Core public health functions for New Zealand

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ABSTRACT

This special article defines the public health principles and core public health functions that are combined to produce the public health services essential for a highly-functioning New Zealand health system. The five core functions are: health assessment and surveillance; public health capacity development; health promotion; health protection; and preventive interventions. The core functions are interconnected and are rarely delivered individually. Public health services are not static, but evolve in response to changing needs, priorities, evidence and organisational structures. The core functions describe the different ways public health contributes to health outcomes in New Zealand and provide a framework for ensuring services are comprehensive and robust.

he Ministry of Health and District Health Boards (DHBs) are mandated by the Health Act 1956 and the New Zealand Public Health and Disability Act 2000 to improve, promote and protect the health of their populations and to reduce health disparities. Our health system faces growing pressure due to an ageing population, an increasing burden of chronic diseases, increasing treatment costs, and fiscal constraints. In this context, effective delivery of public health services that help improve health status and manage health care demand is increasingly important.

Public health has been defined as the science and art of preventing disease, prolonging life and promoting health through the organised efforts of society. This special article describes the public health principles and the core public health functions that are combined in various ways by a range of providers to produce the public health services essential for a highly functioning New Zealand health system. It then outlines the implications of the core functions framework for public health service delivery.

The purpose of this special article is to:

- improve understanding of the ways public health services contribute to improved health outcomes; and
- help ensure that the health sector invests in an appropriate mix and configuration of public health services.

The core functions framework has been developed by the Public Health Clinical Network, formed by the clinical directors and managers of the 12 DHB Public Health Units and the Ministry of Health's Director of Public Health to provide leadership for and strengthen the performance and sustainability of public health units. Many public health services are delivered by providers outside District Health Boards and the Ministry of Health. Valuable advice was received from a range of individuals and organisations during development of this article. The content of the article remains the responsibility of the Public Health Clinical Network.

Background

The outcomes sought by public health services are:

- a healthier population
- reduction of health disparities
- improvement in Māori health
- increased safeguards for the public's health
- a reduced burden of acute and chronic disease

As health systems around the world respond to pressures such as ageing populations, increasingly expensive medical technology, a growing burden of chronic lifestyle-related disease and emerging and re-emerging infectious diseases, a number of countries have recognised that they cannot



continue to deliver effective and efficient health care unless they also take prevention seriously.²⁻⁴

Public health services add value to the health sector by helping manage demand for health care services and by helping the sector understand how we can improve population health. The public health sector helps connect the health sector to a wide range of other organisations which influence health outcomes. The public health sector also plays a key role in managing emerging health risks.

A significant and growing body of evidence demonstrates the costeffectiveness of public health interventions. The UK Wanless Report modelled three scenarios for a publicly funded, comprehensive, high quality health service and found that the scenario which invested most heavily in public health was also was the least expensive and delivered the best health outcomes. 5 An Australian report outlined the economic benefits of reducing the prevalence of six behavioural chronic disease risk factors (obesity, alcohol, smoking, exercise, diet and domestic violence). Over the lifetime of the 2008 Australian adult population, cost savings were estimated at between \$2 billion and \$3 billion.6 The Australian ACE (Assessing Cost Effectiveness) Prevention study, the largest and most rigorous evaluation of preventive strategies undertaken anywhere in the world, examined 150 preventive interventions, ranking them from most to least cost-effective by cost per disability adjusted life year. Some interventions, including taxation and regulation interventions on salt, alcohol and tobacco and the "polypill" for cardiovascular disease prevention, were found to be cost-saving, averting one million DALYs (disability adjusted life years) over the lifetime of the 2003 Australian population, costing the health sector \$4.6 billion, but averting \$11 billion in healthcare costs.7 Results of New Zealand's own Assessing Cost-effectiveness: Prevention study are anticipated in 2015.

Since the mid-1990s there have been a series of projects to define core or essential public health functions in different jurisdictions.^{3,8-12} Although the nature of public health is universal, the way public health

services are delivered varies widely around the world, as do the reasons for developing core services frameworks, so core functions frameworks developed for one country are not necessarily transferrable to other countries. A core functions framework for New Zealand must take into account those aspects of public health which are unique to our country, in order to meet New Zealand-specific needs and responsibilities (particularly the Treaty of Waitangi and existing Māori health disparities). Although there has been some discussion of core public health functions in New Zealand, 13-15 there has been no agreed core functions framework.

