and not to expect these programmes to impact immediately*
- *Banks and money transfer agencies to reduce their remittance fees*

Food industry:

- *Dairies that stock fruit and vegetables sometimes do not have fresh supplies – help improve the quality, cost and availability of fruit and vegetables in dairies*
- *Promote frozen and canned fruit and vegetables*
- *Make the lower fat dairy options the easy choice at local stores – extend the Fresh for Less campaign*

What should the messages be?

- *Healthy eating within our budget*
- *Eat well*
- *Food portion – control what is put on the plate. For us it is the quantity rather than the quality, eg when eating out at church functions, birthdays, weddings. We tend to pile our plates with foods until it is about to fall onto the floor*
- *Simple one-liners*
- *Be there for your family by eating healthier*
- *Pick to eat*
- *Be healthy, wealthy and wise*
- *Grow gardens*
- *The cost of unhealthy eating eg high BP/diabetes/strokes*
- *Food safety*

Examples of what is working well in your area

- *Ongoing support provided to family and community groups*
- *The ADHB Healthy Village Action: Colourful vegetables were served on the tables in church function/fruits were served in favour of the cakes in some churches*

Fifteen pigs/feast reduced to 10 pigs at a Tongan Church with 200 members!

Examples of what was not working well in your area

- *Not enough health professionals in the area of nutrition, budget and community programmes in order to support and mentor the community at different levels (living alone widow, family, church)*
- *When my students attend Pacific Island gatherings involving food, healthy eating is not supported – university catering service*
- *There is a lack of traditional Pacific food on the menu*
- *Contract duration is often too short to allow health promotion and public health interventions to bed down and attitude and behaviour changes to take shape*

> *Portion size is not controlled in social functions because of the self help method.*

What about the education of Pacific children?

Teachers have a very full curriculum. It was emphasised that the messages should be the same throughout the lifecycle, but the best changes in behaviour would be achieved with early childhood education that could be followed through in primary, secondary and tertiary education. At the same time, parents and families should receive and act on the same messages to create a supportive environment and avoid the work within the education sector being undermined in the home.

- *A continuation of learning that is linked from early childhood all the way through to secondary school would be the best approach esp. with regards to helping the child be the "teacher" in the home and family with regards to influencing better eating.*
- *The role of education is very important but also needs to be relevant and "do-able" in the context of the age group and ethnic group you are dealing with eg early childhood education – a great place to start and continue onto primary school and intermediate*
- *By the time they get to high school, a lot of the eating habits are established and students are resistant to changing their diet; however, they are involving themselves in a lot of physical activity and this should be the focus of the material targeted at secondary school students*
- *From a curriculum perspective, I would be interested in how "united" different areas are in terms of delivering the same message, eg moderation etc. The different areas I'm alluding to are: Food Technology; PE Health; Junior Science; Human Biology; Maths (working out calories etc); Social Studies (population studies on the diet and food availability of certain countries)*
- *From a secondary school perspective – a certain percentage of spending is given to promotion of sports activities and teams; competitions at lunchtime; focus of Push Play during their promotion week amongst the staff and students*

Hindrances to an effective education programme re decreasing obesity etc:

- *The high level of transiency – due to the instability of parental income due to lack of employment; dependence on benefits; broken homes (where the child is moved between parents and other caregivers) therefore there would be lack of consistent learning*
- *There is a significant amount of anecdotal evidence that shows the importance of having a balanced breakfast in the morning esp. with secondary school students. They often don't have breakfast or have a poor choice of foods for breakfast*
- *Easy access to supermarkets (within a walking distance as many PI families have limited access to private and public transport due to financial constraints)*
- *Whilst healthy food is promoted, the underlying issue is the cost of the healthy food (often stereotyped as being more expensive)*
- *Whilst the healthy food is being promoted at school canteen, my own personal experience is that students say it doesn't taste as good as the stuff they have at the bakery*
- *Whilst healthy food is being promoted for students, the staff snack machine is frequented to the point where it needs restocking at least twice a week – this is an area that would also need a good focus esp. where we need to practice what we preach*

Barriers associated with education:

- *Transiency*
- *Staff snack machine – role modelling*
- *Not eating breakfast*
- *Supermarket access for caregivers*
- *Cost of healthy food*
- *Taste of healthy food*

A more intersectorial approach in the solutions is required, eg policies to exempt Pacific students from tuition fees at tertiary level – could be a long term and more effective measure to help Pacific peoples be more educated, improve income, improve housing and nutrition/food.

