TE HĀ ORA: THE BREATH OF LIFE

NATIONAL RESPIRATORY STRATEGY
RAUTAKI ROMAHĀ Ā-MOTU

te hā the asthma foundation

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The Thoracic Society of Australia & New Zealand
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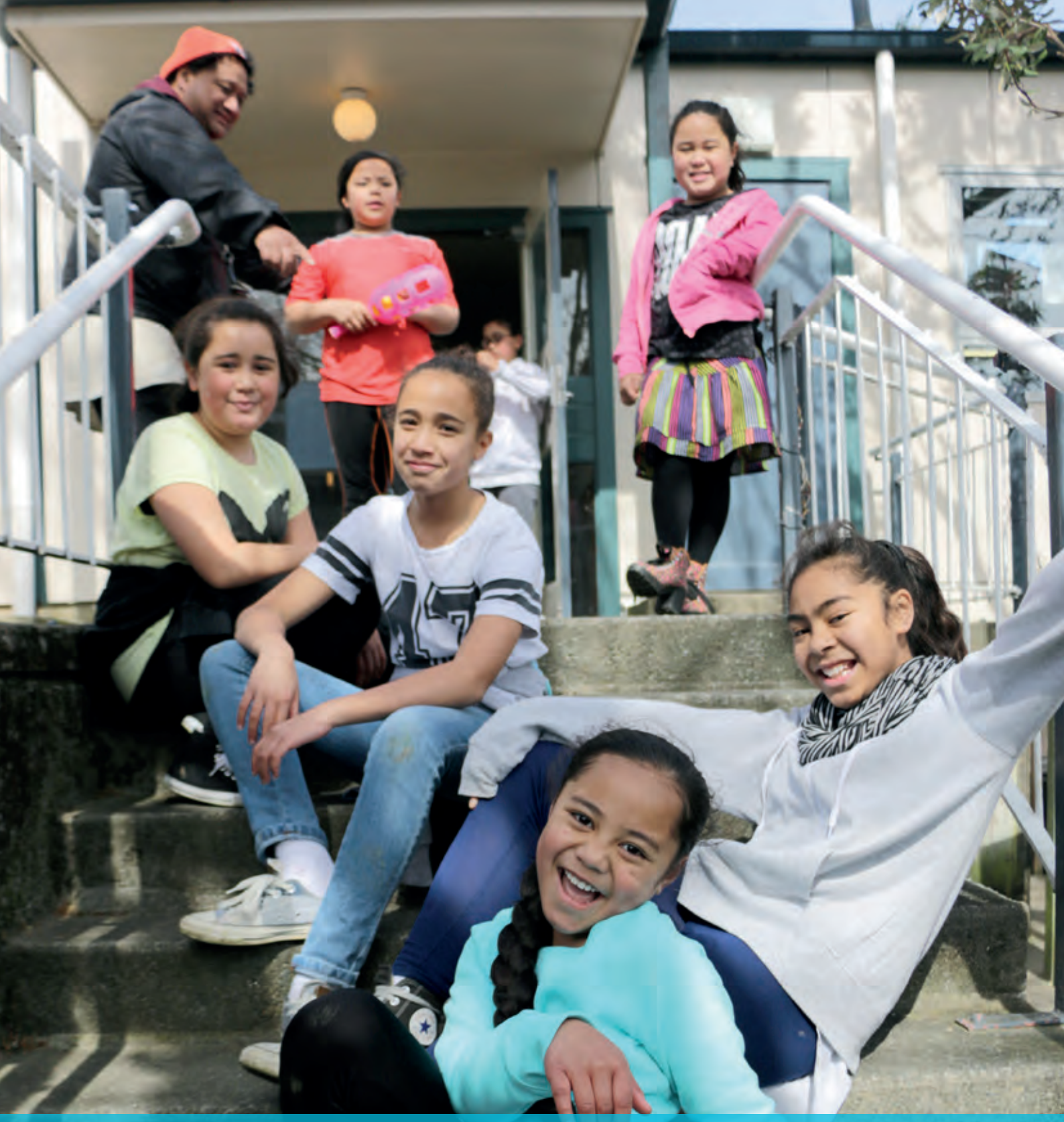


RAUTAKI ROMAHĀ Ā-MOTU NATIONAL RESPIRATORY STRATEGY

RĀRANGI UPOKO: CONTENTS

KUPU WHAKATAKI: FOREWORD

Te Hā o te Tangata – Breathing Easy

Respiratory diseases are not new. Yet despite modern treatments and better understandings of the problem, the prevalence of respiratory diseases has greatly increased to the point that they are now the third most common cause of death in New Zealand. That is why a national respiratory strategy is so important.

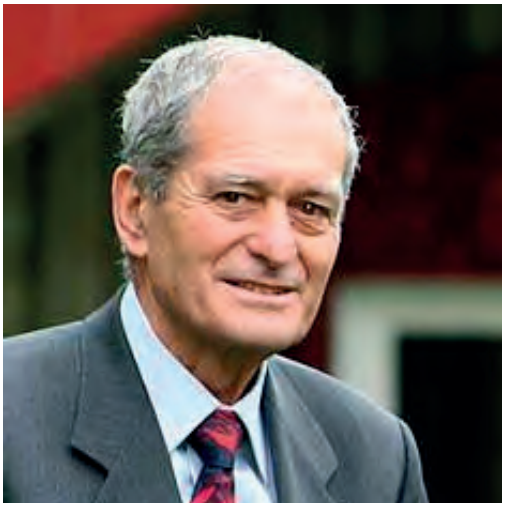
It is clear that respiratory diseases not only reflect the health status of individuals but are also a comment on the environments within which we live, work, and play. It is also clear that the complexities surrounding respiratory diseases are such that no single profession, sector or agency can effectively reverse the current trend that is accounting for escalating levels of disability, suffering, and death.

Addressing the problem demands an approach that includes highly skilled medical interventions, ready access to those services, early (rather than late) intervention, close links between the various components of the health sector and high levels of health literacy, especially for families.

But interventions need to go beyond disease management to place greater importance on preventing diseases from ever occurring. Enough is known about the causes of respiratory diseases to justify action at family, school, community, marae, Iwi and national levels. Poverty is a breeding ground for respiratory diseases. And ongoing exposure to air that is toxic, or homes that are poorly heated, or streets that are clouded by diesel and petrol fumes, greatly increase the risks for respiratory disease.

Like so many diseases in the 21st century, there is a strong need for a whole-of government approach, inter-sectoral contributions that are coherent and collaborative, collective community action, and a health sector that can prevent respiratory problems from becoming chronic illnesses.

The National Respiratory Strategy proposes opportunities for earlier and more effective treatments as well as for closer attention to the amelioration of environmental risks. The Strategy is timely and has the potential to greatly improve the health and wellbeing of thousands of New Zealanders. It deserves wide support and prompt implementation.



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Massey University

MIHI: ACKNOWLEDGEMENTS

Mihi: Acknowledgements

The New Zealand Asthma Foundation welcomes the publication of the National Respiratory Strategy. The need for it is clear, and our aspirations and hopes are high for achieving significant change for the estimated 700,000 people in this country affected by respiratory conditions.

The Foundation has a proud history of facilitating research into respiratory illness. In line with our 2014–19 strategy, however, we are now taking a more proactive approach to ensure research findings and recommendations are actually delivered on.

It is clear that we must make real and meaningful progress against the objectives in the Strategy. To do this we need action from government, health professionals, sector groups, businesses, local authorities and the voluntary and community sectors. Action to reduce the incidence of respiratory disease. Action to reduce the impact of respiratory disease. And, especially, action to eliminate inequalities. The burden of respiratory illness among Māori and Pacific peoples represents one of the most significant health-care disparities in New Zealand.

In other words, we need to take collective responsibility – to meet the social and economic challenges faced by people with respiratory illnesses and their families and carers.

I would like to thank my predecessor, Angela Francis, for initiating this work, and also all those who contributed their time and expertise.

We are hugely grateful to our Expert Advisory Group, whose role it was to oversee the Strategy's content: Innes Asher, Richard Beasley, Teresa Chalecki, Teresa Demetriou, Richard Edwards, Tristram Ingham, Kyle Perrin, Betty Poot, Jim Reid and Api Talemaitoga.

We received invaluable support and input from health professionals of all disciplines, as well as from consumer advocacy groups, researchers and academic leaders. We also received contributions from the New Zealand Nurses Organisation, General Practice New Zealand, the New Zealand Medical Association, Pasifika Medical Association and the Pharmacy Guild of New Zealand. The Thoracic Society of Australia & New Zealand, the leading Australasian respiratory specialist organisation, has also endorsed the Strategy.

Our thanks also to the Ministry of Health and Department of Internal Affairs for the secondment of Kathy Lys to write the document and manage the development process. Kathy was supported by Asthma Foundation staff Teresa Demetriou, Ashley Pennycuick and Teresa Chalecki.

We look forward to sharing the Strategy widely and working with you all to implement its recommendations.

John Wills

Chief Executive

The Asthma Foundation

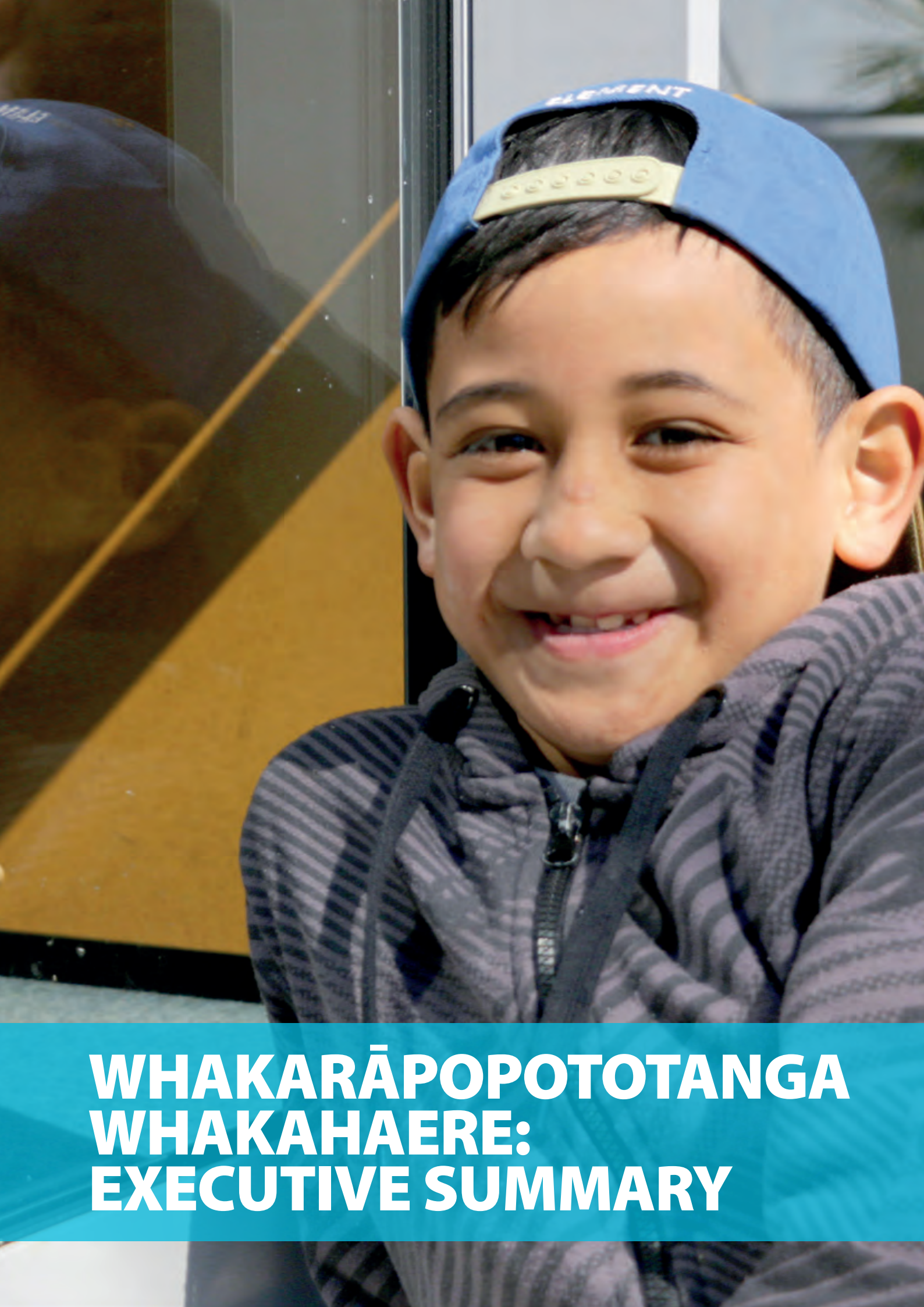
MOEMOEĀ: VISION

MOEMOEĀ: VISION

In Aotearoa New Zealand, children, adults and families of all ages, cultures and backgrounds breathe freely. They lead long, healthy and independent lives, because they:

- live, work, learn and play in healthy places, and have the income they need
- can easily get help when and where they need it, from well well-trained and well-resourced health health workers who provide high-quality services and communicate in a way that suits any culture and way of life
- live in a country that values respiratory health, and delivers effective health and social services seamlessly around those who need them.

Well-designed research, evaluation and applied learning lead to even better health environments, knowledge and services through the evolution of time.



WHAKARĀPOPOTOTANGA WHAKAHAERE: EXECUTIVE SUMMARY

Introduction

'Respiratory disease' is a general term used to describe a large group of conditions that impair the airways and lungs. It includes conditions such as asthma, bronchiectasis, bronchiolitis, pneumonia, chronic obstructive pulmonary disease (COPD), lung cancer and obstructive sleep apnoea (OSA).

The National Respiratory Strategy is a call to action to:

- reduce the incidence of respiratory disease
- reduce the impact of respiratory disease
- eliminate inequalities in respiratory health in New Zealand.

The purpose of the Strategy is to provide direction for decision-making on the nature and distribution of services that contribute to better respiratory health. Decisions can be informed by the Strategy's content and approach, which relate to the key question:

What are the key issues for respiratory health in New Zealand, and what actions would make the most difference to respiratory health outcomes and equity?

For this reason, the document is intended primarily for people involved in the planning, funding and delivery of health care at all levels: national (government), regional (district health boards and primary health organisations) and community (service providers).

In addition, the Strategy aims to benefit a wide range of audiences, from universities to consumer groups and families living with respiratory disease. It offers a basis for advocacy and research, and encourages strong working relationships across health, housing, welfare and education.

Implementing the Strategy will require agencies to work together, develop plans for their relevant populations, and agree on appropriate actions, targets and timeframes. The Asthma Foundation will support this wider work by providing a forum for information sharing and ongoing monitoring of progress against respiratory health indicators. The Foundation will also progress a number of actions aimed at achieving the Strategy's goals and objectives.

> **"WHAT ARE THE KEY ISSUES FOR RESPIRATORY HEALTH IN NEW ZEALAND, AND WHAT ACTIONS WOULD MAKE THE MOST DIFFERENCE TO RESPIRATORY HEALTH OUTCOMES AND EQUITY?"**

What makes respiratory disease a health priority for New Zealand?

In New Zealand over **700,000 people** (one in six) live with a respiratory condition.

Respiratory disease:

- is our **third most common** cause of death
- accounts for **one in eight** of all hospital stays
- costs the country over **$5.5 billion** every year.

This huge burden on our individuals, families and health system is much greater for **children**, people living on **low incomes, Māori** and **Pacific peoples**. For this reason, a strong equity focus is needed to achieve real improvements in health outcomes for all.

New Zealand has never had a national strategy or policy for respiratory health. This is needed now because:

- we have high and worsening rates of respiratory disease and inequalities in health outcomes
- personal and financial costs will continue to rise without a new approach
- current efforts are uncoordinated, inequitable, and need to be better supported.

How the Strategy was developed

The National Respiratory Strategy was developed by the Asthma Foundation, under the direction of an Expert Advisory Group of New Zealand clinical and academic leaders in respiratory health.

Its content draws on key research and case studies, along with the collective experience of health professionals, researchers, planners, policy makers, consumer advocates, educators, service providers and others working in the field. Their input was gathered via an initial survey on key issues and actions for respiratory health, and feedback on the draft strategy document.

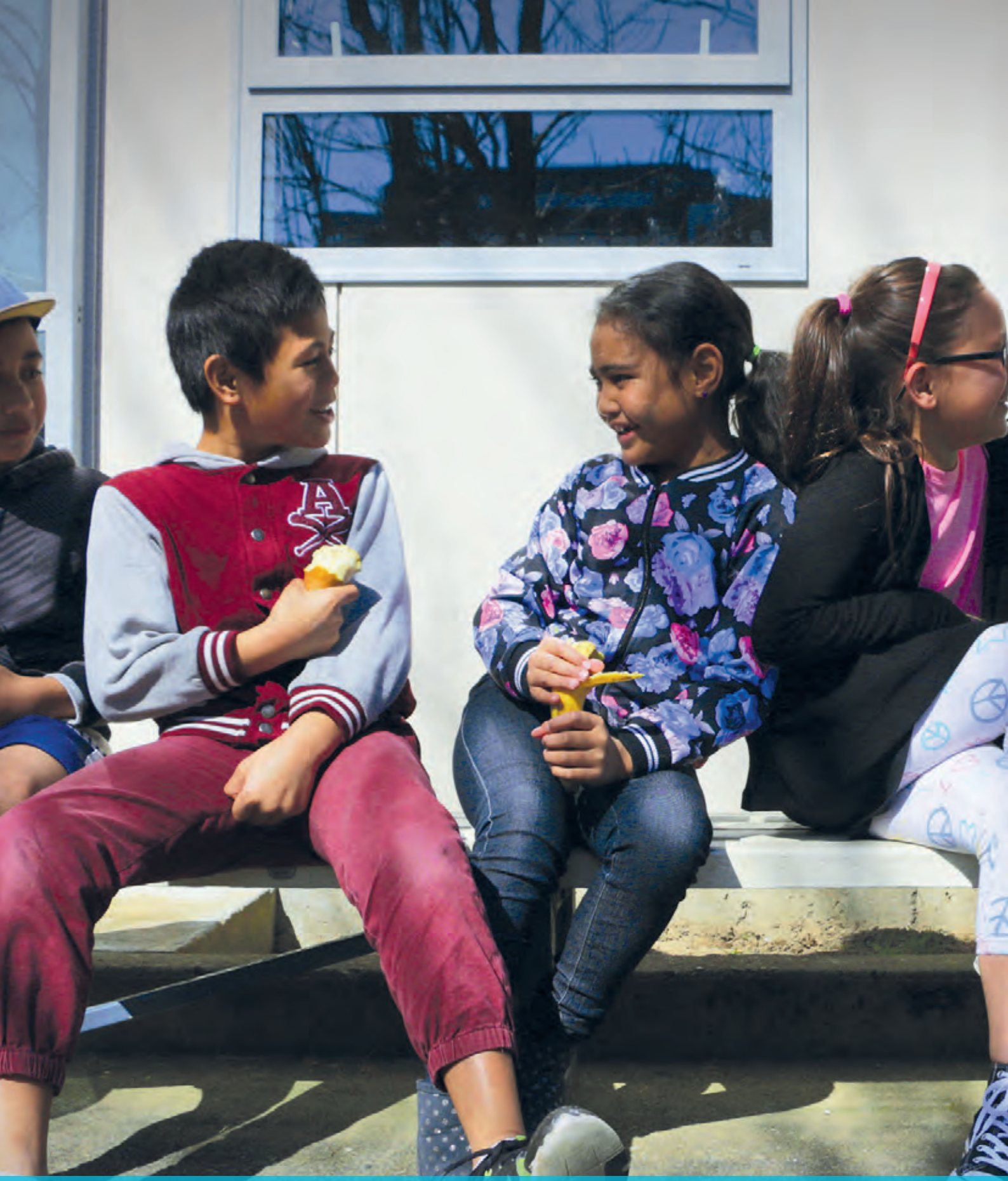
About the National Respiratory Strategy

The Strategy is framed around five high-level goals relating to people with respiratory conditions and their families, their environment, the health community, the health system, and research and evaluation. Each goal is supported by key objectives, and to help achieve these a number of actions are suggested as a starting point.

