

An Integrated Approach to Infectious Disease

Priorities for Action

2002–2006

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MINISTRY OF HEALTH

Foreword

The goal of the *Integrated Approach to Infectious Disease: Priorities for Action 2002–2006* is to address the New Zealand Health Strategy objective (Minister of Health 2000):

To reduce the incidence and impact of infectious diseases.

The Integrated Approach to Infectious Disease (IAID) complements and reinforces a number of other key goals and objectives in the New Zealand Health Strategy, including improving physical health, providing accessible and appropriate health care services, creating a healthy physical environment, and reducing inequalities in health status.

Infectious diseases significantly affect the health of New Zealanders. The incidence and impact of infectious disease are influenced by action not just in the health sector, but also in areas such as housing, agriculture and local government.

The IAID defines the priorities and strategies for management of infectious diseases, based on a broad, multisectoral view of infectious disease transmission and control. It has been developed by people working in the infectious disease sector, in consultation with other governmental and non-governmental agencies, and co-ordinated by the Ministry of Health.

Given limited resources, the IAID sets out key priorities for action at national and local levels over the next five years. The strategies in this document provide direction for the decisions that District Health Boards (DHBs) will make in the difficult task of allocating resources. This document also sets out essential intersectoral actions and policy priorities for central and local government agencies and provides the national framework within which DHBs will be operating.

I am confident you will join me in ensuring that we use the opportunities presented by this Action Plan to move towards the common goals of the New Zealand Health Strategy – improved health, reduced inequalities and higher quality care.



Hon Annette King
Minister of Health

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Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
AR	Antibiotic resistance
BCG	Bacillus Calmette-Guerin vaccine
CDC	Center for Disease Control (Atlanta)
DHB	District Health Boards (DHBs) fund, provide or ensure the provision of services that protect, promote and improve the health and independence of a geographically defined population
DOT(S)	Directly observed therapy (short-course)
DWS	Drinking-Water Standards
ESR	Institute of Environmental Science and Research Ltd
FSA	Food Safety Authority
HACCP	Hazard Analysis Critical Control Point. A system that is intended to provided a high degree of food safety assurance.
HAI	Hospital-acquired infection
HiB	Haemophilus influenzae type B (vaccine)
HIV	Human Immunodeficiency Virus
HRC	Health Research Council of New Zealand
IAID	Integrated Approach to Infectious Disease
IDU	Injecting drug user
IMAC	Immunisation Advisory Centre
IPA	Independent Practitioner Association
MAF	Ministry of Agriculture and Forestry
MDR-TB	Multi-drug resistant tuberculosis
MFAT	Ministry of Foreign Affairs and Trade
MoU	Memorandum of Understanding
MRSA	Methicillin-resistant <i>Staphylococcus aureus</i>
NSP	Needle and syringe exchange programme
NZBS	New Zealand Blood Service
NZIS	New Zealand Immigration Service
OSH	Occupational Safety and Health
PHARMAC	Pharmaceutical Management Agency Ltd
PHO	Primary health organisation

PHSs	Public health services
SRHS	Sexual and Reproductive Health Strategy
STEC	Shiga toxin-producing <i>E. coli</i> (see also VTEC)
STI	Sexually transmitted infection
TB	Tuberculosis
VTEC	Verotoxin-producing <i>E. coli</i> (see also STEC)
WHO	World Health Organization of the United Nations

Part I: Introduction

The Strategic Framework for the Health and Disability Sector

The New Zealand Health Strategy and the New Zealand Disability Strategy together set the overarching guide for planning, developing and funding health and disability services in New Zealand.

A number of more detailed strategies for services, health issues or population groups already exist or are being developed. These strategies provide more detailed guidance for the health and disability sector, particularly District Health Boards (DHBs) (which are directly responsible for the health and participation of their local communities), on how to achieve the goals of the New Zealand Health Strategy and New Zealand Disability Strategy. These strategies include the Primary Health Care Strategy, the Māori Health Strategy (He Korowai Oranga), the Health of Older People Strategy, Roadside to Bedside and the Pacific Health and Disability Action Plan.

These more specific strategies provide the basis for other policy initiatives that the Ministry of Health, often in association with other government and sector agencies, develops. These include:

- action plans to address specific health and disability issues, such as the *Integrated Approach to Infectious Disease: Priorities for Action 2002–2006*
- toolkits to assist DHBs to address the priority objectives of the New Zealand Health Strategy
- research and evaluation plans
- guidelines for service development.

Figure 1 shows the framework for implementing the Government's health and disability goals.

Figure 1: Implementing the Government's health and disability goals



Implementation of strategies

Implementation of the different strategies varies, depending on the aims and objectives of each one. Some strategies have very specific goals and objectives, and have specific funding allocated to them, for example, Reduced Waiting Times for Public Hospital Elective Surgery. Other strategies are prioritised and resourced incrementally, for example, the Primary Health Care Strategy and the IAID.

Their aims and objectives may include:

- providing guidance for DHBs on prioritising services with existing funding
- advising DHBs and other providers on new ways to organise and deliver services
- promoting behaviour change among health care providers and the public.

The Integrated Approach to Infectious Disease: Priorities for Action 2002–2006

The overall goal of the *Integrated Approach to Infectious Disease: Priorities for Action 2002–2006* is to address the New Zealand Health Strategy objective (Minister of Health 2000):

To reduce the incidence and impact of infectious diseases.

The disease-based approach of the Integrated Approach to Infectious Disease (IAID) complements and reinforces a number of key goals and objectives in the New Zealand Health Strategy, including improving physical health, providing accessible and appropriate health care services, creating a healthy physical environment, and reducing inequalities in health status. The IAID complements the population approaches being taken by, for example, the youth health, primary health care and child health strategies.

The IAID defines the priority objectives and strategies required to reduce the incidence and impact of infectious diseases in New Zealand. Consultation on *An Integrated Approach to Infectious Disease: A discussion document* (Ministry of Health 2001) showed widespread support for a strategic approach that recognises the intersectoral nature of infectious disease control, and the importance of defining priorities for the medium term (2002–2006). The action plan in this document now identifies for each disease grouping the objectives, targets and agreed strategies over the next five years.

For the six highest priority groups of diseases, the *Integrated Approach to Infectious Disease: Priorities for Action 2002–2006* also details agreed action that will take place over the next five years, including work that is already under way. The timeline for achieving these steps is indicated along with the responsible agency. This will enable monitoring and evaluation of the strategies and accountability of those responsible for their implementation. The strategies without defined action points are documented in the text and summary tables, for consideration as future resources become available. The tables for each section, based on the principles of the Ottawa Charter, summarise the actions required at each level of society to achieve the objective(s) for that disease grouping.

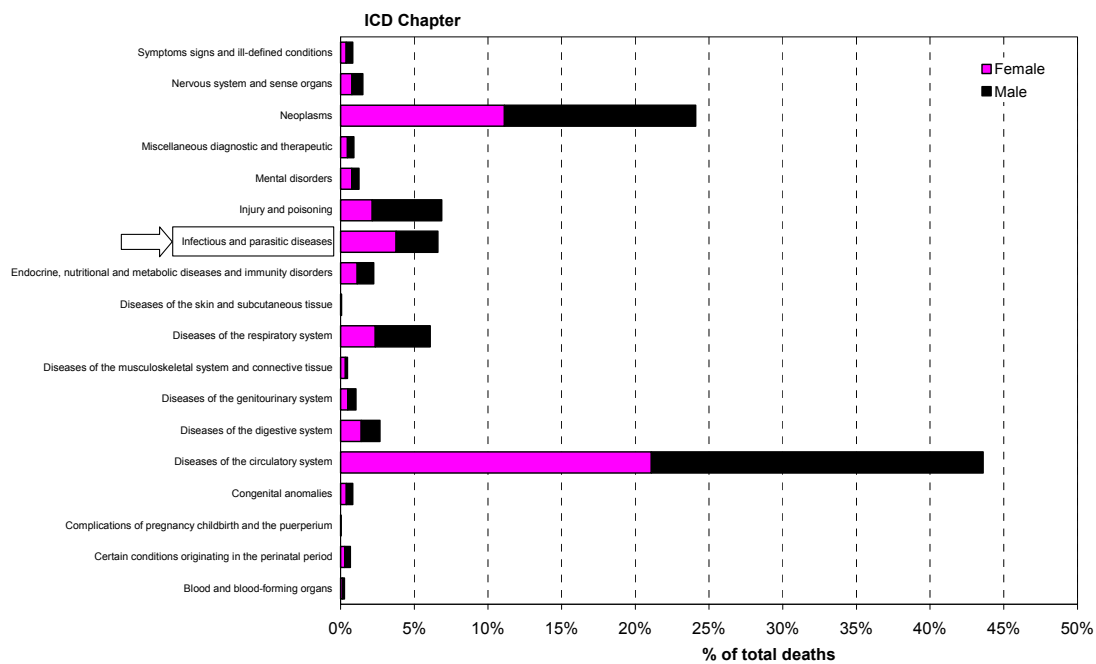
Why do we need an integrated approach to infectious disease?

The impact of infectious diseases in New Zealand remains significant

The improved control of infectious diseases over the past 150 years has contributed significantly to better health of people in New Zealand and other developed countries. Health gains have been achieved through intersectoral public health approaches, including improved sanitation, safe water and food supplies, improved housing and working conditions, and the widespread adoption of immunisation.

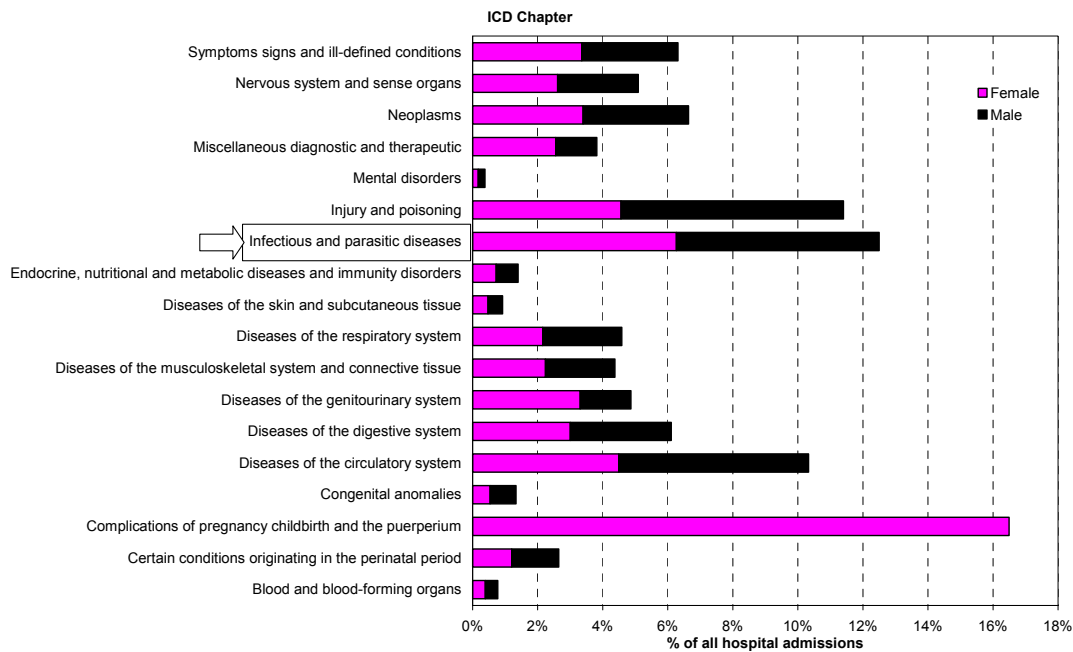
However, infectious diseases continue to cause considerable illness and deaths. They accounted for 6 percent of the deaths in New Zealand between 1980 and 1998 (see Figure 2).

Figure 2: Mortality data 1980–1998, recoded by CDC-ID analysis



Infectious diseases also accounted for 12 percent of admissions made to New Zealand hospitals from 1988 to 2000. Acute respiratory infections were a predominant cause (see Figure 3).

Figure 3: Hospital discharge data 1988–2000, recoded by CDC-ID analysis



Many infections leading to illness, disability or death are avoidable through effective control or prevention measures. Infectious diseases often have the potential to cause large outbreaks of disease, such that local, regional or national population-based approaches are required to control them.

Determinants of health often lie outside the direct control of the health sector. The social and economic environment plays a crucial role in the distribution of infectious diseases within communities. Addressing infectious disease problems requires integrated action from many sectors, including housing, education, social welfare, agriculture, immigration and industry.

New threats

Pathogens are constantly evolving and emerging. The potential impact of increased antibiotic-resistance or of an influenza pandemic is enormous. New organisms may become established in New Zealand due to environmental change and/or the introduction of exotic pests and diseases (such as the salt-marsh mosquito, which is a common transmitter of the Ross River virus in Australia). Other infectious diseases, such as meningococcal disease, tuberculosis and gonorrhoea, are re-emerging due to diverse factors such as changing lifestyles, adverse socioeconomic conditions, climate change and importation of the disease from high prevalence countries.

Infectious diseases disproportionately affect disadvantaged and marginalised groups

Infectious diseases are not distributed evenly amongst New Zealanders. Infectious diseases disproportionately affect the poorest, most marginalised and vulnerable groups in our society. Overall, children under five years represent 29.3 percent of the total number of hospital admissions for infectious diseases. Many infectious diseases are more prevalent in lower-income populations, due in part to their association with housing and environmental conditions.

Māori and Pacific peoples in particular suffer disproportionately high rates of many infectious diseases. Rates of rheumatic fever, for example, are 15 times higher in Māori than in non-Māori. Meningococcal B disease rates are three times higher in Māori and six times higher in Pacific peoples than in other New Zealanders (ESR 2001). Improving infectious disease control amongst Māori and Pacific peoples will help reduce health inequalities.

The intersectoral approach taken in this document recognises the structural and intermediary causes (such as low income and housing) that must be addressed in tackling health inequalities, along with making the required changes to health services.

Acknowledging the special relationship between Māori and the Crown under the Treaty of Waitangi

Central to the Treaty relationship and implementation of Treaty principles is a common understanding that Māori will have an important role in implementing health strategies for Māori, and that the Crown and Māori will relate to each other in good faith with mutual respect, co-operation and trust.

Given the disproportionate impact of infectious disease on Māori, this relationship is crucial to improving infectious disease control in New Zealand. Māori should be able to define and provide for their own priorities for health, and develop the capacity to deliver services to their communities.

The relationship between Māori and the Crown in the health and disability sector has been based on three key principles:

- participation at all levels
- partnership in service delivery
- culturally appropriate practices.

Not only is it important to improve Māori health status, but other goals based on concepts of equity, partnership, and economic and cultural security must also be achieved.

Setting priorities

Given limited resources, the IAID provides a national framework with priorities for action. The disease categories have been grouped into two levels of priority, using a framework that considered the burden of disease and potential for health gain, outbreak potential, preventability, level of public concern, disparities amongst groups and economic cost. This framework was discussed and adopted at a workshop for experts in infectious diseases in November 2000, and supported and endorsed through the consultation process. Important common issues – surveillance, research, legislation and workforce development – are reviewed in Part III.

Some priority actions will have immediate gains in terms of infectious disease control, while others will have longer-term benefit. It is also important to remain vigilant against diseases that are currently well controlled – recognising that maintaining control requires ongoing commitment of resources.

For some new milestones in the highest priority categories, funding is not yet determined; these are shown in italics in the text to differentiate them from already funded activities.

The IAID will be the basis of the Ministry of Health's work programme for infectious disease control over the next five years. It will guide purchasing of science services, and of public health and personal health services in the infectious disease sector.

Monitoring and evaluation of the IAID

Many of the targets in the IAID are adopted from existing Health Outcomes Targets, which are reviewed annually. The national notifiable disease surveillance system and hospital discharge data for many infectious diseases also provide a useful measure of progress towards the goal of reducing the incidence and impact of infectious disease.

Monitoring of infectious disease incidence and distribution will continue to be performed by the Institute of Environmental and Scientific Research (ESR). The Ministry of Health will monitor annual progress on the milestones identified. Given the emergence potential of infectious diseases, the Ministry's role will include updating the strategy as required and incorporating changes in annual operational plans.

Part II: The Framework – Infectious Disease Categories

For the purposes of the IAID, infectious diseases have been grouped into categories, rather than being dealt with individually. Table 1 below sets out the different categories and the priority given to each in the New Zealand context.

These categories reflect:

- modes of transmission – including settings where transmission occurs and where control measures are likely to be implemented
- affected populations
- control measures – broad intervention measures such as immunisation, and the sectors providing and supporting these measures, for example national organisations (with policy, regulatory and funding roles), local providers (with an investigation and/or delivery role) and surveillance, investigation and research service providers.