Other information

- *The amount of food that people cater on a feast can be a $10,000 cost, and most money spent on meat – piglets etc and traditional dishes (yams, taro etc) – and the amount and types of food provided have cultural and economic significant values etc. (providing too much on occasion, funeral, birthdays, weddings)*
- *One of money transferring service in Otahuhu – has a record of $1 million transferred to Tonga per month, that is a 100% increase over the year/compromising our daily living to give to others*
- *Pacific people do shift work or work long hours and do not have the time to prepare food*
- *A family home with a bit of land or soil to plant the vegetables or fruit trees will be lucky for Pacific people*

- *Removing GST on healthier foods has the potential to improve food security of Pacific people*
- *Increase education, promotion of healthy eating, and this will take time*
- *Develop champions and role models (advocates of healthier lifestyle), who walk the talk as part of social marketing campaigns*

Compendium of interventions

A search of the Agencies for Nutrition Action database (www.ana.org.nz) found 88 programmes concerning activity and nutrition with a key word Pacific recorded. There were 915 programmes in total with most not specifying a specific ethnic target. Rather than trying to report every project, some "flagship" programmes in a number of different settings are presented in this compendium. They include gardening, local community shops, food industry and supermarkets, education, leadership training and churches. In all interventions there is a huge amount of community involvement, enthusiasm and ownership and also some very long-term, sustainable strategies in place. The benefits will be enjoyed by future generations.

Gardening Project

Provider:

Auckland Regional Public Health Service
Ministry of Education
Auckland Regional Council

Location:

Manukau, Auckland

Setting:

Auckland Early Pasefika Early Childhood Services

Activity:

Work with early childhood centres to create gardens in their centres. Childhood centres planted carrots, strawberries (NZ fruit and vegetable) as well as taro and green bananas (Pacific peoples homeland favourite fruit and vegetable).

Give designing gardens workshops to preschool teachers and parents. The fruit and vegetable gardens are used as a source of learning nutrition and interacting with environment and physical activity.

Evaluation:

No formal evaluation is commissioned.

The project was established in 2001, and up to 2005, 70 Pacific preschools participated in the project, involving 500 Pacific children.

Other parts of NZ, for example, Upper Hutt in Wellington, have started their own gardening projects in preschools and housing projects.

> Children labelled their Pacific vegetables and were responsible for looking after their vegetables. Then the teacher and children created stories about the vegetables and their lives.

West Auckland Pacific Health Promotion Projects

Provider:

West Fono Health Trust

Location:

West Auckland

Setting:

Pacific early childcare centres, Pacific community groups, Pacific churches and West Fono Health Trust

Activity:

Training, support and mentoring of West Fono community health team to deliver nutrition messages consistent with the national nutrition guidelines and food and beverage classifications.

Promoting healthy eating and activity with West Auckland Pacific community groups based on the Ministry of Health HEHA guidelines.

Supporting Pacific churches to have a healthy eating environment by education sessions and promotion.

Promoting healthy eating by promoting a family garden for every Pacific family. West Fono supplies vegetable plants for the families.

Promoting healthy activity – West Fono provides aerobics classes (15 classes a week) in the community.

Green prescription referrals from the GPs includes Active Families Programme. A full-time Pacific nutritionist works with families and groups.

Evaluation:

The Pacific Department of Population Health Auckland University has been contracted to evaluate the aerobics exercise programmes.

Healthy Kai Programme

Provider:

The Healthy Kai Programme is an interagency and intersectorial initiative provided by the district health boards (Auckland Regional Public Health Service), in partnership with the Heart Foundation, Pacific and Māori providers and territorial local authorities.

Location:

Auckland Region in the Mangere, Otara, Glen Innes and Glen Eden shopping centres

Setting:

Shopping centres, food retailers with ready-to-eat takeaway foods, and community

Activity:

The Health Kai Programme works with food retailers to increase the availability of healthy "ready-to-eat takeaway foods", and to encourage shoppers to make healthy choices when eating out. "Healthy Kai" choices are promoted by point-of-purchase signage, with supporting information available through the Programme's primary care partners and local agencies. Training is provided for staff involved in Programme promotion and implementation. The Programme works with retailers to extend the range of healthy foods provided.

Each Programme has a working group that directs and oversees activities.