Because the Strategy is holistic, it supports general health and wellbeing and aligns easily with several of New Zealand's other health-related strategies, plans and long-term conditions management approaches.

Table 1: National Respiratory Strategy overview

Long-term Outcomes	• There is a lower incidence of respiratory disease in New Zealand. • There is a reduced impact of respiratory disease on people and families. • People with respiratory disease lead longer, healthier, more independent lives. • There are no inequities in respiratory health: Māori, Pacific and low-income communities in New Zealand have equitable health outcomes and access to services and support. • High-quality respiratory health services are delivered that are timely and accessible for all who need them.			
Goals	**Te taiao: The environment** All people live, work and play in healthy environments, and have enough money to meet their health needs and the needs of their families.	**Whānau ora: Individuals and families** People and families living with respiratory conditions are empowered to be as healthy as they can, and live longer healthier and more independent lives.	**Te hapori hauora: The health community** Health workers have the information and tools they need to provide high-quality advice and care to people with respiratory conditions.	**Te pūnaha hauora: The health system** Respiratory health is a health priority for New Zealand. All people are easily able to get the care they need when they need it, wherever they live and whatever their means.
Objectives	Work to eliminate poverty Improve access to affordable, warm, dry, uncrowded homes Accelerate efforts towards Smokefree Aotearoa 2025 Tackle obesity	Improve health literacy Support health behaviours Enhance the role of the education sector in supporting self-management	Enhance the role of health workers in health literacy and self-management support Improve prevention for all preventable diseases Improve diagnosis and treatment	Improve access to primary care Improve access to specialist care Extend the respiratory health workforce Apply integrated models of care Introduce a respiratory national health target and indicators
	Rangahau me te aromātai: Research and evaluation Research and service evaluation are directed to the areas of most benefit for respiratory health.			



TĪMATANGA KŌRERO: INTRODUCTION

Tīmatanga Kōrero: Introduction

The National Respiratory Strategy is a call to action to:

- reduce the incidence of respiratory disease
- reduce the impact of respiratory disease
- eliminate inequalities in respiratory health in New Zealand.

The purpose of the Strategy is to provide direction for decision-making on the nature and distribution of services that contribute to better respiratory health. Decisions can be informed by the Strategy's content and approach, which relate to the following key question:

What are the key issues for respiratory health in New Zealand, and what actions would make the most difference to respiratory health outcomes and equity?

For this reason, the document is intended primarily for people involved in the planning, funding and delivery of health care at all levels: national (government), regional (district health boards and primary health organisations) and community (service providers).

In addition, the Strategy intends to benefit a wide range of audiences, from universities to consumer groups and families living with respiratory disease. It offers a basis for advocacy and research, and encourages strong working relationships across health, housing, welfare and education.

> **"THE DOCUMENT IS INTENDED PRIMARILY FOR PEOPLE INVOLVED IN THE PLANNING, FUNDING AND DELIVERY OF HEALTH CARE AT ALL LEVELS"**

What is respiratory health?

The World Health Organisation defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (World Health Organisation, 2015a).

Good respiratory health is about both this state of wellbeing and freedom from *respiratory disease*, a general term used to describe a large group of conditions that impair the airways and lungs.

Respiratory diseases cause symptoms such as difficulty breathing, coughing and tiredness.

In New Zealand many people struggle with chronic and serious respiratory diseases that have a huge impact on their lives and the lives of their families. Being unable to breathe or having to watch a child struggling for breath is frightening.

What makes respiratory disease a health priority for New Zealand?

The World Health Organisation has identified chronic respiratory disease as one of the four leading non-communicable diseases worldwide, along with cardiovascular disease, cancer and diabetes.

In New Zealand, respiratory disease is the third most common cause of death after cardiovascular disease and cancer (World Health Organisation, 2014).

Respiratory conditions make up a big part of our overall health burden and our health inequalities. People from all population groups are affected, but children, people on low incomes, Māori and Pacific people experience a much greater burden of respiratory ill health than other New Zealanders. For this reason, the Strategy has a strong equity focus throughout.

The most recent data tells us that:

- over **700,000 people** (one in six) live with a respiratory condition
- respiratory diseases account for **one in eight of all hospital stays** in New Zealand – in 2013 there were over **69,000** admissions, and a third of these (23,000) were children
- respiratory disease was the cause of over **2,700 deaths** in 2011
- respiratory disease costs New Zealand over **$5.5 billion** every year (in direct costs of doctors' visits, prescriptions and caring for people in hospital, and indirect costs of death, disability-affected life years and lost work days) (Telfar Barnard, Baker, Pierse, & Zhang, 2015).

There are extreme and worsening inequities in respiratory health between Māori, Pacific and low-income groups and the rest of the New Zealand population.

- More than half of the people admitted to hospital with a poverty-related condition are there because of a respiratory problem such as asthma, bronchiolitis, acute infection or pneumonia (Craig, Reddington, Wicken, Oben, & Simpson, 2013).
- People living in the most deprived households are admitted to hospital for respiratory illness over three times more often than people from the wealthiest areas (Telfar Barnard et al., 2015).
- Across all age groups, hospitalisation rates are much higher for Pacific peoples (2.6 times higher) and Māori (2.1 times higher) than for other ethnic groups (Telfar Barnard et al., 2015).

The New Zealand Burden of Diseases, Injuries and Risk Factors Study, 2006–2016, estimated health loss across 217 diseases and injuries and 31 risk factors. Health loss is how much healthy life is lost due to early death, illness or disability. This study placed respiratory conditions among the top contributors to overall health loss in New Zealand.

- Lung cancer, COPD and asthma were among the top 25 conditions that together make up 58% of all health loss in New Zealand.
- COPD was the fourth leading cause of health loss in 2006, and lung cancer was sixth.
- Sleep disorders, including obstructive sleep apnoea (OSA), were identified as a major cause of health loss in New Zealand, and OSA was identified as an important risk factor for other health conditions (Ministry of Health, 2013a).

Why do we need a national strategy for respiratory health?

The numbers above show that respiratory disease places a huge burden on individuals, families and the New Zealand health system. Now, more than ever, things need to change if we are to effectively address our current and future health burden.

We know this because the situation has not improved in the last 10 years and is worsening, despite improvements in health care, medicines and smoking rates over that time (Telfar Barnard et al., 2015).

New Zealand has never had a national strategy or policy on respiratory health. Despite this, a great deal of effort, expertise and resources have gone into preventing and managing respiratory disease and supporting those who live with it. But the work is fragmented, and there are gaps and variations in the availability and quality of services, support and information.

Developing a national respiratory strategy is an important first step towards a planned and co-ordinated approach. It helps us to view the whole picture of respiratory health so that we can see where best to put time, effort and resources in order to make the biggest gains. This includes making stronger links between health and other key sectors such as housing, welfare and education, all of which have a crucial role in improving respiratory health.

There is much we can do to make real health gains. A lot of respiratory illness can be prevented in the first place by removing or reducing risk factors. For people and families who live with respiratory disease, we can provide better support so that they can manage their conditions, live well and avoid health emergencies needing hospital care.

In summary, a national strategy focused on respiratory health is needed because:

- New Zealand has high and worsening rates of respiratory disease, especially among Māori, Pacific peoples and low-income groups
- personal and financial costs will continue to increase without a new approach to improving respiratory health
- current efforts are uncoordinated, and a considered national approach is needed to identify the gaps and inequalities in services and outcomes, and to address them in the most effective way.

About the National Respiratory Strategy

The Strategy is framed around five high-level goals:

1. **the environment:** all people live, work and play in healthy environments, and have enough money to meet their health needs and the needs of their families
2. **individuals and families:** people and families living with respiratory conditions are empowered to be as healthy as they can, and live longer healthier and more independent lives
3. **the health community:** health workers have the information and tools they need to provide high-quality advice and care to people with respiratory conditions
4. **the health system:** respiratory health is a health priority for New Zealand, and all people are easily able to get the care they need, when they need it, wherever they live and whatever their means
5. **research and evaluation:** research and service evaluation are directed to the areas of most benefit for respiratory health.

In what follows, each goal is supported by key objectives, and a number of example actions are suggested as a starting point to achieving these objectives.

Because the Strategy is holistic, it supports general health and wellbeing, and aligns easily with several of New Zealand's other health-related strategies, plans and long-term conditions management approaches.

How was the Strategy developed?

The National Respiratory Strategy was developed over 2014/15 by the Asthma Foundation, under the direction of a group of national experts and leaders in respiratory health.

Appendix 1 lists members of the Expert Advisory Group, and Appendix 2 provides details of the development process. The framework and content of this document were informed by:

- key literature, including the latest research on respiratory disease in New Zealand (Telfar Barnard et al., 2015)
- feedback on New Zealand's key respiratory health issues, and suggested actions from 187 health professionals and organisations involved in respiratory health in response to an online survey (conducted in February 2015)
- material, case studies and best practice knowledge contributed by Expert Advisory Group members
- feedback on the draft strategy from over 30 individuals and organisations, including national professional bodies such as the New Zealand Nurses Organisation, the New Zealand Medical Association, General Practice New Zealand, the Thoracic Society of Australia and New Zealand, the Pasifika Medical Association, and national Māori health professional groups (from July to August 2015)
- discussions and decision-making between the writer and the Expert Advisory Group.

How does the Strategy fit with other health strategies and plans?

Development of the National Respiratory Strategy was influenced by the Pou Ora Framework, gifted to the Asthma Foundation in 2013 by Professor Sir Mason Durie (Durie, 2013). Pou Ora comprises four key markers of wellness that support breathing easy environments. Breathing will be easier when all four Pou are aligned and the mauri is flourishing.

Table 2: Pou Ora Framework: 'Breathing easy' environments

Hauora	Toiora	Whānau Ora	Mauri Ora
Compatible Environments	Knowledge Environments	Nurturing Environments	Internal Environments
Natural and man-made environments	*Knowledge transfers*	*Empowering relationships and supports*	*Enhanced potential and resilience*
Natural and man-made environments (e.g. clean air, housing, schools etc); health sector environment (incl. government policy and sector positioning); and organisational environment	Best practice; education; training; research; mātauranga Māori; and workforce development	Relationships with providers, communities and families; patient–practitioner relationships (e.g. health literacy, cultural competence), and the social determinants of health (e.g. poverty, education, employment)	Individual factors; self-management; lifestyles; social skills; vitality; participation; and self-determination
NATIONAL	SOCIETAL	COMMUNITY/FAMILY	INDIVIDUAL

National health frameworks, strategies and plans have been considered in the development of this Strategy so that it can be supported and strengthened by them, and vice versa.

These include:

- *He Korowai Oranga: Māori Health Strategy* (Ministry of Health, 2014a)
- *'Ala Mo'ui Pathways to Pacific Health and Wellbeing 2014*–2018 (Ministry of Health, 2014b)
- *Reducing Inequalities in Health* (Ministry of Health, 2002)
- *Equity of Health Care for Māori. A Framework* (Ministry of Health, 2014c).

Appendix 3 contains an overview of how these documents generally map to each of the National Respiratory Strategy goals.

The revised New Zealand Health Strategy, in development at the time of writing, will also be highly relevant to the respiratory health goals. The principles of the original Health Strategy (Ministry of Health, 2000) remain valid and are reflected in the National Respiratory Strategy.

How will the Strategy be implemented?

Implementing the Strategy will require agencies to work together, develop plans for their relevant populations and agree on appropriate actions, targets and timeframes.

It can be used to:

- justify resources being increased for areas and groups most in need
- inform planning and preparation to implement the actions
- act as a framework for key agencies and groups to work together
- act as a platform for advocacy on behalf of people with respiratory conditions and their families.

The Asthma Foundation will support this wider work by providing a forum for information sharing and ongoing monitoring of progress against respiratory health indicators. The Foundation will also progress a number of actions to support achievement of the Strategy's goals and objectives.

Who can implement it?

Everyone has a role to play in improving respiratory health, and it is important that they be trained and supported to carry out these roles effectively.

- **Everyone** needs to look after their own and their children's health, and build knowledge of how to stay well. We all have a role in creating healthy home, school and work environments and healthy communities.
- **People with respiratory conditions** can learn how to manage their condition and build their support network of family, carers, friends, health professionals, groups and agencies who can help. They also have a valuable role in improving the health system by getting involved as leaders and participants in planning and delivering services.
- **Families, Māori whānau, Pacific 'āiga, kāiga, magafaoa, kōpū tangata, vuvale and fāmili** provide vital support and advocacy for their loved ones, and have valuable knowledge and skills to contribute to those parts of the health system they are involved in.
- **Māori leaders, communities and organisations** provide services directly to their people. They also have a key leadership role in shaping how the wider health community and system can best support individuals and whānau who experience respiratory disease, and those at risk due to unhealthy environments.

- **Pacific leaders, communities and organisations** provide services directly to Pacific people. They also have a key leadership role in shaping how the wider health community and system can best support individuals and 'aiga, kāiga, magafaoa, kōpū tangata, vuvale and fāmili who experience respiratory disease, and those at risk due to unhealthy environments.
- **Asthma societies, trusts and other community providers** can use the Strategy as a resource to inform their planning and service delivery, and to support advocacy work and communication with funders and providers. As a living document, the Strategy will also provide a central point for sharing information, research and examples of innovative service delivery.
- **Primary care providers,** such as general practice teams and community health services provided by non-government organisations (NGOs), have a key role in applying the Strategy in practice. This role spans all of the Strategy's goals and includes delivery, easy-to-access and culturally relevant services, and ensuring staff are well trained and have best practice information and tools.
- **Hospital-based health professionals** can work toward the goals as they relate to people and families experiencing acute, complex and/or severe respiratory ill health.
- **District health board (DHB) and primary health organisation planners and funders** have a role in developing respiratory strategies and care pathways for their regions. This includes finding ways to support joint work across health and other sectors such as social support, housing and education.
- **DHB providers** need to work in partnership with primary care, NGOs and other respiratory health providers to provide effective and integrated services for their populations.
- **Researchers, universities and funders** can use the Strategy to inform decision-making on what research should be undertaken and funded that would be of most benefit to respiratory health in New Zealand.
- **The Asthma Foundation** has a central role in bringing the Strategy to life through its key functions of respiratory health education, advocacy and research.
- **The Ministry of Health**, as a health sector leader, has a key role in implementing this Strategy. This includes making respiratory health a national health priority, leading health system improvements, working across government, and providing national co-ordination that supports health funders, providers and the workforce to better address New Zealand's respiratory health needs.
- **Other government and non-government agencies** involved in housing, social support, education and employment have an important role in enabling all New Zealanders to have access to healthy environments as the basis for good respiratory health.

How will we know if it is working?

There are a number of key indicators of health we can use to estimate the extent to which implementing the Strategy is meeting its intended gains.

Measures used in *The Impact of Respiratory Disease in New Zealand: 2014 Update* (Telfar Barnard et al., 2015) provide a useful baseline. The core set of indicators in the table below was used to measure the prevalence (population rates) and incidence (number of hospital events and deaths) of respiratory disease in general, as well as for individual conditions (asthma, bronchiectasis, childhood bronchiolitis, pneumonia and COPD). Other data sources were also used to estimate the prevalence and costs of asthma.

Table 3: Indicators used in the 2014 impact of respiratory disease report (Telfar Barnard et al., 2015)

Indicator	Data sources	Latest analysis
Medicated asthma	National pharmaceutical collection	Over 460,000 people take medication for asthma
Respiratory deaths per year	New Zealand mortality collection	2,700 deaths (56.7 per 100,000 people) in 2011
Respiratory hospitalisations per year	National Minimum Dataset (NMDS) hospitalisations (publically funded hospital discharges)	69,000 in 2013 (1,563.1 per 100,000)
Total cost of respiratory disease per year: including private costs (doctors' visits, prescriptions) and public costs (years of life lost, hospitalisations)	National Pharmaceutical Collection; NMDS – mortality, hospitalisations; NZ Health Survey; NZ Census; Pharmac	$5.5 billion
Respiratory health inequalities	NMDS and hospitalisations by ethnic group and deprivation (using the New Zealand Deprivation Index)	Hospitalisation: 2.6 times higher for Pacific peoples and 2.1 times higher for Māori; 3 times higher for most deprived households than least deprived

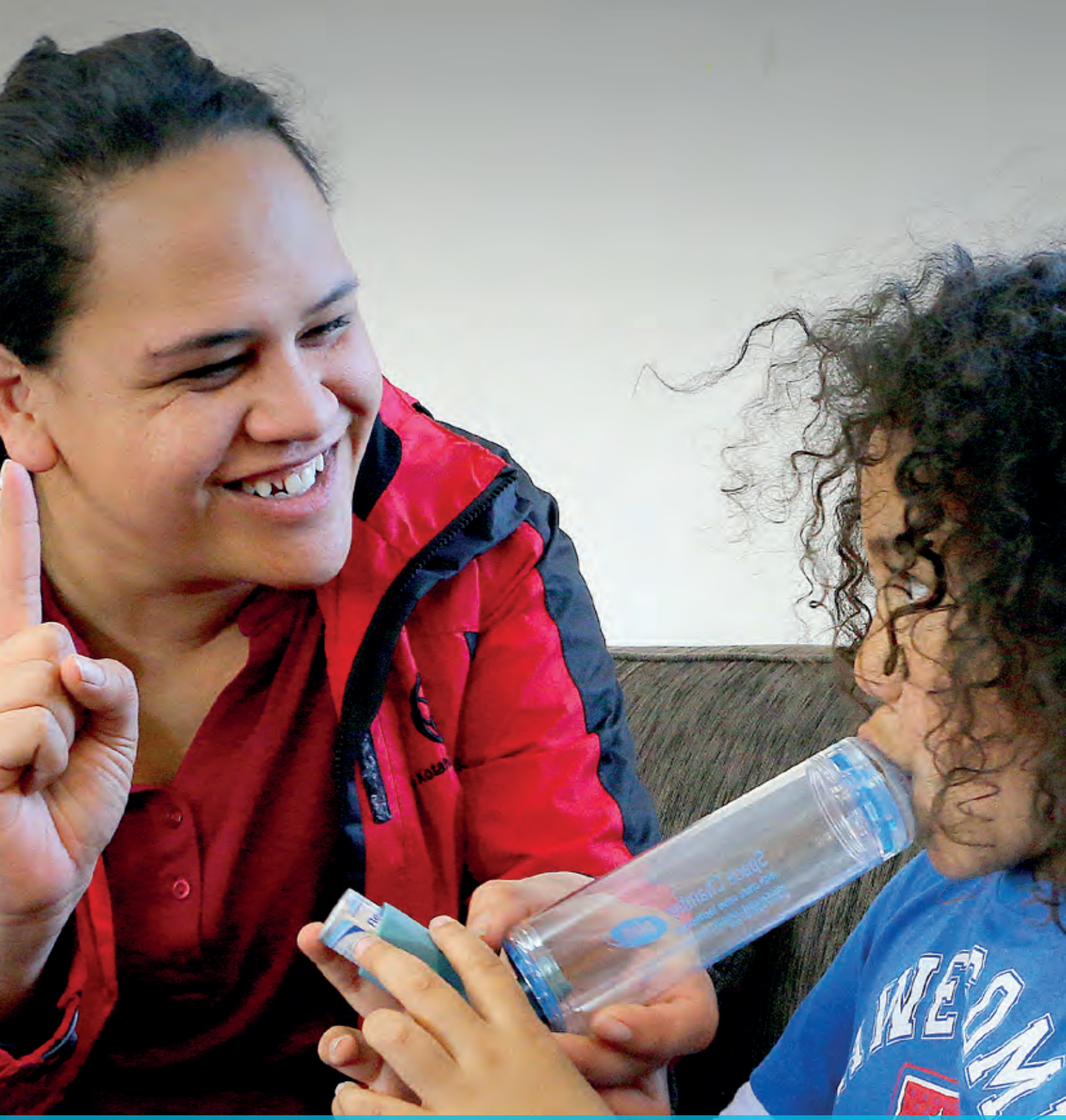
It is important to note that improving respiratory health will help lift the overall health status of New Zealanders, and vice versa. For example, improving health literacy and the cultural competence of the health workforce will benefit the ability of people and families to live well with respiratory conditions.