This special article defines five core public health functions for New Zealand, based on the strategies described in the British Columbia Core Services Framework¹¹ and the outcomes outlined in the WHO Western Pacific Region model,⁸ but adapted for New Zealand by the Public Health Clinical Network's Core Functions Working Group. This core functions framework now forms the basis of the Ministry of Health's Service Specifications for public health.

Public health providers

Public health services are diverse, and are provided by a wide range of organisations, including the Ministry of Health, District Health Boards (especially their public health units and planning and funding divisions), Crown Research Institutes, other government ministries, primary care, non-government organisations, local councils and universities, Pacific providers, and iwi, hapu and Māori organisations. Many, but not all, providers are funded from Vote Health. Only some providers currently see public health as their core business. Health-funded public health providers play an important role in supporting a public health approach in other organisations both within and outside the health sector and in supporting intersectoral strategies, such as Healthy Families NZ (a new government initiative providing leadership, information and resources to promote health in 10 high needs communities across New Zealand).



Figure 1: Core functions, services and outcomes

	Government Goal Ministry of Health intermediate outcomes		nt	New Zealanders lead longer, healthier and more independent lives									
			i ite	Good health and independence are protected and promoted		A more unified and improved health and disability system		d	better health and disability services		The health and disability system and services are trusted and can be used with confidence		
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	Outcomes					Pub	lic Health S	Serv	vice Outcon	nes			
	Sou	á		thier ore ctive ation	Redu healt dispa	0	Improving Māori health	g	Increased safeguard the public health	ls for		duced burden e and chronic ase	of
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Sever principl underpin public he servic deliver	les ning ealth		alth of unities than	Influenci health determin	Ü		tising vements ori health	he	educing ealth sparities	Basing praction on the best possible	ce 6	Building effective partnerships across the nealth sector and other sectors	Remainin responsiv to new an emerging health threats

Public health principles

Public health principles can be defined in many ways. The key principles agreed by the Public Health Clinical Network are:

- focusing on the health of communities rather than individuals
- b. influencing *health determinants*
- c. prioritising improvements in *Māori* health
- d. reducing health disparities
- e. basing practice on the best available *evidence*
- f. building effective *partnerships* across the health sector and other sectors
- g. remaining *responsive* to new and emerging health threats.

Core public health functions

Core public health functions are the fundamental components of a public health

system that effectively improves population health. The five core public health functions agreed by the Public Health Clinical Network are:

- 1. Health assessment and surveillance
- 2. Public health capacity development
- 3. Health promotion
- 4. Health protection
- 5. Preventive interventions.

The core public health functions are interconnected; core functions are rarely delivered individually. Public health services can be described as public health initiatives that combine components of several core functions to achieve health outcomes. Figure 1 illustrates the link between functions, services and outcomes. Public health services are not static, but evolve in response to changing needs, priorities, evidence and organisational structures.

Table 1 (see page 19) includes brief descriptions and a list of key strategies for each of the core public health functions. Table 2 (see page 21) uses tobacco control and earthquake response and recovery as



Table 1: Core functions, descriptions and strategies

Core function	Strategies				
1. Health assessment and surveillance: understanding health status, health determinants and disease distribution	 Monitoring, analysing and reporting on population health status, health determinants, disease distribution, and threats to health, with a particular focus on health disparities and the health of Māori. Detecting and investigating disease clusters and outbreaks (both communicable and non-communicable). 				
2. Public health capacity development: enhancing our system's capacity to improve population health	 Developing and maintaining public health information systems. Developing partnerships with iwi, hapū, whānau and Māori to improve Māori health. Developing partnerships with Pacific leaders and communities to improve Pacific health. Developing human resources to ensure public health staff, with the necessary competencies, are available to carry out core public health functions. Conducting research, evaluation and economic analysis to support public health innovation and to evaluate the effectiveness of public health policies and programmes. Planning, managing, and providing expert advice on public health programmes across the full range of providers, including primary care, planning and funding, councils and NGOs. Quality management for public health, including monitoring and performance assessment. 				
3. Health promotion: enabling people to increase control over and improve their health	 Developing public and private sector policies beyond the health sector that will improve health, improve Māori health and reduce disparities. Creating physical, social and cultural environments supportive of health. Strengthening communities' capacities to address health issues of importance to them, and to mutually support their members in improving their health. Supporting people to develop skills that enable them to make healthy life choices and manage minor and chronic conditions for themselves and their families. Working in partnership with other parts of the health sector to support health promotion, prevention of disease, disability, injury, and rational use of health resources. 				
4. Health protection: protecting communities against public health hazards	 Developing and reviewing public health laws and regulations.* Supporting, monitoring and enforcing compliance with legislation. Identifying, assessing, and reducing communicable disease risks, including management of people with communicable diseases and their contacts. Identifying, assessing and reducing environmental health risks, including biosecurity, air, food and water quality, sewage and waste disposal, and hazardous substances. Preparing for and responding to public health emergencies, including natural disasters, hazardous substances emergencies, bioterrorism, disease outbreaks and pandemics. 				
5. Preventive interventions: population programmes delivered to individuals	 Developing, implementing and managing primary prevention programmes (targeting whole populations or groups of well people at risk of disease: eg immunisation programmes). Developing, implementing and managing population-based secondary prevention programmes (screening and early detection of disease: eg cancer screening). 				