Table 1: The framework for categorising infectious diseases

Priority	Infectious disease category	Important examples
Highest	Vaccine-preventable diseases	Measles, mumps, rubella, varicella, pertussis, hepatitis B, <i>Haemophilus influenzae type B</i> , polio, tetanus, diphtheria, pneumococcal disease, influenza, tuberculosis
	Infectious respiratory diseases	Meningococcal disease, tuberculosis, rheumatic fever, pneumococcal disease, mycoplasma, respiratory syncytial virus, other viral respiratory diseases
	Blood- and tissue-borne infections	Hepatitis C, HIV/AIDS, human T-cell lymphotropic virus 1&2, Creutzfeldt-Jakob disease, newly recognised blood-borne diseases
	Sexually transmitted infections	HIV/AIDS, chlamydia, gonorrhoea, syphilis, human papilloma virus, herpes simplex virus, hepatitis A and B
	Food-borne enteric disease	Campylobacteriosis, salmonellosis, verotoxin producing <i>E. coli</i> , yersiniosis, listeriosis, Norwalk-like virus, hepatitis A, food intoxicants (eg, staphylococcal), botulism, marine biotoxins
	Hospital-acquired infections* and antibiotic resistance	Penicillin-resistant pneumococci, vancomycin resistant enterococci, multi-drug resistant tuberculosis (MDR-TB), penicillinase producing <i>Neisseria gonorrhoeae</i> (gonococci), newly emerging resistant organisms Methicillin resistant <i>Staphylococcus aureus</i> (MRSA), <i>Clostridium difficile</i> , legionellosis, surgical-site infections, blood-stream infections, device-related infections, opportunistic infections

Note: * Hospital-acquired infections include any infection acquired in a health or disability care institution.

Priority	Infectious disease category	Important examples
Lower	The environment and infectious disease (zoonoses, water-borne enteric diseases, diseases from contaminated environments, infectious diseases acquired occupationally)	Leptospirosis, typhus, emerging zoonoses (eg, lyssavirus and verotoxin producing <i>E. coli</i>) Cryptosporidiosis, campylobacteriosis, other waterborne enteric diseases such as giardiasis Legionellosis, amoebic meningoencephalitis
	Congenital and perinatal infections	Hepatitis B, listeriosis, congenital rubella syndrome, toxoplasmosis, group B streptococcal disease, cytomegalovirus
	Diseases from close physical contact	Giardiasis, rotavirus, campylobacter, helicobacter, hepatitis A, adenovirus, Epstein Barr virus, enteroviruses, skin infections and cellulitis, invasive streptococcal and staphylococcal disease, impetigo, head lice, scabies, mycotic diseases (including dermatophytes)
	New, exotic and imported infections (including travel-associated infectious diseases, vector-borne diseases – especially with introduction potential – and bioterrorism agents)	Malaria, rabies, schistosomiasis, yellow fever, typhoid, cholera, shigellosis, traveller's diarrhoea, leprosy, hepatitis A, MDR-TB Ross River virus and dengue fever Anthrax, other infections caused by potential bioterrorism agents

Some pathogens may be transmitted by several routes (eg, enteric pathogens via contaminated food and water, hepatitis B via blood and tissue or sexual contact, as well as perinatally) and therefore may appear in more than one category. Other disease groupings have been combined where they have common transmission environments or control mechanisms (eg, zoonoses and water-borne infections).

While some disease groupings may have a lower priority than others, it is important to ensure that adequate surveillance is maintained in order to monitor trends and take appropriate action if circumstances change. Likewise, while some diseases may rank as a low priority for action in the wider community, they may merit high priority in higher-risk settings (eg, hospitals, food preparation facilities).

In each of the following sections, objectives and targets (which measure achievement of those objectives) are outlined. For the six highest priority disease groupings, the key strategies and agreed actions necessary to achieve those objectives are then described.

A Highest priority infectious diseases

1 Vaccine-preventable diseases

Vaccination is a safe and highly effective strategy in infectious disease control throughout life (Turner et al 2000). The consensus within the infectious diseases sector, endorsed by the New Zealand Health Strategy, is that improving vaccination rates in children is the top priority area in infectious disease control. Improving coverage will improve child health (along with other well-child care interventions) and can reduce inequalities in health outcomes.

New Zealand has low levels of vaccination coverage in children, particularly amongst Māori and Pacific children, which allows for continuing outbreaks of vaccine-preventable diseases. Although the introduction of hepatitis B and haemophilus influenza type B (HiB) vaccines has had a significant impact on the incidence of these diseases, and polio transmission has been eliminated, outbreaks of measles, rubella and pertussis (whooping cough) will continue to occur unless coverage is significantly improved (National Health Committee 1999).

In addition to improving access to vaccination, programmes to improve vaccination coverage must address concerns about vaccination effectiveness, through effective communication strategies and improved adverse reaction surveillance.

Vaccination of adults provides protection from infectious disease through boosting or maintaining immunity to those diseases covered by the scheduled childhood vaccination programme (eg, tetanus and hepatitis B), and offering protection against conditions that cause high morbidity and mortality in adult life (eg, influenza and pneumococcal disease). In 2000 influenza vaccine coverage reached 59 percent of the population aged over 65 years. However, it reached only 29 percent of the other high-risk population, namely, those under 65 years with health conditions that place them at high risk of influenza complications. In New Zealand the worst outcomes for influenza are in the elderly, and are higher for Māori than non-Māori (Jennings et al 2001). Thus improved coverage, particularly of high-risk groups, can potentially contribute to more equitable health outcomes.

Objective

To control or eliminate vaccine-preventable diseases through the delivery of safe and effective vaccination programmes across all communities.

Targets

- 95 percent of children are fully vaccinated at age two years by 2005.
- 75 percent or more of the defined high-risk adult population are vaccinated annually against influenza.

Strategies

- 1.1 Establish and maintain a national immunisation register that can supply providers across New Zealand with accurate data on a child's immunisation status, as well as information on local, regional and national immunisation coverage. In development of electronic individual immunisation records, maintenance of databases of immunisation status through into adulthood should be considered.

Milestone 1.1: Develop the National Immunisation Register	Date	Responsibility
Complete the approval process for the business case for a register	June 2001	Ministry of Health
Decide on options for system components	December 2001	Ministry of Health
Develop information technology requirements	2001–2002	Ministry of Health
Establish functional core system	End June 2002	Ministry of Health
Establish governance (enabling legislation) for the register	To be confirmed	Ministry of Health, Government
Roll out core module to primary health care and immunisation providers	December 2002	Ministry of Health, DHBs, primary health organisations (PHOs)

- 1.2 Continue to improve access to immunisation services and remove immunisation disparities among socioeconomic and ethnic groups, through:
- increasing the range of service provision – appropriate language and ethnicity of providers, development of specific community-based services to meet Māori and Pacific children's needs, greater flexibility of existing services, a wider range of vaccinators, more sites and increased hours of access, opportunistic immunisation (eg, at presentation to after-hours clinics), and integration and co-ordination of immunisation and well-child services
 - implementing policies to ensure that providers are motivated to immunise hard-to-contact groups and to provide information (including ensuring equitable and adequate resourcing and support for immunisation co-ordination and vaccinator training and support services)
 - providing accessible services for adult immunisation.

Milestone 1.2: Improve access to immunisation	Date	Responsibility
Implement outreach programmes during 2001–2002 through Māori and Pacific providers	From October 2001 onwards	Ministry of Health, DHBs, Māori and Pacific providers
Continue to expand training for vaccinators and well-child providers	2002 onwards	Ministry of Health, Immunisation Advisory Centre (IMAC), DHBs, public health services (PHSs) and providers
Implement the Primary Health Care Strategy, with priority given to improved access for low-income groups	2002–2005	Ministry of Health, DHBs, PHOs
Increase funding of immunisation benefit	To be implemented 2001–2002, via revised primary care contracts and section 88 notices	Ministry of Health
Review immunisation funding regularly	Annual budget bids	Ministry of Health
<i>Encourage and reinforce programme for immunisation certificate checking and catch-up immunisation at school and early childhood centre entry¹</i>		<i>Ministry of Health, Public Health Services, in collaboration with Ministry of Education</i>

- 1.3 Ensure that appropriate information is available to address needs of providers and communities for knowledge about immunisation, through a co-ordinated, consistent communication strategy at the national, regional and local levels.

Milestone 1.3: Design and implement information and communication strategies	Date	Responsibility
<i>Expand promotion (eg, television, radio, Internet) and media strategies, emphasising affirmative, multilingual, multilayered resources aimed at groups likely to be encouraged to immunise</i>		<i>Ministry of Health</i>
<i>Evaluate existing strategies and programmes; evaluate and revise health education material</i>		<i>Ministry of Health</i>
<i>Design and evaluate strategies for local immunisation and health promotion, information and education for specific groups, eg, Pacific, Māori, refugee communities</i>		<i>Ministry of Health</i>
Promote influenza vaccine uptake, particularly amongst government agencies and other employers in health and essential services	Annually	Ministry of Health, DHBs, providers

¹ As stated in the introduction, italicised milestones have not currently received confirmed funding but are noted as high priority for future resource allocation.

- 1.4 Enhance and adequately resource the policy framework and process for the assessment of new and existing vaccines, including cost–benefit analysis of new vaccines and enhanced surveillance of those diseases. This strategy requires regular review of the vaccine schedule, including of the need for new control strategies, and additional funding for high-risk groups (eg, new pneumococcal vaccines for the asplenic or immuno-compromised).

Milestone 1.4: Enhance the policy framework	Date	Responsibility
Undertake two-yearly immunisation schedule review (including consideration of new vaccines or new combination vaccines)	Ongoing, next due 2004	Immunisation Programme Advisory Committee (IPAC), Ministry of Health
Develop policy on introduction of pneumococcal vaccine, including cost–benefit analysis for specific population groups	2002	Ministry of Health
Review legislation pertaining to immunisation as part of development of the Public Health Bill	2001–2002	Ministry of Health
Implement the neonatal Bacillus Calmette-Guerin (BCG vaccine) policy revision to increase coverage in high-risk groups to 80 percent of eligible infants by 2005 (see also strategies in Section 9)	2002	Ministry of Health, DHBs, immunisation providers
Develop meningococcal B vaccine	See Milestone 1.5	See Milestone 1.5

- 1.5 Evaluate meningococcal B vaccine for introduction to the schedule.

Milestone 1.5: Develop and introduce meningococcal B vaccine	Date	Responsibility
Finalise negotiations with vaccine producer	2001–2002	Ministry of Health
Carry out safety and ‘proof of concept’ study	2003	Ministry of Health, Chiron Corporation
<i>Roll out and implementation of vaccination programme (subject to study results)</i>	<i>2004</i>	<i>Ministry of Health</i>
<i>Introduce the vaccine to the schedule</i>	<i>2004</i>	<i>Ministry of Health, IPAC</i>

- 1.6 Enhance surveillance for vaccine-preventable diseases in the community, including integration of laboratory notification and serosurveillance data, disease incidence, immunisation coverage and vaccine adverse event data.

Milestone 1.6: Enhance surveillance of vaccine-preventable diseases	Date	Responsibility
Update measles surveillance (with serological confirmation of all sporadic cases)	2002–2003	Ministry of Health, ESR
Pass enabling legislation to allow laboratory notification (Public Health Bill)	To be confirmed	Ministry of Health, Government
<i>Negotiate with laboratories to ensure optimal information provision (via service contracts)</i>		<i>Ministry of Health, community laboratories</i>
<i>Review sentinel surveillance for influenza, varicella, and pneumococcal disease</i>		<i>Ministry of Health, ESR</i>
<i>Establish surveillance of neonatal BCG vaccination coverage</i>		<i>Ministry of Health, ESR</i>

- 1.7 Accelerate measles control with the aim of eliminating measles transmission.

Milestone 1.7: Eliminate measles transmission	Date	Responsibility
Move second dose of MMR to age 4 years	2001	Ministry of Health
Implement catch-up programme for children 5–10 years	2001	Ministry of Health, DHBs, PHSS
<i>Improve surveillance of measles (including serosurveillance)</i>	<i>2001–2005</i>	<i>Ministry of Health, ESR, DHBs, PHSS</i>
Use national register to evaluate coverage and guide improved vaccine delivery	2003–2005	DHBs, Ministry of Health
Undertake major promotion, and enhanced immunisation programme for children under 5 years, including outreach programmes, increased benefit etc	See Milestone 1.2	Ministry of Health, DHBs, PHSS

- 1.8 Undertake planning to improve preparedness for vaccine-preventable disease outbreaks (health workforce development, enhanced surveillance, pandemic planning etc), including developing the capacity to immunise the adult population.

Milestone 1.8: Plan for vaccine-preventable disease outbreaks	Date	Responsibility
Develop the national influenza epidemic plan	Late 2001	Ministry of Health
Undertake the national influenza emergency response exercise	Early 2002	DHBs, Ministry of Health, PHSs
Finalise the national and district influenza pandemic plans	2002–2003	Ministry of Health, DHBs, PHSs
<i>Enhance surveillance of vaccine-preventable diseases</i>	See Milestones 1.6 and 1.7	<i>Ministry of Health, ESR</i>
<i>Develop measles outbreak planning, including contingency plans for bulk vaccine provision, as part of the measles elimination strategy</i>		<i>Ministry of Health</i>

- 1.9 Audit and evaluate services/providers for effectiveness in improving coverage and disease control.

Milestone 1.9: Audit and evaluate the immunisation programme	Date	Responsibility
Monitor and audit performance standards for DHBs and immunisation providers in existing contracts	2001–2002	Ministry of Health, DHBs, PHSs
Evaluate progress in improving coverage, based on register data	2003 and ongoing annual review	DHBs, Ministry of Health

- 1.10 Support research on immunisation and means of improving coverage.

Milestone 1.10: Develop a joint research programme on immunisation	Date	Responsibility
Develop a joint programme of research with the Health Research Council (HRC), with applied research as a priority, including: <ul style="list-style-type: none"> • attitudinal research to immunisation • quantitative and qualitative research on better delivery of vaccine programmes and assessment of effectiveness of alternatives • evaluation of health outcomes of current and new vaccine strategies • seroprevalence surveys • vaccine efficacy • evaluation of outbreak and control • adverse reactions • new laboratory testing methods. 	2002–2004	Ministry of Health, Health Research Council

Table 2: Vaccine-preventable diseases – strategies, responsibilities and partnerships

Healthy public policy (central and regional government)	Health services (DHBs, health providers, public health services)	Supportive environments (regional councils, local authorities, schools, etc)	Community action and personal skills	Surveillance	Research
<p>Ministry of Health</p> <ul style="list-style-type: none"> • Develop the national immunisation register, allowing access to individual immunisation records by providers, and providing regional and national coverage data • Improve access to immunisation services, including improved access to primary care eg, free health care for those under 6 years • Develop integrated communication and promotion strategies, tailored to the needs of different groups • Enhance the policy framework for assessment of benefits and costs of new vaccines • Audit and evaluate services • Evaluate and introduce meningococcal B vaccine • Eliminate measles transmission • Undertake influenza pandemic planning <p>Intersectoral</p> <ul style="list-style-type: none"> • Provide quality child care, parental leave and education policies • Design housing policies to address overcrowding • Educate all levels on the benefits of immunisation • Promote the role of Corrections, Armed Forces, Police and Education in vaccination of their populations • Ensure new migrants are immunised (New Zealand Immigration Service) 	<ul style="list-style-type: none"> • Set local immunisation targets in line with national ones • Develop integrated communication and promotion strategies, tailored to the needs of different groups • Increase accessibility of immunisation services including flexible provider hours, home vaccination services and opportunistic vaccination policies • Design specific services to meet the needs of tamariki Māori • Provide services that meet the needs of Pacific populations • Ensure resources for promotion and education are available in Māori, Pacific and other appropriate languages • Promote vaccination for high-risk adult groups, including refugees and immigrants • Ensure appropriate delivery mechanisms for immunisation of adults • Provide appropriate services for Māori and Pacific adults • Participate in influenza pandemic planning at district level 	<ul style="list-style-type: none"> • Support pro-immunisation, child-friendly policies • Provide adequate public transport • Enable early childhood centre and school-based options for vaccination • Promote good employment practices • Collaborate with pandemic planning measures • Provide employer/ workplace funding and support for appropriate adult vaccination programmes, especially for workers in high-risk occupations • Worker education and promotion of vaccination through unions and employers 	<ul style="list-style-type: none"> • Participate in design of appropriate information and communication strategies • Involve non-health providers and key community leaders in promotion of immunisation – marae, church and other community-based programmes (eg, sites at McDonalds, Pacific churches) • Involve older people's support groups (eg, Grey Power) 	<ul style="list-style-type: none"> • Enhance immunisation coverage data through development of the national register • Enhance surveillance of vaccine-preventable diseases (including laboratory notification and serological confirmation for measles) • Plan for outbreaks (modelling and prediction of outbreaks, outbreak response and pandemic planning, health workforce planning) • Review sentinel and other forms of community surveillance of influenza, pneumococcal disease, and varicella • Carry out seroprevalence and coverage surveys to confirm routine surveillance data 	<ul style="list-style-type: none"> • Develop a joint research programme with HRC <p>Priority research areas</p> <ul style="list-style-type: none"> • Conduct quantitative and qualitative research on how better to deliver vaccines to children • Evaluate the effectiveness of current strategies and alternative means of provision of immunisation services • Conduct attitudinal research (public, providers and specific risk groups) • Evaluate outbreak and control • Investigate adverse vaccine reactions • Investigate new laboratory testing methods

2 Infectious respiratory diseases

Infectious respiratory diseases disproportionately affect the young, the elderly, Māori and Pacific peoples. Hospital admission rates for pneumonia in Pacific children in Auckland, for example, are six times those of Pākehā, and twice those of Māori children (Tukuitonga et al 2000). If infectious disease admission rates (amongst which respiratory infections are prominent) were reduced amongst young Māori children to the rates for non-Māori, young Māori admissions would fall by more than half (McNicholas et al 2000). Some of these diseases, such as rheumatic fever and meningococcal disease, result in significant long-term illness and disability.