Evaluation:

Evaluation of the Mangere and Otara Projects was commissioned by the Let's Beat Diabetes and Healthy Eating – Healthy Action Healthy Kai Working Group, and undertaken by the University of Auckland's School of Population Health. A report on the findings was not available at the time of writing this report.

In 2007 the Healthy Kai Programme was the Supreme Award winner in the Ministry of Health Innovations competition which attracted 190 entries from throughout New Zealand.

> Judges described the Auckland Mangere Town Centre programme as *an innovative and collaborative approach within the broader community.*

Pacific Health Leadership Development Programme

Provider:

Pacific Division of the Ministry of Health and University of Canterbury

Location:

New Zealand-wide

Activity:

Future Pacific leaders have been identified and a programme has been developed by the Pacific Division of the Ministry of Health and University of Canterbury; this includes formal academic education that ensures that Pacific values and cultural competencies are embedded in the programme.

The aim of the project is to develop Pacific leaders who role-model holistic health and in the future will lead Pacific and other services that promote healthy work environments.

Evaluation:

Ongoing evaluation by the Ministry of Health Pacific branch expert panel.

Fresh for Less

Provider:

Counties Manukau Lets Beat Diabetes, and Foodstuffs (Food Industry Group)

Location:

PAK'nSAVE stores in South Auckland

Setting:

The eight-week campaign was between 15 October and 8 December 2007, in three supermarkets

Activity:

Cooking demonstrations using recipes based on the featured vegetables were delivered by health providers in stores.

Recipe cards used in the demonstrations were given away.

Discounted fruit and vegetables were available in-store at the same time.

Evaluation:

A formal evaluation was commissioned by the Centre for Health Services Research and Policy in 2008:

- There was a stepped increase in sales of fruit and vegetables at the time of the intervention.
- Price and in-store cooking demonstrations were the principal factors for the increase of sales.
- Some of recipes were not appropriate to some ethnic groups.
- Repeating the campaign a number of times throughout the year would be more effective.

> The majority of stakeholders were of the view that short, sharp, dynamic campaigns repeated a number of times throughout the year would be more effective as they would keep the customers engaged.

Certificate in Pacific Nutrition

Provider:

Heart Foundation, Pacific Islands Heartbeat, AUT University
Funding provided by the Ministry of Health

Location:

Established in 2002. Most courses are delivered in Auckland, but have also been delivered in Waikato region, Wellington region, Christchurch, Palmerston North, Tokoroa and Hawke's Bay since 2004.

Setting:

Macro environment as this is a "train the trainer" course.

Activity:

Each course is delivered in three parts – healthy eating, healthy lifestyles and life course nutrition. Together, completion of the three components make up the 15 points/credits Certificate in Pacific Nutrition awarded by AUT University in partnership with Pacific Islands Heartbeat. The course content was revised and updated for 2008.

Since 2002 (to the date of this report) more than 400 students have graduated; more than half are from the Auckland area, followed by Wellington/Lower Hutt, Palmerston North, Napier, Tokoroa, Hamilton and Christchurch. One in every eight students is male. Most of the students come from a health background, some are from churches and others from education. Four in every five students are Pacific, with Māori, European and others involved working with Pacific people. The majority of students are Samoan with the next largest ethnic groups being Tongan and Cook Islands Māori.

Evaluation:

A formal evaluation by the Centre for Health Services Research and Policy was commissioned by Pacific Islands Heartbeat/Heart Foundation in 2007. From the evaluation and ongoing course evaluation and feedback from students and staff the effectiveness of the learning is related to:

- Pacific focus
- hands-on approach
- simple language
- support and the staff
- showing how to rather than just telling
- supportive, friendly environment
- interest in health and health of others
- cultural appropriateness
- good future career opportunities.

One of the challenges is for groups of 4-5 students who are given $25 to prepare the day's food for a family of six and to follow the food and nutrition guidelines – and they do it!

Health Promoting Church Programme

Provider:

The National Heart Foundation

Location:

Auckland

Setting:

The Health Promoting Church (HPC) Programme is community-based and traverses Pacific ethnic diversities and church denominations.

More than 30 churches are involved in the Programme, reaching Tongan, Samoan, Cook Islands Māori, Tuvaluan and Tokelauan people in the Auckland Regions.