^{*}Public health legislation covers a wide variety of issues, including communicable disease control, border health protection, food quality and safety, occupational health, air and drinking water quality, sewerage, drainage, waste disposal, hazardous substances control, control of alcohol, tobacco and other drugs, injury prevention, health information, screening programmes, and control of medicines, vaccines and health practitioners.



examples of the way effective public health services combine strategies from several core functions.

Implications for public health service delivery

It is important to the whole health sector that public health services are delivered effectively and efficiently, so that they achieve the greatest impact on health outcomes. The five core functions provide a framework for ensuring that public health services are comprehensive and robust. District Health Boards need to understand how each of the functions is provided or accessed within their district and how public health services contribute to District Health Board objectives.

Most public health services include strategies from several core functions, so to be effective, providers need either the capacity to deliver comprehensively across several functions themselves or ready access to support from other public health organisations. The public health workforce is small and specialised, so organisational and workforce capacity are key assets.

As with many specialised health services, effective and efficient delivery requires appropriate and co-ordinated services at national, regional and local levels (see Table 3, page 25). Some public health services should be delivered once for the

country. There is potential to improve co-ordination and alignment of some specialised public health services across regions within New Zealand. However, most public health services are provided by partnerships of public health and other health and non-health providers, and effective delivery depends on wellsupported local public health staff, local relationships and an understanding of local communities and their needs. Because local public health services evolve over time in response to changing needs, priorities and relationships, funding arrangements should allow for flexibility and responsiveness in local service development.

Conclusion

Public health services are an integral part of a high-functioning New Zealand health system. It is important to the whole health sector that public health services are delivered effectively and efficiently, so that they achieve the greatest impact on health outcomes.

Public health services are not static, but evolve in response to changing needs, priorities, evidence and organisational structures. The five core public health functions describe the different ways public health contributes to health outcomes in New Zealand, and provide a framework for ensuring services are comprehensive and robust.



 Table 2: Examples of public health services.

Core function	Strategies	Examples (tobacco control)	Examples (Earthquake response & recovery)	
1. Health assessment and surveillance: understanding health status, health determinants and disease distribution	Monitoring, analysing and reporting on population health status, health determinants, disease distribution, and threats to health, with a particular focus on health disparities and the health of Māori. Detecting and investigating disease clusters and outbreaks (communicable and non-communicable).	 National smoking surveys, including Census and Year 10 school survey. National and local monitoring, analysis and mapping of tobacco sales volumes, outlet distribution etc. National and local analysis of the impact of tobaccorelated disease, including impact on specific population sub-groups and on health disparities. 	 Enhanced post-earthquake surveillance for gastroenteritis and influenza. Collecting, analysing and mapping water quality data. Development and reporting of health success indicators for recovery, with a particular focus on the hardest-hit communities. 	
2. Public health capacity development: enhancing our system's capacity to improve population health	Developing and maintaining public health information systems.	 National Public Health IT Strategy. Local systems to monitor tobacco outlets, Smokefree Environments Act complaints, enforcement activities, controlled purchase operations. Local systems to monitor smoking status of patients in primary and secondary care. Local systems to monitor cessation support activities. 	 Reviewing international literature to ensure recovery initiatives are evidence-based. Providing regular public health situation reports. 	
	Developing partnerships with iwi, hapū, whānau and Māori to improve Māori health.	Working in partnership with iwi, hapū, whānau and Māori to ensure services meet Māori needs.	Supporting development of marae-based community recovery hub.	
	Developing partnerships with Pacific leaders and communities to improve Pacific health.	Working with Pacific leaders and communities to ensure cessation services are accessible and appropriate for Pacific people.	Working with Pacific church leaders to provide information and support to Pacific communities.	
	Developing human resources to ensure public health staff with the necessary competencies are available to carry out core public health functions.	Workforce planning, recruitment, training and ongoing professional development of staff involved in primary and secondary care, cessation support, enforcement, policy analysis and informatics.	 Training all public health staff in emergency response procedures. Ensuring surge capacity plans are in place to allow regional and national staffing support. National and regional coordination of staff support. 	
	Conducting research, evaluation and economic analysis to support public health innovation and to evaluate the effectiveness of public health policies and programmes.	 Research studies to develop and assess innovative ways to decrease smoking initiation and effectively support cessation. Providing national and local economic analysis to highlight the impact of tobacco on health services, wider society and specific population groups, and the potential to decrease costs with decisive action. 	Telephone survey to assess compliance with boil water notices. Evaluating resource use (eg, Integrated Recovery Guide). Research on the nature of public health hazards postearthquake (eg, microbial contamination of liquefaction silt). Research on protective and risk factors for individual and community coping postearthquake.	