For this reason, a wide set of health indicators is useful, including (for example) disability-adjusted life years (DALYs) and quality-adjusted life years (QALYs), school and work days lost, child poverty, and housing indicators.

There are many data sources already available. For example, the *Atlas of Healthcare Variation* displays variations across the country in health services and health outcomes (Health Quality & Safety Commission, 2015a). It covers asthma and lung cancer, as well as relevant maternity and child health indicators, such as children living in a smoke-free home at four years old. This is valuable information, particularly for planning, funding and prioritising services in DHB regions.

Other disease-specific indicators include those related to OSA, such as sleep-related motor vehicle accidents, loss of work productivity, cardiovascular disease and stroke (Gander, Scott, Mihaere, & Scott, 2010; Hillman & Lack, 2013).

The Asthma Foundation intends to identify a useful set of indicators that are currently available and will use these to monitor and report on respiratory health progress over time.



HERE ROMAHĀ I ROTO I AOTEAROA: RESPIRATORY CONDITIONS IN NEW ZEALAND

Here Romahā i roto i Aotearoa: Respiratory Conditions in New Zealand

The National Respiratory Strategy seeks to address factors that are common across most respiratory conditions so that actions taken will make the most gains. It also highlights seven conditions that together make up much of New Zealand's respiratory burden, based on:

- the large numbers of people affected (e.g. asthma, lung cancer, COPD, OSA)
- extreme and worsening inequalities in health status for Māori , Pacific peoples and those on low incomes (this relates to all conditions, but especially bronchiectasis, childhood bronchiolitis, childhood pneumonia and OSA)
- increasing rates (e.g. bronchiectasis, childhood bronchiolitis).

This section introduces each of these conditions, with key statistics drawn mainly from *The impact of Respiratory Disease in New Zealand: 2014 Update* (Telfar Barnard et al., 2015).

There is also a large number of other respiratory conditions in New Zealand, many of which are serious, complex and rare, and require specialist care. These conditions include:

- allergies
- asbestosis
- chronic pleural diseases
- chronic rhino sinusitis
- croup
- cystic fibrosis
- hay fever / allergic rhinitis
- hypersensitivity pneumonitis
- lung fibrosis
- lymphangioleiomyomatosis (LAM)
- pneumoconiosis
- pulmonary eosinophilia
- pulmonary fibrosis
- pulmonary heart disease, including pulmonary embolism, pulmonary hypertension and corpumonale
- reactive airways dysfunction syndrome (RADS)
- rhinitis
- sarcoidosis
- tuberculosis (TB)
- pertussis (whooping cough).

The Strategy aims to be relevant to the people and families who experience these conditions by addressing a wide range of issues affecting the health of our airways and lungs.

Asthma

People with asthma have sensitive airways that react when they come into contact with certain triggers (e.g. a cold or flu virus, house dust mites or cold weather). These triggers cause the airways to tighten and partially close up. This makes it hard to breathe and causes wheezing and coughing.

Hospital visits for asthma are preventable, and we would see a huge drop if everyone had good control of their symptoms. Control is aided by people using their asthma medication as prescribed, regular visits to a health professional, and asthma management plans.

Asthma is much harder to control when people are living in crowded, damp, cold houses where people smoke and don't have enough income to visit a general practitioner (GP) or pick up prescriptions when needed. Asthma and wheeze is the most common diagnosis among children (0–14 years) who are admitted to hospital for a poverty-related condition (Craig et al., 2013).

In New Zealand:

- over 460,000 people take medication for asthma – one in nine adults and one in seven children
- large numbers of children (3,730 or 430.9 per 100,000 in 2013) are still being admitted to hospital with asthma, and some of these will have had a potentially life-threatening attack
- by far the highest number of people being admitted to hospital with asthma are Māori, Pacific people and people living in the most deprived areas: Māori are 2.9 times and Pacific people 3.7 times more likely to be hospitalised than Europeans or other New Zealanders, and people living in the most deprived areas are 3.2 times more likely to be hospitalised than those in the least deprived areas
- the cost of asthma to the nation is over $800 million per year (Telfar Barnard et al., 2015).

Bronchiectasis

Bronchiectasis is a lung condition where the breathing tubes in the lungs become damaged and are larger than usual. This damage builds up over time due to repeated infections. Bronchiectasis often results in a chronic productive cough and shortness of breath.

Immunisations, appropriate use of antibiotics, improved living conditions and better nutrition all help to reduce the onset and severity of bronchiectasis. Early diagnosis and treatment are important to lessen the lung damage.

Once a person has bronchiectasis they usually have it for life, though there is some evidence that it is possible to stop the disease getting worse – or even reverse it – in children (Eastham, Fall, Mitchell, & Spencer, 2003; Gaillard, Carty, & Smyth, 2003; Haidopoulou, Calder, Jones, Jaffe, & Sonnappa, 2009).

Good care helps people with bronchiectasis stay as well as possible. This includes sputum clearance once or twice a day to clear the lungs, using antibiotics and medicines, regular exercise, good nutrition, keeping smoke free, and having an annual flu vaccination.

In New Zealand:

- an estimated 4,226 or 99.6 per 100,000 people are living with bronchiectasis
- although bronchiectasis is much less common than other respiratory conditions, hospitalisation rates increased by 30% between 2000 and 2013 to 26.4 per 100,000, and deaths doubled from 42 per year in 2000/01 to 84 in 2011
- there is a much higher risk of hospitalisation or death for people of Māori, Pacific or Asian ethnicity: Pacific people are 6.4 times, Māori 3.7 times and Asians 2.3 times more likely to be hospitalised than other New Zealanders (non-Māori, non-Pacific and non-Asian), and these differences are similar for mortality
- people living in the most deprived areas are 3.2 times more likely to be hospitalised and 2.7 times more likely to die from bronchiectasis than those in the least deprived areas (Telfar Barnard et al., 2015).

Childhood bronchiolitis

Bronchiolitis is a chest infection caused by a virus that affects the small breathing tubes in the lungs, causing babies and small children to cough, wheeze and have trouble breathing.

It is a common infection in the first year of life, and especially in babies under six months of age. It is infectious and is usually caught from a close contact who has a cold or cough. It can make babies sick for three to seven days, and the cough can last for several weeks.

Because bronchiolitis is caused by a virus, there is no medicine that will treat it once it starts. Most babies can be cared for at home with rest, small, frequent feeds, and being kept warm. Some need to be admitted to hospital if they have trouble breathing or feeding, or if they are not able to get enough oxygen.

In New Zealand:

- hospitalisations have increased by nearly a third, from 3,937 in 2000 to 5,351 (1,832.3 per 100,000) in 2013
- these rates are 3.4 times higher for Māori children and 4.3 times higher for Pacific children than for other New Zealanders (Telfar Barnard et al., 2015).

Childhood pneumonia

Pneumonia is a bacterial or viral infection of the lungs. In children, especially young children, viral pneumonia is more common. Pneumonia causes fever, chills, shortness of breath, coughing and chest pain.

Most children make a full recovery in a couple of weeks, but some need specialised treatment for complications.

Most children can be treated at home by resting, drinking plenty of fluids and eating small, healthy meals, and will recover in a couple of weeks. Those with bacterial pneumonia are given antibiotics. A small number of children who are very unwell need to be treated in hospital.

Pneumonia can be prevented by breastfeeding past four months of age to boost the immune system, having a smoke-free environment, having the flu vaccine and other immunisations, a healthy diet and healthy weight, good management of any chronic condition (such as asthma), good hygiene, and a warm, well-insulated home.

In New Zealand, while the overall death rate has not changed over time and hospitalisations have reduced, there are extreme inequities.

- Childhood death rates from pneumonia are 5.42 times higher for Māori children and 6.19 times higher for Pacific children than for other New Zealanders (non-Māori, non-Pacific, non-Asian). Of the 110 children who died between 2002 and 2011, 59 were Māori and 35 were Pacific.
- Hospitalisation rates are 1.6 times higher for Māori children and 3.1 times higher for Pacific children than for other New Zealanders (non-Māori, non-Pacific, non-Asian).
- Childhood pneumonia rates are highest in the most deprived areas of New Zealand: 2.5 times higher in the most deprived areas than in the least deprived areas. Over half of all deaths occur in the most deprived areas.
- Across DHBs the highest rates are in Hutt Valley, Auckland, Counties Manukau and Northland (Telfar Barnard et al., 2015).

Chronic obstructive pulmonary disease (COPD)

COPD is an umbrella term for the diseases emphysema, chronic bronchitis and chronic asthma. Most cases of COPD are caused by smoking, and most people diagnosed are over the age of 40. Spirometry (measuring the lung capacity) is the most important test to diagnose and monitor this condition.

In a person with COPD the airways are permanently partly blocked, making it hard to breathe. COPD progresses over time. It is not curable, but it can be managed. Good management involves stopping smoking, maintaining a healthy body weight, correct use of medicines, keeping a warm and dry home, and pulmonary rehabilitation. Pulmonary rehabilitation is an exercise and education programme that takes place over several weeks. It helps people to learn about their condition and be more confident about managing it, and to participate more in social and physical activities. Community-based support groups provide important ongoing help for people with COPD and their carers (Ward, Donnelly, Cooper-Taylor, & Cooper-Tayler, 2014).

In New Zealand:

- 28,515 people are estimated to be living with severe COPD requiring stays in hospital (Telfar Barnard et al., 2015)
- COPD is often undiagnosed, and for this reason at least 200,000 (or 15%) of the adult population may be affected (Broad & Jackson, 2003)
- between 2000 and 2013 there were no changes in COPD hospitalisation rates, but there was a decline in reported mortality due to COPD (Telfar Barnard et al., 2015)
- a large proportion of COPD deaths are not recorded as such because of misreporting or a co-morbidity (e.g. heart failure or pneumonia) being the final cause of death
- even with under-reporting, COPD is still the fourth leading cause of death after ischaemic heart disease, stroke and lung cancer (Broad & Jackson, 2003)
- hospitalisation rates are highest for Māori, at 3.5 times the non-Māori, non-Pacific, non-Asian rate for hospitalisation, and Māori have 2.2 times the rate for mortality
- Pacific people's hospitalisation rates are 2.8 times higher than those of other New Zealanders, though mortality is not significantly different
- COPD hospitalisation rates are 5.1 times higher in the most deprived areas than in the least deprived, and mortality rates are 2.7 times higher
- COPD rates are relatively evenly spread across the country, though mortality in 2011 was above average in Hawkes' Bay, Lakes and Wairarapa DHBs (Telfar Barnard et al., 2015).

Lung cancer

Active and passive smoking are the causes of most lung cancers, but it can also be caused by exposure to asbestos, radiation and air pollution. Lung cancer rates and trends largely reflect smoking patterns and prevalence 30–40 years ago.

Lung cancer is one of the most deadly cancers, with more than 90% of patients dying of the disease within five years of diagnosis (Broad & Jackson, 2003). Treatment for lung cancer can include surgery, radiation treatment and chemotherapy.

In New Zealand:

- lung cancer is one of the most common cancers diagnosed, with around 1,800–1,900 new cases per year, accounting for 9.1% of cancer registrations in 2010 (Ministry of Health, 2013b)
- lung cancer is the most common cause of death from cancer in men and women, causing a fifth of all cancer deaths and 1,600–1,700 deaths per year (Ministry of Health, 2013b)
- for Māori, lung cancer causes almost 300 deaths each year, over three times more than the next most common cancer (Ministry of Health, 2013b)

- age-specific death rates for Māori men are around two to three times higher than for non-Māori, and for Māori women are around five times higher (Broad & Jackson, 2003; Ministry of Health, 2013b; Shaw, Blakely, Sarfati, Fawcett, & Hill, 2005)
- Pacific men are both more likely to develop lung cancer and to die from it than the general population, while Pacific women are not more likely to develop it but those older than 65 who have it are more likely to die from it (Northern Cancer Network, 2012)
- between 2000 and 2010, registration and mortality rates for lung cancer reduced by around 20–25% among males but changed little, or slightly increased, among women (Ministry of Health, 2013b).

Obstructive sleep apnoea

In obstructive sleep apnoea (OSA) the muscles at the back of the throat relax during sleep so that part of the airway is closed off. This causes the person to stop breathing, then partially wake before starting breathing again. This cycle can occur hundreds of times during sleep, reducing the quality and benefits of a good night's sleep.

People with OSA experience snoring, daytime sleepiness, altered mood and morning headaches. The daytime sleepiness caused by OSA can also result in poor work performance, and in work and motor vehicle accidents. There is an increased risk of cardiovascular conditions such as hypertension (high blood pressure), vascular diseases and arrhythmia (irregular heartbeat). For children, untreated OSA can also affect cardiovascular health, and impairs their development, behaviour and learning.

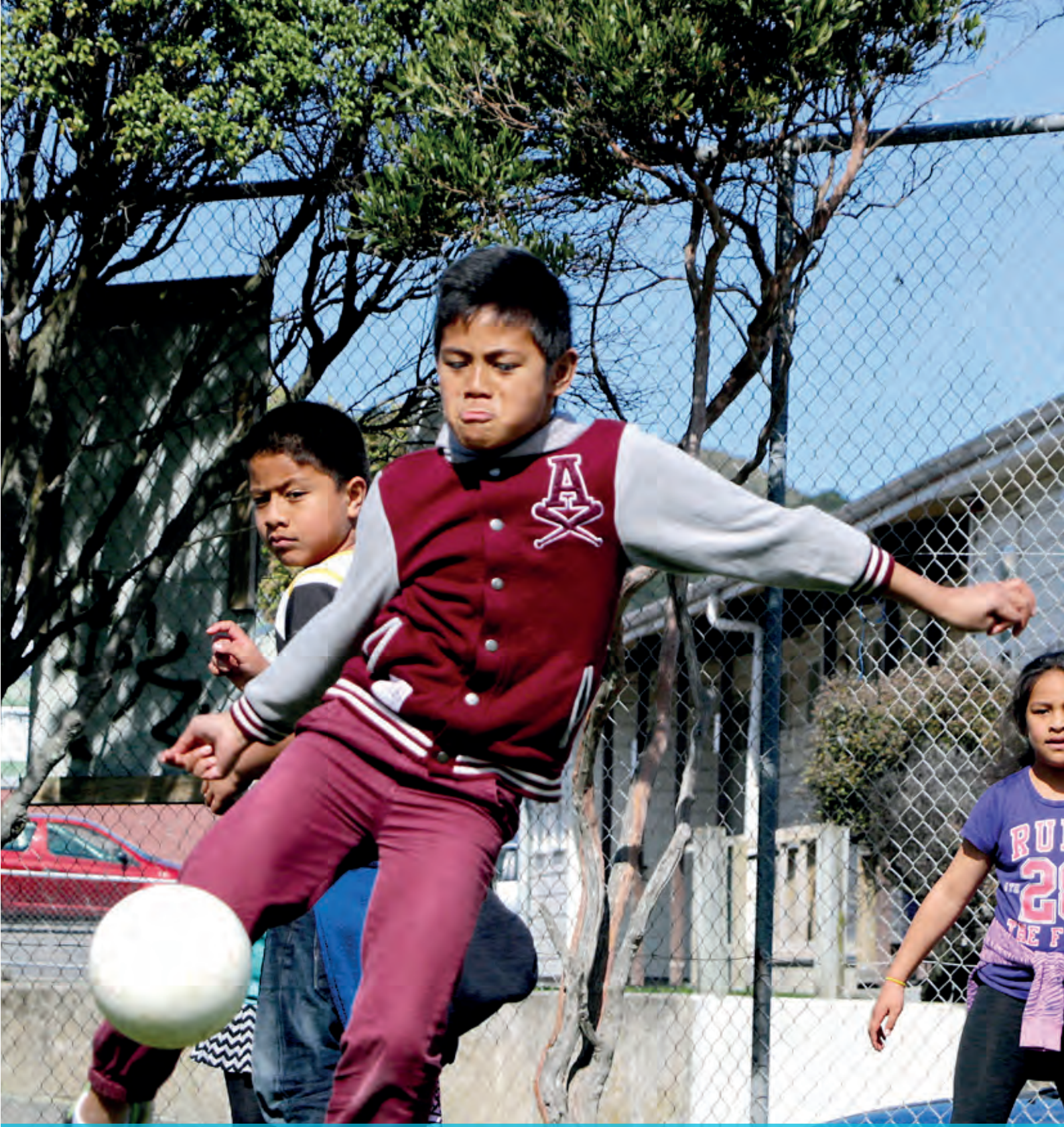
OSA can occur at any age. OSA is more common if a person is overweight, sleeps on their back, uses alcohol or sleeping tablets prior to going to sleep, and has nasal obstruction or a narrow upper airway (e.g. enlarged tonsils or differences in face or jaw shape).