Activity:

The HPC Programme is aimed at encouraging and strengthening community participation/action and ownership of healthy lifestyle programmes, through the empowerment of members to make positive changes to their health and wellbeing. Individual churches and the Heart Foundation enter into partnership to establish, implement and support nutrition, physical activity and smokefree initiatives.

A health komiti (committee) is established and trained by Pacific Islands Heartbeat to lead the Programme. Church leadership support has been evident by the number of ministers completing the Certificate in Pacific Nutrition course.

Evaluation:

A formal evaluation of the Programme was undertaken in 2007/2008 by the University of Auckland's School of Population Health, commissioned by Pacific Islands Heartbeat/Heart Foundation. The Evaluation Report showed the HPC is an "appropriate tool and effective vehicle for reaching many Pacific people in church congregations", for the following reasons:

- church and 'whole family approach'
- internal church leadership and support structures
- Pacific focused
- community development approach
- Pacific staff, training and support provided to Health Komiti
- examples of healthy behaviours being incorporated into usual church programmes
- meets almost all 10 listed best practice recommendations for programmes involving Pacific peoples (Novak, Review of Evidence, 2006).

The evaluation also highlighted areas needing improvement, with recommendations for further Programme development.

Healthy Village Action Zones Programme

Provider:

Auckland District Health Board

Location:

Seven geographic zones within the Auckland District Health Board area

Setting:

Pacific churches

Activity:

Healthy Village Action Zones (HVAZ) is a concept of building healthy Pacific communities with access to quality health care. It is about community-led development, owned by Pacific Communities. This initiative between the Auckland District Health Board and the Pacific Island community is supported by Pacific providers and PHOs to see churches acting as "village hubs". Seven geographic action zones have been established, all in areas with high numbers of Pacific peoples and with strong networks of Pacific churches of many different denominations.

Building on international models of parish nursing and local parish community nursing initiatives in 2002/03, Parish Community Nurses work with church health committees to develop and co-ordinate health plans and promotion programmes for parishioners across the seven zones. What makes HVAZ unique is its integrated model of working with churches using community action and self-determination to deliver improvements in the health of Pacific families. In the longer term, HVAZ will provide a platform for bringing agencies outside the health sector under the HVAZ umbrella to tackle determinants of health and improve services to Pacific peoples. This is an ambitious and exciting venture with the potential to create a new model for community-based services in New Zealand.

Evaluation:

Programme evaluation is in the planning stage.

HVAZ has already succeeded in building support from 30 church communities in the development of activities including immunisation, health screening, exercise programmes and health promotion.

Recommendations

Requirements

The requirements to improve opportunities to choose and consume healthy foods of any initiative include:

1. Development of a physical environment that promotes and supports healthy food choices
2. Development of the psycho-social environment that promotes healthy food choices
3. Increasing the profile of culturally acceptable healthy food choices
4. Improving access to foods low in fat, salt and sugar
5. Improving affordability of foods low in fat, salt and sugar
6. Banning access to and advertising of foods high in fat, salt and sugar
7. Increasing the cost of foods high in fat, salt and sugar
8. Alignment with sociocultural traditions to promote healthy food choices
9. Tailoring of ongoing support for education and health promotion in culturally appropriate ways
10. Promotion of policy change to improve opportunities for healthy food choice in the environment.

What should the messages be?

- Simple one-liners
- Healthy eating within our budget
- Eat well
- Portion size – control what is put on the plate
- Be there for your family by eating healthier
- Pick to eat
- Be healthy, wealthy and wise
- Grow gardens
- The cost of unhealthy eating, eg high blood pressure/diabetes/strokes
- Food safety

Opportunities

Policy

Extend Working for Families-type support to all low-income people, including beneficiaries and single people without children.

Link benefit levels to food prices instead of general consumer prices.

Develop a strategy to reduce dependency on food banks or relatives and friends.

Remove GST from fruit and vegetables.

Provide vegetables and fruit discount cards (similar to the community services card used for visiting the doctor).

Town planning should include a balance of type and distribution of food outlets, including supermarkets. It is critical to have fruits and vegetables/supermarkets around high deprivation areas, and fewer takeaways.

Local food outlets

Target areas where there is a higher density of Pacific population, particularly the local dairy and petrol stations, to promote healthier food choices.

Offer cooking classes using foods and tastes that Pacific peoples normally eat, to promote personal nutrition knowledge and skills.

Provide budgets for weekly menus and shopping lists for quick-to-prepare healthy Pacific recipes.

Local home delivery service by supermarkets must be cheaper than the cost of a taxi.