Effective interventions need to address how to reduce the risk of contracting respiratory diseases, as well as how best to diagnose and treat them. Transmission of these diseases, especially in children, is closely linked with overcrowding and poverty (Baker et al 2000; Gant and Parton 2000).

Outbreaks of tuberculosis (1998–1999), the continuing meningococcal B epidemic, and high rates of rheumatic fever are other current concerns. Acute rheumatic fever hospitalisation rates declined until the late 1980s, but the annual hospitalisation rate has remained at an average of 9 per 100,000 over the last decade (Ministry of Health 1999). Age standardised rates in 2000 were 20 per 100,000 for Māori and 59 per 100,000 for Pacific people, which are respectively almost 15 and 30 times the rates in Pākehā.

Rates of tuberculosis (TB) in New Zealand are low by international standards, but the highest number of cases in 20 years was notified in 2000 and we have double the rate seen in Australia (Martin 2000). Immigrants from high-prevalence areas are at higher risk, and rates for Māori and Pacific peoples remain higher than for other New Zealanders (nearly five and 12 times higher respectively).

Objective 1

To reduce the transmission of infectious respiratory diseases.

Target

Contribute to the World Health Organization (WHO) goal of a reduction in the tuberculosis burden in the Pacific to half the current levels by 2010; specifically through a 50 percent reduction in current TB rates for Māori and Pacific peoples by 2010.

Strategies

- 2.1 Promote improved housing quality and alternative designs (eg, whānau/extended family designs) to ensure appropriate occupancy rates and ambient temperatures.

Milestone 2.1: Promote intersectoral work on housing and health	Date	Responsibility
Conduct research on links between housing improvement and health in New Zealand	2002–2005	HRC, University of Otago School of Medicine, ESR
Health to participate in the 'whole of government' initiative on substandard housing, and support projects such as the 'Healthy Housing Programme' (South Auckland)	2001–2002	Ad hoc Ministerial Group (lead Minister of Social Services and Employment), Ministry of Health, Housing New Zealand, affected communities

- 2.2 Reduce smoking rates and passive exposure to tobacco smoke, which are known risk factors for acquiring respiratory infections (Ministry of Health 1998).

Milestone 2.2: Reduce exposure to smoking	Date	Responsibility
Legislate to enhance the Smoke-free Environments Act 1990, in order to reinforce protection from tobacco smoke and reduce youth access to tobacco. This will include legislation against smoking in workplaces/schools and banning cigarette vending machines	To be confirmed	Ministry of Health, Government
Promote anti-smoking and quitting (health promotion, QuitLine etc)	ongoing	Ministry of Health, DHBs

- 2.3 Provide appropriate information to health providers and the public about prevention and identification of these diseases, especially in communities at high risk (eg, providing information on viral respiratory infections, TB and rheumatic fever to Māori, refugee, Pacific and other migrant communities), in order to reduce stigma and improve access, contact tracing and compliance.

Milestone 2.3: Provide appropriate information for affected communities	Date	Responsibility
Update the national TB guidelines with input from Māori and Pacific providers, and with specific emphasis on the needs of high incidence communities	June 2002	Ministry of Health, TB Working Group
<i>Work with Pacific providers and other migrant communities to address issues of stigma, access etc</i>		<i>Ministry of Health, DHBs, Public Health Services</i>

Objective 2

To ensure that best-practice diagnosis, treatment and secondary prevention measures are in place for the management of infectious respiratory diseases.

Targets

- 100 percent TB treatment completion rate (in those undergoing treatment in New Zealand) is achieved.
- Case fatality rate in New Zealand-treated TB patients of less than 3 percent is achieved.
- The age-standardised hospital discharge rate for acute rheumatic fever rates among Māori under 30 years is reduced to 14 per 100,000 or less by 2005, and to 21 per 100,000 or less for Pacific peoples.

Strategies

2.4 Ensure affordable access to primary health care providers to enable appropriate treatment of respiratory infections in the community.

Milestone 2.4: Improve access to primary health care	Date	Responsibility
Review of Community Services Card to determine options for improved access to primary care	2001	Ministry of Health
Implement the Primary Health Care strategy, with early targeting of communities with greatest access problems	2003–2005	Ministry of Health, DHBs, PHOs

Note: See also Milestone 1.2.

2.5 Promote, implement and evaluate primary prevention strategies for rheumatic fever, viral respiratory infections and community-acquired pneumonias.

Milestone 2.5: Primary prevention of rheumatic fever	Date	Responsibility
Complete the decile one school-based trial on primary prevention of rheumatic fever in Auckland	2001	Diana Lennon, Auckland School of Medicine, ESR
Determine best policy options from review of Auckland trial	2002/03	Ministry of Health, DHBs
<i>Implement and roll out best practice programme</i>		<i>Ministry of Health, DHBs</i>

- 2.6 Improve the coverage rate of benzathine penicillin for rheumatic heart disease prophylaxis.

Milestone 2.6: Improve prophylaxis of rheumatic heart disease	Date	Responsibility
<i>Establish 'linked' regional rheumatic fever registers that allow for the recall and prophylaxis of patients (secondary prevention), and effective rheumatic fever surveillance at regional and national level</i>		<i>Ministry of Health, PHSs, DHBs, ESR</i>

- 2.7 Assess the efficacy and cost–benefit of introducing new vaccines (eg, meningococcal B, pneumococcal and viral vaccines) or revised immunisation strategies. See **Milestones 1.4 and 1.5** concerning BCG, meningococcal B vaccine and policy work on pneumococcal vaccine.

- 2.8 Improve TB screening policies and treatment of latent TB infection for refugees and other new migrants from high-prevalence countries.

Milestone 2.8: Improve TB screening and treatment in new migrants	Date	Responsibility
Provide timely and appropriate screening procedures for all people claiming refugee status in New Zealand	Ongoing	Ministry of Health, PHS, New Zealand Immigration Service (NZIS)
Produce revised TB guidelines for treatment of latent TB infection	June 2002	Ministry of Health
Review and enhance TB screening requirements for temporary entrants to New Zealand, including tourists and students	2002–2003	NZIS
Enhance entrance criteria and border control measures to control imported TB and other infectious diseases in new planned migration to New Zealand (as part of the broader NZIS review of health screening)	2002–2003	NZIS, Ministry of Health

- 2.9 Prevent outbreaks of TB in institutions (eg, prisons) by appropriate screening, and promote intersectoral collaboration to ensure a rapid response to any outbreaks.

Milestone 2.9: Improve intersectoral collaboration for TB outbreak management	Date	Responsibility
Develop and introduce nationally consistent, evidence-based best practice protocols for screening and management of TB in prison environments	2002	Corrections, Ministry of Health
Develop and introduce protocols for surveillance and exchange of information between institutions and community health services	2002–2003	Corrections, Ministry of Health, ESR
Agree on roles and responsibilities in outbreak responses	2002	ESR, Ministry of Health, PHS

2.10 Ensure effective treatment of TB through awareness and early diagnosis, promotion of directly observed therapy (short-course) (DOTS) and updated national TB guidelines to ensure consistent practice; use of culturally competent providers where possible; and quality services to minimise relapses and drug resistance.

Milestone 2.10: Promote effective TB treatment	Date	Responsibility
Update and disseminate Tuberculosis Guidelines	June 2002	Ministry of Health
Monitor and evaluate use of guidelines, through national surveillance of enhanced TB notification data	2002–2005	Ministry of Health, ESR
<i>Review and improve surveillance of outcomes of TB treatment, including treatment of latent infection</i>		<i>Ministry of Health, ESR, TB Working Group</i>
Evaluate DOTS treatment	Annual review	Ministry of Health, ESR

2.11 Improve feedback of surveillance data to providers.

Milestone 2.11: Improve surveillance of TB	Date	Responsibility
Improve ongoing surveillance of latent tuberculosis infection	2002	Ministry of Health, ESR
<i>Enhance surveillance and monitoring of treatment for TB cases (including laboratory notification and DOTS)</i>		<i>Ministry of Health, ESR</i>
<i>Develop national capacity for DNA testing of all TB isolates, with matching to cases</i>		<i>Ministry of Health, ESR</i>

2.12 Establish surveillance of neonatal Bacillus Calmette-Guerin (BCG vaccine) and increase coverage in high-risk groups to 80 percent of eligible infants by 2005. See **Milestone 1.4**.

2.13 Promote research into key areas of infectious respiratory diseases:

- factors affecting tuberculosis treatment compliance in New Zealand
- effectiveness of treatment of latent TB infection in New Zealand
- cost–benefit of new vaccines and varying strategies
- role of rapid diagnostic tests (eg, for detection of streptococcus in improving treatment and reducing rheumatic fever)
- improving the diagnosis of respiratory viral infections and community acquired pneumonias
- effectiveness of rheumatic fever primary and secondary prevention programmes
- evaluation of services.

Table 3: Infectious respiratory diseases – strategies, responsibilities and partnerships

Healthy public policy (central government)	Health services (DHBs, health providers, public health services)	Supportive environments (regional councils, local authorities, schools, etc)	Community action and personal skills	Surveillance	Research
<p>Ministry of Health</p> <ul style="list-style-type: none"> • Reduce exposure to smoking through promotion of tobacco and smoke-free policies and legislation • Assess and introduce meningococcal B vaccine • Assess and introduce other new vaccines (pneumococcal, varicella) • Promote effective TB treatment; update and implement TB guidelines; set and monitor national targets • Promote, implement and evaluate primary prevention programmes for rheumatic fever <p>Housing</p> <ul style="list-style-type: none"> • Support policy to address housing needs of low-income and extended family/whānau (accessible rents, redesigned or larger houses, adequate ventilation and heating) <p>New Zealand Immigration Service</p> <ul style="list-style-type: none"> • Improve TB screening and treatment programmes for refugees and other new migrants <p>Corrections</p> <ul style="list-style-type: none"> • Develop policy on screening and treatment of TB in prisons 	<ul style="list-style-type: none"> • Develop appropriate health promotion and education messages, especially for high-risk groups • Increase the range of providers to meet special needs of Pacific peoples and Māori, especially in high-incidence areas • Promote effective diagnosis, treatment and contact tracing of TB, including appropriate use of directly observed therapy using culture- and language-appropriate workers • Implement best practice primary prevention programmes for rheumatic fever • Improve rheumatic fever prophylaxis through development of linked registers 	<ul style="list-style-type: none"> • Reduce the occupancy rates in houses, and redesign dwellings for large and extended whānau/families • Contribute to smoking reduction and passive exposure rates in workplaces and public places • Ensure smoke-free environments are available eg, in prisons • Promote early diagnosis and treatment of sore throat in school children 	<ul style="list-style-type: none"> • Develop appropriate health promotion and education messages to reduce stigma, and encourage access to services and treatment compliance • Smoking reduction • Destigmatise TB through open discussion and culturally safe health promotion • Peer educators and directly observed therapy community workers • Information and discussion through marae and church-based programmes 	<ul style="list-style-type: none"> • Improve surveillance of TB (enhanced surveillance and monitoring of treatment outcomes, DNA testing of all isolates) • Monitor effectiveness of TB treatment using notification data • Improve intersectoral collaboration in outbreak management • Establish linked regional rheumatic fever registers 	<ul style="list-style-type: none"> • Study factors affecting TB treatment compliance, cost-benefit of vaccines/varying strategies etc • Evaluate services • Investigate how to improve viral respiratory tract infection diagnosis • Evaluate use of rheumatic fever prophylaxis, including in dentistry • Study effectiveness of rheumatic fever primary and secondary prevention programmes for tamariki Māori

3 Blood-borne infections

Infectious diseases transmitted via exposure to infected blood are a major public health issue. The most important blood-borne diseases in New Zealand are viral: hepatitis B, hepatitis C and HIV. There are two key areas of control, which require markedly different strategies to address effectively. The key areas are:

- ensuring the safety of blood transfusion, organ and tissue transplantation
- minimising the transmission of diseases through the more common non-transfusion routes – primarily injecting drug use, and to a lesser extent skin penetration (skin piercing, tattooing and, rarely, through some health care interventions).

The New Zealand Blood Service (NZBS) has primary responsibility for ensuring safe blood and blood products are supplied in New Zealand. It also must be responsive to potential new infection risks that threaten blood safety. As a result of improved blood donor selection, screening and viral neutralisation techniques, the risks of transfusion-transmitted infections of HIV and hepatitis B and C are extremely low. The cost of achieving blood safety is high; further steps to increase blood safety need to be weighed against other areas for health gain.

The more common transmission routes for blood-borne viruses are the non-transfusion routes. Key strategies for reducing disease transmission in injecting drug users (IDUs) relate to harm reduction programmes and minimising risks of infection. IDUs can be difficult to reach with conventional health services due to the illegality of the practice, discrimination, stigma and associated marginalisation. The strategies below are coherent with the goal of the National Drug Policy 1998–2003 (Ministry of Health 1998), to minimise harm caused by illicit and other drug use to both individuals and the community.

Objective 1: Transfusion/transplantation safety

To minimise the risks of transmission of blood-borne infectious agents through the blood supply and the transplantation of human tissues and organs, by ensuring effective measures are in place for voluntary donation, screening and disease testing.

Target

The safety of transfusion and transplantation in New Zealand is maintained at the present high levels.²

Strategies

3.1 Maintain a consistent approach to donor assessment, selection, education and testing.

² The NZBS estimates the risks of HIV infection as less than 1 case in every 1,000,000 transfusions in New Zealand. No cases have been reported since HIV testing commenced in 1985. For hepatitis B and C, the risk is less than 1 case in 100,000 transfusions (less than 1 case per year in New Zealand).

Milestone 3.1: Maintain consistent donor selection	Date	Responsibility
Continue to use the National Donor Screening Questionnaire in donor assessment and selection	Ongoing	NZBS
Centralise testing of donations to achieve consistency of testing protocols	Ongoing	NZBS
Use regular newsletters and communications to raise awareness and educate blood donors and the public	Ongoing	NZBS

3.2 Maintain and enhance surveillance of transfusion-associated infections in order to correct their cause and prevent recurrence.

Milestone 3.2: Enhance surveillance of transfusion related infections	Date	Responsibility
Standardise the reporting system for monitoring adverse reactions to blood and blood products	Under development	NZBS
Develop and implement a hospital-based 'haemovigilance' system to monitor and follow up adverse reactions	Under consideration	NZBS

3.3 Maintain mechanisms for consideration of new technologies and their roles in maintaining transfusion/transplantation safety, including cost–benefit analysis.

Milestone 3.3: Assess and evaluate new technologies	Date	Responsibility
Continue NZBS–Ministry of Health consultation on issues having or likely to have substantial impact on the blood donor system	Ongoing under current policy	NZBS, Ministry of Health

3.4 Ensure the capacity for identifying and responding to new threats.

Milestone 3.4: Respond to new threats	Date	Responsibility
Use specialist advisory groups and existing risk management group with the role of defining, assessing and prioritising risks	Ongoing	NZBS
Maintain international links and networks	Ongoing	NZBS, Ministry of Health

Objective 2: Non-transfusion routes

To prevent the transmission of blood-borne infections and reduce the impact of disease, particularly among those people at high risk (eg, current and past injecting drug users and people in institutional settings, including prisons).