In children, OSA can be treated effectively with an operation to remove the adenoids and tonsils, and in adults mild OSA can often be managed with lifestyle changes, such as diet and exercise. People with moderate to severe disease will usually need treatment with a continuous positive airway pressure (CPAP) device. CPAP provides air pressure through a mask, which is worn during sleep. This works well in 70% of cases, so it is important that other treatment options are available for those who can't use CPAP.

In New Zealand:

- OSA is estimated to affect 3–5% of children and is one of the most common respiratory disorders of childhood (Paediatric Society of New Zealand, 2014)
- a minimum of 4% of adult males and 2% of adult females experience OSA, though most cases are undiagnosed (Mihaere et al., 2009)
- OSA rates are higher among Māori and Pacific people: OSA is twice as common in Māori males compared to non-Māori males, Māori and Pacific people tend to have more severe OSA and more co-morbidities, and there are ethnic disparities in the ongoing use of CPAP (Mihaere et al., 2009; Best Practice Advocacy Centre New Zealand, 2012; Bakker, O'Keeffe, Neill, & Campbell, 2011)
- OSA is considered a contributor to overall health loss and also a risk factor for other life-limiting conditions (coronary heart disease, ischaemic stroke, type 2 diabetes) (Ministry of Health, 2013a; Gander et al., 2010).

Despite this, there is a lack of up-to-date published data on OSA prevalence in New Zealand (Telfar Barnard et al., 2015).



1 TE TAIAO: THE ENVIRONMENT

Goal: Everyone lives, works and plays in healthy environments, and has enough money to meet their respiratory health needs and the needs of their families.

1. Te Taiao: The Environment

Goal: Everyone lives, works and plays in healthy environments, and has enough money to meet their respiratory health needs and the needs of their families.

The conditions of our daily lives have a big impact on our health and wellbeing, and how well we prevent and cope with ill health. For this reason, there will be no major gains in respiratory health without a strong focus on actions to improve our living environments.

Like other major long-term conditions in New Zealand, respiratory health is made worse by poverty, poor housing, smoking and unhealthy diets. These situations affect a great number of New Zealand families, but overall are much worse for Māori whānau and Pacific ʻāiga, kāiga, magafaoa, kōpū tangata, vuvale and fāmili. For this reason, Māori and Pacific income, education, employment and housing must greatly improve for there to be good health for all New Zealanders (Ministry of Health, 2014b; Tukuitonga, 2012; Loring, 2009).

This section recommends how we can achieve good respiratory health in New Zealand by making real improvements to incomes, housing, smoking status and our obesity rates. Because these aspects are closely related and affect each other, solutions need to involve government, agencies, communities and businesses working together to deliver packages of support or actions (Commission on Social Determinants of Health, 2008).

> **“THE CONDITIONS OF OUR DAILY LIVES HAVE A BIG IMPACT ON OUR HEALTH AND WELLBEING, AND HOW WELL WE PREVENT AND COPE WITH ILL HEALTH”**

Work to eliminate poverty

Of all the aspects of our lives, income has the strongest link to health (Asher & Byrnes, 2006). Families in poverty do not have the means to meet basic health needs. There is not enough money for adequate housing, healthy food, good heating, warm clothes, bedding, phones, transport, visits to the doctor or medicines.

All of these factors contribute to poor respiratory health and make people less able to manage at home to prevent conditions getting worse and needing hospital care (Dale, O'Brien, & St John, 2014; Howden-Chapman et al., 2008; Keal, Crane, Baker, Wickens, & Cunningham, 2012; Turner & Asher, 2014).

The link between income and respiratory health is clearly reflected in the living conditions of people admitted to hospital due to a respiratory illness. People who live in the most deprived areas of New Zealand are almost three times more likely to be hospitalised than those in the least deprived areas (Telfar Barnard et al., 2015).

The Ministry of Social Development monitors poverty and has recently applied a new European Union measure of material hardship. Using this measure, compared to 20 other European countries, New Zealand ranked around the median overall for deprivation, but our child hardship risk ratio of 1.6 (the rate of child deprivation compared to the overall population) was higher than any other's (Perry, 2015).

It follows that any approach to eliminating poverty in New Zealand needs to start with children and their families. In 2012 the Children's Commissioner published a review of child poverty in New Zealand and the full range of solutions needed to address it, prepared by an advisory group of New Zealand experts (Children's Commissioner, 2012). This review recommended starting with a strategic framework and a series of priorities for immediate and longer-term action, some of which are already underway in existing activities nationally, and in local communities.

Action examples

- Develop a comprehensive strategy and national plan to reduce child poverty that includes actions, targets, measurable outcomes and regular reporting requirements.
- Implement *Solutions to Child Poverty in New Zealand: Evidence for Action* (Children's Commissioner, 2012).
- Make health care whenever and wherever it is needed accessible and affordable for all, and in particular for people on low incomes, and for Māori and Pacific people, who experience poorer health (actions to this end are presented under "The Health System" section).

Improve access to affordable, warm, dry, uncrowded homes

As for poverty, no national respiratory strategy would be credible without a determined effort to improve housing.

Overall, New Zealand housing is of a lower quality than in most OECD countries, and conditions are worse in private rental housing, where families in poverty tend to live because they have limited choice (Bennett, Chisholm, Hansen, & Howden-Chapman, 2014; Johnson, 2014). Māori and Pacific people are much more likely to be living in rental accommodation than the general population (Statistics New Zealand, 2014).

Houses that are overcrowded, cold, damp, mouldy, and either unheated or heated with unhealthy fuels contribute to poor respiratory health. This is especially so for children and adults with asthma, bronchiectasis and pneumonia, and for adults with COPD (Baker, McDonald, Shang, & Howden-Chapman, 2013; Environmental Health Indicators New Zealand, 2015).

There is now strong evidence that making substandard housing into healthy housing results in better health, fewer days off school and work, and fewer GP visits and hospital admissions for respiratory disease (Howden-Chapman et al., 2007; Howden-Chapman et al, 2008; Chapman, Howden Chapman, Viggers., O'Dea, & Kennedy, 2009; Jackson et al., 2011; Howden-Chapman, Crane, Chapman, & Fougere, 2011 ; Thompson, Thomas, Sellstrom, & Pettigrew, 2013).

Action examples

- Introduce a warrant of fitness for rental housing to ensure all rental houses are dry, insulated and heated.
- Develop a national housing strategy that confirms the state's commitment to provide and adequately maintain houses, and addresses our state and social housing issues.
- Extend efforts to increase the availability of affordable state and social housing that is of the right size for families, including cross-government work to reduce overcrowding among Pacific families.
- Deliver programmes to ensure all homes are adequately insulated over the next decade.
- Ensure all rental houses are fitted with non-polluting, effective heating (e.g. heat pumps, flued gas heaters) that is affordable to use, particularly in the homes of people with respiratory conditions.
- Educate New Zealanders on how to create healthy homes.

Accelerate efforts towards Smokefree Aotearoa 2025

Smoking, including passive exposure, is the main cause of COPD and lung cancer. It also affects people, especially children, who have asthma and other respiratory conditions.

Smoking during pregnancy leads to higher rates of newborn and infant death, low birth weight and long-term respiratory problems for children.

In New Zealand, 13.9% of women are reported to smoke at two weeks after giving birth. This rate varies greatly across the country (from 3.3% to 32.4%), with Tairawhiti, Whanganui, Northland and Lakes DHBs among the highest (Ministry of Health, 2014d; Health Quality & Safety Commission, 2015a).

In 2011 the New Zealand government was the first in the world to adopt a goal of becoming a smoke-free nation, with minimal levels of smoking and tobacco availability (New Zealand Parliament, 2011). This was in response to the recommendation in the Māori Affairs Select Committee report (NZ House of Representatives Māori Affairs Committee, 2010). The Government has set a mid-term target of 10% smoking prevalence overall and 19% among Māori by 2018.

In the 2013 census, daily smoking prevalence was 15.1% among all adults and 37.1% among Māori. Recent projections suggest that the 2025 smoke-free goal will not be achieved, and in fact will be missed by a large margin for Māori (Cobiac, Ikeda, Nghiem, Blakely, & Wilson, 2015).

Recent examples of progress with tobacco control include above-inflation tobacco tax increases from 2011 to 2016, smoke-free prisons from 2011, a ban on point-of-sale retail tobacco displays in 2012, and increased restrictions on duty-free allowances in 2014. However, many of the recommendations of the Māori Affairs Select Committee and of the National Smokefree Working Group (2012) have not been implemented.

> **“IN 2011 THE NEW ZEALAND GOVERNMENT WAS THE FIRST IN THE WORLD TO ADOPT A GOAL OF BECOMING A SMOKE-FREE NATION”**

Action examples

- Develop a comprehensive national plan detailing the pathway towards achieving the goal of making Aotearoa, New Zealand smoke free by 2025, including specific actions to ensure that Smokefree 2025 is achieved for Māori and Pacific peoples.
- Ensure Māori and Pacific peoples are strongly engaged in deciding on and designing initiatives to achieve a smoke-free Aotearoa, New Zealand.
- Provide coordinated tobacco cessation support during pregnancy and into the postnatal period that meets the needs of local populations, and requires tobacco cessation services to work closely with lead maternity carers and DHB primary maternity services.
- Accelerate the necessary policies, health promotion, leadership, advocacy and treatment services towards achieving this goal, including the recommendations of the Māori Health Select Committee inquiry into the tobacco industry in Aotearoa New Zealand and the consequences of tobacco use for Māori (NZ House of Representatives Māori Affairs Committee, 2010), and the priority actions identified by the National Smokefree Working Group (2015).
- Priority actions include:
  - increased resources for tobacco control mass media campaigns
  - immediate implementation of standardised packaging
  - continued substantial increases in tobacco taxation
  - continued expansion of smoke-free environments
  - delivery of comprehensive cessation services tailored to community needs
  - exploring and developing approaches to restrict the supply of tobacco and mandate product modifications such as the removal of additives and nicotine.

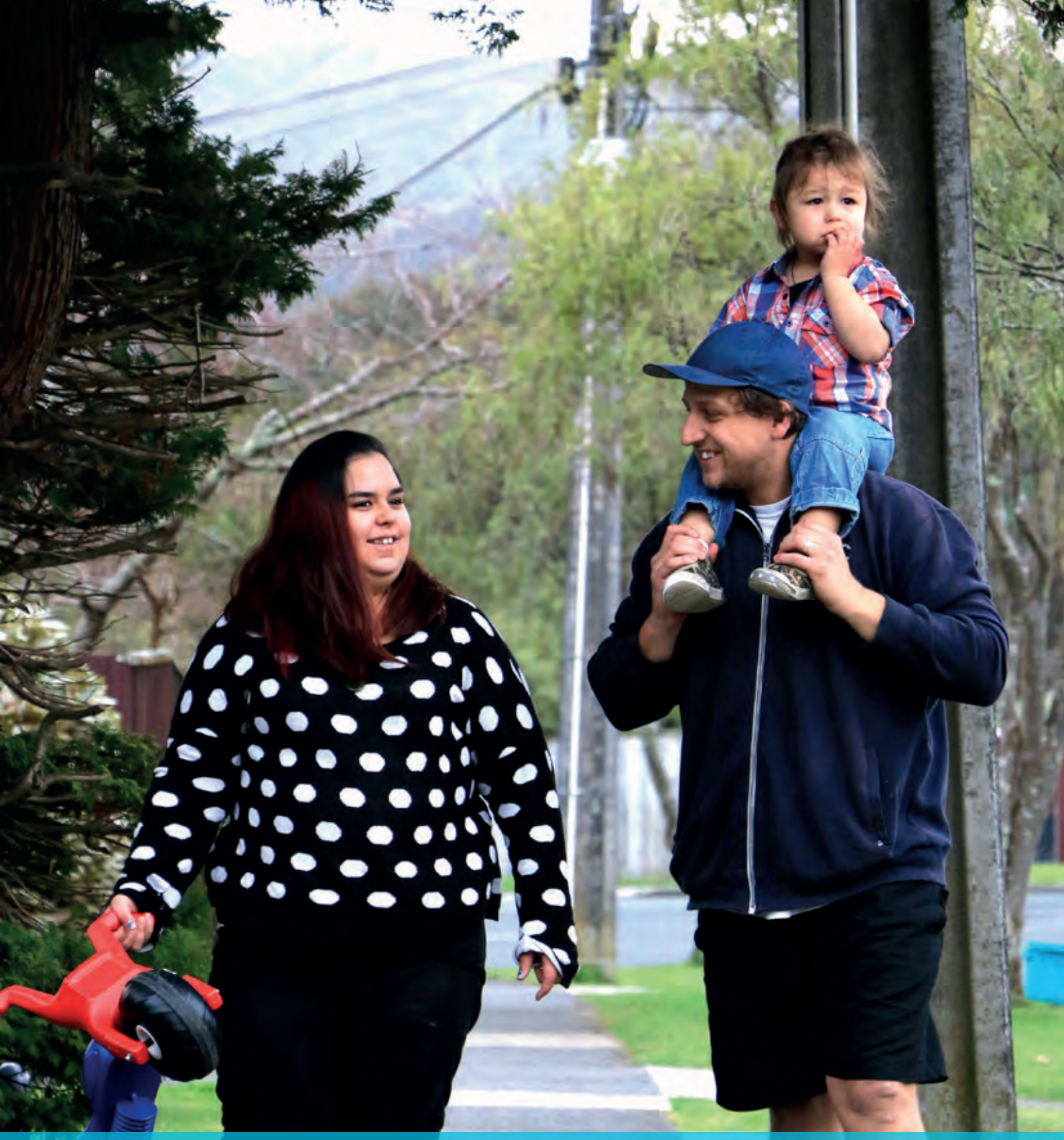
Tackle obesity

Being obese can have serious effects on the lungs and breathing.

It is a major risk factor for OSA and makes asthma worse (New Zealand Medical Association, 2014). New Zealand is now the fourth most obese country in the OECD (New Zealand Medical Association, 2014), so for the good of our respiratory health we need to improve healthy eating and physical activity.

Action examples

- Implement the final recommendations of the Commission on Ending Childhood Obesity expected in late 2015 (World Health Organisation, 2015b).
- Ensure Māori and Pacific people are strongly engaged in deciding on and designing initiatives to reduce obesity in their communities.
- Emphasise the importance of good nutrition and physical activity for anyone with a respiratory condition.



2 WHĀNAU ORA: INDIVIDUALS AND FAMILIES

Goal: People and families living with respiratory conditions are empowered to be as healthy as they can, and live longer, healthier and more independent lives.

2. Whānau Ora: Individuals and Families

Goal: People and families living with respiratory conditions are empowered to be as healthy as they can, and live longer, healthier and more independent lives.

The first goal of the National Respiratory Strategy, "Everyone lives, works and plays in healthy environments, and has enough money to meet their health needs and the needs of their families", sets the basic living conditions for good respiratory health. The actions towards this goal also touched on helping people to learn how to improve their health by not smoking and understanding what makes a healthy home.

This section extends these types of actions. It focuses on self-management support, which involves teaching knowledge and skills so that people can manage their own condition and help children to do the same. Self-management support is one of the most important ways we can improve health for people with long-term conditions (Ministry of Health, 2014e).

There are three key parts to self-management support programmes: health literacy, behaviour change, and the role of the health professional in supporting self-management. The first two are explained below, and the third is covered in the next section on the health community.

For self-management support programmes to be successful they need to be delivered in a way that works best for the people using them, and reflects their values and learning styles. Programmes for Māori, for example, need to recognise that Māori are supported within a wider network (whānau, hapū, iwi and communities) that helps them to manage their own health and wellbeing (Ministry of Health, 2014a). Programmes to support Pacific people need to value their traditional beliefs about individual health, family and community needs. These are unique and can influence health choices and behaviours such as when and how New Zealand medical services are used (Tukuitonga, 2012). Māori and Pacific people need to be actively involved in deciding on and designing support programmes if they are to be effective for their communities.

Improve health literacy

Health literacy is about people being able to receive and understand health information and services so that they can make good health decisions.

It also involves the complex ways in which people and the health system interact with each other. People with respiratory conditions who have good health literacy are more likely to believe in their own abilities, use medication and enjoy better health (Jones & Ingham, 2015).

Taking action to improve health literacy is a focus across all areas of this Strategy. Good health literacy needs the support of a health system with services that are easy to access and navigate, effective health worker communication, and clear and relevant health messages that empower people to make informed choices (Ministry of Health, 2015a).

On average, New Zealanders have poor health literacy, and skill levels are lower among Māori and Pacific people (Ministry of Health, 2010a; Earle, 2015), who also experience worse respiratory health. For example, many Pacific peoples are unaware of the services available to them through government agencies or health professionals and providers (Ministry of Health, 2014b).

Respiratory health professionals in New Zealand report that low public awareness of some major conditions such as bronchiectasis, COPD, pneumonia and OSA can lead to delays in diagnosis and treatment (Asthma Foundation, 2015). Help for people with COPD can also be delayed if they are reluctant to report symptoms because they blame themselves.

Like many of the other aspects of this Strategy, greater gains will be made when there is information sharing and collaboration between organisations, regions and sectors to develop resources and deliver education and training.

Action examples for resources

- Develop resources for adults, children and families that:
  - are interactive and/or audiovisual, simple and easy to use
  - involve Māori in the design of resources for Māori children and whānau, and reflect Māori concepts and values
  - involve Pacific people in the design of resources for Pacific children and their families, and reflect Pacific concepts and values
  - are written in different languages for different population groups, including a variety of Pacific languages
  - are varied and tailored for children of different ages and levels of knowledge.
- Ensure resources are able to be easily accessed by all health workers and people with respiratory conditions.

Action examples for education

- Provide free access to community-based self-management education for major conditions such as asthma, bronchiectasis, COPD and OSA, including education on breathing techniques.
- Deliver community education that is culturally appropriate for Māori and Pacific people.
- Provide targeted public education on:
  - asthma management and the importance of good asthma control
  - the signs and symptoms of, and the importance of seeking help for, bronchiectasis, COPD, pneumonia and OSA.

Support health behaviours

Teaching health literacy needs to sit within and alongside programmes to support health behaviours, which include:

- active involvement in problem solving, goal setting and written action plans
- lifestyle changes, including diet, physical activity, smoking cessation and improved sleep patterns
- informed decision-making
- managing medication
- positive mental health and managing stress.

Because these are common to all long-term conditions, existing programmes can be used to improve respiratory health in general, and aspects can be adapted to include behaviours specific to respiratory conditions, such as managing asthma medication.

Some programmes have been evaluated and shown to deliver results. For example, the Waikato-based Project Energize is a community-based nutrition and activity programme that has involved Māori and Pacific providers, among others, and has resulted in improvements in participants' weight, fitness and attitudes toward healthy eating (New Zealand Medical Association, 2014). Participants of Green Prescriptions have reported sustained increases in their activity levels and improved diets (Ministry of Health, 2010b). The Healthy Families New Zealand programme has been based on the model of the Australian Healthy Together Victoria, which was also evaluated and showed measurable results in body weight and fitness levels (New Zealand Medical Association, 2014).