Promote local farmers' markets.

Workplaces for Pacific

(Hospitals, aged care, food supply, fast-food chains)

Ask employers to ensure healthy food choices are available during the work day, eg provide breakfast, healthier options in vending machines, fresh tap water available at no cost. (Win-win situation as absenteeism/illness reduced.)

Social marketing

Have posters and point-of-decision material, radio, TV – food makeovers.

Use champions and local role models to model healthy choice behaviours.

Labelling and signposting of foods to more easily identify the healthier choice.

Identification and ranking of foods by nutrient density and cost, eg per gram of protein, fibre.

Food industry partnerships

Provide lower fat milk, wholemeal bread etc at same cost as higher fat and white bread.

School milk for lower decile schools – alongside fruit in schools.

Reformulation of commonly consumed foods, eg "food drinks" (such as Milo), noodles (as Nestlé has done).

Cultural and community occasions

Promotion by leaders of the healthier choices available at community functions.

Catering guidelines and resources developed with each community. Community group food and drink policies.

Promote use of home and community gardens for food supply.

Provide more community nutrition courses/workshops.

Promote, increase and support community action initiatives!

Workforce capacity building

Programmes such as the Certificate in Pacific Nutrition, Mentorship and Pacific Leadership course are having far-reaching impact and should have more funding, continue to be supported and expanded.

There is a need for more trained Pacific nutritionists and dieticians.

Health promotion and support should ideally start for an individual before birth.

Preparation for work, life-style/life skills at schools should be included in the curriculum.

Must be practical and easy!

Education

Promote consistent messages and behaviours across the life cycle starting from pre-pregnancy, through early childhood centres and on to secondary school.

Educate the taste buds with a variety of foods from an early age.

Make sure the curriculum for healthy living messages is integrated and intersectorial.

Exempt Pacific and other low-income students from tuition fees at a tertiary level.

Practical guide – where and how to put the advocacy messages

Communicate in both English and Pacific languages through the media strategy: a Pacific radio and/or TV programme about healthy diet, budgeting and success stories.

Work with church administrators to advocate for health committees in each church.

Limit advertisements for junk foods around schools, and for the foods that can be sold in shops next to schools.

Replace junk foods from vending machine with healthier foods, eg fruit in secondary schools, milk in primary school.

Educate on how to read food labels and how to choose healthier foods. Make food labelling more simple.

Use peer-to-peer support and social networks such as sports clubs.

If key community people have accurate knowledge and can deliver this concurrently with other community activities there may be additional benefits in self care and possibly long-term clinical outcomes.

Glossary

Acculturation	the changes that occur when groups and individuals come into contact with another culture – acculturation may be further divided into assimilation, integration, separation and marginalisation
Assimilation	cultural identity is relinquished and the individual moves into the larger society (high New Zealand and low Pacific identification)
Determinants of health	education, employment, income, job security, location of home, social support and social cohesion
Energy dense foods	the amount of calories/energy for weight of food, eg 1 teaspoon of butter has 45 calories and 1 teaspoon of fresh apple has 3! There is less water in energy dense foods like chocolate!
Food security	individuals, households and communities having easy access to enough healthy food every day. Food must be culturally and socially acceptable
Food insecurity	not having sufficient food, experiencing hunger as a result of running out of food, eating a poor quality energy dense, nutrient poor diet with limited options, anxiety about getting food, or having to rely on others for food
Integration	maintenance of cultural integrity but also movement to become an integral part of the larger society (high New Zealand high Pacific)
Marginalisation	losing the essential features of one's culture but not replacing them by entering the larger society
Nutrient dense foods	more vitamins and minerals per unit weight and low in calories, eg an apple is nutrient dense but not energy dense
Poverty	the lack of something to make one's life better – poverty may be defined by falling below a threshold of family resources including income, accommodation costs and family size
Separation	self imposed withdrawal from the larger society (high Pacific, low New Zealand)

References

Barnett, J. (2007). Food security and climate change in the South Pacific. *Pacific Ecologist, 14* (Winter 2007), 32-36.

Bronte-Tinkew, J., Zaslow, M., Capps, R., Horowitz, A., & McNamara, M. (2007). Food insecurity works through depression, parenting, and infant feeding to influence overweight and health in toddlers. *J Nutr, 137* (9), 2160-2165.