Targets

- Harm reduction policies are implemented by all government agencies, especially in high-risk populations, by 2005.
- Risk behaviour (unsafe use of injectable drugs) among IDUs is reduced, as measured by seroprevalence and risk behaviour surveys in needle and syringe exchange users.

Strategies

- 3.5 Promote harm minimisation as an effective approach to reducing drug-related harm (including transmission of infectious diseases) in all government agencies.

Milestone 3.5: Promote intersectoral harm minimisation policies	Date	Responsibility
Review harm minimisation strategies in prisons as part of the Corrections and Ministry of Health project on communicable diseases in prisons	Ongoing	Corrections, Ministry of Health
<i>Promote implementation of guidelines to help the skin-piercing industry protect their clients and consider local bylaws to enforce compliance</i>		<i>Ministry of Health, local authorities</i>

- 3.6 Promote evidence-based drug education, health promotion and community development policies to reduce uptake of injecting drug use.

Milestone 3.6: Promote evidence-based drug education	Date	Responsibility
Increase the number of schools with drug education programmes following the guidelines in <i>Drug Education: A guide for principals and Boards of Trustees</i> (Ministry of Education 2000) and those achieving drug education goals consistent with the national Health and Physical Education Curriculum	2002–2005	Ministry of Education

- 3.7 Provide testing with appropriate informed consent for hepatitis B and C, and HIV, in institutional settings, including prisons and drug treatment clinics.

Milestone 3.7: Provide appropriate testing for blood-borne viruses in institutions	Date	Responsibility
Establish national policy on testing for blood-borne viruses in prisons (Corrections–Ministry of Health work project)	2001–2002	Corrections and Ministry of Health

- 3.8 Promote safe injecting behaviour (education and access to clean needles and other injecting equipment; needle and syringe exchange programmes; safe disposal).

Milestone 3.8: Support for needle and syringe exchange programmes	Date	Responsibility
Continue support for the needle and syringe exchange programme (NSP) and review of the NSP	2002 ongoing	Ministry of Health

Carry out a seroprevalence survey (hepatitis C, HIV) of needle and syringe exchange users (follow on from 1998 pilot)	2001/02 financial year	Ministry of Health
Amend the Misuse of Drugs Act 1975 to decriminalise needle and syringe possession	To be confirmed	Ministry of Health, Police, Customs, Government
<i>Enhance the peer education component of NSP</i>		<i>Ministry of Health</i>

3.9 Review access to hepatitis B immunisation for injecting drug users. See **Milestone 1.4**.

3.10 Develop a national Hepatitis C Action Plan to optimise prevention and treatment of hepatitis C in New Zealand.

Milestone 3.10: Develop and implement the national Hepatitis C Action Plan	Date	Responsibility
Develop the Hepatitis C Action Plan, involving the New Zealand Drug Foundation, community groups and other stakeholders (with a public health focus in the first year, reinforcing many of the strategies in this section).	2001–2002	Ministry of Health
Year 2 of the Hepatitis C Action Plan will review management of hepatitis C disease and cost-effectiveness of treatments, in collaboration with stakeholders	2002/03	Ministry of Health
<i>Implementation of the Hepatitis C Action Plan</i>	<i>To be confirmed</i>	<i>Ministry of Health</i>

3.11 Develop policies and programmes to prevent and manage transmission of blood-borne viruses in occupational settings.

Milestone 3.11: Develop and implement policies to reduce transmission of blood-borne viruses	Date	Responsibility
Implement infection control policies and programmes, in line with the New Zealand Infection Control Standard, which establish procedures and practices in health care and other occupational settings to minimise the potential for transmission of blood-borne viruses (including guidelines for cleaners, and management of injuries in the workplace)	2002 onwards	DHBs, hospitals, all health and disability institutions, other occupational settings
Produce and disseminate protocols for health care workers and other key occupational groups with positive sero-status (HIV, hepatitis C or B), in collaboration with Australia	2002/03	Ministry of Health
Ensure the use of post-exposure prophylaxis protocols (if appropriate) for needle-stick injury (in occupational and non-occupational settings)	Ongoing	DHBs, hospitals, health and disability institutions

3.12 Promote research into priority areas:

- effectiveness of harm reduction/prevention programmes, including in institutions (eg, prisons)

- hepatitis C incidence in high-risk groups (eg, injecting drug users)
- efficacy of drug treatments in hepatitis C.

Table 4: Blood-borne diseases – strategies, responsibilities and partnerships

Healthy public policy (central government)	Health services (DHBs, health providers, public health services)	Supportive environments (regional councils, local authorities, schools, etc)	Community action and personal skills	Surveillance	Research
<p>Ministry of Health</p> <ul style="list-style-type: none"> • Maintain the safety of transfusion and transplantation in New Zealand, including consistent donor selection and assessment of new technologies • Support harm reduction policies in all government departments • Ongoing support for needle and syringe exchange programmes • Develop and implement the national Hepatitis C Action Plan • Develop policies and programmes to prevent and manage transmission of blood-borne viruses in occupational settings, eg, protocols for health workers and other occupational groups at risk • Review of Misuse of Drugs Act 1975 and regulatory framework pertaining to needle-exchange programmes, self-administration and needle possession (Crimes Act 1961) <p>Corrections</p> <ul style="list-style-type: none"> • Review harm minimisation policies • Provide appropriate testing of inmates, with consent, for blood-borne viruses <p>Education</p> <ul style="list-style-type: none"> • Promote evidence-based drug education 	<ul style="list-style-type: none"> • Ensure appropriate, consented testing for blood-borne viruses of people with risk factors • Provide appropriate assessment, advice and treatment programmes for Māori and Pacific peoples • Support needle and syringe exchange programmes • Increase ready access to methadone substitution programmes in order to reduce harm from unsafe injecting drug use • Ensure policies and programmes are in place to prevent and manage transmission of blood-borne viruses eg, proper sterilisation and/or disinfection procedures, single-use policies for medical equipment, protocols for sero-positive health workers and post-exposure prophylaxis • Ensure safety of blood/tissue services 	<ul style="list-style-type: none"> • Support harm reduction policies, and raised awareness and implementation of guidelines by tattooists and other risk groups • Support needle and syringe exchange programmes, including peer education and support • Support for non-governmental organisations and support groups • Implement infection control programmes and universal precautions 	<ul style="list-style-type: none"> • Support effective drug and life skills education • Conduct peer education • Support groups and non-governmental organisations for IDUs and other high-risk groups, including participation in the Hepatitis C Action Plan • Promote awareness of blood safety and donor requirements 	<ul style="list-style-type: none"> • Improve hepatitis C surveillance (including in institutions and needle exchanges) • Conduct seroprevalence surveys in high-risk populations, eg, among users of needle and syringe exchange programmes • Risk factor/risk behaviour surveillance (ie, monitoring of changing behaviour over time in high-risk populations) • Consider notification of acute and chronic hepatitis B and C to improve data coverage • Enhance surveillance of transfusion-related infections 	<p>Promote priority research on:</p> <ul style="list-style-type: none"> • effectiveness of harm minimisation measures in prisons • evaluation of the impact of harm minimisation/reduction programmes • hepatitis C incidence in high-risk populations • efficacy of drug treatments in hepatitis C

4 Sexually transmitted infections

Sexually transmitted infections (STIs) are an important preventable cause of ill health in New Zealand, predominantly affecting young people. Reducing the incidence of STIs would result in significant health gain. Current data show that overall rates for chlamydia, gonorrhoea and genital warts are highest in the 15–19 years age group. Rangatahi Māori appear to have higher rates of STIs than Pākehā, especially for chlamydia and gonorrhoea, both of which can have long-term impacts on health, such as ectopic pregnancy and infertility. Men who have sex with men also have a higher prevalence of STIs.

Although the success in New Zealand in controlling HIV has been notable, HIV still contributes to the burden of disease and remains a concern. HIV infection largely affects men who have sex with men (82.7 percent of total AIDS cases), although the number of women being diagnosed with HIV is rising (the majority of them being migrants from high-prevalence HIV areas, or with partners from those regions). Especially vulnerable groups include migrants from areas where HIV prevalence is high, men who have sex with men, sex workers and injecting drug users. Specific programmes need to be maintained or developed to address their needs for HIV prevention and care.

Strategies to reduce STIs need to be a component of a broader life-skills approach. This can encompass sexual and reproductive health, cultural safety, and reducing discrimination towards marginalised groups (eg, injecting drug users, men who have sex with men, prison inmates).

The Sexual and Reproductive Health Strategy: Phase One (Minister of Health 2001), released in October 2001, lays out key strategic directions and guiding principles to address the priority sexual and reproductive health issues facing New Zealanders. Phase Two will be the development of more specific plans to address priority issues and those population groups with greatest health need.

Objective

To improve sexual and reproductive health.

Strategies

Phase Two of the SRHS will consider the strategies identified in the development of the IAID, when developing more comprehensive action plans in 2002.

Milestone 4.1	Date	Responsibility
Publish the Sexual and Reproductive Health Strategy	October 2001	Ministry of Health
Develop action plans	2001–2002	Ministry of Health
<i>Resourcing and implementation</i>		<i>Ministry of Health</i>

Key strategies incorporated in other sections of this document are:

- improving surveillance of STIs, including anonymised laboratory notification of data, to enhance policy and programme development and the identification of outbreaks (see also **Part III, A. Surveillance** and **C. Legislation**)
- providing hepatitis B immunisation to high-risk groups including men who have sex with men, sex workers and IDUs (see **Section 1 milestones**)
- introducing harm reduction programmes into prisons and ensure that policies and practices in prisons protect people from HIV and STI transmission (see **Section 3 milestones**)
- ensuring future public health legislation is consistent with public health STI/HIV prevention approaches (see also **Part III, C. Legislation**).

The following strategies identified in the development of the IAID will also be considered in developing action plans for the SRHS.

- Provide appropriate sexual health education and information throughout the lifespan, within whānau, church and school settings (eg, whakapakari rangatahi, whānau and family-based approaches, peer sexuality support teams).
- Promote safer sex and good sexual health care by developing programmes in accordance with the Ottawa Charter framework. Activities will include:
 - encouraging supportive, culturally safe environments where sexual health issues can be openly discussed without fear of prejudice or stigma (eg, settings such as schools and other places of education, community settings such as youth clubs, marae and churches)
 - healthy public policy (eg, the Education Amendment Bill No. 2 2001, Prostitution Reform Bill)
 - encouraging peer-driven programmes for groups with special needs including youth, Māori, Pacific peoples, men who have sex with men, sex workers etc
 - encouraging delaying the age of first sexual intercourse
 - improving the availability of condoms
 - providing free, accessible specialist sexual health services, including free opportunistic screening and treatment of contacts.
- Ensure services are culturally appropriate, whether these are delivered by mainstream providers or specific providers for Māori, Pacific and other communities.
- Increase the range and/or availability of skilled providers when this will improve access to services, particularly in rural areas (eg, via nurse practitioners or outreach services).
- Evaluate the cost-effectiveness of chlamydia screening in defined populations and, if appropriate, pilot such screening.
- Analyse the cost–benefits of the use of new tests for identifying STIs (eg, urine and polymerase chain reaction testing).
- Taking into account the evidence for the benefits and risks of contact tracing, develop advice to inform the development of appropriate regulations under the proposed new public health legislation.

Table 5: Sexually transmitted infections – strategies, responsibilities and partnerships

Healthy public policy (central government)	Health services (DHBs, health providers, public health services)	Supportive environments (regional councils, local authorities, schools, etc)	Community action and personal skills	Surveillance	Research
<p>Health</p> <ul style="list-style-type: none"> Support healthy public policy eg, human rights and anti-discrimination legislation such as prostitution law reform Ensure new public health legislation is consistent with public health prevention approaches to STIs, including contact tracing Develop and implement the Sexual and Reproductive Health Strategy Assess the use of new tests for identifying STIs Evaluate chlamydia screening Provide hepatitis B immunisation to high-risk groups <p>Education</p> <ul style="list-style-type: none"> Advocate for and provide sexuality education as outlined in the Health and Physical Education Curriculum Support the Education Reform Bill <p>New Zealand Immigration Service</p> <ul style="list-style-type: none"> Ensure appropriate screening of refugees for STIs, including HIV <p>Corrections/Health</p> <ul style="list-style-type: none"> Introduce harm reduction programmes into prisons and ensure that policies and practices in prisons protect people from HIV and STI transmission <p>Ministry of Foreign Affairs and Trade</p> <ul style="list-style-type: none"> Provide co-ordinated development assistance that mainstreams strategies to address the HIV epidemic in the Southeast Asia–Pacific region 	<ul style="list-style-type: none"> Provide appropriate sexual health promotion programmes based on the Ottawa Charter framework Provide free, accessible specialist sexual health services Provide culturally appropriate services for Māori as well as for Pacific peoples, refugees and other migrants Provide services to meet the needs of groups with special needs, such as men who have sex with men, sex workers and injecting drug users Provide hepatitis B immunisation to high-risk groups 	<ul style="list-style-type: none"> Schools, youth organisations, churches and non-governmental organisations promote safer sex programmes Ensure ready availability of condoms eg, in workplaces and school environments Support effective peer-based and youth development programmes Provide alcohol- and drug-free environments for youth 	<ul style="list-style-type: none"> Advocate for and provide appropriate sexual health education and information throughout the lifespan Promote whānau-, fono- and family-based approaches as appropriate Encourage peer education approaches 	<ul style="list-style-type: none"> Improve surveillance of STIs, including anonymous laboratory surveillance to improve data coverage for policy development and measurement of incidence trends Consider change in notification criteria (eg, for chlamydia) Enhance behavioural risk factor surveillance 	<ul style="list-style-type: none"> Evaluate the effectiveness of prevention and care programmes (eg, community-based, Māori/Pacific, youth peer education) Investigate approaches to improve contact tracing Identify the sexual health needs of older people/pakeke and kaumātua Evaluate the cost–benefit of chlamydia screening for different groups

5 Food-borne enteric diseases

Ensuring that food is microbiologically safe is an essential element of public health. It must also be a prime consideration of the food industry, food regulators (Ministry of Health, Ministry of Agriculture and Forestry and territorial authorities) and other stakeholders who have an interest in the food supply. New Zealand's economic health depends on export of food; global instruments (such as the World Trade Organization Sanitary and Phytosanitary Measures agreement) require that the level of protection for consumers should be the same whether food is locally produced, exported or imported.

The regulation of the food supply has been a shared responsibility. For the domestic market the Ministry of Agriculture and Forestry (MAF) regulates the primary production and some secondary production of animal products (under the Animal Products Act 1999 and the Dairy Industry Act 1952). Territorial authorities regulate most of the remainder of the domestic market through their environmental health officers (Health Act 1956 and Food Act 1981). Oversight of these regulatory functions, monitoring and regulation have been carried out by the Ministry of Health and by health protection officers (public health teams). The control of imported products is important as they may cause outbreaks of disease in New Zealand. The Ministry of Health maintains a regulatory system for this purpose.

There is currently a proposal before Government to form a Food Safety Authority (FSA) to harmonise these activities.

Objective 1

To ensure food in New Zealand is microbiologically safe.

Target

100 percent of New Zealand food producers and retailers develop and implement risk-based food safety programmes with Hazard Analysis Critical Control Point (HACCP) principles by 2005.

Strategies

5.1 Establish and develop an effective national agency that is responsible for food safety.

Milestone 5.1: Establish the Food Safety Authority	Date	Responsibility
Proposed establishment of the FSA	To be confirmed	MAF, Ministry of Health (subject to Cabinet direction)
Enabling legislative amendments	To be confirmed	Government
Develop memoranda of understanding (MoUs) with the Ministry of Health regarding residual functions – including in regard to food-borne illness		Ministry of Health, FSA

5.2 Create a strategy for the implementation of risk-based food safety programmes (based on the MAF–Ministry of Health *Risk Management Framework*) in the entire domestic food chain, and set a date when these programmes will become compulsory for all food businesses.