Programmes need to be designed by and for Māori and by and for Pacific people that use culturally appropriate content and delivery methods, and are offered in places where people gather. An example of this is Pacific church initiatives to promote physical activity and healthy eating (Ministry of Health, 2014b).

Action examples

- Provide community-based health behaviour programmes that have been shown to work, in all regions.
- Ensure Healthy Families New Zealand programmes support people with respiratory conditions and their families to lead healthy lives.
- Fully involve Māori and Pacific people in the selection and adaption of programmes specific to their own people.
- Fund research on effective initiatives for Māori and Pacific communities.

Enhance the role of the education sector in supporting self-management

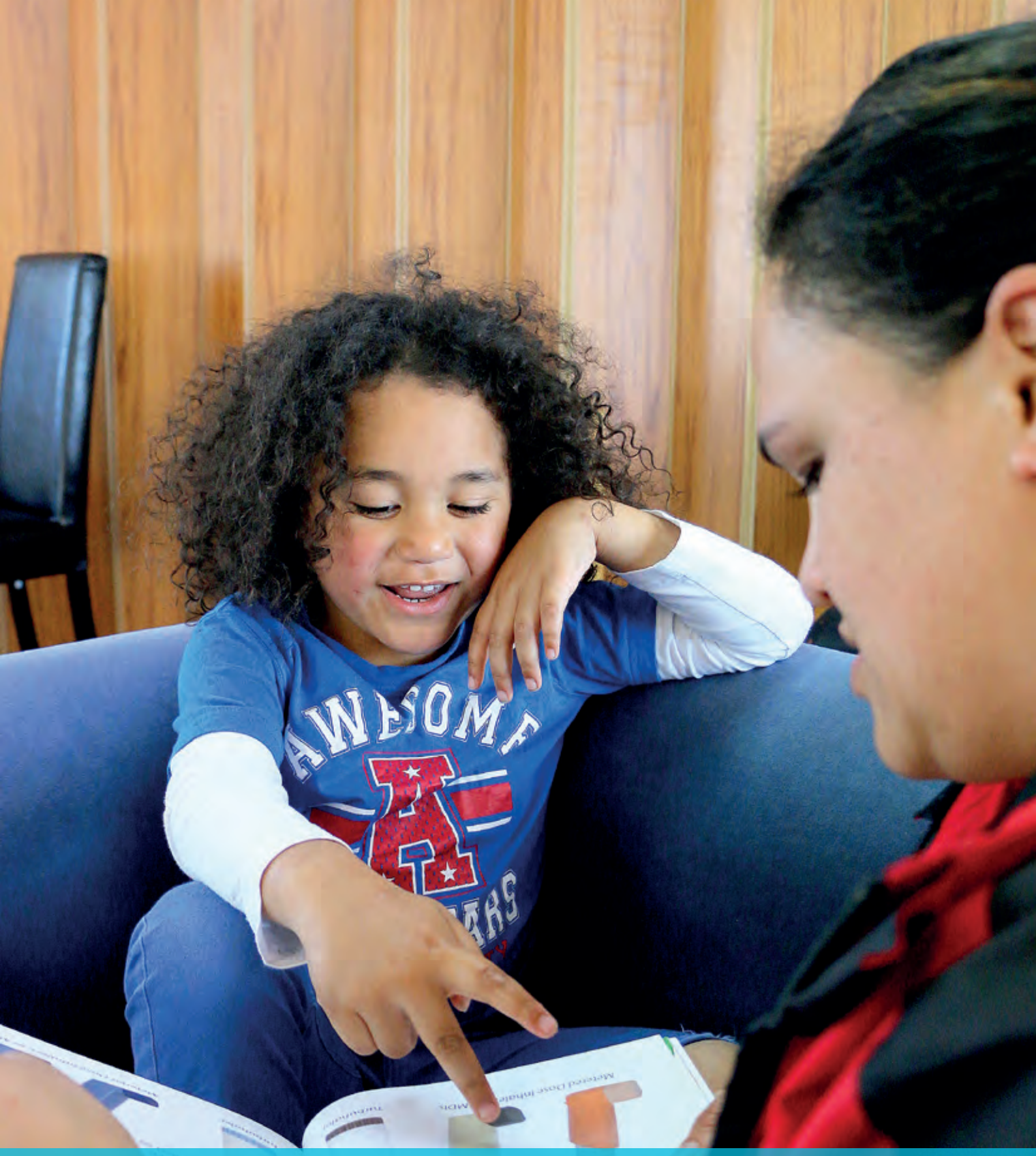
The education sector has an important role in self-management education. Schools, early childhood centres and other educators provide an opportunity to help children, families and teachers learn about managing asthma and other respiratory conditions.

They also help by lessening the negative impacts of poverty and other life conditions on their school day, and providing a safe and healthy learning environment.

Children with respiratory conditions need some extra support so that they don't miss out on education and can fully participate with their peers. Children with asthma, for example, are sometimes kept home from school if their parents are not confident that staff will manage their child's asthma properly (Jones & Ingham, 2015).

Action examples

- Develop and implement evidence-based tools to help schools better support children with asthma and other respiratory conditions.
- All schools and early childhood education centres identify children with asthma on enrolment, educate staff in asthma safety, have an asthma policy and maintain a smoke-free environment.
- Ensure health and social services in secondary schools are well equipped to support young people with respiratory conditions.



3 TE HAPORI HAUORA: THE HEALTH COMMUNITY

Goal: Health workers have the information and tools they need to provide high-quality advice and care to people with respiratory conditions.

3. Te Hapori Hauora: The Health Community

Goal: Health workers have the information and tools they need to provide high-quality advice and care to people with respiratory conditions.

This section focuses on the role of health professionals and other health-care workers in communicating with patients and their families, and in providing clinical diagnosis and treatment services.

Enhance the role of health professionals in health literacy and self-management support

Primary health-care providers, multidisciplinary teams and individual health workers all have an important role in working with people and their families/whānau so that they can manage well at home.

Yet in New Zealand most health professionals have not received training in health literacy.

Many find it hard to explain health information to people in a way they will understand, and to gauge how well people understand. For example, a doctor may wrongly assume that the parents of a child with asthma have a good understanding because they either say they do or are quiet and don't ask any questions (Jones & Ingham, 2015).

Asthma education by health professionals tends to focus on taking medicine correctly, monitoring symptoms, the serious nature of the disease and when to seek help. Other aspects are often missed, such as exercise and breathing techniques; whether the plan is manageable; whether the prescription is affordable; and whether the family have other resources, such as transport or access to after-hours emergency care, and have or can get a Community Services Card or disability benefit (Jones & Ingham, 2015).

Health education is more effective when a range of learning styles are used. Research on asthma health literacy for Māori children suggests that many health professionals rely on face-to-face verbal communication and tool demonstrations, with very little use of pictures, audiovisual aids, models or internet technology (Jones & Ingham, 2015).

Language is also important, and is one of the top barriers for Pacific people accessing the health care they need. There is a need for more formal, qualified translators, along with training for providers in how best to work with informal and formal translators (Southwick, Kenealy, & Ryan, 2012).

Cultural competence is crucial to being able to provide effective support, especially for Māori and Pacific people with respiratory conditions. Research findings have shown that Pacific people have less rapport with their GP than the rest of the population (Davis, Suaalii-Sauni, Lay-Yee, & Pearson, 2005), which is likely to affect how well messages are imparted to families. Understanding diversity and the differences between patient and provider world views and lived realities leads to improved communication, diagnosis and adherence to treatment (Southwick et al., 2012).

To build a trusting relationship and assess any possible issues with medicines, it is also important that health professionals are comfortable with asking their patients about traditional healing methods (BPAC NZ, 2008). Rongoā Māori is a holistic system of healing that has developed out of Māori cultural traditions, has a long history of usage and credibility among Māori, and which is experiencing increased interest in its revival and sustainability, prompting calls for its formalisation in the New Zealand public health system (Ahuriri-Driscoll, 2008; Durie, 1996). Rongoā Māori is one modality of Māori healing that may improve the current health status of Māori – including those with respiratory conditions (O'Connor, 2007; Gray, 2012). Typical rongoā healing practices incorporate karakia (prayer) and mirimiri (massage techniques) along with rongoā

rākau (native flora plant remedies) (BPAC NZ, 2008). For respiratory conditions these rongoā rākau may include use of kumerahou, hoheria or black mamaku, pititi (peach) tree as well as kawakawa and other expectorants (We Love Rongoā, 2013; Gray, 2012; BPAC, 2008).

There are opportunities for best practice at each stage of patient contact and for all health professionals to better support health literacy. For example, a community pharmacy pilot in the Hutt Valley introduced targeted counselling of people with asthma in need of more self-management support (Duncan & O'Rourke, 2010). This involved pharmacists spending time educating people about their inhalers and spacers and how to use them. Though numbers were small, there were positive results in medicine adherence, optimal supply of medicines, and asthma-related hospital admissions. The study also noted that developing trusting relationships with patients and their other health professionals was important, as well as allowing for the time and resources needed from all those involved.

Health professionals need to view all consultations as opportunities to build health literacy and develop relationships with patients and families. There are practical resources available to help them learn how to do this effectively (Health Quality & Safety Commission, 2015b), and the Ministry of Health has developed a guide to help organisations carry out their own health literacy review (Ministry of Health, 2015b).

Action examples to help build effective self-management support in the longer term

- Train all health professionals in health literacy education and cultural competency.
- Teach health literacy and long-term-conditions management at medical, nursing and pharmacy schools and other health training programmes.
- Ensure Pacific families and others with English as a second language are seen by nurses who are able to speak their preferred language, or have access to an interpreter.
- Ensure that people who need to have access to expert respiratory educators can do so in all DHB areas.
- Investigate how technology could be better used to assist self-management.

HEALTH PROFESSIONALS NEED TO VIEW ALL CONSULTATIONS AS OPPORTUNITIES TO BUILD HEALTH LITERACY AND DEVELOP RELATIONSHIPS WITH PATIENTS AND FAMILIES

Improve prevention for all preventable diseases

The section on "The Environment" included actions to prevent respiratory diseases starting and getting worse.

Eliminating poverty and improving housing are effective actions for many conditions, especially asthma, childhood bronchiolitis, pneumonia and COPD. Becoming smoke free is crucial to reduce the incidence and effects of lung cancer and COPD, and improves the management of other respiratory conditions. Maintaining a healthy weight is especially important for OSA, and healthy nutrition and physical activity help with self-management across all conditions.

Another important preventive action for people with respiratory conditions is appropriate vaccination, including against influenza (flu) viruses, pneumococcus (which causes bacterial pneumonia) and bordatella pertussis (which causes whooping cough).

To improve access for people who need it most, the annual flu vaccine is free for people who regularly use an asthma preventer or have a diagnosis of COPD, and for any child aged four and under who has been hospitalised or has a history of significant respiratory illness.

Action example

- Make appropriate vaccinations accessible to all people with respiratory conditions and encourage them to have them.

Improve diagnosis and treatment

For people to manage well and be as healthy as they can be, they also need to have an early and correct diagnosis of their condition, be provided with high-quality medical treatment, and trust in the advice they are given. Health professionals need to have the information, tools and services available to them to be able to provide this care and advice.

In New Zealand, early and correct diagnosis is an issue for serious respiratory conditions such as COPD, bronchiectasis, asthma and OSA (Town, Taylor, Garrett, & Patterson, 2003; Loring, 2009; Jones & Ingham, 2015; Martinez-Garcia et al., 2013; Gupta et al., 2009; Gander et al., 2010). For example, it has been estimated that as few as one in every four to five people living with COPD have had their condition confirmed by a doctor, and many people do not seek help until the disease has progressed and their lung damage is irreversible (Town et al., 2003). Lung cancer outcomes are also strongly influenced by when people seek help, and early presentation is currently a priority for the National Lung Cancer Working Group.

Late diagnosis or misdiagnosis (e.g. COPD being misdiagnosed as bronchiectasis, or vice versa) can have a big impact on quality and length of life. For example, undiagnosed asthma is very likely to lead to poor control, and undiagnosed bronchiectasis to hospital admissions.

To diagnose correctly and provide the best care possible, health professionals need ongoing education on respiratory diseases and access to clinical pathways and relevant clinical guidance in a form that is easy for them to use. In New Zealand there is up-to-date guidance for some conditions, such as OSA in children (Paediatric Society of New Zealand, 2014), standards of care for cystic fibrosis (Cystic Fibrosis Association of New Zealand, 2011) and lung cancer services (National Lung Cancer Working Group, 2011) , but not for others such as asthma, COPD and bronchiectasis.

The Global Asthma Report 2014 recommends that all countries ensure appropriate asthma management guidelines are available (Global Asthma Network, 2014). The current New Zealand guidelines for asthma in adults were developed in 2002 and for children in 2005, meaning that the latest clinical evidence is not available in this form. More recent guidelines are available overseas, but

these refer to medicines that are either not available or are not funded in New Zealand. Issues for Māori and Pacific people are not addressed in either the international asthma guidelines or the Australian and New Zealand guidelines for the management of COPD (Lung Foundation Australia & The Thoracic Society of Australia & New Zealand, 2015).

As well as updated guidelines, improved access to diagnostic testing will help health professionals to correctly diagnose conditions earlier, so that people can start treatment sooner and have the best chance of achieving optimal health.

Training for health professionals in the content and use of clinical guidelines will also help them to provide nationally consistent advice and care. This is important for people's health literacy and their ability to manage at home. Families of children with asthma, for example, have reported confusion at being taught different ways of using asthma medication by different health professionals (Jones & Ingham, 2015).

Sub-specialists in respiratory medicine also play an important role in clarifying diagnosis when it is uncertain, and in guiding treatment for adults and children with rare, complex and/or severe conditions.

Finally, targeted research that asks the right questions has an important role to play in improving the diagnosis, assessment and treatment of people with respiratory conditions. Actions for research and evaluation are covered in the last section of this document. The examples presented on the next page are aimed at supporting health professionals to more effectively diagnose and treat the major respiratory conditions in New Zealand where there are gaps in the tools and information available to them.

> **"TO DIAGNOSE CORRECTLY AND PROVIDE THE BEST CARE POSSIBLE, HEALTH PROFESSIONALS NEED ONGOING EDUCATION ON RESPIRATORY DISEASES"**

Action examples for screening and diagnostic tools

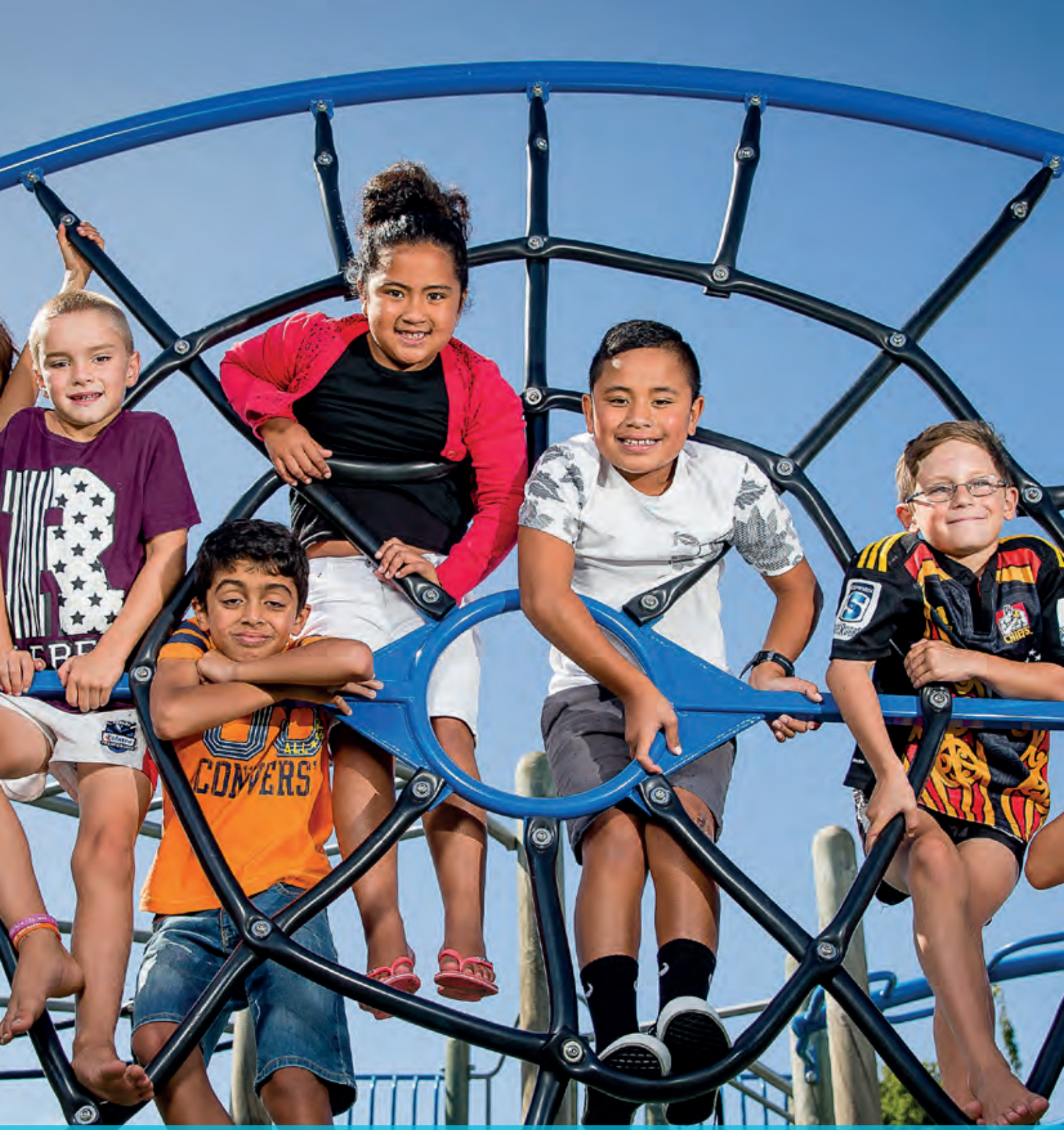
- Provide free and accessible screening for COPD (e.g. community-based and mobile clinics) for Māori and Pacific people with a history of smoking and symptoms.
- Provide OSA and COPD screening in high-risk occupations and industries.
- Adopt a consistent screening tool for OSA and provide training on its use.
- Ensure good-quality spirometry services are available in all DHB regions.
- Introduce a national standard for spirometry testing and approved provider training, based on work underway by the Thoracic Society of Australia and New Zealand.
- Provide improved and consistent access to appropriate diagnostics and treatment options for OSA (e.g. CPAP, oral appliances, surgery and weight loss).
- Improve access to diagnostics for bronchiectasis (e.g. high-resolution CT scanning).
- Develop and implement an early presentation strategy for lung cancer, including improving timely access to chest imaging, investigations and treatment.