Butler, S., Williams, M., Tukuitonga, C., & Paterson, J. (2003). Problems with damp and cold housing among Pacific families in New Zealand. *NZ Med J, 116* (1177), U494.

Cook, L., Didham, R., & Khawaja, M. (1999). *On the demography of Pacific people in New Zealand*. Wellington: Statistics New Zealand.

Cowley, E. T., Paterson, J., & Williams, M. (2004). Traditional gift giving among Pacific families in New Zealand. *Journal of family and economic issues, 25* (3), 431-444.

Devereux, G., & Seaton, A. (2005). Diet as a risk factor for atopy and asthma. *J Allergy Clin Immunol, 115* (6), 1109-1117; quiz 1118.

Fa'asisila, S. (2007). *Associations between environmental and lifestyle risk factors for obesity and church attendance among adolescent Pacificans*. Unpublished Master of Public Health, University of Auckland, Auckland.

Fletcher, M., & Dwyer, M. (2008). *A fair go for all children. Actions to address child poverty in New Zealand:* Children's Commissioner and Barnardos.

Food and Agriculture Organization of the United Nations. (1996). *Rome declaration on World Food Security and World Food Summit plan of action*. Retrieved 2 October, 2008, from http://www.fao.org/docrep/003/w3613e/w3613e00.htm

Keenan, D. P., Olson, C., Hersey, J. C., & Parmer, S. M. (2001). Measures of food insecurity/security. *J Nutr Educ, 33 Suppl 1, S49-58.*

Lanumata, T., Heta, C., Signal, L., Haretuku, R., & Corrigan, C. (2008). *Enhancing food security and physical activity: the views of Māori, Pacific and low income peoples*. Wellington: University of Otago.

Mavoa, H. (2006). *The "C" Factor: Cultural Underpinnings of Food, Eating and Body Size*. Paper presented at the Progress in Obesity Research 10: Proceedings of the 10th International Congress on Obesity. CD: ISBN 978-0-646-47086-3., Sydney, Australia.

Maxwell, S. (1996). Food security: a post-modern perspective. *Food Policy, 21* (2), 155-170.

McIntyre, L. (2003). Food Security: More than a Determinant of Health. *Policy (Centre for Independent Studies (N.S.W.), 47, 46*.

Meleisea, M., & Schoeffel, P. (1998). Samoan families in New Zealand: the cultural context of change. In V. Adair & R. Dixon (Eds.), *The family in Aotearoa New Zealand (pp. 158-178).* Auckland: Longman.

Ministry of Health. (2000). *The New Zealand Health Strategy.* Wellington: Ministry of Health.

Ministry of Health. (2003). *NZ Food NZ Children, key results of the 2002 National Children's Nutrition Survey.* Wellington: Ministry of Health.

Ministry of Health. (2008, 20 June 2008). *Pacific Health*. From http://www.moh.govt.nz/pacific

New South Wales Centre for Public Health Nutrition. (2003). *Food security options paper: a planning framework and menu of options for policy and practice interventions*. New South Wales: New South Wales Centre for Public Health Nutrition.

Ni Mhurchu, C., & Ogra, S. (2007). The price of healthy eating: cost and nutrient value of selected regular and healthier supermarket foods in New Zealand. *NZ Med J, 120(1248), U2388*.

NZ Institute of Economic Research. (2003). *Pacific Peoples in New Zealand: Preliminary review of development issues*. Wellington: NZ Institute of Economic Research.

Pearce, J., Blakely, T., Whitten, K., & Bartie, P. (2007). Neighbourhood Deprivation and Access to Fast-Food Retailing. *American Journal of Preventive Medicine, 32* (5), 375-382.

Poland, M., Paterson, J., Carter, S., Gao, W., Perese, L., & Stillman, S. (2007). Pacific Islands Families Study: factors associated with living in extended families one year on from the birth of a child. *Kōtuitui: New Zealand Journal of Social Sciences Online, 2,* 17-28, 1177–1083X/1107/0201–0017.

Rush, E., Puniani, N., Snowling, N., & Paterson, J. (2007). Food security, selection, and healthy eating in a Pacific Community in Auckland New Zealand. *Asia Pac J Clin Nutr, 16* (3), 448-454.

Russell, D., Parnell, W., & Wilson, N. (1999). *NZ Food: NZ People. Key results of the 1997 National Nutrition Survey.* Wellington: Ministry of Health.