Milestone 5.2: Fully implement risk-based food safety programmes	Date	Responsibility
Develop proposed strategy for introduction of food safety programmes based on HACCP principles	By end 2002 with implementation ongoing 2003–2005	FSA, Ministry of Health
Support voluntary implementation of food safety programmes; large retailers (supermarkets and suppliers) have an existing target of 100 percent coverage by HACCPs (covering approximately 70 percent of the domestic food retail market)	End 2002	Producers, retailers
Ensure Sick Worker (Food Handler) policies are included in food safety programmes		Ministry of Health, FSA
<i>Amend legislation to allow mandatory implementation of HACCP</i>		<i>FSA, Ministry of Health</i>
<i>Develop food safety objectives to determine levels of hazard control required in foods</i>		<i>FSA, Ministry of Health</i>
<i>Develop monitoring and evaluation processes in order to assess efficacy of HACCP-based systems</i>		<i>FSA, Ministry of Health</i>

5.3 Ensure provision of suitable education programmes, training and human resources support for the food industry, regulators, public health providers, territorial authorities and the public.

Milestone 5.3: Provide food safety education and technical resources	Date	Responsibility
<i>Obtain resources through the budget bids process</i>	2002	<i>Ministry of Health, FSA</i>
Provide tools for implementation of HACCP by small retailers/producers in 'tailor made' FoodSafe Partnerships	2002	Ministry of Health, FSA
Maintain and enhance the FoodSafe Partnership (industry, Ministry of Health, FSA, consumers)	Ongoing	Industry, FSA, Ministry of Health

5.4 Maintain and enhance local and national monitoring of food production and surveillance of food safety programme procedures in food production.

Milestone 5.4: Enhance monitoring of food production	Date	Responsibility
<i>Develop consistent standardised approaches nationally</i>		<i>FSA, Ministry of Health</i>

Objective 2

To effectively recognise and manage outbreaks of food-borne enteric diseases.

Strategies

5.5 Improve surveillance of food-borne enteric diseases and food hazards.

Milestone 5.5: Improve surveillance of food-borne enteric disease and food hazards	Date	Responsibility
Develop a consistent national approach to surveillance and investigation for food-borne disease	2002	Ministry of Health, ESR, FSA, PHS
Establish an MoU between Food Safety and Communicable Disease (Ministry of Health) teams to ensure clear roles and accountability	2001–2002	Ministry of Health, FSA
Integrate FoodNet (hazard) and EpiSurv disease data where appropriate	2002	Ministry of Health, FSA, ESR
<i>Ensure required legislative changes and resources are available for laboratory notification of food-borne disease</i>	<i>To be confirmed</i>	<i>Ministry of Health</i>

5.6 Improve investigation and management of enteric disease outbreaks through clarification of roles and accountability, and more effective co-operation among agencies involved (including Ministry of Health, FSA, ESR and local public health services).

Milestone 5.6: Improve investigation and management of enteric disease outbreaks	Date	Responsibility
Review and implement the plan for improved identification of national outbreaks	2001–2002	ESR, Ministry of Health
Develop a consistent national approach to enteric disease outbreak investigation and management	2002	Ministry of Health, ESR, FSA, PHSS
Establish an MoU between Food Safety and Communicable Disease (Ministry of Health) teams to ensure clear roles and accountability	2001–2002	Ministry of Health, FSA
Ensure food-borne outbreak investigation is included in strategic planning for, and organisational arrangements between, the proposed FSA and the Ministry of Health	2001–2002	Ministry of Health, FSA, MAF

5.7 Develop and co-ordinate (with all stakeholders) a strategic research agenda on food safety, enteric disease transmission and prevention, with areas covered including:

- case studies to define critical control points in HACCPs/food safety plans
- evaluation of food safety programmes
- identification of risky food processes – ‘risk profiles’
- increasing risk assessment capacity and technical skills in response to risk-profiling exercises

- feedback models to enhance outbreak detection
- studies to identify the most important sources of sporadic enteric disease eg, case-control studies
- studies to define enteric disease transmission in households and behaviours contributing to this transmission.

Table 6: Food-borne enteric diseases – strategies, responsibilities and partnerships

Healthy public policy (central government)	Health services (DHBs, health providers, public health services)	Supportive environments (regional councils, local authorities, schools, etc)	Community action and personal skills	Surveillance	Research
<p>Government</p> <ul style="list-style-type: none"> Establish the Food Safety Authority to promote and monitor food safety <p>Food Safety Authority</p> <ul style="list-style-type: none"> Develop a strategy for the implementation of food safety programmes (based on the risk management framework) – with Ministry of Agriculture and Forestry and Ministry of Health Provide a food safety education programme for small retailers and producers Maintain and enhance monitoring of food production Maintain and enhance a risk-based imported food control programme Develop risk assessment scientific capability <p>Ministry of Health</p> <ul style="list-style-type: none"> Develop MoUs with the FSA for residual functions Enhance outbreak investigation and research 	<ul style="list-style-type: none"> Ensure effective reporting by providers/primary care, laboratories Clarify roles and participation in outbreak investigation Train staff in response and investigation of outbreaks so source is rapidly detected 	<ul style="list-style-type: none"> Implement HACCP at all levels, with self-monitoring by industry Train food industry staff on risk management approach and food safety programmes Enhance role of territorial authorities, environmental health officers and health protection officers in monitoring food safety programmes Promote food safety awareness in public settings (eg, schools, prisons) Support initiatives by industry, government and consumers, such as the FoodSafe Partnership 	<ul style="list-style-type: none"> Establish acceptable levels of food safety with consumer participation Promote good personal and community hygiene measures Promote food safety awareness in important cultural settings (eg, marae, fono) as well as to the general public 	<ul style="list-style-type: none"> Integrate hazard (FoodNet) and disease surveillance nationally Enhance sentinel monitoring to evaluate HACCP systems Undertake critical point analysis of data collection process Clarify outbreak investigation procedures with ESR, Ministry of Health, FSA and regulatory agencies Assess costs and benefits of molecular techniques to assist investigation of outbreaks Incorporate feedback models to improve outbreak identification (eg, in EpiSurv/PHEW systems) Review the need for laboratory notification of key enteric diseases 	<p>Develop a strategic research agenda in consultation with other stakeholders, including:</p> <ul style="list-style-type: none"> studies to identify risk profiles of foods and/or food processes, and linking of the level of risks with the level of consumer protection gained quantitative research on microbial hazards in food production systems implementation issues related to HACCP-based food safety plans, including evaluation of those plans development of feedback models to enhance outbreak detection

6 Hospital-acquired infections³ and antibiotic resistance

Organisms that are resistant to commonly used antibiotics are a growing global concern. In New Zealand, despite relatively low levels of antibiotic resistance (AR), there are concerns about the monitoring, prevention and control of some key pathogens: multi-resistant *Staphylococcus aureus* (MRSA),⁴ multi-drug resistant TB, *S. pneumoniae*, *Enterococci*, *Neisseria gonorrhoeae*, and *Acinetobacter*.

Causative factors in the development of AR include inappropriate use of antibiotics (overuse, poor prescribing, broad-spectrum rather than narrow, incomplete courses, inappropriate prophylactic use) and poor infection control procedures (Lieberman and Wootan 1998). Other factors may include inappropriate agricultural use of antibiotics in treatment and prevention of disease in animals, in growth promotion and feed efficiency, and in agricultural sprays (MAF 2000; US Interagency Taskforce on Antimicrobial Resistance 2000). There is very limited New Zealand information on AR in animals that might potentially pose a risk to humans. It is desirable to strengthen surveillance, particularly in food-producing animals.

Infections acquired in health and disability care institutions include those related to surgical intervention, medical devices, sepsis or opportunistic infections. The key interventions to prevent and control these infections are the provision of appropriate prevention, surveillance and infection control mechanisms within health and disability care institutions. These interventions should be combined with health professional education, evaluation and audit of practice.

Objective 1

To minimise the emergence of antibiotic-resistant organisms.

Target

Reduce the inappropriate use of antibiotics in New Zealand.

Strategies

6.1 Promote appropriate use of antibiotics in the health sector by:

- public and provider education – eg, Pharmaceutical Management Agency (PHARMAC) and Independent Practitioner Association (IPA) campaigns directed at prescribers and the public to ensure that prescription of antibiotics is necessary and appropriate, that expectations of treatment are realistic, and to avoid incomplete courses)

³ Hospital-acquired infections here includes any infection acquired in a health or disability care institution.

⁴ That is, MRSA resistant to two or more antibiotic classes in addition to β -lactams.

- encouraging implementation and ongoing review of antibiotic prescribing policies in all health and disability care institutions, as well as promoting development of guidelines for primary care prescribers
- ensuring that the TB diagnosis, treatment and tracing programme is effective (including appropriate use of directly observed therapy) – see **Section 2 milestones**
- encouraging DHBs, PHARMAC and PreMec to implement policies and set targets for rational antibiotic use to prevent development of resistance and to further develop systematic surveillance of antibiotic prescribing.

Milestone 6.1: Promote the appropriate use of antibiotics	Date	Responsibility
Antibiotic Resistance Working Group to review hospital and IPA antibiotic policies and guidelines	2001/02	Ministry of Health
Review and develop recommendations (if required) for antibiotic prescribing policies in health and disability care institutions	June 2003	Ministry of Health, PHARMAC
Continue to implement and evaluate campaigns on rational antibiotic use aimed at prescribers and the public	Ongoing	PHARMAC, Ministry of Health
Continue PreMec support for general practitioner prescribing	Ongoing	PreMec, Ministry of Health
Regulate and assess new anti-microbials	Ongoing	MedSafe

6.2 Develop national guidelines on management of key issues in antibiotic resistance.

Milestone 6.2: Develop MRSA national guidelines	Date	Responsibility
Revise MRSA national guidelines and disseminate	June 2002	Ministry of Health

6.3 Improve national surveillance of antibiotic resistance by collating standardised regional and national laboratory data on susceptibility of organisms to antibiotics with prescription monitoring, and disseminate this information to prescribers.

Milestone 6.3: Improve national surveillance of antibiotic resistance	Date	Responsibility
<i>Collate regional and national, community and hospital laboratory data on AR, based on standardised laboratory testing and using routine sensitivity testing results</i>		<i>Ministry of Health, ESR</i>
<i>Review the current surveillance system for AR in humans and animals</i>		<i>Ministry of Health, ESR, MAF (Agricultural Compounds and Veterinary Medicines, AVCM, section)</i>
<i>Monitor resistance amongst micro-organisms from animals, especially food-producing animals</i>		<i>MAF (AVCM), ESR, Ministry of Health</i>

- 6.4 Promote influenza and pneumococcal vaccination in institutions (eg, rest homes and private hospitals for the elderly). See **milestones 1.2, 1.3 and 1.4**, including pneumococcal vaccine cost–benefit analysis.
- 6.5 Work with the Ministry of Agriculture and Forestry to minimise antibiotic resistance in New Zealand.

Milestone 6.5: Promote intersectoral action to minimise antibiotic resistance	Date	Responsibility
Maintain and formalise mechanism of MAF (AVCM), MedSafe and Ministry of Health for review of veterinary medications with human health risks, including systematic review of newly introduced drugs for animal use	Ongoing	MAF (AVCM), MedSafe Ministry of Health, Antibiotic Resistance Working Group
Review and develop plan to improve surveillance of AR in food-producing animals (see Milestone 6.3)	June 2003	Ministry of Health, ESR, MAF (AVCM)
<i>Review need for joint MAF–Ministry of Health structure in regard to joint research, AR monitoring and surveillance, and new policy initiatives in AR</i>		<i>Ministry of Health, MAF (AVCM)</i>
Support MAF programmes to monitor antibiotic usage in animals and primary food production, promote the prudent use of antibiotic use in agriculture and food production (particularly in feed) and encourage alternative practices and alternative biological controls eg, vaccines	Ongoing	Ministry of Health, MAF (AVCM)
Maintain international links – eg, with Center for Disease Control-Atlanta, WHO, Office International des Epizooties (OIE), Codex Alimentarius, and the Joint Expert Technical Advisory Committee on Antibiotic Resistance (JETACAR), Australia – to monitor global trends and pre-empt emerging threats in AR	Ongoing	MAF, Ministry of Health, ESR

Objective 2

To minimise the incidence and impact of infections acquired in health and disability care institutions in New Zealand.

Target

All health and disability care institutions in New Zealand adopt and use the New Zealand Infection Control Standard.

Strategies

- 6.6 Establish a national surveillance programme for infections acquired in health and disability care institutions, including standardised definitions and data analysis, with local feedback mechanisms to clinicians.

Milestone 6.6: Develop a national surveillance system for hospital-acquired infections (HAIs)	Date	Responsibility
<i>Develop a national surveillance system for infections acquired in health and disability care institutions</i>		<i>Ministry of Health</i>

- 6.7 Ensure all health and disability care facilities have effective infection control programmes.

Milestone 6.7: Promote, implement and audit infection control standards	Date	Responsibility
Enact enabling legislation (Health and Disability Services (Safety) Act)	To be confirmed	Ministry of Health
Promote the New Zealand Standard of Infection Control and ensure its implementation through contractual mechanisms	2002–2006	Ministry of Health, DHBs
Audit health and disability care facilities to this standard (by the Ministry of Health via contracts and licensing – with certification in future)	Ongoing	Ministry of Health, DHBs, health and disability care institutions
Educate health professionals and audit of practice	Ongoing	DHBs, health and disability care institutions

- 6.8 Promote research on the priority areas of:
- levels of antibiotic resistance in the community/primary care
 - links with agricultural use of antibiotics
 - rapid diagnostic tests for effectiveness in reducing antibiotic use and cost–benefit
 - evaluation of existing infection control programmes
 - assessment of best practice guidelines.

Table 7: Hospital-acquired infections and antibiotic resistance – strategies, responsibilities and partnerships

Healthy public policy (central government)	Health services (DHBs, health providers, public health services)	Supportive environments (regional councils, local authorities, schools, etc)	Community action and personal skills	Surveillance	Research
<p>Antibiotic resistance</p> <ul style="list-style-type: none"> Regulate the introduction of new antimicrobials (Medsafe, PHARMAC, Ministry of Health) Undertake public education to reduce expectations for antibiotic prescription Ensure effective screening of immigrants from high-prevalence areas (for MDR-TB) and effective TB treatment programmes Update MRSA guidelines and any other key areas in future, eg, MDR-TB Maintain international links to monitor global trends (in collaboration with MAF) <p>MAF</p> <ul style="list-style-type: none"> Promote prudent use of antibiotics in agriculture and food production Undertake joint MAF–Ministry of Health assessment of new antibiotics <p>Immigration</p> <ul style="list-style-type: none"> Ensure adequate screening and treatment of migrants from countries with a high incidence of MDR-TB <p>Hospital-acquired infections</p> <ul style="list-style-type: none"> Implement and audit the New Zealand Standard for Infection Control via Health and Disability Services (Safety) Act and via contractual obligations Develop a national surveillance system for HAIs and audit health and disability institution performance 	<ul style="list-style-type: none"> Develop and/or review prescribing guidelines for primary care and health and disability institutions Enhance surveillance of antibiotic use (prescription monitoring) and antibiotic resistance organisms (laboratory-based) Support and gain commitment from senior management for infection control programmes Implement and audit annually infection control programmes in all health and disability facilities Enhance staff training for management of HAI and infection control Establish surveillance systems for HAI 	<ul style="list-style-type: none"> Support infection control (including promotion of hand-washing) in crèches, schools and other institutions Support alternative farm management techniques that may minimise use of antibiotics Provide adequate sick leave employment policies 	<ul style="list-style-type: none"> Be an informed patient with knowledge of benefits and risks of antibiotic use Personal hygiene (hand-washing, etc) Appropriate on-farm use of antibiotics in animal care and in domestic pets 	<ul style="list-style-type: none"> Develop a national surveillance system for HAIs Promote laboratory audit trails, especially concerning post-discharge HAIs Monitor antibiotic resistance using laboratory-based surveillance tied to prescription monitoring and agricultural use of antibiotics Involve community labs and sentinel sites in data collation Keep a global watch on emerging threats (ESR, Ministry of Health, MAF–AVCM) 	<ul style="list-style-type: none"> Develop and promote joint research with MAF on antibiotic resistance in health care and food production Evaluate existing infection control programmes Assess best practice to develop guidelines Undertake community-based primary health care studies of levels of antibiotic resistance in the community Conduct pilot and cost–benefit analysis of rapid diagnostic tests that may improve the accuracy of antibiotic prescribing (eg, for <i>Streptococcus</i>)

B Lower priority infectious diseases

7 The environment and infectious disease

This section covers a broad spectrum of infections that are transmitted to humans from the natural and built environment, ranging from infection in occupational settings via animal contact (zoonoses) to infection through contaminated drinking-water or recreational water sources. The key legislation protecting the environment is the Resource Management Act 1991. Many of the interventions to control infectious diseases in these settings require multisectoral approaches, involving a variety of government agencies, industry, employers, unions and workers.