Action examples for clinical guidance

- Develop up-to-date, New Zealand-specific, child and adult asthma management guidelines to benchmark best practice and ensure consistency of advice.
- Develop up-to-date, New Zealand-specific guidelines for COPD, based on *The COPD-X Plan: Australian and New Zealand Guidelines for the Management of Chronic Obstructive Pulmonary Disease 2015* (Lung Foundation Australia & The Thoracic Society of Australia & New Zealand, 2015) and ensure they meet the needs of Māori and Pacific people.
- Develop up-to-date, New Zealand-specific standards for OSA in adults.

Action examples for training and education

- Provide regular in-service training for health workers on best practice for common conditions and those with diagnostic challenges (e.g. asthma, COPD, bronchiectasis and OSA).
- Support the ongoing development of nursing skills through application of the New Zealand Adult Respiratory Nursing Knowledge and Skills Framework (TSANZ Nurses Special Interest Group NZ & NZNO Respiratory Nurses Section, 2010).



4 TE PŪNAHA HAUORA: THE HEALTH SYSTEM

Goal: Respiratory health is a health priority for New Zealand. All people are easily able to get the care they need when they need it, wherever they live and whatever their means.

4. Te Pūnaha Hauora: The Health System

Goal: Respiratory health is a health priority for New Zealand. All people are easily able to get the care they need when they need it, wherever they live and whatever their means.

This goal focuses on what needs to be done at the wider health-system level to improve respiratory health in New Zealand. To ensure real and lasting improvement, respiratory health needs to be made a national health priority, alongside our two other major long-term conditions: cancer and heart disease. The huge personal, population and health system costs of respiratory disease are growing, and they will continue to grow without a focused national commitment to reducing these costs (World Health Organisation, 2007).

Actions at the national level include improving access to primary care, extending the health workforce, using integrated models of care, and introducing a national health target and respiratory health indicators for DHBs and PHOs.

Improve access to primary care

Primary health care relates to health care provided in the community, usually from a GP, practice nurse, pharmacist or other health professional working within a general practice. It covers a wide range of health services, including diagnosis and treatment, health education, counselling, prevention and screening.

People who are living on low incomes face a number of barriers to getting the health care they need when it is needed. These were mentioned earlier, and include distance to the nearest medical centre, not having a means of transport or not being able to afford a bus or taxi to get there, not being able to afford to attend appointments or collect prescription medicines, and time delays in getting an available doctor's appointment (Turner & Asher, 2014; Asthma Foundation, 2015).

For adults and children with conditions such as asthma, bronchiectasis, COPD and pneumonia, these barriers can cause them to delay seeking help until a problem is seen as severe or there is a health emergency. Emergency department visits and hospital stays can be prevented by making it easier for individuals and families in low-income and high-needs groups to access primary care services (Turner & Asher, 2014).

The New Zealand Health Survey asks adults whether they had been unable to access primary health care when they needed it at any point in the last 12 months. This included an unmet need for a GP or after-hours service due to cost, lack of transport, or being unable to get an appointment at their usual medical centre within 24 hours. The survey's annual update in 2013/14 found that:

- 28% of adults reported that they had an unmet need for primary health, with higher levels among Māori (37%), Pacific people (33%) and adults living in the most deprived areas (35%)
- 22% of children experienced one or more types of unmet need, with higher rates again for Māori and Pacific children (both 1.4 times more) and children living in the most deprived areas (1.5 times more) (Ministry of Health, 2014f).

In addition to these issues, research indicates that overall Māori and Pacific people in New Zealand may experience differences in health-care services and in outcomes of care once they access it (Davis et al., 2005; Crengle, Lay-Yee, Davis, & Pearson, 2005; Crampton, Jatrana, Lay-Yee, & Davis, 2007).

There are many examples of efforts to remove barriers to primary health care taking place in communities across New Zealand. This is a feature of Whānau Ora and Māori provider collectives such as Tākiri Mai Te Ata Whānau Ora collective in the Hutt Valley, which works to build trusting relationships with whānau, reaching out and empowering them to engage with the health services they need (Lee, 2014).

Similar integrated approaches are needed for Pacific communities to address social, economic and cultural barriers to health care. Pacific people and communities want to be part of health service initiatives that address their health and wellbeing. This can happen, for example, through the work of Pacific health providers and church-based programmes (Ministry of Health, 2014b).

At a national level, two important steps to reduce cost barriers are now in place that will help families to seek medical help sooner for their children with respiratory conditions. These are:

- zero-fees doctors' visits, during the day and after hours, for children aged under 13
- free prescriptions for children aged under 13.

The action examples below work to further reduce barriers to primary care for people and families who live with respiratory conditions.

Action examples to improve access to primary care

- Introduce zero-fees doctors' visits and medicines to people and families in need.
- Locate community health services near public transport routes, and provide transport to health services for those in most need.
- Extend services beyond clinic settings into homes, schools, marae, churches, kōhanga reo, and other settings where people gather.
- Provide appointment systems that are flexible to meet the needs of families, such as appointments outside of work hours and walk-in appointments.
- Increase the number of respiratory health workers and educators providing services in low-income areas.

Action examples for supporting people to manage at home

- Extend pharmacy-based services for people with respiratory conditions by extending the long-term-conditions eligibility criteria in the Community Pharmacy Services Agreement.
- Strengthen health literacy by ensuring everyone has access to a respiratory nurse educator and an up-to-date management plan that is easy to follow.
- Improve access to physiotherapy assessment and education on exercises / sputum clearance in hospitals and in the community.
- Increase the availability of and access to pulmonary rehabilitation programmes in all regions.
- Increase access to home oxygen services for those who need it, to help manage conditions such as COPD, bronchiectasis and lung cancer.

Improve access to specialist care

The barriers to primary care also apply to access to specialist respiratory care based mainly in hospitals.

These include the cost of taking time off work to attend appointments, travelling to and from hospital, the time and cost involved in staying away from home to reach the closest specialist centre, and delays in waiting for specialist assessments and treatment.

Some of the highest respiratory hospitalisation and mortality rates are in DHBs with many isolated rural communities, such as Tairawhiti, Bay of Plenty, Lakes and Whanganui (Telfar Barnard et al., 2015). To achieve better access for these communities, we need a mix of solutions to improve the availability of specialist health services in these regions. Respiratory specialists at Starship Children's Hospital, for example, visit district hospitals around the country to see patients with complex respiratory diseases such as cystic fibrosis.

Action examples

- Address the barriers to specialist care, and improve care pathways between primary and secondary care.
- Review the spread of respiratory specialists across New Zealand and improve specialist availability and access in the areas of highest need.

Extend the respiratory health workforce

The health system must develop a range of health-care workers who are able to meet the challenges of long-term condition management and holistic health care when and where it is needed.

All health workers, regulated and unregulated, need to be trained and have barriers removed, such as unnecessary limits to scopes of practice. Some examples already in place are the extended nursing role of nurse practitioners, and the long-term-conditions service provided by community pharmacists, who are able to spend more time helping people to understand their conditions and the medicines they use.

The "Individuals and Families" section touched on the importance of all health workers being able to better respond to Māori and Pacific health needs through cultural competence learning and practice. This is one way to reduce barriers and start to address the heavy burden of respiratory disease experienced by Māori and Pacific people in New Zealand.

Yet much more needs to be done. There is an urgent need to grow the size and experience of the Māori and Pacific health workforce so that respiratory health services better reflect the communities they serve. Māori and Pacific health workers are best placed to deliver care that works and is easy to access by their communities, but they are too few in number, especially in regulated roles such as doctors and nurses.

For example:

- Māori make up 15% of the New Zealand population (Statistics New Zealand, 2013) but only around 5% of the regulated health workforce, and this rate has not grown since 2009 (Ihimaera & Maxwell-Crawford, 2012)
- Pacific people make up 7% of the New Zealand population (Statistics New Zealand, 2013) but only around 2.3% of the regulated workforce (Pacific Perspectives, 2013).

This need is even greater given that Māori and Pacific health workers often have extra demands on their time. They face high expectations from both their communities and the health system to improve services and to bring an understanding of the reality of health services from a cultural perspective (Southwick et al., 2012).

Producing a more equitable and culturally appropriate health sector will require long-term, cross-government effort. This includes ensuring Māori and Pacific people are achieving at school from a young age and are well prepared for tertiary education. An example is the Āwhina programme at Victoria University of Wellington, which supports Māori and Pacific science, engineering, architecture and design students and also runs an outreach programme for secondary schools (Victoria University of Wellington, 2015).

Action examples

- Make it a New Zealand workforce priority to build the capacity and capability of the Māori and Pacific health workforces.
- Review the scope of practice of respiratory health workers (including community and hospital pharmacists, and registered and enrolled nurses in respiratory care) to identify and remove barriers to care.
- Extend prescribing rights to nurses and pharmacists to improve access to medications.
- Create nurse entry to practice positions for new graduates in respiratory health services.
- Include respiratory health services in the voluntary bonding scheme.
- Encourage community workers and health professionals to work together, and exchange their clinical and cultural knowledge and skills.

Apply integrated models of care

Respiratory diseases are complex, can span many life stages, and need to involve a range of different health professions in order to be managed well.

For this reason, as with other long-term conditions, an integrated team approach is needed to provide effective self-management support for people and families with respiratory conditions (Ministry of Health, 2014e; Jones & Ingham, 2015). This involves organisations and health professionals working together, sharing information and service delivery, and co-ordinating care around patients to meet their needs and improve health outcomes.

It also includes aiding the transition of care between services. For example, when a young person with bronchiectasis, severe asthma or another serious or complex condition moves from paediatric into adult services, extra effort is needed to keep them engaged with the health system. Similarly, people leaving hospital can be helped by a team approach to discharge planning, long-term care plans, and linking them with community resources and support.

Multidisciplinary teams to support people with respiratory conditions can be made up of doctors, nurses, Māori providers, Pacific providers, pharmacists, allied health professionals, and respiratory specialist doctors and nurses. Community organisations such as asthma societies, support groups and trained volunteers are also an important part of this team in supporting the provision of holistic care (Jones & Ingham, 2015).

In New Zealand there are many examples of integrated health care. These include the Integrated Respiratory Services programme in Canterbury, the Respiratory Pilot programme in Hawke's Bay, and the Very High Intensity User programme in Auckland. Initiatives such as these could be shared as models for other regions to adapt to local population needs.

Cross-agency initiatives such as Social Sector Trials and children's teams provide formal structures and processes to bring together professionals from health, education, welfare and social service agencies. These also present opportunities to improve respiratory health in vulnerable populations, both directly through their programmes and through learning from evaluations.

Action examples

- Develop, implement and evaluate integrated models of care, and share learning across the health sector.
- Develop and encourage collaborations and provider networks (e.g. within and between DHBs, PHOs, Māori and Pacific providers, NGOs and other community agencies) in all DHB regions.
- Develop tools for information sharing to support integrated service models and transition between services.
- Develop initiatives to support young people with complex or severe conditions as they transition to adult services.

Introduce a respiratory national health target and indicators

Lifting the performance of the health sector is a high priority for the Ministry of Health.

To this end, a number of financial and non-financial incentives are in place, such as the open reporting of performance against national health targets by DHBs and PHOs, and financial rewards through the PHO Performance Programme (Ministry of Health, 2014g).

Health targets have been shown to be successful in lifting performance in defined government priority areas. The national health target "Better help for smokers to quit" has the greatest potential to help reduce respiratory disease. The targets "Shorter waits for cancer treatment" and "Shorter stays in emergency departments" contribute to improving lung cancer services and addressing the high number of emergency department visits by children and adults with respiratory conditions.

These are positive steps, but there is support among health professionals for a target that directly relates to services for respiratory disease (Asthma Foundation, 2015). National health targets are already in place to encourage improved services for people with cancer and cardiovascular disease. Given that respiratory disease is our third-highest cause of death after cancer and heart disease (World Health Organisation, 2014), it is hard to deny the need for a health target to reinforce the significance of respiratory health and drive service improvements.

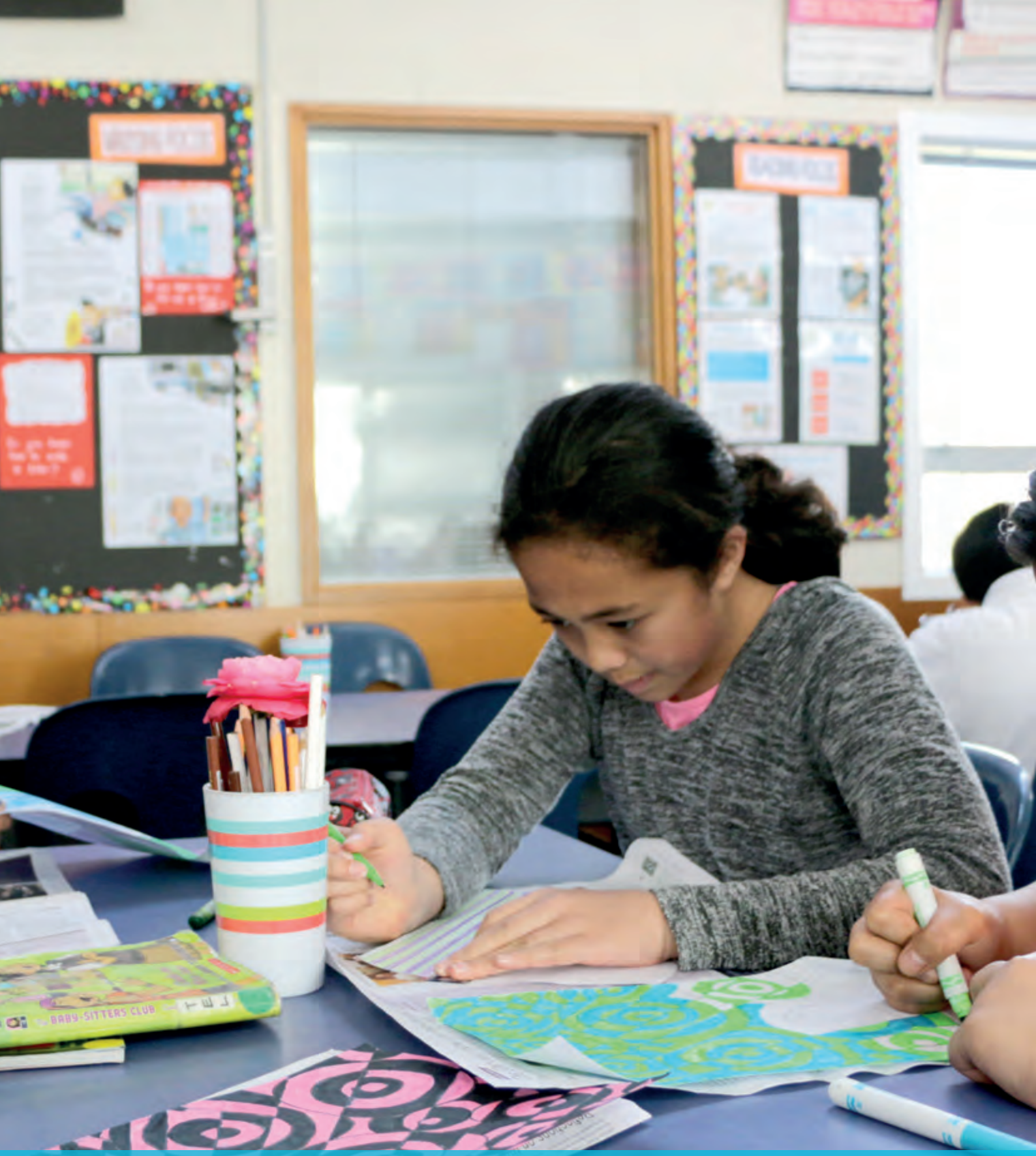
Many respiratory health professionals also support the development of respiratory management indicators for DHBs and PHOs to provide incentives for actions that will improve the respiratory health of New Zealanders (Asthma Foundation, 2015). This is already happening at regional and local levels. For example, respiratory health is a priority in the Hutt Valley given its major contribution to overall hospitalisations and emergency department use.

Other initiatives led by government to set the direction of and encourage service improvement include monitoring, accountability and incentive frameworks, and developing an updated New Zealand Health Strategy (in progress at the time of writing).

All of the above strategies could prompt better planning and resourcing of initiatives to improve respiratory health across all DHB regions; for example, through DHB annual plans and Māori health plans, and the development of clinical pathways for asthma, COPD and other conditions.

Action examples

- Investigate a new national health target relating to respiratory health in order to secure respiratory health as a national priority and incentivise best practice nationwide.
- Develop and introduce DHB and PHO respiratory management indicators and performance incentives.
- Prioritise respiratory health and address the poor status of respiratory health through the updated New Zealand Health Strategy.



5 RANGAHAU ME TE AROMĀTAI: RESEARCH & EVALUATION

Goal: research and service evaluation are directed to the areas of most benefit for respiratory health.

5. Rangahau me te Aromātai: Research and Evaluation

Goal: Research and service evaluation are directed to the areas of most benefit for respiratory health.

To inform decisions on funding and service design, New Zealand policy makers, funders and providers of health services now have strong data that is up to date on most of the major respiratory conditions and the population groups most affected. Even so, there are still issues with diagnosis and data coding, gaps in the epidemiology of some conditions, and a lack of research to help us understand the causes of the severe impact of respiratory disease on low-income groups, Māori and Pacific peoples (Telfar Barnard et al., 2015).