Core function	Strategies	Examples (tobacco control)	Examples (Earthquake response & recovery)
2. Public health capacity development: enhancing our system's capacity to improve population health (cont)	Planning and managing public health programmes across the full range of providers, including PHOs, Planning and Funding, Councils and NGOs.	 Developing national and regional tobacco control strategies. Developing and supporting development of tobacco control plans for DHBs, PHOs and PHUs, ensuring integration of local plans. 	 Developing national public health emergency response plans and systems. Working with councils to develop testing and public information programmes to support boil water notices and chlorination. Supporting CERA community engagement programme. Incorporating a health determinants approach into DHB recovery planning.
	Quality management for public health, including monitoring and performance assessment.	Standard-setting, reporting and audit of all tobacco control activities to ensure targets are achieved.	 Conducting debriefs for all staff. Providing reviews and reports of public health response.
3. Health promotion: enabling people to increase control over and improve their health	Developing public and private sector policies beyond the health sector that will improve health, improve Māori health and reduce disparities.	 Developing fiscal policies to support tobacco sales reductions. Developing local council smokefree policies (eg smokefree playgrounds and sports venues, smokefree public events). Developing tobacco policies for businesses and organisations (eg, smokefree marae, employer support for smoking cessation, tobaccofree retailers). 	 Supporting a "health in all policies" approach in recovery agencies with advice, committee membership, submissions and staff secondments. Developing tools to promote consideration of longer-term impacts of recovery on health (eg, Integrated Recovery Guide).
	Creating physical, social and cultural environments supportive of health.	 Increasing the number of smokefree places (eg. playgrounds, other public places and events, marae, clubs, homes). National, regional and local education and marketing campaigns to highlight the dangers of tobacco, encourage cessation and promote smokefree as a positive choice, including sponsorship and promotion of the "Smokefree" brand. 	 Working with insurers to prioritise winter heating support for people at high risk of hospital admission. Identifying and supporting opportunities to increase active transport in urban rebuild. Identifying potential for health gain from general improvements to home heating and insulation during rebuild.
	Strengthening communities' capacities to address health issues of importance to them, and to mutually support their members in improving their health.	 Supporting local communities to develop local smokefree policies (eg, marae, playgrounds) Supporting community initiatives and events to raise tobacco awareness (eg, World Smokefree Day). 	 Providing public information on the need to connect with and support others. Working with schools in hardest-hit areas to develop community hubs and help coordinate community support. Supporting citizens and community groups, particularly those within disadvantaged communities, to engage in participatory democratic processes for recovery and rebuilding.