Pathogens in the environment, particularly those that are water-borne, have the potential to cause large outbreaks of disease. Pathogens that are of major public health concern in New Zealand include campylobacter, giardia and cryptosporidium. Some, such as campylobacter and giardia, may also cause infection via the food-borne route. Other pathogens, such as legionella and organisms causing amoebic meningitis, are always present in the natural environment and require ongoing monitoring and preventive measures. Yet others may be introduced through contamination by animal or human effluent.

Occupationally-acquired infections, particularly zoonoses, remain a public health problem. Despite the decline in New Zealand's rural population and fewer workers now being employed in the agricultural sector, diseases transmitted via direct contact with animals are relatively common. The major occupational infectious disease affecting New Zealanders is leptospirosis. In addition to domestic and farm animals, wild animals such as possums, pigs, rodents and birds are actual or potential disease-carriers (eg, psittacosis and salmonella from birds, trichinellosis and wild pigs).

Water-borne diseases

Although drinking-water in New Zealand is now very safe for the majority of New Zealanders and water-borne enteric disease is rare, maintaining current quality standards requires ongoing monitoring and preventive action. In addition, some poorer rural communities, as well as institutions such as rural schools, hospitals and marae, still lack good-quality water systems. Past efforts must be maintained to maximise health gain and to ensure that safe drinking-water is available as of right. The public health implications of an outbreak of water-borne disease are potentially huge due to the large population served by many water supplies.

Pathogens such as cryptosporidium and amoebae may also cause outbreaks of disease. Important sites in which to monitor these pathogens are bodies of recreational water and swimming pools.

Legionella can result in outbreaks through multiplication in poorly maintained water-cooling systems. Control relies largely on adherence to building standards, prevention of contamination, environmental monitoring and surveillance, and rapid investigation and response to any possible outbreaks.

The working environment – occupationally-acquired infectious disease

Although zoonoses (see below) represent an important group of occupationally-acquired infectious diseases in agricultural and meat industry workers, other occupational groups may be at higher risk of a range of other infectious diseases than the general population. These occupational groups include health care workers, cleaners, police officers, prison staff and workers in the food production and retail industry. In these settings, occupational disease guidelines should be available and implemented, and effective infection control programmes should be operating.

Appropriate employer, union and worker education (eg, on leptospirosis, hepatitis A and B, tuberculosis and legionella) is needed. Appropriate vaccination (for hepatitis A and B) should be offered to high-risk occupational groups. The Health and Safety in Employment Act 1992 is the key legislative instrument in reducing occupational infectious disease.

Zoonoses

Zoonoses are diseases caused by organisms that primarily infect an animal host (wild or domestic) but may be transmitted to and infect humans. They include:

- leptospirosis (usually in New Zealand from contact with infected livestock)
- cryptosporidiosis, campylobacteriosis, giardia, shiga or verotoxin-producing *E. coli* (STEC/VTEC), *Salmonella brandenburg* and other enteric diseases (cattle and domestic animal hosts; other potential routes/reservoirs are not well understood)
- toxoplasmosis, trichinellosis and bovine tuberculosis
- lyssaviruses and other emerging problems.

Hydatids has not been reported in New Zealand since 1995, and brucellosis in cattle has been eradicated, with the last field strain reported in 1988 (MAF 1996). However, the enteric pathogens (campylobacter, cryptosporidium, STEC/VTEC) are already a sizeable public health problem, causing a spectrum of disease in humans.

Because of the involvement of animal hosts, a multisector approach is necessary in the research, prevention and control of these diseases. The Ministry of Agriculture and Forestry, Department of Conservation, Occupational Safety and Health service of the Department of Labour (OSH), regional councils and public health services all play a role.

Education of high-risk groups (eg, occupations involved with animal handling), appropriate vaccination of animal herds and the ability to respond rapidly to outbreaks are key interventions. OSH is an important provider of information and education for workers. In occupational infectious disease control it is important to collaborate with the Ministry of Agriculture and Forestry, unions, employers and other industry groups. The priority is to prevent transmission through education and prevention programmes aimed at farm and meat industry workers, health workers and other high-risk occupational groups.

Objective 1

To prevent water-borne disease by ensuring measures to promote microbiological compliance of all drinking-water supplies with drinking water standards (DWS-NZ 2000 and subsequent versions of that standard) are in place.

Target

More than 95 percent of the population is provided with water supplies that comply with DWS-NZ 2000.

Strategies

- 7.1 Enable implementation of water monitoring and treatment programmes suitable for use in poor, dispersed, rural communities.
- 7.2 Amend the Health Act 1956 to ensure suppliers comply with DWS-NZ (Health Act (Drinking-Water Supplies) Amendment Bill).
- 7.3 Maintain suitable surveillance of management of drinking-water systems through quality assurance and quality control processes, and through investigation and monitoring of non-compliant systems by public health services.
- 7.4 Improve the quality of natural water sources through appropriate legislation and collaboration (eg, review water quality management regulations under the Resource Management Act for water catchments, standardise water quality guidelines for beaches with local authorities) to ensure environmental protection and monitoring of national water guidelines.
- 7.5 Collaborate with the Environmental Risk Management Authority, Ministry for the Environment, National Institute of Water and Atmosphere, Foundation for Research Science and Technology, MAF, ESR, Health Research Council of New Zealand, academic institutions and industry to strengthen co-ordination of relevant research on water quality and pathogen transmission (eg, the Enhanced Co-ordination and Development of Enteric Disease Research Joint programme).

Objective 2

To rapidly identify and control outbreaks of water-borne disease.

Targets

- Potential transmission routes and reservoirs of water-borne infectious diseases in New Zealand are determined in order to develop effective interventions.
- Water-borne outbreaks of campylobacter and giardia are reduced by 25 percent by 2005.
- All recreational water sources and swimming pools meet national standards for water quality by 2005.

Strategies

- 7.6 Maintain an effective and active disease surveillance system – including laboratory notification of key pathogens, linking Water Information New Zealand (hazard/risk factor data) to EpiSurv and the Public Health Early Warning System to allow recording by water catchment, a national electronic database and web site for water-borne pathogens, and a sample-collecting programme.
- 7.7 Select and nationally standardise reference techniques for laboratory detection, identification and discrimination of water-borne organisms.
- 7.8 Establish a culture collection repository for water-borne pathogens.
- 7.9 Establish co-ordinated outbreak investigation mechanisms, involving ESR, the Ministry of Health, territorial authorities, environmental health officers and public health services that are integrated with the overall disease surveillance programme.
- 7.10 Promote relevant intersectoral research to enable benchmarking for identification of water-borne diseases, including strain fingerprinting, dispersion and survival of pathogens, animal source loadings and other factors relating to transmission of pathogens in water catchments.
- 7.11 Audit territorial authority monitoring of standards for pools and other recreational water.
- 7.12 Audit local authority monitoring of building codes concerning ventilation and air conditioning systems.

Objective 3

Minimise transmission of zoonotic infectious diseases, especially in high-risk occupational groups.

Targets

- 100 percent vaccination coverage of animals/animal herds for leptospirosis is achieved.
- All workplaces have guidelines consistent with national standards and comply with OSH regulations (Health and Safety in Employment Act 1992 and regulations 1995).

Strategies

Prevention

- 7.13 Promote appropriate agricultural practices through MAF policy and legislation, and work with rural groups (farmers, farm workers, etc) in:

- promoting and maintaining high coverage of leptospirosis vaccination of animal herds
- monitoring of hydatids in animal herds
- maintaining herd testing for bovine TB
- possum culling
- protecting water sources from contamination by animals and promoting good animal husbandry practices.

7.14 Ensure effective environmental management legislation and monitoring to control effluent and discharges.

7.15 Increase industry and media awareness of zoonotic infections and public health risks.

7.16 Promote information and education for employers and unions via the Accident Compensation Corporation and OSH.

7.17 Educate and protect high-risk workers through the use of protective equipment and basic hygiene measures, and provide appropriate employer, union and worker education (on leptospirosis, hepatitis A and B, TB, legionella).

7.18 Make occupational disease guidelines available and implement these in all workplaces.

7.19 Ensure effective infection control programmes (including monitoring) are operating in all workplaces.

7.20 Monitor hepatitis B status, vaccination and education for high-risk occupational groups. Provide appropriate immunisation to health care workers and other occupational groups exposed to vaccine-preventable diseases.

7.21 Improve understanding, through cross-sectoral research, of disease transmission pathways and effective interventions to reduce disease in humans in New Zealand.

Surveillance and research

7.22 Rapidly identify occupational infectious disease, including raising awareness among primary care providers, workers and their families, and ensuring adequate laboratory diagnostic capacity, particularly in rural areas.

7.23 Consider laboratory notification of important zoonoses.

7.24 Review compatibility and linkages of the disease surveillance system with risk management systems (OSH, Water Information New Zealand, etc).

7.25 Ensure that the surveillance system is capable of detecting new and imported diseases (such as hantavirus).

7.26 Co-ordinate further research into the burden of zoonotic diseases in rural communities, transmission routes and prevention (Ministry of Research Science and

Technology, Foundation for Research Science and Technology, MAF, OSH, Ministry for the Environment, Department of Conservation, etc).

Table 8: The environment and infectious diseases – strategies, responsibilities and partnerships

Healthy public policy (central government)	Health services (DHBs, health providers, public health services)	Supportive environments (regional councils, local authorities, schools, etc)	Community action and personal skills	Surveillance	Research
<p>Ministry of Health</p> <ul style="list-style-type: none"> Review, monitor and report on drinking-water standards annually Amend the Health Act 1956 to ensure drinking-water standards are mandated and roles of Ministry of Health extended to regional councils Support implementation of drinking-water schemes in rural and poor communities Co-ordinate research and surveillance of zoonoses affecting human health <p>Ministry for the Environment, Department of Conservation</p> <ul style="list-style-type: none"> Ensure effective monitoring of legislation to prevent contamination of the environment Improve the quality of natural water sources through environmental measures – protection of ground water and natural water sources, possum and other pest control Enforce recreational water standards (water quality guidelines) <p>Ministry of Agriculture and Forestry</p> <ul style="list-style-type: none"> Promote appropriate agricultural practices eg, possum and other pest control, vaccination of herds, good husbandry <p>Occupational Safety and Health service and Accident Compensation Corporation</p> <ul style="list-style-type: none"> Promote awareness of infectious diseases and health promotion in the workplace Provide adequate information, guidelines and education for employers and workers Enforce OSH standards 	<ul style="list-style-type: none"> Vaccinate high-risk occupational groups (hepatitis A and B, influenza etc) Provide suitable protective equipment Promote and implement effective infection control programmes in all workplaces Ensure primary care and public health service providers are aware of common zoonoses, and that there is adequate laboratory capacity in rural areas for diagnoses of common zoonoses Ensure there is provider awareness of high-risk groups and diagnostic syndromes 	<ul style="list-style-type: none"> Enhance collaboration between public health services and environmental health officers Promote environmental standards protection via administration and enforcement of the Resource Management Act (regional councils, territorial authorities), including protection of ground water, natural and drinking-water sources, pest and rodent control Increase industry and media awareness of zoonoses and other occupational infectious diseases Promote and implement effective infection control programmes in all workplaces Promote high vaccination coverage of herds (<i>leptospirosis</i>) and herd testing for bovine TB Provide appropriate employer and worker education Monitor hepatitis B and other vaccines (eg, influenza) status; provision of vaccination and education for high-risk occupational groups Enforce appropriate building codes (territorial local authorities) (Building Act 1992 and Building Code) Monitor and audit water and pools (territorial authorities) 	<ul style="list-style-type: none"> Promote community-run water services – risk management approaches Support marae and other community water systems Ensure community action and health promotion on safe drinking-water and environmental protection (environmental action groups, etc) Ensure occupational safety and self-protection Ensure unions and employers are informed Undertake good husbandry techniques on farms Involve relevant organisations (eg, Federated Farmers, Country Women's Institute) in promotion of healthy practices and awareness of risks, etc Undertake appropriate pool maintenance Ensure awareness in Māori communities of potential risks in geothermal waters 	<ul style="list-style-type: none"> Review compatibility and linkages between national surveillance systems in order to develop an integrated system – eg, link of EpiSurv and Public Health Early Warning System to Water Information New Zealand (hazard and disease data), OSH notification system to infectious disease notification Improve co-ordination of outbreak investigation, including use of molecular typing techniques Standardise laboratory techniques and improve data collection Consider laboratory notification of important zoonoses Establish a culture collection repository for water-borne pathogens Ensure early detection of new threats Promote herd surveillance for TB/<i>leptospirosis</i> (MAF) Audit regional council/local authority monitoring 	<ul style="list-style-type: none"> Promote intersectoral research on zoonoses and water-borne enteric diseases eg, transmission routes of campylobacter, cyanobacteria and giardia (Ministry for the Environment, Ministry of Health, ESR, etc) Examine potential errors in diagnosis and reporting Investigate the rural burden of disease

8 Infectious diseases transmitted by close physical contact

Transmission of infection through close physical contact is common to a broad range of infectious diseases, including skin infestations and infections (eg, scabies, lice and impetigo) and infections transmitted via the oral–faecal route, including some diarrhoeas (giardia, rotavirus, helicobacter) and hepatitis A. Viral diseases such as Epstein Barr virus and fungal infections (dermatophytes, tinea, etc) are also transmitted through close contact.

The extent of the more common, less serious problems of head lice, scabies and impetigo is poorly documented. However the sequelae of these infections can be significant (eg, post-streptococcal acute glomerulonephritis).

Transmission of these diseases is enhanced in crowded environments and other areas such as early childhood centres, schools and long-term residential facilities where there is frequently close contact. Improved housing, education and immunisation are factors in reducing transmission.

Objective

To reduce the transmission of infectious diseases from close physical contact.

Target

Hospital admissions for conditions preventable by good primary care (eg, cellulitis) are reduced.

Strategies

- 8.1 Address the socioeconomic determinants of diseases transmitted by close physical contact (eg, improved housing, including designs for extended family groups and for high-risk groups: see **Section 3, milestone 1**). This strategy includes monitoring of other Government policies to ensure they contribute to improved housing, reduction in overcrowding and encouragement of responsibility for personal health protection.
- 8.2 Provide effective infection control in high-risk institutions (eg, childcare centres and schools), especially basic hygiene measures such as hand-washing.
- 8.3 Provide access to prevention, diagnosis and treatment for high-risk groups (including hepatitis A vaccination).
- 8.4 Advocate for and promote health education and hygiene for families/whānau and schools.
- 8.5 Reduce secondary spread and severity of disease through improved access to primary care, rapid diagnosis, education, treatment and appropriate prophylaxis.

Table 9: Infectious diseases transmitted by close physical contact – strategies, responsibilities and partnerships

Healthy public policy (central government)	Health services (DHBs, health providers, public health services)	Supportive environments (regional councils, local authorities, schools, etc)	Community action and personal skills	Surveillance	Research
<p>Housing</p> <ul style="list-style-type: none"> Promote housing policy that will reduce overcrowding and unsanitary conditions <p>OSH and Ministry of Health</p> <ul style="list-style-type: none"> Implement, audit and enforce OSH standards and the New Zealand Infection Control Standard in workplaces, schools, childcare facilities etc Enhance access to primary care <p>Corrections</p> <ul style="list-style-type: none"> Ensure appropriate care of prisoners and other institutionalised people <p>Education</p> <ul style="list-style-type: none"> Develop joint Health–Education protocols and health promotion 	<ul style="list-style-type: none"> Improve access to primary care and health education, especially in deprived areas Provide effective diagnosis and treatment, preventing secondary infections Promote health and hygiene Provide hepatitis A vaccination to high-risk groups Monitor and audit infection control in high-risk institutions 	<ul style="list-style-type: none"> Promote and enforce good infection control practices and procedures in early childhood centres, schools and other high-risk environments. Provide efficient waste and sewage disposal Provide adequate facilities for hygiene (provision of hot water, etc) Provide hepatitis A vaccination to high-risk groups 	<ul style="list-style-type: none"> Undertake health promotion Ensure appropriate vaccination of individuals Ensure good personal hygiene practices 	<ul style="list-style-type: none"> Identify outbreaks rapidly Collect baseline data for prevention Monitor avoidable hospitalisations 	<ul style="list-style-type: none"> Investigate the community burden of disease, especially for cellulitis, head lice, scabies Investigate head lice and treatment resistance

9 Congenital and perinatal infections

Although congenital and perinatal infections contribute relatively little overall to the burden of infectious disease, the long-term consequences of these diseases are often devastating and costly. They are also largely preventable through good maternity care, including immunisation (rubella and hepatitis B). Therefore the key strategies focus on the provision of quality maternity care and the ongoing education of health professionals responsible for this care.