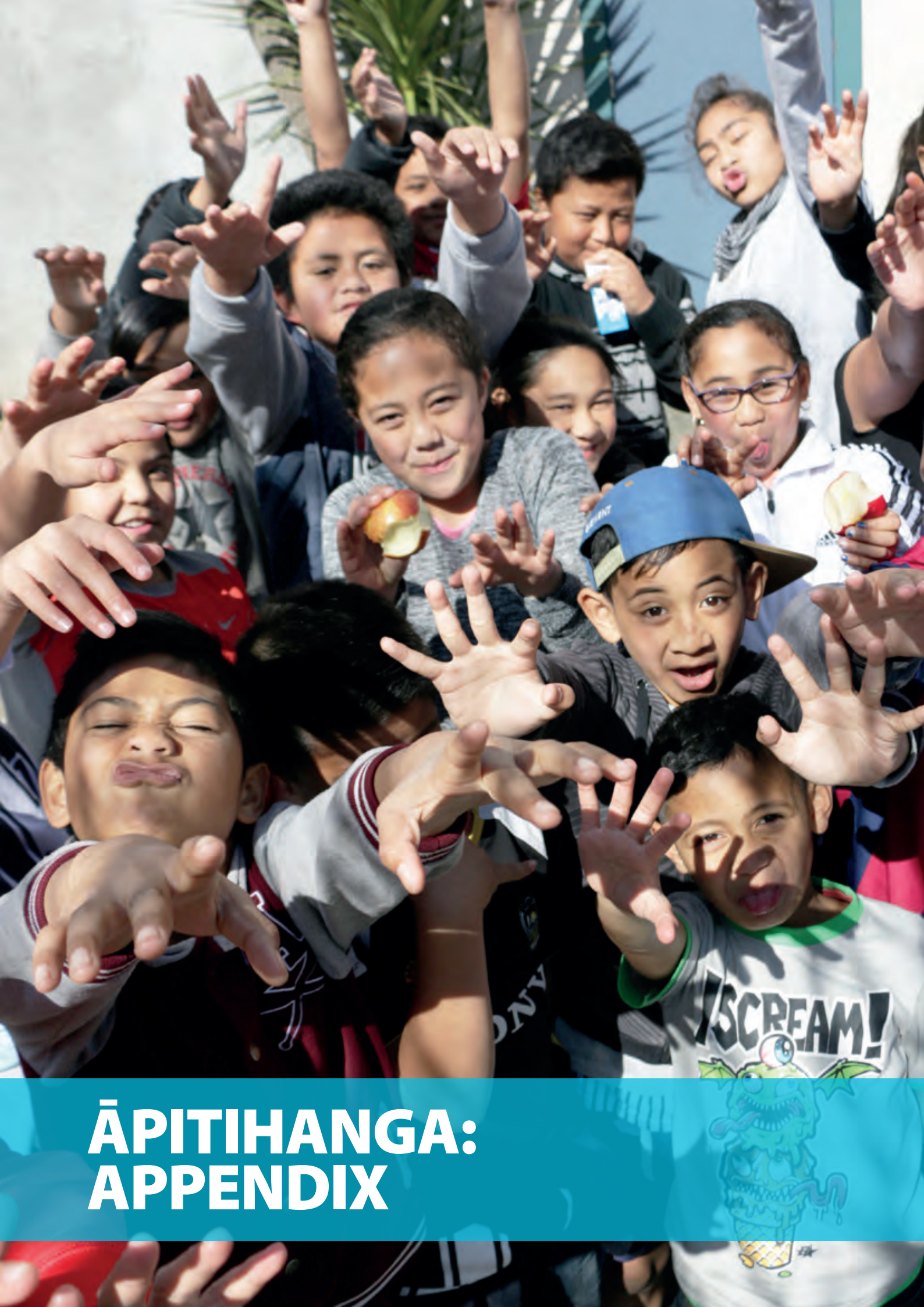
Given what we know about the poor state of respiratory health in New Zealand, we now need a firm evidence base to show us what interventions and prevention programmes work and are cost effective. At present there is limited research in New Zealand to help us confidently select, design and target initiatives to improve respiratory health outcomes. In this context our focus needs to remain on implementing activities, learning as we go and building the evidence base (Ministry of Health, 2014g).

An example of the type of evidence needed is a recent case study on the impact of primary health-care investment at Capital & Coast DHB (Tan, Carr, & Reidy, 2012). This demonstrated how targeted support for tailored services in areas of high health and social need and particular groups (young people, Māori, Pacific people and refugee communities) led to better health outcomes and reduced inequalities. It also showed positive effects on hospital use, including reduced asthma hospitalisations for children 0–5 years old, especially among Māori and Pacific children.

There are also opportunities to investigate whether learning from programmes such as the Rheumatic Fever Prevention Programme (Ministry of Health, 2015c) could be applied to planning and implementing respiratory prevention strategies.

Action examples

- Develop a set of appropriate indicators to measure and monitor respiratory health outcomes and service performance.
- Research gaps in the respiratory health evidence base, to better understand:
  - the causes of the severe impact of respiratory disease on low-income groups, Māori and Pacific peoples
  - the experience of OSA in the New Zealand population
  - how to effectively prevent respiratory conditions, where possible
  - how to achieve earlier diagnosis and improve treatment for conditions such as COPD, lung cancer and childhood bronchiectasis
  - psychological aspects of respiratory disease in New Zealand.
- Evaluate services and models of care that improve respiratory health outcomes, particularly for Māori and Pacific people.
- Build on existing health literacy research, including a focus on how best to strengthen Pacific people's health literacy.
- Investigate the effectiveness of an annual check for people with respiratory conditions and the utility of considering such an initiative as a national health target.



ĀPITIHANGA: APPENDIX

Āpitihanga 1: Expert Advisory Group

Dr Kyle Perrin (Chair)

MBChB, FRACP, PhD

Kyle is a respiratory and general physician, and the Clinical Director of General Medicine, at Wellington Hospital. He is a Senior Clinical Lecturer at the University of Otago, Wellington. His PhD was in the use of oxygen therapy in acute severe asthma, and he has active research interests in asthma, COPD and pneumothorax. He has been the Medical Director of the Asthma Foundation since 2012, and is on the board of the Smokefree Coalition.

Dr Tristram Ingham

MRSNZ, MBChB (Otago), MInstD

Ngāti Kahungunu, Ngāti Porou

Tristram is a senior research fellow in the Department of Medicine at the University of Otago in Wellington. He also holds a number of governance positions across the health sector, including board memberships of Wellhealth Trust PHO, Capital & Coast Māori Partnership Board, and the Combined Community Public Health & Disability Advisory Committee of Capital Coast, Hutt Valley and Wairarapa DHBs. His medical and research background includes work on the burden of bronchiolitis, asthma and COPD, along with the pharmaceutical management of these and other conditions. A particular focus for Tristram is understanding and addressing the basis for the striking disparities in health outcomes seen for Māori and Pacific people with respiratory illnesses. Underlying these are clear inequities in the determinants of health, access to health care and quality of care. Tristram leads a number of clinical, epidemiological and community partnership research projects that aim to develop interventions that respond to the practical needs of families/whānau with respiratory conditions.

Dr Api Talemaitoga

Api is a practising GP at Normans Road Surgery, Christchurch, and in July 2015 he also started at a new practice in South Auckland. Dr Talemaitoga has been a member of the National Health Committee and led the work on the management of long-term conditions, and has worked in the Pacific both as personal physician to Fijian leaders and, more recently, across the Melanesian and Polynesian region facilitating access to specialist services in New Zealand and other countries. Dr Talemaitoga also served on the Board of Canterbury DHB in 2000/01. He was Chief Advisor, Pacific Health, at the Ministry of Health from 2008 to 2013. Apart from clinical practice, Dr Talemaitoga is also on the Board of the Royal New Zealand College of GPs and chairs the Pasifika GP Network and the Auckland Pacific Health Provider Network – Tangata O Le Moana.

Professor Innes Asher

MB ChB, FRACP

Innes is Head of Paediatrics at the School of Medicine, University of Auckland, and is a respiratory paediatrician at Starship Children's Hospital.

Professor Asher has been the chair of a worldwide children's research study since 1992: the International Study of Asthma and Allergies in Childhood (ISAAC). She co-authored the *Global Asthma Report* in 2011 and 2014, produced through collaboration of the ISAAC and the International Union Against Tuberculosis and Lung Disease, and now chairs the Global Asthma Network. Professor Asher is on the Steering Group of the National Child and Youth Epidemiology Service. In 2003 she was awarded the Officer of the New Zealand Order of Merit for services to Paediatrics, and in 2007 the Health Research Council Liley Medal for her research leadership.

Betty Poot

RN NP, BBS (Massey), MHScNursing (Otago)

Betty works as a nurse practitioner at Hutt Valley District Health Board, and as a Clinical Lecturer at the Graduate School of Nursing Midwifery and Health, Victoria University of Wellington. Betty is the current chair of the Respiratory Nurses Section NZNO, and leads the review committee for the Respiratory Knowledge and Skills Framework for nurses.

Teresa Chalecki

Teresa has been the Nurse Manager at CanBreathe (Canterbury Asthma Society) since 2010. She is a registered nurse with over 30 years' experience in various nursing, nurse management and health management roles for West Coast and Canterbury DHBs. Since 2004 she has been based in the community working in the NGO sector.

Teresa Demetriou

Teresa Demetriou has worked with the Asthma Foundation since August 2011 and is the National Education Services Manager. She is responsible for the Foundation's education portfolio, including educating on respiratory conditions and providing technical and professional development and training for the Foundation's constituents. Teresa is an advocate for championing the dissemination of evidence-based information, resources, knowledge and skills as they relate to asthma and respiratory conditions. Teresa is a registered nurse with over 30 years' experience working in the health sector. She has experience in management positions and portfolios across many areas, including intensive care, elderly care, public health, school nursing, practice nursing and respiratory health education.

Teresa has represented the Foundation on the board of the SmokeFree Coalition and currently sits on the Agencies for Nutrition Action Strategic Council.

Professor Richard Beasley

MBChB, FRACP, DM(Southampton), FAAAAI, FRCP(London), DSc(Otago), FFOM(Hon)

Richard is a physician at Wellington Regional Hospital, Director of the Medical Research Institute of New Zealand, and Deputy Chair of the Health Research Council of New Zealand. He is an Adjunct Professor at the University of Otago and Victoria University of Wellington, and Visiting Professor, University of Southampton, United Kingdom. His research interests in respiratory medicine are primarily in the fields of epidemiology and clinical management.

Professor Richard Edwards

Richard trained as a public health physician. He is Co-Head of the Department of Public Health, University of Otago, Wellington.

He is also is Co-Director of the ASPIRE 2025 research collaboration and of the Health Promotion and Policy Research Unit.

He has over 15 years' experience in public health and tobacco control practice and research in the UK and New Zealand, with a focus on research relating to tobacco control policy. He is a member of the Cancer Society Health Promotion Committee, the National Smokefree Working Group and the National Lung Cancer Working Group.

Associate Professor Jim Reid

Jim is Deputy Dean of the Dunedin School of Medicine. He also has a private medical practice at the Caversham Medical Centre, Dunedin. Jim has a special interest in respiratory medicine and has published widely in asthma and COPD. He is a Distinguished Fellow of the Royal New Zealand College of General Practitioners and is also a Fellow of the American College of Chest Physicians. Jim is a Director of the Best Practice Advocacy Centre New Zealand.

Āpitihanga 2: Strategy Development

In 2013 the Asthma Foundation established an Expert Advisory Group of national and international experts in respiratory health (see Appendix 1 for a list of members).

The group spans the fields of public health, Māori and Pacific health, education, nursing, general practice, paediatric and adult respiratory medicine, health management and research. A priority for this group has been to develop a national respiratory strategy, and in 2014 this received overwhelming support in a survey of key stakeholders.

During 2015 the Expert Advisory Group continued its oversight and expert contribution to the Strategy. Writing and consultation were supported by a secondment from the Ministry of Health, made possible by funding from the Ministry and the Department of Internal Affairs. Following are some key milestones over this time.

In February 2015 a detailed survey sought feedback on respiratory health issues, and actions to improve both general respiratory health and five major conditions (asthma, bronchiectasis, COPD, pneumonia and OSA). Feedback was received from 142 professionals (nurses, respiratory physicians, paediatricians, GPs, physiotherapists, pharmacists and others), and 45 organisations (DHBs, PHOs, asthma societies, health providers, NGOs).

In April 2015 the Asthma Foundation published *The Impact of Respiratory Disease in New Zealand: 2014 Update* (Telfar Barnard et al., 2015). This report provided a strong basis for the Strategy in describing the incidence, impact and time trends of five of the major respiratory conditions: asthma, bronchiectasis, bronchiolitis and pneumonia in children, and COPD.

In July 2015 a draft Strategy document was circulated for feedback to key agencies, health professional and consumer representative groups. Feedback was received from over 30 individuals, groups and organisations. Those who contributed their time and expertise in this way included:

- New Zealand Nurses Organisation (NZNO)
- Respiratory Nurses Section – NZNO
- Te Rūnanga o Aotearoa (NZNO Māori professional members)
- General Practice New Zealand
- Pasifika Medical Association (Drs Teuila Tercival and Api Talemaitoga and Dr Debbie Ryan from Pacific Perspectives)
- New Zealand Medical Association
- Thoracic Society of Australia & New Zealand (TSANZ)
- TSANZ Respiratory Nurses Special Interest Group
- Australasian Sleep Association
- Paediatric Society Respiratory Special Interest Group
- Pharmacy Guild of New Zealand
- Ngā Kaitiaki o Te Puna o Rongoā o Aotearoa, Māori Pharmacists' Association
- PHARMAC Pharmaceutical Management Agency
- Ministry of Health teams (Child and Youth Health, Māori Health Policy, Pharmacy, Long Term Conditions, System Integration)
- Members of Tumu Whakarae, National Reference Group of Māori Health Strategy Managers within DHBs
- Hutt Valley DHB respiratory clinical nurse Specialists
- Kimi Hauora Wairau Marlborough PHO
- Asthma Foundation societies and trusts: Tu Kotahi Māori Asthma Trust, Asthma Hawke's Bay, Asthma Marlborough, Asthma Southland
- Asthma New Zealand
- Cystic Fibrosis New Zealand
- Agencies for Nutrition Action (ANA)
- Child Poverty Action Group (CPAG)
- individual GPs, clinical nurse specialists, community nurses, adult and paediatric respiratory physicians.

In August 2015 the Expert Advisory Group met for the final time to consider all of the above feedback and agree on the final Strategy content.

Āpitihanga 3: How Does the Strategy Fit with Other Health Strategies and Plans?

The table below contains a brief overview of alignment between the goals of the National Respiratory Strategy and some of the key national health documents current at the time of writing.

Table A1: Alignment with national strategies and plans

National Respiratory Strategy goals	Related New Zealand health strategies and plans
Environment: All people live, work and play in healthy environments, and have enough money to meet their health needs and the needs of their families.	**He Korowai Oranga: Māori Health Strategy:** wai ora – healthy environments; te ara tuawhā – working across sectors **'Ala Mo'ui: Pathways to Pacific Health and Wellbeing 2014–2018:** Pacific 'āiga, kāiga, magafaoa, kōpū tangata, vuvale and fāmili experience improved broader determinants of health **Reducing Inequalities in Health:** structural interventions, including economic and social policies.
Individuals and Families: People and families living with respiratory conditions are empowered to be as healthy as they can, and live longer, healthier and independent lives.	**He Korowai Oranga: Māori Health Strategy:** mauri ora – healthy individuals, whānau ora – healthy families; te ara tuatahi – development of whānau, hapū, iwi and Māori communities **'Ala Mo'ui: Pathways to Pacific Health and Wellbeing 2014–2018:** Pacific people are better supported to be healthy (health literacy) **Reducing Inequalities in Health:** intermediary pathways including behaviour/lifestyle, internal empowerment.
Health Community: Health workers have the information and tools they need to provide quality advice and care to people with respiratory conditions.	**He Korowai Oranga: Māori Health Strategy:** te ara tuarua – Māori participation in the health and disability sector **'Ala Mo'ui Pathways to Pacific Health and Wellbeing 2014–2018:** Pacific peoples are better supported to be healthy (cultural competency education) **Equity of Health Care for Māori: A Framework:** health practitioner and health organisation leadership, knowledge, commitment.
Health System: Respiratory health is a health priority for New Zealand. All people are able to easily get the care they need when they need it, wherever they live and whatever their means.	**He Korowai Oranga: Māori Health Strategy:** te ara tuatoru – effective health and disability services **'Ala Mo'ui: Pathways to Pacific Health and Wellbeing 2014–2018:** systems and services meet the needs of Pacific people; more services are delivered locally in the community and in primary care. **Equity of Health Care for Māori: A Framework:** health practitioner and health organisation leadership, knowledge, commitment. **Reducing Inequalities in Health:** health and disability services, including improving access and care pathways

Sources: Ministry of Health 2002, 2014a, 2014b, 2014c

TOHUTORO: REFERENCES

Tohutoro: References

Ahuriri-Driscoll, A., Baker, V., Hepi, M., & Hudson, M. (2008). *The future of rongoā Māori: Wellbeing and sustainability.* Retrieved from http://www.ir.canterbury.ac.nz/handle/10092/5211.

Asher, I., & Byrnes, C. (2006). *Trying to catch our breath: The burden of preventable breathing diseases in children and young people.* Wellington: Asthma and Respiratory Foundation of New Zealand.

Asthma Foundation. (2015). *National Respiratory Strategy survey of stakeholders and health practitioners: Summary of responses*. Unpublished.

Baker, M., McDonald, A., Shang, J., & Howden-Chapman, P. (2013). *Infectious disease attributable to household crowding in NZ: A systematic review and burden of disease estimate rates.* Wellington: He Kainga Oranga / Housing and Health Research Programme, University of Otago.

Bakker, J., O'Keeffe, K., Neill, A., & Campbell, A. (2011). Ethnic disparities in CPAP adherence in New Zealand: Effects of socioeconomic status, health literacy and self-efficacy. *Sleep*, 34(11): 1595–1603.

Bennett, J., Chisholm, E., Hansen, R., & Howden-Chapman, P. (2014). *Results from a rental housing warrant of fitness pre-test* . Wellington: He Kainga Oranga / Housing and Health Research Programme, University of Otago.

Best Practice Advocacy Centre New Zealand. (2012): Obstructive sleep apnoea in adults. *Best Practice*, 48. 6–15.

BPAC NZ. (2008). Demystifying rongoā Māori: Traditional Māori healing. *Best Practice*, 13: 32–36. Retrieved from: http://www.bpac.org.nz/BPJ/2008/May/docs/BPJ13.pdf.

Broad, J., & Jackson, R. (2003). *Chronic obstructive pulmonary disease and lung cancer in New Zealand.* Auckland: The University of Auckland.

Chapman, R., Howden Chapman, P., Viggers, H., O'Dea, D., & Kennedy, M. (2009). Retrofitting houses with insulation: A cost–benefit analysis of a randomised community trial. *Epidemiology and Community Health*, 63: 271–277 .

Children's Commissioner. (2012). *Solutions to child poverty in New Zealand: Evidence for action.* Children's Commissioner. Retrieved from: http://www.occ.org.nz/assets/Uploads/EAG/Final-report/Final-report-Solutions-to-child-poverty-evidence-for-action.pdf.

Cobiac, L., Ikeda, T., Nghiem, N., Blakely, T., & Wilson, N. (2015). Modelling the implications of regular increases in tobacco taxation in the tobacco endgame. *Tobacco Control*, 24: 139–145.

Commission on Social Determinants of Health. (2008). *Closing the gap in a generation: Health equity through action on the social determinants of health: Final report of the Commission on Social Determinants of Health.* Geneva: World Health Organisation.

Craig, E., Reddington, A., Wicken, A., Oben, G., & Simpson, J. (2013). *Child Poverty Monitor 2013: Technical report (updated 2014).* Dunedin: NZ Child and Youth Epidemiology Service, University of Otago.

Crampton, P., Jatrana, S., Lay-Yee, R., & Davis, P. (2007). Exposure to primary medical care in New Zealand: Number and duration of general practitioner visits. *New Zealand Medical Journal*, 12: 1256.

Crengle, S., Lay-Yee, R., Davis, P., & Pearson, J. (2005). *A comparison of Māori and non-Māori patient visits to doctors: The National Primary Medical Care Survey: 2001/02: Report 6.* Wellington: Ministry of Health.

Cystic Fibrosis Association of New Zealand. (2011). *Standards of care for cystic fibrosis in New Zealand.* Retrieved from: http://www.cfnz.org.nz/wp-content/uploads/Standard-of-Care-NZ-2011.pdf.

Dale, M. C., O'Brien, M., & St John, S. (2014). *Our children, our choice: Priorities for policy.* Auckland: Child Poverty Action Group.