Core function	Strategies	Examples (tobacco control)	Examples (Earthquake response & recovery)		
3. Health promotion: enabling people to increase control over and improve their health (cont)	Supporting people to develop skills that enable them to make healthy life choices and manage minor and chronic conditions for themselves and their families.	 Brief intervention programmes in primary and secondary care. Community cessation services, with a particular focus on those least able to access mainstream services. Quitline. 	 Providing safety advice for aftershocks ("drop, cover, hold on"; securing furniture) Providing public information about management and reporting of minor illness post-earthquake. 		
	Working in partnership with other parts of the health sector to support health promotion, prevention of disease, disability, and injury, and rational use of health resources.	Supporting DHB and primary care in addressing local tobacco issues (eg developing smokefree campuses, coordinating tobacco control initiatives, recording of patient smoking status, ensuring accessible cessation support).	 Incorporating a health determinants approach into DHB recovery plans. Providing information on normal responses and self-care for post-earthquake stress, along with appropriate referral via primary care for specialist support. 		
4. Health protection: protecting communities against public health hazards	Developing and reviewing public health laws and regulations.	Development and updating of Smokefree Environments Act (SFEA) and other regulatory controls on tobacco use, sales, sponsorship.	Ministry of Health advice on earthquake recovery legislation.		
	Supporting, monitoring and enforcing compliance with legislation.	 Educating retailers and employers about SFEA responsibilities. Supporting compliance (eg providing advice and signage). Receiving and investigating complaints about SFEA breaches. Conducting controlled purchase operations. Undertaking prosecutions for breaches of legislation. 	Using powers under Health Act and other legislation to provide protection against hazards (eg, closure of contaminated rivers to fishermen and whitebaiters).		
	Identifying, assessing, and reducing communicable disease risks, including management of people with communicable diseases and their contacts.	Publicly highlighting tobacco use as an important risk factor for certain communicable diseases (eg, meningococcal disease, legionnaire's disease).	 Monitoring and advising welfare centres for displaced people, including management of unwell residents. Promptly identifying and controlling communicable disease outbreaks. Communicating practical public advice about safe sewage disposal and hand hygiene. 		
	Identifying, assessing and reducing environmental health risks, including biosecurity, air, food and water quality, sewage and waste disposal, and hazardous substances.	Highlighting tobacco smoke as key indoor air pollutant. Increasing the number of smokefree places (eg playgrounds, other public places and events, marae, clubs, homes).	 Monitoring, assessing and advising on contamination of air, water and soil. Supporting return of recreational and drinking water to pre-quake quality. 		



SPECIAL ARTICLE

Core function	Strategies	Examples (tobacco control)	Examples (Earthquake response & recovery)	
4. Health protection: protecting communities against public health hazards (cont)	Preparing for and responding to public health emergencies , including natural disasters, hazardous substances emergencies, bioterrorism, disease outbreaks and pandemics.	Address post-disaster smoking relapses as part of disaster recovery plans, through information, education and cessation support.	Ensuring adequate emergency planning and training for all public health and associated staff.	
5. Preventive interventions: population programmes delivered to individuals	Developing, implementing and managing primary prevention programmes (targeting whole populations or groups of well people at risk of disease: eg immunisation programmes).	Providing targeted information to youth discouraging smoking initiation (eg, individual letters from GP at age 12).	Increasing eligibility and coverage for influenza vaccination in vulnerable groups.	
	Developing, implementing and managing population-based secondary prevention programmes (screening and early detection of disease: eg, cancer screening).	Routine collection of smoking status in primary and secondary care, with systematic brief intervention follow-up and referral to more intensive cessation support as indicated.		



Table 3: National regional and local service provision

National services

- For reasons of effectiveness or efficiency there are some public health services which should be delivered once for the country. These include:
- Legislative oversight and a range of technical support, including specialised advice, reference laboratory services and nationally used manuals for communicable disease control and environmental health.
- Surveillance and analysis of national/international communicable and non-communicable disease trends.
- Co-ordination of inter-district emergency responses.
- National programmes, registers or information systems–NIR and immunisation policy, screening programmes, drinking water programme.
- Public health workforce planning and development.
- National public health and intersectoral policy analysis and development.
- Developing and maintaining for the full spectrum of public health services a clear strategic direction, consistent service specifications and a transparent funding model which takes into account the particular public health needs of New Zealand's varied local communities.

Regional services

Some services should be accessible to all districts and public health providers, but can be provided or supported by regional public health services or networks. There is potential to improve the coordination of these services across the country to improve efficiency and effectiveness. They include:

- Advanced surveillance and analysis, including GIS.
- Public health policy analysis.
- Programme design and evaluation.
- Environmental health technical expertise.
- Support for outbreak investigation and control, including surge capacity support.
- Health impact assessment.
- Development of consistent operational protocols to suit local needs.
- Public health workforce training.

Local services

Most public health programmes are provided in partnership with a range of other health and non-health providers. Effective delivery depends on well-supported local public health staff, local relationships and an understanding of local communities and their needs. Delivery of regulatory services also requires national consistency and strong national links. Local programmes include:

- · Identification of locally emerging public health issues.
- Communicable disease and outbreak control.
- Public health emergency response.
- Regulatory controls on alcohol, tobacco and the physical environment, and associated health promotion.
- Immunisation co-ordination.
- Liaison with and support for local authorities, DHBs and primary care organisations.
- Support and co-ordination for health promotion in settings (eg, workplaces, education, primary care).
- Planning and funding of health care and public health programmes to meet local needs.

At a local level, public health providers must have (or have access to) an appropriate range of public health skills, be comprehensively linked with other services, and the planning framework must be flexible enough to allow providers to respond to local need.



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