Young Māori and Pacific women have higher rates of STIs and teenage pregnancy, lower immunisation rates and less access to health care. All these factors increase the risk of congenital and perinatal infections in their babies.

Quality maternity care includes screening women at risk for STIs and other infections that have the potential to cause congenital or perinatal infection. Current guidelines for HIV screening in pregnancy recommend risk assessment followed by counselling and voluntary testing. Given the low number of women currently tested, and the benefits that knowledge of maternal HIV status give to the infant in prevention of transmission, practice in this area needs review.

Objective

Minimise the risk of congenital and perinatal infections in infants.

Target

All pregnant women are offered appropriate screening, treatment and prevention for congenital and perinatal infections.

Strategies

- 9.1 Inform and educate young women and their partners on the risks of congenital and perinatal infections (eg, rubella, listeriosis).
- 9.2 Promote rubella and hepatitis B vaccination to ensure adequate population coverage. See **Section 1 milestones**.
- 9.3 Review policy and implementation options for screening for potential congenital infections in pregnant women, including:
 - hepatitis B, HIV, STIs (chlamydia, herpes simplex virus, gonorrhoea, syphilis)
 - group B streptococcus.
- 9.4 Ensure appropriate training and ongoing education for lead maternity carers including obstetricians and general practitioners, including evidence-based guidelines for care.

- 9.5 Review and implement proposed national policy on BCG immunisation for high-risk infants. See **Section 1 milestones**.
- 9.6 Improve identification and optimum care of all women who are hepatitis B carriers in pregnancy to ensure appropriate immunisation of their babies, and audit coverage of immunoprophylaxis (HBIG) at birth.

Table 10: Congenital and perinatal infections – strategies, responsibilities and partnerships

Healthy public policy (central government)	Health services (DHBs, health providers, public health services)	Supportive environments (regional councils, local authorities, schools, etc)	Community action and personal skills	Surveillance	Research
<ul style="list-style-type: none"> • Improve immunisation coverage • Review implementation of antenatal screening, including identification of at-risk women, and update immunisation schedules • Improve identification and care of hepatitis B carriers in pregnancy to ensure appropriate vaccination of their infants • Ensure quality training, audit and accountability of health professionals • Promote food safety awareness in pregnancy in regard to listeria, toxoplasmosis 	<ul style="list-style-type: none"> • Provide quality maternity care, including services designed to meet the needs of young wahine Māori and Pacific women • Provide and audit appropriate screening of pregnant women • Provide continuing education for lead maternity carers (eg, on sexual health counselling) • Ensure appropriate audit and accountability of practice • Prevent food-borne congenital infections through food safety monitoring 	<ul style="list-style-type: none"> • Reduce environmental exposure to toxoplasmosis and listeria (food safety) • Train lead maternity carers on sexual health counselling or interviewing 	<ul style="list-style-type: none"> • Ensure public is well-informed • Encourage planned pregnancies 	<ul style="list-style-type: none"> • Reconsider status of hepatitis B in pregnancy • Consider laboratory notification to improve data completeness • Conduct sentinel surveillance of high-risk groups 	<ul style="list-style-type: none"> • Analyse cost–benefit of routine HIV and chlamydia screening offered in pregnancy

10 New, exotic and imported infections

In today's globalised environment, with increasing frequency of international travel and migration, New Zealand is not immune to the importation of diseases normally unknown here. Climate change, ecological degradation and global trade are other factors contributing to the increased risk of importing exotic infectious diseases and/or their vectors into New Zealand, and thus the potential for disease transmission. In addition, the population is not immune to these diseases and is highly susceptible to infection (Hearnden et al 1999). Currently, the introduced southern salt-marsh mosquito (*Ochlerotatus* (formerly *Aedes*) *camptorhynchus*), which is capable of transmitting Ross River virus and Barmah forest virus, is causing concern.

Imported disease also includes infectious diseases that may already be present in New Zealand, such as TB and HIV, albeit at low rates. Multi-drug resistant TB is an example of a potential area of concern; currently there is no local transmission of MDR-TB so it is important to adequately screen and treat new migrants to avoid importing and transmitting it locally. Health screening and health promotion are important aspects of providing good personal health services for new New Zealanders, as well as protecting public health.

Travel-associated disease is another area of importance. Currently, all cases of malaria, dengue fever and schistosomiasis are imported, along with a high proportion of typhoid, shigella and hepatitis A cases. Preventive measures are a key area for travellers, with up-to-date, accurate information and health protection advice being most important.

Threats to public health from bioterrorism (the use of biological weapons such as anthrax or other pathogens by terrorist organisations) are perceived as low risk in New Zealand. However, bioterrorism is an area of considerable concern and debate in larger nations such as the United States of America. Given the ease of international travel, New Zealand cannot be insulated from such threats. Border control is the major preventive mechanism. Monitoring international trends and maintaining a bioterrorism contingency plan as part of a broader civil defence response to emergencies are the other key elements.

Strategies to address this group of infectious diseases primarily depend on border control, vector eradication or control and other biosecurity measures, and preventive measures for travellers and migrants. Vector and disease surveillance, reduction of exposure risk, and effective diagnosis and treatment are secondary steps in disease control.

Objective 1

To reduce the risk of vector-borne diseases becoming established in New Zealand through effective biosecurity measures, including border control.

Target

Minimise the introduction of exotic vectors to New Zealand.

Strategies

- 10.1 Develop and maintain international links for monitoring of vectors, climate change and environmental factors.
- 10.2 Support efforts to reduce and reverse global warming.
- 10.3 Maintain and enhance border control for potential imported vectors.
- 10.4 Maintain and enhance an effective surveillance system for mosquitoes and other vectors.
- 10.5 Develop and maintain arrangements for effective exotic vector eradication or control programmes.
- 10.6 Promote relevant research covering, for example:
 - risk assessment of vector-borne diseases
 - effectiveness and cost–benefit of vector control programmes and other interventions.

Objective 2

To maintain an effective health sector capacity to respond to vector-borne diseases.

Designated laboratories are capable of diagnostic testing for an appropriate range of vector-borne diseases.

Target

All vector-borne diseases are promptly notified.

Strategies

- 10.7 Develop and maintain the ability to identify and respond to outbreaks of vector-borne diseases through:
 - effective national surveillance for emerging vector-borne disease (eg, using blood donor testing)
 - primary prevention strategies (eg, educating the public about how to prevent infection through mosquito avoidance)
 - education of primary health practitioners and the public about diagnostic syndromes, and the need for prompt notification of suspected cases.

Objective 3

To provide immigrants and long-term visitors to New Zealand with appropriate screening, diagnosis and treatment of infectious diseases.

Target

All migrants, including long-term visitors, refugees and asylum seekers, are appropriately screened, in a safe and culturally sensitive manner.

Strategies

- 10.8 Advise and work with NZIS on border issues and resettlement policies, to achieve a balance between public health and other priorities (see **Section 2 milestones**).
- 10.9 Promote research on how to improve uptake of screening of migrants, including asylum seekers, and ensure that this screening is timely, effective and carried out in a sensitive and safe manner.

Objective 4

To ensure outgoing travellers minimise their risk of acquiring infectious diseases while out of New Zealand, and that all returning travellers (and incoming tourists) with infectious diseases receive prompt diagnosis and treatment.

Targets

- All travellers are offered up-to-date, relevant health advice and vaccinations.
- 100 percent notification of notifiable travel-associated or imported infectious diseases.

Strategies

- 10.10 Ensure general practitioners and other health providers have a sound knowledge of health protection advice, so that travellers are offered good-quality, consistent advice and appropriate pre-travel vaccinations.
- 10.11 Ensure up-to-date publications are available and easily accessible (eg, on Ministry of Health, NZIS and travel web sites, international web sites such as Center for Disease Control Atlanta, and via travel agents and airlines).
- 10.12 Ensure providers have a sound knowledge of diagnosis and treatment of travel-associated diseases (including access to regular updates and surveillance data, and access to specialist referral services).

- 10.13 Establish an effective notification system for travel-associated and imported diseases, including laboratory notification, review of the notifiable diseases list and sentinel surveillance via travel medicine clinics.
- 10.14 Maintain international links to monitor travel-associated and imported diseases.
- 10.15 Support research into travel-related infectious disease, such as:
- experience of returning travellers
 - quality of travel advice.

Objective 6

To keep New Zealand free of bioterrorism agents.

Target

Maintain an effective intersectoral emergency plan to respond to bioterrorism threats.

Strategies

- 10.16 Monitor and keep up to date with international information on possible agents and protocols on bioterrorism, to identify current and future threats.
- 10.17 Support international treaties that aim to ban such agents.
- 10.18 Develop and maintain an effective contingency plan, identify key national and international contacts, and maintain effective border control and suitable laboratory facilities.
- 10.19 Supply timely information to the sector on the degree of risk, and appropriate actions where bioterrorism concerns are raised.
- 10.20 Promote intersectoral collaboration with government agencies including the Department of Prime Minister and Cabinet, Ministry of Civil Defence and Emergency Management, MAF, Police, Defence and Health on bioterrorism issues.
- 10.21 Ensure adequate legislative provisions are in place to implement such a plan.

Table 11: New, exotic and imported infections – strategies, responsibilities and partnerships

Healthy public policy (central government)	Health services (DHBs, health providers, public health services)	Supportive environments (regional councils, local authorities, schools, etc)	Community action and personal skills	Surveillance	Research
<p>Ministry of Health, Immigration</p> <ul style="list-style-type: none"> Collaborate on screening of migrants, including refugees and asylum seekers <p>Ministry of Health</p> <ul style="list-style-type: none"> Maintain international links with dissemination of up-to-date accurate information to the public/travellers Ensure legislative provisions related to emergency powers and quarantine are updated in new Public Health Bill Develop information messages for incoming travellers (with Customs and MAF) Supply timely information on bioterrorism risk to the health sector <p>Customs, MAF</p> <ul style="list-style-type: none"> Maintain and enhance border control (for imported vectors, etc) <p>Intergovernmental</p> <ul style="list-style-type: none"> Maintain an effective surveillance system for mosquitoes and other vectors Develop and maintain a capacity for effective programmes to eradicate or control exotic vectors Develop and maintain an effective intersectoral emergency plan, with key national and international contacts, effective border control and suitable laboratory facilities, based on the Civil Defence interagency model Maintain international scanning re vectors, climate change, environmental factors and bio terrorism Support efforts to reduce and reverse global warming 	<ul style="list-style-type: none"> Provide good-quality information for health providers Provide a non-threatening, safe environments for asylum seekers and migrants to seek health care Provide access to specialist referral services Establish networking of travel clinics Educate primary health practitioners about diagnostic syndromes of likely vector-borne diseases Inform of bioterrorism risks and involve in civil defence planning 	<ul style="list-style-type: none"> Inform travel agents Maintain an effective management system for mosquitoes and other vectors Develop and maintain a capacity for effective programmes to eradicate or control exotic vectors Screen houses Provide public information and education on mosquito avoidance and infection recognition Co-ordinate civil defence planning 	<ul style="list-style-type: none"> Travellers to keep informed of risks and take appropriate precautions Ensure a non-threatening, safe environment for asylum seekers and migrants to seek health care Gain support from migrant and refugee groups Ensure community awareness of risks of vector-borne disease Encourage mosquito avoidance via appropriate education and behaviour change Ensure civil defence awareness 	<ul style="list-style-type: none"> Laboratories to notify of travel-associated notifiable diseases Monitor global risks Conduct regional surveillance <p>Vector surveillance</p> <ul style="list-style-type: none"> Maintain an effective surveillance system for mosquito and other vectors <p>Disease surveillance</p> <ul style="list-style-type: none"> Enable early identification of the organism with polymerase chain reaction testing and rapid laboratory notification Link vector and disease surveillance systems (including geographic information systems) Maintain laboratory facilities suitable for surveillance of bioterrorism agents Conduct border monitoring (Customs, etc) 	<ul style="list-style-type: none"> Study how to improve uptake of health screening by migrants Investigate the experience of returning travellers Investigate quality of travel advice given Investigate emerging diseases Undertake risk assessment Assess effectiveness of control interventions Study transmission routes Evaluate effectiveness of emergency plans internationally

Part III: National Issues in Infectious Disease Control

A Surveillance

Effective communicable disease control relies on effective surveillance and response systems. Information on priority communicable diseases is a key part of public health decision-making (WHO 2000).

A surveillance system must provide:

- timely, complete, regular and high-quality information
- early detection and prediction of epidemics
- objective assessment of interventions during epidemics
- efficient monitoring of intervention programmes
- evidence-based criteria for priority setting and resource allocation.

An integrated approach to disease surveillance involves:

- co-ordination and integration of surveillance activities and functions
- building on existing resources
- building of response capacity
- promotion of the most effective use of health resources (WHO 2000).

In New Zealand, surveillance for infectious diseases control should be placed within a broader public health surveillance framework (including hazard systems) and the overall national health information system. Future trends towards electronic health records, integrated care data systems (such as the WAVE project⁵) and international linkages should be recognised.

Many of the surveillance strategies identified during the development of the IAID have been documented in the relevant section(s). However, to improve and develop the overall system for surveillance of infectious diseases in New Zealand there is a need to consider some strategies at a national level, including the following:

- The advantage of designating a national centre for infectious disease surveillance, and nationally recognised reference laboratories, with clearly identified national functions, specialised expertise and responsibilities, including technical support for regional public health services, DHBS and health care providers.

⁵ Working to Add Value through E-information – the health information strategy developed by the Ministry of Health.

- The co-ordination and development of integrated national systems that:
 - integrate disease surveillance (eg, EpiSurv, New Zealand Health Information Service hospital data, laboratory-based surveillance and specialised systems, along with future health information developments, for example the WAVE project, which envisages integration of primary care data)
 - are compatible and interface with hazard surveillance systems (eg, EpiSurv and FoodNet and Water Information New Zealand, EpiSurv and immunisation coverage surveillance)
 - improve linkages among animal, vector and human disease surveillance.
- Review of the current list of notifiable diseases and establishing criteria for inclusion. There is a need to focus on diseases where a swift response is required for each case to protect the case and their contacts (eg, consider adding certain STIs).
- Strategies to improve data quality and audit, including:
 - continuous improvement of clinical diagnosis
 - standardisation of laboratory testing (eg, for strain typing)
 - benchmarking and audit of laboratory practice
 - improving the quality of data entry and National Health Index numbers
 - improving ethnicity coding.
- Proactive surveillance and outbreak prediction. Methods for early detection and recognition of important outbreaks require enhancement. Scanning and disease modelling (for example, for measles and influenza) are useful tools to predict disease outbreaks and identifying emerging threats.
- Review of information dissemination and access to information (existing publications, web sites such as PHEW); consolidation of reporting and ensuring local data and local analysis are available for local action.
- Review the surveillance of chronic infections such as HIV, HBV and HCV to ensure longitudinal surveillance in high-risk populations and to identify approaches that support disease control objectives, such as improving secondary prevention and treatment.
- Identification of mechanisms for early detection of new or unusual organisms and emerging disease threats.

The initial work on some of these strategies is in progress. These strategies will continue to be developed and evaluated over the next five years. Purchasing of science and surveillance services will be directed by the surveillance priorities outlined in the IAID.

B Research issues

Research provides the evidence base for quality health services, and is therefore fundamental to achieving the objectives of the IAID and the New Zealand Health Strategy, and to improving the health of New Zealanders. New Zealand has a unique combination of socioeconomic, genetic and environmental factors (eg, meningococcal rates of Pacific children here are far higher than in the rest of the Pacific or Australia) requiring a specific research agenda. We are also part of the wider Pacific region, with its special features.

In an environment of scarce resources, research is an investment to ensure that resources are used in the most cost-effective and efficient way. As such, the research priorities for infectious diseases in New Zealand should be defined by the gaps in the existing knowledge base, in order to develop evidence-based programmes.

There are three strands to a research and development strategy.

- 1 **Health research** involves the search for new treatments, technological innovations, identification of risk factors for prevention, study of the determinants of health etc.
- 2 **Operational research** involves research that is required by the Ministry of Health and others to underpin services. It could include surveillance, measurement of disease prevalence rates, intersectoral interventions, pilot studies for diagnostics or new services.
- 3 **Evaluation of health services** is a responsibility of all funders and providers. The Ministry of Health, DHBs and providers need to fund and provide health services based on evidence of their efficacy, and to evaluate such services. At a national level, new initiatives such as the Immunisation Research Strategy have been developed to address such needs. This strategy runs as a partnership between the Ministry of Health and the HRC, where the health sector identifies the priority research and development needs, and the HRC takes on the role of contracting the research, to ensure that the research is of the highest-quality scientific merit and that the research teams deliver the required outcomes.