Davis, P., Suaalii-Sauni, T., Lay-Yee, R., & Pearson, J. (2005). *Pacific patterns in primary health care: A comparison of Pacific and all patient visits to doctors: The National Primary Medical Care Survey 2001/02: Report 7.* Wellington: Ministry of Health.

Duncan, P., & O'Rourke, M. (2010). *Community pharmacy asthma pilot: A pilot to improve patient adherence to asthma medication regimens: Report to Hutt Valley DHB.* Unpublished.

Durie, M. H. (1996). *A framework for purchasing traditional healing services: A report for the Ministry of Health.* Massey University. Retrieved from: http://www.moh.govt.nz/notebook/nbbooks.nsf/0/DC8431D780DBA141CC256D23007E4D65/$file/Traditional%20healing%20services.pdf.

Durie, M. (2013). *Te hā o te tangata: Breathing easy in Aotearoa: A presentation to the Asthma Foundation New Zealand Respiratory Conference 2013.* Unpublished.

Earle, D. (2015). *Updating the Adult Literacy and Life Skills Survey: Estimating change in skills distribution since 2006.* Retrieved from: http://www.educationcounts.govt.nz/publications/series/ALL.

Eastham, K., Fall, A., Mitchell, L., & Spencer, D. (2003). The need to redefine non-cystic fibrosis bronchiectasis in childhood. *Thorax*, 59: 324–327.

Environmental Health Indicators New Zealand. (2015). *Health conditions related to cold and damp houses*. Retrieved from: http://www.ehinz.ac.nz/indicators/indoor-environment/health-conditions-related-to-cold-and-damp-houses/

Gaillard, E., Carty, H., & Smyth, R. (2003). Reversible bronchial dilatation in children: Comparison of serial high-resolution computer tomography scans of the lungs. *European Journal of Radiology*, 47: 215–220.

Gander, P., Scott, G., Mihaere, K., & Scott, H. (2010). Societal costs of obstructive sleep apnoea syndrome. *New Zealand Medical Journal*, 123: 1321.

Global Asthma Network. (2014). *The Global Asthma Report 2014*. Auckland: Global Asthma Network.

Gray, K. (2012). *The use of rongoā in contemporary physiotherapy: An exploratory study*. Taupua Waiora Centre for Māori Health Research, AUT University. Retrieved from: http://www.aut.ac.nz/__data/assets/pdf_file/0008/477836/K-Gray_Summer-Studentship_2012.pdf.

Gupta, S., Siddiqui, S., Haldar, P., Vimal Raj, J., Entwisle, J., Wardlaw, A., et al. (2009). Qualitative analysis of high-resolution CT scans in severe asthma. *Chest Journal*, 136: 1521–1528.

Haidopoulou, K., Calder, A., Jones, A., Jaffe, A., & Sonnappa, S. (2009). Bronchiectasis secondary to primary immunodeficiency in children: Longitudinal changes in structure and function. *Pediatric Pulmonology*, 44: 669–675.

Health Quality & Safety Commission. (2015a). *Atlas of healthcare variation*. Retrieved from: http://www.hqsc.govt.nz/our-programmes/health-quality-evaluation/projects/atlas-of-healthcare-variation/.

Health Quality & Safety Commission. (2015b). *Health literacy*. Retrieved from: http://www.hqsc.govt.nz/our-programmes/partners-in-care/work-streams/health-literacy/.

Hillman, D. L. (2013). Public health implications of sleep loss: The community burden. *Medical Journal of Australia*, 199(8): 7–10.

Howden-Chapman, P., Crane, J., Chapman, R., & Fougere, G. (2011). Improving health and energy efficiency through community-based housing interventions. *International Journal of Public Health*, 56(6): 583–588.

Howden-Chapman, P., Matheson, A., Crane, J., Viggers, H., Cunningham, M., Blakely, T., et al. (2007). Effect of insulating existing houses on health inequality: Cluster randomised study in the community. *British Medical Journal*, 334: 460.

Howden-Chapman, P., Pierse, N., Nicholls, S., Gillespie-Bennett, J., Viggers, H., Cunningham, M. et, al. (2008). Effects of improved home heating on asthma in community dwelling children: Randomised controlled trial. *British Medical Journal*, 337: a1411.

Ihimaera, L., & Maxwell-Crawford, K. (2012). *Whakapuāwaitia ngāi Māori 2030: Thriving as Māori 2030: Māori health workforce priorities*. Reanga New Zealand Consultancy Ltd. Retrieved from: http://www.health.govt.nz/publication/whakapuawaitia-ngai-maori-2030.

Jackson, G., Thornley, S., Woolston, J., Papa, D., Bernacchi, A., & Moore, T. (2011). Reduced acute hospitalisation with the Healthy Housing Programme. *Journal of Epidemiology and Community Health*, 65: 588–593.

Johnson, A. (2014). *Housing market changes and their impact on children*. Part 4 in Our Children, Our Choice: Priorities for Policy series. Child Poverty Action Group. Retrieved from: http://www.cpag.org.nz/in-focus/our-children-our-choice-priorities-for-policy-1/part-4-housing/.

Jones, B., & Ingham, T. (2015). *He Māramatanga huangō: Asthma health literacy for Māori children in New Zealand: Report to the Ministry of Health* . Wellington: Ministry of Health.

Keal, M., Crane, J., Baker, M., Wickens, K., & Cunningham, M. (2012). A measure for quantifying the impact of housing quality on respiratory health: A cross-sectional study. *Environmental Health*, 11: 33.

Lee, P. (2014). *Asthma Foundation final draft Māori stakeholder engagement report* . Unpublished.

Loring, B. (2009). *Literature review: Respiratory health for Māori*. Wellington: Asthma and Respiratory Foundation of New Zealand.

Lung Foundation Australia & The Thoracic Society of Australia & New Zealand. (2015). *The COPD-X Plan: Australian and New Zealand guidelines for the management of chronic obstructive pulmonary disease 2015* . Retrieved from: http://copdx.org.au/copd-x-plan/.

Martinez-Garcia, M., Carrillo, D., Soler-Cataluna, J., Donat-Sanz, Y., Serra, P., Lerma, M., et al. (2013). Prognostic value of bronchiectasis in patients with moderate-to-severe chronic obstructive pulmonary disease. *American Journal of Respiratory Critical Care Medicine*, 187: 823–831.

Mihaere, K., Harris, R., Gander, P., Reid, P., Purdie, G., Robson, B., et al. (2009). Obstructive sleep apnea in New Zealand adults: Prevalence and risk factors among Māori and non-Māori. *Sleep*, 32(7): 949–956.

Ministry of Health. (2000). *The New Zealand Health Strategy.* Retrieved from: http://www.health.govt.nz/publication/new-zealand-health-strategy.

Ministry of Health. (2002). *Reducing inequalities in health.* Retrieved from: http://www.health.govt.nz/publication/reducing-inequalities-health.

Ministry of Health. (2010a). *Kōrero mārama: Health literacy and Māori.* Retrieved from: http://www.health.govt.nz/publication/korero-marama-health-literacy-and-maori-results-2006-adult-literacy-and-life-skills-survey.

Ministry of Health. (2010b). *Green Prescription patient survey.* Retrieved from: http://www.health.govt.nz/our-work/preventative-health-wellness/physical-activity/green-prescriptions.

Ministry of Health. (2013a). *Health loss in New Zealand: A report from the New Zealand Burden of Diseases, Injuries and Risk Factors Study, 2006–2016* . Retrieved from: http://www.health.govt.nz/publication/health-loss-new-zealand-report-new-zealand-burden-diseases-injuries-and-risk-factors-study-2006-2016.

Ministry of Health. (2013b). *Cancer: New registrations and deaths 2010.* Retrieved from: http://www.health.govt.nz/publication/cancer-new-registrations-and-deaths-2010.

Ministry of Health. (2014a). *He Korowai Oranga: Māori Health Strategy.* Retrieved from: http://www.health.govt.nz/our-work/populations/maori-health/he-korowai-oranga.

Ministry of Health. (2014b). *'Ala Mo'ui: Pathways to Pacific health and wellbeing 2014–2018.* Wellington: Ministry of Health.

Ministry of Health. (2014c). *Equity of health care for Māori: A framework.* Retrieved from: http://www.health.govt.nz/publication/equity-health-care-maori-framework.

Ministry of Health. (2014d). *New Zealand maternity clinical indicators 2012.* Retrieved from: http://www.health.govt.nz/publication/new-zealand-maternity-clinical-indicators-2012.

Ministry of Health. (2014e). *Self-management support for people with long-term conditions.* Retrieved from: http://www.health.govt.nz/publication/self-management-support-people-long-term-conditions.

Ministry of Health. (2014f). *Annual update of key results 2013/14: New Zealand Health Survey.* Wellington: Ministry of Health. Retrieved from: http://www.health.govt.nz/publication/annual-update-key-results-2013-14-new-zealand-health-survey.

Ministry of Health. (2014g). *Briefing to the incoming Minister of Health 2014.* Retrieved from: http://www.health.govt.nz/publication/briefing-incoming-minister-health-2014.

Ministry of Health. (2015a). *A framework for health literacy.* Retrieved from: http://www.health.govt.nz.

Ministry of Health. (2015b). *Health literacy review: A guide.* Retrieved from: http://www.health.govt.nz/publication/health-literacy-review-guide.

Ministry of Health. (2015c). *Progress on the Better Public Services rheumatic fever target.* Retrieved from: http://www.health.govt.nz/about-ministry/what-we-do/strategic-direction/better-public-services/progress-better-public-services-rheumatic-fever-target.

National Lung Cancer Working Group. (2011). *Standards of service provision for lung cancer patients in New Zealand* . Retrieved from: http://www.health.govt.nz/publication/standards-service-provision-lung-cancer-patients-nz.

National Smokefree Working Group. (2012). *Smokefree Aotearoa / New Zealand by 2025: Next steps 2011–2015.* Wellington: National Smokefree Working Group.

National Smokefree Working Group. (2015). *Smokefree Aotearoa 2025: Action plan 2015–2018.* Wellington: National Smokefree Working Group.

New Zealand Medical Association. (2014). *NZMA policy briefing: Tackling obesity.* New Zealand Medical Association. Retrieved from: https://www.nzma.org.nz/__data/assets/pdf_file/0015/32082/NZMA-Policy-Briefing-2014_Tackling-Obesity.pdf.

New Zealand Parliament. (2011). *Government response to the report of the Māori Affairs Committee on its inquiry into the tobacco industry in Aotearoa and the consequences of tobacco use for Māori (final response).* Wellington: New Zealand Parliament.

Northern Cancer Network. (2012). *Lung Cancer Research Project.* Retrieved from: http://www.northerncancernetwork.org.nz/Research/LungCancerResearchProject/Backgroundinformation/tabid/116/language/en-NZ/Default.aspx.

NZ House of Representatives Māori Affairs Committee. (2010). *Inquiry into the tobacco industry in Aotearoa and the consequences of tobacco use for Māori.* Retrieved from: http://www.parliament.nz.

O'Connor, T. (2007). *Governing bodies: A Māori healing tradition in a bicultural state.* Retrieved from http://researchspace.auckland.ac.nz.

Pacific Perspectives. (2013). *Pacific health workforce service forecast: Report to Health Workforce New Zealand and the Ministry of Health.* Pacific Perspectives. Retrieved from: http://www.health.govt.nz/publication/pacific-health-workforce-service-forecast.

Paediatric Society of New Zealand. (2014). *New Zealand guidelines for the assessment of sleep-disordered breathing in childhood.* Retrieved from: https://www.starship.org.nz/for-health-professionals/national-child-and-youth-clinical-networks/paediatric-sleep-medicine/new-zealand-guidelines-for-the-assessment-of-sleep-disordered-breathing-in-children/.

Perry, B. (2015). *Measuring and monitoring material hardship for New Zealand children: MSD research and analysis used in advice for the Budget 2015 child hardship package.* Wellington: Ministry of Social Development.

Shaw, C., Blakely, T., Sarfati, D., Fawcett, J., & Hill, S. (2005). Varying evolution of the New Zealand lung cancer epidemic by ethnicity and socioeconomic position (1981–1999). *New Zealand Medical Journal*, 118: U1411.

Southwick, M., Kenealy, T., & Ryan, D. (2012). *Primary care for Pacific people: A Pacific health and systems approach*. Report to the Health Research Council and Ministry of Health. Retrieved from: http://www.mentalhealth.org.nz/assets/ResourceFinder/primary-care-pacific-people-pacific-health-systems-approach.pdf.

Statistics New Zealand. (2013). *2013 Census: Major ethnic groups in New Zealand.* Retrieved from: http://www.stats.govt.nz/Census/2013-census/profile-and-summary-reports/infographic-culture-identity.aspx.

Statistics New Zealand. (2014). *2013 Census QuickStats about housing.* Retrieved from: http://www.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-about-housing.aspx.

Tan, L., Carr, J., & Reidy, J. (2012). New Zealand evidence for the impact of primary healthcare investment in Capital and Coast District Health Board. *New Zealand Medical Journal,* 125(1352): 7–27.

Telfar Barnard, L., Baker, M., Pierse, N., & Zhang, J. (2015). *The impact of respiratory disease in New Zealand: 2014 update.* Wellington: Asthma Foundation.

Thompson, H., Thomas, S., Sellstrom, E., & Pettigrew, M. (2013). Housing improvements for health and associated socio-economic outcomes. *Cochrane Database of Systematic Reviews*, Feb 28; 2:CD008657.

Town, I., Taylor, R., Garrett, J., & Patterson, J. (2003). *The burden of COPD in New Zealand.* Wellington: Asthma and Respiratory Foundation of New Zealand & Thoracic Society of Australia and New Zealand.

TSANZ Nurses Special Interest Group NZ & NZNO Respiratory Nurses Section. (2010). *New Zealand adult respiratory nursing knowledge & skills framework.* Palmerston North: Mid Central District Health Board.

Tukuitonga, C. (2012). Pacific Island health: Causes of poor health. In *Te Ara – The Encyclopedia of New Zealand* (updated 13 July 2012). Retrieved from: http://www.teara.govt.nz/en/pacific-island-health/page-4.

Turner, N., & Asher, I. (2014). *Child poverty and health.* Part 1 of Our Children, Our Choice: Priorities for Policy series. Auckland: Child Poverty Action Group Inc.

Victoria University of Wellington. (2015). *Te Rōpū Āwhina.* Retrieved from: http://www.victoria.ac.nz/science/Awhina.

Ward, S., Donnelly, C., Cooper-Taylor, C., & Cooper-Tayler, P. (2014). *Don't forget to breathe: A handbook for patients with chronic obstructive pulmonary disease (COPD) and their carers.* Retrieved from: http://www.dontforgettobreathe.org.nz.

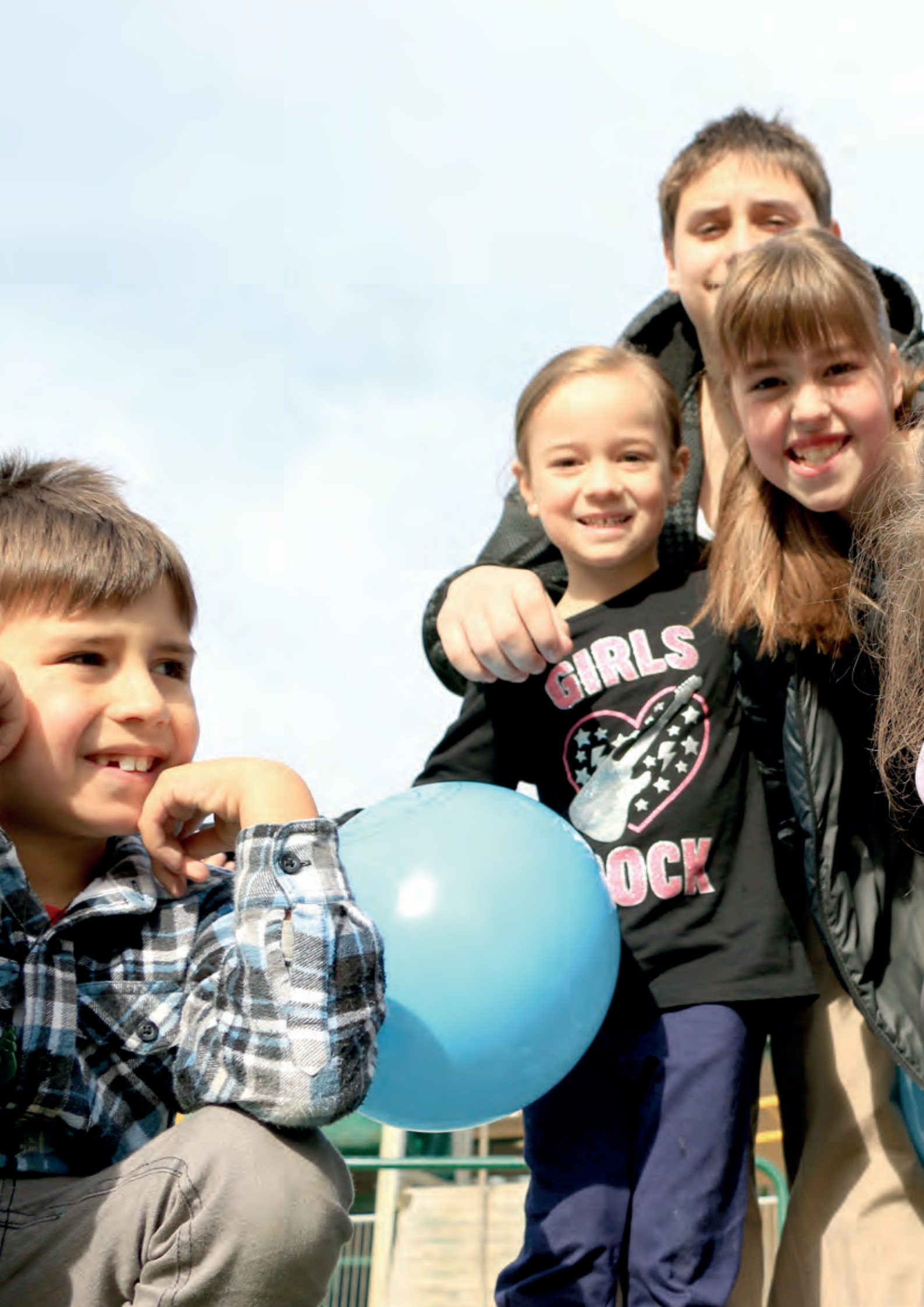
We Love Rongoā. (2013). *Rongoā for respiratory and digestive conditions*. Retrieved from: http://weloverongoa.co.nz/blog/rongoa-respiratory-digestive-conditions/.

World Health Organisation. (2007). *Global surveillance, prevention and control of chronic respiratory diseases: A comprehensive approach.* Geneva: World Health Organisation.

World Health Organisation. (2014). *Noncommunicable diseases country profiles 2014.* Geneva: WHO Document Production Services.

World Health Organisation. (2015a). *WHO frequently asked questions*. Retrieved from: http://www.who.int/suggestions/faq/en/.

World Health Organisation. (2015b). *Interim report of the Commission on Ending Childhood Obesity.* Geneva: World Health Organisation.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