Statistics New Zealand. (2006). *Pacific Profiles: 2006*. Retrieved 13 October 2008, from http://www.stats.govt.nz/analytical-reports/pacific-profiles-2006/default.htm

Statistics New Zealand. (2008). *August largest monthly food price increase in 19 years*. Retrieved 4 October 2008, from http://www.stats.govt.nz/products-and-services/media-releases/food-price-index/food-price-index-aug08-mr.htm

Swinburn, B., Egger, G., & Raza, F. (1999). Dissecting obesogenic environments: the development and application of a framework for identifying and prioritizing environmental interventions for obesity. *Prev Med, 29* (6 Pt 1), 563-570.

Te Hotu Manawa Māori, & Obesity Action Coalition. (2007). *Food security among Māori in Aotearoa*.

Utter, J., Scragg, R., Mhurchu, C. N., & Schaaf, D. (2007). At-home breakfast consumption among New Zealand children: associations with body mass index and related nutrition behaviors. *J Am Diet Assoc, 107* (4), 570-576.

Utter, J., Scragg, R., & Schaaf, D. (2006). Associations between television viewing and consumption of commonly advertised foods among New Zealand children and young adolescents. *Public Health Nutr, 9* (5), 606-612.

World Health Organization. (2008). *Health impacts of the global food security crisis*. Retrieved October 2, 2008, from http://www.who.int/food_crisis/global_food_crisis/en/index.html

Appendices

Appendix 1: New Zealand Pacific population geographical location

Source: Statistics New Zealand
Population Projections
Prepared for Ministry of Health

Ref No: RIS18647

Sum of population 2008	Ethnicity				Pacific	
DHB name	Māori	Pacific	Other	Grand Total	%DHB	% total
Auckland	35,710	52,400	354,980	443,090	11.8	19.6
Bay of Plenty	51,370	2,660	152,440	206,470	1.3	1.0
Canterbury	38,310	10,430	445,430	494,170	2.1	3.9
Capital and Coast	30,720	21,890	231,290	283,900	7.7	8.2
Counties Manukau	79,010	100,880	293,380	473,270	21.3	37.6
Hawke's Bay	37,580	4,800	111,260	153,640	3.1	1.8
Hutt	23,860	11,120	107,000	141,980	7.8	4.1
Lakes	34,930	2,490	64,980	102,400	2.4	0.9
MidCentral	30,020	3,830	132,030	165,880	2.3	1.4
Nelson Marlborough	12,360	1,515	121,740	135,615	1.1	0.6
Northland	49,310	2,330	103,530	155,170	1.5	0.9
Otago	12,970	3,010	169,780	185,760	1.6	1.1
South Canterbury	3,570	415	51,280	55,265	0.8	0.2
Southland	12,590	1,365	96,530	110,485	1.2	0.5
Tairawhiti	21,870	950	23,110	45,930	2.1	0.4
Taranaki	17,760	1,015	88,760	107,535	0.9	0.4
Waikato	76,100	8,480	272,290	356,870	2.4	3.2
Wairarapa	6,070	710	32,900	39,680	1.8	0.3
Waitemata	50,860	36,470	433,770	521,100	7.0	13.6
West Coast	3,170	230	28,710	32,110	0.7	0.1
Whanganui	15,830	1,010	46,610	63,450	1.6	0.4
Grand Total	643,970	268,000	3,361,800	4,273,770	6.3	100

Appendix 2: Questionnaire with key themes and questions

Your name: Email:

Position: Phone:

Organisation: Website:

What does your organisation do?

> Food security means having easy access to enough healthy food every day. It must be culturally and socially acceptable.

Points you may wish to comment on or add to concerning food security.

In your community?	
What changes would you like to see made? Examples below	
Where your Pacific people live is there easy access to a supermarket?	
How do people transport their food?	
Public transport versus need to use a car or walking?	
Do the local dairies supply healthy food?	
Is the cost of healthy food more than not so healthy e.g. wholegrain bread versus white bread? Low fat milk versus standard milk?	
Is there balance in availability e.g. liquor versus fruit and vegetables?	
Are there open markets that supply fresh food nearby?	
By your organisation?	
What activities does your organisation do that help address the problem of food security in Pacific people?	
What actions are taking place in your area to improve food security?	
What is working well and why?	
What information, education or communication do you see a need for?	
What should the messages be?	
Examples of what is working well in your area?	
Examples of what was not working well in your area?	
Other information relevant to food security	