Partnership opportunities

There are many other opportunities for research bodies and, in some cases for the private sector, to work more closely with the Ministry of Health in developing the evidence base for the infectious diseases sector. These opportunities may arise through feeding the results of key research projects to the relevant staff in the infectious diseases area, or by initiating more formalised partnerships where the Ministry charges research institutions such as the HRC with contracting research on their behalf. These initiatives may offer greater return on investment by pooling resources to focus on common goals.

Research in communicable diseases needs to be multifaceted and intersectoral. It will range from broad issues such as the determinants of health, to evaluation of health promotion interventions, to pure biomedical research. Current infectious disease research includes that carried out by the New Zealand Health Information Service, ESR, the Public Health Intelligence group in the Ministry of Health, the pharmaceutical industry and HRC-funded projects in the health sector. Other research that can contribute to infectious disease control is done outside the health sector, and is largely funded by MAF, the Foundation for Research, Science and Technology and the HRC. Research in this category includes identifying water contamination and pathogen transmission routes, zoonoses, biosecurity issues, HACCP models for food assurance programmes, and possum control.

The development of the IAID has identified research issues and priorities within each disease grouping, which are noted in each relevant section. The HRC is developing a database of research carried out in New Zealand that may be a useful tool in identifying further gaps. The HRC is also reviewing its Communicable Disease portfolio and will take into consideration priorities identified in the IAID.

C Legislation

Legislation is an important element of a comprehensive approach to infectious disease control. In conjunction with other elements, it can facilitate the establishment of appropriate structures and processes; clarify duties and functions of persons and agencies responsible for infectious disease control; and protect the rights of persons with infectious diseases that present public health risks to others, while ensuring that compulsory measures may be taken if appropriate.

A new Public Health Bill is being drafted for completion during 2002, although timing of the parliamentary process is yet to be confirmed. Changes in attitudes to human rights, authority and the role of government need to be reflected in up-to-date legislation (with the principal existing piece of public health legislation, the Health Act, drafted in 1956). Presently a range of legislation, some outdated, is spread across a number of Acts and regulations.

The overall objective of the Bill (in relation to infectious diseases) will align with the IAID, to reduce the incidence and impact of infectious disease. It will provide for the effective surveillance and management of communicable and notifiable diseases. The Public Health Bill will also be consistent with key principles of the New Zealand Health Strategy and the Treaty of Waitangi.

What does the proposed Public Health Bill envisage?

A risk management approach to development of new legislation

The focus of New Zealand's proposed Public Health Bill is on public health risk management. A risk and intervention assessment methodology will be used in reviewing existing regulations and developing new ones.

A precautionary approach will be taken, so that all persons carrying out functions, powers and duties under the Act shall take into account the need for caution in managing public health risks where there is scientific and technical uncertainty or incomplete information about those effects.

There will also be a general duty on all persons to prevent, remedy or mitigate public health risks. 'Risk generators' (ie, those whose services, goods or activities are subject to specific regulatory controls under the Public Health Bill) will be required to demonstrate compliance with the requirements. Monitoring and reporting on the state of public health, currently required under the Health Act 1956, may be extended to assess the effectiveness and performance of the health sector and other sectors to the extent that their functions affect public health.

Integration of existing pieces of legislation under one Act

Legislative provisions relating to infectious diseases will, as far as possible, be contained in the new Public Health Bill. Other secondary legislation will be referenced to the principal

Act. This will include integration of aspects of existing Acts and regulations, ensuring that all relevant legislation is aligned. At present these regulations contain ambiguities and discrepancies, as well as outdated provisions (eg, for tuberculosis control), that need to be addressed by the revised Bill.

Accountabilities, duties and powers

The present law is inconsistent in that in some cases it is a medical officer of health who is empowered, while in other cases health protection officers are also authorised. Future legislation needs to clarify who should have what options available to them for infectious disease control. In relation to individual case management the legislation envisages a hierarchy of powers, requiring for instance that individuals be informed of and given advice on the risks and consequences of their illness. Legislation will require an escalating scale of actions (a ‘cascade of coercion’ approach) to be taken, without confining within the legislation what those actions might be nor limiting a public health official’s ability to take more immediate action if the situation warrants it.

Consideration should be given to defining the level of risk of the behaviour as a guide when determining whether compulsory detention and care are appropriate.

Such a scale is likely to include:

- 1 informing an individual of the risks/consequences of the disease
- 2 advice of precautionary actions
- 3 counselling to amend behaviour
- 4 advising, in the presence of legal support, family or whānau that coercive action is likely
- 5 compulsory action (eg, supervision, attendance at a community programme, institutional isolation).

The person’s degree of, or capacity for, responsibility may need to be assessed at the different stages.

Procedural safeguards and appeal rights

Consideration must be given to human rights in relation to public health issues. The Public Health Bill will include safeguards where a person’s human rights may be infringed. These will include criteria for invocation of compulsory powers, provisions for decisions to be made by appropriate authorities and provisions for appeals.

Emergency and quarantine provisions and Public Health

The legislation will clarify the purpose and objectives of quarantine measures in relation to Public Health. Clear functions and responsibilities are necessary, including specifying the roles of ministers and regulatory agencies, enforcement, and who/what is regulated. Achieving such clarity may require formalising arrangements between the Ministry of Health and frontline border control agencies.

Reserve powers for public health emergencies that may arise in circumstances other than declared civil defence, biosecurity or hazardous substance emergencies, and including limited override of other legislation, will be incorporated. A proposal is to broaden the powers of the Director-General and public health officers to take measures (not otherwise authorised by the Act) in response to an emergency.

Mechanisms for updating legislation

Future legislation should be consistent for all communicable diseases. New treatments may mean some diseases no longer need to be covered. Mechanisms need to be in place to cover new or emerging diseases.

D Workforce development

Sector leadership

The IAID has been developed collaboratively to provide a national framework for infectious disease control over the next five years. The IAID gives direction to central agencies including the Ministry of Health, and will guide priority setting and funding of services.

Leadership from the Ministry of Health and other relevant government agencies is fundamental to ensuring that progress is made towards the targets and objectives outlined. At a regional and local level, DHBs, public health services and other health providers are key in focusing attention on priority areas for action in their regions.

Diversity and strengths

The workforce contributing to infectious disease control is diverse. It includes a range of occupational groups, not only in the health sector. They vary from community health promoters and primary care providers to territorial authority staff, public health services, industry and agricultural sector workers, and policy-makers and regulators in other government agencies.

Intersectoral collaboration and willingness to co-operate on key areas in the IAID are crucial to achieving its objectives. An integrated approach must address the broader determinants of health and cross-sectoral issues, as well as public health and health care concerns.

Future needs

By indicating areas of priority for the next five years, the IAID broadly identifies some of the future needs in workforce development. These include the essential role of Māori and Pacific providers, and the need for development of their skills and resources. Other groups, such as new migrants, also require specialised, culturally appropriate services.

Building capacity in research, surveillance and public health is vital. Areas such as risk assessment, health determinants research, and evaluation of health promotion and intersectoral interventions require support. At the community level, outreach workers and community health workers will form an important part of the primary care team in delivering appropriate and accessible services.

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Appendix 1: Workshop Group List

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Dr Nicki Turner, Immunisation Advisory Centre
Dr Patrick O'Connor, MidCentral Health
Dr Lester Calder, Auckland Healthcare
Dr Michelle Sullivan, Health Research Council of New Zealand
Mr Kevin Hague, New Zealand AIDS Foundation
Professor Rod Ellis-Pegler, Auckland Hospital
Associate Professor Stephen Chambers, Christchurch Hospital
Professor Diana Lennon, University of Auckland
Dr Richard Meech, Napier Hospital
Dr Lance Jennings, Canterbury Health Ltd
Ms Isobel Stout, Christchurch City Council
Dr Bill Swallow, ESR
Dr Paul Bohmer, Ministry of Health
Dr Gabrielle Collison, Ministry of Health
Dr Ate Moala, Ministry of Health
Dr Michael Baker, ESR
Dr Chris Cunningham, Massey University
Dr Sue Crengle, National Health Committee
Dr Tony Ruakere, Ministry of Health

Glossary⁶

Access	Ability of people to reach or use health care services. Barriers to access can be: (1) a person's locality, income or knowledge of services available; or (2) the acceptability or availability of existing services
Annual plans	Operational plans covering a 12-month period
Avoidable or preventable hospitalisation or mortality	Hospitalisation or death due to causes which could have been avoided by preventive or therapeutic programme
Communicable disease	See infectious disease
Consultation	The process of seeking the views of individuals or groups. These include both providers and health service users
Culturally appropriate services	Services responsive to, and respectful of, the history, traditions and cultural values of the different ethnic groups in our society
Determinants of health	The range of personal, social, economic and environmental factors that determine the health status of individuals or populations
Disability	Incapacity caused by a congenital state, injury or age-related condition expected to last six months or more. A disability may or may not be associated with the need for assistance
Disease	Disorder or pathology that affects health
Disparity (or deprivation)	Socioeconomic or health inequality or difference relative to the local community or wider society to which an individual, family or group belongs
Environment	Physical surroundings and conditions
Epidemiology	The scientific study of the distribution of disease
EpiSurv	A disease surveillance software application managed by ESR for the surveillance of communicable diseases in New Zealand
Equity (in health)	Fairness
Evaluation	Assessment against a standard. Evaluations can assess both the process (of establishing a programme to deliver an outcome) and outcomes (ultimate objectives)

⁶ Definitions have been derived from the glossary in *The New Zealand Health Strategy* (Minister of Health 2000) and JM Last (ed), 1995, *A Dictionary of Epidemiology*, 3rd edition, Oxford University Press.

Evidence-based practice	Clinical decision-making based on a systematic review of the scientific evidence of the risks, benefits and costs of alternative forms of diagnosis or treatment
FoodNet	The national database with information on food safety programmes and food premises
Funding agreement	The agreement the Crown enters into with any person or entity under which the person or entity agrees to provide or arrange the provision of services in return for payment. For DHBs, it will include the District Health Board Annual Plan, funding schedules and the District Health Board Statement of Intent
Goal	A high-level strategic statement
Hapū	Subtribe
Health education	Provision of information and teaching people how to behave safely and in a manner that promotes and maintains their health
Health gain (loss)	Health gain (loss) is a way to express improvement (or deterioration) in health outcomes. It can be used to measure: (1) the improvement (or deterioration) in population health status; or (2) the degree to which the level of health of a population has changed in response to a policy or other intervention
Health information	Health information, in relation to an identifiable individual, means information: <ul style="list-style-type: none"> • about the health of that individual, including his or her medical history • about any disabilities that individual has, or has had • about any health services or disability services that are being provided, or have been provided, to that individual • provided by that individual in connection with the individual's donation of any body part or any bodily substance
Health needs	Either: (1) what an individual requires to achieve or maintain health; or (2) an estimation of the programmes required to improve the health of populations
Health needs assessment	A process designed to establish the health requirements of a particular population
Health outcomes	A change in the health status of an individual, group or population that is attributable to a planned programme or series of programmes, regardless of whether such a programme was intended to change health status

Health policy	A formal statement or procedure within institutions (notably government) that defines priorities and the parameters for action
Health promotion	The process of enabling people to increase control over and improve their health status, as described in the Ottawa Charter (WHO 1986)
Health status	A description and/or measurement of the health of an individual or population
Health target	A change in the health status of a population that can be reasonably expected within a defined period
Health workforce	Providers of health care services such as doctors, nurses, physiotherapists and health promoters
Immunisation (synonym: vaccination)	Protection of susceptible individuals from communicable disease by administration of a living modified agent, a suspension of killed organisms or an inactivated toxin (see vaccine). Temporary passive immunisation can be produced by administration of an antibody in the form of immune globulin in some conditions
Incidence	The number of new events (new cases of illness or deaths) that occur in a defined population within a specified period
Infection	The entry and development or multiplication of an infectious agent in the body of humans or animals. Infection is not synonymous with infectious disease because the result may be unclear or manifest
Infectious disease (synonym: communicable disease)	An illness due to a specific infectious agent or its toxic products that arises through transmission of that agent or its products from an infected person, animal or reservoir to a susceptible host. It may be transmitted directly, or indirectly through an intermediate plant or animal host, vector or the inanimate environment
Intersectoral collaboration	Projects involving various sectors of society including central and local government agencies (health, education, welfare and so on), community organisations (IHC, CCS, Māori Women's Welfare League, etc) and the private sector
Intervention	A programme or series of programmes
Iwi	Tribe
Mana	Integrity, prestige, jurisdiction, authority
Mode of transmission	The mechanisms by which an infectious agent is spread to humans, including direct (skin to skin, sexual intercourse, etc) and indirect (airborne, vector-borne, etc)

Monitoring	The performance and analysis of routine measurements, aimed at detecting changes
Morbidity	Illness, sickness
Mortality	Death
Notifiable disease	A disease that, by legal requirements, must be reported by medical practitioners to public health services (Health Act 1956)
Objective	A statement of what is to be achieved and the range of desired outcomes to achieve a goal
Pacific peoples	The population of Pacific Islands ethnic origin (eg, Tongan, Niuean, Fijian, Samoan, Cook Islands Māori, Tokelauan), incorporating peoples of Pacific Islands ethnic origin born in New Zealand as well as overseas
Population-based funding	Use of a formula to allocate each DHB a fair share of the available resources so that each DHB has an equal opportunity to meet the health and disability needs of its population
Population health	The health of groups, families and communities. Populations may be defined by locality, biological criteria such as age or gender, social criteria such as socioeconomic status, or cultural criteria such as whānau
Prevalence	The number of instances of a disease or another condition in a population at a given time
Primary health care	Essential health care based on practical, scientifically sound, culturally appropriate and socially acceptable methods. It is universally accessible to people in their communities, involves community participation, is integral to, and a central function of, the country's health system, and is the first level of contact with the health system
Programme	A group of activities directed towards achieving defined objectives and targets
Programme evaluation	The assessment of policies, materials, personnel, performance, quality of practice or services and other inputs and implementation experiences
Provider	An organisation or individual providing health and disability services
Public health	The science and art of promoting health, preventing disease and prolonging life through organised efforts of society

Public health approaches	Work towards the goals of public health, which are to focus on the determinants of health, build strategic alliances and implement comprehensive programmes to promote public health
Public health services	Goods, services or facilities provided for the purpose of improving or promoting public health
Quality assurance	Formal process of implementing quality assessment and quality improvement in programmes to assure people that professional activities have been performed adequately
Rangatahi	Māori youth in the 15–24 years age group
Rate (in epidemiology)	The frequency with which a health event occurs in a defined population. The components of the rate are the number of events (numerator), the population at risk (denominator) and the specified time in which the events occurred. All rates are ratios, calculated by dividing the numerator by the denominator
Regulation	The act of enforcing policies, rules or laws
Reservoir	The ultimate and/or immediate human, animal arthropod, plant, soil, substance or combination of these that is the source of infection for a susceptible host
Risk behaviour	Specific forms of behaviour that are proven to be associated with increased susceptibility to a specific injury, disease or form of ill health
Risk factor	An aspect of personal behaviour or lifestyle, an environmental exposure, or an inborn or inherited characteristic that is associated with an increased risk of a person developing a disease
Secondary care	Specialist care that is typically provided in a hospital setting
Surveillance	The continuing scrutiny of all aspects of occurrence and spread of a disease that is pertinent to effective control. Public health surveillance is the ongoing and systematic collection, analysis and interpretation of health data in the process of monitoring a health event
Strategy	A course of action to achieve targets
Tamariki	Children; can be used to include young people who have not yet reached adulthood. In this document, tamariki refers to children up to and including 14 years of age
Target	A specific and measurable aim relating to an objective
Tertiary care	Very specialised care, often provided only in a small number of locations

Treaty of Waitangi	New Zealand's founding document. It establishes the relationship between the Crown and Māori as tāngata whenua (first peoples) and requires both the Crown and Māori to act reasonably towards each other and with utmost good faith
Treaty relationship	The relationship of good faith, mutual respect, understanding and shared decision-making between the Crown and Māori
Vaccine	An immunobiological substance used for active immunisation by introducing into the body a live modified, attenuated or killed inactivated infectious organism or its toxin
Vaccinate	To inoculate with a vaccine to provide immunity to a corresponding infectious disease
Vaccination	See immunisation
Whānau	Family
Well-child/tamariki ora	All activities to promote health and prevent disease that are undertaken in the primary care setting for children and their families and whānau
Wellness	A dimension of health beyond the absence of disease or infirmity, including social, emotional and spiritual aspects of health